

Feasibility Report

Bartlett Avenue Trail Altoona, Wisconsin

SEH No. ALTOO 136012 4.00

March 2016



Building a Better World
for All of Us®

Engineers | Architects | Planners | Scientists



Building a Better World
for All of Us®

March 30, 2016

RE: Bartlett Avenue Trail
Feasibility Report
Altoona, Wisconsin
SEH No. ALTOO 136012

Mr. Michael Golat
City Administrator
1303 Lynn Avenue
Altoona, WI 54720

Dear Mr. Golat:

In accordance with the Agreement for Professional Services dated February 5, 2016, we are pleased to present this report describing the feasibility of a multiuse trail proposed for the south side of Bartlett Avenue, between 3rd Street East and the new Altoona Elementary School. The report identifies obstacles and complications that may be encountered during the design and construction of the path, while suggesting solutions to mitigate these challenges.

Please review the attached report, exhibit drawings, and cost estimate describing the feasibility of this proposed trail. If there are any questions, or if more information is required, please let us know.

We look forward to potentially moving ahead with the detailed design and further construction arrangements, if deemed acceptable to the City. Thank you for the opportunity to study this trail corridor in anticipation of improving the City's overall pedestrian and bicycle transportation infrastructure.

Sincerely,

Handwritten signature of Timothy M. Marko in black ink.

Timothy M. Marko, PE
Project Manager

Handwritten signature of Bryan W. Cunningham in black ink.

Bryan W. Cunningham, PE
Project Engineer

ch

p:\ae\al\altool\136012\4-prelim-dsgn-rpts\bartlett avenue feasibility report.docx

Engineers | Architects | Planners | Scientists

Short Elliott Hendrickson Inc., 10 North Bridge Street, Chippewa Falls, WI 54729-2550

SEH is 100% employee-owned | sehinc.com | 715.720.6200 | 800.472.5881 | 888.908.8166 fax

Feasibility Report

Bartlett Avenue Trail
Altoona, Wisconsin

Prepared for:
City of Altoona
1303 Lynn Avenue
Altoona, Wisconsin

Prepared by:
Short Elliott Hendrickson Inc.
10 North Bridge Street
Chippewa Falls, WI 54729
715.720.6200



Table of Contents

Letter of Transmittal
Title Page
Table of Contents

	Page
1.0 Purpose and Scope	1
2.0 Existing Conditions	1
3.0 Proposed Trail Layout.....	2
3.1 Zone 1 – 3rd Street East to Sunday Drive	3
3.1.1 3rd Street East to 4th Street East.....	3
3.1.2 4th Street East to 5th Street East.....	4
3.1.3 5th Street East to Rusty Court.....	5
3.1.4 Rusty Court to Walden Court	6
3.1.5 Walden Court to Sunday Drive West.....	7
3.1.6 Sunday Drive West to Sunday Drive East.....	8
3.2 Zone 2 –Sunday Drive to Intermediate High Point.....	9
3.3 Zone 3 – Intermediate High Point to New Elementary School.....	10
4.0 Coordination	12
4.1 Utilities	12
4.2 Department of Natural Resources.....	13
4.2.1 Storm Water	13
4.2.2 Endangered Species	14
4.2.3 Other Environmental Factors	14
4.3 Eau Claire County Highway Department.....	14
4.4 Railroad	15
4.5 Landowners and Public	15
4.6 Altoona School District	15
5.0 Costs.....	16
6.0 Other Factors and Alternates	17
6.1 Lighting	17
6.2 General Maintenance	17
6.3 Alternates	17
7.0 Summary	17

List of Exhibits

Exhibit 1	Trail Alignment Overview
Exhibit 2	Preliminary Trail Layout
Exhibit 3	Typical Cross Section

List of Appendices

Appendix A	Itemized Cost Estimate
------------	------------------------

Feasibility Report

Bartlett Avenue Trail

Prepared for the City of Altoona

1.0 Purpose and Scope

The City of Altoona is exploring the feasibility of constructing a multiuse trail along Bartlett Avenue, from 3rd Street East to the site of the new Altoona Elementary School. The new Elementary School will open in the fall of 2016 and is located in a more rural setting on the eastern edge of the City of Altoona. Currently there are no sidewalks, trails, or other independent routes for pedestrians or bicyclists to travel from the main urban part of Altoona to the new school site.

This study investigates the proposed trail corridor to determine the feasibility of the anticipated construction. The study will examine the obstacles and complications which might be encountered during the design and construction, and also describe some anticipated design approaches to mitigate the challenges and impacts along the route. The study area is defined as the south side of Bartlett Avenue, from 3rd Street East to the Elementary School site. Also attached at the end of this report are general layout drawing Exhibits of the proposed trail configuration and an Appendix of estimated opinion of probable construction costs.

This study does not examine the detailed design of the trail, nor does it specifically consider the potential amount of use the trail may receive from school children or others. This study also does not consider projected levels or patterns of vehicle traffic that may occur on Bartlett Avenue as the school site becomes operational and from other development which may occur in the area. The main goal of this study is to identify and consider the physical requirements and general level of disturbance that will be necessary to construct the trail within the proposed project corridor.

2.0 Existing Conditions

The portion of Bartlett Avenue considered for this trail corridor is an urban residential street for the first several blocks beyond 3rd Street East, transitioning to a more rural structure further to the east near the Elementary School. The current configuration of Bartlett Avenue has travel lanes of approximately 12 feet in width, with 3 to 4 foot paved shoulders, and minimal gravel shoulders beyond the pavement. The shoulder areas are not specifically designated for pedestrian or bicycle use, and no other sidewalks or paths exist adjacent to the roadway. Beyond the roadway shoulders, roadside ditches exist in some areas, while other portions have turf or wooded areas with less defined drainage containment. The existing roadway has a speed limit of 25 miles per hour between 3rd Street East and 5th Street East, 35 miles per hour to Sunday Drive and beyond, transitioning to 45 miles per hour for the eastern end.

Bartlett Avenue is also designated as Country Trunk Highway KB by Eau Claire County. County Trunk Highway (CTH) KB is a short overall County Highway, connecting on the west end to 3rd Street East, which is also designated as CTH A. To the east of the Elementary School site, CTH KB intersects with CTH SS, which serves other lands to the east and south. These two CTH routes utilize a common bridge over the adjacent railroad to continue the overall County Highway route network. CTH KB is classified as a Minor Arterial roadway, according to the latest functional classification by the state of Wisconsin, based on the traffic volume the layout of adjacent roadways.

3.0 Proposed Trail Layout

The trail as described is approximately 0.9 miles, proposed on an alignment along the south side of Bartlett Avenue. The west end connects to existing sidewalks and a similar path at 3rd Street East. For the purposes of this study, the east end of the trail would terminate just inside the Elementary School, connecting to a proposed internal trail on the site leading to the main school building.

The proposed trail is suggested at an 8 foot width for the Bartlett trail. This is narrower than a preferred width of 10 feet, but therefore has a narrower footprint for less disturbance during construction. The surface is proposed as asphaltic concrete pavement, for its durability, cost, and method of installation. The pavement should be installed with a thickness of 2 to 3 inches, depending on the type and amount of maintenance vehicles which will be driving on the trail itself. This pavement will be underlain by a gravel base course, with gradation meeting WisDOT standards, in a thickness of 6 to 8 inches or more to be determined by examining the expected vehicle use, and the quality of subbase soils. The gravel base course should extend approximately 2 feet beyond the pavement edges, to allow for better constructability for support of paving equipment. A graded clear zone of at least one foot, preferably 2 or more, is suggested on each side of the trail so a recovery area is available without obstructions for bicycles which might stray off the trail slightly. A trail cross slope of 2 percent is suggested to encourage drainage to flow off of the trail pavement.

The design standards used to evaluate the feasibility of this trail were considered as general industry guidelines for construction of a shared-use bicycle and pedestrian path, adjusted to best fit the varying conditions and constraints along the project corridor. The more stringent guidelines found in the Department of Transportation's "Wisconsin Bicycle Facility Design Handbook" were reviewed but not strictly adhered to for this evaluation. Some of the project design parameters which do not match the Wisconsin Handbook include: trail and shoulder width, separation distance to roadway, clearance distance to obstructions, trail slopes, alignment curves, and signage.

General engineering and construction standards, and the knowledge and experience of other trails around the City of Altoona, suggest that the trail as described and sketched for this feasibility study will be adequate to meet the needs of pedestrians and recreational bicycle riders. The trail will not be intended to fit more precise standards suggested for long distance or higher speed bicycle transportation facilities, as described in the Wisconsin Handbook. Trail design to the State standards would require more land disturbance and property encroachment for the proposed trail. Consequently, the design layout proposed in this study would generally not be eligible for funding through most WisDOT related funding programs, because it does not adhere to the required trail specifications.

WisDOT also has specific design standards for urban, town, and country trunk highway roads with in their FDM (Facilities Development Manual). These standards are based on road classification, speed, and Average Daily Traffic (ADT), and dictate road geometrics such as

land and shoulder width, clearance, slopes, and cross sectional details. The FDM standards were also consulted, but not strictly adhered to for the layout of this trail and adjacent modifications to Bartlett Avenue. Similar to the WisDOT bicycle design standards, these more restrictive road design parameters would require more land disturbance and potentially expanded reconstruction of Bartlett Avenue.

3.1 Zone 1 – 3rd Street East to Sunday Drive

The westernmost segment of the project is characterized by a more urban setting with the trail passing by developed property with adjacent homes and businesses. Because of the narrow available corridor for the trail throughout this segment, and the adjoining land use, this zone would mostly include the installation of an urban trail section with new curb and gutter along the south side of Bartlett Avenue. In most areas the trail could be located directly behind and abutting the concrete curb to minimize the disturbance to adjacent land and avoid some obstacles along the corridor. The proposed 8 foot trail width is suggested with minimal trail shoulder width of roughly one foot on the outside edge.

