

# GRAND TECHNOLOGY GATEWAY

GRAND PRAIRIE PARKWAY FROM MILLS CIVIC PARKWAY TO  
RACCOON RIVER DRIVE AND GRAND AVENUE FROM GRAND  
AVENUE (1,200 FEET WEST OF 88<sup>TH</sup> STREET) TO GRAND PRAIRIE  
PARKWAY

DALLAS COUNTY, IOWA  
HDP-8260(629)--71-25

## ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to 42 USC 4332(2)(c)

By The

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

And

IOWA DEPARTMENT OF TRANSPORTATION  
OFFICE OF LOCATION AND ENVIRONMENT

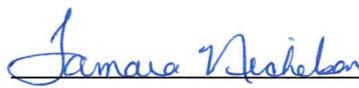
And

WEST DES MOINES, IOWA

The signatures are considered acceptance of the general project location and concepts described in the environmental document unless otherwise specified by the approving officials. However, such approval does not commit to approve any future grant requests to fund the preferred alternative.



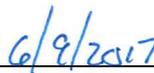
For the Iowa Division Administrator  
Federal Highway Administration



For the Office of Location and Environment  
Iowa Department of Transportation



For the City Engineer  
City of West Des Moines



Date of Approval for Public Availability

The following persons may be contacted for additional information:

Ms. Karen Bobo, P.E.  
Iowa Division Administrator  
Federal Highway Administration  
105 6<sup>th</sup> Street  
Ames, IA 50010  
Telephone: 515-233-7300

Ms. Tamara Nicholson  
Office of Location and Environment  
Iowa Department of Transportation  
800 Lincoln Way  
Ames, IA 50010  
Telephone: 515-239-1225

Mr. Brian J. Hemesath, P.E.  
Interim City Engineer  
City of West Des Moines  
4200 Mills Civic Parkway  
West Des Moines, IA 50265  
Telephone: 515-273-0642

**PREFACE**

The Transportation Equity Act of the 21<sup>st</sup> Century (TEA-21) (23 CFR) mandated environmental streamlining in order to improve transportation project delivery without compromising environmental protection. In accordance with TEA-21, the environmental review process for this project has been documented as a Streamlined Environmental Assessment (EA). This document addresses only those resources or features that apply to the project. This allowed study and discussion of resources present in the study area, rather than expend effort on resources that were either not present or not impacted. Although not all resources are discussed in the EA, they were considered during the planning process and are documented in the Streamlined Resource Summary, shown in Appendix A.

The following table shows the resources considered during the environmental review for this project. The first column with a check means the resource is present in the project area. The second column with a check means the impact to the resource warrants more discussion in this document. The other listed resources have been reviewed and are included in the Streamlined Resource Summary.

**Resources Considered**

SOCIOECONOMIC	NATURAL ENVIRONMENT
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Land Use <input type="checkbox"/> <input type="checkbox"/> Community Cohesion <input type="checkbox"/> <input type="checkbox"/> Churches and Schools <input type="checkbox"/> <input type="checkbox"/> Environmental Justice <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Economic <input type="checkbox"/> <input type="checkbox"/> Joint Development <input type="checkbox"/> <input type="checkbox"/> Parklands and Recreational Areas <input type="checkbox"/> <input type="checkbox"/> Bicycle and Pedestrian Facilities <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Right of Way <input type="checkbox"/> <input type="checkbox"/> Relocation Potential <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Construction and Emergency Routes <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Transportation	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Wetlands <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Surface Waters and Water Quality <input type="checkbox"/> <input type="checkbox"/> Wild and Scenic Rivers <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Floodplains <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Wildlife and Habitat <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Threatened and Endangered Species <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Woodlands <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Farmlands
CULTURAL	PHYSICAL
<input type="checkbox"/> <input type="checkbox"/> Historical Sites or Districts <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Archaeological Sites <input type="checkbox"/> <input type="checkbox"/> Cemeteries	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Noise <input checked="" type="checkbox"/> <input type="checkbox"/> Air Quality <input checked="" type="checkbox"/> <input type="checkbox"/> Mobile Source Air Toxics (MSATs) <input checked="" type="checkbox"/> <input type="checkbox"/> Energy <input type="checkbox"/> <input type="checkbox"/> Contaminated & Regulated Materials Sites <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Visual <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Utilities
<input checked="" type="checkbox"/> <b>CONTROVERSY POTENTIAL:</b> Woodland impacts, threatened and endangered species	
<input type="checkbox"/> <b>Section 4(f):</b> Not present	

**TABLE OF CONTENTS**

1.0 Description of the Proposed Action ..... 1

2.0 Project History ..... 4

3.0 Purpose and Need for Action ..... 7

4.0 Alternatives ..... 9

    4.1. No Build Alternative ..... 9

    4.2. Alternatives Considered but Dismissed ..... 10

        4.2.1. Alternative 1 ..... 10

        4.2.2. Alternative 2 ..... 10

        4.2.3. Alternative 4 ..... 10

    4.3. Proposed Alternatives ..... 11

        4.3.1. Alternative 3 ..... 11

        4.3.2. Alternative 5 ..... 11

    4.4. Summary of Alternatives Comparison ..... 11

    4.5. Final Alternative Selection ..... 12

5.0 Environmental Analysis ..... 15

    5.1. Socioeconomic Impacts ..... 15

        5.1.1. Land Use ..... 15

        5.1.2. Economic ..... 16

        5.1.3. Right of Way ..... 18

        5.1.5. Construction and Emergency Routes ..... 21

        5.1.6. Transportation ..... 22

    5.2. Cultural Impacts ..... 23

        5.2.1. Archaeological Sites ..... 23

    5.3. Natural Environment Impacts ..... 24

        5.3.1. Wetlands ..... 25

        5.3.2. Surface Waters and Water Quality ..... 29

        5.3.3. Floodplains ..... 30

        5.3.4. Wildlife and Habitat ..... 32

        5.3.5. Threatened and Endangered Species ..... 33

        5.3.6. Woodlands ..... 35

        5.3.7. Farmlands ..... 36

---

5.4.	Physical Impacts .....	37
5.4.1.	Noise .....	37
5.4.2.	Visual .....	41
5.4.3.	Utilities.....	42
5.5.	Cumulative.....	43
5.6.	Streamlined Resource Summary .....	46
5.7.	Locally Preferred Alternative .....	46
5.7.1.	Mitigation Approach.....	46
6.0	Disposition .....	50
7.0	Comments and Coordination .....	52
7.1.	Agency and Tribal Coordination .....	52
7.2.	NEPA / 404 Merge Coordination .....	53
7.3.	Public Involvement .....	54
8.0	References.....	55

Appendix A. Streamlined Resource Table

Appendix B. Agency and Tribal Coordination

Appendix C. Farmland Protection Form

## LIST OF FIGURES

Figure 1.	Project Location Map .....	2
Figure 2.	Project Study Area.....	3
Figure 3.	Planned Ultimate Roadway Network .....	6
Figure 4.	Alternatives Analyzed Overview.....	13
Figure 5.	Proposed Alternatives Overview .....	14
Figure 6.	Existing Land Use .....	19
Figure 7.	Proposed Right of Way.....	20
Figure 8.	Environmental Constraints .....	28
Figure 9.	Planned and Constructed Projects .....	48
Figure 10.	Locally Preferred Alternative .....	49

---

**LIST OF TABLES**

Table 1. Planned and Recently Completed Roadway Projects ..... 5

Table 2. Comparison of Alternative Impacts ..... 12

Table 3. Potentially Impacted Archaeological Sites ..... 24

Table 4. Field Delineated and Desktop Wetland Determinations in Study Area..... 26

Table 5. Dallas County Distribution of Federally Threatened and Endangered Species ..... 33

Table 6. Noise Abatement Criteria ..... 38

Table 7. Summary of Modeled Receptors ..... 39

Table 8. Summary of Noise Results..... 39

Table 9. 20-Foot High Noise Wall Abatement Summary ..... 41

Table 10. Summary of Impacts ..... 46

Table 11. Agency Coordination ..... 52

Table 12. Agency Concurrence on Concurrence Points 1 and 2..... 53

Table 13. Agency Concurrence on Concurrence Point 3 ..... 54

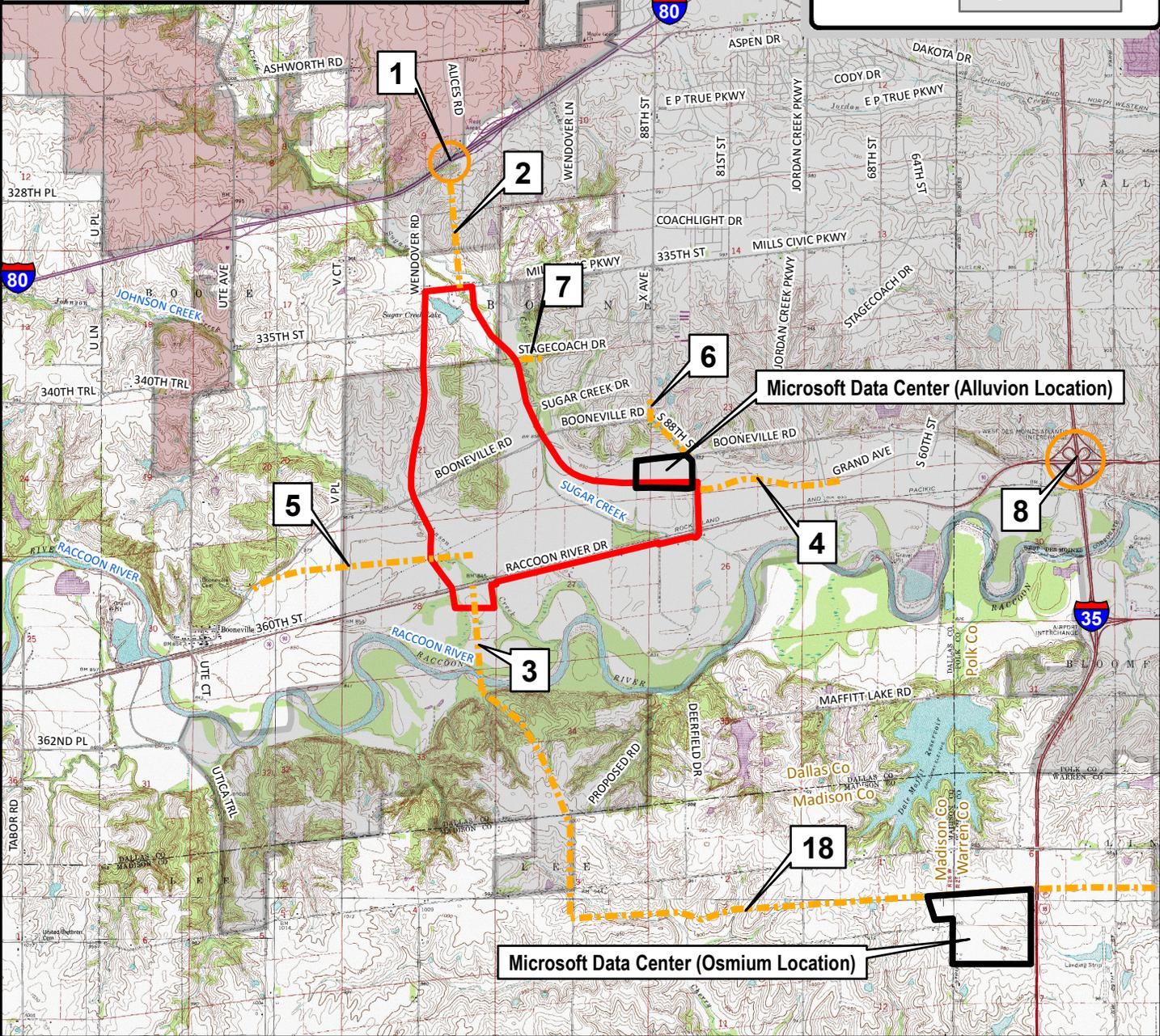
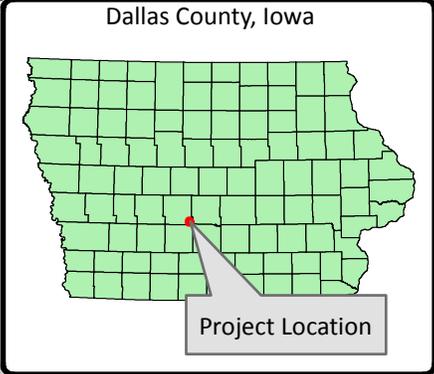
## **1.0 Description of the Proposed Action**

The City of West Des Moines, in coordination with the Iowa Department of Transportation (Iowa DOT) and the Federal Highway Administration (FHWA) are proposing to construct a 1.25-mile extension of Grand Avenue and a 2.0-mile extension of Grand Prairie Parkway. The proposed Grand Avenue extension would connect the current western terminus of Grand Avenue, located approximately 1,200-feet west of South 88<sup>th</sup> Street, on the east with the proposed extension of Grand Prairie Parkway on the west. The proposed Grand Prairie Parkway extension would connect to Mills Civic Parkway on the north and Raccoon River Drive on the south. Both proposed extensions would be arterial roadways providing controlled access to future side roads spaced at approximately one quarter mile along the roadway corridors. The proposed extensions would create a “T” intersection within the project study area, located north of Raccoon River Drive as described in Section 4 – Alternatives.

The proposed improvements are primarily located within the City of West Des Moines corporate limits. A small portion of the proposed improvements are located within an unincorporated area of Dallas County, Iowa as shown in Figure 1. The figure also shows other roadway projects in the area, which are discussed in Section 2.0.

The project study area is bounded by Mills Civic Parkway to the north and Raccoon River Drive to the south as shown in Figure 2. The western boundary generally consists of a line extending southward from Wendover Road to Raccoon River Drive. The eastern boundary generally follows Sugar Creek and the adjacent residential development on the east, connecting to South 88<sup>th</sup> Street.

Map ID	Project
1	I-80/ Grand Prairie Parkway Interchange
2	Grand Prairie Parkway Extension
3	Grand Prairie Parkway Bridge over Raccoon River
4	Grand Avenue Extension to the East
5	Grand Avenue Extension to the West
6	South 88th Street Widening
7	Stagecoach Drive Bridge over Sugar Creek
8	I-35/ Grand Avenue Interchange Reconstruction
18	Infrastructure for Microsoft Data Center (Osmium)



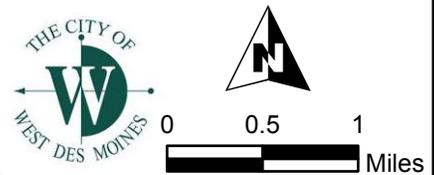
**FIGURE 1**  
**Project Location Map**

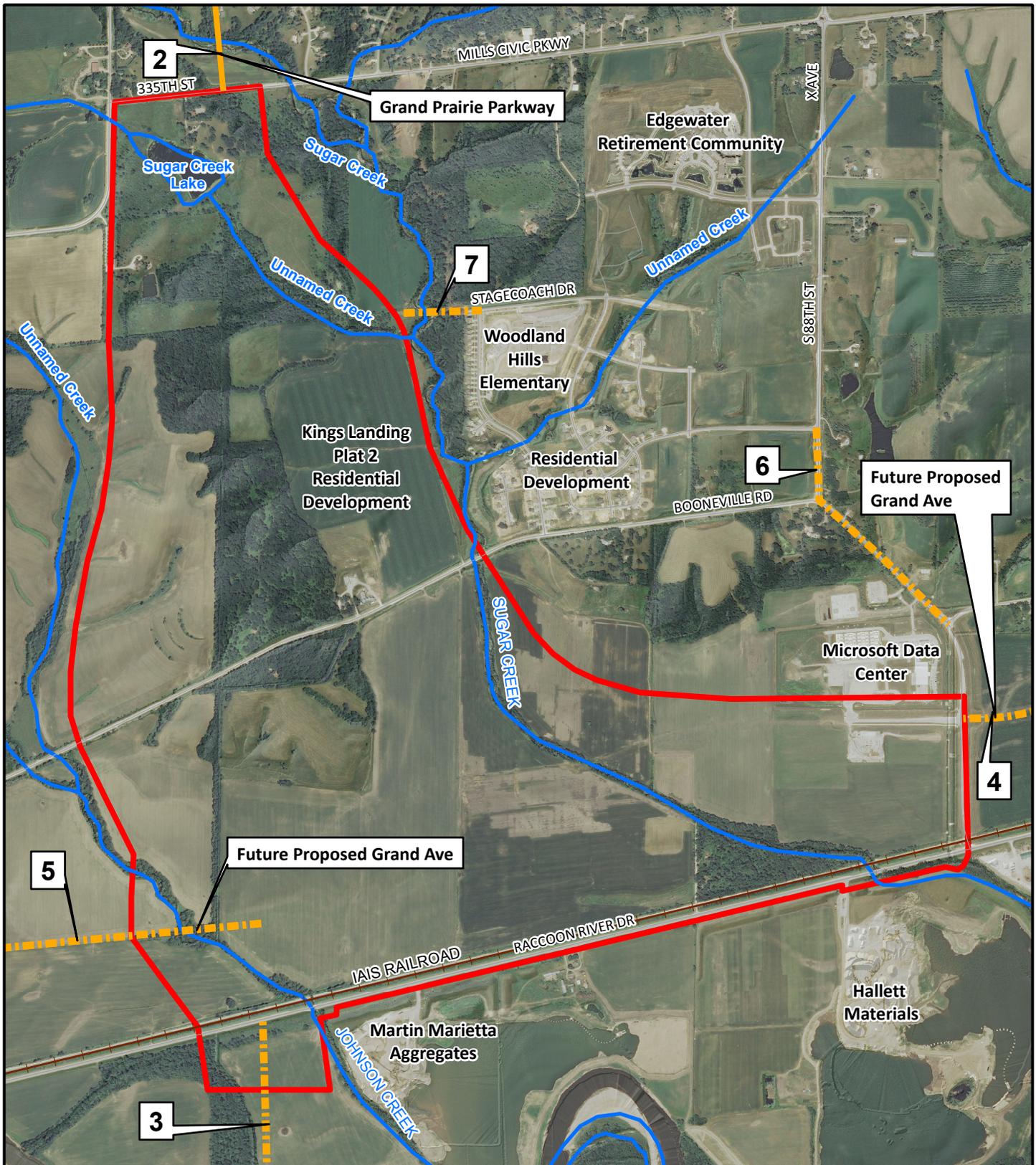
**Grand Technology Gateway  
Environmental Assessment**

West Des Moines, Iowa

**Legend:**

- Planned Improvements
- Recently Constructed Improvements
- Project Study Area
- West Des Moines City Limits
- Waukee City Limits





**FIGURE 2**  
**Project Study Area**  
**Grand Technology Gateway**  
**Environmental Assessment**  
 West Des Moines, Iowa

**Legend:**

- Planned Improvements
- Recently Constructed Improvements
- IAIS Railroad
- Project Study Area





## 2.0 Project History

The City of West Des Moines is a rapidly developing community in the Des Moines Metropolitan Area with growing transportation system improvement needs. The City's rapid development is fostered in part by the growth of technology-based businesses within and near the project study area. The proposed improvements are within a corridor locally known as the Grand Technology Gateway (GTG).

The proposed improvements are located in an area that has been historically rural. The City of West Des Moines extended its corporate boundary west into Dallas County in the 1990s. Since then, development has been expanding west into the rural areas. Residential development, an elementary school, a retirement community, and a large data center are located just to the east of the GTG project study area. Approximately 1.8-miles northeast of the project study area is a large commercial district including Jordan Creek Town Center, which is a two million square foot retail and lifestyle complex with numerous restaurants, stores and amenities. Adjacent to Jordan Creek Town Center are the corporate campuses of Wells Fargo and Athene USA.

The proposed improvements have been part of the City of West Des Moines' long-term planning vision since the 1993 Comprehensive Plan. This vision was carried forward into the modified Comprehensive Plan adopted on September 20, 2010<sup>1</sup>. In the vicinity of the GTG project area, the plan calls for commercial office, business campus, and medium density residential land uses. These developments in and near the project study area include targeted industries such as financial services, insurance, retail, hotel, information technology, life sciences, advanced manufacturing, and logistics.

In 2010, the Des Moines Area Metropolitan Planning Organization (DMAMPO) included the GTG project and supporting projects in its *Horizon Year 2035 Metropolitan Transportation Plan (MTP)*. This long range plan took into account existing development and projected growth to develop a list of projects for the metropolitan planning organization. The Proposed Action was initially slated for construction sometime between 2016 and 2025.

While the proposed GTG improvements will function independently, this project is a part of a larger roadway network as outlined in the City's Ultimate Streets Map<sup>2</sup>. This roadway network, as shown in Figure 3, is what the City ultimately plans to construct within the area in the future. A number of other improvement projects, in and around the project study area, that were included in the MTP are shown in Table 1 as well as Figure 3. Some of these roadways have been constructed and others are in various stages of the planning and design process. Planned and recently completed roadway projects in the vicinity of the GTG project are shown in Figure 1 and described in Table 1.

---

<sup>1</sup> The complete *City of West Des Moines 2010 Comprehensive Plan* can be found here:

<http://www.positionedperfectly.com/our-business/the-stats/comprehensive-plan-land-use-map.html>

<sup>2</sup> A copy of the City's Ultimate Streets Map can be found here: <http://www.wdm.iowa.gov/discover-wdm/explore-west-des-moines/maps-gis>.

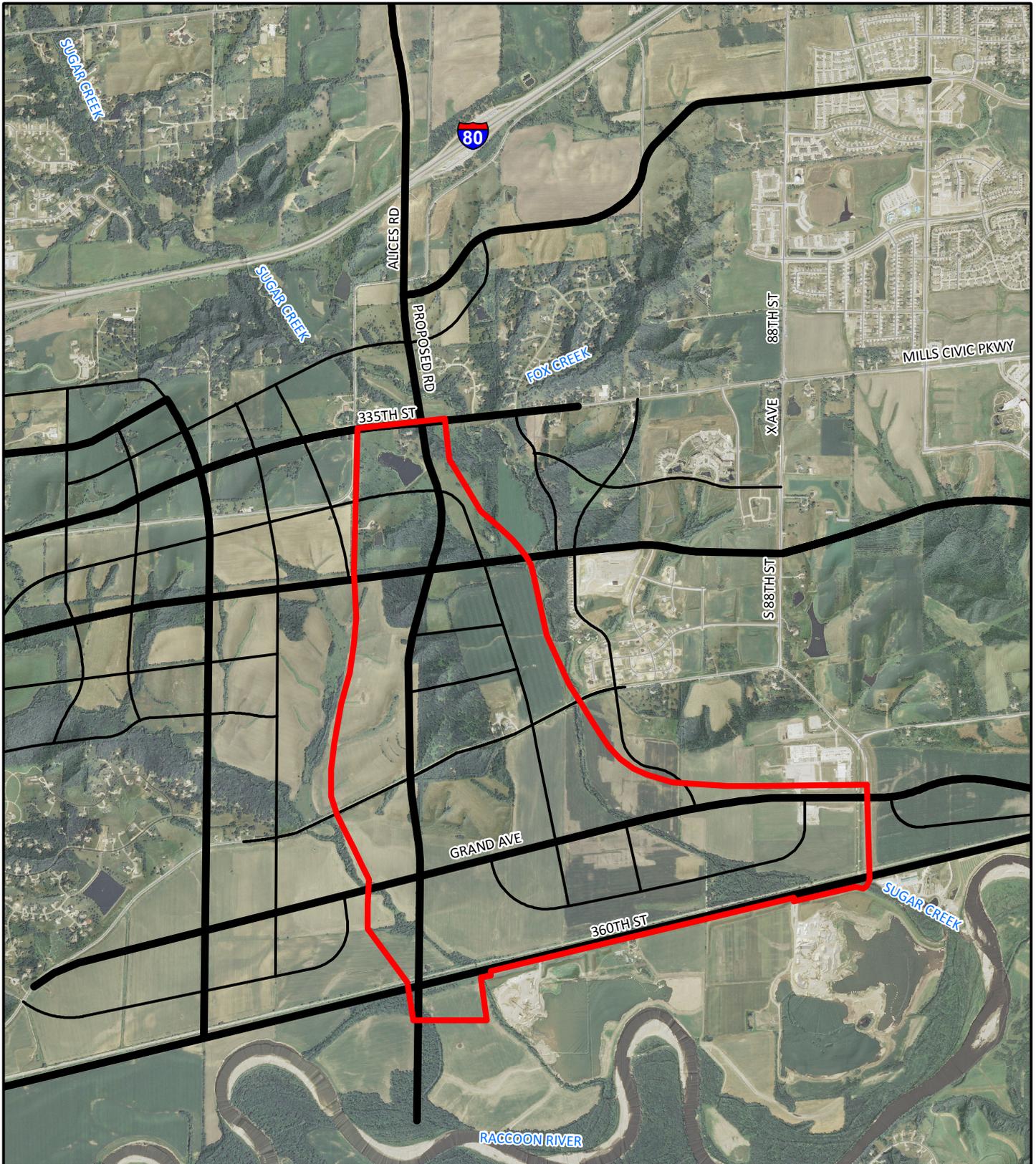
**Table 1. Planned and Recently Completed Roadway Projects**

Map ID (Figure 1)	Project	Location	Status
1	I-80/ Grand Prairie Parkway Interchange	Ashworth Road to South of Wendover Road	Construction completed in 2015
2	Grand Prairie Parkway Extension	South of Wendover Road to Mills Civic Parkway	Construction completed in 2016
3	Grand Prairie Parkway Bridge over Raccoon River	Grand Avenue to South of Raccoon River	Construction anticipated in 2017
4	Grand Avenue Extension to the East	South Jordan Creek Parkway to South 88 <sup>th</sup> Street	In Planning Stage
5	Grand Avenue Extension to the West	Proposed Grand Prairie Parkway west to Booneville Road	In Planning Stage
6	South 88 <sup>th</sup> Street Paving	Booneville Road to Sugar Creek Drive	Construction completed in 2016
7	Stagecoach Drive Bridge over Sugar Creek	Stagecoach Drive to West of Sugar Creek	Construction anticipated in 2017
8	I-35/ Grand Avenue Interchange Reconstruction	1,000 feet west of existing ramp terminal to 1,000 feet east of existing ramp terminal	Construction completed in 2015
18	Infrastructure for Microsoft Data Center (Osmium Location)	6 miles of Veterans Parkway from Maffitt Lake Road to Grand Prairie Parkway, Realign SW 60 <sup>th</sup> Street from Cummings city limit to Adams Street, Pave SE 50 <sup>th</sup> Street from Veterans Parkway to Polk/Warren County line	In Design Stage

Additional planned improvements for extensions of existing roadways intersecting the proposed Grand Prairie Parkway include Stagecoach Drive, Booneville Road, and Grand Avenue. South 95<sup>th</sup> Street is planned to intersect Grand Avenue within the project study area and extend to Mills Civic Parkway outside the study area. The construction timeline for these additional planned improvements are development-dependent and their construction timelines are unknown at this time.

Federal, state, and local agencies and tribes were contacted in November 2013 as part of early agency coordination. In addition, federal and state agencies met in October 2014 to discuss the purpose and need of the project as well as the range of alternatives as part of the agency concurrence point process. More information about agency coordination for the proposed action is included in Section 7.0 – Comments and Coordination.

A public information meeting was held on June 24, 2015 at the City of West Des Moines City Hall. The purpose of the meeting was to discuss and receive public input on the development of the location study and environmental studies for the proposed action. More information about the public involvement for the proposed action is included in Section 7.0 – Comments and Coordination.



**FIGURE 3**  
**Planned Ultimate**  
**Roadway Network**

**Grand Technology Gateway**  
**Environmental Assessment**

West Des Moines, Iowa

**Legend:**

- Project Study Area
- Proposed Arterial
- Proposed Collector

Source: "City of West Des Moines 2010 Comprehensive Plan"



0 1,250 2,500  
 Feet

### **3.0 Purpose and Need for Action**

The purpose of the proposed project is to extend Grand Prairie Parkway and Grand Avenue. Grand Prairie Parkway would extend south from I-80 to connect with a future Grand Prairie Parkway crossing of the Raccoon River. Grand Avenue would extend west to connect with the extension of Grand Prairie Parkway. Grand Avenue and Grand Prairie Parkway would intersect north of Raccoon River Drive.

Need for Action:

- Improve Local System Linkage
- Support Planned Economic Development

#### ***Improve Local System Linkage***

Ongoing and planned development has generated a need for a road network that provides improved property access and traffic circulation. The cities of West Des Moines and Waukee, and the Iowa DOT are committed to multiple transportation projects in the project study area; the following are already under construction or completed:

- A new interchange at I-80 and Grand Prairie Parkway (Completed in 2015, Map ID #1)
- The extension of Grand Prairie Parkway south from I-80 to Mills Civic Parkway (Completed in 2016, Map ID #2)
- A reconstructed interchange at I-35/Grand Avenue Interchange (Completed in 2015, Map ID #8)

In addition to the public projects listed above, there are private projects occurring in and near the project study area. A private developer is considering potentially funding a portion of a Grand Prairie Parkway crossing of the Raccoon River. The GTG project study area is centrally located amongst the previously listed transportation projects and would provide connectivity between those projects and the ongoing commercial and residential development adjacent to and east of the project study area.

