INTRODUCTION

The City of Marion has identified the extension of Albumett Road as an important capital improvement project for the development and growth of the community as it relates to land, economy, traffic, and quality of life. As the City continues to grow, not only with population, but also with business and industry, the need to accommodate multi-modal traffic also increases. This Design Concept Report includes a Traffic Evaluation Report, Geotechnical Report, Wetland Delineation Report, Cultural Resources Investigation, and Environmental Evaluation Report.

Background

In 2000 the City of Marion contracted with a civil engineering consulting firm to develop an Albumett Road Extension Feasibility Study. The study provided four alignment alternatives. These alignments were presented to City Council, City Staff, and a Citizen's Advisory Group, and evaluated and ranked each alternative based on a comparison matrix using 8 criteria including cost, displaced residents/businesses, impact to development, traffic operational impacts, environmental impacts, conformance with long term need, impacts to neighborhoods, and impacts to parks. The City Staff, City Council, and public selected Alignment Option 3 - Extend Albumett Road south, across Boyson Road to 7th Avenue/Marion Boulevard, via 3rd Street. See Figure 1 above.

In February of 2005, Ordinance No. 05-02 was passed amending the future land use map and transportation map of the comprehensive plan and major street ordinance to show the Albumett Road Extension to follow Alignment Option 3 as recommended by City staff and the Marion Planning and Zoning Commission.

Corridor Vision

The Albumett Road extension is a planned minor arterial street in accordance with the City of Marion Transportation Plan adopted in July 2016. The Albumett Road extension connects the residential areas north of the project area to the business and downtown districts at the south end of the project area. The roadway design and cross section is planned to incorporate the policies and vision of the Transportation and Circulation Plan including inviting streetscape features, accommodating future growth through vehicular and pedestrian linkages and circulation, and a landscaped intimate atmosphere to maintain the neighborhood's unique identity.

Neighborhood Considerations

- Speed: Speed limit of 35 mph. The corridor will serve as a minor arterial for the area, so drivers will include commuter traffic traveling to specific destinations, such as to and from work, school, or shops, etc. However, as portions of the corridor run through parks and residential neighborhoods, drivers’ speed should be controlled for the safety of residents, pedestrians, park visitors, and drivers.
- Multi-modal Accommodations: Parks, nature trails, walkable/bikeable amenities are located in the region of the Albumett Road extension project. To allow access to these facilities for all types of transportation and persons of varying abilities, multiple outlets are proposed including trail head connections, sidewalk and multi-use sidewalks, on-street bike lanes, and accessible sidewalk ramps at all intersections.
- Streetscape Theme: Street trees, green medians, themed street lights, intersection enhancement features, and bridge aesthetic enhancements are to be incorporated into the project. City Engineer Dan Whitlow and Assistant City Engineer Mike Barklow emphasized a balance between theme/enhancements and functionality.

The foundation of the vision for the Albumett Road extension stems from the City of Marion’s Comprehensive Plan, but it is molded and improved by public involvement and City Staff and City Council input, and finally carried out by designers and construction contractors.

Public Coordination

1. Letter of Notification - On August 9, 2016 the City of Marion mailed a notification letter to property owners adjacent to the proposed new portions of Albumett Road. The letter outlined the extents of the project and notified residents that the City Council had selected an engineering firm to complete a concept study of the corridor.

2. Park Board Meeting - On April 12, 2017 City engineering staff and Snyder & Associates, Inc. met with the City of Marion Park Board to discuss the progress on the Albumett Road Extension project. A strip map of the project was provided along with detailed exhibits illustrating specific impacts to Willow Park and possible corridor enhancements. The Park Board was generally in agreement with the proposed alignment and accepting of the proposed impacts to Willow Park.

3. Public Information Meeting - May 23, 2017 - illustrated the selected alignment and provided opportunity for comments on design features.
**EXISTING CONDITIONS**

**Roadway Geometry and Intersection Traffic Control**

2nd St from 7th Ave to 10th Ave - 15' B/B. Two lanes (one each direction) with on-street parking allowed on one side. Curb and gutter with underground storm sewer system. Residential district speed limit is 25 mph (Section 321.285 of the Code of Iowa), not posted. Concrete pavement. 7th Ave intersection, tee intersection. Stop control SB, no control EB and WB. 8th Ave intersection, stop control SB and NB, no control EB and WB. Sidewalk along back of curb on east side at 200 7th Ave.