This layout, with the trail directly behind the curb, has advantages to limit disturbance and grading during construction and keep the trail away from some of the existing obstructions. This configuration also limits work near adjacent properties, who may perceive the trail as encroaching into the portion of the right-of-way functioning as their yard. However, the configuration with the trail directly behind the curb does not provide the width and separation from the roadway described by the Wisconsin Bicycle Design Handbook, which suggests a 10 foot trail with a minimum 5 foot separation from the roadway. The trail location immediately behind the curb also does not allow room for snow storage in winter from plowing of the road. Depending on the plans for keeping the trail open in winter, this may be challenging with snow removal on both Bartlett Avenue and the trail.

The installation of curb and gutter also necessitates the installation of storm sewer inlets in the curblane, and underground storm sewer piping to convey this storm water. This storm sewer piping then requires connection to an outfall location with sufficient elevation difference for downstream flow. There is also existing water main along the south side of Bartlett Avenue, between 3rd Street East and Walden Court. Exact location will need to be determined, but it is expected that this main would run under or just inside of the new curb and gutter. Location, depth, and services will need to be verified to determine if there are any conflicts with new construction or storm sewer piping or structures, and that minimum horizontal and vertical separation is maintained between pipes. Some spot water main adjustments may be required depending on final storm sewer requirements, with potential insulation or water main offsetting.

Following are more detailed descriptions per block within this Zone:

3.1.1 3rd Street East to 4th Street East

Alignment: Third Street East is the proposed western terminus of the proposed trail. The trail would connect directly to the sidewalk on the east side of 3rd Street East, with modification to the concrete walk, curb, and handicap accessible pedestrian ramp, recommended to incorporate detectable warning fields. Sidewalks also extend north and west from the intersection of 3rd and Bartlett. The crosswalks and pedestrian ramps for these other sidewalk connections could also be examined for upgrades or refurbishing if required. There is an 8-foot wide asphalt trail on the west side of 3rd Street East, located directly behind the curb, extending to the south. This existing trail allows the new path to make a direct connection to the City's overall trail system. The new trail is proposed to be 8 feet wide and

placed directly behind new curb and gutter installed along the south side of Bartlett Avenue. The back of the trail remains approximately 8 feet from the property line.

Obstructions and Challenges: The following modifications to other infrastructure items will likely be required to accommodate the construction of the trail:

- Relocate hydrant, southeast corner of 3rd and Bartlett, to behind trail. The hydrant appears to be an older model and may be replaced rather than relocated.
- Remove two large trees in front of 1003 Bartlett property
- One driveway (partial concrete) and one private sidewalk crossing/connection
- Relocate a stand-alone light pole
- Existing water main may conflict with new storm sewer
- Mailboxes – not recommended within trail, arrangements with property owner and post office required. Possibly relocate to opposite side of street or modify to door delivery

Drainage: Current drainage pattern along this block flows from west to east, to a low point at 4th Street East. No defined ditches exist, so runoff either infiltrates into adjacent lawn areas or flows overland northward on 4th Street in larger storm events. To accommodate the trail on this block, concrete curb and gutter is proposed to be installed along the south side of Bartlett Avenue. The slope of Bartlett Avenue in this block is quite flat, around 0.3 percent. While this curb slope is feasible, it is less than desirable for consistent drainage. Either the curb will need to be laid carefully at this flat grade to closely match Bartlett Avenue, or more of the street will need to be reconstructed and graded to allow a more typical desired minimum curb slope of 0.5 percent.

With the added curb, storm inlets will need to be installed in the curb at 4th Street East. The closest existing storm sewer for connection is at 3rd Street East, and piping could be installed from 4th back to 3rd. To gain the necessary elevation difference to allow positive pipe drainage, it is likely that the existing storm inlet and pipe would also need to be reconstructed back to the next storm sewer manhole in 3rd Street East. Preliminary elevation checks show that there should be enough elevation difference to install this pipe effectively, with roughly a 0.5 percent pipe slope, but further field investigation and calculation will be required upon final design. Water main location will need to be verified in order to maintain minimum separation distance between water main and storm sewer pipes. Because the existing water main is thought to be under the existing edge of Bartlett Avenue, new storm sewer would need to be installed further south and under the trail, rather than under the curb, to maintain acceptable horizontal separation. Alternately, storm sewer could be installed within the westbound lane of Bartlett Avenue if a full roadway reconstruction is considered.

3.1.2 4th Street East to 5th Street East

Alignment: This segment of trail is proposed to be 8 feet wide and placed directly behind new curb and gutter installed along the south side of Bartlett Avenue.

Obstructions and Challenges: The following modifications to other infrastructure items will likely be required to accommodate the construction of the trail:

- Relocate hydrant, southeast corner of 4th and Bartlett, to behind trail
- Two driveways and one private sidewalk connection

- Mailboxes – not recommended within trail, arrangements with property owner and post office required. Possibly relocate to opposite side of street or modify to door delivery
- Possible disturbance to electric pole, trees, or private landscaping near 5th Street East, depending on final design and cross sectional grading. These features in front of 903 Bartlett appear to be located inside the right-of-way.

Drainage: The current drainage flows from east to west, with a low point at 4th Street East. No defined ditch exists, so runoff either infiltrates into adjacent lawn areas or flows overland northward on 4th Street East in larger storm events. To accommodate the trail on this block, concrete curb and gutter is proposed to be installed along the south side of Bartlett Avenue. Similar to the previous block, the slope of Bartlett for the west portion of this block is quite flat, around 0.3 percent. While this curb slope is feasible, it is less than desirable for consistent drainage. Either the curb will need to be laid carefully at this flat grade to closely match Bartlett Avenue, or more of the street will need to be reconstructed and graded to allow a more typical desired curb slope of 0.5 percent. The eastern portion of this block has a steeper grade which will help create a more acceptable overall curb slope. It is expected that the curb drainage would flow to an inlet at the southeast corner of 4th and Bartlett, and into the storm piping installed back to 3rd Street East. Further extension of storm sewer piping east of 4th Street is not anticipated. If cross sectional grading for the trail blocks drainage, near 4th Street East, an additional storm inlet may be required behind the trail, or more extensive grading to adequately slope the lawn areas.

3.1.3 5th Street East to Rusty Court

Alignment: This segment of trail is proposed to be 8 feet wide and placed directly behind new curb and gutter installed along the south side of Bartlett Avenue. The high elevations of adjacent lawn areas along the back side of the trail will require significant cut and grading to fit an acceptable trail cross slope. Retaining wall(s) or grading onto private property will be required.

Obstructions and Challenges: The following modifications to other infrastructure items and adjacent properties will likely be required to accommodate the construction of the trail:

- The high elevation of adjacent lawn areas will require significant grading, and either a retaining wall or lawn slope shaping onto private property at 604 Rusty Ct. and possibly 603 5th Street East.
- A hydrant at the southeast corner of 5th and Bartlett appears to be adequately behind the trail. However, grading is likely to create some cut around the hydrant.
- A guyed corner power pole at the southeast corner of 5th and Bartlett appears to be just behind the trail location. However, grading is likely to create some cut around the pole and will require coordination with electrical utility.
- A power pole at the southwest corner of Bartlett and Rusty Court will need to be relocated southward approximately 3 feet or more.
- Sidewalk connection at Rusty Court required
- Roadway signage should be evaluated if necessary, or placed behind trail, because sign posts are not recommended behind curb within the 8 foot trail.

Drainage: The current drainage flows eastward toward Rusty Court. With no defined ditch and higher lawn areas adjacent to the roadway, runoff flows along the edge of the road toward Rusty Ct. to accommodate the trail on this block, concrete curb and gutter is proposed

to be installed along the edge of Bartlett Avenue. The curb could wrap around onto Rusty Court, to tie into existing double inlets located at a low point and discharge into the adjacent storm water basin. Existing road slopes appear to allow acceptable curb grades flowing eastward without significant regrading of Bartlett Avenue.

3.1.4 Rusty Court to Walden Court

Alignment: This trail segment passes by an existing storm water pond, which is part of the adjacent Tanglewood Development, and other residential land. Trail alignment in this segment could continue as an 8 foot wide path, most likely behind curb and gutter installed along Bartlett Avenue.

Obstructions and Challenges: The following modifications to other infrastructure items and adjacent properties will likely be required to accommodate the construction of the trail:

- Four power poles along Bartlett Avenue would need to be relocated. These poles are part of the power distribution line and also support transformers and street lights. Poles would need to shift approximately 3-4 feet south to provide some clear distance from the edge of the trail.
- Some fill or slope shaping may be needed to install the trail along the top of the storm water basin. If adequate shoulder room is not available as a buffer before the steep basin slope, a guard rail may need to be considered.
- A hydrant near the northeast corner of the storm water basin may need to be relocated 2-3 feet south to provide some clear distance from the edge of the trail.
- Existing water main is located under the proposed curb line. If storm sewer is installed, it will need to be placed on an alignment which maintains minimum horizontal and vertical separation distances required to water main piping.
- A telephone pedestal in front of 703 Bartlett Avenue will need to be relocated. The underground telephone line in this block is very close to the water main, and both would likely end up under the new curb and gutter.
- The wooden fence in front of 703 Bartlett Avenue is within the right-of-way. It should be clear of the trail alignment, but may conflict with storm sewer installation and construction equipment or the relocated electrical pole.
- Tree and brush removal within the right-of-way, especially along 627 Bartlett Avenue, for trail construction and probably for clearance to relocated overhead electric lines. Also some potential conflict with private landscaping installed in the right-of-way.
- Two existing driveways, and one undeveloped property which may require some kind of access crossing the trail now or in the future.
- Mailboxes – not recommended within trail, arrangements with property owner and post office required. Possibly relocate to opposite side of street or modify to door delivery

Drainage: The existing slope of Bartlett Avenue along this segment is very flat and variable, with elevations not varying more than a few inches over more than 600 feet between Rusty and Walden Court. There is currently a slight ditch depression off the edge of Bartlett which appears to contain some drainage, but does not generally flow to outlet in any certain direction. In order to install curb and gutter at acceptable grades, it will be necessary to create intermediate high and low points in the curb line, with corresponding adjustments to the cross slope of Bartlett Avenue. This may require more paving or overlay of a larger part of Bartlett to create a more consistent cross slope.