Currently, there is no efficient way to navigate from Mills Civic Parkway at Sugar Creek south to Booneville Road or Raccoon River Drive. The existing road network in and around the project study area consists of gravel roads that do not provide adequate access and mobility to the interstates or major arterial roadways for existing and planned development. The present road network, specifically within the project study area, would not sufficiently accommodate increased traffic and planned development. Existing gravel roads limit the north-south mobility of motorists between Mills Civic Parkway and Grand Avenue or Raccoon River Drive which in turn limits access to I-80 to the north. East-west mobility currently occurs on Mills Civic Parkway on the far north end of the study area, Raccoon River Drive on the far south end, and Booneville Road located in the middle of the study area. However, none these routes allow for a direct connection to I-35 east of the project study area. The lack of linkage and the rural design of these roads limit accessibility to current, new, or proposed land development within or surrounding the project study area.

#### ***Support Planned Economic Development***

The City of West Des Moines continues to be a rapidly growing city with extensive planned and ongoing commercial, residential, and industrial growth. The City of West Des Moines' 2010 Comprehensive Plan shows mixed development extending approximately two miles west of the project study area and approximately 3.7 miles south of the project study area into Madison and Warren Counties. Ultimately, Grand Avenue is planned to extend through the project study area and end at Ute Avenue approximately

1.5 miles to the west. Also private developers have purchased multiple parcels of land within, and adjacent to the project study area. These parcels were rezoned for residential development and land use updates were completed.

The City of West Des Moines' 2010 Comprehensive Plan shows the land in and adjacent to the GTG project study area planned for light industrial, commercial-office, commercial-business parks, and residential land uses. Previous activities completed along and adjacent to the project study area include the following:

- Construction of Grand Avenue and South 88<sup>th</sup> Street roadway improvements adjacent to the Microsoft data center campus and Raccoon River Drive.
- A 54 inch diameter sanitary sewer installed from Grand Avenue and South Jordan Creek Parkway west to the west side of Sugar Creek and continuing northwest along the creek.
- A 16 inch diameter water main was installed by the West Des Moines Water Works from the South Jordan Creek Parkway and Grand Avenue intersection extending west along the proposed alignment of Grand Ave. to approximately 1,250 feet west of 88<sup>th</sup> Street. .
- Construction of MidAmerican's transmission lines and substations starting from the Microsoft data center then heading southwest to Raccoon River Drive.
- Construction of channel widening and mitigation along the west side of South 88<sup>th</sup> Street.
- A 165 foot-wide public right of way purchased and dedicated from Grand Avenue and Jordan Creek Parkway intersection west to the west property line of Microsoft's Data Center campus.

## 4.0 Alternatives

This section will discuss the alternatives investigated to address the project's purpose and need. A range of alternatives was developed, including slight variations to the road's alignment. The No Build Alternative, the alternatives considered but dismissed, and the Proposed Alternative are discussed below.

There are three different proposed north/ south alignments for Grand Prairie Parkway and two different proposed east/ west alignments for Grand Avenue. Of the six potential combinations of the north/ south and east/ west alignments, one combination, "*Grand Prairie Parkway (East)*" and "*Grand Avenue (North)*" did not present a viable intersection and was not considered as an alternative for further evaluation. Therefore, five build alternatives and one no build alternative were developed for consideration.

The three proposed Grand Prairie Parkway alignments include "*(East)*", "*(West)*", and "*(West 2)*". All three of the proposed Grand Prairie Parkway alignments include six new lanes, three lanes in each direction, extending Grand Prairie Parkway from the intersection with Mills Civic Parkway on the north to Raccoon River Drive on the south. This six-lane roadway would be constructed within a 165-foot-wide corridor including six 12-foot-wide lanes, a 30-foot-wide median, a 10-foot-wide multipurpose trail on the east and a 4-foot-wide sidewalk on the west. Each of the three Grand Prairie Parkway alignments must cross MidAmerican Energy electrical transmission lines, routing the roadway between the existing support towers.

The proposed Grand Avenue alignments include "*(North)*" and "*(South)*". Both of the proposed Grand Avenue extension alignments include six new lanes, three lanes in each direction, extending from the proposed Grand Prairie Parkway to the current western terminus of Grand Avenue located approximately 1,250-foot west of S. 88<sup>th</sup> Street. This six-lane roadway would be constructed within a 165-foot-wide corridor including six, 12-foot-wide lanes, a 30-foot-wide median, a 10-foot-wide multipurpose trail on the south, and a 4-foot-wide sidewalk on the north. Only "*Grand Avenue (North)*" would cross MidAmerican Energy electrical transmission lines. "*Grand Avenue (South)*" is located further south and avoids the transmission lines.

The five build alternatives consist of different combinations of these proposed roadways as shown in Figure 4. In addition, all five build alternatives include the re-grading of Booneville Road to connect to the proposed Grand Prairie Parkway alignment. Under all five build alternatives, Booneville Road would remain a gravel road. It is anticipated that Booneville Road will be paved sometime within the next five to ten years, but this is would be a separate action and is not included in the proposed action.

### 4.1. No Build Alternative

The No Build Alternative takes no action to extend Grand Prairie Parkway or Grand Avenue, nor would any improvements be done to the existing Booneville Road. It is anticipated that within the next five to ten years Booneville Road will be paved if traffic volumes increase in the area. This would occur as a separate project regardless of the proposed action. Regular maintenance of the existing roads within the study area would occur, but new construction, ongoing or planned within the study area, is not considered as part of the No Build Alternative.

Seven of the eight projects described in Table 1 in Section 2 – Project History are in various stages of design or construction and will be discussed further in the Cumulative Impacts Section. It is assumed that these projects will be completed independently, regardless of the No Build Alternative or the Proposed Alternatives being constructed.

As planned development occurs, increased traffic levels would need to use the existing unpaved, rural roadways to access the primary system. This alternative would not satisfy the project's purpose and need requirements, because it has no means to increase system linkage, and would not accommodate previously planned economic development in the area. This alternative will be carried forward to the impact analysis step to serve as a baseline for comparison against the proposed alternatives.

## **4.2. Alternatives Considered but Dismissed**

### **4.2.1. Alternative 1**

Alternative 1 proposes the construction of extensions for Grand Prairie Parkway and Grand Avenue, as well as improvements to Booneville Road as shown in Figure 4. The proposed Grand Prairie Parkway alignment, called "*Grand Prairie Parkway (West)*," closely follows existing property lines. This alternative alignment minimizes new pavement length and avoids Sugar Creek Lake. The proposed Grand Avenue alignment, called "*Grand Avenue (North)*," is relatively straight, minimizes pavement, and avoids existing electrical transmission lines by going between the support towers. The 165-foot-wide corridor would miss the support towers by approximately 150 feet.

This alternative was dismissed because its proposed alignments for Grand Prairie Parkway and Grand Avenue would impact wetlands, streams, and woodlands (which contain threatened and endangered bat species) more than Alternatives 3, 4, and 5. In addition, this alternative was dismissed because the Grand Avenue alignment would cross Sugar Creek at a diagonal, increasing stream impacts, construction difficulty, and construction cost.

### **4.2.2. Alternative 2**

Alternative 2, shown in Figure 4, is identical to Alternative 1 except for the alignment of the Grand Avenue extension. The Grand Avenue alignment, called "*Grand Avenue (South)*," is located further to the south than in Alternative 1. Under this alternative, Grand Avenue extends from the existing Microsoft data center driveway, turns south to cross Sugar Creek at a right angle and sweeps west along the south edge of the project study area, completely avoiding the transmission lines, to an intersection with Grand Prairie Parkway approximately 850 feet north of Raccoon River Drive.

While the Grand Avenue alignment reduces the impacts to streams relative to Alternative 1, the same impacts would occur to woodlands, wetlands, and streams as in the proposed *Grand Prairie Parkway (West)* alignment, similar to Alternative 1; therefore, this alternative was dismissed.

### **4.2.3. Alternative 4**

Alternative 4, also shown in Figure 4, proposes the construction of the Grand Prairie Parkway along a more westerly alignment, called "*Grand Prairie Parkway (West 2)*," compared to Alternatives 1 and 2 and uses the same *Grand Avenue (North)* alignment as Alternative 1. Booneville Road would receive similar proposed improvements to those in Alternative 1. The *Grand Prairie Parkway (West 2)*, alignment curves east around the existing woodlands, crosses through a narrow section of the woodlands, and then runs just outside the western edge of the woodlands, before returning to intersect Raccoon River Drive at the expected location for the southerly Grand Prairie Parkway extension project that is currently under design. Both the Grand Avenue and Grand Prairie Parkway alignments would have to pass between the transmission towers, and would have reasonable separations similar to Alternative 1.

This alternative was eliminated because, like Alternative 1, the Grand Avenue alignment crosses Sugar Creek at a diagonal. This crossing would increase construction difficulty, construction costs, and cause approximately 10 percent more stream impacts than Alternative 5.

### **4.3. Proposed Alternatives**

#### **4.3.1. Alternative 3**

Alternative 3 proposes the construction of extensions for Grand Prairie Parkway and Grand Avenue, as well as improvements to Booneville Road, and can be seen in detail in Figure 5. The proposed alignment for Grand Prairie Parkway is a more easterly alignment than the other build alternatives, and is referred to as “*Grand Prairie Parkway (East)*.” This alternative follows Sugar Creek Lake and its outlet stream and then crosses the outlet stream at the eastern edge of the project study area. From there the alignment proceeds south crossing Booneville Road to the east, avoiding a farmstead, before curving back to the west around the woodlands to intersect Raccoon River Drive at the expected intersection for the southerly Grand Prairie Parkway extension project that is currently under design. The alignment for Grand Avenue is the same as Alternative 2, *Grand Avenue (South)*. The alignment passes between the transmission line towers while curving back to the Raccoon River Drive intersection; one of the towers rests only 70 feet away from the 165-foot-wide corridor, which is within the impact buffer, but it could be reasonably avoided during construction.

This alignment would minimize impacts to woodlands by avoiding them to the east. This alternative minimizes impact to streams by implementing a perpendicular crossing of Grand Avenue and Sugar Creek. Finally, this alternative minimizes wetland impacts by routing east of Sugar Creek Lake. It also traverses less steep terrain compared to the other build alternatives.

#### **4.3.2. Alternative 5**

Alternative 5 proposes the construction of extensions for Grand Prairie Parkway and Grand Avenue, as well as improvements to Booneville Road, and can be seen in detail in Figure 5. The proposed alignments are *Grand Prairie Parkway (West 2)*, the same as Alternative 4, and *Grand Avenue (South)*, the same as Alternatives 2 and 3. Both alignments used in this alternative would miss the transmission line towers, by either completely avoiding or passing through a gap between them.

This alternative minimizes impacts to streams by implementing a perpendicular crossing of Grand Avenue and Sugar Creek. This alternative minimizes impacts to wetlands by routing the roadway east of Sugar Creek Lake before returning to the west side of the woodlands. It also creates fewer woodland impacts compared to the dismissed build alternatives.

### **4.4. Summary of Alternatives Comparison**

A comparison of the impacts that the No Build and five Build Alternatives would have on key resources (those resources involved in future approval and permitting activities) in the study area are included in Table 2. The estimated preliminary impacts were based on a potential 365 foot-wide footprint which includes a 165 foot right-of-way, plus a 100 foot-wide buffer for alignment refinement in final design, on each side of the proposed right-of-way along the alignments for each alternative. The actual impacts the proposed project will have on environmental resources are anticipated to decrease from what is shown in Table 2 as the design process continues. This impact comparison table was used as a basis for determining which alternatives to dismiss from further evaluation, and which alternatives to carry forward.

**Table 2. Comparison of Alternative Impacts**

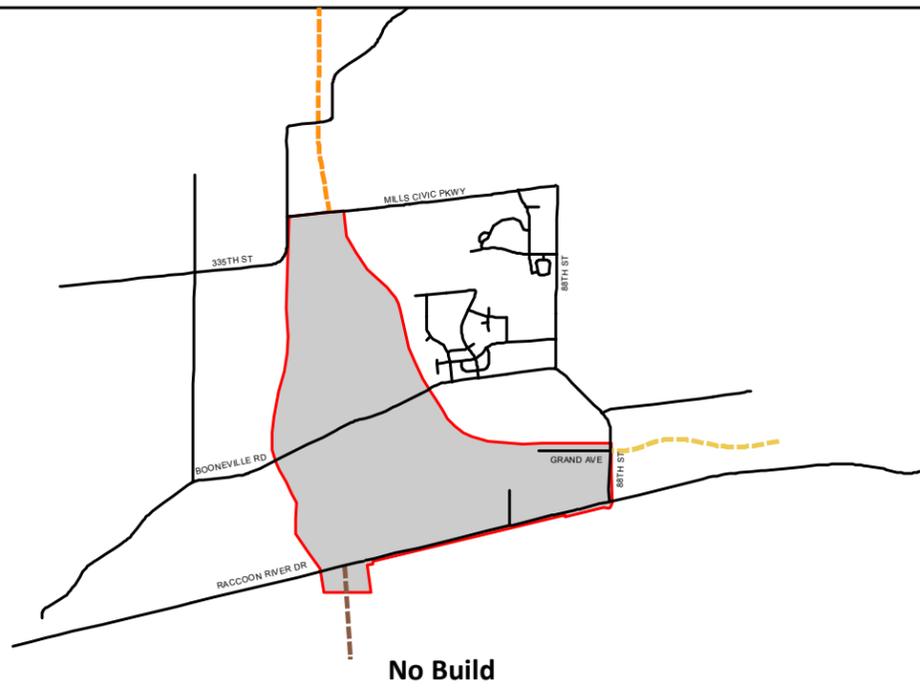
	No Build	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Floodplains (Acres)	0	64.51	83.82	88.52	64.46	88.81
Streams Impacts (Feet)	0	3,262	3,021	2,350	2,503	2,264
Archeology Sites <sup>a</sup>	0	4	4	1	0	0
Threatened and Endangered Species (Number of Species) <sup>b</sup>	0	3	3	3	3	3
Wetland Impacts (Acres)	0	3.46	3.43	0.87	0.56	0.54
Woodland Impacts (Acres)	0	44.64	44.60	11.30	25.54	24.96
Farmland (Acres)	0	82.65	84.72	111.46	104.28	105.51

<sup>a</sup> The archeology sites were identified, but require further evaluation to determine whether they qualify for listing on the National Register of Historic Places as a historic property.

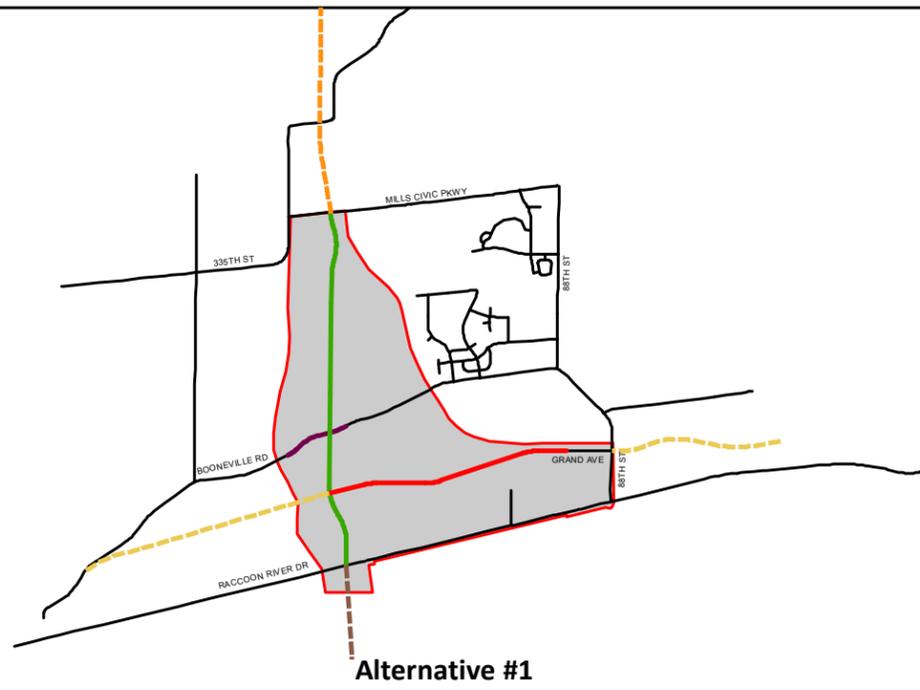
<sup>b</sup> The listed species potentially impacted include the Indiana bat, northern long-eared bat, and Topeka shiner.

#### 4.5. Final Alternative Selection

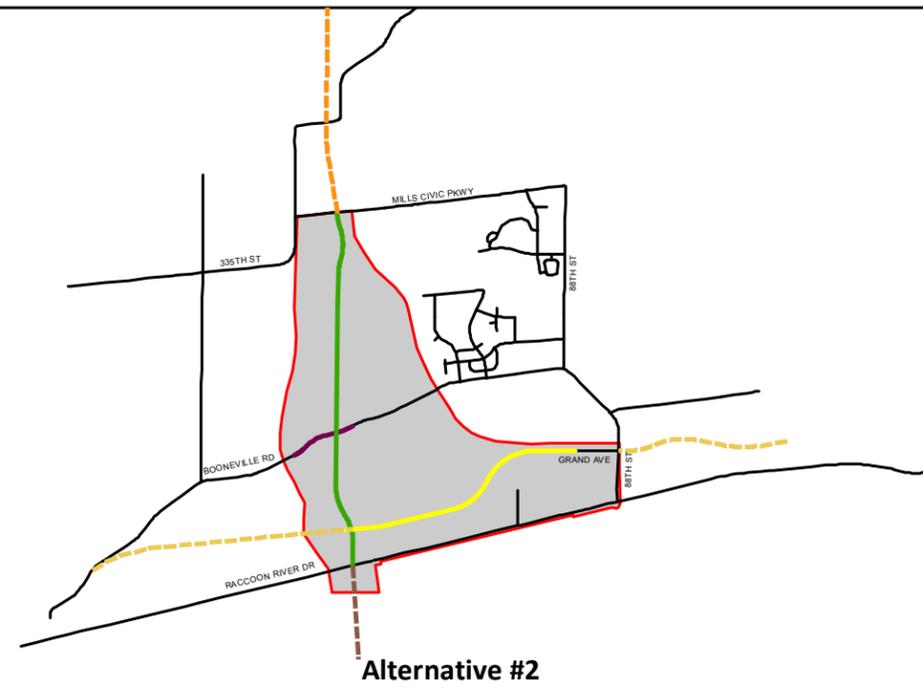
Final selection of an alternative will not occur until all comments on this document and from the public hearing are reviewed by FHWA and the City of West Des Moines. Following public and agency review of this EA, FHWA and Iowa DOT will determine if an Environmental Impact Statement (EIS) is required. If one is not required, the selected alternative will be identified in the Finding of No Significant Impact (FONSI) document. If an EIS is required, then a preferred alternative would be selected through that process.



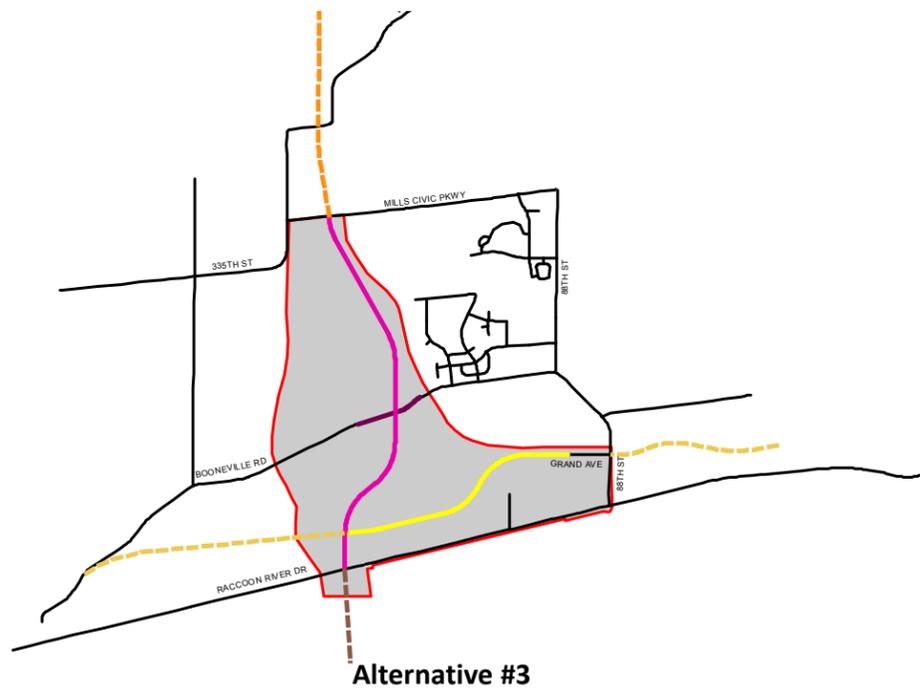
**No Build**



**Alternative #1**



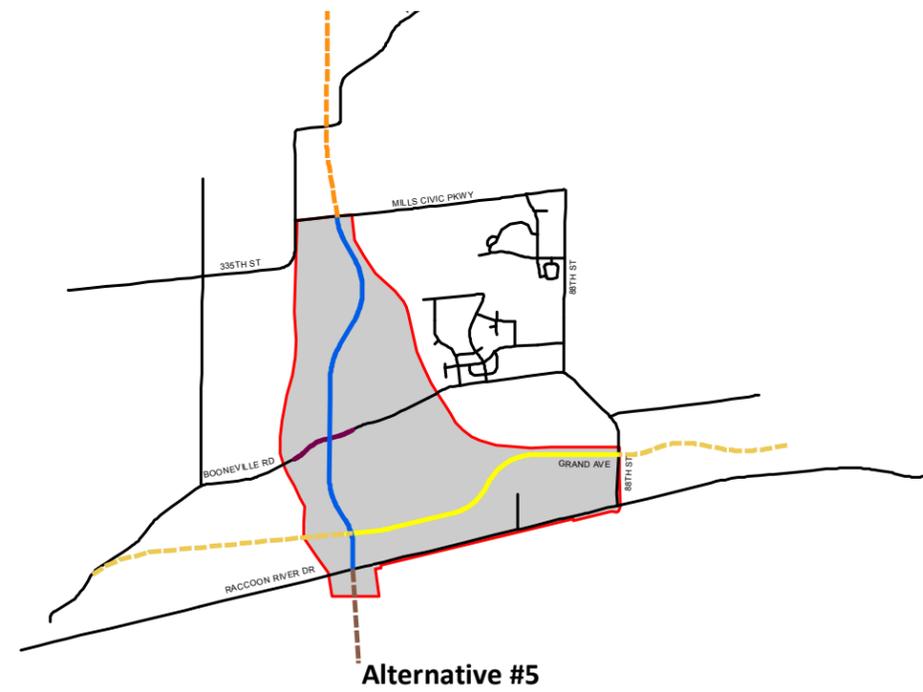
**Alternative #2**



**Alternative #3**



**Alternative #4**



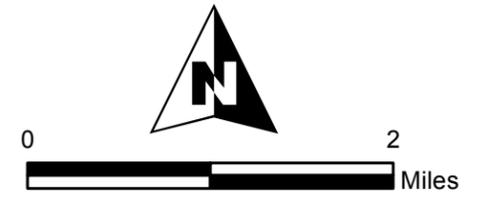
**Alternative #5**

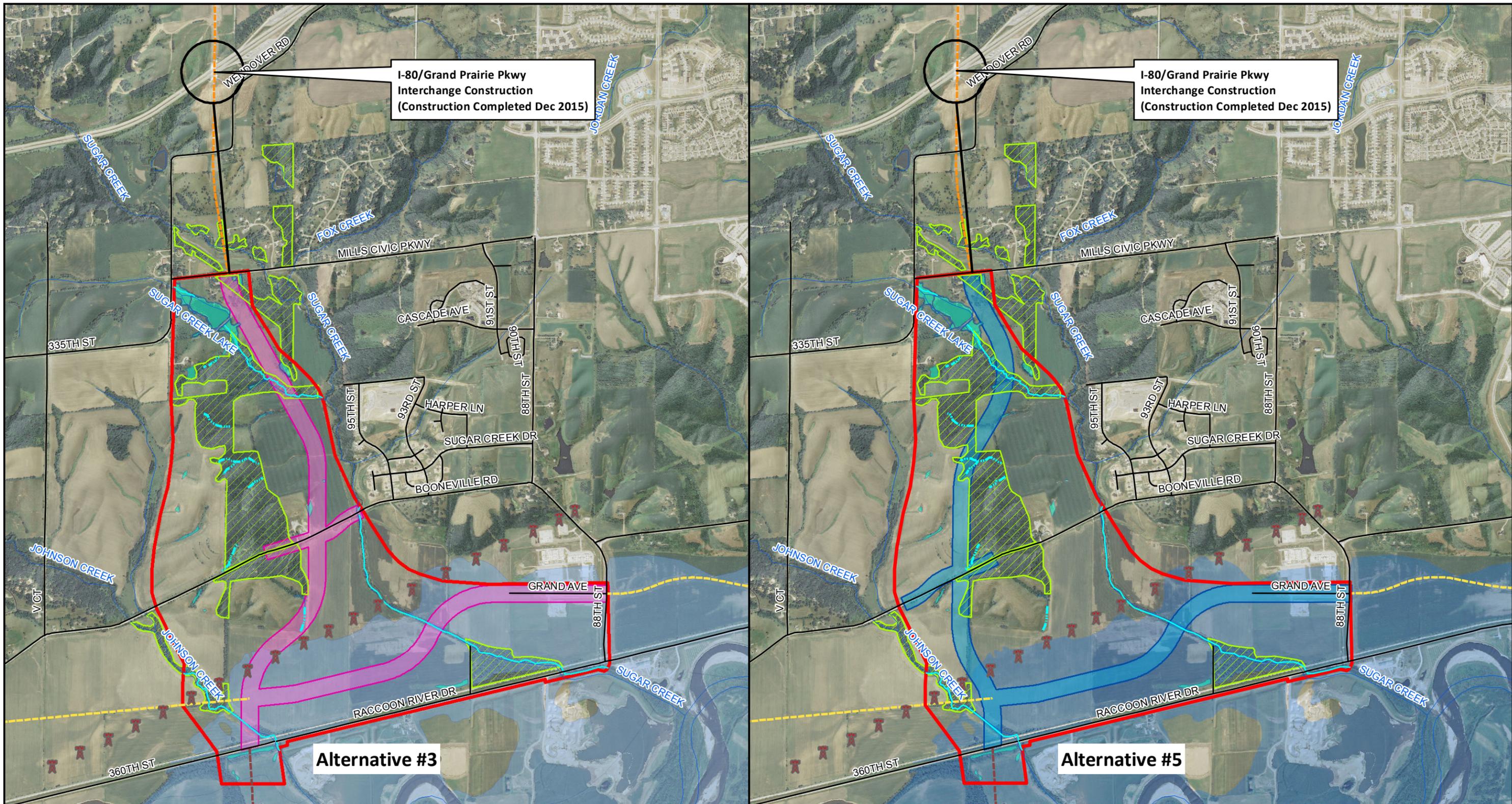
**FIGURE 4  
Alternatives Analyzed Overview**

**Grand Technology Gateway  
Environmental Assessment**  
West Des Moines, Iowa

**Legend**

- Project Study Area
- Grand Prairie Parkway (East)
- Grand Prairie Parkway (West)
- Grand Prairie Parkway (West2)
- Grand Avenue (North)
- Grand Avenue (South)
- Booneville Road
- Existing Roadways
- Future Grand Avenue Extensions
- Grand Prairie Parkway Under Construction
- Grand Prairie Parkway Under Design





I-80/Grand Prairie Pkwy  
Interchange Construction  
(Construction Completed Dec 2015)

I-80/Grand Prairie Pkwy  
Interchange Construction  
(Construction Completed Dec 2015)

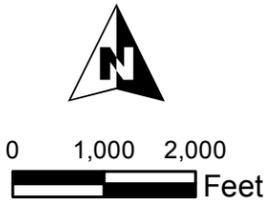
Alternative #3

Alternative #5

**FIGURE 5**  
**Proposed Alternatives Overview**

**Grand Technology Gateway  
Environmental Assessment**  
West Des Moines, Iowa

- |  |   |   |
|--|---|---|
| <p><b>Natural Resources</b></p> <ul style="list-style-type: none"> <li><span style="color: cyan;">—</span> Observed Streams</li> <li><span style="color: cyan;">- - -</span> Observed Ephemeral Streams</li> <li><span style="color: blue;">—</span> Rivers and Streams Outside Study Area</li> <li><span style="border: 1px solid red; display: inline-block; width: 15px; height: 10px;"></span> Study Area</li> <li><span style="background-color: yellow; border: 1px solid green; display: inline-block; width: 15px; height: 10px;"></span> Woodland Areas</li> <li><span style="background-color: lightgreen; border: 1px solid green; display: inline-block; width: 15px; height: 10px;"></span> Wetlands</li> <li><span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 15px; height: 10px;"></span> 100 Year Floodplain</li> </ul> | <p><b>Potential Impact Areas</b></p> <ul style="list-style-type: none"> <li><span style="background-color: pink; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Alternative #3</li> <li><span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Alternative #5</li> </ul> <p><b>Related Projects</b></p> <ul style="list-style-type: none"> <li><span style="color: yellow;">- - -</span> Future Grand Avenue Extensions</li> <li><span style="color: orange;">- - -</span> Grand Prairie Parkway Under Construction</li> <li><span style="color: brown;">- - -</span> Grand Prairie Parkway Under Design</li> </ul> | <p><b>Utilities</b></p> <ul style="list-style-type: none"> <li><span style="color: brown;">⌘</span> Transmission Tower</li> </ul> |
|--|---|---|



## 5.0 Environmental Analysis

This section describes the existing socioeconomic, cultural, natural and physical environments in the project corridor and the potential impacts associated with Alternative 3 and Alternative 5. The resources with a check in the second column in the “Resources Considered” table, located in the Preface to this document, warrant further discussion as presented below.

