



**BUSINESS OF THE CITY COUNCIL
BONDURANT, IOWA
AGENDA STATEMENT**

Item No. 19
For Meeting of 3/23/2020

TITLE: Return to table - Resolution considering I-80 Business Park Preliminary Plat approval

ACTION: Resolution for vote on March 23rd, 2020

CONTACT PERSON: Maggie Murray, Planning & Community Development Director

BRIEF HISTORY:

For review by Council is consideration of approval of the I-80 Business Park Preliminary Plat. This item was tabled during Council's February 24th, 2020 meeting because the Traffic Impact Study was still being reviewed by the City Engineer. Enclosed please find the Traffic Impact Study and also a memo from the City Engineer. The remaining information listed in this Brief History section was included as part of the February 24th staff report.

The preliminary plat applicant/developer is I-80 Business Park, LLC. The proposed I-80 Business Park will look to create developable commercial and industrial lots within Altoona's city limits. While the actual commercial and industrial development will be situated within Altoona's city limits, there is one existing parcel of land within Bondurant's city limits proposed within this I-80 Business Park subdivision. As the enclosed preliminary plat shows, this parcel within Bondurant's city limits, Outlot Z, is a 4.67-acre parcel situated at the SW corner of NE 62nd Avenue and Hubbell Road SW. Outlot Z will be used for stormwater detention purposes.

Prior to final plat recording, Section 354.8.2 of the Iowa Code states that the recorder must have a resolution of from each applicable governing body approving the subdivision plat. Since a portion of this subdivision falls within Bondurant's city limits, the eventual recording of the final plat will require a resolution of approval from both Bondurant City Council and Altoona City Council.

For review as part of this staff report is approval of the I-80 Business Park Preliminary Plat only. When considering preliminary plat approval, the Bondurant City Council should be reviewing for what Bondurant has jurisdiction over only. The proposed land uses and subdivision layout within Altoona's city limits fall under the City of Altoona's jurisdiction. Per Section 180.04.11 of the City's Subdivision Code, after the Commission's review, Council shall consider the preliminary plat and if it is found to conform to the provisions of the Subdivision Code, the Council shall approve the preliminary plat.

ANALYSIS:

When considering subdivision plat requests, the Planning and Zoning Commission and City Council should take into account the following: Future Land Use and Zoning; Transportation and Utilities; and Comments from City Officials and Other Entities.

Future Land Use (Comprehensive Plan) and Zoning:

This is just a brief summary of this topic. For further information, please see the corresponding rezoning staff report.

Future Land Use (Comprehensive Plan) – the proposed use within Bondurant’s city limits will be for detention pond use to help service industrial and commercial lots within Altoona’s city limits. The proposed use is consistent with the City’s Future Land Use Map, which guides this area for industrial-type use on this parcel of land within Bondurant’s city limits.

Zoning – this 4.67-acre piece of property is currently zoned as being within the City’s Agricultural (A-1) District. The City has received a rezoning request from Agricultural (A-1) to Limited Industrial (M-1). It is anticipated that Council will hold a rezoning public hearing during their meeting on March 2nd, 2020.

With subdivision requests, bulk regulations of the zoning district should be reviewed to ensure minimum regulations are being met. Below is a summary of the requested Limited Industrial (M-1) District bulk regulations:

- ✓ **Minimum Front Yard Setback of 50’.** N/A, as no actual structure is proposed within Bondurant’s city limits.
- ✓ **Minimum Side Yard Setback of 20’.** N/A, as no actual structure is proposed within Bondurant’s city limits.
- ✓ **Minimum Rear Yard Setback of 50’.** N/A, as no actual structure is proposed within Bondurant’s city limits.
- ✓ **Maximum Structure Height of 80’.** N/A, as no actual structure is proposed within Bondurant’s city limits.
- ✓ **Minimum Lot Area of 10,000 SF.** This item is met, as the enclosed preliminary plat notes that the parcel within Bondurant’s city limits is 4.67 acres.

Transportation and Utilities:

Transportation. No new streets are proposed within Bondurant’s city limits as part of this subdivision. This 4.67-acre parcel within Bondurant fronts the existing NE 62nd Avenue and Highway 65/Hubbell Road SW, so minimum lot frontage requirements are met.

The City’s *Policy on Traffic Impact Studies for Proposed Developments* does grant the City of Bondurant the authority to require a traffic impact study as part of subdivision approval. Enclosed is the Traffic Impact Study and a memo by the City Engineer.

The preliminary plat does not show any sidewalks being constructed adjacent to the 4.67-acre parcel within Bondurant’s city limits. Per Section 180.05.4.D of the City’s Subdivision Ordinance, sidewalks shall be constructed on both sides of all streets. Hubbell Road SW/Highway 65 is adjacent to the south

– so a sidewalk waiver in this area would make sense. The north property line of this parcel is adjacent to NE 62nd Avenue, which then connects east of Hubbell Road SW/Highway 65 – sidewalk waiver in this area could also make sense, as the intersection of Hubbell/Highway 65 and NE 62nd Avenue does not accommodate for a pedestrian crossing.

Utilities - the developable lots within Altoona’s city limits will be served by water and sanitary mains within the Altoona portion of the subdivision. For the lots not providing their own on-site detention in Altoona, a new storm sewer will be constructed within Altoona’s city limits that will carry water over to the wet-bottom detention basin within Bondurant’s city limits. This detention pond will then empty into an existing 60” storm sewer than runs under Hubbell Road SW/Highway 65. As noted in the engineer’s stormwater report, “storm sewer pipes will be designed to convey the 100-year post-developed storm event associated with the industrial condition for lots that are having stormwater detention provided in the regional wet-bottom detention pond”. The pond within Bondurant’s city limits will not be owned by the City of Bondurant. The City of Bondurant will own no new public storm infrastructure as a result of this subdivision. The City Engineer has reviewed the submitted stormwater report and has found that is it acceptable, except that a minor modification could be made in the design to accommodate for a multi-stage weir outlet. The City’s current design standards do not specifically address the need for multi-stage outlets, but on previous projects the City has encouraged developers to provide such multi-stage outlets.

The developer’s engineer has noted that servicing the detention pond site with sanitary sewer for actual building development would be difficult due to existing sanitary sewer depth of Bondurant’s sewer main within close proximity. Attached is the engineer’s exhibit showing the depths of Bondurant’ sewer main in the area.

Comments from City Officials and Utilities:

Enclosed please find a memorandum by Bob Veenstra, City Engineer. Also enclosed is an area map created by V&K which shows limitations for if an actual building were proposed on this property. This maps shows the minimum 50’ setback requirement along all property lines. This map also shows elevations of the area – Bob noted that a building/parking lot would not be allowed to be located within the 958’ elevation area.

PLANNING & ZONING COMMISSION REVIEW/RECOMMENDATION:

The Planning & Zoning Commission reviewed the I-80 Business Park Preliminary Plat during their January 23rd, 2020 meeting and unanimously voted for recommended denial of the I-80 Business Park Preliminary Plat. A concern mentioned by the Commission in their denial was that the required traffic impact study had not yet been submitted to the City.