Curb and gutter would require storm sewer with inlets located at low points, of which there may be several as the curb and gutter is sloped up and down slightly to match the flat existing grades. Because of the existing water main located generally under where the new curb and gutter may be installed, the storm sewer main would likely need to be installed further behind the curb or under the trail to maintain 8 feet minimum horizontal separation between the sewer and water. Another alternative would be to construct storm sewer out of water main quality materials, which meets an exception for less horizontal separation in DNR code. If the elevation of the path behind the curb will block drainage behind the trail, there may also need to be some storm area drains behind the trail to accept runoff. Because of the depth and location behind the curb, this may be a good situation for a storm sewer system alternate to a typical reinforced concrete pipe with manhole layout, such as HDPE storm sewer system with a tee and trunk configuration.

The outfall for a storm sewer system in this segment would be the storm water basin near Rusty Court for the Tanglewood development. Because this basin was not specifically sized to accept water from a larger portion of Bartlett Avenue, it would need to be analyzed in some manner to verify that a new storm outfall would be acceptable. The basin is also on private property, so arrangements would need to be made with the property owner to install a new storm sewer discharge pipe.

3.1.5 Walden Court to Sunday Drive West

Alignment: Trail alignment in this segment could continue as an 8 foot wide path, most likely behind curb and gutter installed along Bartlett Avenue. This segment is more rural with increased trees and a somewhat defined ditch, but still has a few residential lots spaced along the route with lawn areas up to Bartlett Avenue. The proposed cross section of the trail at the level of the top of curb, sloping toward the street, has the potential of blocking drainage from the adjacent lots, which mostly appear to be lower in elevation

Obstructions and Challenges: The following modifications to other infrastructure items and adjacent properties will likely be required to accommodate the construction of the trail:

- Four power poles along Bartlett Avenue may need to be relocated along with some guy wires, closer examination upon final design layout is required.
- A hydrant near Walden Court may need to be relocated, closer examination upon final design layout is required.
- Two or more telephone pedestals may need to be relocated.
- Tree and brush removal within the right-of-way, either in more natural woodland or brushy growth areas, but also near some lawn portions of residential lots. Tree cutting may be necessary for trail construction and relocated overhead electric lines.
- Three existing driveways, and other undeveloped property which may require some kind of access crossing the trail now or in the future.
- Some private landscaping encroaching into the right-of-way may be in conflict with trail alignment
- Mailboxes – not recommended within trail, arrangements with property owner and post office required. Possibly relocate to opposite side of street or modify to door delivery

Drainage: The existing slope of Bartlett Avenue along this segment is very flat and variable, with elevations not varying much until closer to Sunday Drive. There is a shallow ditch for some of this segment, while other parts have little to no ditch. The ditching appears to contain

some drainage, but does not generally flow to outlet in any certain direction. In order to install curb and gutter at acceptable grades, it will be necessary to create intermediate high and low points in the curb line, with corresponding adjustments to the cross slope of Bartlett Avenue. This may require more paving or overlay of a larger part of Bartlett to create a more consistent cross slope.

Curb and gutter would require storm sewer with inlets located at low points, of which there may be several as the curb and gutter is sloped up and down slightly to match the flat existing grades. Because there is no longer existing water main located under where the new curb and gutter may be installed, the storm sewer main can be installed under the curb line. Where the elevation of the path behind the curb will block drainage behind the trail, there may also need to be some storm area drains behind the trail to accept runoff. This may be a good situation for lower cost HDPE storm sewer system, rather than the typical installation of reinforced concrete pipe.

The storm sewer through this section may best be split in two directions, with the western portion joining the storm sewer at Walden Court, which ultimately would drain to the Tanglewood storm water basin. The eastern segment could also include new storm sewer which would flow eastward. The outfall for this storm sewer segment would be a discharge under Bartlett Avenue to the north. This outlet could either discharge to the existing ditch, or may connect to a shallow existing storm water basin adjacent to the Anytime Storage facility. If required by storm water permitting calculations, and coordinated with the landowner, this basin could also be reshaped and excavated to provide a deeper basin capable of accepting more drainage. Because this proposed ponding location is on private property, and probably within an Xcel Energy transmission line easement, coordination will be required to utilize this drainage option. Railroad coordination may also be required to relocate a driveway used to have maintenance access parallel to the tracks.

3.1.6 Sunday Drive West to Sunday Drive East

Alignment: This segment of trail is at the bend in Bartlett Avenue, where the alignment transitions from straight east-west to an east-southeast angle. Sunday Drive has a horseshoe configuration with two connections to Bartlett Avenue, referred to in this report as East and West. This short segment of the Bartlett trail will pass a residential lot and the Certified Plumbing business, both of which have fences and no driveway connections to Bartlett Avenue. The existing Bartlett Avenue around this curve is not centered exactly within the right-of-way but shifts southward slightly, tightening the spacing between the south road edge and the property line. Because of this narrower spacing, and the beginning of the large electrical transmission line poles, it is recommended that this segment remain as curb and gutter with 8 foot trail right behind the curb to allow adequate room to construct the trail.

Obstructions and Challenges: The following modifications to other infrastructure items and adjacent properties will likely be required to accommodate the construction of the trail:

- A distribution power pole appears to be outside of the trail, but there is an existing guy wire which may need to be adjusted so it does not conflict with the trail or clear zone.
- A large pole of the Xcel electrical transmission line is located very near the bend in Bartlett Avenue. It appears to be located directly on the property line and there should be adequate room to fit the trail right behind a new curb.
- The back of the trail would be very close to the angle point in the property line of 475 Sunday Drive. However, this portion of the property appears to be incorporated into the roadside area and not used as lawn space by the owner.

Drainage: The existing drainage within this area settles in slight ditches along the roadside. There is also an existing cross culvert under Bartlett Avenue, near the eastern Sunday Drive. This culvert appears to be very shallow and partially silted in, but still allows some drainage to flow from the south side of Bartlett to the north side ditch, which is deeper and more defined.

The existing grade along Bartlett Avenue in this segment is relatively flat, but may allow curb grades at an acceptable 0.5percent. New curb and gutter with the proposed trail would require storm sewer and curb inlets. The storm piping may be directed back westward to the proposed triangle pond on the north side of Bartlett Avenue discussed for the previous trail segment. Or the existing cross culvert under Bartlett Avenue could be replaced as a discharge point for a group of curb storm inlets. Regardless of the storm sewer route, the downstream destination for the storm sewer discharge will need to be verified as low enough to allow positive drainage from new curb inlets.

After Bartlett Avenue curves to the southeast, past Sunday Drive, the surrounding land changes to a more rural landscape with open field and woods along the south side. The railroad at this point is adjacent to and tight against the north side of the roadway. There is a slight high point along Bartlett Avenue, about halfway between Sunday Drive and the new Elementary School. This provides a minor drainage divide that segments the drainage into two zones

3.2 Zone 2 –Sunday Drive to Intermediate High Point

Alignment: Beyond Sunday Drive the trail configuration may transition to a separate path located adjacent to Bartlett Avenue, but without curb and gutter. The trail would be separated from the roadway by a turf boulevard area with a width of 6 to 8 feet. This separation area may also serve as a ditch for containing and conveying drainage runoff from the roadway and trail. The back of the trail in this configuration would be only 1 to 2 feet from the right-of-way line.

Alternately to a ditch being located in the boulevard area, the trail could be set below the level of the roadway, with the boulevard and trail sloping away from Bartlett Avenue. This layout may work well in areas where the adjacent land is undeveloped and generally drains away from the right-of-way to the south.

Obstructions and Challenges: The following modifications to other infrastructure items and adjacent properties will likely be required to accommodate the construction of the trail:

- Underground telephone and gas lines exist throughout this area, and telephone pedestals will require relocation near 319 Bartlett Avenue
- Three driveway connections and access to undeveloped property will need to be considered though this trail segment
- Mailboxes – not recommended within trail, arrangements with property owner and post office required. Possibly relocate to opposite side of street or modify to door delivery

Drainage: The area along the south side of Bartlett Avenue through this zone varies between areas of defined ditching, to other areas where the adjacent land slopes away from the roadway. The ditches do not have any defined flow pattern or discharge location, so runoff either infiltrates or makes its way to other local low areas. There are no visible culverts under Bartlett Avenue in this zone. On the north side of Bartlett Avenue, the ditch generally drains to two local low points between Bartlett and the railroad. There is no culvert readily visible here under the railroad tracks, but further investigation may be required as to the route for drainage after it collects at the low points.

The addition of an asphalt trail along the south side will change the drainage patterns and provide more impervious area, and less open ground for infiltration within the right-of-way. Some portions of this zone may create a shallow ditch in the boulevard and utilize cross culverts under Bartlett Avenue. These cross culverts would convey drainage across Bartlett to the north side ditch, which is better defined to hold and convey storm water runoff. It may be necessary to install an inlet structure on the south end of the culverts to allow drainage from the new trail section into the pipe without creating a deep sump for a traditional culvert end.

Another option which may be suitable for certain portions of this zone would be to pitch the cross slope of the trail away from the roadway and toward the adjacent undeveloped areas. Drainage patterns of the adjacent properties would need to be examined, and the trail would need to be installed low enough in elevation to allow drainage from the street to pass over the trail as well. However, this drainage scenario may work in some areas and allow trail installation without other drainage piping.

To accomplish these drainage improvements for zone 2 in conjunction with the trail installation, it may be necessary to slightly modify the ditch on the north side of Bartlett Avenue as well. The close proximity of the railroad would make work here difficult, but with some grading and possible culvert pipe, the drainage patterns here could be improved to better allow cross connection culverts between the two ditch sides.