Each resources section includes an analysis of the No Build Alternative and the impacts of Alternative 3 and Alternative 5. Because it is early in the design process, a preliminary NEPA impact area was used for estimating direct and indirect impacts on the evaluated environmental resources. The preliminary NEPA impact area includes roadway right of way needs and the area where construction could occur. The area actually impacted by the selected alternative will likely be less than what is portrayed within the preliminary NEPA impact area, and some impacts to resources are expected to be minimized or avoided as the project design is refined. Consequently, the potential impacts discussed in this section of the EA are conservative, as efforts to minimize direct and indirect impacts will be made as the design is refined.

### 5.1. Socioeconomic Impacts

Evaluating the direct and indirect impacts that a transportation project has on socioeconomic resources requires consideration of impacts on land use as well as the project’s consistency with development and planning by a city or other public entity.

#### 5.1.1. Land Use

The City of West Des Moines began land use planning in the affected area in the early 1990’s and annexed the study area in the early 2000s. Primary land uses within the study area currently consist of agricultural and undeveloped usages as shown in Figure 6. There are four dispersed residential properties within the study area and a technological industry located at the corner of Grand Avenue and 88<sup>th</sup> Street.

The planned land uses within the study area, taken from the West Des Moines’ 2010 Comprehensive Plan, include primarily business park, office space, light industrial, and medium density residential land uses. The planned land use for the area immediately south of Raccoon River Drive, including a small portion within the study area, includes transforming the current quarries into open space and recreational areas. Other recreational areas could be developed along Sugar Creek based on the 2008 *Sugar Creek/Fox Creek Greenway Master Plan*.

The Comprehensive Plan anticipates ninety percent of the study area developing in the future, although some portions within the study area are un-zoned as of 2016. Most of the current development activity consists of residential uses, but there is a distinct interest in the city pursuing light industrial and commercial businesses in biomedical, communications, and technology fields to locate along the GTG.

#### *Alternative 3*

Alternative 3 would require the acquisition of lands consisting primarily of agricultural uses and undeveloped land, some of which is woodlands. Existing residential uses would be unaffected. The construction of Alternative 3 would allow for some of the planned development in the area to occur, and provide a backbone for future road projects that support the remaining development. Alternative 3’s proximity to Sugar Creek’s floodplain may limit the potentially developable area along the east side of the road. In addition, Alternative 3 is consistent with the *Sugar Creek/Fox Creek Greenway Master Plan*.

### **Alternative 5**

Alternative 5 would require the acquisition of lands consisting primarily of agricultural lands and woodlands. Existing residential uses will be unaffected. The construction of Alternative 5 would allow for development in the area to occur as envisioned by the Comprehensive Plan, and provide a backbone for future road projects that support the remaining development. Unlike Alternative 3, Alternative 5 could support potential development on both sides of the roadway. In addition, Alternative 5 is consistent with the *Sugar Creek/Fox Creek Greenway Master Plan*.

### **No Build Alternative**

No immediate change to land use in the area would occur under the No Build Alternative but smaller, independent, street projects may still occur in the study area. In such a case, development in the area could still occur under the No Build Alternative but it would not be completed as described in the Comprehensive Plan or in the *Sugar Creek/Fox Creek Greenway Master Plan* since the extensions of Grand Prairie Parkway and Grand Avenue are major components to the planned street network.

### **5.1.2. Economic**

Overall, economic activity based on the average taxable retail sales per capita for the fiscal year<sup>3</sup> 2014/2015 in the City of West Des Moines (\$27,145) is greater than the Iowa state average per capita (\$12,040) according to the Iowa State University FY 2015 Retail Trade Analysis Report. The City of West Des Moines has the highest average taxable property values per capita in the state, by a wide margin, and the third highest average taxable retail sales per capita in its peer group. West Des Moines is part of Peer Group 1, which includes all cities of population greater than 10,000 located in metropolitan service areas. In this peer group, the top two cities in terms of taxable retail sales per capita are Coralville and Altoona. Both have large retail enterprises located within their corporate limits, but have relatively small populations.

The City of West Des Moines has been aggressively growing its commercial activities, particularly in the Greater Des Moines Partnership's targeted industries such as insurance/financial services, data centers, biosciences, and advanced manufacturing. Of nearly 60,000 jobs within the city, Wells Fargo alone accounts for 14.3%, finance and insurance is thriving within the City of West Des Moines. There are two Microsoft data centers already located within city and the potential for additional target industries to locate in and near the study area.

In 2013, 979 new housing units were constructed with an estimated valuation of nearly \$192 Million. New commercial construction amounted for another \$210 Million, a record for the city. In 2015, a total of 983 building permits were issued for a valuation of over \$444 Million. The city expects this growth to continue in the future and is looking at locations like the GTG as locations for planned growth to occur.

Another strong aspect of the City of West Des Moines' economy is its retail and wholesale presence. It contains the Jordan Creek Mall, the largest shopping complex in the state of Iowa, with a total leasable area of 1.34 million square feet and visited by 20 million visitors each year. The mall is approximately three miles east of the study area on Mills Civic Parkway. In 2015, reported retail sales in the City of West Des Moines amounted over \$1.7 Billion.

---

<sup>3</sup> In comparison to a calendar year which begins January 1 and ends December 31 the city of West Des Moines's fiscal year begins July 1 and ends June 30.

The Grand Prairie Parkway and Grand Avenue extensions as part of the GTG are pieces of the Comprehensive Plan for the area. The City of West Des Moines plans to locate more commercial activity within the study area as well as provide more housing opportunities for their future workforce needs. Potential developers have already purchased properties or expressed interest in lands located within the study area.

The study area consists primarily of agricultural and undeveloped land and is located near one of the Microsoft data centers. Agriculture makes up one of the smallest portions of City of West Des Moines' workforce at only 1.9%. The average land value in Dallas County for farmland is \$8,150 per acre and is declining. The average acre of farmland in Dallas County produced 182.4 bushels of corn during 2015, and fetched a price of \$3.50 per bushel. The study area contains approximately 1,140 acres of land of which approximately 707 acres are zoned for agricultural use as shown in Figure 6.

### ***Alternative 3***

Alternative 3 would not displace or impact existing businesses, as there are none within the study area. Construction of the GTG would likely support planned commercial and residential development. The rapid and consistent growth that the City of West Des Moines is experiencing in the study area is likely to continue based on its proximity to I-80 and I-35 and employment hubs along Mills Civic Parkway including the Jordan Creek Town Center complex, Athene USA, and Wells Fargo.

The construction of Alternative 3 could potentially impact 111 acres of farmland, the majority of which is classified as "prime." The gross revenue from this farmland would average \$71,000<sup>4</sup> per year based on USDA estimating procedures. By comparison, the anticipated revenue from new commercial enterprises would likely far exceed current agricultural revenue. Additionally, taxable property value would also increase dramatically with conversion of agricultural lands to commercial use.

### ***Alternative 5***

Alternative 5 would not displace or impact any existing businesses, as there are none within the study area. Construction of the GTG would support planned commercial and residential development. The rapid and consistent growth that the City of West Des Moines is experiencing in the study area is likely to continue based on its proximity to I-80 and employment hubs along Mills Civic Parkway including the Jordan Creek Mall and Wells Fargo offices.

The construction of Alternative 5 could potentially impact over 105 acres of farmland, the majority of which is classified as "prime." The gross revenue from this farmland would average \$67,000<sup>5</sup> per year based on USDA estimating procedures. By comparison, the anticipated revenue from new commercial enterprises would likely far exceed current agricultural revenue. Additionally, taxable property value would also increase dramatically with conversion of agricultural lands to commercial use.

### ***No Build Alternative***

The No Build Alternative would not construct the GTG project, and the area would remain as agricultural land only until imminent development converts it to other land use types. Developmental momentum

---

<sup>4</sup> The value of \$71,000 was calculated by multiplying 182.4 bushels of corn per year, times the average price of \$3.50 per bushel, times 111 acres of farmland impacted by Alternative 3.

<sup>5</sup> The value of \$67,000 was calculated by multiplying 182.4 bushels of corn per year, times the average price of \$3.50 per bushel, times 105 acres of farmland impacted by Alternative 5.

within the city would likely still exist, and development may proceed in a less coordinated manner than what is planned in the City's Comprehensive Plan.

### **5.1.3. Right of Way**

The study area consists of approximately 1,140 acres including 55 parcels owned by 15 different persons or organizations. Within the study area, 89 acres are under the ownership of the City of West Des Moines. The city-owned lands include roadway right-of-way for existing Booneville Road, Raccoon River Drive, Mills Civic Parkway, Grand Avenue, and 88<sup>th</sup> Street. The parcel located in the southwest corner of existing Grand Avenue and 88<sup>th</sup> Street is also owned by the City of West Des Moines and is the proposed location of the City's future maintenance facility. The remaining 1,000 acres within the study area are privately owned.

#### ***Alternative 3***

The Alternative 3 footprint impacts approximately 131 acres of land and would not require relocations as shown in Figure 7. Of the 131 acres, approximately two acres of the City of West Des Moines's property located in the southeast corner of the study area would be converted to roadway right-of-way from its current usage, which is a grassy lot. The amount of land converted to roadway right-of-way for the construction and maintenance of the Proposed Grand Prairie Parkway and Grand Avenue roadways are anticipated to decrease as the design process continues.

The Grand Avenue extension would result in dividing several existing parcels in half, but would likely not lose existing access or usability as farmland. Grand Prairie Parkway's alignment may divide and isolate patches of existing parcels and land uses. One agricultural property would be divided into five separate fields, all of which may still be useable and access would need to be provided to all the parcels.

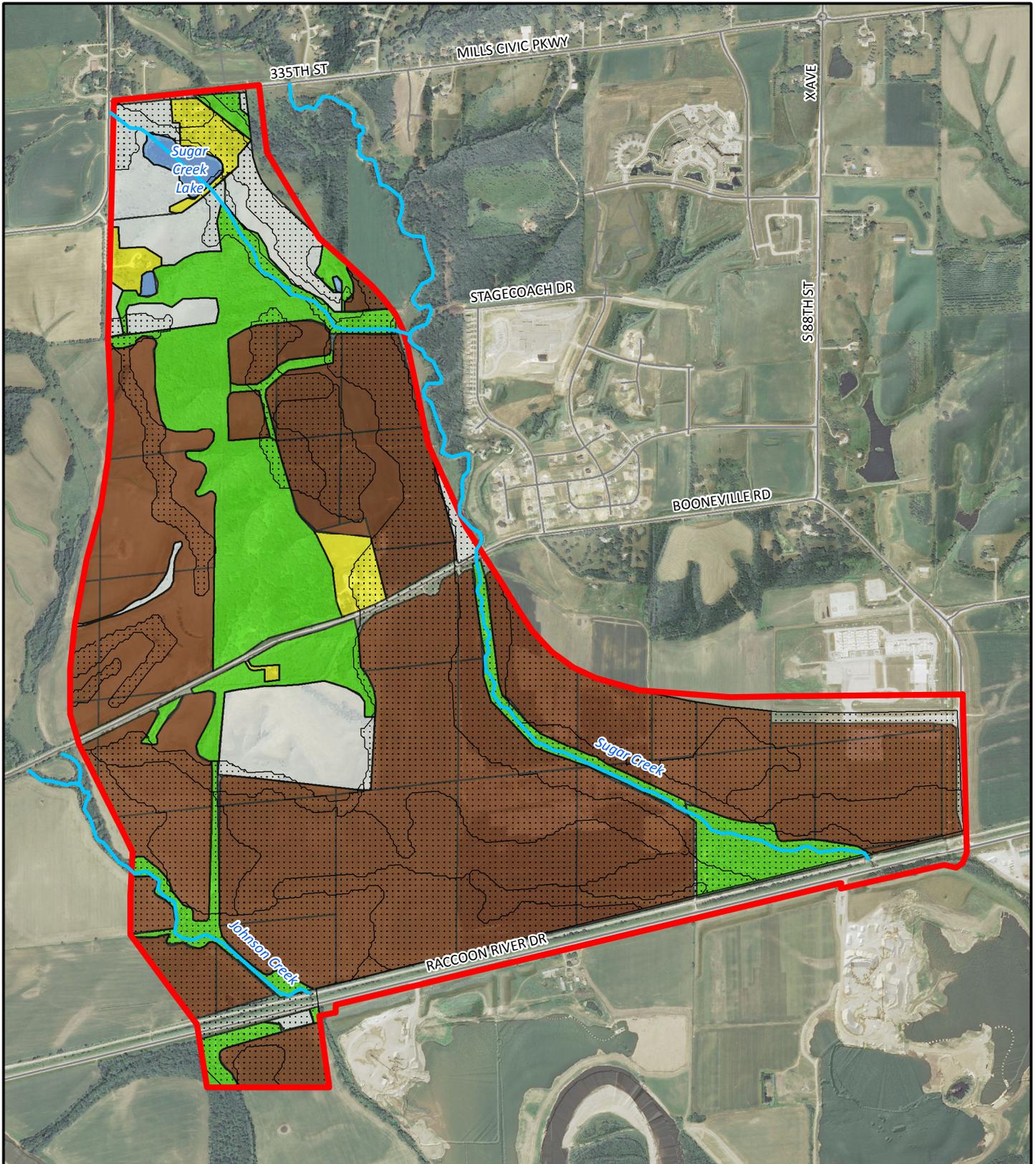
#### ***Alternative 5***

The Alternative 5 footprint impacts approximately 129 acres of land and would not require relocations as shown in Figure 7. Of the 129 acres, approximately two acres of the City of West Des Moines's property located in the southeast corner of the study area would be converted to roadway right-of-way from its current usage, which is a grassy lot. The amount of land converted to roadway right-of-way for the construction and maintenance of the Proposed Grand Prairie Parkway and Grand Avenue roadways are anticipated to decrease as the design process continues.

The Grand Avenue extension would result in dividing several existing parcels in half, but would likely not lose existing access or usability as farmland. The Grand Prairie Parkway's alignment would not separate, divide, or isolate any existing farm parcels.

#### ***No Build Alternative***

The No Build Alternative does not require any right of way acquisitions or relocations as part of the proposed GTG project. Developmental momentum within the city would likely still exist, and development may proceed in a less coordinated manner than what is planned in the City's Comprehensive Plan.



**FIGURE 6**  
Existing Land Use

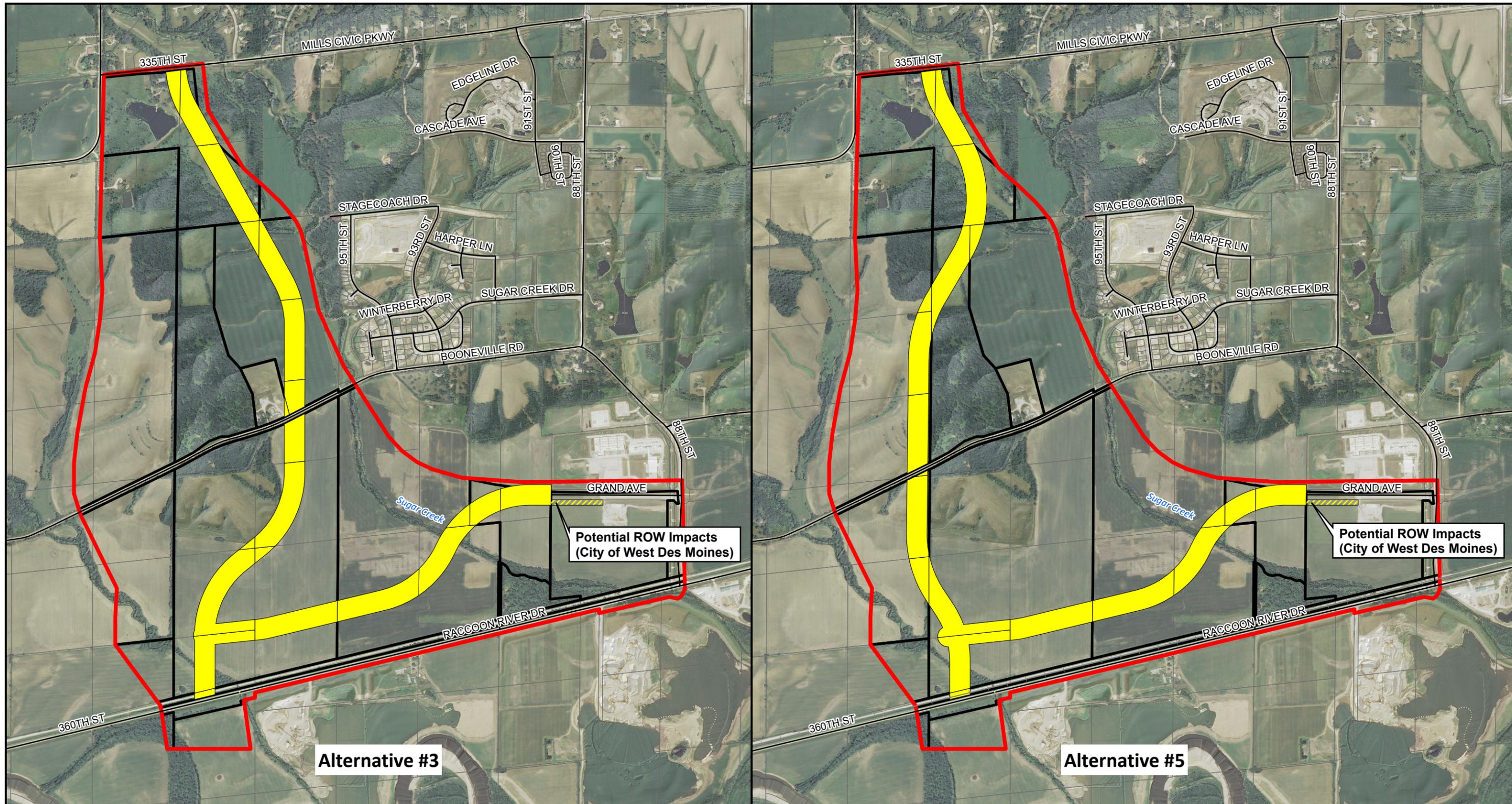
**Grand Technology Gateway  
Environmental Assessment**

West Des Moines, Iowa

**Legend:**

- Undeveloped Land
- Residential
- Agricultural Land
- Woodlands
- Ponds
- Project Study Area
- Prime Farmland
- Streams





**Alternative #3**

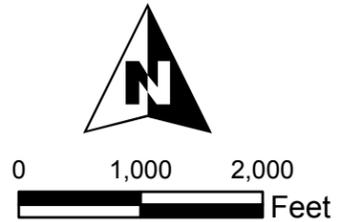
**Alternative #5**

Potential ROW Impacts  
(City of West Des Moines)

Potential ROW Impacts  
(City of West Des Moines)

**FIGURE 7**  
**Proposed Right of Way**  
**Grand Technology Gateway**  
**Environmental Assessment**  
West Des Moines, Iowa

-  Project Study Area
-  Potential ROW Impacts (Private)
-  Potential ROW Impacts (City of West Des Moines)
-  Properties
-  Parcels



### **5.1.5. Construction and Emergency Routes**

Emergency services within the project area are provided by the City of West Des Moines and dispatched from the Westcom Dispatch Center. Fire stations 18 and 19 are located directly to the east of the study area at 8055 Mills Civic Parkway and 5025 Grand Avenue, respectively. Ambulance services are also provided from the Fire Station 19 located on Mills Civic Parkway. Emergency services in the Des Moines area are provided across municipal boundaries as part of mutual aid responses and because of the combination of the dispatch services of Clive, Urbandale, West Des Moines and Norwalk into the Westcom facility. Emergency routes vary based on the location of an incident and possibly could be accommodated by a number of different emergency response facilities given certain locations.

The proposed project is located in an undeveloped and agricultural area that currently has few options for north / south emergency access. The construction of the proposed project would be staged so traffic and access to property would be maintained. A detailed staging plan would be developed during final design.

The majority of the construction of the GTG project could occur without disturbing existing roads such as Mills Civic Parkway, Booneville Road, and Raccoon River Drive. It is likely the construction of the proposed GTG project would not require detours. Temporary lane closures are likely during the construction of the proposed intersections of Grand Prairie Parkway with Mills Civic Parkway and Raccoon River Drive.

#### ***Alternative 3***

The construction of Alternative 3 would not likely disrupt emergency routes. The construction of Alternative 3 may have a beneficial impact on the response times in the area due to the addition and location of the proposed roadways.

Work on the re-graded portion of Booneville road would need to be staged to facilitate emergency vehicle access to the property located at 33061 Booneville Road.

Construction traffic would likely be routed primarily along Mills Civic Parkway and Raccoon River Drive. Direct access would be accommodated at the north and south termini, Booneville Road, and the existing Grand Avenue.

#### ***Alternative 5***

The construction of Alternative 5 would not likely disrupt emergency routes. Construction traffic would likely be routed primarily along Mills Civic Parkway and Raccoon River Drive. Direct access would be accommodated at the north and south termini, Booneville Road, and the existing Grand Avenue.

#### ***No Build Alternative***

There would be no disruption of emergency services as part of the No Build Alternative, although future developments west of Sugar Creek may have increased response times. This would be due to the lack of a paved arterial road passing through or near any private developments in the study area if neither Grand Prairie Parkway nor Grand Avenue is constructed.

### **5.1.6. Transportation**

The study area has little to no connectivity with primary transportation networks except for the three east/west roadways including Mills Civic Parkway, Booneville Road, and Raccoon River Drive.

Along the southern edge of the study area is a railroad section (Line 27) owned by the Iowa Interstate Railroad (IAISRR). This railroad is part of an interstate freight corridor crossing Iowa, extending from Council Bluffs to Chicago. This stretch of rail was studied as part of the Federal Rail Administration Tier 1 EIS Chicago to Council Bluffs-Omaha Regional Passenger Rail System Planning Study. There are, on average, four trains per day using this track. According to the Iowa Railroad Traffic Density Map, this track carries approximately 5.02 Million annual gross tons per mile. A DMAMPO commuter rail study published in 2000 explored the use of IAISRR to carry commuters from strategically placed park and ride facilities. The study determined that the low ridership from Altoona, Iowa did not merit its use and suggested a route from Waukee through the northern part of town would be more effective.

Because of the rural nature of the study area, there are no Des Moines Area Regional Transit (DART) bus services directly serving the area, including the on-call, flex routes, and paratransit services; nor are there plans to expand service to area in the DART Forward 2035 Plan. The proximity to the Jordan Creek Town Center does, however, raise a possibility of future consideration. Special transit programs may be available to qualifying city residents through the West Des Moines Human Services.

The construction of Grand Prairie Parkway would improve connectivity to the area, especially given the construction of the I-80 interchange to the north and lack of another suitable north-south corridor in the area. Direct access to potential development sites in the GTG study area does not exist but the proposed Grand Prairie Parkway and Grand Avenue extensions would provide the initial access towards a fully developed street network in the area, as outlined in the West Des Moines' 2010 Comprehensive Plan that provides adequate capacity for through and local vehicle traffic.

The City of West Des Moines Bicycle Master Plan, adopted in 2015, identifies the arterial and collector streets planned as part of the GTG as targets for expanding the existing bicycle network. The existing bicycle network only reaches as far west as 91<sup>st</sup> Street, but the ideal network in the Bicycle Master Plan encompasses the majority of West Des Moines. It includes trails along the proposed Grand Prairie Parkway and Grand Avenue extensions as well as trails along Sugar Creek, Johnson Creek, Mills Civic Parkway, the Raccoon River, the potential Stagecoach Drive extension, and a bike lane along the existing Booneville Road. The implementation of the Bicycle Master Plan is intended to be incremental; the City of West Des Moines would implement each project as determined by the Complete Streets Policy, on a case-by-case basis, and pursue other bike facility projects where feasible. Funds have yet to be allocated or time tables set for any of the projects in or around the study area.

#### ***Alternative 3***

Alternative 3 would offer the study area direct access to the primary network, substantially increasing connectivity by providing a direct north-south roadway to facilitate travel along Mills Civic Parkway, Raccoon River Drive, and I-80 from existing and future development within the area. Freight carriers would not need to navigate local and collector roads to make their way from Raccoon River Drive to I-80. The extension of Grand Avenue would improve regional connectivity by providing a continuous route from downtown Des Moines all the way to the western edge of the metro area.

Planned development would be able to construct a robust network of local streets to the west of the planned alignment, but to the east it may be more difficult due to the proximity to Sugar Creek.

Other forms of transportation may see benefits within the study area, including bicycles and pedestrians because 10-foot-wide multipurpose trails are proposed on the east side of Grand Prairie Parkway and south side of Grand Avenue and 4-foot-wide sidewalks are proposed on the west side of Grand Prairie Parkway and north side of Grand Avenue. The planned improvements in the area rely heavily on the proposed and existing arterial roads, mainly the Grand Prairie Parkway and Grand Avenue extensions. Railroad traffic would not be impacted by this project. Buses do not serve the project area, but with future development and improved connectivity, it may become more feasible to offer on-demand services or extend existing bus routes into the proposed improvement.

### ***Alternative 5***

Alternative 5 would offer the study area direct access to the primary network, increasing connectivity substantially by providing a north-south arterial to directly facilitate travel along Mills Civic Parkway, Raccoon River Drive, and I-80 from existing and future development within the area. Freight carriers would not need to navigate local and collector roads to make their way from Raccoon River Drive to I-80. The extension of Grand Avenue would improve regional connectivity by providing a continuous route from downtown Des Moines all the way to the western edge of the metro area.

Planned development would be able to construct a robust network of local streets off of the Grand Prairie Parkway extension, both to the east and to the west.

Other forms of transportation may see benefits within the study area, including bicycles and pedestrians because 10-foot-wide multipurpose trails are proposed on the east side of Grand Prairie Parkway and south side of Grand Avenue and 4-foot-wide sidewalks are proposed on the west side of Grand Prairie Parkway and north side of Grand Avenue.. The planned improvements in the area rely heavily on the proposed and existing arterial roads, mainly the Grand Prairie Parkway and Grand Avenue extensions. Railroad traffic would not be impacted by this project. Buses do not serve the project area, but with future development and improved connectivity it may become more feasible to offer on-demand services or extend existing bus routes into the proposed improvement.

### ***No Build Alternative***

No impacts to transportation services would occur as part of the No Build Alternative. Traffic along Mills Civic Parkway and Raccoon River Drive would likely continue to increase as development in West Des Moines continues. As development momentum continues, the area would lack the critical roadways and other transportation services needed to foster orderly and responsible expansion of the city.

## **5.2. Cultural Impacts**

This section characterizes the cultural resources including archaeological and historic properties in the study area and addresses potential impacts of Alternative 3, Alternative 5, and the No Build Alternative. No historic properties were found within the study area and are therefore not discussed below.

### **5.2.1. Archaeological Sites**

A Phase I Archaeological Investigation was conducted in February 2015. The survey examined approximately 75 percent of the study area because access to private property was not allowed in approximately 25 percent of the area. The areas that were not surveyed have moderate to high potential for archaeological sites to occur based on the proximity to the river valley and land formations in the area, and are recommended for a Phase I investigation. Of the areas that were surveyed, a total of seven archaeological sites were identified and are described in Table 3. Two sites were determined to not be

eligible for listing on the National Register of Historic Places (NRHP). The other five sites were recommended for avoidance or need to be further evaluated through a Phase II archaeological investigation before their eligibility for the NRHP can be determined. The State Historic Preservation Office (SHPO) concurred with these findings on March 30, 2015. This correspondence is included in Appendix B.

**Table 3. Potentially Impacted Archaeological Sites**

<b>Site ID Number</b>	<b>Site Type</b>	<b>NRHP Eligibility</b>	<b>Recommendation</b>
13DA385	Prehistoric, Lithic Scatter	Not Eligible	No Further Investigation
13DA386	Historic School	Potentially Eligible	Avoidance or Phase II
13DA387	Early Archaic-Woodland, Open Habitation	Potentially Eligible	Avoidance or Phase II
13DA388	Prehistoric/Historic, Artifact Scatter	Potentially Eligible	Avoidance or Phase II
13DA389	Prehistoric, Lithic Scatter	Not Eligible	No Further Investigation
13DA390	Historic, Modified Tree	Potentially Eligible	Avoidance or Phase II
13DA391	Historic, Modified Tree	Potentially Eligible	Avoidance or Phase II

### ***Alternative 3***

Approximately 75 percent of Alternative 3 alignment was studied for cultural resources. Of the information surveyed, Alternative 3 would impact one, site number 13DA387, of the five potentially eligible archaeological sites. If Alternative 3 is selected, archaeological site 13DA387 would need to be avoided or a Phase II archaeological investigation would be needed to determine if the site is eligible for listing on the NRHP. An effect determination would be coordinated with SHPO prior to the preparation of a FONSI, if a FONSI is determined to be the appropriate NEPA decision document.

### ***Alternative 5***

Approximately 90 percent of Alternative 5 alignment was studied for cultural resources. Of the information surveyed, Alternative 5 would not impact any of the five archaeological sites recommended for avoidance or Phase II investigation. An effect determination would be coordinated with SHPO prior to the preparation of a FONSI, if a FONSI is determined to be the appropriate NEPA decision document.

### ***No Build Alternative***

The No Build Alternative would not impact any identified archaeological sites. As development momentum continues, it is likely that additional impacts to archaeological resources could occur in the study area.