**Corridor Goals**

The goals associated with the Alburnett Road extension project are to:
- alleviate traffic congestion on 10th Street
- reduce traffic cutting through residential neighborhoods in proximity to the corridor
- provide a north/south corridor for future growth north
- improve pedestrian and bicycle access and mobility

*Alburnett Rd north of Boyson Rd - 28' chip seal/gravely dead end on old alignment. Serves as access for two properties (one residential, one residential/agriculture). Rural section with ditch drainage.*

*Alburnett Rd at north project limits - 24' with 5' gravel shoulder on both sides. Two lanes (one each direction). Rural section with ditch drainage. 35 mph posted speed limit. Asphalt pavement.*
7th Ave - varies 29' to 62' B-B. Four lanes (two each direction) with raised median west of the 2nd St intersection. Existing abandoned railroad overpass west of the 2nd St intersection. Urban section with curb and gutter. 4' wide sidewalk along both sides in project area. Concrete pavement with asphalt overlay. 35 mph posted speed limit.

8th Ave east of 2nd St - 30' B-B. Two lanes (one each direction) with on-street parking allowed at specified times/days on one side. Urban section with curb and gutter drainage. 35 mph posted speed limit. Asphalt overlay on concrete pavement. 4' sidewalk along north side of 8th Ave.

8th Ave west of 2nd St - 41' B-B. Three lanes (one each direction with center turn lane). Urban section with curb and gutter drainage. 35 mph posted speed limit. Concrete pavement. 4' sidewalk along north side of 8th Ave.

Boyson Rd - 28' wide with curb and gutter along the south side and 6' gravel shoulder with ditch drainage along the north side. Two lanes (one each direction). 35 mph posted speed limit. Concrete pavement.
Traffic Analysis

As part of the design concept process, Snyder & Associates completed a Traffic Study of the proposed Albemarle Road corridor. The purpose of this study was to determine the capacity, functional geometry and traffic control needs for the proposed intersections along the Albemarle Road extension from Boyson Road to 7th Avenue. The study included traffic forecasts, intersection capacity analysis, traffic signal warrant analysis, analysis of possible roundabouts, and recommendations.

Traffic Forecasts

Peak hour opening year (2018) and design year (2040) traffic forecasts were developed for the Albemarle Road extension, based on traffic count data, planned area development and previous travel demand models. The peak hour forecasts correspond to the following average daily traffic volumes:

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<tr>
<td>North of 8th Avenue</td>
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Intersection Capacity Analysis

Traffic operations were evaluated at each intersection along the Proposed Albemarle Road extension using projected opening year and design year peak hour traffic volumes. A 3-lane cross-section with left turn lanes was assumed for Albemarle Road. At the major intersections (Boyson Road, 8th Avenue, and 7th Avenue) the overall opening year level of service (LOS) was determined to be LOS B for each intersection, with traffic signal control. As projected traffic increases between opening year and the design year, these intersections are projected to operate at LOS B-C.

The Albemarle Road intersections with Boyson Road, 8th Avenue, and 7th Avenue were analyzed to evaluate roundabouts. In order to provide acceptable operations, it was determined that two-lane approaches (two lanes approaching roundabout) would be needed for all approaches at the 7th Avenue and 8th Avenue Intersections, and for the north-south approaches at the Boyson Road Intersection.

Due to the relatively close spacing of 7th Avenue and 8th Avenue intersections, additional simulation analysis was performed to determine if vehicle queues would block the intersection. The simulation analysis showed that northbound vehicle queues at the 8th Avenue roundabout would extend south into the 7th Avenue roundabout, significantly impacting traffic operations at this intersection. Simulation analysis with properly coordinated traffic signals at both intersections showed that queuing would not be an issue.

At the Boyson Road intersection, providing four north-south through lanes through the roundabout would result in lane continuity issues, need for reconstruction of the existing south leg of the intersection, and significant property impacts at the intersection. Therefore, roundabouts were not recommended for any of the intersections.