3.3 Zone 3 – Intermediate High Point to New Elementary School

Alignment: The trail in this zone would be most likely located adjacent to and separated from Bartlett Avenue, without curb and gutter. The trail would be separated from the roadway by a turf boulevard area with a width of 6 to 8 feet. This zone generally has existing undeveloped land behind the trail which is lower in elevation than Bartlett Avenue. The trail here could be set below the level of the roadway, with the boulevard and trail sloping away from Bartlett Avenue. The back of the trail in this configuration would be only 1 to 2 feet from the right-of-way line.

Alternately to the trail sloping away from the roadway, the separation area may also serve as a ditch in certain portions, for containing and conveying drainage runoff from the roadway and trail.

The City has recently acquired some land near the east end of the Bartlett Avenue trail corridor, adjacent to and west of the new Elementary School site. This land is identified as a location for future home construction in cooperation with a residential developer. Initial conceptual design of this development suggest a new street entrance installed near the center of the parcel with residential lots on both sides, and a storm water basin area in the lowest northwest part of the site. These future improvements will need to be considered and coordinated during the final design of the trail. An option to be considered would be to move the trail further from Bartlett Avenue and onto this development property. It could be located within the transmission line utility easement on the parcel, which would not otherwise allow above grade development. Construction of the trail in this location may allow more room for drainage without affecting the existing Bartlett Avenue, and allow more space for the site entrance and site development storm water features. If a storm water basin is constructed for the new development in this area, a fence or guardrail may be required depending on the proximity to the trail.

At the east end of the trail corridor is the new Altoona Elementary School, currently under construction and scheduled for occupancy in the fall of 2016. The school site design has a

trail along the west side of the property, running southward to connect to other sidewalks adjacent to the school building. This trail may also serve as an access lane to a future water tower which may someday be located on the hilltop near the southern end of the school property, so there may also be a maintenance driveway connection to Bartlett Avenue itself. There are no immediate plans to construct a trail along the northern line of the school property, or further east for future connections. The proposed connection would be for the Bartlett Avenue trail to wrap around and connect directly to the north-south trail being constructed on the school property. Additionally, the school trail layout will connect a trail stub to the end of Birch Drive, the northernmost private roadway within the Hillcrest Estates mobile home park adjacent to the southwest portion of the school site.

Conceptual plans for the larger overall network of bicycle trails around the City of Altoona exist describing trail connections to the north and east, creating a connection to the Lake Road trail and other surrounding areas. The future connection of the Bartlett Avenue trail this overall concept plan has not been examined in detail, but it is apparent that extending the trail further east beyond the Elementary School property will encounter steep side slopes and a narrow bridge over the adjacent railroad, which may limit the feasibility of extension options without considerable modifications to the existing road corridor.

Obstructions and Challenges: The adjacent land along this segment of the trail corridor is mostly undeveloped, with grass or brush located within the right-of-way. Other than potential challenges with grading and drainage, and avoiding the large electrical transmission poles located just beyond the right-of-way, there are few conflicts with existing features. However, the potential for new development on the new City owned property, and other adjacent lands, should be considered in the final design layout of the trail.

Drainage: The area along the south side of Bartlett Avenue through this zone varies between areas of defined ditching, to other areas where the adjacent land slopes away from the roadway. The ditches do not have any defined flow pattern or discharge location, so runoff either infiltrates or makes its way to other local low areas. There are no visible culverts under Bartlett Avenue in this zone. On the north side of Bartlett Avenue, the ditch drains to a low point between Bartlett and the railroad. There is a culvert visible here under the railroad tracks, but further investigation is required as to the pipe condition and discharge location, and the route for drainage after it discharges further north. This culvert is the expected discharge point for this trail zone.

The addition of an asphalt trail along the south side will change the drainage patterns and provide more impervious area, and less open ground for infiltration within the right-of-way. Many portions of this zone may be suited for a trail cross slope draining away from the roadway and toward the adjacent undeveloped areas. Drainage patterns and future development scenarios of the adjacent properties would need to be examined, and the trail would need to be installed low enough in elevation to allow drainage from the street to pass over the trail as well. Culverts crossing Bartlett Avenue and extending to an inlet behind the trail may be necessary to collect and convey any drainage blocked by trail grading.

Some portions of this zone may also be suitable to create a shallow ditch in the boulevard and utilize cross culverts under Bartlett Avenue. These cross culverts would convey drainage across Bartlett to the north side ditch, which is better defined to hold and convey storm water runoff. It may be necessary to install an inlet structure on the south end of the culverts to allow drainage from the new trail section into the pipe without creating a deep sump for a traditional culvert end.

To accomplish these drainage improvements for zone 3 in conjunction with the trail installation, it may be necessary to slightly modify the ditch or existing culvert on the north side of Bartlett Avenue as well. The close proximity of the railroad would make work here difficult, but with some grading and possible cross culvert pipe, the drainage patterns here could be improved to better allow drainage between the two ditch sides.

The easternmost portion of the trail may also be conducive to drain into the storm water basin on the school site. However, the general downgrade slope from east to west would not allow for positive drainage from the new trail into the existing school site basin because of the shallow depth and current bottom elevation. Additional excavation of 6 to 10 feet would be required to create the necessary elevation difference to allow drainage into the pond from trail ditches or piping. This would create a wet detention pond with at least 5 feet of standing water, which may not be a good situation on a school site and adjacent to this multiuse path. Fencing may be required to prevent unwanted access to the pond slopes and standing water.

An alternate option for storm water collection from the eastern trail may be within a new storm water basin which will be required in association with the proposed development of the City owned land west of the school. This could be incorporated into the initial design of the site storm water system, and not require the significant excavation of the school pond. While the rest of the trail project requires that the trail be fit into the corridor as an add-on feature, comprehensive design on this development property, considering trail alignment and drainage, would make this portion of the trail a better fit as it transitions into the destination of the Elementary School property.

4.0 Coordination

The construction of this trail will require coordination and planning with multiple agencies and parties during the design and construction phases. Some of the potential parties and topics of coordination are summarized below:

4.1 Utilities

Many of the conflicts which will affect the constructability of the trail relate to power poles located within the Bartlett Avenue right-of-way. These poles include both regular distribution type poles on the western segments of the project (some with transformers and street lights), and large poles for power distribution on the eastern portion of the project. While it is expected that the distribution poles can be moved to accommodate the trail construction, the large transmission poles are generally immobile. Coordination for the relocation of the electrical distribution poles should take place early in the trail layout process, but after sufficient design and approval has taken place to have determined the final location of the trail. The larger transmission poles likely exist within an easement on private property just behind the right-of-way line. Although for the most part these poles are not in direct conflict with the final trail alignment, construction equipment will need to be operated according to power company guidelines within proximity of these high voltage lines. Coordination should be done with Xcel Energy preemptively if the trail construction will affect the zone around the transmission line poles. This transmission line and expected easement also passes through the property north of Bartlett Avenue where triangle storm water basin may be proposed.

Other utilities such as underground gas, telephone, and electric also exist along the corridor, and will need to be coordinated with during design and construction, especially as related to installation of new storm sewer or in areas of significant grading. It is unknown whether these underground utilities will have direct conflict with the construction, but their general location

along the southern edge of Bartlett Avenue will certainly need to be considered, as the curb or trail is constructed over the top of these lines.

City utilities currently exist in Bartlett Avenue, with sanitary sewer and water main extending from the trail origin at 3rd Street East to Walden Court. Sewer and water also have been recently installed along the frontage of the Elementary School property. This study does not address future sewer and water along Bartlett Avenue, but potential forthcoming development will require extension of these utilities from the east or west. The complete connection of water main between Walden Court and the school property has also been discussed as a beneficial loop connection for the overall water system. The location of these existing and future City utilities, and the construction disturbance that will be required for the installation trench, should be considered as the final design for the trail and any associated storm sewer is completed.

4.2 Department of Natural Resources

4.2.1 Storm Water

Storm water runoff and drainage must be accommodated for the overall functionality of the road and trail corridor, and to meet City of Altoona standards. Much of the discussion of this topic is contained in the zone descriptions earlier in this report. Storm water design must also comply with regulations of the Wisconsin Department of Natural Resources (DNR). These regulations require a permit which will cover construction site erosion control, as well as post-construction requirements for storm water rate control, infiltration, and removal of total suspended solids (TSS). Because the project will require construction disturbance greater than the DNR permit threshold of one acre, an application and approval will be required complying with the General Permit requirements of DNR.

Construction site erosion control will require the installation of temporary best management practices such as silt fence, ditch checks, and erosion mat to control sediment loss and promote turf establishment.

Design of post-construction storm water controls may incorporate items such as ditches and swales, storm water basins or ponds, and storm sewer configurations, including inlet sumps or other underground features. The different zones and associated variable treatment of storm water will require evaluation of the overall project to determine the best combination of storm water practices. Utilizing existing and new storm water ponds, as well as existing ditches on both sides of the road, may offset other areas such as the west end where a direct connection will be made to the 3rd Street East storm sewer without any treatment. Calculations will need to be provided with a permit submittal to the DNR, quantifying the treatment and control effectiveness of the different zones and features as an aggregate project.

There are some exemptions to post-construction storm water treatment for projects with disconnected imperviousness within the DNR code that sometimes apply to trail construction. However, since this project as sketched for this feasibility report has slightly more than 1 acre of new impervious surface, and because much of the trail would be immediately behind the curb and drain directly to inlets and storm sewers, this exemption is not expected to be applicable. There are also separate requirements depending on whether the DNR would consider this project as redevelopment or as new or in-fill development, all of which have different standards concerning TSS removal. Preliminary contact should be made with DNR officials prior to final design to discuss a scope and different scenarios for treatment of storm water, and the expectations for code compliance.

4.2.2 Endangered Species

Storm water permitting will likely trigger an endangered and threatened resources review for the trail area, which may require some investigation for the endangered Karner Blue Butterfly, or their preferred habitat of Lupine flowers. The trail design and permitting process should allow for potential field surveys for endangered species. These surveys often have critical time windows which may need to be considered, depending on the plant growing season and species life cycle.