ALTERNATIVES:

The following options exist for City Council:

1. Approve the I-80 Business Park Preliminary Plat;
2. Deny the I-80 Business Park Preliminary Plat;
3. Table pending additional comment/feedback.

STAFF RECOMMENDATION:

Staff recommends that if Council is ready to consider approval of the I-80 Business Park Preliminary Plat, that the following City Code/Policy requirements be noted as part of the resolution approving the plat:

- 1.) That I-80 Preliminary Plat approval is subject to rezoning approval;
- 2.) That as required per Section 180.05.4.I of the City's Subdivision Code, an association shall be created for any development with privately owned utilities/open space which is utilized by more than one owner. Documentation of association ownership/maintenance of Outlot Z is to be submitted to the City prior to eventual final plat approval.
- 3.) That while Section 180.05.4.D of the City's Subdivision Code requires installation of sidewalks along the rights-of-way areas, a temporary waiver by Council could be considered due to no logical connection. If/when a logical connection exists, the City may require sidewalk construction by the owner.

Approval of the preliminary plat would indicate acceptance of the submitted Traffic Impact Study.

A reminder that if the Council were to deny the I-80 Business Park Preliminary Plat, a specific section(s) of the [Subdivision Code](#) needs to be cited in such denial. Reasoning: 180.04.11 of the City's Subdivision Code states that after the Commission's review, Council shall consider the preliminary plat and if it is found to conform to the provisions of the Subdivision Code, the Council shall approve the preliminary plat.

CITY OF BONDURANT
RESOLUTION NO. 18-145

RESOLUTION REGARDING THE PRELIMINARY PLAT FOR I-80 BUSINESS PARK

WHEREAS, the developer is I-80 Business Park, LLC; AND

WHEREAS, the engineer is Civil Design Advantage; AND

WHEREAS, the proposed preliminary plat is legally described as follows; AND

A PART OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 11, TOWNSHIP 79 NORTH, RANGE 23 WEST OF THE FIFTH PRINCIPAL MERIDIAN IN THE CITY OF ALTOONA, POLK COUNTY, IOWA AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID SECTION 11; THENCE SOUTH 00°02'35" EAST ALONG THE EAST LINE OF SAID NORTHEAST QUARTER, 663.39 FEET TO THE NORTH RIGHT OF WAY LINE OF NE HUBBELL AVENUE/US HIGHWAY 65; THENCE SOUTH 43°12'33" WEST ALONG SAID NORTH RIGHT OF WAY LINE, 881.18 FEET TO THE SOUTH LINE OF SAID NORTHEAST QUARTER OF THE NORTHEAST QUARTER; THENCE NORTH 89°52'22" WEST ALONG SAID SOUTH LINE, 728.51 FEET TO THE SOUTHWEST CORNER OF SAID NORTHEAST QUARTER OF THE NORTHEAST QUARTER; THENCE NORTH 00°00'35" EAST ALONG THE WEST LINE OF SAID NORTHEAST QUARTER OF THE NORTHEAST QUARTER, 1314.19 FEET TO THE NORTHWEST CORNER OF SAID NORTHEAST QUARTER OF THE NORTHEAST QUARTER; THENCE SOUTH 89°33'46" EAST ALONG THE NORTH LINE OF SAID NORTHEAST QUARTER, 1331.14 FEET TO THE POINT OF BEGINNING.

AND

A PART OF THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 12, TOWNSHIP 79 NORTH, RANGE 23 WEST OF THE FIFTH PRINCIPAL MERIDIAN IN THE CITY OF BONDURANT, POLK COUNTY, IOWA AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SAID SECTION 12; THENCE NORTH 89°12'07" EAST ALONG THE NORTH LINE OF SAID NORTHWEST QUARTER OF THE NORTHWEST QUARTER, 518.52 FEET TO THE WESTERLY RIGHT OF WAY LINE OF NE HUBBELL AVE/US HIGHWAY 65; THENCE SOUTH 46°52'55" EAST ALONG SAID WESTERLY RIGHT OF WAY LINE, 81.62 FEET; THENCE SOUTH 43°12'33" WEST CONTINUING ALONG SAID WESTERLY RIGHT OF WAY LINE, 761.39 FEET; THENCE NORTH 46°35'09" WEST CONTINUING ALONG SAID WESTERLY RIGHT OF WAY LINE, 77.56 FEET TO THE WEST LINE OF SAID NORTHWEST QUARTER OF THE NORTHWEST QUARTER; THENCE NORTH 00°02'35" WEST ALONG SAID WEST LINE, 550.20 FEET TO THE POINT OF BEGINNING.

PROPERTY CONTAINS 40.27 ACRES (1,754,222 SQUARE FEET) AND IS SUBJECT TO ANY AND ALL EASEMENTS OF RECORD INCLUDING ROADWAY EASEMENT. SAID ROADWAY EASEMENT CONTAINS 1.52 ACRES (66,354 SQUARE FEET).

WHEREAS, a majority of the I-80 Business Park Preliminary Plat is situated within the City of Altoona's city limits with the exception of Outlot Z which is situated within the City of Bondurant's city limits; AND

WHEREAS, per Section 354.8.2 of the Iowa Code, the Polk County Recorder must have a resolution from each applicable governing body as part of the eventual final plat recording process; AND

WHEREAS, the Planning and Zoning Commission reviewed the I-80 Business Park Preliminary Plat during their January 23rd, 2020 meeting and recommended denial of the preliminary plat with a 7-0 vote.

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Bondurant, Iowa, that the I-80 Business Park Preliminary Plat is hereby approved subject to the following Subdivision Code process requirements:

- 1.) That I-80 Preliminary Plat approval is subject to rezoning approval;
- 2.) That as required per Section 180.05.4.I of the City's Subdivision Code, an association shall be created for any development with privately owned utilities/open space which is utilized by more than one owner. Documentation of association ownership/maintenance of Outlot Z is to be submitted to the City prior to eventual final plat approval.
- 3.) That while Section 180.05.4.D of the City's Subdivision Code requires installation of sidewalks along the rights-of-way areas, a temporary waiver by Council could be considered due to no logical connection. If/when a logical connection exists, the City may require sidewalk construction by the owner.

Passed this 23rd day of March, 2020,

By: _____
Curt Sullivan, Mayor

ATTEST: I, Shelby Hagan, City Clerk of Bondurant, hereby certify that at a meeting of the City Council held on the above date, among other proceedings the above was adopted.

IN WITNESS WHEREOF, I have hereunto set my hand the day and year above written.