Traffic Signal Warrant Analysis

The proposed Albemarle Road Intersections with Boyson Road, 8th Avenue and 7th Avenue were evaluated to determine if Manual on Uniform Traffic Control Devices (MUTCD) traffic signal warrant criteria are projected to be met. The planning level warrant analysis determined that warrant criteria will be met at all three intersections with the projected at opening year and design year traffic.

Traffic Study Recommendations

Multi-modal

The Marion Master Trails Plan includes side paths along the Albemarle Road extension. The recently constructed portion of the extension south of Boyson Road (approximately 530 linear feet) includes 8 wide side paths on both sides of the street. It is recommended that side paths be provided along at least one side, and preferably both sides of the extension, south of Boyson Road to 7th Avenue. Bike lanes (5' minimum width) within the street pavement should also be provided, if feasible. The inclusion of the on-street bikeways is consistent with the recently completed Master Trails Plan.

Cedar Rapids Transit currently provides two bus routes (54 and 55) through the City of Marion. If the 54 route is modified or an additional route is added in the future to include the Albemarle Road extension corridor, bus stops should be located to minimize impacts to intersection traffic operations and to avoid potentially unsafe stopping and passing conditions. Bus stop locations on the far side of an intersection are generally preferred.

Arterial Cross-Section

Based on traffic projections and analyses performed, the Albemarle Road extension should be constructed as a three-lane roadway with one lane in each direction and a continuous center left turn lane. At the intersections along the roadway between Boyson Road and 8th Avenue, no additional lanes are recommended for projected opening year or design year traffic. STOP control and single lane approaches should be provided for all minor street approaches to Albemarle Road within this section of the corridor.

Major Intersections

Boyson Road & Albemarle Road
- Provide a 50’ dedicated left turn lane for each approach.
- Install a traffic signal for opening year. Although the MUTCD recommends adequate alternative for installing a signal where traffic volumes meet only the 85th percentile values of Warrant 1A and 1B, analysis of opening year traffic shows that two-way or all-way STOP control would provide LOS E-F for at least one approach during peak hours.

8th Avenue & Albemarle Road
- Provide a 50’ dedicated left turn lane on each approach.
- Install a traffic signal for opening year.

7th Avenue & Albemarle Road
- Provide 150’ dedicated left turn lanes for the eastbound and southbound approaches.
- Maintain four through lanes on 7th Avenue.
- Install a traffic signal for opening year.
- Provide traffic signal interconnect for coordinated operation of 7th Avenue and 8th Avenue traffic signals.
Environmental Evaluation

In the fall of 2016, Snyder & Associates, Inc. performed an initial limited environmental evaluation of the proposed Alburnett Road extension project area, and prepared an Environmental Evaluation Report. Following is a list of the environmental related reports (and author) prepared in conjunction with this Design Concept Report. All reports are bound separate from this document and were submitted to the City engineering staff under separate cover.

- Environmental Evaluation Report (Snyder & Associates, Inc.)
- Wetland Delineation (Snyder & Associates, Inc.)
- Phase I Intensive Archaeological Survey & Geomorphological Analysis (Wapsi Valley Archaeology)
- Intensive Level Architectural History Survey (Wapsi Valley Archaeology)
- Preliminary Geotechnical Engineering Report (Terracon Consultants, Inc.)

Section 4 of the report describes the environmental analysis of impacts for both the No Build Alternative and the Proposed Alternative of several aspects of the project area including:

- Socioeconomic Impacts
  - Land Use
  - Community Cohesion
  - Economic
  - Park & Recreation
  - Transportation

- Cultural Impacts
  - Historical Sites or Districts
  - Archaeological Sites

- Natural Environment Impacts
  - Floodplains and Floodways
  - Wetlands
  - Surface Water and Water Quality
  - Threatened and Endangered Species
  - Woodlands
  - Farmland Soils

Field investigations identified potential WUIS, including wetlands within the project boundary. Three (3) emergent wetlands, one (1) forested wetland, one (1) pond and one (1) perennial stream (Indian Creek) were identified within the project boundary. Discharges of dredged or fill material, excavation, and mechanized land clearing in the WUIS will require authorization from the USACE. Final determination of the limit of WUIS, including wetlands, for permitting purposes rests with the USACE. For final authorization for activities in WUIS, the USACE must approve these findings.