## **5.3. Natural Environment Impacts**

This section characterizes the natural resources in the study area and addresses potential impacts of Alternative 3, Alternative 5, and the No Build Alternative. The resources discussed include wetlands, surface waters and water quality, floodplains, wildlife and habitat, threatened and endangered species, woodlands, and farmland and are shown in Figure 8.

### **5.3.1. Wetlands**

Waters of the U.S. (WOUS), including wetlands, waterways, lakes, natural ponds, and impoundments, are regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act, which requires a permit to authorize the discharge of dredged or fill materials into waters of the U.S. (33 USC 121 et seq.). Executive Order 11990, Protection of Wetlands, requires Federal agencies, including FHWA, to implement “no net loss” measures for wetlands (42 Federal Register (FR) 26951). These no net loss measures include a phased approach to wetland impact avoidance, then minimization of impacts if wetlands cannot be avoided, and finally mitigation to compensate for impacts.

A wetland delineation was conducted in 2014 and 2015 to identify and map wetlands located within the project study area. The wetlands delineation identified 34 wetlands including 25 vegetated and open water wetlands and nine farmed wetlands within the study area. The survey examined approximately 75 percent of the wetland study area because access to private property was not allowed in approximately 25 percent of the area. Ten of the wetlands were delineated using offsite methods and observations because of the access restriction. Wetlands identified were associated with impounded ponds, drainage waterways around cropped areas, field depressions, and adjacent to small streams in the study area. All wetlands showed signs of prior disturbance from agricultural activity, stream straightening, or stream impoundment. No wetlands with outstanding natural resource quality such as outstanding Iowa waters, fens, bogs, seeps, or sedge meadows fens, seeps, sedge meadows or other special wetland types were identified within the study area. See Table 4 for individual wetland description and Figure 8 for wetland locations.

#### ***Alternative 3***

Alternative 3 would impact 0.87 acres of wetland (See Table 4). Approximately half of these wetland impacts would occur to a single farmed wetland. Actual wetland impact acreage could change due to final design.

#### ***Alternative 5***

Alternative 5 would impact 0.54 acres of wetland (See Table 4). Approximately half of these wetland impacts would occur to a single forested wetland. Actual wetland impact acreage could change due to final design.

#### ***No Build Alternative***

The No Build Alternative would not impact wetland resources found within the project study area. As development momentum continues, it is likely that additional impacts to wetland resources would occur in the study area.

**Table 4. Field Delineated and Desktop Wetland Determinations in Study Area**

Wetland ID*	Wetland Description/Classification†	Total Wetland Acres	Alt. 3 Impacted Acres	Alt. 5 Impacted Acres
Khatib Forested*	Forested depression flanked by steep slopes. Drains to tributary of Sugar Creek/PFO1A	0.415	0.000	0.278
Khatib Hill Base*	Reed canary grass (RCG) depression observed from road. Mapped hydric soil and PEMC on NWI/PEMB	0.450	0.002	0.002
Khatib Small Pond*	Small impoundment, PUBCh	0.936	0.137	0.000
Khatib Square Pond*	Small impoundment, PUBCh	0.167	0.167	0.167
Khatib Tributary Depression*	Saturated depression near stream/PEMB	0.478	0.000	0.010
Sugar Creek Below Dam*	Saturated depression below Sugar Creek Lake dam/PEMB	3.111	0.048	0.048
Sugar Creek Lake*	Large open water impoundment/PUBF	7.313	0.000	0.000
Lake Fringe A*	Cattails on lake fringe/PEMC	3.198	0.000	0.000
Lake Fringe B*	Cattails on lake fringe/PEMC	0.080	0.000	0.000
Lake Fringe C*	Cattails on lake fringe/PEMC	0.695	0.000	0.000
Gustafson Impoundment	Impounded pond on steep hillside/PUBF	1.037	0.000	0.000
Gustafson Forested	Fed by outfall of Gustafson Impoundment Wetland has narrow stream running through/PFO1B	0.194	0.000	0.000
Gustafson RCG	RCG-dominated wetland at base of long hill/PEMB	0.415	0.000	0.000
Kings Landing Bench	Small bench wetland within bank cut of tributary of Sugar Creek/PSS1A	0.070	0.000	0.000
Kings Landing Drainage	Isolated wetland community Vegetated draw adjacent to upland plant communities/PEMB	0.231	0.000	0.037
Kings Landing Farmed North	Farmed wetland showing crop stress in aerial photos/PEMAf	0.044	0.044	0.000
Kings Landing Farmed South	Farmed wetland showing crop stress in aerial photos/PEMAf	0.560	0.442	0.000
McKinney North Draw	Narrow unfarmed draw with willow and RCG plant community/PSSB	0.061	0.000	0.000
McKinney Draw	Narrow unfarmed draw with some willow & ash. RCG plant community/PEMB	0.450	0.000	0.000
McKinney Farmed North	Farmed wetland showing crop stress or not cropped in aerial photos/PEMAf	0.044	0.000	0.000
McKinney Farmed Middle	Farmed wetland showing crop stress or not cropped in aerial photos/PEMAf	0.210	0.000	0.000
McKinney Farmed South-1	Farmed wetland showing crop stress or not cropped in aerial photos/PEMAf	0.164	0.000	0.000
McKinney Farmed South-2	Farmed wetland showing crop stress in aerial photos/PEMAf	0.064	0.000	0.000

Wetland ID*	Wetland Description/Classification†	Total Wetland Acres	Alt. 3 Impacted Acres	Alt. 5 Impacted Acres
McKinney Willows	Willow dominated unfarmed draw fed by culvert under Booneville Road/PSSB	0.337	0.000	0.000
Westwoods Forested	Concave area with ephemeral stream running through/PFO1B	0.054	0.000	0.000
McKinney Oxbow North	Oxbow off of Johnson Creek channel/PFO1A	0.087	0.000	0.000
McKinney Oxbow South	Oxbow off of Johnson Creek channel/PFO1A	0.038	0.000	0.000
Collins Bluff Toe	Linear wetland plant community contiguous with cut ditch at base of large bluff/PEMA	0.099	0.031	0.000
ERC Family Wetland	Wetland community in depression adjacent to Johnson Creek/PFO1A	0.016	0.000	0.000
Grandquist Bench	Small bench wetland adjacent to Johnson Creek/PEMA	0.016	0.000	0.000
Grandquist Farmed	Farmed wetland showing crop drown out in aerial photos/PEMAf	1.209	0.000	0.000
Road Cut Wetland	Wetland in road cut area south of Raccoon River Drive/PSS1A	1.470	0.000	0.000
Martin Marietta Farmed West	Farmed wetland showing crop drown out and stress in aerial photos/PEMAf	0.232	0.000	0.000
Martin Marietta Farmed East	Farmed wetland showing crop drown out and stress in aerial photos/PEMAf	0.231	0.000	0.000
<b>Total</b>		<b>24.176</b>	<b>0.871</b>	<b>0.542</b>

\*Wetlands identified using desktop methods due to lack of access to private properties.

†Wetland Classifications per Cowardin et al (1979):

PEMA=Palustrine, Emergent, Temporarily Flooded

PEMAf=Palustrine, Emergent, Temporarily Flooded, Farmed

PEMB=Palustrine, Emergent, Seasonally Saturated

PEMC=Palustrine, Emergent, Seasonally Flooded

PFO1A=Palustrine, Forested, Deciduous, Temporarily Flooded

PFO1B=Palustrine, Forested, Deciduous, Seasonally Saturated

PEMB=Palustrine, Emergent, Seasonally Saturated

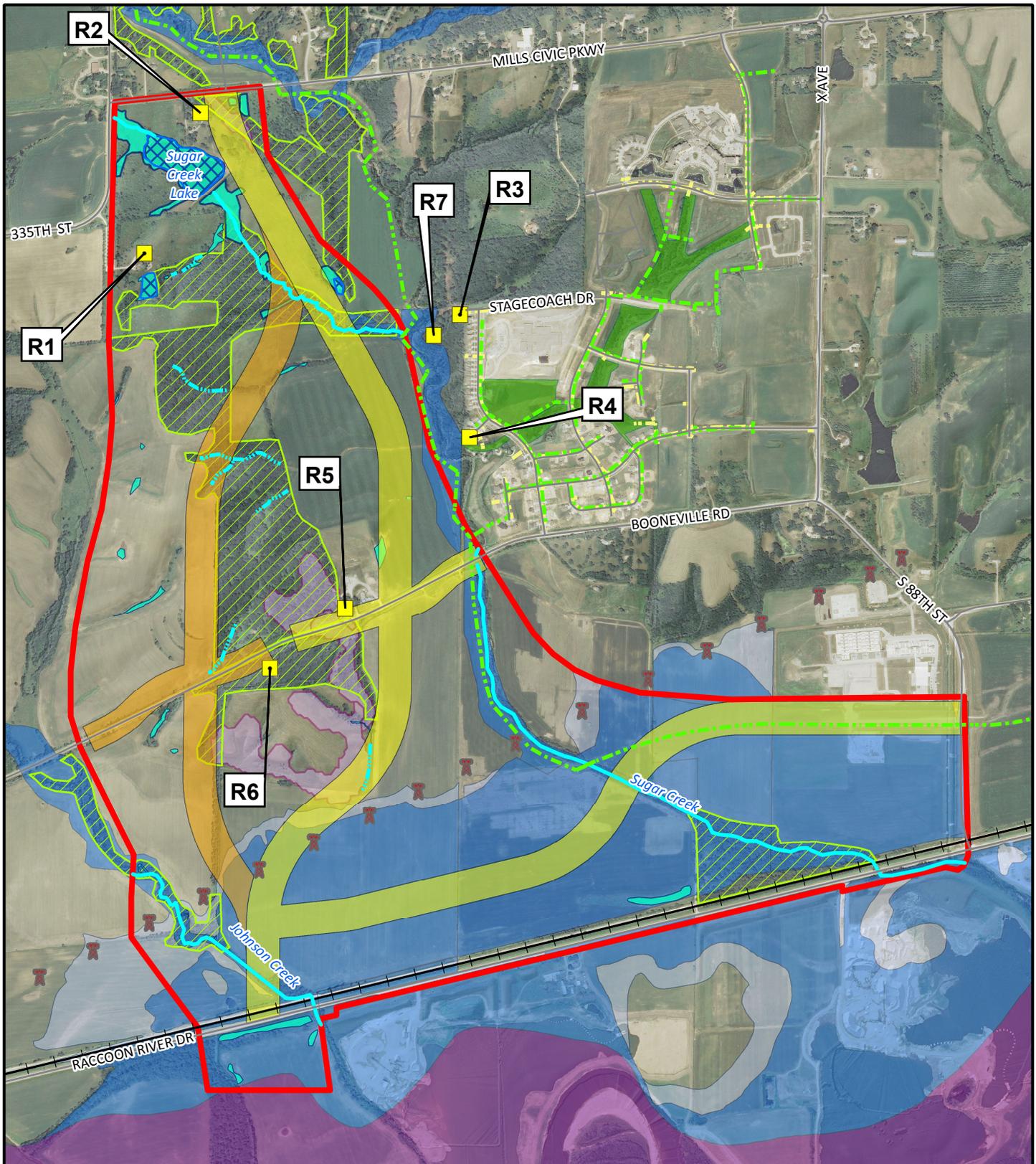
PEMC=Palustrine, Emergent, Seasonally Flooded

PSS1A=Palustrine, Scrub-Shrub, Deciduous, Temporarily Flooded

PSSB=Palustrine, Scrub-Shrub, Seasonally Flooded

PUBCh=Palustrine, Unconsolidated Bottom, Seasonally Flooded, Diked/Impounded

PUBF=Palustrine, Unconsolidated Bottom, Semipermanently Flooded

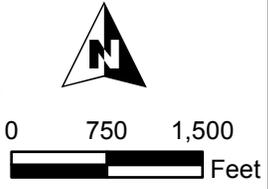


**FIGURE 8**  
**Environmental**  
**Constraints**

**Grand Technology Gateway**  
**Environmental Assessment**

West Des Moines, Iowa

- Transmission Tower
- Modeled / Monitored Receptor Location
- Modeled Receptor Location
- Sanitary Pipes
- Storm Pipes
- Observed Streams
- Observed Ephemeral Streams
- 500 YR Floodplain
- 100 YR Floodplain
- Floodway
- IAIS Railroad
- Alternative 3 Footprint
- Alternative 5 Footprint
- Project Study Area
- Ponds
- Wetlands
- Park/Greenway
- Woodland Areas
- Steep Slopes



### **5.3.2. Surface Waters and Water Quality**

Surface waters were identified in the field in 2015. Eleven stream segments totaling 18,242 linear feet were observed within the study area. Two large, named perennial streams – Johnson Creek and Sugar Creek – are within the study area. A smaller tributary of Sugar Creek flows through the Sugar Creek Lake area. Additionally, seven small ephemeral streams were observed. Six of the ephemeral streams were isolated from other streams and dissipated into upland areas. There are no streams listed as an Outstanding Iowa Water (OIW) or other protected streams identified by Iowa Department of Natural Resources (DNR). Four impounded waters were identified in the study area including Sugar Creek Lake, a large 7.3-acre impoundment near the north end of the study area. Three smaller impounded farm ponds, approximately one acre or smaller, are also present within the study area.

For unavoidable stream impacts, a State 401 Water Quality Certification issued by the Iowa DNR pursuant to Section 401 of the Clean Water Act would be required. This state certification is required by the USACE before a Section 404 permit can be issued for impacts to waters of the United States, including wetlands. Section 401 Certification represents the Iowa DNR's concurrence that the project certified is consistent with Iowa's water quality standards as set forth in Chapter 61, Iowa Administrative Code 567. In addition, unavoidable stream impacts as a result of this project would need to be authorized by the USACE Section 404 permit.

It is anticipated that stream mitigation may be required for either of the two alternatives carried forward for detailed evaluation. Stream mitigation location is determined on a case-by-case basis as part of the Section 404 permitting process.

The contractor would be required to minimize temporary impacts on water quality during construction. Iowa DNR administers the Federal National Pollutant Discharge Elimination System (NPDES) program and issues general permits for construction stormwater discharge. The NPDES construction stormwater permit requires preparation of a Stormwater Pollution Prevention Plan (SWPPP) for construction sites of more than 1 acre. Specific sediment, erosion control, and spill prevention measures would be developed during the detailed design phase and would be included in the plans and specifications. The SWPPP is likely to include installation of silt fences, buffer strips, or other features to be used in various combinations. In addition, local jurisdictions will govern watersheds according to the Iowa Statewide Urban Design and Specifications (SUDAS) detention release requirements for new development, which are discussed in more detail in Section 5.3.3 Floodplains.

#### ***Alternative 3***

Alternative 3 would impact 2,350 linear feet of streams. However, stream impacts would likely decrease as the project proceeds through final design. During the design process, drainage structures would be designed to maintain the existing waterways and surface drainage patterns to adequately convey surface waters as much as practical. In addition, the stormwater runoff that would be generated by the proposed improvements would need to be detained to meet the SUDAS requirements. Impacts would occur to Sugar Creek, Johnson Creek, an unnamed tributary of Sugar Creek, and an isolated ephemeral stream.

#### ***Alternative 5***

Alternative 5 would impact 2,264 linear feet of streams. However, stream impacts would likely decrease as the project proceeds through final design. During the design process, drainage structures would be designed to maintain the existing waterways and surface drainage patterns to adequately convey surface waters as much as practical. In addition, the stormwater runoff that would be generated by the proposed

improvements would need to be detained to meet the SUDAS requirements. Impacts would occur to Sugar Creek, Johnson Creek, an unnamed tributary of Sugar Creek, and three isolated ephemeral streams.

### **No Build Alternative**

The No Build Alternative would not impact surface water resources found within the project study area. As development momentum continues, it is likely that additional impacts to streams and surface water resources could occur in the study area.

### **5.3.3. Floodplains**

The regulatory framework pertaining to floodplains is Executive Order (EO) 11988, Floodplain Management (42 FR 26951), which affords avoidance and minimization considerations to floodplains. As stated in this policy, federal agencies are required "...to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative". In addition, EO 13990, Establishing a Federal Flood Risk Management Standard and Process for Further Solicit and Considering Stakeholder Input, amends EO 11988 and states "Where possible, an agency shall use natural systems, ecosystem processes, and nature-based approaches when developing alternatives for consideration".

Floodplain information was obtained from the Federal Emergency Management Agency (FEMA) online database for the project study area. A large floodplain crosses the southern project area paralleling the Raccoon River to the south. Approximately 425 acres of the study area is within the 100-year floodplain and another 38 acres are within the 500-year floodplain. A small part of the southern study area is within the designated floodway of the North Raccoon River. Other floodplain areas are associated with the North Raccoon River or within and adjacent to reaches of Sugar Creek and Johnson Creek.

As noted in Section 3, a purpose for the project is to connect to current and proposed roadways. Figures 1 and 2 show proposed roadways connecting to existing or planned roadways to the north, east, south and west. Consequently, connectivity through the floodplain area of Raccoon River, as well as crossing floodplains in the northern project area, is unavoidable.

The hydrology and hydraulics of Sugar Creek and Johnson Creek were studied in June 2015. In addition, a 2D hydraulic analysis of the floodplains for both of these creeks were studied in June 2015 and amended in December 2015. The purpose of these studies was to give the City of West Des Moines information on where development could occur to avoid flooding and how to reduce potential flooding as the watershed develops. The recommendations of these studies suggested that the City of West Des Moines should require future development to have building finished floor elevations above the future condition water surface elevations that were defined in these studies. During final design, Floodplain Development Permits from the City of West Des Moines and Iowa DNR Floodplain Construction Permit may be required. The proposed action's design will adhere to effective Federal Emergency Management Agency's (FEMA) National Flood Insurance Program's (NFIP) and the State of Iowa's regulations and City of West Des Moines' Flood Plain Management Ordinance for allowable fill in the floodway fringe.

Agency coordination letters were sent to the Iowa DNR, FEMA, and EPA regarding floodplain issues. No response was received from FEMA regarding the project. The Iowa DNR provided a response on November 18, 2013, but did not have comments regarding floodplains. This letter is included in Appendix B. Correspondence from EPA to FHWA on July 6, 2016 stated that EPA did not initially concur with NEPA/404 Merge Concurrence Point 3 (Section 7.2 describes the Concurrence Point Process) because Alternatives 3 and 5 did not meet Executive Order 11988: Floodplain Management.

The EPA requested further study of the hydrology of the Raccoon River basin so that downstream floodplain impacts will be minimized. This letter is included in Appendix B. The FHWA responded to the EPA's concerns in a letter on October 4, 2016, which is also included in Appendix B. The FHWA conducted a review of potential downstream impacts finding an insignificant change in downstream floodplain volumes. In addition, local jurisdictions will govern watersheds according to the Iowa Statewide Urban Design and Specifications (SUDAS) detention release requirements for new development. The restrictive nature of SUDAS detention release requirements would reduce potential flooding downstream.

### ***Alternative 3***

The Alternative 3 footprint impacts approximately 88.52 acres of the 100-year floodplain paralleling the North Raccoon River and crossing Sugar Creek and Johnson Creek as shown in Figure 8.

Alternative 3 does not cross through the Raccoon River floodway and, therefore, would not be required to meet the State of Iowa's 'no rise' condition upstream. The 'no rise' condition is defined as no increase to water surface elevations associated with the 100-year design flood event due to fill in the floodway. Future planned development in the floodway fringe would be regulated by FEMA NFIP and State of Iowa floodplain regulations and City of West Des Moines' Flood Plain Management Ordinance.

A high-level review was conducted of potential downstream impacts due to the loss of floodplain volume from Alternatives 3. Potential fill volume from the alternatives within the floodplain was compared to the total Raccoon River floodplain between Des Moines and just upstream of the project in Van Meter, Iowa, and was found to be approximately 0.2% of the total floodplain volume. This minimal loss of floodplain volume between Des Moines and Van Meter would have minimal impact downstream.

Other than roadway construction for improved connectivity, no planned development was identified within the Raccoon River floodplain near the project study area. Future planned site development supported by the proposed action would be limited to an area approximately one mile from the project study area due to topography and other natural barriers such as the Raccoon River bending north near Boonville. Local jurisdiction will govern the adjacent watersheds which adhere to, enforce, and regulate development according to Iowa State Urban Design and Specifications (SUDAS). SUDAS detention requirements for new development limit the post-development release rate from a 100-year rainfall frequency runoff event to the pre-development 5-year rainfall frequency runoff event. Therefore, the restrictive nature of SUDAS detention release requirements, when enforced, would reduce flooding downstream.

### ***Alternative 5***

The Alternative 5 footprint impacts approximately 88.11 acres of the 100-year floodplain paralleling the North Raccoon River and crossing Sugar Creek and Johnson Creek as shown in Figure 8.

Alternative 5 does not cross through the Raccoon River floodway and, therefore, would not be required to meet the State of Iowa's 'no rise' condition upstream. The 'no rise' condition is defined as no increase to water surface elevations associated with the 100-year design flood event due to fill in the floodway. Future planned development in the floodway fringe would be regulated by FEMA NFIP and State of Iowa floodplain regulations and City of West Des Moines' Flood Plain Management Ordinance.

A high-level review was conducted of potential downstream impacts due to the loss of floodplain volume from Alternatives 5. Potential fill volume from the alternatives within the floodplain was compared to the total Raccoon River floodplain between Des Moines and just upstream of the project in Van Meter, Iowa,

and was found to be approximately 0.2% of the total floodplain volume. This minimal loss of floodplain volume between Des Moines and Van Meter would have minimal impact downstream.

Other than roadway construction for improved connectivity, no planned development was identified within the Raccoon River floodplain near the project study area. Future planned site development supported by the proposed action would be limited to an area approximately one mile from the project study area due to topography and other natural barriers such as the Raccoon River bending north near Boonville. Local jurisdiction will govern the adjacent watersheds which adhere to, enforce, and regulate development according to Iowa State Urban Design and Specifications (SUDAS). SUDAS detention requirements for new development limit the post-development release rate from a 100-year rainfall frequency runoff event to the pre-development 5-year rainfall frequency runoff event. Therefore, the restrictive nature of SUDAS detention release requirements, when enforced, would reduce flooding downstream.

### ***No Build Alternative***

The No Build Alternative would not impact floodplains within the project study area. As development momentum continues, it is likely that additional impacts to floodplain resources would occur in the study area.

### **5.3.4. Wildlife and Habitat**

The study area was evaluated for potential habitats during a field investigation by a qualified biologist in 2012. General land use includes a mix of row crop agriculture, sod farms, forested areas, open pasture, shallow impounded lakes and ponds, road and railroad right-of-way, wooded riparian corridors along streams, and several rural single family homes. Typical habitat for common rural wildlife including white-tailed deer, rabbits, raccoons, coyotes, and wild turkey is present in study area. Pasture areas were largely dominated by plants reflecting recent grazing or haying. All streams in the area show areas of straightening or drainage into culverts or agricultural drainage. No prairie remnants, sedge meadows, or other unique or rare wildlife habitat or plant communities were identified.

The forested areas appeared to be the most distinct wildlife habitat area in the study area. The habitat survey report compared existing forest areas with a 1938 aerial photo to identify approximate age of eight observed forest tracts within the study area. Trees are apparent in six of the tracts in the 1938 aerial photo and three of the areas totaling approximately 34 acres show dense forest in the 1938 aerial. Field review showed partial clearing in some of the denser forest tracts, but mature native woodland is present in the study area. These mature forest area likely provide habitat for common woodland species including deer and wild turkey, but also for tree cavity nesting birds, bats and other wildlife.

### ***Alternative 3***

Alternative 3 would impact wildlife and habitat in forested areas. It would impact contiguous forested areas causing displacement and habitat fragmentation for floodplain forest species. Additionally, construction noise and vibration and the addition of vehicular traffic would also impact wildlife in the area.

**Alternative 5**

Alternative 5 would impact wildlife and habitat in forested areas. It would impact contiguous forested areas causing displacement and habitat fragmentation for floodplain forest species. Additionally, construction noise and vibration and the addition of vehicular traffic would also impact wildlife in the area.

**No Build Alternative**

The No Build Alternative would not impact wildlife and habitat within the project study area. As development momentum continues, it is likely that additional impacts to wildlife and habitat would occur in the study area.

**5.3.5. Threatened and Endangered Species**

The U.S. Fish and Wildlife Service (FWS) Section 7 Technical Assistance website was reviewed to identify potential threatened and endangered listed species known to occur in Dallas County. Additionally, two field studies were completed to identify potential endangered species habitat in the study area. A 2012 Endangered Resources Report was completed to identify potential habitat for federally listed species. A bat mist net survey was also completed in 2012 and documented the presence of 1 Indiana bat (*Myotis sodalis*) and 10 northern long-eared bats (NLEB) (*Myotis septentrionalis*), and 14 bats of three other species that are not threatened or endangered. One post lactating adult female Indiana bat was caught during the survey indicating the possible presence of a nearby roost tree. In addition, two roost trees that are likely primary roost trees being utilized by a maternity colony of Indiana bats were found within the study corridor. It appears that forested areas in the study area are being used for foraging and roosting habitat for Indiana bat and NLEB. Table 5 summarizes these species and results of the studies.

**Table 5. Dallas County Distribution of Federally Threatened and Endangered Species**

Common Name	Scientific Name	Listing Status	Habitat	Habitat in Study Area
Indiana bat	<i>Myotis sodalis</i>	Endangered	Caves, mines (hibernacula); small stream corridors with well-developed riparian woods; upland forests (foraging)	<b>Yes.</b> Abundant summer foraging and roosting habitat is present in woodlands. One Indiana bat was captured and two roost trees identified during the mist netting survey.
Northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during late spring and summer.	<b>Yes.</b> Abundant summer foraging and roosting habitat is present in woodlands. Ten northern long-eared bats were captured during the mist netting study. NLEB habitat needs are similar to Indiana bat.

Common Name	Scientific Name	Listing Status	Habitat	Habitat in Study Area
Topeka shiner	<i>Notropis topeka</i>	Endangered	Small to mid-size prairie streams with relatively high water quality and cool-to-moderate temperatures.	<b>Possibly.</b> Sugar Creek has some suitable habitat, but channel straightening and urban runoff contribution from larger watershed limit potential for habitat.
Prairie bush clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil	<b>No.</b> No prairie remnants observed. Most open areas show prior disturbance.
Western prairie fringed orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows	<b>No.</b> No prairie remnants observed. Open areas show prior disturbance.

Iowa DNR lists 17 state-protected species (4 fish, 3 reptiles, 2 plants, 2 birds, 2 mussels, 2 insects, and 2 mammals) in Dallas County. A review of the Iowa DNR Natural Areas Inventory database identified that the state and federal-listed endangered Indiana bat and federal-listed threatened NLEB are known to occur in the study area. No other state-listed species were identified during field studies. However, habitat for the state-endangered barn owl (*Tyto alba*) and state-threatened plant oval ladies-tresses (*Spriantes ovalis*) may be present in the study area. Iowa DNR advised in their November 25, 2013 letter that if listed species are found during the planning or construction phases, additional studies and/or mitigation may be required. This letter is included in Appendix B.

### Alternative 3

Alternative 3 would impact Indiana bat and NLEB habitat within the study area. Approximately 11.30 acres of woodland foraging habitat would be impacted. Alternative 3 is located 1,410 feet away from the closest known Indiana bat roost tree. No direct impacts to the known roost trees are anticipated. No impacts to Topeka shiner or other federally listed species are anticipated.

The City of West Des Moines met with the FWS and Iowa DOT on November 9, 2016 to discuss potential bat habitat mitigation strategies. More information is included in Section 5.7.1 Mitigation Approach.

### Alternative 5

Alternative 5 would impact Indiana bat and NLEB habitat within the study area. Approximately 24.96 acres of woodland foraging habitat would be impacted. Alternative 5 is located 205 feet away from the closest known Indiana bat roost trees. No direct impacts to the known roost trees are anticipated. No impacts to Topeka shiner or other federally listed species are anticipated.

The City of West Des Moines met with the FWS and Iowa DOT on November 9, 2016 to discuss potential bat habitat mitigation strategies. More information is included in Section 5.7.1 Mitigation Approach.

### ***No Build Alternative***

The No Build Alternative would not impact threatened and endangered species. As development momentum continues, it is likely that additional impacts to threatened and endangered species would occur in the study area.

### **5.3.6. Woodlands**

The Iowa DOT considers woodland impacts to occur under the following circumstances: The area to be impacted consists of two acres or greater of forested land having at least 200 trees with three inch diameter or greater per acre. The study area has approximately 177 acres of woodlands meeting this definition. Woodlands are located in places along Sugar Creek and Johnson Creek; within a large contiguous 115-acre woodland north of Booneville Road; a 23-acre woodland south of Booneville Road; and along a wooded embankment at the north end of the study area.

#### ***Alternative 3***

Alternative 3 would impact 11.30 acres of woodland. The impacted woodlands are located throughout the study area with the largest impact along the tributary below Sugar Creek Lake dam within the 115-acre woodland. As design advances, efforts will be made to reduce the impact on the woodland. Mitigation will be required because the Iowa DOT standard for woodland impacts is two acres or more. Per Iowa Code 314.23, woodland removed shall be replaced by plantings as close as possible to the initial site, or by acquisition of an equal amount of woodland in the general vicinity for public ownership and preservation, or by other mitigation deemed to be comparable to the woodland removed, including, but not limited to, the improvement, development, or preservation of woodland under public ownership. The City of West Des Moines will work to find appropriate woodland mitigation strategy for the proposed woodland impacts.