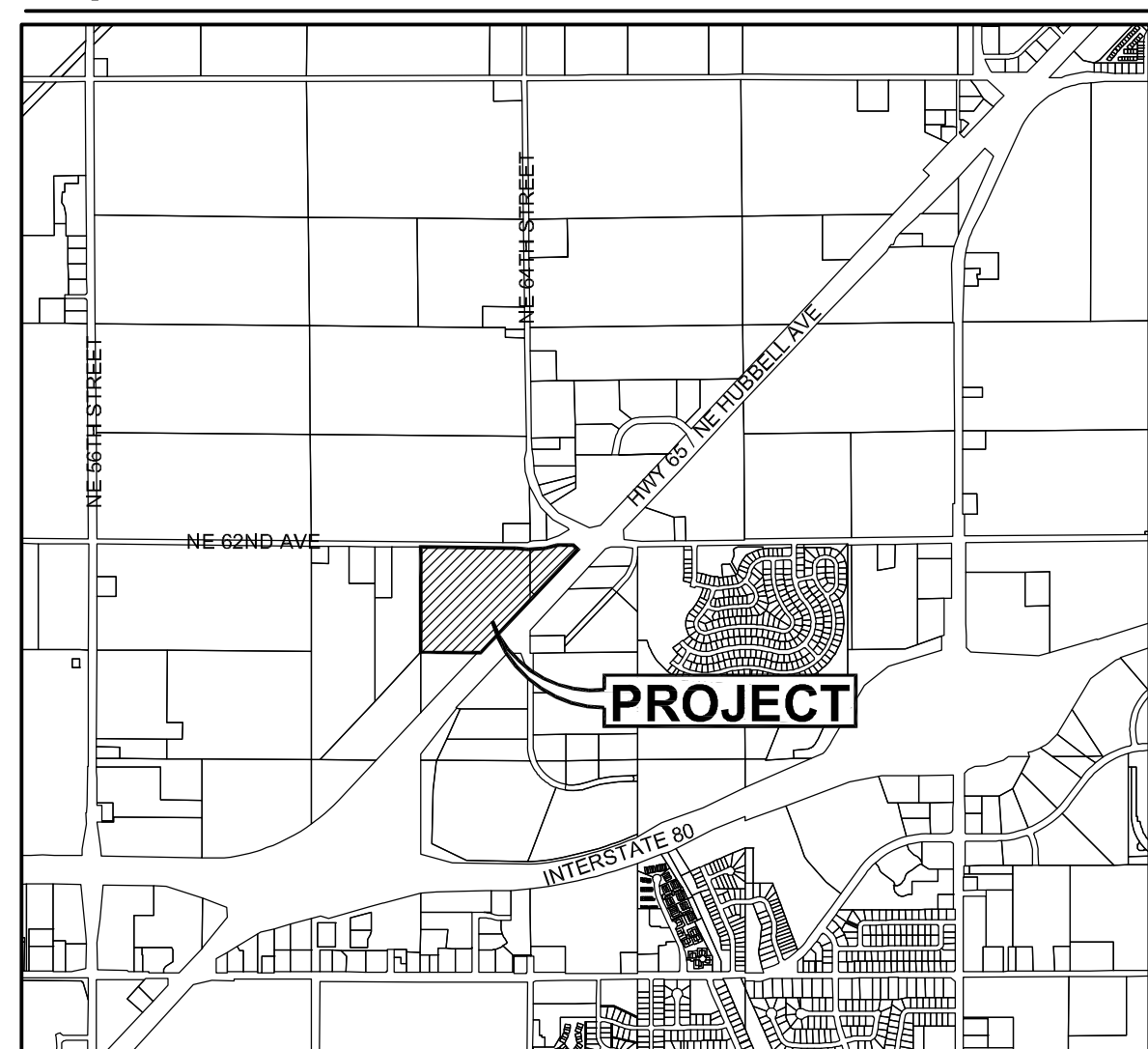
Shelby Hagan, City Clerk

| Council Action | Ayes | Nays | Abstain | Absent |
|----------------|------|------|---------|--------|
| Cox | | | | |
| Peffer | | | | |
| Enos | | | | |
| McKenzie | | | | |
| Elrod | | | | |

PRELIMINARY PLAT FOR: I-80 BUSINESS PARK

ALTOONA & BONDURANT, IOWA

VICINITY MAP



ALTOONA, IOWA

OWNER / APPLICANT

I-80 BUSINESS PARK, LLC
1120 2ND STREET NE
BONDURANT, IA 50035
PH: 515-957-4907
CONTACT: JESSE ROGNES

ENGINEER / SURVEYOR

CIVIL DESIGN ADVANTAGE, LLC
3405 S.E. CROSSROADS DRIVE, SUITE G
GRIMES, IOWA 50111
PH: 515-369-4400
CONTACT: JARED MURRAY

ZONING

EXISTING:
M-1: LIMITED INDUSTRIAL DISTRICT
A-1: AGRICULTURAL DISTRICT

PROPOSED:
M-1: LIMITED INDUSTRIAL DISTRICT
C-2: GENERAL COMMERCIAL DISTRICT

BULK REGULATIONS

M-1: LIMITED INDUSTRIAL DISTRICT

FRONT YARD SETBACK 50 FT
SIDE YARD SETBACK 20 FT UNLESS ADJACENT TO "R" OR "C-1" DISTRICT THEN 25 FT
REAR YARD SETBACK 50 FT
MAX BUILDING HEIGHT 65 FT
MAX STORIES 4 STORIES

C-2: GENERAL COMMERCIAL DISTRICT

FRONT YARD SETBACK 50 FT
SIDE YARD SETBACK 0 FT UNLESS ADJACENT TO "R" DISTRICT THEN BUFFER YARD
REAR YARD SETBACK 25 FT
MAX BUILDING HEIGHT 65 FT
MAX STORIES 4 STORIES

BENCHMARKS

BM #1: CITY OF ALTOONA BM-CP1, BRASS DISC IN CONCRETE AT THE SOUTHEAST CORNER OF THE INTERSECTION OF NE 62ND AVE AND NE 56TH STREET. ELEVATION=960.75
BM #2: CITY OF ALTOONA BM-CP6, BRASS DISC IN CONCRETE AT THE SOUTHEAST CORNER OF THE INTERSECTION OF ADVENTURELAND AND PRAIRIE MEADOWS DRIVE. ELEVATION=961.25

STANDARD NOTES

- ALL UTILITY COMPANIES MUST SUBMIT A PLAN TO THE CITY OF ALTOONA REQUESTING APPROVAL OF THE PLACEMENT OF UTILITIES. APPROVAL IS REQUIRED EVEN IF PLACEMENT IS NOT IN THE CITY RIGHT-OF-WAY.
- VIDEO INSPECTION OF ALL NEW SANITARY SEWERS IS REQUIRED AS OUTLINED IN THE URBAN STANDARD SPECIFICATIONS, DIVISION 4, SECTION 4040, PART 3.
- ALL WORK PERFORMED MUST CONFORM TO THE CURRENT VERSION OF THE URBAN DESIGN STANDARDS FOR PUBLIC IMPROVEMENTS AND URBAN STANDARD SPECIFICATIONS.
- PLACE SILT FENCING AT ALL LOWER AREAS OF DISTURBED GROUND AND DOUBLE SILT FENCING AT ALL INTAKES.
- THE ENGINEER/DEVELOPER IS RESPONSIBLE FOR SUBMITTING A POLLUTION PREVENTION PLAN AS PART OF THE GRADING PLAN. IN ADDITION, THE CITY WILL NOT ISSUE ANY CONSTRUCTION PERMITS OR ALLOW ANY GROUND DISTURBANCE UNTIL THE IOWA DEPARTMENT OF NATURAL RESOURCES HAS ISSUED A STORM WATER DISCHARGE PERMIT FOR THE PROJECT.
- IF A NPDES PERMIT IS REQUIRED BY THE IOWA DEPARTMENT OF NATURAL RESOURCES, A COSESCO PERMIT IS ALSO REQUIRED BY THE CITY OF ALTOONA. THE PERMIT MUST BE COMPLETED AND APPROVED PRIOR TO ANY GROUND DISTURBANCE.
- DEVELOPER IS REQUIRED TO INSTALL STREETLIGHTS WITHIN THE PROPERTY.