Phase 1, Cultural Resources Investigation

Architectural History Survey

In September of 2016, Wapsi Valley Archeology, Inc. completed an intensive level architectural and historical survey for the Alburnett Road extension project and prepared a report of the results. Two properties in the project area had been previously surveyed and previously determined not eligible for the National Register of Historic Places. Field investigation and archival research revealed that seven properties within the project area contain resources that are eligible for the National Register of Historic Places. Two of these properties lie within the proposed boundaries for the Alburnett Road extension project. The other five properties are located immediately adjacent to the project corridor.

It is recommended that adverse effects to these historic properties, both direct and indirect, be avoided by the proposed project. If avoidance is not possible, then mitigation of adverse effects is recommended.

Archaeological Survey and Geomorphological Analysis

In August of 2016, Wapsi Valley Archeology, Inc. conducted a Phase I intensive archaeological survey and geomorphological analysis for the proposed extension of Alburnett Road and prepared a report of the results. Background research showed that only a very small portion of the project area had been subject to an intensive archaeological survey and that no previously recorded archaeological sites had been reported within the project area. The archaeological survey identified two previously unrecorded archaeological sites, designated 13LN176 and 13LN177. Neither site is considered eligible for the National Register of Historic Places. It is recommended that no additional archaeological investigations are necessary for the proposed project.

If any prehistoric or historic artifacts or features are unexpectedly uncovered during the course of the proposed construction activities, the responsible agency must be contacted without delay. In addition, if any human remains are encountered, it is required by Iowa law that all work in the area of the remains be temporarily stopped, security provided for the remains, local law enforcement officials notified to help protect the remains, and the Bioarcheology Program Director contacted immediately.

Wetland Delineation Report

Snyder & Associates, Inc. delineated the project area of the proposed Alburnett Road Extension for the presence of wetlands. In accordance with the proposal and general conditions, residential use, transportation corridors, and riparian areas adjoin the project boundary. The scope of this investigation was to indicate the presence/absence of wetlands, identify wetlands that could be impacted by the project, and delineate the upper boundaries of potential jurisdictional wetlands within the project area. In addition to wetlands, Waters of the United States (WUS), which include lakes, ponds, rivers, and streams, were included in the delineation.

Figure 14: Willow Park

Figure 15: Indian Creek
PROPOSED CONCEPT

Snyder & Associates, Inc. has developed alternatives and recommendations for the concept design elements associated with the realignment of Albammet Road. The recommendations are based on field investigations, research, and reports outlined previously in this Design Concept Report. Additionally, background information provided by City Staff, the 2000 Albammet Road Extension Feasibility Study, and input from local stakeholders and the general public were necessary components to achieve a plan that addresses the needs of the community.

Corridor Alignment

The general horizontal alignment for the proposed Albammet Road was established with the 2000 Feasibility Study. As part of this Concept Design, the City requested Snyder & Associates to review the details of the previous alignment and determine if any slight modifications would benefit the project.

Two alignments similar to Alignment Option 3 from the 2000 Feasibility Study were evaluated. Figure 16 illustrates the two alignments; Options 3A and 3B. Both alignments fully utilize the newly constructed pavement south of Boyson Road and connect to 2nd Street adjacent to Willow Park. The primary differentiators among the two options are the alignment immediately north of Indian Creek, the location/orientation of the bridge crossing Indian Creek, and how the alignments bisect Willow Park.

Several factors were considered to determine the preferred alignment. Examples include impacts to private property, the environment, utilities, public spaces/parks, future land use, and cost. Alignment Option 3A was selected as the recommended alignment. Following is a list highlighting the justification for this determination.

Recommended Alignment Option 3A:
- Avoids Interstate Power & Light Company property
- Avoids Bowman Meadows future plats already considered in this alignment
- Less impact to wetland and forested area
- Provides a better division of Willow Park
- Less earthwork/less disturbance
- Better alignment with Indian Creek/shorter bridge
- Lower cost

The plan sheets 9 through 11 following this section illustrate the proposed alignment of the revised Albammet Road Extension. The new roadway will connect at the south to 5th Avenue at the intersection of 2nd Street. This intersection, and the new Albammet Road as it runs north, is shifted west to accommodate the wider pavement section while avoiding the commercial business and residences on the east side of 2nd Street. The typical roadway sections for Albammet Road in this section of corridor are illustrated in Figures 17 & 18.