#### ***Alternative 5***

Alternative 5 would impact 24.96 acres of woodland. The impacted woodlands are located throughout the study area with the largest impact along the west side and across the 115-acre contiguous woodland. As design advances, efforts will be made to reduce the impact on the woodland. Mitigation will be required because the Iowa DOT standard for woodland impacts is two acres or more. Per Iowa Code 314.23, woodland removed shall be replaced by plantings as close as possible to the initial site, or by acquisition of an equal amount of woodland in the general vicinity for public ownership and preservation, or by other mitigation deemed to be comparable to the woodland removed, including, but not limited to, the improvement, development, or preservation of woodland under public ownership. The City of West Des Moines will work to find appropriate woodland mitigation strategy for the proposed woodland impacts.

### ***No Build Alternative***

The No Build Alternative would not impact woodlands within the project study area. As development momentum continues, it is likely that additional impacts to woodland resources would occur in the study area.

### 5.3.7. Farmlands

The Farmland Protection Policy Act of 1981 (7 CFR 658) is intended to minimize the extent to which federal activities, such as highway and road projects, contribute to the conversion of agricultural land to non-agricultural uses.

The study area is approximately 64 percent agricultural land used primarily for growing row crops like corn and soybeans. The study area is approximately 1,140 acres in size of which 707 acres are zoned as agriculture and 730 acres are considered “prime farmland” based on USDA and USGS Corn Suitability Ratings (65 or greater = “Prime”). There are some areas within the study area that contain prime farmland that are not zoned agricultural or actively farmed as shown in Figure 6. Of the 707 acres that are zoned agricultural, 693 acres<sup>6</sup> are actively farmed. Of the 693 acres that are actively farmed, 588 acres consist of prime farmland.

Some of the impacted parcels may be severed by the proposed roadway; the final design will attempt to minimize these issues. Property access may also be interrupted by the proposed alternative causing permanent changes to access points. However, all private properties will maintain some form of access to public roadways.

Additionally, Iowa Code 6B provides authority to condemn agricultural land (defined under Iowa Code 6A.21) for right-of-way purposes. The code helps protect agricultural land and facilitates early coordination with potentially affected landowners. Notification is required if an agricultural parcel ten acres or larger would require any land acquisition, regardless of the total area needed.

A National Resources Conservation Service (NRCS) Farmland Conversion Impact Rating Form for Corridor Type Projects (NRCS-CPA-106) was completed for both alternatives and submitted to NRCS. Farmland, as defined by the NRCS<sup>7</sup>, exists within the study area. The completed forms are included in Appendix C. Alternatives receiving a total score of less than 160 need not be given further consideration for protection.

#### *Alternative 3*

Alternative 3 would impact 111.46 acres of prime farmland. Alternative 3 received a score of 150.92 out of 260 points. Based on this score, the alternative would not warrant an in-depth site review, and the Project would be cleared from significant concerns in conjunction with the Farmland Protection Policy Act. The Farmland Conversion Form is found in Appendix C. Landowners with agricultural land, as classified by Iowa Code 6A.21, would be notified of the potential acquisition of their property and of the upcoming public hearing to be held after distribution of the EA.

#### *Alternative 5*

Alternative 5 would impact 105.51 acres of prime farmland. Alternative 5 received a score of 150.75 out of 260 points. Based on this score, the alternative would not warrant an in-depth site review, and the Project would be cleared from significant concerns in conjunction with the Farmland Protection Policy Act. The Farmland Conversion Form is found in Appendix C. Landowners with agricultural land, as classified by Iowa Code 6A.21, would be notified of the potential acquisition of their property and of the upcoming public hearing to be held after distribution of the EA.

---

<sup>6</sup> Of the 693 acres of actively farmed land, 110 acres were approved in August 2016 for grading for future development (Kings Landing). See Section 5.5 Cumulative for more information.

<sup>7</sup> Per the NRCS’s *Part 523 – Farmland Protection Policy Act Manual*.

## **No Build Alternative**

The No Build Alternative would have no immediate impacts to prime farmland. As growth and development momentum continues, it is likely that additional impacts to farmland would occur in the study area.

### **5.4. Physical Impacts**

This section characterizes physical resources in the study area and addresses potential impacts of Alternative 3, Alternative 5, and the No Build Alternative within the project study area.

#### **5.4.1. Noise**

A traffic noise study was completed for the proposed extensions of Grand Avenue and Grand Prairie Parkway. The study was conducted in accordance with the Iowa DOT's traffic noise policy 500.07 and the requirements set forth in the FHWA Noise Standard at 23 Code of Federal Regulations (CFR) Part 772.

Noise is generally defined as unwanted sound and is measured in terms of sound pressure level expressed in decibels (dB). The number of fluctuation cycles or pressure waves per second of a particular sound is the frequency of the sound. The human ear is less sensitive to higher and lower frequencies than mid-range frequencies; therefore sound level meters used to measure environmental noise generally incorporate a filtering system that discriminates against higher and lower frequencies in a manner similar to the human ear. This produces noise measurements that approximate the normal human perception of sound. Measurements made using this filtering system are termed "A-weighted decibels (dB(A))." Noise levels referred to in this report are stated as hourly-equivalent sound pressure levels (Leq(h)) in terms of dB(A).

Land use throughout the project area is predominantly agricultural and undeveloped. A technological industry site is located at the northwest corner of Grand Avenue and 88<sup>th</sup> Street. There are also four residences located within the study area.

Modeled receptors in FHWA's Traffic Noise Model (TNM) Version 2.5 were identified by areas of frequent human exterior use within the project area. The receptor locations represent the most conservative (highest noise levels) receptor for their respective common noise environment (CNEs). The noise abatement criteria are described in Table 6. Modeled receptors are listed in Table 7 and shown in Figure 8. The locations used for the noise analysis are based on anticipated frequent human use activity areas.

**Table 6. Noise Abatement Criteria**

Activity Category	Activity Criteria dB(A)		Activity Description
	Noise Abatement Criteria (NAC)	Approaching NAC	
A	57	56	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67	66	Residential
C	67	66	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails and trail crossings
D	52	51	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E	72	71	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F
F	-	-	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical) and warehousing
G	-	-	Undeveloped lands that are not permitted for development

Source: Table 5, 23 CFR, Part 772, Table 1 Noise Abatement Criteria (NAC)

Noise contours were developed for the proposed improved roadways including Grand Prairie Parkway, Grand Avenue, and a portion of Booneville Road. The noise contours are included in Appendix F of the June 2016 *Grand Technology Gateway Traffic Noise Analysis Technical Memorandum*. Table 8 provides a summary of the modeled noise levels for existing conditions, Alternative 3, Alternative 5, and the No Build Alternative scenarios. Modeled noise levels range from 45 dB(A) to 52 dB(A) under the existing scenario. The future No Build Alternative noise levels are only reported for receptor R-2 (59 db(A)) as noise monitoring data is not used to predict future no build traffic noise levels. Modeled noise levels range from 50 dB(A) to 64 dB(A) under the Alternative 3 build scenario. Modeled noise levels range from 46 dB(A) to 63 dB(A) under the Alternative 5 build scenario.

The increase in traffic noise levels between the existing scenario and the No Build Alternative are a result of the forecasted increase in traffic volumes from 2016 to 2035. The increases in traffic noise from the existing scenario to the two build scenarios are due to increases in traffic volumes and changes in geometry. Compared to the existing traffic noise, Alternative 3 traffic noise levels increase up to 19 dB(A). Compared to the existing traffic noise, Alternative 5 traffic noise levels increase up to 17 dB(A).

**Table 7. Summary of Modeled Receptors**

Receptor	Description	Location	Activity Category
R-1*	Residential	32344 335 <sup>th</sup> St	B
R-2	Residential	32654 335 <sup>th</sup> St	B
R-3*	Residential	1015 S 95 <sup>th</sup> St	B
R-4	Residential	9528 Prairie Ct	B
R-5	Residential	9975 Booneville Rd	B
R-6*	Residential	10410 Booneville Rd	B
R-7	Residential	Kings Landing LLC	B

\* Denotes field monitoring locations

**Table 8. Summary of Noise Results**

Modeled Receptor	NAC (approaching) dB(A)	Existing Noise Level dB(A)	Predicted Noise Level					Impacted (Alt. Impacted)
			No Build dB(A)	Alt. 3 Build dB(A)	Alt. 3 Build Increase Over Existing	Alt. 5 Build dB(A)	Alt. 5 Build Increase Over Existing	
R-1	66	52*	--	52	0	52	0	No
R-2	66	46	59	63	17	63	17	Alt 3/Alt 5
R-3	66	46*	--	50	4	47	1	No
R-4	66	46**	--	54	8	46	0	No
R-5	66	45**	--	64	19	60	15	Alt 3/Alt 5
R-6	66	45*	--	58	13	58	13	Alt 3/Alt 5
R-7	66	46**	--	53	7	47	1	No

\* Based on monitoring data collected due to distance from traffic generated noise sources.

\*\* Based on monitoring data from representative monitored location.

Note: Noise monitoring data is not used to predict future no build noise levels.

### Alternative 3

Table 8 documents that none of the receptor locations approach or exceed the NAC. However, based on the increase between the existing noise level and the build traffic noise level, three receptor locations (R-2, R-5, and R-6) are considered impacted as the increase is greater than 10 dB(A).

The increase in traffic noise at R-2 is 17 dB(A), which is due to both an increase in traffic volumes and the location of the new Grand Prairie Parkway alignment. Based on the No Build Alternative evaluation at this receptor location, the traffic noise increase due to traffic on Mills Civic Parkway alone is 13 dB(A). This receptor location is approximately 180 feet west of the new alignment.

The increase in traffic noise levels at R-5 and R-6 between the existing scenario and the Alternative 3 build scenario are 19 and 13 dB(A), respectively. Similar to R-2, the increase in traffic noise levels at these receptors is due to the increase in traffic volumes on Booneville Road. Receptor R-5 is approximately 480 feet west of the new Grand Prairie Parkway alignment and R-6 is 1,300 feet west of the alignment. Existing peak-hour traffic on Booneville Road is 12 vehicles per hour. This increases to 2,290 vehicles per hour in 2035. Given the distance from the new alignment, the increase in traffic noise levels is due to this increase in traffic volume on Booneville Road.

### ***Alternative 5***

Similar to Alternative 3, none of the receptor locations approach or exceed the NAC with Alternative 5 (see Table 8). However, based on the increase in noise levels between the existing noise level and the build traffic noise level, three receptor locations (R-2, R-5, and R-6) are considered impacted as the increase is greater than 10 dB(A).

The increases in traffic noise levels for Alternative 5 are the same as Alternative 3 for receptors R-2 and R-6. The Alternative 5 increase in traffic noise level at R-5 is less than Alternative 3 with only an increase of 15 dB(A) due to the increase in distance between the receptor and the alternative alignments. Receptor R-5 is 765 feet away from Alternative 5 compared to only 480 feet to Alternative 3. Receptor R-6 is 360 feet from Alternative 5 compared to 1,300 feet from Alternative 3. The projected traffic noise levels at R-6 are the same for each alternative, further supporting the basis that the noise at R-6 is dominated by the traffic on Booneville Road.

### ***No Build Alternative***

The 13-dB(A) increase in traffic noise at R-2 between the existing noise level and the No Build Alternative noise level is due to the increase in traffic volumes in the project area. The Mills Civic Parkway (west of 88<sup>th</sup> Street) peak-hour traffic volumes increase from 140 vehicles per hour (2016) to over 4,700 vehicles per hour (2035).

### ***Noise Abatement Analysis***

According to Iowa DOT Noise Policy 500.07, when traffic noise impacts are identified, noise abatement must be considered and evaluated for feasibility and reasonableness. Construction of noise barriers is the most commonly used noise abatement measure. Based on the physical and regulatory constraints of the project, other mitigation measures were not considered viable.

The feasibility and reasonability of potential barriers for R-2, R-5, and R-6 were evaluated for the Grand Technology Gateway. Based on the traffic noise impact analysis, as documented in Table 9, the impacts are based on the substantial increase between the existing noise level and the build noise level. This increase is mostly due to traffic volume increases and partially due to the construction of the new alignment. For each scenario, a 20-foot high noise wall was evaluated along the Grand Prairie Parkway right-of-way (ROW).

Based on this noise wall evaluation, the feasibility criteria of providing at least a 5 dB(A) traffic noise reduction cannot be achieved. The ineffectiveness of the noise walls is due to both the distances between the noise wall and the receptor locations as well as the traffic noise generated on Mills Civic Parkway (R-2) and Booneville Road (R-5 and R-6) that remains unabated. Consequently, noise walls are not anticipated to be implemented as part of the proposed improvements.

**Table 9. 20-Foot High Noise Wall Abatement Summary**

Abated Receptor	Predicted Noise Level, dB(A)					
	Alt. 3 Build Noise Level Without Wall	Alt. 3 Build Noise Level With Wall	Alt. 3 Noise Reduction	Alt. 5 Build Noise Level Without Wall	Alt. 5 Build Noise Level With Wall	Alt. 5 Noise Reduction
R-2	63	61	2	63	62	1
R-5	64	64	0	60	60	0
R-6	58	58	0	58	57	1

### 5.4.2. Visual

Currently, the study area generally consists of rural landscapes. Actively farmed properties including row crops, hay fields, and pastures exist throughout the study area. The study area also contains woodlands and streams. The northern half of the study area has gently rolling terrain, woodlands, and streams. Comparatively, the southern half of the study area is more flat consisting of more row crop fields.

Within the study area, the view from Mills Civic Parkway, Booneville Road, and Raccoon River Drive is somewhat obstructed by roadside trees. Beyond the trees, a person driving along Raccoon River Drive sees the railroad on the north side of the roadway and a quarry to the south. A person driving along Booneville Road sees farm fields and woodlands on both the north and south sides of the roadway. Driving along Mills Civic Parkway within the study area a person would see farmsteads, farm fields, and woods.

Just east of the study area, between Stagecoach Drive and Booneville Road and north of the study area between Booneville Road and Grand Avenue, areas of urban development exist intermixed with agricultural land. In these areas, portions of the roads are gravel and portions of the roads are paved with urban curb, gutter, and storm sewer. Additionally, Grand Avenue has a 10 foot-wide multipurpose trail alongside the south side of the road and a 4 foot-wide sidewalk alongside the north side of the road.

#### *Alternative 3*

Construction of Alternative 3 would change the visual nature of the existing rural landscape by adding a paved six lane, north-south roadway and connecting east-west roadway through the study area. Alternative 3's new roadways would be visible from surrounding residential homes and farmsteads.

A person driving on Alternative 3 along Grand Prairie Parkway would see farm fields and woodlands on both sides of the road, and Sugar Creek on the east side of the roadway. A person driving on Alternative 3 along Grand Avenue would see the farm fields on both the north and west sides of the road, the railroad on the south side, and transmission lines on the north side of the road. As development momentum continues, it is likely that the visual characteristics will change over time from rural agricultural setting to a more urban setting.

#### *Alternative 5*

Construction of Alternative 5 would have similar impacts to the visual nature of the area as Alternative 3. Alternative 5's new roadways would be visible from surrounding residential homes and farmsteads. A person driving on Alternative 5 along Grand Prairie Parkway would see farm fields and woodlands on

both the east and west sides of the roadway. However, Sugar Creek would not be as visible from Alternative 5 as it would be from Alternative 3. A person driving along Grand Avenue under Alternative 5 would see the same thing as the person driving along Grand Avenue under Alternative 3 would see. As development momentum continues, it is likely that the visual characteristics will change over time from rural agricultural setting to a more urban setting.

### ***No Build Alternative***

The No Build Alternative would not impact the visual characteristics of the area. As development momentum continues, it is likely that the visual characteristics will change over time from rural agricultural setting to a more urban setting.

### **5.4.3. Utilities**

In general, the most noticeable utility within the study area is overhead power lines. There is a large transmission line cutting diagonally across the lower portion of the study area as shown in Figure 8. A power substation is located just north of the Microsoft data center west of 88<sup>th</sup> Street. Overhead power lines follow along the north sides of Mills Civil Parkway, Booneville Road, and Raccoon River Drive.

Other utilities in the area include evidence of underground natural gas lines located in the ditches along Raccoon River Drive. A sanitary sewer follows along the west bank of Sugar Creek and along existing Grand Avenue. The residential development, just east of the study area, includes public City of West Des Moines sanitary sewer, and storm sewer lines, as well as water mains maintained by West Des Moines Water Works.

### ***Alternative 3***

The Grand Prairie Parkway alignment of Alternative 3 would cross the overhead power lines located along Booneville Road. In addition, Alternative 3 passes between the transmission line towers where one of the towers rests approximately 70 feet away from the 165-foot-wide corridor. No relocation of overhead power lines is anticipated under this alternative. The Grand Avenue component of Alternative 3 would cross and potentially impact the sanitary sewer line that runs along existing Grand Avenue as shown in Figure 8.

### ***Alternative 5***

In the area where the Grand Prairie Parkway alignment of Alternative 5 crosses Booneville Road, there are no known overhead power lines, so no impacts would occur at this location. The Grand Avenue alignment of Alternative 5 would cross the transmission line towers passing between gaps between towers. No relocation of overhead power lines is anticipated under this alternative. The Grand Avenue component of Alternative 5 would cross and potentially impact the sanitary sewer line that runs along existing Grand Avenue as shown in Figure 8.

### ***No Build Alternative***

The No Build Alternative would not impact utilities. As development momentum continues, it is likely that additional public and private utilities would be constructed in the study area.

## 5.5. Cumulative

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions combined with the potential impacts of the proposed improvements. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time. A cumulative impact assessment looks at the collective effects imposed by individual land use plans and projects in the same vicinity of the proposed project.

There are several past, present, and reasonably foreseeable projects occurring in and near the study area. These projects were mentioned in Section 2.0 – Project History and Section 3.0 – Purpose and Need for Action. Table 1 and Figure 1 in Section 2.0 describe the eight roadway projects that have recently been completed or are in various stages of construction and planning. In addition to the roadway projects, there are other various infrastructure improvement projects that are listed in Section 3.0 and are discussed below. Figures 1 and 9 show the locations of these projects.

### *Past Actions*

The past actions that have occurred in and near the study area include:

- I-80 and Grand Prairie Parkway Interchange project (Map ID 1 in Figure 1).
- Grand Prairie Parkway Extension south of Wendover Road to Mills Civic Parkway (Map ID 2 in Figures 1 and 9).
- South 88<sup>th</sup> Street from Booneville Road to Sugar Creek Drive (Map ID 6 in Figures 1 and 9).
- I-35 and Grand Avenue Interchange Reconstruction project (Map ID 8 in Figure 1).
- Grand Avenue and South 88<sup>th</sup> Street roadway improvements adjacent to the Microsoft data center campus and Raccoon River Drive (Map ID 9 in Figure 9).
- 54 inch-diameter sanitary sewer installed from Grand Avenue and South Jordan Creek Parkway west to the west side of Sugar Creek and continuing northwest along the creek (Map ID 10 in Figure 9).
- 16 inch-diameter water main from the South Jordan Creek Parkway and Grand Avenue intersection extending west to the Microsoft Data Center (Map ID 11 in Figure 9).
- MidAmerican transmission line and substation starting from the Microsoft data center then heading southwest to Raccoon River Drive (Map ID 12 in Figure 9).
- Channel widening and mitigation along the west side of South 88<sup>th</sup> Street (Map ID 13 in Figure 9).
- 165 foot-wide public right of way purchased from Grand Avenue and Jordan Creek Parkway intersection west to the west property line of Microsoft’s data center campus (Map ID 14 in Figure 9).

### *Present Actions*

There are three projects that are currently in construction. These include:

- Grand Prairie Parkway Bridge over Raccoon River project (Map ID 3 in Figures 1 and 9).
- Homes within Kings Landing Plat 1, an 8 acre private residential development located on the east side of Sugar Creek between Stagecoach Drive and Booneville Road (Map ID 16 in Figure 9).

- Kings Landing Plat 2 Residential Development, a 110 acre private residential development located west of the Sugar Creek between Stagecoach Road and Booneville Road (Map ID 15 in Figure 9).

Kings Landing Plat 1, eight acre private residential development, located on the east side of Sugar Creek and adjacent the GTG project study area, was approved in August 2015 by the City of West Des Moines. Kings Landing Plat 1 includes 12 lots for single family homes, two public streets, and six outlots for floodplain use. Homes are currently being constructed in this development.

Kings Landing Plat 2, 110 acre residential development located on the west side of Sugar Creek within the GTG study area, received grading plan approval and the grading plan permit from the Plan and Zoning Commission of the City of West Des Moines on August 15, 2016. Kings Landing Plat 2 includes 205 lots for single family homes, 13 public streets, and 29 outlots for floodplain use. The City approved the preliminary plat for Kings Landing Plat 2 in March 2017. Grading began shortly after the preliminary plat was approved. The City has accepted responsibility of the development's public sanitary sewer, storm sewer, streets, and parkland.

### ***Reasonably Foreseeable Future Actions***

There are five reasonably foreseeable future projects that are currently in various stages of planning and design. These include:

- Grand Avenue Extension from South Jordan Creek Parkway to South 88<sup>th</sup> Street (Map ID 4 in Figures 1 and 9).
- Grand Avenue Extension from proposed Grand Prairie Parkway west to Booneville Road (Map ID 5 in Figures 1 and 9).
- Stagecoach Drive Bridge over Sugar Creek (Map ID 7 in Figures 1 and 9).
- Expansion of the Microsoft Data Center facility on their current parcel of land (Map ID 17 in Figure 9).
- Construction of a new Microsoft Data Center located approximately 2.8 miles southeast of the project study area (Map ID 18 in Figures 1 and 9). Even though this planned project is located outside the study area it would connect to the Grand Prairie Parkway Bridge over the Des Moines River project (Map ID 3) allowing for connectivity in the region as well as connection between the Microsoft Data Centers. The following proposed improvements are being planned to support the new data center:
  - Construct approximately six miles of Veterans Parkway from Maffitt Lake Road to Grand Prairie Parkway
  - Realign and pave SW 60<sup>th</sup> Street from Cummings city limits to Adams Street
  - Pave SE 50<sup>th</sup> Street from Veterans Parkway to just past the Polk/Warren County line
  - Construct sanitary sewer from SE 35<sup>th</sup> Street to the project site
  - Extend water lines with roadway improvements
  - Extend MidAmerican power lines along SE 50<sup>th</sup> Street and SW 60<sup>th</sup> Street as well as along Veterans Parkway

Kings Landing Plat 2 residential development has a primary connection to the proposed Stagecoach Bridge over Sugar Creek. A Section 404 permit from the USACE was approved for the construction of the Stagecoach Bridge on July 10, 2015. The City awarded a contract for the construction of Stagecoach Bridge in March 2017. The Bridge is under construction with completion anticipated in September 2017.

Once the Stagecoach Bridge over Sugar Creek is finished being constructed, the area west of Sugar Creek will have a roadway connection to use as point of access for development. Once the access is established, the developer plans to proceed with the construction of the subdivision.

Alternative 3's Grand Prairie Parkway alignment would bisect Kings Landing Plat 2 residential development if it was constructed, whereas Alternative 5's Grand Prairie Parkway alignment would impact a small portion of the northwest corner of the development.

### ***Cumulative Impacts***

Resources potentially experiencing cumulative impacts include land use, right-of-way, waters of the U.S., floodplains, habitat, woodlands, and farmland. The recently completed roadway projects and the proposed projects listed above are consistent with the City of West Des Moines' 2010 Comprehensive Plan for an ultimate street network and economic growth. Improvements to the transportation network would support the anticipated future land use and planned development in the area. As these other proposed roadway projects are constructed the land that is currently agricultural in and near the study area is likely to develop with or without the construction of either Alternative 3 or Alternative 5. The proposed project would not indirectly induce development within the floodplains. Construction of either Alternative 3 or Alternative 5 would improve transportation system linkage in the area and increase mobility in and near the study area as the planned development occurs.

The construction of Alternative 3 or Alternative 5 in conjunction with the past, present, and future projects mentioned above would:

- Have a minor impact on land use as the existing agricultural land is developed into residential, commercial, and light industrial uses.
- Have minor impacts on the amount of land being converted to roadway right-of-way including potential wetland and other waters of the U.S. impacts including streams as they are potentially modified, placed underground in culverts, straightened, etc. as land use changes and development occurs in the study area.
- Have a minor impact on the water quality in the area should development continue to occur and additional pavement is added to the area.
- Have a minor impact on the 100-year and 500-year floodplains as development in the southern portion of the study area occurs. Floodplain development permits and processes from West Des Moines, Dallas County, and Iowa DNR would need to be followed before construction could occur. In addition, future planned development in the floodway fringe would be regulated by FEMA NFIP, State of Iowa floodplain regulations, Iowa Statewide Urban Design and Specifications (SUDAS), and the City of West Des Moines' Flood Plain Management Ordinance.
- Have a positive impact on stormwater runoff as development occurs in the study area due to implementation of SUADAS and compliance with regulations that require on-site stormwater detention.
- Have a minor impact on habitat for threatened and endangered species including woodlands which is the habitat for two listed species known to exist within the study area. The potential for the woodlands to degrade due to tree clearing and the presence of humans being closer to the boundaries of the wooded areas could have a potential cumulative impact on the listed species. The City of West Des Moines is coordinating with the FWS to determine if mitigation is needed to minimize impacts to habitat for Indiana bat and NLEB.

In summary, the overall cumulative impacts of either Alternative 3 or Alternative 5 are not considered collectively significant.

## 5.6. Streamlined Resource Summary

Resources not discussed in the body of the EA are located in the Streamlined Resources Summary, Appendix A. The summary includes information about the resources, the methods used to evaluate them, and when the evaluation was completed.

Table 10 summarizes the impacts to resources discussed in Section 5.0. The actual impacts the proposed project will have on environmental resources are anticipated to decrease from what is shown in Table 10 as the design process continues.

**Table 10. Summary of Impacts**

Resource	No Build Alternative	Alternative 3	Alternative 5
Right of Way Acquisitions (acres)	0	131	129
Potential Displacements (number)	0	0	0
Archaeological Sites (number)	0	1	0
Wetland Impacts (acres)	0	0.87	0.54
Surface Water and Water Quality (linear feet)	0	2,350	2,264
Floodplain (acres)	0	88.52	88.11
Threatened and Endangered Species Habitat (acres)	0	11.30	24.96
Woodlands (acres)	0	11.30	24.96
Farmland (acres)	0	111.46	105.51
Noise Impacts (number of receptors)	0	3	3
Visual	No Change	Minor Change	Minor Change
Utility (number of crossings)	0	3	2

## 5.7. Locally Preferred Alternative

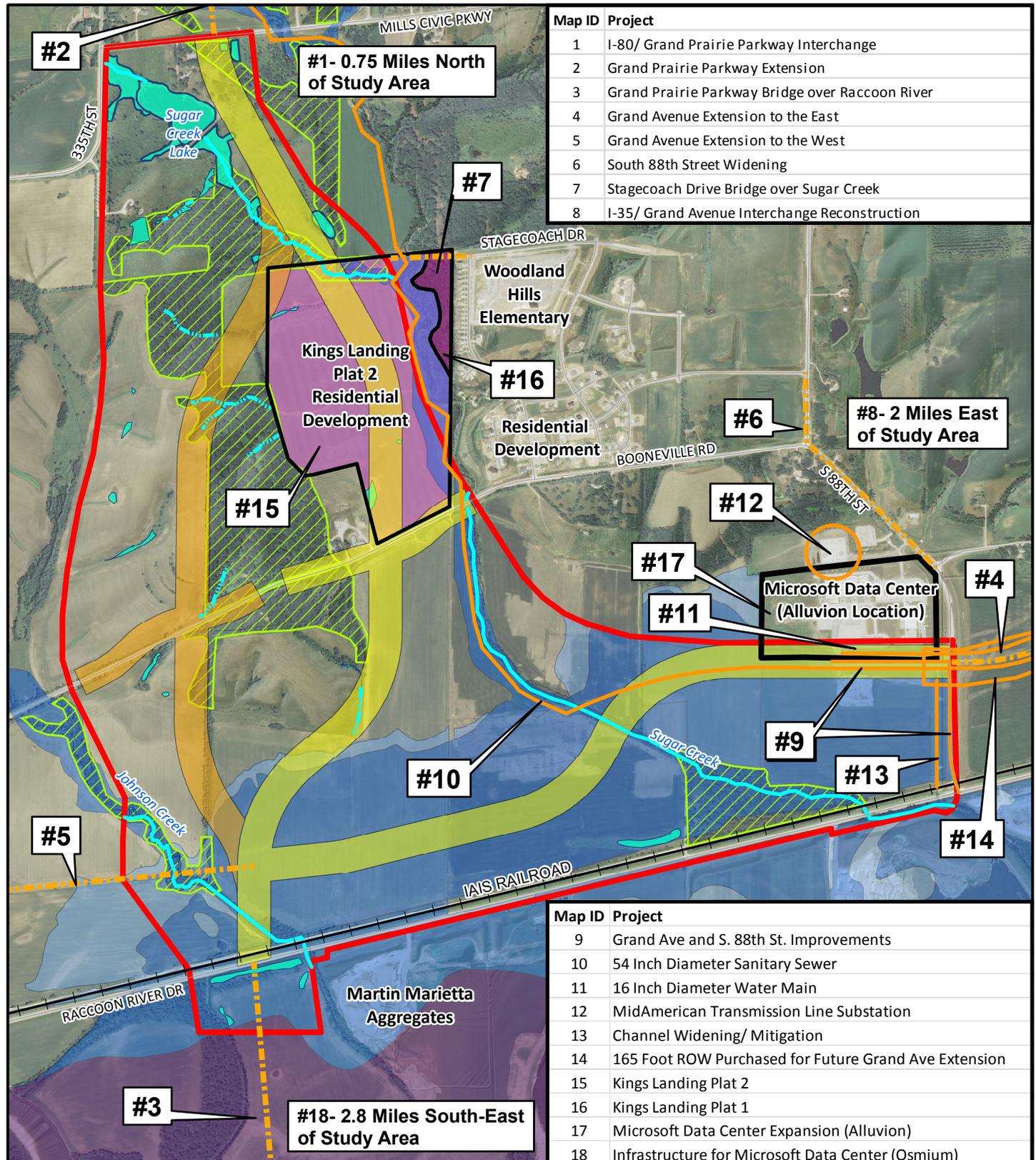
After comparing Alternatives 3 and 5 to each other, the City of West Des Moines has identified Alternative 5 as the Locally Preferred Alternative, which is shown in Figure 10. The Locally Preferred Alternative would have less impact on right of way acquisitions, wetland impacts, surface water and water quality, floodplains, and farmland as compared to Alternative 3. In addition, the Locally Preferred Alternative avoids an archeology site and has less impact to the Kings Landing development as compared to Alternative 3. The Locally Preferred Alternative has more impacts to threatened and endangered species habitat and woodlands than Alternative 3. The City of West Des Moines will perform mitigation to support a “May Effect – Not Likely to Adversely Affect” determination to the threatened and endangered species.