PRELIMINARY PLAT DESCRIPTION

A PART OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 11, TOWNSHIP 79 NORTH, RANGE 23 WEST OF THE FIFTH PRINCIPAL MERIDIAN IN THE CITY OF ALTOONA, POLK COUNTY, IOWA AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

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LEGEND

FEATURES

PROPOSED

- GROUND SURFACE CONTOUR
- TYPE SW-501 STORM INTAKE
- TYPE SW-503 STORM INTAKE
- TYPE SW-505 STORM INTAKE
- TYPE SW-506 STORM INTAKE
- TYPE SW-513 STORM INTAKE
- TYPE SW-401 STORM MANHOLE
- TYPE SW-402 STORM MANHOLE
- TYPE SW-301 SANITARY MANHOLE
- STORM/SANITARY CLEANOUT
- WATER VALVE
- FIRE HYDRANT ASSEMBLY
- SIGN
- DETECTABLE WARNING PANEL
- SANITARY SEWER WITH SIZE
- STORM SEWER
- WATERMAIN WITH SIZE

EXISTING

- GROUND SURFACE CONTOUR
- SANITARY MANHOLE
- WATER VALVE BOX
- FIRE HYDRANT
- WATER CURB STOP
- WELL
- STORM SEWER MANHOLE
- STORM SEWER SINGLE INTAKE
- STORM SEWER DOUBLE INTAKE
- FLARED END SECTION
- DECIDUOUS TREE
- CONIFEROUS TREE
- DECIDUOUS SHRUB
- CONIFEROUS SHRUB
- ELECTRIC POWER POLE
- GUY ANCHOR
- STREET LIGHT
- POWER POLE W/ TRANSFORMER
- UTILITY POLE W/ LIGHT
- ELECTRIC BOX
- ELECTRIC TRANSFORMER
- ELECTRIC MANHOLE OR VAULT
- TRAFFIC SIGN
- TELEPHONE JUNCTION BOX
- TELEPHONE MANHOLE/VAULT
- TELEPHONE POLE
- GAS VALVE BOX
- CABLE TV JUNCTION BOX
- CABLE TV MANHOLE/VAULT
- MAIL BOX
- BENCHMARK
- SOIL BORING
- UNDERGROUND TV CABLE
- GAS MAIN
- FIBER OPTIC
- UNDERGROUND TELEPHONE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- FIELD TILE
- SANITARY SEWER W/ SIZE
- STORM SEWER W/ SIZE
- WATER MAIN W/ SIZE

SURVEY

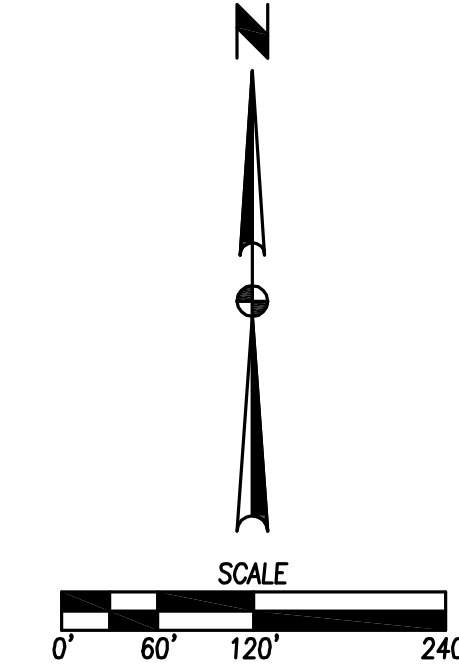
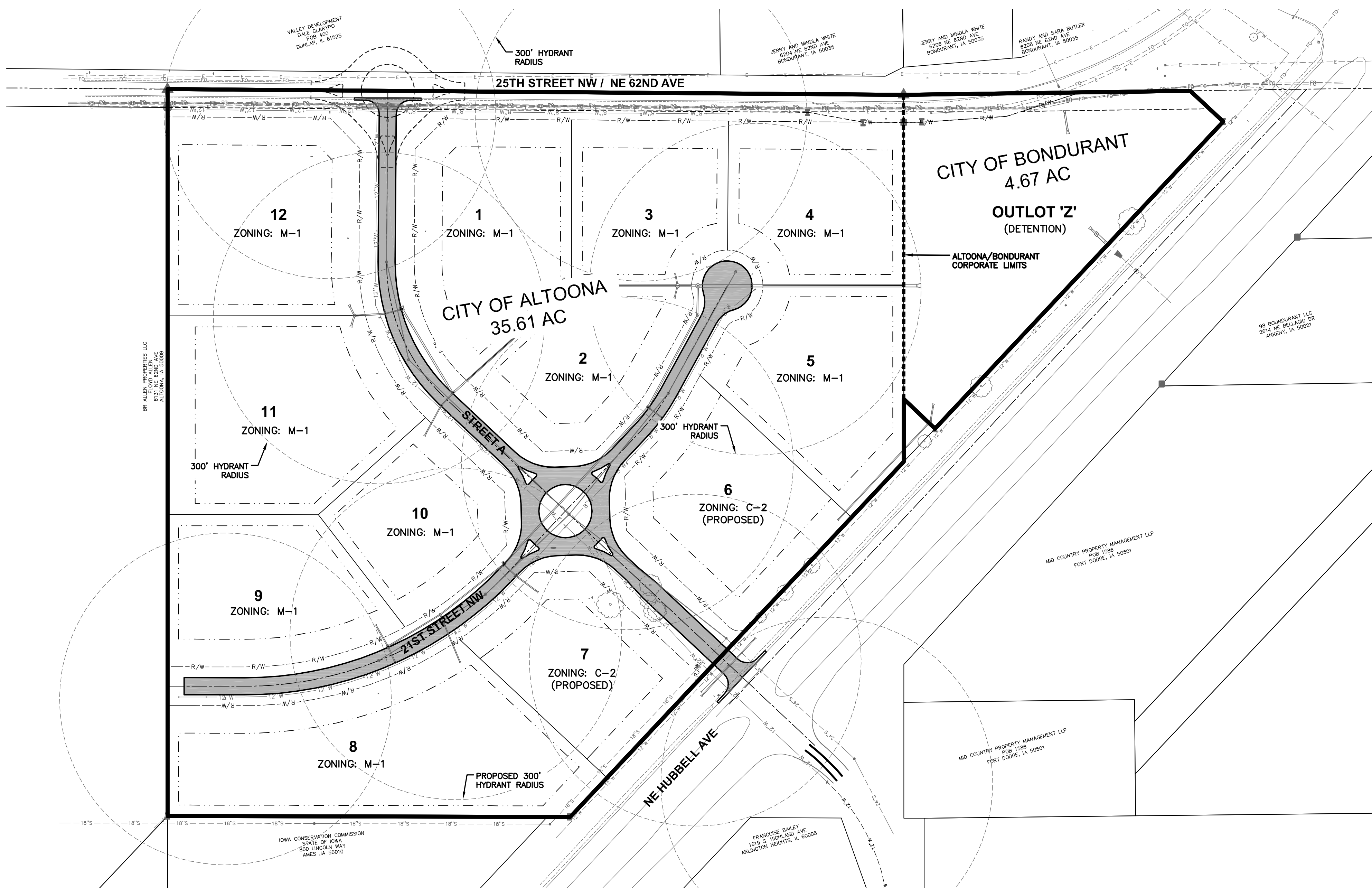
- SECTION CORNER
- 1/2" REBAR, YELLOW CAP #18660 (UNLESS OTHERWISE NOTED)
- ROW MARKER
- PLATTED DISTANCE
- MEASURED BEARING & DISTANCE
- RECORDED AS
- DEED DISTANCE
- CALCULATED DISTANCE
- CURVE ARC LENGTH
- MINIMUM 100 YEAR FLOOD PROTECTION ELEVATION
- CENTERLINE
- SECTION LINE
- 1/4 SECTION LINE
- 1/4 SECTION LINE
- EASEMENT LINE
- LOT LINE
- RIGHT OF WAY
- BUILDING SETBACK
- PLAT BOUNDARY