4.2.3 Other Environmental Factors

There are no wetlands, waterways, floodplains, or historical or archaeological sites expected within the project corridor that would require coordination with DNR. A cursory search of the DNR database shows no open or closed contaminated sites within or adjacent to the project. However, there is always a slight prospect of contaminated soils from unforeseen past land uses, especially near a railroad corridor.

4.3 Eau Claire County Highway Department

Bartlett Avenue is also designated as Eau Claire County Trunk Highway KB, and the Highway Department has jurisdiction and review authority over the travel lanes and right-of-way as a transportation corridor. Preliminary discussion has taken place with Jon Johnson, Eau Claire Highway Commissioner, and Rod Thorson, PE, Highway Engineer, on the general proposed layout and feasibility of the trail construction. A meeting of this topic took place with SEH on March 25, 2016. These county officials were generally favorable to the concept of the trail to serve as a bicycle and pedestrian route to the new Elementary School. They also were accepting of the general layout on the south side, utilizing added curb and gutter for a portion of the corridor, and ditches or sloping in other rural section segments.

A partial overlay of CTH KB was installed in 2014 as a short term repair of the roadway surface. More comprehensive pavement work or surface replacement has not been arranged in detail by the County, but is on their list of upcoming projects with a potential construction timeline around 2018. Without other factors requiring more immediate work on Bartlett Avenue, this would be the earliest that Eau Claire County would perform improvements to CTH KB as an independent project. However, if the City of Altoona wishes to initiate this trail construction on a sooner timeline, the County may be willing to adjust their schedule of highway improvements to incorporate work on CTH KB as a cooperative project. Mr. Johnson identified that there are cost benefits to constructing an overall reconstruction project to incorporate the new trail, rather than cutting and patching portions of Bartlett Avenue for the trail, only to repave the entire roadway soon afterward. When the City has a preferred timeline and approach, additional discussions should take place with the Highway Department to arrange for the best timeframe of project completion, and any agreements which might need to be set in place. This portion of CTH KB has also recently seen an MPO reclassification from a Collector to a Minor Arterial corridor. The requirements of this classification, as well as the transition of the roadway from rural to urban setting along the alignment, will need to be examined if an overall reconstruction project is planned.

According to the Eau Claire Highway Department, maintenance and snow plowing of Bartlett Avenue/CTH KB would remain similar to the current arrangements. The County did indicate that any maintenance or snow removal on the trail would be the responsibility of the City of Altoona, as well any maintenance of the storm sewer or curb, such as sweeping or cleaning.

The discussion touched briefly on costs, but did not get into the specifics of cost sharing for construction or future maintenance. While County funding could be used to construct the traveled portion of the roadway, all costs for the trail and associated infrastructure would need to be borne by the City of Altoona. The City of Altoona and Eau Claire County will need to have discussions and agreements if an overall reconstruction project is to move forward. The general acceptance of the concept and proposed alignment location by the County at this point does not imply their participation in any specific amount of cost sharing.

Before more detailed design is initiated for the trail or an overall reconstruction project, additional meetings should be scheduled with Eau Claire County Highway Department to further discuss what the best scenario is for the overall transportation corridor of Bartlett Avenue/CTH KB, with considerations for engineering design, scheduling, and funding. Mr. Thorson noted that storm water drainage will be a significant aspect of any trail design or road reconstruction, as there are some existing drainage issues which could be exasperated by the addition of a trail within the right-of-way. More specific details on the cross sectional dimensions such as widths, slopes, pavement thickness, and others will need to be agreed upon between the City and County. Design components which do not specifically meet state standards for trails or similarly classified roadways do to physical constraints will also need to be identified and discussed in future meetings and correspondence. The Highway Department will also need additional information for consideration on any proposed development on the City owned land near the school.

4.4 Railroad

Where work may take place near the Union Pacific railroad right-of-way, such as for installing cross culverts or modifying the ditch on the north side of Bartlett Avenue, coordination with the railroad may need to take place in order to provide proper notifications and observation during construction.

4.5 Landowners and Public

Owners and occupants of properties adjacent to the proposed trail alignment may have positive or negative views on the trail construction. While most of the trail construction would take place strictly within the Bartlett Avenue right-of-way, there is often the notion from adjacent landowners that an improvement such as this trail is being constructed in their yard or property. Because of grading and the disturbance area expected from equipment necessary to construct the trail, there may be several areas where temporary easements are required for encroachment onto private property. It may be beneficial to approach properties with the most disturbance, such as retaining walls or significant fill, individually for discussion about the work. Other distribution of information in the form of mailings, publications, and informational meetings may also be helpful to create a positive opinion of the project from landowners and the public. Other coordination with landowners may need to take place to allow better drainage and where connection to existing storm water basins is suggested. The project may draw interest for the wider public as a route to the new school, and the City should evaluate the appropriate level of data distribution through meetings, informational publications, or other media.

4.6 Altoona School District

It is expected that the trail on the Elementary School property will be constructed with the site paving in the summer of 2016 in anticipation of the school opening in the fall. Design and work on the project should coordinate with the School District and their Architect and Construction Manager to ensure an efficient and functioning trail connection. The School District may also have input to give on the features to be incorporated in the trail construction,

and what the expected amount of use might be. The District will also be interested in coordinating the schedule of the trail construction to best fit their school schedule.

5.0 Costs

An itemized construction cost estimate was completed for the project, with quantities measured according to the dimensions and layout sketched for this feasibility report. This cost estimate can be found in Appendix A. This estimate assumed the trail was to be constructed as an independent project along the south side of an existing Bartlett Avenue, with disturbance to the roadway only as required to add the trail and associated infrastructure. The pavement of Bartlett Avenue is proposed to be cut and patched in order to install items such as curb and gutter and storm sewer adjacent to the roadway. This scenario of cutting and patching and restricting the available room for construction work is likely to result in higher bid prices than would otherwise be seen for a project of similar size in situation of full reconstruction. For example the asphalt pavement will be higher in cost per ton because of the special equipment needed to pave a narrow trail and patch the Bartlett lane edges, especially where adjacent curb and gutter is involved. A ten percent contingency amount was also added to the cost estimate to account for unforeseen items not specifically identified in this feasibility study.

The expected construction cost for the project as described, is calculated at approximately \$500,000. If certain construction items were modified, eliminated, or added, this estimate may range from \$350,000 to \$550,000. Engineering and administrative costs for a consultant to complete the design, bidding, and construction representation of this project may range from \$50,000 to \$80,000, in addition to the construction cost, depending on the scope of services and level of involvement required for the project.

There may also be other costs associated with the project that are not included in this construction cost estimate. Although most often utility companies having their lines within the right-of-way must move their facilities as required to allow street construction, depending on the existing agreements with utility companies there could be costs associated with the utility relocations. No costs were included for property acquisition or easement arrangements which may be required for construction or the addition of new storm water basins. Fees for plan review or permitting were not included, which may be required by DNR, the railroad, or Xcel Energy for work near their large overhead transmission line. There are some construction items which could be added to enhance the trail but were not considered, such as concrete driveway aprons, lighting, and landscaping features such as benches, bike racks, trash cans, or decorative plantings. Also, other than some hydrant work, not costs have been included for additional extensions of municipal sewer or water line.

Although the proposed project layout was drawn to scale and measured, some of the estimated items are based on assumptions which will be confirmed or more precisely defined during the design process. For example the lengths, size, and layout of storm sewer was estimated based on the general drainage patterns, but more accurate quantity measurements can only be more precisely determined upon final design. Other items such as erosion control and signing and marking were assumed as a general lump sum in order to include them in the estimate, without having the knowledge of exactly what these components may entail.

Potential approaches to reduce costs:

- Utilize HDPE storm sewer for areas outside of traffic lanes

- Construct trail and associated infrastructure as part of a larger Bartlett Avenue reconstruction project, minimizing the patching and precision work which may incur higher unit prices
- Elimination of concrete ramps with detectable warning fields where the trail crosses existing streets

6.0 Other Factors and Alternates

6.1 Lighting

There are some street lights on the western portion of the project, between 3rd Street East and Walden Court. From Walden Court to the Elementary School site, there is no other existing lighting that would serve the proposed trail or the roadway.

6.2 General Maintenance

The addition of the trail along will require a change to the methods of plowing along the south side of Bartlett Avenue, especially if the trail is to be kept clear of snow also. The trail area will provide less room for snow storage, especially where the trail is located directly behind the curb. The addition of curb, especially considering the proposed flat grades, will require street sweeping along this south side of Bartlett Avenue.

6.3 Alternates

This report focusses on the effort required to install a trail along the south side of Bartlett Avenue for the entire alignment. The western portion of this trail could be installed on the north side of Bartlett Avenue, with a crosswalk at some point to take the path to the south side, possibly near Sunday Drive. This approach could eliminate or reduce some of the conflicts with power poles, water main, hydrants, residential yards, trees, and the need for a retaining wall. However, it adds potential conflicts with more commercial driveways and a City lift station, as well as maintaining many of the same challenges with drainage and costs of added storm sewer. It also adds a crossing of Bartlett Avenue to the trail route at some point within the 35 mph portion of CTH KB. If costs or other public factors are prohibitive to the south side trail as proposed in this study, some other alignment with a portion of the trail on the north side could be investigated further for feasibility.