### 5.7.1. Mitigation Approach

On November 9, 2016 representatives from the City of West Des Moines, their consultants, Iowa DOT, and FWS met to discuss potential habitat mitigation approaches. Two different approaches were discussed which were completing an Incidental Take Permit (ITP) per Section 10 of the Endangered Species Act or the establishment of a conservation bank. The ITP would require a Habitat Conservation Plan that minimizes and mitigates takes of the Indiana and northern long-eared bat. The conservation

bank includes lands that are permanently conserved and permanently managed for federally listed species. There was general agreement by the City of West Des Moines and FWS to further investigate the possibility of establishing a habitat conservation bank within or near the project study area. The conservation bank could include some of the areas described in the 2008 *Sugar Creek/Fox Creek Greenway Master Plan*. The FWS and City of West Des Moines will work together to determine the feasibility of the conservation bank. If feasible, the City of West Des Moines, Iowa DOT, and FWS will work together to engage property owners in the spring of 2017. The FWS indicated that a Biological Assessment is not needed for this project at this point in time and that this informal consultation process will continue to obtain conclusion of Section 7 consultation with FWS.

A Determination of Effect form was completed for the Locally Preferred Alternative, assuming satisfactory mitigation of potential impacts to Indiana bat and NLEB. This form was submitted to the FWS for review and comment. Concurrence from the FWS is anticipated on the “May Effect – Not Likely to Adversely Affect” determination.



Map ID	Project
1	I-80/ Grand Prairie Parkway Interchange
2	Grand Prairie Parkway Extension
3	Grand Prairie Parkway Bridge over Raccoon River
4	Grand Avenue Extension to the East
5	Grand Avenue Extension to the West
6	South 88th Street Widening
7	Stagecoach Drive Bridge over Sugar Creek
8	I-35/ Grand Avenue Interchange Reconstruction

Map ID	Project
9	Grand Ave and S. 88th St. Improvements
10	54 Inch Diameter Sanitary Sewer
11	16 Inch Diameter Water Main
12	MidAmerican Transmission Line Substation
13	Channel Widening/ Mitigation
14	165 Foot ROW Purchased for Future Grand Ave Extension
15	Kings Landing Plat 2
16	Kings Landing Plat 1
17	Microsoft Data Center Expansion (Alluvion)
18	Infrastructure for Microsoft Data Center (Osmium)

**FIGURE 9**  
**Planned and Constructed**  
**Projects**  
**Grand Technology Gateway**  
**Environmental Assessment**  
 West Des Moines, Iowa

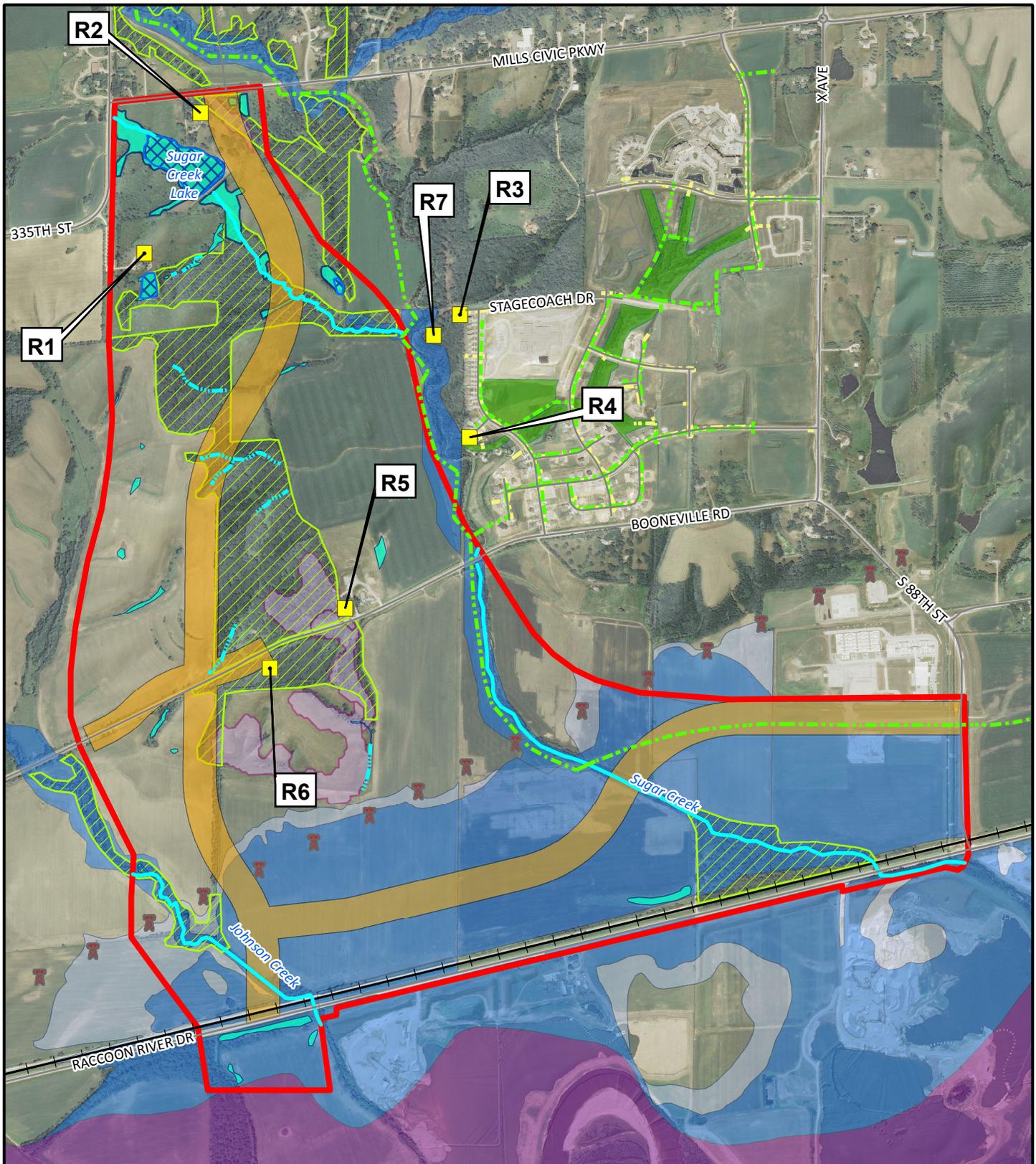
**Legend:**

- Planned Improvements
- Alternative 3 Footprint
- Recently Constructed Improvements
- Alternative 5 Footprint
- Observed Streams
- Wetlands
- Observed Ephemeral Streams
- Woodland Areas
- I-35 Railroad
- 500 YR Floodplain
- Kings Landing Plat 1
- 100 YR Floodplain
- Kings Landing Plat 2
- Floodway
- Project Study Area

THE CITY OF  
 WEST DES MOINES

0 750 1,500  
 Feet

\\hrgdmnas\data\40110092.02\GIS\MXD\Figures\Figure\_9-Planned&Constructed.mxd



<p><b>FIGURE 10</b> <b>Locally Preferred Alternative</b></p> <p><b>Grand Technology Gateway Environmental Assessment</b> West Des Moines, Iowa</p>	<ul style="list-style-type: none"> <li> Transmission Tower</li> <li> Modeled / Monitored Receptor Location</li> <li> Modeled Receptor Location</li> <li> Sanitary Pipes</li> <li> Storm Pipes</li> <li> Observed Streams</li> <li> Observed Ephemeral Streams</li> <li> 500 YR Floodplain</li> <li> 100 YR Floodplain</li> </ul>	<ul style="list-style-type: none"> <li> Floodway</li> <li> IAIS Railroad</li> <li> Preferred Alternative</li> <li> Project Study Area</li> <li> Ponds</li> <li> Wetlands</li> <li> Park/Greenway</li> <li> Woodland Areas</li> <li> Steep Slopes</li> </ul>	<p>0 750 1,500 Feet</p>

## **6.0 Disposition**

This Streamlined EA concludes that the proposed project is necessary for safe and efficient travel within the project corridor and that the proposed project meets the purpose and need. The project would have no significant adverse social, economic, or environmental impacts of a level that would warrant an EIS. Alternative selection will occur following completion of the public review period and public hearing.

This EA is being distributed to the agencies and organizations listed. Individuals receiving this EA are not listed for privacy reasons.

### ***Federal Agencies***

- Federal Emergency Management Agency
- Federal Rail Administration
- National Resources Conservation Service – State Conservationist and Local Office in Adel, Iowa
- U.S. Army Corps of Engineers – Rock Island District
- U.S. Department of Agriculture – Natural Resource Conservation Service
- U.S. Department of Housing and Urban Development
- U.S. Department of the Interior – Office of Environmental Policy and Compliance
- U.S. Environmental Protection Agency – Region 7, National Environmental Policy Act Team
- U.S. Fish and Wildlife Service – Rock Island Field Office

### ***State Agencies***

- Iowa Department of Agriculture and Land Stewardship
- Iowa Department of Natural Resources – Conservation and Recreation Division, Environmental Services Division, Land and Water Conservation Program, and Field Office #5
- Iowa Soil and Water Conservation
- State Historical Society of Iowa

### ***Local / Regional Units of Government***

- Iowa Interstate Railroad
- Iowa Emergency Management Division
- Dallas County Board of Supervisors
- Dallas County Conservation Board
- Dallas County Engineer
- Dallas County Historical Society
- City of West Des Moines

### ***Locations where this Document is Available for Public Review***

- City of West Des Moines Public Library, 4000 Mills Civic Parkway, West Des Moines, IA 50265
- City of West Des Moines Engineering Department, 4200 Mills Civic Parkway, West Des Moines, IA 50265
- Federal Highway Administration, 105 6<sup>th</sup> Street, Ames, IA 50010
- Iowa Department of Transportation, 800 Lincoln Way, Ames, IA 50010

***Potential Permits Needed for Proposed Project***

- Department of the Army Permit from the U.S. Army Corps of Engineers, Rock Island District (Section 404 Wetland Permit)
- Incidental Take Permit with Habitat Conservation Plan from U.S. Fish and Wildlife Service (Section 10 Incidental Take Permit)
- Water Quality Certification from Iowa DNR (Section 401 Water Quality Certification)
- Iowa DNR National Pollutant Discharge Elimination System General Permit No. 2 for Storm Water Discharge Associated with Construction Activities (NPDES Storm Water Permit)
- Iowa Sovereign Land Permit from the Iowa DNR
- Dallas County Floodplain Development Permit
- City of West Des Moines Floodplain Development Permit

Unless significant impacts are identified as a result of the public or agency review, or at the public hearing, a FONSI will be prepared for the proposed action as a basis for federal-aid corridor location approval.

***Status of Transportation Improvement Program***

According to the DMAMPO, the proposed GTG project submitted applications for funding from the 2020 Surface Transportation Plan. The applications were submitted in November of 2015. The Grand Prairie Parkway portion of the project is anticipated to cost approximately \$16 Million. The Grand Avenue portion of the project is anticipated to cost approximately \$11 Million.

## 7.0 Comments and Coordination

### 7.1. Agency and Tribal Coordination

Early agency coordination letters were sent to resource agencies on November 7, 2013. Table 11 provides the list of agencies contacted for coordination on the proposed project. The agencies that responded are indicated in the table with the date the response was received.

**Table 11. Agency Coordination**

Agency Type	Agency	Date of Response
Federal	U.S. Environmental Protection Agency	None
Federal	Federal Emergency Management Agency	None
Federal	U.S. Fish and Wildlife Service	12/23/2013
Federal	U.S. Department of Interior	None
Federal	U.S. Army Corps of Engineers	12/10/2013
Federal	U.S. Department of Agriculture	None
Federal	U.S. Department of Housing and Urban Development	None
State	Iowa Department of Natural Resources – Environmental Programs Supervisor	None
State	Iowa Department of Natural Resources – Environmental Services	11/18/2013
State	Iowa Department of Natural Resources – Conservation and Recreation Division	11/25/2013
State	Iowa Department of Natural Resources – Section 6(f) Funds Coordinator	11/20/2013
State	State Historic Preservation Office	12/30/2013
State	Iowa Interstate Railroad, Limited	None
State	Iowa Emergency Management Division	None
Local	West Des Moines Historical Society	None

The comments received from federal, state, county, and local agencies are summarized as follows:

- The Iowa DNR – Section 6(f) Funds coordinator stated they found no federal Land and Water Conservation Fund (LWCF) projects within the study area boundaries.
- The Iowa DNR – Environmental Services department stated that waters of the United States should not be disturbed and coordination with the USACE was required if placement of dredged or fill materials into waters of the United States would occur during construction of the project.
- The Iowa DNR – Conservation and Recreational Division found records of several species of protected bats, including the Indiana bat and the NLEB in the project area.
- The USACE said that a Section 404 permit will be required if dredged or fill material is placed into waters of the United States. The proposed project does not involve Rock Island District administered land and no further coordination with the Rock Island Real Estate department was needed. The responsible federal agency should coordinate with SHPO, FWS, and the Iowa Emergency Management Division.
- The FWS said that there are maternity colonies for the Indiana Bat in the study area that may be impacted by the project. Indirect effects may also occur through the removal of foraging and

roosting habitat. The Northern Long-Eared Bat, at the time, was currently proposed for federal listing under the Endangered Species Act.

- The SHPO said that per their programmatic agreement that appropriate cultural resource investigations would be conducted to determine the presence of historic properties in the study area. All correspondence in regards to Section 106 Consultation will be conducted through the Iowa DOT-Office of Location and Environment.

Tribal coordination letters were sent on December 16, 2013. The letter included a map of the project location. Two tribes responded to the letter and the correspondence is included in Appendix B. The Peoria Tribe of Indians of Oklahoma responded on January 9, 2014 stating that they “do not need to consult on this particular project”. The Pawnee Nation of Oklahoma responded on December 23, 2013 stating that the office has implemented a non-refundable research fee of \$500 for each request. The Iowa DOT responded to the Pawnee Nation of Oklahoma on January 7, 2014 to clarify the intent of the coordination. No response was received to date from the Pawnee Nation of Oklahoma.

## 7.2. NEPA / 404 Merge Coordination

FHWA and the Iowa DOT coordinated with resource agencies using the Iowa DOT concurrence point process. The process incorporates planning, design, agency coordination, public involvement elements, and integrates compliance with NEPA and Section 404 of the Clean Water Act. The transportation agencies request agency concurrence regarding four points in the NEPA process:

- Concurrence Point 1 – Purpose and Need
- Concurrence Point 2 – Alternatives to be Considered
- Concurrence Point 3 – Alternatives to be Carried Forward
- Concurrence Point 4 – Preferred Alternative

Representatives from USACE, FWS, EPA, FHWA, Iowa DNR, Iowa DOT, and the City of West Des Moines discussed Concurrence Points 1 and 2 in a face to face meeting with Internet and web connections on October 16, 2014. An overview of the project’s purpose and need and alternatives being considered were discussed. At this time, three build alternatives and the no build alternative were developed and presented to the agencies. As a result of the meeting additional alternatives were developed to minimize impacts to woodlands in the study area. Updated Concurrence Points 1 and 2 packets of information were submitted to the resource agencies on December 7, 2015 addressing USACE, FWS, and FHWA comments. Concurrences received are described in Table 12.

**Table 12. Agency Concurrence on Concurrence Points 1 and 2**

<b>Agency</b>	<b>Date of Concurrence</b>
U.S. Environmental Protection Agency	12/1/2014
Iowa Department of Natural Resources	12/2/2014
U.S. Fish and Wildlife Service	12/5/2014
U.S. Army Corps of Engineers	12/1/2015

Concurrence Point 3 was conducted through electronic mail correspondence. The Concurrence Point 3 packet of information was submitted by the City of West Des Moines’s consultant team to USACE, FWS, EPA, FHWA, Iowa DNR, and Iowa DOT on March 29, 2016. The packet of information included a preliminary impact comparison of the five build alternatives and the no build alternative, and descriptions of the two alternatives to be carried forward. Concurrences received are described in Table 13.

**Table 13. Agency Concurrence on Concurrence Point 3**

<b>Agency</b>	<b>Date of Concurrence</b>
U.S. Environmental Protection Agency	7/6/16*
Iowa Department of Natural Resources	5/6/16
U.S. Fish and Wildlife Service	6/6/16
U.S. Army Corps of Engineers	7/13/16

\*As part of concurrence, the EPA requested a meeting with FHWA which occurred by teleconference in November 2016; coordination is on-going to conclude Concurrence Point 3 with EPA.

The Concurrence Point 4 process will discuss and document the selection of the Preferred Alternative. This information will be developed after this EA is completed and submitted for agency and public review. Although the City of West Des Moines has identified the Locally Preferred Alternative, the comments received from the agencies and the public will help determine and select the Preferred Alternative or the No Build Alternative option. The Selected Alternative will be documented in the FONSI if a FONSI is the appropriate NEPA decision document.

### **7.3. Public Involvement**

One public information meeting was held on June 24, 2014 during the development of the alternatives for this project. The meeting was held from 5:30 PM to 7:30 PM in the city of West Des Moines’s Council Chambers at City Hall. Approximately 12 people attended the meeting and half of the attendees were members of the general public. The remaining six attendees were representatives from the City of West Des Moines and their consultant team. One comment was received as a result of the meeting. The comment stated that the Kings Landing proposed development would be “infeasible” if the proposed Grand Prairie Parkway project were to go “alongside or thru” the proposed development property.

## 8.0 References

2015 *City of West Des Moines Bicycle Master Plan*, Revised September 2015, “2015 On-Street Bicycle Facility Plan”, Page 34. <http://www.wdm.iowa.gov/home/showdocument?id=12683>.

“City of West Des Moines Development Retrospective Fiscal Year 2014-2015”. 2016. Presentation. Access May 2016 from <http://www.wdm.iowa.gov/home/showdocument?id=12533>.

City of West Des Moines, Interactive GIS, West Des Moines. Accessed April 2015 from <http://www.wdm.iowa.gov/residents/maps-gis/interactive-gis>.

*Comprehensive Plan, City of West Des Moines*, Adopted on December 6, 1993.

*Comprehensive Plan, City of West Des Moines*, Adopted on September 20, 2010. <http://www.wdm-ia.com/government/development-services/comprehensive-planning/comprehensive-plan>

Des Moines Area Metropolitan Planning Organization, Surface Transportation Improvement Program, “2020 STP and TAP Application Map”, <http://dmampo.maps.arcgis.com/apps/PublicInformation/index.html?appid=ca7037aeae2b4379847e9332e6be75a9>

Department of the Army, Rock Island District, Corps of Engineers, “Nationwide Permit No. 14”, Letter to City of West Des Moines, July 10, 2015.

FEMA. *Digital Flood Insurance Rate Map*, Ames: Washington D.C.

Federal Rail Administration, *Tier 1: Environmental Impact Statement, Chicago to Council Bluffs-Omaha Regional Passenger Rail System Planning Study*, August 2013. <https://www.fra.dot.gov/Page/P0596>

“Fire Department”, The City of West Des Moines. Accessed May 2016 from <http://www.wdm.iowa.gov/government/fire-department>.

HDR, Inc., *Grand Technology Gateway Flood Study, Hydraulic Technical Memorandum*, June 25, 2015.

HDR, Inc. *Grand Technology Gateway Flood Study, Hydrology Technical Memorandum*, June 25, 2015.

HDR, Inc., *Sugar and Johnson Creeks Floodplain Improvements – 2D Hydraulic Analysis Technical Memorandum*, June 2015.

HDR, Inc., *Sugar and Johnson Creeks Floodplain Improvements – 2D Hydraulic Analysis Technical Memorandum Addendum*, December 3, 2015.

HR Green, Inc., *Grand Technology Gateway, Cumulative Impacts Technical Memorandum*, May 2016.

HR Green, Inc., *Grand Technology Gateway, Environmental Justice Technical Memorandum*, May 2016.

HR Green, Inc., *Grand Technology Gateway, Limited Phase I Environmental Site Assessment*, November 2013.

HR Green, Inc., *Grand Technology Gateway, Preliminary Endangered Resources Report & Indiana Bat Habitat Assessment*, September 2012.

HR Green, Inc., *Grand Technology Gateway, Wetland Delineation Report*, June 2015.

Iowa Department of Natural Resources, Iowa Natural Areas Inventory. Accessed August 2016 from <http://programs.iowadnr.gov/naturalareasinventory/pages/RepDistinctSpeciesByCounty.aspx?CountyID=25>

Iowa Department of Transportation, GIMS, *Story County*; Datasets Road Info and Traffic, July 30, 2015: Ames, Iowa.

Iowa Department of Transportation, Iowa Railroad Traffic Density Map, July 2015. Accessed May 2016 from <http://www.iowadot.gov/iowarail/railroads/maps/Density.pdf>.

Natural Resources Conservation Services, *Part 523 – Farmland Protection Policy Act*, 440-V-CPM-Amend, 12, August 2012.

R.L. Banks & Associates, Inc., *Commuter Rail Feasibility Study For The Des Moines, Iowa Metropolitan Area*, June 2000.

“Retail Trade Analysis Report Fiscal Year 2015,” 2016, Iowa State University Department of Economics, Accessed May 2016 from [http://www.icip.iastate.edu/sites/default/files/retail/retail\\_1983910.pdf](http://www.icip.iastate.edu/sites/default/files/retail/retail_1983910.pdf).

Shive Hattery, *Sugar Creek/Fox Creek Greenway Master Plan*, City of West Des Moines, September 24, 2008.

Stantec Consulting Services Inc., *Indiana Bat (Myotis Sodalis) Mist Net Survey*, August 2012.

Tallgrass Historians L.C., *West Des Moines Grand Technology Gateway Location and Environmental Study, West Des Moines, Dallas County, Iowa: Architectural/Historical Intensive Survey & Evaluation*. February 2015.

Tallgrass Historians L.C., *West Des Moines Grand Technology Gateway Location and Environmental Study, West Des Moines, Dallas County, Iowa: Phase I Archaeological Investigation*. February 2015.

U.S. Census Bureau; Census 2010, Tables P3 and P12 and; generated by Marcus Coenon; using American FactFinder; <<http://factfinder2.census.gov>>; (November 11, 2013).

U.S. Census Bureau; 2011 American Community Survey 5-Year Estimates, Tables B02001, B17017, and B01001; American FactFinder; <<http://factfinder2.census.gov>>; (November 11, 2013).

USDA National Agriculture Statistics Service, 2016, USDA. Accessed May 2016 from [https://www.nass.usda.gov/Statistics\\_by\\_State/Iowa/](https://www.nass.usda.gov/Statistics_by_State/Iowa/).

**APPENDIX A**

**STREAMLINED RESOURCE SUMMARY**

**SOCIOECONOMIC IMPACTS SECTION:**

<b>Land Use</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Other
Completed by and Date:	Consultant, 4/15/2016
<b>Community Cohesion</b>	
Evaluation:	Resource is not in the study area
Method of Evaluation:	Other
Completed by and Date:	Consultant, 4/15/2016
<b>Churches and Schools</b>	
Evaluation:	Resource is not in the study area
Method of Evaluation:	Other
Completed by and Date:	Consultant, 1/25/2016
<b>Environmental Justice</b>	
Evaluation:	Resource is not in the study area
Method of Evaluation:	Other
Completed by and Date:	Consultant, 1/25/2016
<b>Economic</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Other
Completed by and Date:	Consultant, 4/15/2016
<b>Joint Development</b>	
Evaluation:	Resource is not in the study area
Method of Evaluation:	Other
Completed by and Date:	Consultant, 1/25/2016
<b>Parklands and Recreational Areas</b>	
Evaluation:	Resource is not in the study area
Method of Evaluation:	Database
Completed by and Date:	Consultant, 1/25/2016
<b>Bicycle and Pedestrian Facilities</b>	
Evaluation:	Resource is not in the study area
Method of Evaluation:	Other
Completed by and Date:	Consultant, 1/25/2016

**SOCIOECONOMIC IMPACTS SECTION CONTINUED:**

<b>Right of Way</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Other
Completed by and Date:	Consultant, 1/25/2016
<b>Relocation Potential</b>	
Evaluation:	Resource is not in the study area
Method of Evaluation:	Other
Completed by and Date:	Consultant, 1/25/2016
<b>Construction and Emergency Routes</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Other
Completed by and Date:	Consultant, 1/25/2016
<b>Transportation</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Other
Completed by and Date:	Consultant, 1/25/2016

**CULTURAL IMPACTS SECTION:**

<b>Historic Sites or Districts</b>	
Evaluation:	Resource is not in the study area
Method of Evaluation:	Report
Completed by and Date:	Subconsultant, 2/1/2014
<b>Archaeological Sites</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Report
Completed by and Date:	Subconsultant, 2/1/2014
<b>Cemeteries</b>	
Evaluation:	Resource is not in the study area
Method of Evaluation:	Report
Completed by and Date:	Subconsultant, 2/1/2014

**NATURAL ENVIRONMENT IMPACTS SECTION:**

<b>Wetlands</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Report
Completed by and Date:	Consultant, 6/1/2015
<b>Surface Waters and Water Quality</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Other
Completed by and Date:	Consultant, 4/15/2016
<b>Wild and Scenic Rivers</b>	
Evaluation:	Resource is not in the study area
Method of Evaluation:	Database
Completed by and Date:	Consultant, 1/25/2016
<b>Floodplains</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Other
Completed by and Date:	Consultant, 4/15/2016
<b>Wildlife and Habitat</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Report
Completed by and Date:	Consultant, 9/13/2012
<b>Threatened and Endangered Species</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Report
Completed by and Date:	Subconsultant, 9/13/2012
<b>Woodlands</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Other
Completed by and Date:	Consultant, 4/15/2016
<b>Farmlands</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Other
Completed by and Date:	Consultant, 4/15/2016

**PHYSICAL IMPACTS SECTION:**

<b>Noise</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Report
Completed by and Date:	Consultant, 5/1/2016
<b>Air Quality</b>	
Evaluation:	Resource is in the study area but will not be impacted
Method of Evaluation:	Database
Completed by and Date:	Consultant, 1/25/2016
<b>MSATs</b>	
Evaluation:	<p>This project has been determined to generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special MSAT concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no build alternative.</p> <p>Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOBILE6.2 model forecasts a combined reduction of 72 percent in the total annual emission rate for the priority MSAT from 1999 to 2050 while vehicle-miles of travel are projected to increase by 145 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.</p>
Method of Evaluation:	FHWA Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents, September 30, 2009
Completed by and Date:	Consultant, 1/25/2016
<b>Energy</b>	
Evaluation:	Resource is in the study area but will not be impacted
Method of Evaluation:	Other
Completed by and Date:	Consultant, 1/25/2016
<b>Contaminated and Regulated Materials Sites</b>	
Evaluation:	Resource is not in the study area
Method of Evaluation:	Report
Completed by and Date:	Consultant, 11/1/2013
<b>Visual</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Other
Completed by and Date:	Consultant, 4/15/2016
<b>Utilities</b>	
Evaluation:	Resource is discussed in Section 5 of the Resource Analysis
Method of Evaluation:	Other
Completed by and Date:	Consultant, 4/15/2016

**APPENDIX B**

**AGENCY AND TRIBAL COORDINATION**



# STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR  
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES  
CHUCK GIPP, DIRECTOR

November 18, 2013

MR ROSS HARRIS  
HR GREEN  
5025 MERLE HAY ROAD STE 200  
JOHNSTON IA 50131

RE: Grand Avenue & 105<sup>th</sup> Street Extensions (Grand Technology Gateway) EA  
West Des Moines Dallas County  
Project HDP-8260(629)-71-25

Dear Mr. Harris:

This letter is in response to the November 7, 2013 letter concerning the above-referenced project. Thank you for inviting comments on the impact of the above referenced project.

Waters of the United States (includes wetlands) should not be disturbed if a less environmentally damaging alternative exists. Unavoidable adverse impacts should be minimized to the extent practicable. Any remaining adverse impacts should be compensated for through restoration and creation activities (enhancement and/or preservation may be in addition to the restoration/creation). We would ask that Best Management Practices be used to control erosion and protect water quality near the project.