FOUND

- SECTION CORNER
- 1/2" REBAR, YELLOW CAP #18660 (UNLESS OTHERWISE NOTED)
- ROW MARKER
- PLATTED DISTANCE
- MEASURED BEARING & DISTANCE
- RECORDED AS
- DEED DISTANCE
- CALCULATED DISTANCE
- CURVE ARC LENGTH
- MINIMUM 100 YEAR FLOOD PROTECTION ELEVATION
- CENTERLINE
- SECTION LINE
- 1/4 SECTION LINE
- 1/4 SECTION LINE
- EASEMENT LINE
- LOT LINE
- RIGHT OF WAY
- BUILDING SETBACK
- PLAT BOUNDARY

SET

- SECTION CORNER
- 1/2" REBAR, YELLOW CAP #18660 (UNLESS OTHERWISE NOTED)
- ROW MARKER
- PLATTED DISTANCE
- MEASURED BEARING & DISTANCE
- RECORDED AS
- DEED DISTANCE
- CALCULATED DISTANCE
- CURVE ARC LENGTH
- MINIMUM 100 YEAR FLOOD PROTECTION ELEVATION
- CENTERLINE
- SECTION LINE
- 1/4 SECTION LINE
- 1/4 SECTION LINE
- EASEMENT LINE
- LOT LINE
- RIGHT OF WAY
- BUILDING SETBACK
- PLAT BOUNDARY



I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

PRELIMINARY
NOT FOR CONSTRUCTION

JARED M. MURRAY, P.E.
LICENSE NUMBER 23496
DATE

ALL SHEETS

FILE: H:\2019\1905232\IOWA\1905232-PR-PLAT.DWG
 COMMENT: PRELIMINARY PLAT.DWG
 PLOTTED: 11/25/2019 9:40 AM
 PLOTTED BY: JARED MURRAY
 TECH: JMM

| | |
|---------------|------------|
| DATE | 11/25/2019 |
| REVISIONS | |
| 2ND SUBMITTAL | 10/31/2019 |
| 1ST SUBMITTAL | |

3405 S.E. CROSSROADS DRIVE, SUITE G
GRIMES, IOWA 50111
PHONE: (515) 369-4400 FAX: (515) 369-4410

TECH: JMM
ENGINEER: JMM

CIVIL DESIGN ADVANTAGE
ALTOONA & BONDURANT, IOWA

I-80 BUSINESS PARK
PRELIMINARY PLAT

1 / 4
1905.232

NE 62ND AVENUE CORRIDOR STUDY

CITY OF ALTOONA

Altoona, Iowa | February 10, 2020

DRAFT

NE 62ND AVENUE CORRIDOR STUDY

CITY OF ALTOONA

Altoona, Iowa | February 10, 2020

Prepared for:

City of Altoona
Altoona, Iowa

Snyder & Associates, Inc. Project No. 119.1090.01

Prepared by:


| | |
|---|--|
|  <p>LICENSED PROFESSIONAL ENGINEER BRIAN J. WILLHAM 17122 IOWA</p> | <p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.</p> <p>DRAFT</p> <p>Brian _____ Date _____ License Number 17122 My License Renewal Date is December 31, 2021 Pages or sheets covered by this seal: _____</p> |
|---|--|

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| Exhibit 2 – Opening Year 2021 Turn Movement and Lane Configuration |
| Exhibit 3 – Design Year 2050 Turn Movement and Lane Configuration |
| Exhibit 4 – Phase 1 Corridor Improvement Concept |
| Exhibit 5 – US 65 & Street A/Ziegler Drive Improvement Concept |
| Exhibit 6 – Mixed Use Development Concept |
| Intersection and Corridor Crash Reports |
| Existing Intersection Turning Movement Counts |
| Future Traffic Forecast from Des Moines Area MPO |
| Trip Generation |
| Traffic Signal Warrant Analysis Worksheets (PC-Warrants) |
| Synchro Capacity Analysis Reports |

EXECUTIVE SUMMARY

To be completed with the Final Document.

1. INTRODUCTION

The City of Altoona is planning for improvements to serve anticipated development in Northwest Altoona along the NE 62nd Avenue corridor. The study corridor is shown in **Figure 1**. The study involves two phases as shown in the location map in **Figure 1**. Phase 1 of the study is the focus of this report. A future Phase 2 of the study will extend from approximately 1 mile west of NE 46th Street along the NE 62nd Avenue corridor to the new intersection west of US 65 (NE Hubbell Avenue). This study collected background data/plans related to the corridor, reviewed land use maps, estimated trip generation based on future development proposals, obtained and reviewed Des Moines Area MPO travel demand model forecasts, collected existing traffic volumes at the Ziegler Drive NW and NE Hubbell Ave. intersection, reviewed crash history and existing conditions at the site, created future traffic projections, developed functional geometry improvement needs, and conducted traffic analyses of the existing and forecasted operations.