7.0 Summary

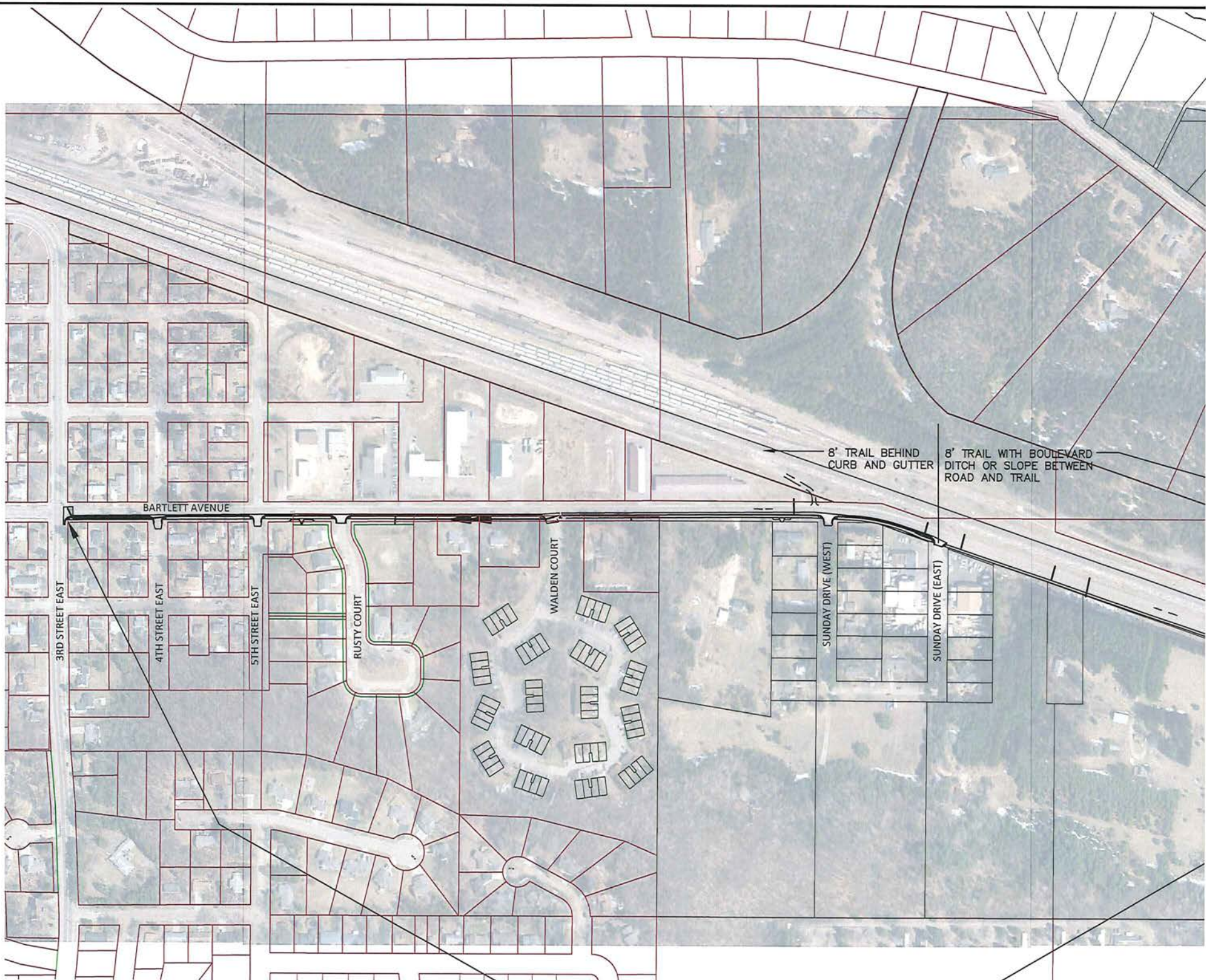
Constructing a new multiuse trail along the south side of Bartlett Avenue in Altoona, from 3rd Street East to the new Altoona Elementary School, is feasible. However, there are considerable challenges and obstacles that will need to be addressed within the scope of the trail design and construction. Items such as trail geometrics, storm water drainage, utility conflicts, property encroachment, and overall timing and coordination with other parties will need to be carefully examined and addressed as the project moves forward. The significant costs that will be associated with the trail construction support finding the best approach to use funds efficiently and wisely. Further coordination with Eau Claire County Highway Department and other interested parties is recommended to keep the communication and arrangements moving in the direction of ultimate project completion.

Exhibits

Exhibit 1 – Trail Alignment Overview

Exhibit 2 – Preliminary Trail Layout

Exhibit 3 – Typical Cross Section



BARTLETT AVENUE

3RD STREET EAST

4TH STREET EAST

5TH STREET EAST

RUSTY COURT

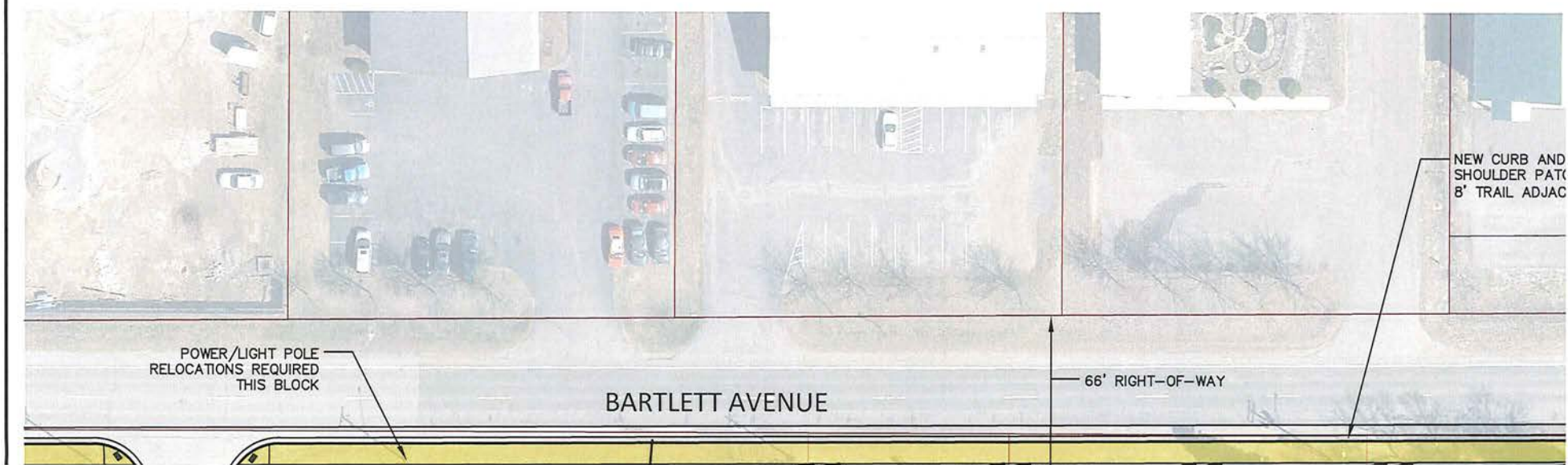
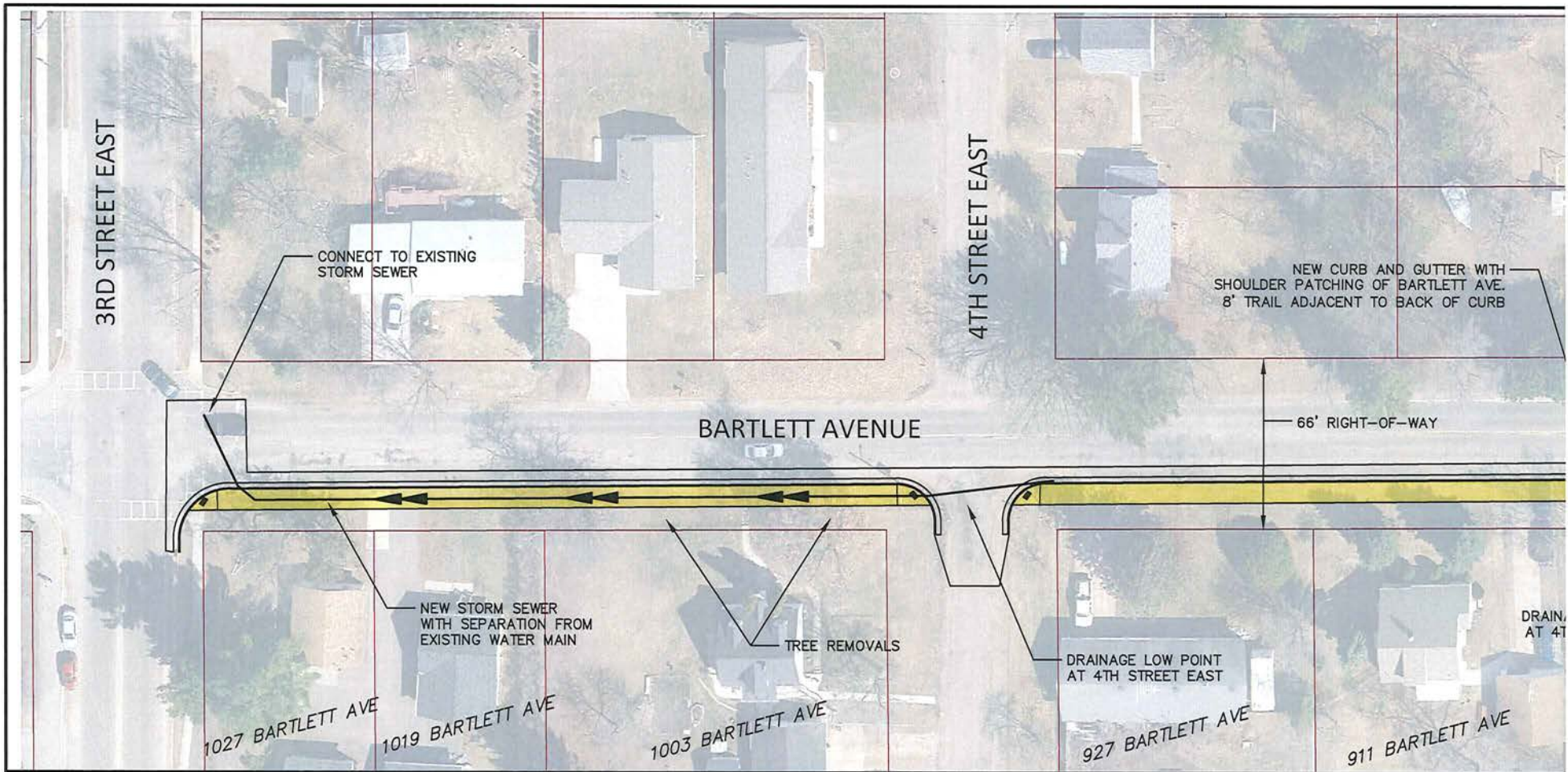
WALDEN COURT