Any proposed placement of dredged or fill material into waters of the United States (including jurisdictional wetlands) requires Department of the Army authorization. When detailed plans are available, please complete and submit the joint application form to the Rock Island District Corps of Engineers (1 copy) and Iowa Department of Natural Resources (2 copies) for processing. The application form may be obtained at:  
<http://www.iowadnr.gov/InsideDNR/RegulatoryWater/WetlandsPermitting.aspx> .

An electronic copy of the application form and instructions may also be obtained on the Corps' website: <http://www.mvr.usace.army.mil/Missions/Regulatory.aspx> .

If you have any questions, please call me at (515) 281-6615.

Sincerely,

A handwritten signature in cursive script that reads "Christine M. Schwake".

Christine Schwake  
Environmental Specialist

---

**From:** Poole, Kelly [DNR] <Kelly.Poole@dnr.iowa.gov>  
**Sent:** Tuesday, November 19, 2013 1:56 PM  
**To:** Harris, Ross  
**Subject:** RE: Grand Technology Gateway Environmental Assessment (EA) - West Des Moines, IA  
- Early Agency Coordination request

Please forward the GIS shape file of the project study area (UTM NAD 83 Zone 15). Thanks. Kelly

**KELLY POOLE** Sovereign Lands & Environmental Review Coordinator



Iowa Department of Natural Resources  
515.281.8967 | [kelly.poole@dnr.iowa.gov](mailto:kelly.poole@dnr.iowa.gov)  
502 E. 9th Street | Des Moines, IA 50319-0034

[WWW.IOWADNR.GOV](http://WWW.IOWADNR.GOV)   

*Leading Iowans in Caring for Our Natural Resources.*

---

**From:** Harris, Ross [mailto:rharris@hrgreen.com]  
**Sent:** Wednesday, November 13, 2013 2:45 PM  
**To:** Schwake, Christine [DNR]  
**Cc:** Brian Hemesath; Joe Spradling; Newell, Deeann [DOT]; Moermond, Dave; Poole, Kelly [DNR]  
**Subject:** RE: Grand Technology Gateway Environmental Assessment (EA) - West Des Moines, IA - Early Agency Coordination request

Hi Chris,

Thank you for your reply and additional contact recommendations. An endangered species habitat survey in the Grand Technology Gateway Study Area was performed in August 2012, including a special survey for the Indiana bat. Coordination with USFWS occurred prior to the Indiana bat survey for the approval of the research methodology. One post-lactating adult female Indiana bat was observed from the mist netting conducted in the Study Area. Resulting study documentation was transmitted to Kristin Lundh at USFWS in September 2012. We are aware of the potential for other State- and/or Federally-listed threatened & endangered species in the area as well. Early agency coordination feedback received will be used to alert the project owner, and engineering and NEPA staff, of any potential concerns identified.

USFWS and Kelly Poole were provided early agency coordination request packets. As the project progresses, we will continue to coordinate with USFWS and the Iowa DNR among the other agencies that have resource jurisdictional review requirements, or other concerns and/or interests in this project. Project staff have begun to conduct regular telephone conference meetings and would certainly welcome the input of the DNR in these meetings as the project progresses. Please let me know and I will provide more details.

If you have any other questions or need additional information, please feel free to contact me. Thanks again for your reply and we will look forward to the DNR's response.

Best Regards,  
Ross Harris

---

**From:** Schwake, Christine [DNR] [<mailto:Christine.Schwake@dnr.iowa.gov>]  
**Sent:** Tuesday, November 12, 2013 8:44 AM  
**To:** Harris, Ross  
**Subject:** RE: Grand Technology Gateway Environmental Assessment (EA) - West Des Moines, IA - Early Agency Coordination request

Good morning Mr. Harris,

From past projects, I know that this project will have the potential to impact Indiana bat habitat so you should probably send this same request for comments to both Kelly Poole (DNR) and to USFWS to find out if there are any other threatened/endangered species you might have to survey for.

[Kelly.poole@dnr.iowa.gov](mailto:kelly.poole@dnr.iowa.gov)

USFWS, 1511 – 47<sup>th</sup> Avenue, Moline, IL 61265

Thanks, Chris

**CHRISTINE SCHWAKE** Environmental Specialist



Iowa Department of Natural Resources  
515.281.6615 | [christine.schwake@dnr.iowa.gov](mailto:christine.schwake@dnr.iowa.gov)  
502 E 9th St | Des Moines, IA 50319-0034

[WWW.IOWADNR.GOV](http://WWW.IOWADNR.GOV)



*Leading Iowans in Caring for Our Natural Resources.*

---

**From:** Harris, Ross [<mailto:rharris@hrgreen.com>]  
**Sent:** Friday, November 08, 2013 4:42 PM  
**To:** Schwake, Christine [DNR]  
**Subject:** Grand Technology Gateway Environmental Assessment (EA) - West Des Moines, IA - Early Agency Coordination request

Good Afternoon Ms. Schwake,

Attached is an early agency coordination review request for the subject project. Thank you for your review and comment. Please contact me if you have questions.

Best Regards,

**ROSS D. HARRIS, AICP**

**HR GREEN, INC.**

Des Moines Area Office  
5525 Merle Hay Road, Suite 200  
Johnston, Iowa 50131  
Main: 515.278.2913  
Direct: 515.657.5263 Mobile: 515.423.8973 Fax: 515.278.1846

Learn more at [HRGreen.com](http://HRGreen.com)

The contents of this transmission and any attachments are confidential and intended for the use of the individual or entity to which it is addressed. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is prohibited.



# STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR  
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES  
CHUCK GIPP, DIRECTOR

November 20, 2013

Ross Harris  
HR Green  
5025 Merle Hay Road, Suite 200  
Johnston, IA 50131

Re: Grand Avenue and 105<sup>th</sup> Street Extensions (Grand Technology Gateway)  
Environmental Assessment  
Project HDP-8260(629)-71-25

Dear Mr. Harris:

This letter is in response to your request for information on potential impacts associated with an Environmental Assessment (EA) for Grand Avenue and 105<sup>th</sup> Street Extensions project in West Des Moines, Iowa and how the project relates to the Federal Land & Water Conservation Fund (LWCF).

I have reviewed the area of potential impacts of the extensions and have found no federal projects within the boundaries.

The early coordination process is very helpful to our office and the National Park Service as we both are responsible for ensuring LWCF projects remain in outdoor recreation, and conversions are kept to a minimum. Thank you for the opportunity to review the project. If you have any questions, please contact me at 515-281-3013.

Sincerely,

*Kathleen Moench*

Kathleen Moench  
Budget & Finance Bureau



# STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR  
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES  
CHUCK GIPP, DIRECTOR

November 25, 2013

HRGreen  
Attn: Ross Harris  
5525 Merle Hay Road, Suite 200  
Johnston, IA 50131

RE: Environmental Review for Natural Resources  
Grand Avenue and 105<sup>th</sup> Street Extensions (Grand Technology Gateway)  
Project: HDP-8260(629)-71-25  
Dallas County  
Section 16, 21 & 26-28, Township 78N, Range 26W

Dear Mr. Harris,

Thank you for inviting Department comment on the impact of this project. The Department has searched for records of rare species and significant natural communities in the project area and found records of several species of protected bats, including the state- and federally-Endangered Indiana Bat (*Myotis sodalis*) and the Northern Long-Eared Bat, (*Myotis septentrionalis*) in the project area. The Northern Long-Eared Bat is proposed for listing as federally-Endangered. If you have not already done so, you are encouraged to contact the U.S. Fish and Wildlife Service regarding this project. The Rock Island Field Office may be reached at (309) 757-5800 or 1511 47th Ave. Moline, IL, 61265-7022.

Department records and data are not the result of thorough field surveys. If listed species or rare communities are found during the planning or construction phases, additional studies and/or mitigation may be required. If the construction plans change, the Department should be contacted for another review.

This letter is a record of review for protected species, rare natural communities, state lands and waters in the project area, including review by personnel representing state parks, preserves, recreation areas, fisheries and wildlife but does not include comment from the Environmental Services Division of this Department. This letter does not constitute a permit. Other permits may be required from the Department or other state or federal agencies before work begins on this project.

If you have questions about this letter or require further information, please contact me at (515) 281-8967.

Sincerely,

A handwritten signature in blue ink that reads "Kelly Poole".

Kelly Poole  
Environmental Specialist  
Conservation and Recreation Division

FILE COPY: Kelly Poole

Tracking Number: 9532

CC: U.S. Fish and Wildlife Service, Rock Island Field Office, 1511 47<sup>th</sup> Ave., Moline, IL 61265-7022



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, ROCK ISLAND DISTRICT  
PO BOX 2004 CLOCK TOWER BUILDING  
ROCK ISLAND, ILLINOIS 61204-2004

December 10, 2013

Regional Planning and  
Environmental Division North

Mr. Ross Harris  
HR Green NEPA Project Manager  
5025 Merle Hay Road, Suite 200  
Johnston, Iowa 50131

Dear Mr. Harris:

I received your letter dated November 7, 2013, concerning the preparation of an Environmental Assessment for the construction of roadway improvements for extension of Grand Avenue and 105<sup>th</sup> Street, locally known as the Grand Technology Gateway. Rock Island District Corps of Engineers staff reviewed the information you provided and have the following comments:

a. A Section 404 permit will be required for this project. Any proposed placement of dredged or fill material into waters of the United States (including jurisdictional wetlands) requires Department of the Army authorization under Section 404 of the Clean Water Act.

Prior to completing the permit review process and in compliance with the Clean Water Act Section 404(b)(1) guidelines, we also require sequential mitigation involving an alternatives analysis, minimization of impacts, and compensatory mitigation for any unavoidable impacts. The alternatives analysis must demonstrate how you will avoid impacts by selecting the least environmentally damaging practicable alternative based on wetland sizes, locations, types, and relative functions. Minimization of impacts should consist of a list of appropriate and practicable steps to minimize unavoidable adverse impacts. Compensatory mitigation must include plans to restore or create wetlands to mitigate unavoidable project wetland impacts. The requirements for a complete mitigation plan are described in the Federal Register (Volume 73, No. 70) dated April 10, 2008, under "Compensatory Mitigation for Losses of Aquatic Resources; Final Rule".

It appears that this project is a part of a larger project and we request that the Federal Highway Administration assess the overall impacts of the overall corridor including secondary and cumulative effects. We are also concerned that the project as proposed does not appear to have logical termini, independent utility or an explicable need unless other apparently planned road components are considered. We recommend that the Environmental Assessment for this project utilize the merged 404 process.

If you have any questions regarding permit requirements under Section 404 of the Clean Water Act, please contact Mr. Michael D. Hayes of our Regulatory Branch. You may reach Mr. Hayes by writing to our address above, ATTN: Regulatory Branch OD-PP, or by telephoning 309/794-5367.

b. Your proposal does not involve Rock Island District administered land; therefore, no further Rock Island District real estate coordination is necessary.

c. The Responsible Federal Agency should coordinate with Ms. June Strand, Iowa Historic Preservation Agency, ATTN: Review and Compliance Program, State Historical Society of Iowa, 600 East Locust, State Historic Building, Des Moines, Iowa 50319 to determine impacts to historic properties.

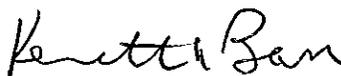
d. The Rock Island Field Office of the U.S. Fish and Wildlife Service should be contacted to determine if any federally-listed endangered species are being impacted and, if so, how to avoid or minimize impacts. The Rock Island (County) Field Office address is: 1511 - 47th Avenue, Moline, Illinois 61265. Mr. Rick Nelson is the Field Supervisor. You can reach him by calling 309/757-5800.

e. The Iowa Emergency Management Division should be contacted to determine if the proposed project may impact areas designated as floodway. Mr. John Wagman is the Iowa State Hazard Mitigation Team Leader. His address is: 7105 NW 70<sup>th</sup> Ave., Camp Dodge-Bldg. W4, Johnston, Iowa 50131. You can reach him by calling 515/725-3231.

No other concerns surfaced during our review. Thank you for the opportunity to comment on your proposal. If you need more information, please call Ms. Wendy Frohlich of our Environmental Compliance Branch, telephone 309/794-5573.

You may find additional information about the Corps' Rock Island District on our website at <http://www.mvr.usace.army.mil>. To find out about other Districts within the Corps, you may visit: <http://www.usace.army.mil/Locations.aspx>.

Sincerely,



Kenneth A. Barr  
Chief, Environmental Planning  
Branch, (RPEDN)



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Rock Island Field Office  
1511 47<sup>th</sup> Avenue  
Moline, Illinois 61265  
Phone: (309) 757-5800 Fax: (309) 757-5807

IN REPLY REFER  
TO:  
FWS/RIFO

December 23, 2013

Mr. Ross Harris  
HR Green  
5525 Merle Hay Road, Suite 200  
Johnson, Iowa 50131

Dear Mr. Harris:

Thank you for your letter of November 7, 2013, requesting comments for the preparation of an Environmental Assessment (EA) for proposed roadway improvements by the City of West Des Moines in Dallas County, Iowa. The proposed roadway improvements include the extensions of Grand Avenue and 105<sup>th</sup> Street, locally known as the Grand Technology Gateway. The project is being coordinated on behalf of the City of West Des Moines, the Iowa Department of Transportation (DOT), and the Federal Highway Administration.

### **Project Description (from HR Green letter enclosures).**

The City of West Des Moines is planning a 1.5 mile extension of Grand Avenue from 88<sup>th</sup> Street to intersect with a planned 1.75 mile extension of 105<sup>th</sup> Street from Mills Civic Parkway. The West Des Moines Comprehensive Plan, adopted on September 10, 2010 guides planned growth in the vicinity of the Grand Technology Gateway project for commercial office, business campus, and medium density residential land uses. The planned roadway improvements will link projects already under construction or that have been approved including (to the north) a new interchange at I-80 and Alice's Road, (to the east) street improvements along Grand Avenue and reconstruction of the 1-35/Grand Avenue Interchange and, (to the south) extension of 105<sup>th</sup> Street over the Raccoon River. Regarding the planned roadway improvements associated with the Grand Technology Gateway, we have the following comments.

### **Indiana Bat Presence**

On September 19, 2012, the U.S. Fish and Wildlife Service (Service) received information about the Grand Technology Gateway from HR Green. HR. Green was contracted by the City of West Des Moines to identify suitable Indiana bat habitat within the study area for the Grand

Technology Gateway. Based on this evaluation, a mist netting survey was conducted by Dr. Russ Benedict to determine whether Indiana bats occupied the suitable habitat. A total of 25 bats comprising 5 species were captured, including one post-lactating Indiana bat. This bat was radio-tagged and tracked back to two different roost trees within the study area. Although the survey was conducted late in the season, and maternity colonies were likely starting to disperse and migrate, Dr. Benedict indicated that he believed one of the trees was likely being used as maternity colony tree as exit counts on three consecutive nights indicated that multiple bats were using the tree (Stantec, 2012).

An earlier mist net survey was conducted by Dr. Benedict in June of 2011 for the 105<sup>th</sup> Street extension crossing the Raccoon River to the south of the Grand Technology Gateway. Dr. Benedict captured a total of sixty bats of five different species during his June 2011 survey, including five Indiana bats. Two of the 5 Indiana bats were radio-tagged and tracked back to roost trees north of the Raccoon River. The information collected on two of these trees and the known roosting habitat of Indiana bats (USFWS 2007) indicates these trees were likely primary roost trees being utilized by a maternity colony of Indiana bats. The results of Dr. Benedict's survey indicate a maternity colony of Indiana bats is utilizing this project area for foraging and very likely roosting.

A third survey for Indiana bats was conducted by Dr. Benedict in May of 2013 for the I-80 Alice's Road/105<sup>th</sup> Street interchange. Dr. Benedict captured a total of 11 bats comprising 4 species during the 2013 survey. Although no Indiana bats were captured, Dr. Benedict indicated that the area "clearly supports a diverse population of bats, as evidenced by the number of species of bats captured in this area."

Based on the surveys that have been conducted within the Grand Technology Gateway project area, and in forested habitat to the south, at least one maternity colony of Indiana bats is utilizing the forested habitat for roosting and foraging. Two different roost trees were identified within the Grand Technology Gateway corridor and were likely being used as maternity colony trees. We do not know conclusively at this time whether the maternity colony utilizing this habitat is the same colony that occupies the area that was impacted by clearing for the 105<sup>th</sup> Street extension from Raccoon River Drive south as described in the Biological Opinion (and included Incidental Take Statement) issued to the U.S. Army Corps of Engineers for Public Notice CEMVR-OD-P-2011-928. The roost trees identified in the Grand Technology Gateway corridor are within one mile of Raccoon River Drive Bridge and the two roost trees identified in 2011. Bats from the same maternity colony may be utilizing both areas or they may be separate colonies.

### **Potential Project Impacts to the Indiana Bat**

The potential impacts on the maternity colony(s) that occupy the habitat within Grand Technology Gateway and potential development areas surrounding it can be divided into three categories: 1) direct impacts to individuals if an occupied roost tree is felled during the active season (April 1 to September 30); 2) indirect effects from the removal of active maternity roost trees during the inactive season that may result in decreased viability of the maternity colony; and 3) indirect effects from the removal of summer habitat resulting in substantial habitat

degradation.

Removal of roost trees while Indiana bats are present may result in direct effects by killing, injuring, or otherwise harming individuals or a maternity colony. Clearing during the active season may impact migratory bats (females, males, and juveniles), non-maternity individuals in summer habitat (males and non-reproductive females), and females and juveniles roosting in an unidentified maternity tree.

Indirect effects to Indiana bats may also occur if active maternity roost trees (i.e., occupied in the summer) are cleared during the hibernation period (inactive season). Removal of maternity roost trees during this time renders them unavailable to pregnant bats that exhibit maternity area and/or maternity roost tree fidelity following migration in the spring. Active primary maternity roost trees are larger trees that are rare across the landscape, and we do not have complete understanding of how they are selected. It can be difficult for a maternity colony to find a suitable replacement even if a suite of alternate maternity roost trees in the area are already being used. Periods of pregnancy, birth, and lactation are the most sensitive and energetically demanding times of year for reproductive females. Resulting indirect effects from the loss of maternity trees during these periods may include a reduction in foraging, increases in energetic demands, exposure to inter and intra-specific competition, exposure to predation, and decreases in the long-term reproductive success and viability of the colony in the area. A substantial habitat modification may result in harm by significantly impairing behavioral patterns, including breeding, feeding, or sheltering within a maternity colony. If no adequate primary and alternate maternity roosts remain adjacent to the area of impact, indirect effects would be expected to occur as pregnant females search potentially unfamiliar habitat for new roosting and foraging areas the following year.

Indirect effects may also occur through the removal of foraging and roosting habitat. If the removal of foraging and roosting habitat results in substantial degradation of habitat quantity or quality, a maternity colony may be harmed via a significant impairment of behavioral patterns, including breeding, feeding, or sheltering. The proposed expansion of the Grand Technology Gateway and resulting secondary development in this corridor may remove substantial portions of habitat that support the resident maternity colony(s). Habitat removal could also impede the migration of bats between the habitat along the Raccoon River and the potential habitat to the north, thus reducing the range of the colony if one colony is utilizing both areas.

### **Northern Long-eared Bat**

The Northern long-eared bat (*Myotis septentrionalis*) (NLEB) is currently proposed for federal listing under the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*). At this time, no critical habitat has been proposed for the NLEB.

The presence of northern long-eared bats has been confirmed in the surveys by Dr. Benedict within the Grand Technology Gateway, south in the 105<sup>th</sup> Street extension across the Raccoon River, and to the north in the area for the I-80 Alice's Road/105<sup>th</sup> Street interchange. A total of 10 northern long-eared bats were captured within the Grand Technology Gateway survey, 6 females and 4 males. Although the survey indicates the 6 females were post-lactating and the

males were adults, the late stage of the survey made it difficult to distinguish adult bats from young of the year. The number of bats captured does indicate that a maternity colony is likely utilizing that habitat within this corridor.

Northern long-eared bats occupy similar habitat to that of the Indiana bat. During the summer northern long-eared bats roost singly or in colonies in cavities, underneath bark, or in crevices of both live and dead trees. Suitable summer habitat for the northern long-eared bat consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags greater than 3 inches dbh that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Northern long-eared bats have also been observed roosting in human-made structures, such as building, barns, and in bat houses. Northern long-eared bats typically occupy their summer habitat during the same time as Indiana bats April 1 – September 30.

### **Conference on the Northern Long-eared Bat**

Pursuant to Section 7(a)(4) of the ESA, federal action agencies are required to confer with the Service if they determine that the proposed federal action is likely to jeopardize the continued existence of the northern long-eared bat (50 CFR 402.10(a)). Action agencies may also voluntarily confer with the Service if the proposed action may affect a proposed species. Section 7(a)(4) was added to the Endangered Species Act to provide a mechanism for identifying and resolving conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage.

Although species proposed for listing are not afforded protection under the ESA, when a species is listed, the prohibitions against jeopardizing its continued existence and unauthorized “take” under Section 9 are effective 30 days after the final listing is published (expected by October 2, 2014), **regardless of an action’s stage of completion**. Section 9 take prohibitions will be effective for federal projects as well as private actions on this date. If the northern long-eared bat becomes listed prior to completion of this project and federal agencies have not conferred with the Service, project proponents would need to cease action on the project and enter into formal consultation with the Service if the action is likely to adversely affect the northern long-eared bat. This approach has the potential to result in significant delays and costs.

Because habitat requirements are similar to those of the Indiana bats, impacts to resident northern long-eared bats are likely to be similar as well. The Service is currently formulating conference and consultation strategies for this species which will include more specific habitat requirements, home-range information, and conservation measures.

### **Recommendations**

For project development and preparation of the EA, we recommend that the City of West Des Moines, Iowa DOT, and the Federal Highway Administration consider the effects of construction

of the proposed Grand Technology Gateway and the associated development on the Indiana bat and the northern long-eared bat which are both known to occupy the wooded tracts within the planned roadway corridor.

This letter provides comments under the authority of and in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.); and the Endangered Species Act of 1973, as amended.

If you have any questions regarding our comments, please contact Kristen Lundh of my staff at (309) 757-5800, extension 202.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard C. Nelson", written in a cursive style.

Richard C. Nelson  
Field Supervisor

cc: Marler (Iowa DOT)  
LaPietra (FHWA)  
Howell, Schwake (IA DNR)  
Hayes (COE)



# Pawnee Nation of Oklahoma

## Office of Historic Preservation

657 Harrison Street

P.O. Box 470

Pawnee, OK 74058

December 23, 2013

RECEIVED

DEC 26 2013

Libby Wielenga  
800 Lincoln Way,  
Ames IA 50010

Office of Land and Environment

**RE: Section and Review and Consultation request for the proposed Grand Avenue and 105<sup>th</sup> Street Extensions (Grand Technology Gateway), West Des Moines, Iowa**

Dear Libby,

The Pawnee Nation Office of Historic Preservation received your request for consultation on Dec 16, 2013. As you know, our comment on these projects and their potential to affect Historic Properties or Traditional Cultural Places (TPC) is required by Section 106 of the National Historic Preservation Act of 1966 (NHPA), and 36 CFR Part 800. The people of the Pawnee Nation thank you for your submitting your project proposal for our review and comment.

Please be advised that the Pawnee Nation's Historic Preservation Office requires the following before we can perform the work necessary to process your request:

- ✦ \$500 Non-Refundable Research Fee for each request;
- ✦ A topographical map specifying the Area of Potential Effect (APE);
- ✦ Description of the work to be performed, including earth disturbing activities depth and breadth of disturbance;
- ✦ Preferred documentation: Cultural Resource Survey

Checks should be made payable to Office of Historic Preservation, Pawnee Nation of Oklahoma. After receipt of the materials mentioned above, we will process your request and you will receive our comment within 30 days.

Please refer any questions you may have to Ms. Rebekah Horsechief, Acting Pawnee Tribal Historic Preservation Officer, at the points of contact contained herein. We look forward to working with you.

Sincerely,

Rebekah Horsechief, Acting  
Tribal Historic Preservation Officer

---

**Rebekah Horsechief**

ACTING | Tribal Historic Preservation Officer

[rebekahh@pawneenation.org](mailto:rebekahh@pawneenation.org)

Ph: 918.762.3227

Fax: 918.762.3662

---

**From:** Jones, Doug [DCA] <Doug.Jones@iowa.gov>  
**Sent:** Monday, December 30, 2013 6:01 PM  
**To:** Harris, Ross; brian.hemesath@wdm.iowa.gov  
**Cc:** Jones, Doug [DCA]; Gourley, Kathy [DCA]; Mike.LaPietra@dot.gov; Wielenga, Libby [DOT]; Newell, Deeann [DOT]  
**Subject:** 131125032 HDP-8260(629)-71-25 Grand Technology Gateway in West Des Moines EA Prep

December 30, 2013

**In reply refer to:**  
**R&C#:** 131125032

Dear Mr. Harris,

Thank you for notifying our office about the above referenced proposed project. We understand that this project will be a federal undertaking for the Federal Highway Administration (FHWA) and will need to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966 and its implementing regulations, 36 CFR Part 800 (revised, effective August 5, 2004) and with the National Environmental Policy Act (NEPA).

Per our programmatic agreement, our office understands that the appropriate cultural resources investigations will be implemented and conducted to determine whether any historic properties will be affected by the proposed undertaking. If during your scoping process, a cultural resource issue is identified, our agency can provide further technical assistance to your agency.

Our office will be a consulting party to the responsible federal agency and the Iowa Department of Transportation acting on behalf of FHWA in accordance with our Programmatic Agreement as part of the Section 106 consultation process. We request that all correspondence related to this undertaking for Section 106 consultation be provided to our office through the Office of Location and Environment at the Iowa Department of Transportation in accordance with our Programmatic Agreement.

We look forward to consulting with the Office of Location and Environment at the Iowa Department of Transportation and the Federal Highway Administration on the Area of Potential Effect for this proposed project and whether this project will affect any significant historic properties under 36 CFR Part 800.4. We will need the following types of information for our review:

- The Area of Potential Effect (APE) for this project needs to be adequately defined (36 CFR Part 800.16 (d)).
- Information on what types of cultural resources are or may be located in the APE (36 CFR Part 800.4).
- The significance of the historic properties in the APE in consideration of the National Register of Historic Places Criteria.
- A determination from the responsible federal agency of the undertaking's effects on historical properties within the APE (36 CFR Part 800.5).

Also, the responsible federal agency will need to identify and contact all potential consulting parties that may have an interest in historic properties within the project APE (36 CFR 36 Part 800.2 (c)).

**Please reference the Review and Compliance Number provided above in all future submitted correspondence to our office for this project.** We look forward to further consulting with the Office of Location and Environment at the Iowa Department of Transportation and the Federal Highway Administration on this project. Should you have any questions please contact me at the number below.

This is the official SHPO comment letter for the above-referenced project, provided in accordance with Section 106 of the National Historic Preservation Act of 1966 and its implementing regulations, 36 CFR Part 800 (revised, effective August 5, 2004). To read the document, you may need to download a free copy of Adobe Acrobat Reader at [www.adobe.com](http://www.adobe.com).

Please note that you will not receive a hard copy of this letter by mail. There is no need to reply to this email unless you have specific questions or have problems opening the document. If you have any further questions, please feel free to contact me.

Sincerely,

Douglas W. Jones, Archaeologist and Review and Compliance Program Manager  
State Historic Preservation Office  
State Historical Society of Iowa  
(515) 281-4358



Iowa Department of Transportation  
TRIBAL NOTIFICATION

RECEIVED

JAN - 9 2014

Peoria Tribe of Indians of Oklahoma

Office of Location & Environment

Form 536002  
08-05

Date December 10, 2013 IA DOT contact Libby Wielenga  
 IADOT project # HDP-8260(629)-71-25 Phone # IA DOT - 515-239-1035 FHWA - 515-233-7300  
 Location Dallas County, Iowa E-mail Libby.Wielenga@dot.iowa.gov  
 Description Grand Avenue and 105th Street Extensions (Grand Technology Gateway), West Des Moines, Iowa

Type of Project (see map)

VERY SMALL - Disturb less than 12-inch depth (plow zone)  
 SMALL - Grading on existing road, shouldering, ditching, etc.  
 SMALL - Bridge or culvert replacement

X LARGE - Improve existing road from 2 lanes to 4 lanes  
 X LARGE - New alignment  
 OTHER - Borrow Area

Type of Coordination/Consultation Points

X 1 - Early project notification (project map and description)  
 2 - Notification of survey findings (Phase I)  
 2a - Notification of site evaluation (Phase II)

3 - Consultation regarding site treatment  
 4 - Data Recovery Report  
 5 - Other

Type of Findings

No American Indian site found  
 --Section 106 Consultation Process ends\*  
 American Indian sites found but not eligible for National Register listing -- Section 106 Consultation Process ends\*  
 Avoided American Indian sites eligible for National Register listing (see map and list of sites)  
 --Section 106 Consultation Process may or may not end

Potentially significant American Indian sites found (see map and list of sites)  
 American Indian sites eligible for National Register listing cannot be avoided (see map)  
 Burial site found

\* In the event of a late discovery, consultation will be reopened

\_\_\_\_\_ # of non-significant prehistoric sites  
 \_\_\_\_\_ # of potentially significant prehistoric sites  
 \_\_\_\_\_ # of National Register-eligible prehistoric sites

Affected National Register Properties

Investigating avoidance or minimizing harm options  
 Avoided

Protected  
 Data Recovery/MOA

\*\*\*\*\*Please Respond\*\*\*\*\*

Who should we contact for site/project-related discussions?