Figure 16: Alignment Alternates

Figure 17: 44' B/B with TW/TL
The City owns much of the property on the west side of 2nd Street and therefore the private owner impacts are minimized. City properties impacted include Merrill Garden and property just south of 8th Avenue (both owned by the Water Department) along with Willow Park. The properties at 848 8th Avenue and 880 2nd Street will be impacted to the point that total buyouts, and removal of existing homes, are required. The home on the Water Department property will also be removed.

The roadway alignment leaves the 2nd Street corridor just north of 9th Avenue and turns northwest through Willow Park. While any impact to the park is not ideal, this alignment follows a path along a separation of uses within the park. The ball field and the shelter/playground area will be split by the proposed alignment. Each of the uses may be maintained in their current capacity. During a meeting with the Park Board, support was provided for the chosen alignment. The board noted the roadway would benefit and coincide with planned projects for Willow Park that address future shelter and playground area needs.

Pedestrian access across new Auburnett Road within Willow Park will be accommodated with an at-grade crossing located at the new intersection with 2nd Street. A future trail under the proposed bridge will also provide pedestrian access across the roadway. Benched slopes will be provided on both sides of Indian Creek to accommodate future trail access with a minimum of 10' of vertical clearance.

The roadway alignment remains within City of Marion property and crosses over Indian Creek at a perpendicular angle; thereby reducing bridge length and optimizing hydraulic capacity. Additionally, this crossing location reduces the impact to wetland and forested areas. Appropriate city staff planning during the installation of the electric transmission lines resulted in a sufficient window of clearance for the roadway to pass under the electric lines while also providing necessary clearances and hydraulic capacity at Indian Creek.

Continuing north, new Auburnett Road alignment connects with the existing street improvements within the recently developed Bowman Meadows subdivision. A section of this new roadway was constructed by the developer during the fall of 2016 and therefore necessitated coordination of alignment efforts. New Auburnett Road alignment will utilize old roadbed and existing right of way north of Boyson Road. The roadway section will be narrowed to two lanes due to limited access and to reduce impacts to adjacent developed properties. Figure 19 illustrates the typical roadway section north of Boyson Road. The proposed connection to existing Auburnett Road is located just south of Edinburgh Avenue.
Upon completion of the new alignment of Alburnett Road, a section of the old alignment should be removed. There is no planned connection between old Alburnett Road and new Alburnett Road when traveling north from Bayton Road. This approach was approved as part of the feasibility study completed by others in 2000.
Water Department Accesses
The existing 8th Avenue access will be located at a transition to an eastbound left turn lane; thereby creating multiple opportunities for driver conflict. Consider relocating the access west, out of the transition, and aligning with the park access. Also consider relocating or eliminating the water department access to Alburnett Road.

Novak & Brannon Monuments Parking
Construct off-street parking lot to reduce conflict with Alburnett Road traffic.

Willow Park Ball Field Access & Parking
Option to relocate ball field access to Alburnett Road and 9th Street. Acquisition from 180 8th Avenue would be necessary.

2nd Street Cul de Sac
Consideration given to eliminating the 2nd Street access to Alburnett Road and construction of a cul de sac. Layout eliminates a noted concern of cut through traffic from the neighborhoods to the north/northeast.
**Bridge Type**

The bridge superstructure type selection considers multiple factors but ultimately is seeking the most economical solution while meeting the physical needs of the specific site. For this application, two bridge types were evaluated:

1) 3-span, pretensioned prestressed concrete beam bridge (PPCB bridge)
2) 3-span, cold rolled steel beam bridge (CRSB bridge)

For this application, the PPCB bridge was selected as the preferred superstructure type. The beam details are standardized by the Iowa DOT providing ease of manufacture and installation, the bridge is durable with very limited maintenance, and the overall cost is anticipated to be 5.4% less than the CRSB bridge. The bridge cross section is illustrated below.