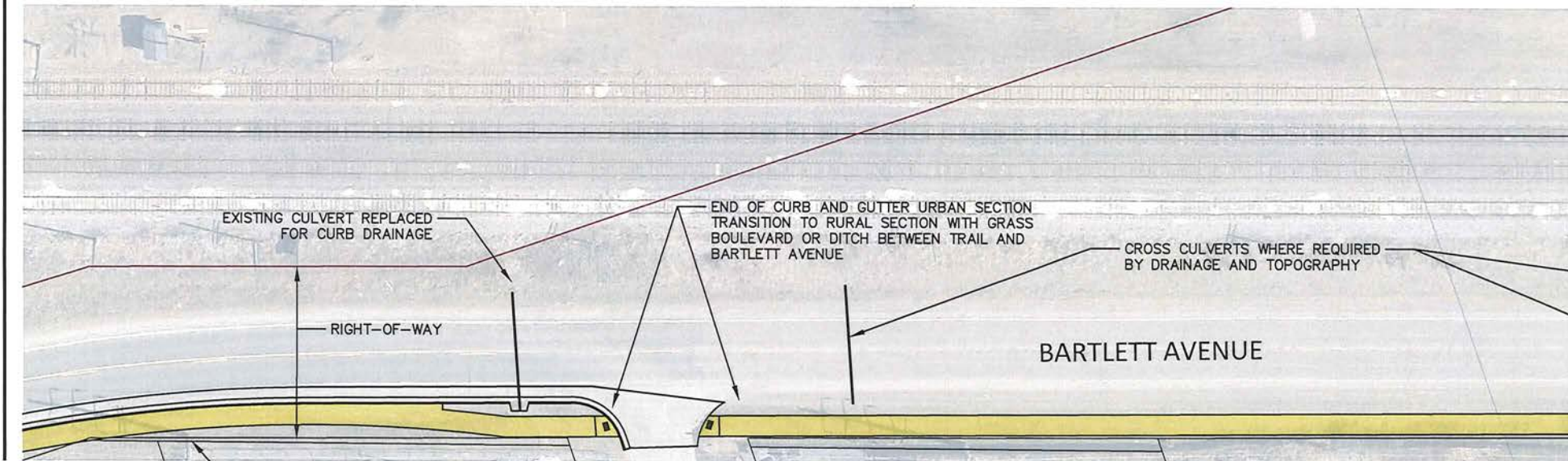
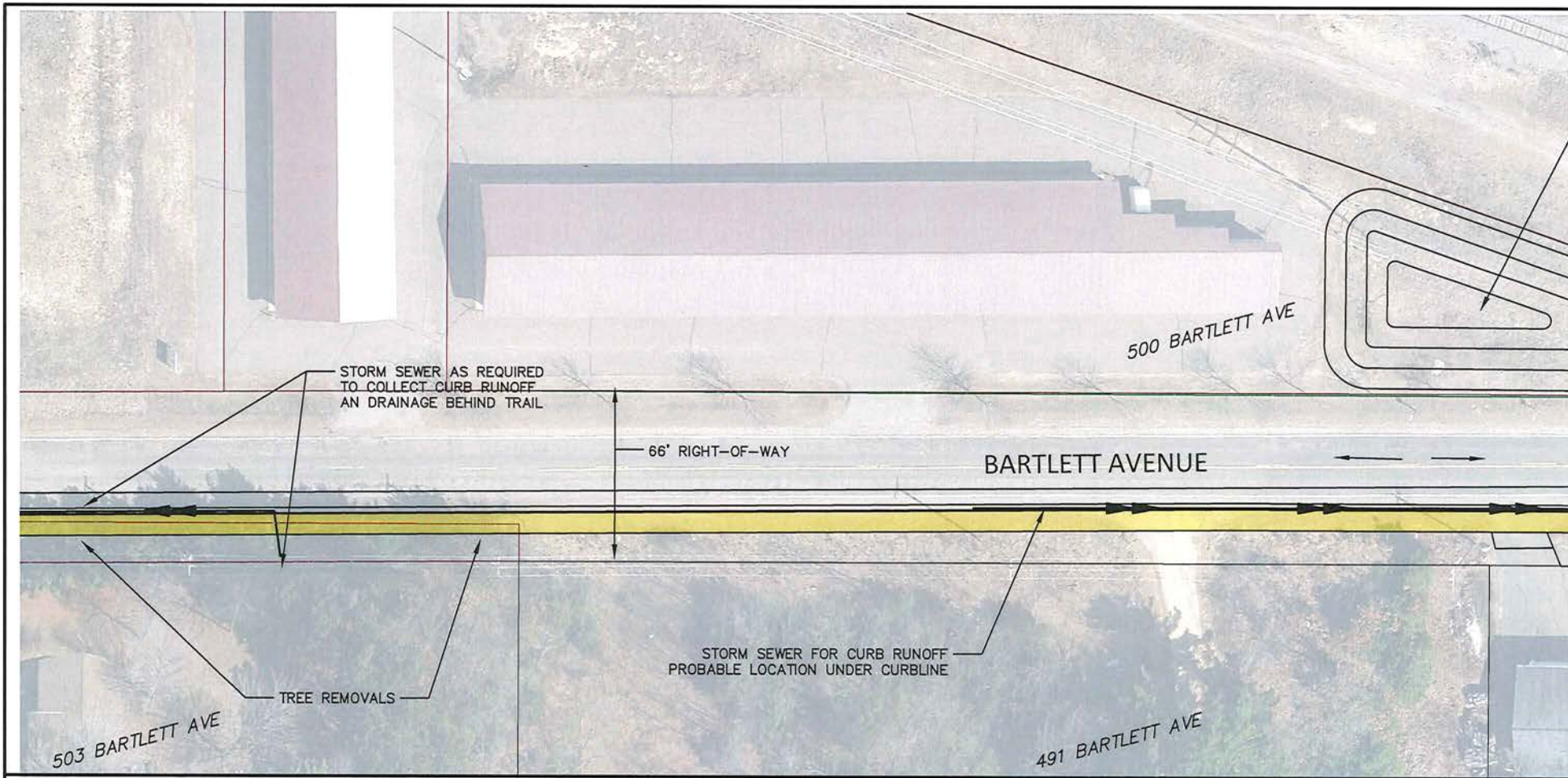
SUNDAY DRIVE (WEST)

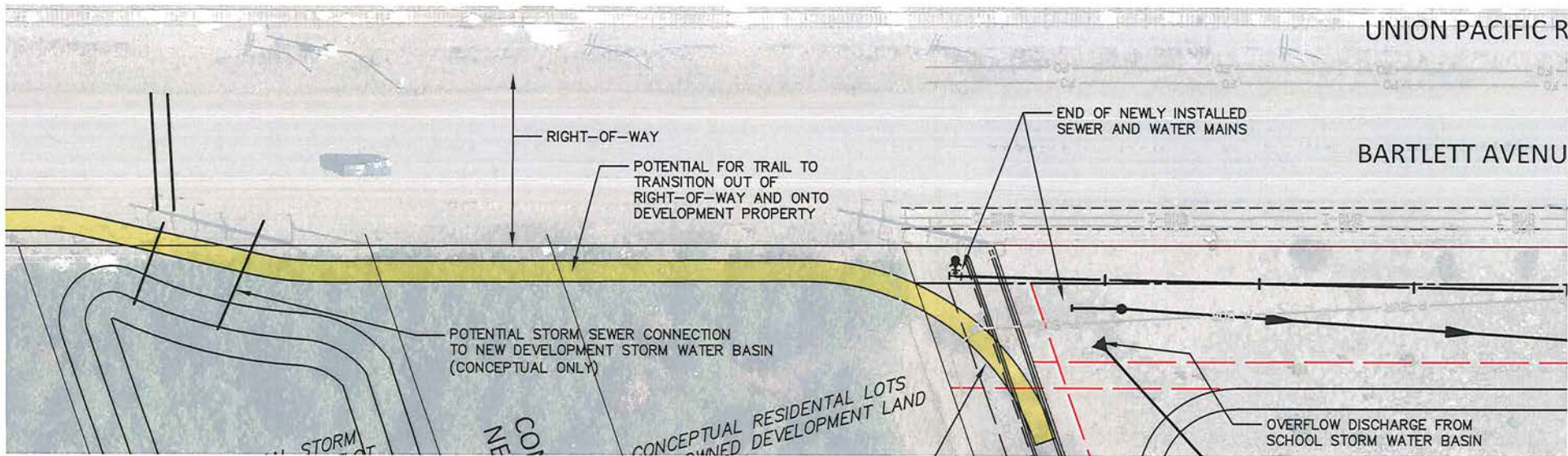
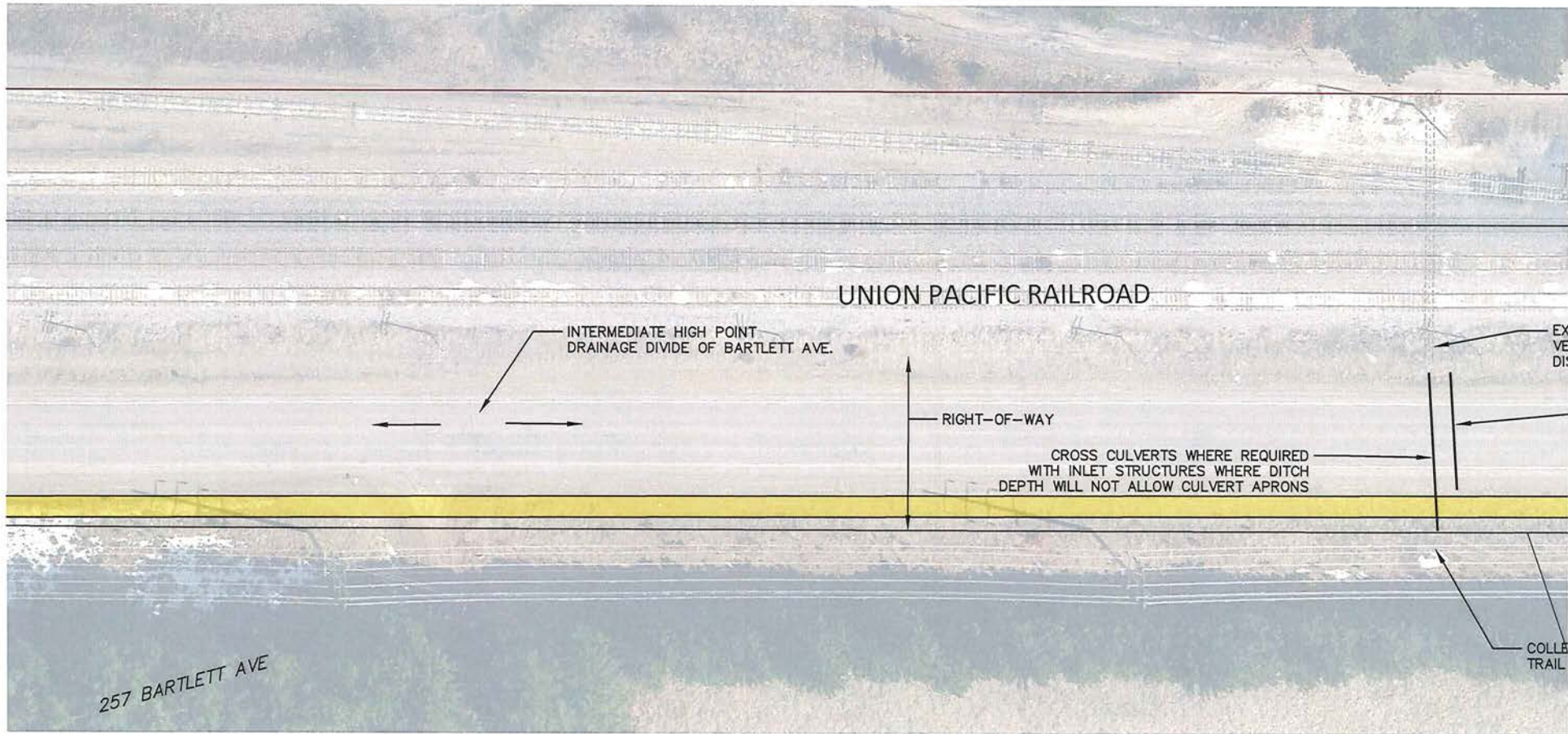
SUNDAY DRIVE (EAST)