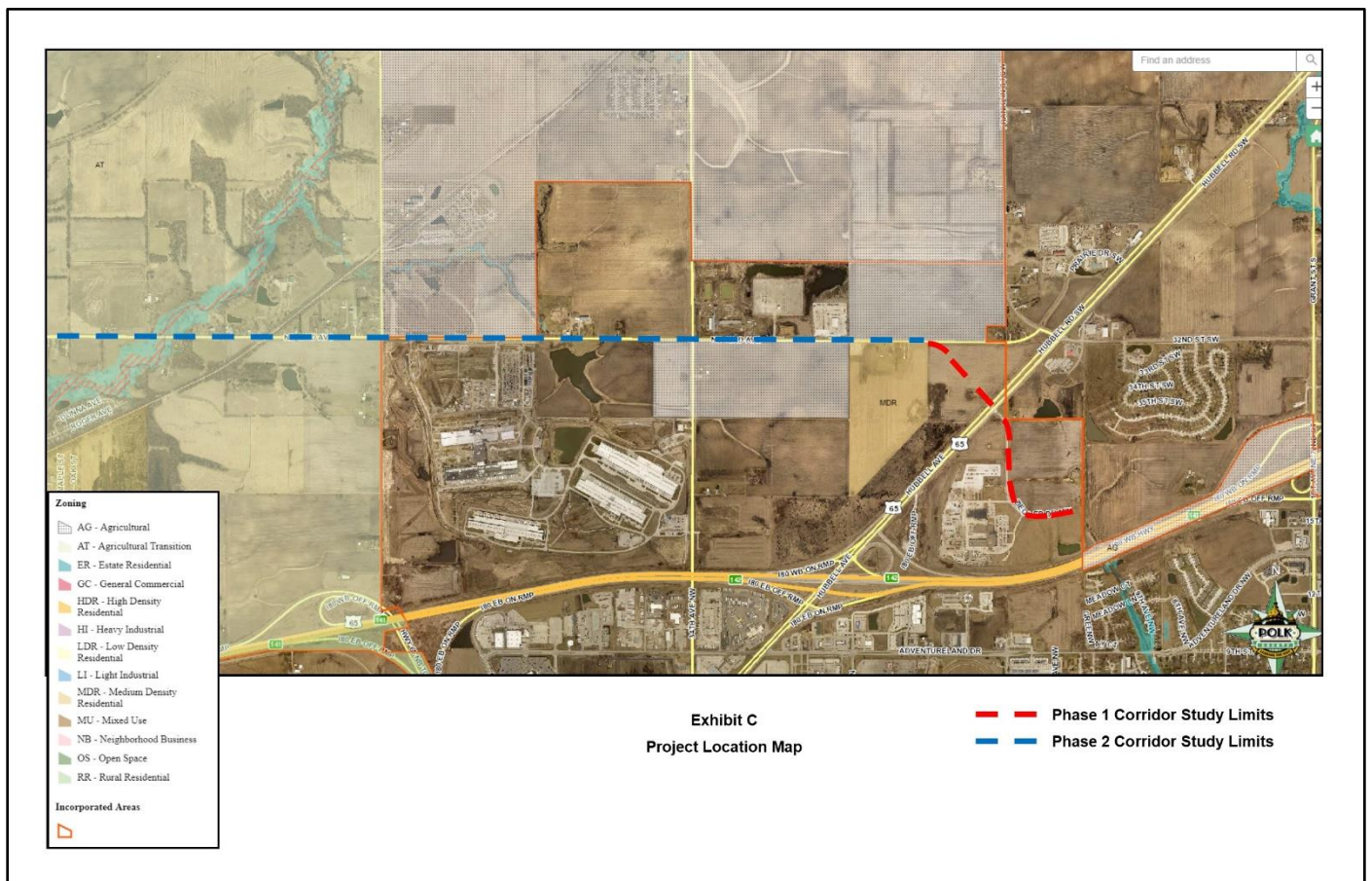


Figure 1: NE 62nd Ave Corridor

2. EXISTING CONDITIONS

Surrounding land uses of the study corridor include existing or planned warehousing, data center, and light industrial to the west, continued light industrial development to the southeast, and a distribution center under construction to the northeast.

The existing and future land use near the study corridor per the City of Altoona's Future Land Use plan as amended in the 2018 Comprehensive Plan Northwest Amendment, is shown in **Figure 2**. Most of the existing

land use is agricultural north and southeast of the NE 62nd Avenue Corridor, the southwest land use is light industrial, specifically data centers. The future land use map shows most of the NE 62nd Avenue corridor will become industrial and light industrial, and the southeast portion of the NE 62nd Avenue corridor near US 65 is proposed to have a mix of light industrial and mixed-use parcels.

The proposed development northwest of the Ziegler Drive NW & US 65 Intersection has an existing land use of Agricultural (shown in **Figure 2**). The study corridor is shown in red dashed line. Per the City of Altoona’s Future Land Use plan, the parcel is anticipated to be rezoned and develop as a mixed use area with commercial and light industrial land uses. As seen in **Exhibit 6** (provided in Appendix), the area is currently proposed to include 10 Light Industrial lots and two Commercial lots. These lots will be accessed by a new connection between US 65 (NE Hubbell Avenue) and NE 62nd Avenue (25th Street NW). One of the two commercial parcels is proposed as a Gas Station/Convenience Store with twelve fueling positions, and the other commercial parcel is proposed as a retail shopping center.