**Bridge Design and Hydraulic Analysis**

The bridge design required significant hydraulic and hydrologic evaluations to appropriately size the bridge opening, overall structure length and to establish low chord elevation.

The effective FEMA hydraulic model for Indian Creek in the project area was acquired from the FEMA Project Library and utilized as the basis for hydraulic analysis. The effective model was modernized into an existing conditions model using channel and floodplain geometry developed from field survey and statewide LiDAR data, which more accurately depicts the natural floodplain. In addition, field survey and design plans were utilized to update the model to include the present-day geometry of the existing Central Avenue, Eighth Avenue, and Marion Boulevard bridges.

Peak flow values for the 25-, 100-, and 500-year event were used in hydraulic modeling, which were obtained from the effective FEMA model and match the values presented in the effective Linn County Flood Insurance Study. These values were compared to values derived from the USGS's StreamStats application, which is used to estimate peak flows on ungauged streams. Since the values from StreamStats were similar to the flows presented in the effective FEMA model and Linn County Flood Insurance Study, the effective values were used in the hydraulic design of the bridge. The flows from StreamStats were utilized to evaluate lower flow events such as the 50- and 20-year annual chance recurrence intervals (2 and 3-year events).

![Proposed Alburnett Road Bridge Cross-Section](image1)

Indian Creek was modeled from roughly 1000 feet south of Marion Boulevard up to the area just north of the intersection of 7th Avenue and 8th Street. The stretch of Indian Creek downstream of the proposed Alburnett Road bridge was included in order to accurately analyze the effect of the Marion Boulevard and Eighth Avenue bridges on potential flooding upstream. Likewise, the area upstream of the proposed Alburnett Road bridge was examined for the potential effects of the new bridge on upstream property owners. Field survey was performed to obtain critical elevations around at-risk properties. Figure 21 provides a schematic illustration of the water surface elevation for multiple storm events. Note that the 20% storm (5-year event) overtops the creek banks and inundates Willow Park. Also, the 10% storm (100-year event) will overtop the proposed Alburnett Road at the low point structure of the bridge. A break in the raised median is planned to accommodate this overflow area.

After an iterative approach analyzing multiple bridge designs for impacts on upstream flooding, a 20' x 6' pre-tensioned, pre-stressed concrete beam bridge was selected. This bridge size provides an optimal price with limited effect on flooding upstream during high flow events. The following page of this report includes the Situation Plan of the proposed bridge structure.

Since the new bridge will constrict the active floodplain, a 12' x 10' overflow culvert is necessary underneath Central Avenue in order to provide adequate protection for upstream property owners. This option is significantly more cost-effective than constructing a longer bridge at Alburnett Road. In addition, the culvert can be used as an underpass structure for the City's trail system when the culvert is dry.

Floodplain benches under the proposed bridge are included on both sides of Indian Creek in order to accommodate the development of pedestrian trails. Bench elevations will match floodplain elevations in areas adjacent to the bridge while maintaining a minimum of 2' of vertical clearance for trail users. Doing so will minimize fill in the floodplain and reduce disturbances in the channel resulting from grading the area under the bridge. Based on the post-project hydraulic analysis, trails underneath the bridge are expected to be launched during the 2-year annual chance recurrence interval event (5-year event). Since flood water will spill out of the banks of Indian Creek in adjacent areas to the bridge during this event, the trail in the surrounding floodplain will also be inundated.
SITUATION PLAN
Linn County
Marion, IA

08/15/2017
Bio-Retention

There are two bio-retention cells proposed within Willow Park adjacent to the trail. Bio-retention cells capture rainwater and allow it to infiltrate into the soil rather than running into a storm sewer system. These cells would be planted with native grasses, shrubs, and perennials which perform well in these types of environments. Should the cells become full, overflow pipes would direct the extra rainwater into the creek adjacent to the trail and park.

Limestone Outcropping

One option considered for the planted areas adjacent to the bridge is limestone outcroppings. These outcroppings could be used in Willow Park as a way to enhance the connection to Alburnett Road. The city could also require any developers along Alburnett Road to include limestone outcroppings within the landscape buffer behind residential properties which abut Alburnett Rd. Willow Park has opportunities to incorporate limestone outcroppings as well, should a trailhead be designed there.