8' TRAIL BEHIND CURB AND GUTTER

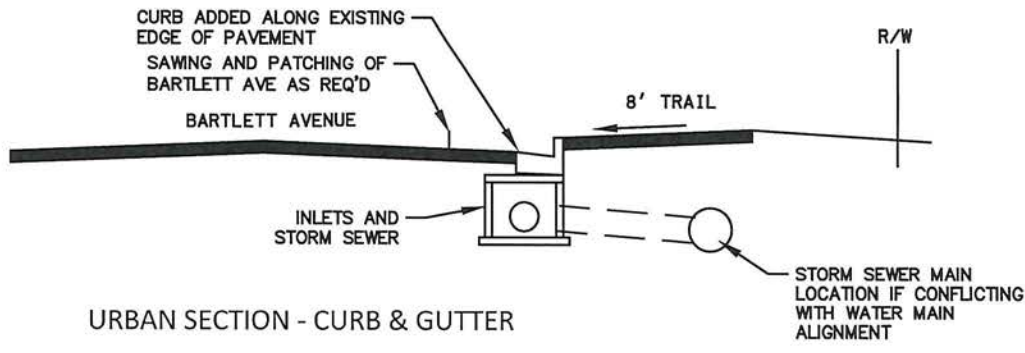
8' TRAIL WITH BOULEVARD DITCH OR SLOPE BETWEEN ROAD AND TRAIL



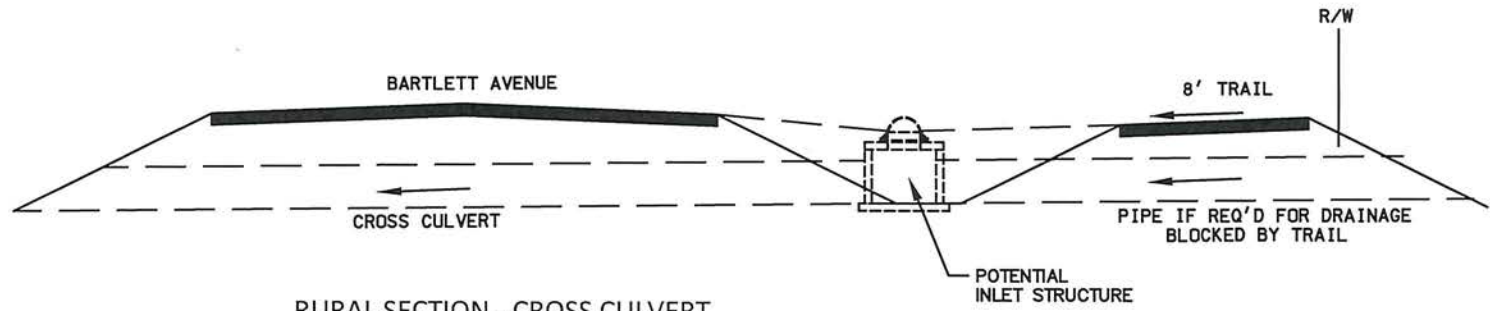




P:\AEVA\Altoona\136012\CAD\dwg\Details.dwg 3/24/2016 11:48 AM bcunningham



URBAN SECTION - CURB & GUTTER



RURAL SECTION - CROSS CULVERT



RURAL SECTION - DITCH



RURAL SECTION - REVERSED TRAIL SLOPE

PHONE: 715.720.6200
10 NORTH BRIDGE STREET
CHIPPEWA FALLS, WI 54729-2550
www.sehinc.com

FILE NO.
ALTOO 136012

DATE:
3/30/2016

**TYPICAL CROSS SECTIONS
BARTLETT AVENUE TRAIL
FEASIBILITY STUDY
ALTOONA, WI**

**EXHIBIT
3**

Appendix A

Itemized Cost Estimate

**PRELIMINARY CONSTRUCTION COST ESTIMATE
CITY OF ALTOONA
BARTLETT AVENUE TRAIL FEASIBILITY STUDY**

ITEM	UNIT	QUANTITY	UNIT PRICE	COST
MOBILIZATION	L.S.	1	\$10,000.00	\$10,000.00
EROSION CONTROL	L.S.	1	\$5,000.00	\$5,000.00
TRAFFIC CONTROL	L.S.	1	\$5,000.00	\$5,000.00
SIGNING	L.S.	1	\$2,500.00	\$2,500.00
CLEARING AND GRUBBING	L.S.	1	\$4,000.00	\$4,000.00
PAVEMENT MARKING - CROSSWALKS AND OTHER	L.S.	1	\$8,000.00	\$8,000.00
15-INCH RCP STORM SEWER AND CULVERT PIPE	L.F.	2000	\$32.00	\$64,000.00
STORM SEWER INLETS WITH CASTING	EACH	10	\$1,500.00	\$15,000.00
STORM SEWER MANHOLES	EACH	4	\$2,500.00	\$10,000.00
15-INCH RCP APRON ENDWALLS	EACH	14	\$800.00	\$11,200.00
RIPRAP	C.Y.	42	\$60.00	\$2,520.00
REMOVE EXISTING ASPHALT SURFACE	S.Y.	2700	\$2.00	\$5,400.00
UNCLASSIFIED EXCAVATION AND GRADING	C.Y.	7000	\$8.00	\$56,000.00
STREET CRUSHED AGGREGATE BASE COURSE, 12-INCH	S.Y.	3800	\$10.00	\$38,000.00
TRAIL CRUSHED AGGREGATE BASE COURSE, 6-INCH	S.Y.	5200	\$5.00	\$26,000.00
STREET ASPHALT 4-INCH THICK	TONS	620	\$80.00	\$49,600.00
8' TRAIL ASPHALT 2.5-INCH THICK	TONS	600	\$80.00	\$48,000.00
CONCRETE CURB AND GUTTER, 30-INCH	L.F.	3000	\$10.00	\$30,000.00
CONCRETE SIDEWALK, 6-INCH THICK	S.F.	800	\$4.50	\$3,600.00
DETECTABLE WARNING FIELDS	S.F.	288	\$30.00	\$8,640.00
MODULAR BLOCK RETAINING WALL	S.F.	320	\$40.00	\$12,800.00
HYDRANT RELOCATION	EACH	3	\$1,500.00	\$4,500.00
HYDRANT REPLACEMENT	EACH	1	\$5,000.00	\$5,000.00
SAWCUTTING PAVEMENT	L.F.	3600	\$2.00	\$7,200.00
TURF ESTABLISHMENT	S.Y.	7000	\$3.00	\$21,000.00
SUBTOTAL				\$453,000.00
CONTINGENCY - 10%				\$45,300.00
TOTAL ESTIMATED CONSTRUCTION COST				\$499,000.00

Does not include costs for:

Property acquisition, Private utility coordination or relocations, Municipal utility extensions, Easements, Railroad coordination, Permit fees, Concrete driveway aprons, Lighting, Landscaping features

Also does not include costs for design or construction engineering, which could range \$50,000 - \$80,000 or more, depending on level of involvement by engineering consultant

This estimate assumes that the trail is constructed as an independent project, with patching of Bartlett Avenue as required to install curb and gutter, storm sewer, and associated infrastructure