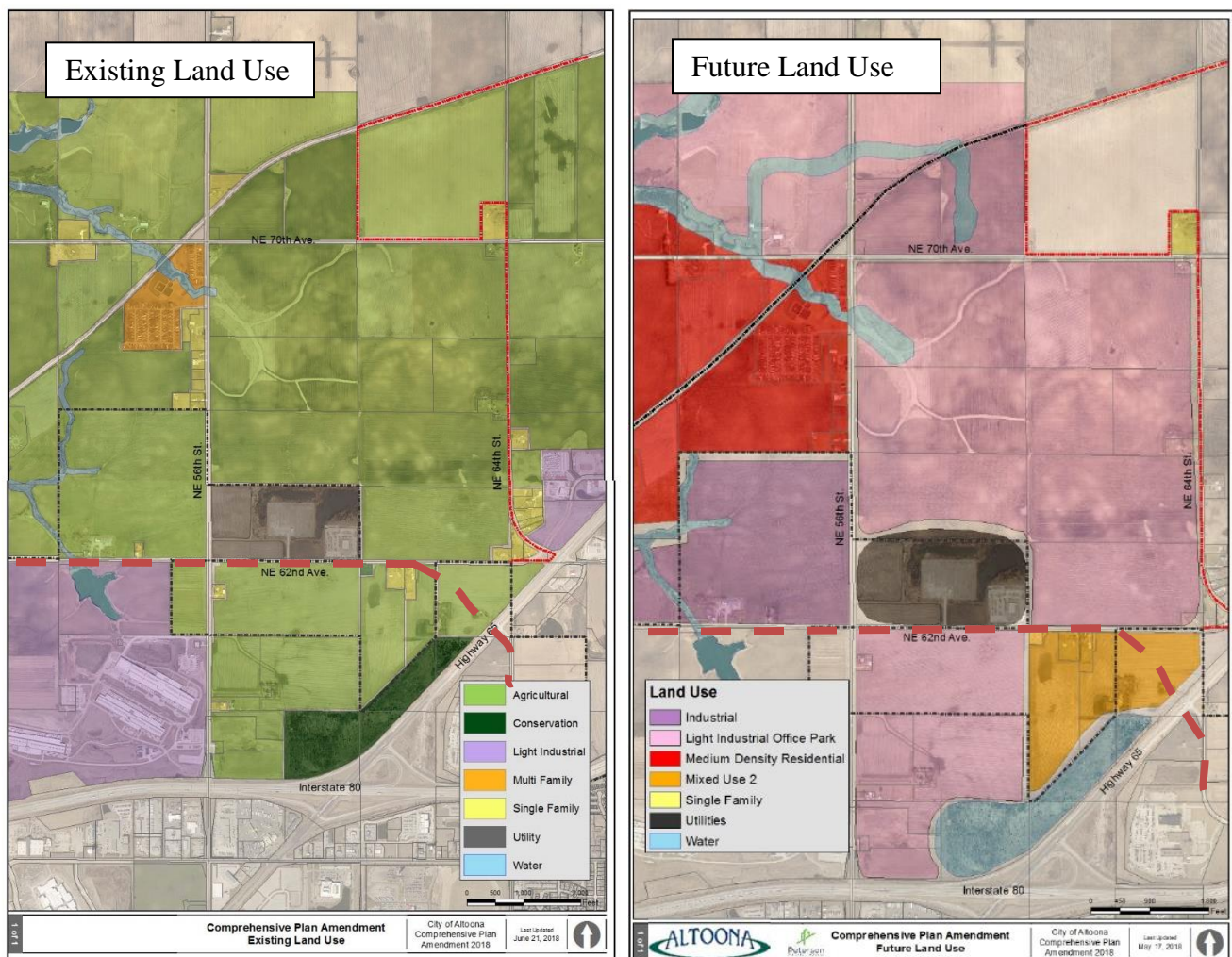


Figure 2: Land Use Maps

Currently developed lots in the existing land use south and east of the intersection of US 65 & Ziegler Drive NW include a 35 acre for Ziegler Equipment, and additional parcels are planned to provide additional limited

industrial land use. The parcel immediately southeast of the intersection is under development for light industrial use.

The major features of US 65(NE Hubbell Avenue) and Ziegler Drive NW are summarized in **Table 1**. The intersection of US 65 & Ziegler Drive NW is currently two-way STOP-controlled, with the stop conditions on Ziegler Drive NW and opposite residential driveway.

Table 1: Summary of Existing Conditions

| Roadway Feature | US 65 (NE Hubbell Avenue) | Ziegler Drive NW |
|---------------------------|--|---|
| Number of Lanes | Four-lane with left and right turn lanes (No SB right turn lane) | Two lane |
| Functional Classification | Minor Arterial | Collector |
| Roadway Section | Divided (Rural) | Undivided (Urban) |
| Posted Speed Limit | 55 mph | 35 mph |
| Pavement Type | Paved | Paved (south approach) unpaved (north approach) |
| Pedestrian Facilities | None | None |

3. CRASH HISTORY

The crash history of the Phase 1 study corridor and the US 65 & Ziegler Drive NW intersection was reviewed from 2015 to 2019 using the Iowa DOT's online Crash Analysis Tool (ICAT) database. Crashes were reviewed for overall frequency as well as crash rates calculated based on annual average daily traffic (AADT). The review also included the crash severity, crash type, major causes, vehicle direction, driver demographics, and time of day distribution to identify recurring patterns of crashes. This section summarizes the crash history review, and more detailed crash reports are included in the appendix.

Table 2 shows the summary of crashes on the US 65 segment from north of the I-80 ramp to south of the NE 62nd Avenue intersection. The crash rate along US 65 for this segment is lower than the statewide five-year crash rate for rural primary corridors. No crashes have been recorded along the existing Ziegler Drive NW corridor southeast of US 65.

Table 3 shows a similar crash summary for the intersection of Ziegler Drive NW and NE Hubbell Ave. The intersection has a crash rate of 0.12 crashes per million entering vehicles (MEV) which is significantly lower than the statewide average crash rate for similar intersections of 0.8 crashes per MEV. In addition, three of the four crashes near the intersection involved animal collisions, while one involved a westbound vehicle from Ziegler Drive NW failing to stop at the Stop sign and colliding with a northbound US 65 vehicle, resulting in one possible injury. Additional crash data and diagrams are provided in the Appendix.

Table 2: Crash Summary for US 65 NE Hubbell Ave Corridor (2015-19)

| Corridor Section | Crashes (Injury) | Crash Severity | Crash Rate* (cr/HMVMT) | Predominant Crash Types (Crashes) | Predominant Major Causes (Crashes) |
|------------------------|------------------|----------------------------------|------------------------|--|---|
| US 65 (NE Hubbell Ave) | 10 (3) | 1 Major 0 Minor 1 Possible | 53.6 | <ul style="list-style-type: none"> • Non-collision (5) • Head-on, front to front (1) • Rear End (1) • Broadside, front to side (1) • Not Reported (2) | <ul style="list-style-type: none"> • Animal (7) • Ran Stop Sign (1) • Travelling wrong way (1) • Driver Distraction (1) |

* Crashes per hundred million vehicle-miles traveled

Table 3: Crash Summary for Ziegler Drive NW and US 65 (NE Hubbell Ave) Intersection (2015-19)

| Intersection | Crashes (Injury) | Crash Severity | Crash Rate* | Predominant Crash Types (Crashes) | Predominant Major Causes (Crashes) |
|--------------------------|------------------|----------------|-------------|--|---|
| US 65 & Ziegler Drive NW | 4 (1) | 1 Possible | 0.12 | <ul style="list-style-type: none"> • Non-collision (1) • Broadside (1) | <ul style="list-style-type: none"> • Animal (3) • Ran Stop Sign (1) |

* Crashes per million entering vehicles / FTYROW = Failure to Yield Right of Way

4. TRAFFIC HISTORY

The Iowa DOT conducts traffic counts in a four-year cycle. Iowa DOT Traffic count maps of the Phase 1 and Phase 2 study area in Altoona and Polk County are included in the Appendix.

Table 4 summarizes annual average daily traffic (AADT) on NE 62nd Avenue between the NE 56th Street and US 65 (NE Hubbell Avenue), along US 65 and Ziegler Drive NW intersection approaches for years 2004-2016 as available. The data generally shows increasing volumes from 2004 to 2016 except for 2012.

Table 4: Historic AADT

| Count Year | NE 62 nd Ave. | US 65 Northeast of Ziegler Drive NW | US 65 Southwest of Ziegler Drive NW | Ziegler Drive NW |
|------------|--------------------------|-------------------------------------|-------------------------------------|------------------|
| 2004 | - | - | 12,800 | - |
| 2008 | 900 | 12,800 | 13,800 | 1,190 |
| 2012 | 1,110 | - | 13,600 | - |
| 2016 | 1,540 | 13,400 | 14,600 | - |

5. DATA COLLECTION

A 24-hour turning movement count was collected using a video camera on December 5, 2019. The data collection is summarized here and the detailed reports are in the appendix. The AADT on each approach of the Ziegler Drive NW and NE Hubbell Ave. Intersection was estimated with the turning movement count volumes and the appropriate DOT daily and seasonal adjustment factors. **Exhibit 1** in the appendix summarizes AM and PM peak hour turning movement volumes. The estimated AADT is shown in **Table 5**.

Table 5: 2019 AADT

| Intersection | Approach | 24-hr volume | AADT Estimate |
|--|----------|--------------|---------------|
| US 65 (NE Hubbell Avenue) & Ziegler Drive NW | North | 18,349 | 16,920 |
| | South | 18,766 | 17,300 |
| | East | 1,221 | 1,130 |
| | West | - | - |

6. FORECASTED TRAFFIC

a. Background traffic growth

As summarized by the historic AADT data, both of the NE Hubbell Avenue and the NE 62nd Avenue corridors have experienced traffic increases with regional growth, and traffic will continue to grow as adjacent development occurs in the vicinity of the corridor. Along US 65, the study assumed an annual increase in traffic at an annual growth rate of 2% based on historic traffic and surrounding development.