Project Details
Willow Park Trailhead

Due to its proximity to the proposed trail, Willow Park would make a great trailhead location for the community. The park currently has an existing restroom facility as well as a small parking lot; both necessary elements for the trailhead. With the proposed Alsummer Road corridor splitting the park into two sections, connections across the roadway would be an important aspect in the revitalization of the park. Landscape buffers are proposed along this portion of the corridor to not only add trees back into the park, but to aid in directing pedestrians to crossing lanes.
Bridge

The proposed corridor requires a bridge be installed across Indian Creek. The bridge is a great opportunity to connect the corridor with its adjacent land uses. The materials and railings are opportunities to bring a theme to the corridor. Precast formliner is an inexpensive option for the concrete abutment on both sides of the creek. There are numerous patterns and colors available with this option. Cut stone is another option but would increase the cost.

Decorative railings on the bridge could be used to introduce an additional metal component to the corridor. There are multiple finishes and colors the city could choose. The color and/or finish could become a theme through the corridor and be added to proposed site furnishings or even as decorative fencing in the plant beds adjacent to Willow Park and at the intersections along Alburnett Road.
Typical Intersection Improvements & Site Furnishings
There are three major intersections proposed along the corridor all of which have traffic signals, pedestrian crosswalks, and areas for plantings to occur. Options for pavement improvements include brick paver corners, colored and/or stamped concrete crosswalks, and the incorporation of either limestone outcroppings or the decorative panels that mimic the bridge railing. The plants selected would be drought tolerant and low maintenance and would be similar to the plantings adjacent to the bridge. Where appropriate, benches and litter receptacles would be included in the corridor and would be of the same style as those found Uptown.
NEXT STEPS

Roadway
- Complete full buy out acquisitions associated with 184th Avenue and 88th Street.
- Select phasing of project to align with community needs and budget limitations
- Identify corridor theme
- Collaborate with other adjacent City improvements – parks, utility infrastructure, etc.
- Complete preliminary design
- Negotiate terms with Bowman Meadows Developer
- Initiate acquisitions along corridor
- Complete Final Design of selected phase(s)

Bridge
- Complete preliminary bridge design
- Conduct borings at designed abutment locations
- Select rail, form liner, other bridge enhancements

Environmental
Upon completion of preliminary design of the roadway and bridge, the Project Team will determine the environmental impacts within the projected study area. Based on the information developed to date, it appears over 1/2 acre of wetland but less than 500 linear feet of stream will be impacted by the project.

Wetland & Stream Impacts
Identify where wetlands and streams are impacted by the proposed action. Impacts to waters of the U.S., including wetlands, require permitting from the USACE prior to impact. Impacts to wetlands resulting in less than 1/4 acre and/or less than 500 linear feet of stream are typically permitted through the Nationwide Permit (NWP) process. Obtaining a NWP takes approximately 6-8 weeks from the application submittal.

If greater than 1/4 acre and/or 500 linear feet of stream is impacted, the proposed action will require an Individual Permit (IP) from the USACE as well as a 401 water quality certification from the Iowa DNR. An IP typically requires the following for submittal and approval from the USACE and Iowa DNR:
1. Wetland delineation – completed
2. Cultural resources survey – completed
3. Alternatives analysis – framework provided by this study
4. Wetland mitigation plan

An IP can typically be obtained between 6-12 months upon application submittal to the USACE and Iowa DNR.

Architectural Impacts
Consultation is required with the Iowa State Historical Preservation Office (SHPO) because structures identified as eligible for the National Register of Historic Places will be impacted by the proposed action. Mitigation may be required depending on SHPO determination. Mitigation ranges from documentation and publication of the history of the structure to full removal and relocation of the structure. Consultation will typically be completed in conjunction with the IP process.

Snyder & Associates
Project No. 116.0663
September 15, 2017

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Sub Total: $7,580,000
Contingency (5%+): $1,137,000
Construction Sub-Total: $8,717,000
Design Costs (5%): $498,000

Total Project Cost: $9,415,000

Snyder-Associates.com