Cynthia Stacy 118 S. Eight Tribes Trail Miami 74354  
 Name Street Address City, Zip Code  
918.540.2535 CStacy@peoria-tribe.com  
 Phone E-mail

Do you know of any sensitive areas within or near the project the FHWA/DOT should avoid (please describe)?

no

- Thank you for the information; however, we do not need to consult on this particular project.  Thank you for the information. We are satisfied with the planned site treatment.
- We do not have a comment at this time, but request continued notification on this project.  We have concerns and wish to consult.
- Please send a copy of the archaeology report.  We wish to participate in the Memorandum of Agreement for this project.

nts \_\_\_\_\_  
 \_\_\_\_\_

Peoria Tribe of Indians of OK  
 Tribe name

1/1/14  
 Date



800 Lincoln Way  
Ames, IA 50010



U.S. Department  
of Transportation  
**Federal Highway  
Administration**  
105 6<sup>th</sup> Street  
Ames, IA 50010

January 7, 2014

Ms. Rebekah Horsechief  
Acting Tribal Historic Preservation Officer  
Pawnee Nation of Oklahoma  
PO Box 470  
Pawnee, OK 74058

**RE: Research Processing and Fee**

Dear Ms. Horsechief:

On December 18 and 26, 2013 our offices received several letters from your office regarding your new research processing and fee. These projects document a mix of undertakings, some of which are directed and designed at the state level and some at the county or city level. Further, these projects include undertakings as small as bike trails all the way to 4-lane corridors and interchanges. The following projects have been subject to such notices:

Project No.	County	Fee	Primary/Local	Notes
NHS-61-2(50)--19-29	Des Moines	\$500.00	Primary	Phase I for a 4-lane corridor
HDP-8260(629)--7I-25	Dallas	\$500.00	Local	Early NEPA coordination
NHSN-020-1(127)--2R-97	Clay	\$500.00	Primary	Phase I survey of the Oneota wetland
NHSX-61-3(61)--3H-58	Louisa	\$500.00	Primary	Phase I for a 4-lane corridor
STP-E-1187(773)--8V-57	Linn	\$500.00	Local	Phase I for a bike trail
BRF-092-1(64)--38-78	Pottawattamie	\$500.00	Primary	Early NEPA coordination
BRFIMX-035-2(423)--44-14-91	Warren	\$500.00	Primary	Phase I for an interchange
HDP-CP96(124)--6B-96	Winneshiek	\$500.00	Local	Phase Ia and Phase I for a bike trail
NHS-020-1(077)--19-97	Woodbury	\$500.00	Primary	Data recovery MOA amendment

As you know the Pawnee Nation of Oklahoma, the Iowa Department of Transportation (Iowa DOT), and the Federal Highway Administration (FHWA) executed a Programmatic Memorandum of Understanding (PMOU) in January of 2004. Before that time and ever since we have had positive and constructive consultations with the Pawnee Nation of Oklahoma. We very much wish to continue that positive relationship. Appendix A of our 2004 PMOU states that we will provide a Tribal Notification Form, a map and information about the nature and the extent of a project, and that this process will apply only to projects in the counties shown on the map (Appendix C). In turn, the Tribe agreed to return the Tribal Notification Form within 14 days.

Ms. Rebekah Horsechief

Page 2

January 7, 2014

We realize that a number of the projects listed above are outside of the Pawnee Nation of Oklahoma's self-identified area of interest in Iowa. We apologize for these additional mailings and will work to reduce the number of projects we send for your review, and limit those mailings only to the areas the Tribe is interested in. We will continue to honor our agreement.

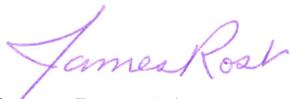
Regarding the new research process and fee recently implemented by your office; at this time we cannot offer support of your proposed fee. We will continue to provide the same information identified in our 2004 PMOU (Tribal Notification Form, map(s), and a description of the nature and extent of the project).

On our list of goals for 2014 Iowa DOT and FHWA are proposing to host a 2014 Tribal Summit similar to the event we held in 2001 (see the following url: <http://environment.fhwa.dot.gov/strmlng/newsletters/jul02nl.asp>). One planned accomplishment from the summit would be to review one-on-one each tribe's PMOU because we believe in many cases it would be useful and beneficiary to update this agreement, and you may feel the same. If you are interested in attending this event with us, FHWA, other Tribal Nations, and other members of the preservation community in Iowa (e.g. State Historic Preservation Office, Office of the State Archaeologist, etc.), an advance notification of interest would be appreciated.

We want to assure you that our offices remain committed to the regulations and principles of the National Historic Preservation Act, the Native American Graves Protection and Repatriation Act and the American Indian Religious Freedom Act.

Please feel free to call me at (515) 239-1798 or Mr. Michael LaPietra, with the Federal Highway Administration, Iowa Division, at (515) 233-7302 if you have any questions.

Sincerely,



James Rost, Director  
Office of Location and Environment  
Iowa Department of Transportation

Sincerely,



Michael LaPietra, Manager  
Environment and Realty  
Federal Highway Administration - Iowa Division

JPR:BD:sm

cc: President, Mr. Marshall Gover



Iowa Department of Transportation  
TRIBAL NOTIFICATION

RECEIVED

FEB 03 2014

Winnebago Tribe of Nebraska

Office of Location & Environment

Form 536002  
08-05

Date December 10, 2013 IA DOT contact Libby Wielenga  
 IADOT project # HDP-8260(629)-71-25 Phone # IA DOT - 515-239-1035 FHWA - 515-233-7300  
 Location Dallas County, Iowa E-mail Libby.Wielenga@dot.iowa.gov  
 Description Grand Avenue and 105th Street Extensions (Grand Technology Gateway), West Des Moines, Iowa

Type of Project (see map)

VERY SMALL - Disturb less than 12-inch depth (plow zone)  
 SMALL - Grading on existing road, shouldering, ditching, etc.  
 SMALL - Bridge or culvert replacement

X

LARGE - Improve existing road from 2 lanes to 4 lanes  
 LARGE - New alignment  
 OTHER - Borrow Area

Type of Coordination/Consultation Points

X 1 - Early project notification (project map and description)  
 2 - Notification of survey findings (Phase I)  
 2a - Notification of site evaluation (Phase II)

3 - Consultation regarding site treatment  
 4 - Data Recovery Report  
 5 - Other

Type of Findings

No American Indian site found  
 --Section 106 Consultation Process ends\*  
 American Indian sites found but not eligible for National Register listing -- Section 106 Consultation Process ends\*  
 Avoided American Indian sites eligible for National Register listing (see map and list of sites)  
 --Section 106 Consultation Process may or may not end

Potentially significant American Indian sites found (see map and list of sites)  
 American Indian sites eligible for National Register listing cannot be avoided (see map)

Burial site found

\_\_\_\_\_ # of non-significant prehistoric sites  
 \_\_\_\_\_ # of potentially significant prehistoric sites  
 \_\_\_\_\_ # of National Register-eligible prehistoric sites

\* In the event of a late discovery, consultation will be reopened

Affected National Register Properties

Investigating avoidance or minimizing harm options  
 Avoided

Protected  
 Data Recovery/MOA

Please Respond

Who should we contact for site/project-related discussions?

Emily DeLeon  
 Name Street Address  
402 878 3313  
 Phone

Winnebago ne 68071  
 City, Zip Code  
smith-deleon77@yahoo  
 E-mail

Do you know of any sensitive areas within or near the project the FHWA/DOT should avoid (please describe)?

- Thank you for the information; however, we do not need to consult on this particular project.
- We do not have a comment at this time, but request continued notification on this project.
- Please send a copy of the archaeology report.

- Thank you for the information. We are satisfied with the planned site treatment.
- We have concerns and wish to consult.
- We wish to participate in the Memorandum of Agreement for this project.

Comments

Emily Smith DeLeon Winnebago NE  
 Name Tribe name

1-29-14  
 Date

Office of Location & Environment

800 Lincoln Way, Ames, IA 50010

Phone: 515-239-1035 | Email: [libby.wielenga@dot.iowa.gov](mailto:libby.wielenga@dot.iowa.gov)

March 24, 2015

STP-U-5947(615)--70-63

City of West Des Moines

Dallas County

Local Project

TH12-559--4

TH12-559--3

RECEIVED  
MAR 25 2015  
by SHPO

R&C: 20131125032

Mr. Ralph Christian  
Mr. Doug Jones  
State Historic Preservation Office  
600 East Locust  
Des Moines, IA 50319

**RE: Intensive Architectural/Historical Evaluation and Phase I Archaeological Investigation for the West Des Moines Grand Technology Gateway Project; *No agency determination***

Dear Ralph and Doug:

Enclosed for your review and comment is an intensive architectural/historical evaluation and a phase I archaeological investigation completed for the subject federally funded project. The City of West Des Moines is proposing to construct extensions of Grand Avenue and 105th Street, locally known as the Grand Technology Gateway (GTG) project. Approximately 3.25 miles of new roadway would be constructed for the GTG project, from the intersection of Grand Avenue and 88th Street to the intersection of 105th Street and Mills Civic Parkway. The project is located in Dallas County at the western city limits of West Des Moines, north of Raccoon River Drive, west of Jordan Creek Parkway, south of Mills Civic Parkway, and east of the town of Booneville.

The enclosed intensive historical/architectural evaluation consists of an archival and records search, and field examination. This report identified eight properties within this study area, four properties over 50 years old and four modern properties. The four historic era properties consist of a house (25-01744), farmstead (25-01739), and related house (25-01740) and barn (25-01741). None of these properties were recommended eligible for the National Register of Historic Places. No further architectural/historical work is recommended. The Iowa DOT agrees with the recommendations outlined in this report.

Also enclosed is a phase I archaeological investigation of the project area which consisted of an archival records search and field investigation. The field investigation included a pedestrian survey and subsurface testing using standard shovel tests, bucket auger tests, soil cores, and Geo-Cores. This investigation surveyed a total of 294.3 acres (119.2 ha), and recorded seven previously unidentified archaeological sites. Table 1 below provides some basic information about the seven sites identified as part of this project. Five of these sites, 13DA386, 13DA387, 13DA388, 13DA390 and 13DA391 were not evaluated for eligibility to the National Register of Historic Places. As such, for the purposes of this project they are considered potentially eligible and will either undergo additional testing or be completely avoided by this project. The remaining two sites have been recommended not eligible.

Table 1

Site Number	Site Type	Cultural/Temporal Affiliation	National Register Status
13DA385	Lithic Scatter	Prehistoric	Not Eligible
<b>13DA386</b>	School	Historic	<b>Unevaluated</b>
<b>13DA387</b>	Open Habitation	Early Archaic-Woodland	<b>Unevaluated</b>
<b>13DA388</b>	Artifact Scatter	Prehistoric/Historic	<b>Unevaluated</b>
13DA389	Lithic Scatter	Prehistoric	Not Eligible
<b>13DA390</b>	Modified Tree	Historic	<b>Unevaluated</b>
<b>13DA391</b>	Modified Tree	Historic	<b>Unevaluated</b>

Multiple parcels were inaccessible during this investigation due to landowner refusal. Two of these parcels were recommended no further work due to previously profound disturbance of these areas. Seven other parcels have a moderate to high potential to possess archaeological sites and are recommended for phase I investigation if within the final project Area of Potential Effect (APE). The Iowa DOT agrees with the recommendations outlined within this report.

A project determination of effect will be established after additional project alignment information becomes available, the Area of Potential Effect (APE) has been determined, and consultation regarding all historic properties has occurred. We have submitted consultation invitations to applicable tribes as well as the West Des Moines Historical Society, the Dallas County Historic Preservation Commission, and Preservation Iowa for this project. Per 36CFR800.3(f) we are requesting your input regarding other potential consulting parties.

If you concur with the results of the enclosed intensive architectural/historical evaluation and phase I archaeological investigation, please sign the concurrence line below, add your comments, and return this letter. If you have any questions, please contact me at 515-239-1035 or libby.wielenga@dot.iowa.gov.

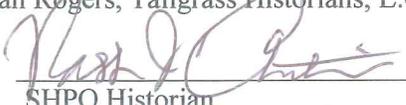
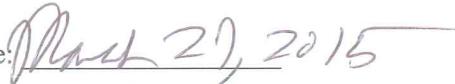
Sincerely,

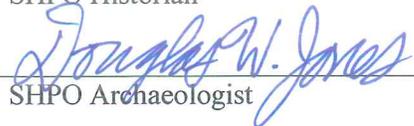
Libby Wielenga  
Office of Location and Environment

LJCW

Enclosure

cc: Brian Hemesath, City of West Des Moines  
Vince Ehlert, District 4 Local Systems Engineer  
DeeAnn Newell, NEPA – OLE  
Joseph Spradling, HDR, Inc.  
Leah Rogers, Tallgrass Historians, L.C.

Concur:  Date:   
SHPO Historian

Concur:  Date:   
SHPO Archaeologist

Comments:



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 7**

11201 Renner Boulevard  
Lenexa, Kansas 66219

8 JUL 2016

Mr. Mike LaPietra  
Federal Highway Administration  
105 6th Street  
Ames, Iowa 50010

Dear Mr. LaPietra:

Thank you for meeting with the U.S. Environmental Protection Agency, Region 7, on July 7, 2016, to discuss Concurrence Point 3 on the Grand Technology Gateway in West Des Moines, Iowa. At this time the EPA cannot concur with the alternatives submitted for analysis.

This project requires a more robust discussion that includes alternatives that best comply with Executive Order 11988: Floodplain Management. This Executive Order outlines directives by the President that state:

...in order to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative, it is hereby ordered as follows:

Section 2(a)(2) If an agency has determined to, or proposes to, conduct, support, or allow an action to be located in a floodplain, the agency shall consider alternatives to avoid adverse effects and incompatible development in the floodplains. If the head of the agency finds that the only practicable alternative consistent with the law and with the policy set forth in this Order requires sitting in a floodplain, the agency shall, prior to taking action, (i) design or modify its action in order to minimize potential harm to or within the floodplain, consistent with regulations issued in accord with Section 2(d) of this Order, and (ii) prepare and circulate a notice containing an explanation of why the action is proposed to be located in the floodplain.

Furthermore, Executive Order – Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input (13990) amends E.O. 11988 and states:

(c) Section 2(a)(2) is amended by inserting the following sentence after the first sentence:  
"Where possible, an agency shall use natural systems, ecosystem processes, and nature-based approaches when developing alternatives for consideration."

EPA requests further study of the hydrology in the Raccoon River basin be conducted so that downstream impacts will be minimized. The City of Des Moines is currently working with the USACE to reinforce, harden, and raise most of their levee systems along the Raccoon and Des Moines rivers. This project may impact those floodplains significantly if unchecked development occurs in the floodplain. When performing a map reconnaissance, there appears to be undeveloped land north and



west of the City of Des Moines that could provide the economic development this project states as its Purpose and Need in Concurrence Point 1.

If no practicable alternatives other than development in the floodplain, EPA advises FHWA to consider using an Environmental Impact Statement to inform the public of the significant impacts of the project. This discussion should include alternatives that were dismissed and why. EPA recommends this document explain how the project has avoided other areas such as endangered species habitat and residential property takings to explain why the proposed alignments had to be moved into the floodplain. EPA also recommends a robust discussion on how this project may induce development in the floodplain and what mitigation efforts will be provided for those cumulative effects.

If you any questions, please contact Joe Summerlin at 913-551-7029 or via email at [summerlin.joe@epa.gov](mailto:summerlin.joe@epa.gov).

Sincerely,



Joshua Tapp

Deputy Director

Environmental Sciences and Technology Division

**Iowa Department of Transportation  
Concurrent NEPA / 404 Process**

Project Name: <b>Grand Technology Gateway</b>	Project No.: <b>HDP-8260(629)—71-25</b>	<b>Concurrence Point 3: Alternatives to be Carried Forward</b>
County: <b>Dallas</b>	PIN: <b>N/A</b>	

Public Land Survey System:  
**Sections 16, 21, 22, 23, 26, 27, 28 of Boone Township (T-78N, R26W)**

**Project Name and Description:**  
Grand Technology Gateway: The City of West Des Moines (City), in coordination with the Iowa Department of Transportation (Iowa DOT) and the Federal Highway Administration (FHWA), propose to extend Grand Prairie Parkway south from Mills Civic Parkway to Raccoon River Drive and extend the existing segment of Grand Avenue, adjacent to the Microsoft Data Center at South 88<sup>th</sup> Street (the eastern termini), west to the Grand Prairie Parkway extension (the Proposed Action or proposed project). The northern termini connection with Mills Civic Parkway would be located where the in process extension of Grand Prairie Parkway from Interstate 80 is currently being constructed. The southern termini connection with Raccoon River Drive would be located where the committed construction of the Raccoon River bridge will be constructed. The City has designated this project as the Grand Technology Gateway.

The proposed project is located at the western end of the City of West Des Moines. The Grand Technology Gateway (Project Study Area) is bounded by Mills Civic Parkway (335<sup>th</sup> Street) to the north, Raccoon River Drive (360<sup>th</sup> Street) to the south, a line extending southward from Wendover Road ending near Raccoon River Drive to the west, and by Sugar Creek and the adjacent residential development to the east.

**The following requirements for Concurrence Point 3, Alternatives to be Carried Forward are complete:**

- Concurrence Point 1 (Purpose and Need) and Concurrence Point 2 (Alternatives to be Analyzed) have been met.
- Planning level field-gathered information for sensitive areas has been completed.
- Developed details of any special studies that were required for any of the alternatives.
- Refinement of alternatives that will be carried forward, including the no-build alternative.
- Results of the field studies described above.

**Potentially Affected Environmentally Sensitive Areas:**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Church/Cemeteries               | <input checked="" type="checkbox"/> Prairies            | <input type="checkbox"/> Special Rivers                  |
| <input checked="" type="checkbox"/> Cultural Resources   | <input type="checkbox"/> Recreational Areas             | <input checked="" type="checkbox"/> Streams              |
| <input checked="" type="checkbox"/> Farmland             | <input type="checkbox"/> Refuge Areas                   | <input checked="" type="checkbox"/> T&E, Wildlife, Plant |
| <input checked="" type="checkbox"/> Floodplains          | <input checked="" type="checkbox"/> Regulated Materials | <input type="checkbox"/> Unique Land Forms               |
| <input checked="" type="checkbox"/> Homes and Businesses | <input checked="" type="checkbox"/> Roads and Utilities | <input checked="" type="checkbox"/> Wetlands             |
| <input checked="" type="checkbox"/> Land Use             | <input checked="" type="checkbox"/> Sovereign Lands     | <input checked="" type="checkbox"/> Woodlands            |

**Attachments:**

- Alternatives Analyzed Overview (Figure 1)
- Refined Alternatives Overview (Figure 2)
- Refined Resource Impact Table

**Alternatives to be Carried Forward:**

See attached form.

**Concurrence on Alternatives to be Carried Forward**

After consultation with the signatory agencies, it is determined that (check one):

- The agency concurs on the project's alternatives to be carried forward.
- The project's complexity warrants a meeting (face-to-face, teleconference, or webinar). *response to attached comments*
- The project is not of sufficient complexity to warrant additional coordination and handling, or
- The discovery of need for an individual permit is too late in the project development to revisit Concurrence Point 1.
- The project is not suitable for NEPA/404 process outlined in the agreement.

Please respond in writing with your concurrence and/or comments within thirty (30) days after receipt of this submittal. No response, comment, request for additional information, or request for time extension within thirty (30) days will signify that you concur with this assessment.

*S. A. Temp*  
Agency Representative, Name of Agency

*7/6/16*  
Date:



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Iowa Division**

October 4, 2016

105 Sixth Street  
Ames, IA 50010  
(515) 233-7302  
(515) 233-7499  
[www.fhwa.dot.gov/iadiv](http://www.fhwa.dot.gov/iadiv)

In Reply Refer To:  
HAD-IA

Mr. Joshua Tapp  
Deputy Director  
Environmental Sciences and Technology Division  
United States Environmental Protection Agency  
11201 Renner Boulevard  
Lenexa, Kansas 66219

Dear Mr. Tapp:

Thank you for your letter dated July 6, 2016, regarding U.S. Environmental Protection Agency (EPA), Region 7 concerns with Concurrence Point 3 on the Grand Technology Gateway in West Des Moines, IA. The following provides some additional information addressing EPA concerns with possible downstream impacts due to potential development of the lands to the North and West of Des Moines and to potential development in the Raccoon River floodplain.

As detailed in the Concurrence Point 1 Needs Summary, existing and planned development has generated a need for a road network that provides improved local property access and traffic circulation for the area. The existing road network in and around the Project Study Area consists of gravel roads that don't provide sufficient access to the interstates and major arterial roadways for existing and planned development. As planned development occurs in and around the project area traffic and accessibility woes will increase.

The project's proposed action consists of extending the Grand Prairie Parkway roadway alignment south from Mills Civic Parkway to Raccoon River Drive, and extending the Grand Avenue roadway alignment west to intersect with the extension of Grand Prairie Parkway. The Grand Prairie Parkway roadway alignment is currently being constructed north of this project's proposed action, from the new Interstate 80 interchange south to Mills Civic Parkway. Additionally, the Grand Prairie Parkway roadway alignment is under final design south of this project's proposed action, from Raccoon River Drive south over the Raccoon River. The proposed project will provide connectivity between the Grand Prairie Parkway projects to the north and south of the study area and previously constructed segments of Grand Avenue to the east of the Project Study Area. Given the existing rural road network within the Project Study Area and in order to meet the need for connectivity and improved local roadway system linkage

in the area, there is no practicable alternative to extending Grand Prairie Parkway and Grand Avenue through the Raccoon River floodplain.

With no practicable alternative to the proposed action crossing through the Raccoon River floodplain, the proposed action's design will adhere to effective Federal Emergency Management Agency's (FEMA) National Flood Insurance Program's (NFIP) and the State of Iowa's regulations for allowable fill in the floodway fringe. The proposed action does not cross through the Raccoon River floodway and, therefore, will not be required to meet the State of Iowa's 'no rise' condition upstream, defined as no increase to water surface elevations associated with the 100-yr design flood event due to fill in the floodway.

Any future planned development in the floodway fringe would be regulated by FEMA NFIP, State of Iowa floodplain regulations, and the City of West Des Moines' Flood Plain Management Ordinance. A review was conducted of potential downstream impacts due to the loss of floodplain volume from the proposed action. The proposed action's fill volume within the floodplain was compared to the total Raccoon River floodplain between Des Moines and just upstream of the project in Van Meter, and was found to be approximately 0.2% of the total floodplain volume. The time that it takes for floodwaters to fill 0.2% of the floodplain volume during the 1-percent annual chance flood event is less than one minute. This impact seems insignificant.

Future planned site development supported by the proposed action would be limited to an area approximately 1 mile from the Project Study Area due to topography and other natural barriers such as the Raccoon River bending north near Booneville. Local jurisdictions will govern the adjacent watersheds which adhere to, enforce, and regulate development according to Iowa Statewide Urban Design and Specifications (SUDAS). SUDAS detention release requirements for new development limit the post-development release rate from a 100-year rainfall frequency runoff event to the pre-development 5-year rainfall frequency runoff event. The restrictive nature of SUDAS detention release requirements would reduce flooding downstream.

The Environmental Assessment (EA) will document the proposed action's potential impacts to resources, including floodplains, in the Project Study Area and potential cumulative impacts to resources in adjacent areas. The EA will also include discussion of the build alternatives that were dismissed for further analysis and why these alternatives were dismissed. A draft EA will be distributed for review, likely in late fall/winter 2016. Should further studies indicate the proposed action would result in significant impacts it would be re-classified to an Environmental Impact Statement (EIS).

I appreciate your concern regarding this project and the Raccoon River Floodplain and look forward to working with EPA and other interested agencies/parties as we move forward with the environmental analysis. The Federal Highway Administration (FHWA), the Iowa Department of

Transportation and the city of West Des Moines would be happy to arrange a meeting with you and discuss these issues in more detail. Please feel free to call me at (515) 233-7302 should you have any questions or wish to arrange a meeting.

Sincerely,

A handwritten signature in blue ink that reads "Michael La Petra". The signature is written in a cursive style with a large, stylized initial "M".

Michael La Petra  
Transportation Specialist

**APPENDIX C**

**FARMLAND PROTECTION FORM**

**FARMLAND CONVERSION IMPACT RATING  
FOR CORRIDOR TYPE PROJECTS**

<b>PART I (To be completed by Federal Agency)</b>	3. Date of Land Evaluation Request	4. Sheet 1 of _____
---	------------------------------------	---------------------

1. Name of Project	5. Federal Agency Involved
--------------------	----------------------------

2. Type of Project	6. County and State
--------------------	---------------------

<b>PART II (To be completed by NRCS)</b>	1. Date Request Received by NRCS	2. Person Completing Form
--	----------------------------------	---------------------------

3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input type="checkbox"/> NO <input type="checkbox"/>	4. Acres Irrigated   Average Farm Size
--	--

5. Major Crop(s)	6. Farmable Land in Government Jurisdiction Acres: _____ %	7. Amount of Farmland As Defined in FPPA Acres: _____ %
------------------	---	--

8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS
--	---	---

<b>PART III (To be completed by Federal Agency)</b>	<b>Alternative Corridor For Segment _____</b>		
---	---	--	--

	<b>Alternative 3</b>	<b>Alternative 5</b>		
--	----------------------	----------------------	--	--

A. Total Acres To Be Converted Directly				
---	--	--	--	--

B. Total Acres To Be Converted Indirectly, Or To Receive Services				
---	--	--	--	--

C. Total Acres In Corridor				
----------------------------	--	--	--	--

<b>PART IV (To be completed by NRCS) Land Evaluation Information</b>				
--	--	--	--	--

A. Total Acres Prime And Unique Farmland				
--	--	--	--	--

B. Total Acres Statewide And Local Important Farmland				
---	--	--	--	--

C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				
---	--	--	--	--

D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				
--	--	--	--	--

<b>PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)</b>				
--	--	--	--	--

<b>PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))</b>	<b>Maximum</b>			
--	----------------	--	--	--

	<b>Points</b>			
--	---------------	--	--	--

1. Area in Nonurban Use	15			
-------------------------	----	--	--	--

2. Perimeter in Nonurban Use	10			
------------------------------	----	--	--	--

3. Percent Of Corridor Being Farmed	20			
-------------------------------------	----	--	--	--

4. Protection Provided By State And Local Government	20			
--	----	--	--	--

5. Size of Present Farm Unit Compared To Average	10			
--	----	--	--	--

6. Creation Of Nonfarmable Farmland	25			
-------------------------------------	----	--	--	--

7. Availability Of Farm Support Services	5			
--	---	--	--	--

8. On-Farm Investments	20			
------------------------	----	--	--	--

9. Effects Of Conversion On Farm Support Services	25			
---	----	--	--	--

10. Compatibility With Existing Agricultural Use	10			
--	----	--	--	--

TOTAL CORRIDOR ASSESSMENT POINTS	160			
----------------------------------	-----	--	--	--

<b>PART VII (To be completed by Federal Agency)</b>				
---	--	--	--	--

Relative Value Of Farmland (From Part V)	100			
--	-----	--	--	--

Total Corridor Assessment (From Part VI above or a local site assessment)	160			
---	-----	--	--	--

<b>TOTAL POINTS (Total of above 2 lines)</b>	<b>260</b>			
--	------------	--	--	--

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?  YES <input type="checkbox"/> NO <input type="checkbox"/>
-----------------------	---	-----------------------	--

5. Reason For Selection:			
--------------------------	--	--	--

Signature of Person Completing this Part:	DATE
---	------

**NOTE: Complete a form for each segment with more than one Alternate Corridor**

## CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor - type site or design alternative for protection as farmland along with the land evaluation information.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?

More than 90 percent - 15 points  
90 to 20 percent - 14 to 1 point(s)  
Less than 20 percent - 0 points

(2) How much of the perimeter of the site borders on land in nonurban use?

More than 90 percent - 10 points  
90 to 20 percent - 9 to 1 point(s)  
Less than 20 percent - 0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?

More than 90 percent - 20 points  
90 to 20 percent - 19 to 1 point(s)  
Less than 20 percent - 0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

Site is protected - 20 points  
Site is not protected - 0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County ?

(Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage or Farm Units in Operation with \$1,000 or more in sales.)  
As large or larger - 10 points  
Below average - deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average - 9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

Acreage equal to more than 25 percent of acres directly converted by the project - 25 points  
Acreage equal to between 25 and 5 percent of the acres directly converted by the project - 1 to 24 point(s)  
Acreage equal to less than 5 percent of the acres directly converted by the project - 0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

All required services are available - 5 points  
Some required services are available - 4 to 1 point(s)  
No required services are available - 0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

High amount of on-farm investment - 20 points  
Moderate amount of on-farm investment - 19 to 1 point(s)  
No on-farm investment - 0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

Substantial reduction in demand for support services if the site is converted - 25 points  
Some reduction in demand for support services if the site is converted - 1 to 24 point(s)  
No significant reduction in demand for support services if the site is converted - 0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?

Proposed project is incompatible to existing agricultural use of surrounding farmland - 10 points  
Proposed project is tolerable to existing agricultural use of surrounding farmland - 9 to 1 point(s)  
Proposed project is fully compatible with existing agricultural use of surrounding farmland - 0 points

---