Along NE 62nd Avenue, additional traffic forecasts were developed based on land use and development plans. The Opening Year 2021 proposed development near the Street A/Ziegler Drive and US 65 (NE Hubbell Avenue) intersection includes a convenience store and a shopping center west of the intersection. Modest growth is assumed for Ziegler Drive NW to account for ongoing light industrial development southeast of the US 65 intersection that will be open before the Opening Year. The access to these mixed-use business parcels northwest of US 65 will be from a newly constructed west leg at the current US 65 & Street A/Ziegler Drive intersection. The proposed development will have an Opening Year of 2021. Additional details of this development are discussed in the following sections.

The Design Year 2050 traffic is estimated from the traffic growth anticipated from land uses in the Northwest Altoona area and along NE 62nd Avenue, which are expected to include warehousing, light industrial parcels and data centers, and mixed use, etc. Based on the future trip generation and distribution along the NE 62nd Avenue corridor and adjacent street network, NE 62nd Avenue is anticipated to carry about 8400 vehicles per day, which is similar to MPO projections of 6,440 to 9,500 in the Design Year 2050.

b. Trip Generation and Trip Distribution

Estimated trip generation for the proposed developments for Opening Year 2021 and Design Year 2050 were calculated according to the ITE *Trip Generation Manual, 10th Edition*, for weekday, AM and PM peak hours for each analysis year.

c. Opening Year 2021

As discussed above, current development proposals and future land use maps were consulted to estimate the trip generation using ITE *Trip Generation* data for the traffic demand increases (refer to the Appendix). This was compared with Des Moines Area Metropolitan Planning Organization (DMAMPO) forecasts. For the proposed convenience store, the ITE Land Use Code 960: Super Convenience Market/Gas Station was selected, using the average rate for AM and PM Peak Hour of Adjacent Traffic. This land use and variable are new to the *Trip Generation Manual, 10th Edition*, and it is selected for this analysis as the previous land use codes (853, 945) did not account for convenience stores as large or with as many vehicle fueling positions

as common current designs. In addition, the new variable of adjacent street hourly traffic is beneficial to account for variation of adjacent street traffic within site sample data, and especially since this land use has a high pass-by trip factor. ITE land use code 820 was used for the commercial parcel Shopping Center.

For the Opening Year 2021 development parcels, a percentage of the trips to the proposed Convenience Store are “pass-by trips”, meaning trips which not new traffic added to the system, but are already in the adjacent street traffic stream but now turn left or right into and out of the intersection instead of proceeding through. The *ITE Trip Generation Handbook (3rd Edition)* provides data for pass-by trip rates for similar land use code 853 ranging from 63% to 66% in the AM and PM peak hours (Table E.15/E.16). Therefore, for this analysis a pass-by trip percentage of 60% is applied. **Table 6** provides a summary of the Opening Year 2021 trip generation types.

Table 6: Trip Generation Opening Year 2021

| ITE Code | Land Use | Quantity/ Unit | AM Peak Trips | Enter | Exit | PM Peak Trips | Enter | Exit |
|-------------------------------------|--------------------------|--|---------------------|------------|------------|---------------------|------------|------------|
| 960 | Super Convenience Market | Peak Hr Adj. Street: AM: 1,600 vph PM: 1,750 vph | 320 | 160 | 160 | 263 | 131 | 132 |
| 820 | Shopping Center | 12 kSF | 14 | 8 | 6 | 47 | 23 | 24 |
| TOTAL | | | 334 | 168 | 166 | 310 | 154 | 156 |
| Pass-by Trips (60% of Land Use 960) | | | 192 | 96 | 96 | 158 | 79 | 79 |
| Site Generated Trips | | | 142 | 72 | 70 | 152 | 75 | 77 |

Distribution of the site generated trips for daily and peak hour analysis are assumed to generally follow the existing distribution of the background traffic, with predominant origin and destinations along the US 65 (NE Hubbell Drive) and I-80 corridors. In addition, for peak hour trips, commuting patterns indicate AM peak hour the directional split on the US 65 is 60% southbound/40% northbound, and during the PM peak hour is 40% northbound/60% southbound.

Current year 2019 traffic counts were collected for the study at US 65 & Street A. Opening Year 2021 includes two years of background traffic growth along US 65, and traffic generated based on the proposed development. See **Exhibit 2** for Opening Year 2021 AM and PM Peak Hour turning movement volumes.

d. Design Year 2050

While this Phase 1 study is focused on the NE 62nd Avenue and Street A/Ziegler Drive segments near US 65, the Design Year 2050 traffic forecasts include the remaining mixed use development west of US 65 and Ziegler, as well as surrounding parcels as summarized in the Altoona Northwest Area Comprehensive Plan Amendment, from west of NE 46th Street along the existing and proposed NE 62nd Avenue corridor to the eastern limits of Altoona. The generated trips are from continued development, including an additional 200 acres of warehousing, 450 acres of light industrial and industrial park parcels (ITE land use 110 and 130) along NE 62nd Avenue and along Ziegler Drive NW, and proposed data center expansions (ITE land use code 160). Based on the future trip generation and distribution along the NE 62nd Avenue corridor and adjacent street network, NE 62nd Avenue is anticipated to carry between 7,280 to 8,520 vehicles per day, which is similar to MPO projections of 6,440 to 9,500 in the Design Year 2050. This generated traffic was distributed among the NE 62nd Avenue corridor and surrounding street network (proposed 21st Street NW, NE 56th Street

aka 34th Avenue NW, NE 46th Street, and US 65). See **Exhibit 3** for Design Year 2050 AM and PM Peak Hour turning movement volumes at the study intersections of US 65 & Street A, Street A & 21st Street NW, and Street A & NE 62nd Avenue (25th Street NW).

7. TRAFFIC SIGNAL WARRANT ANALYSES

Traffic signal warrant analysis was performed for the intersection of US 65 & Ziegler/Street A. The warrant analysis was conducted according to Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition, criteria. Analysis worksheets are in the Appendix. The following MUTCD warrants were evaluated, Warrant 1 (8-hour volumes), Warrant 2 (4-hour volumes), Warrant 3 (Peak Hour volumes), and Warrant 7 (crash experience). Since right turns may be able to complete their movement during the red light indication of the traffic signal, the minor street right turn volumes were reduced using an algorithm from the Ohio DOT which considers lane configuration and the proportion of right turns to other traffic on the approach.

Table 7 summarizes the results of the warrant analysis based on the existing conditions with right turn reductions calculated at the intersection of Ziegler Drive NW and NE Hubbell Ave. For Existing Year 2019 traffic, Warrant 3B criteria for peak hour volumes is satisfied. The detailed signal warrant analysis worksheets are included in the appendix.

Opening Year traffic volumes will add vehicular movements to the new west leg of the intersection to the Convenience Store and commercial parcel. With these volumes and the warrant criteria for a high-speed rural roadway (US 65) intersection with a two-lane minor street (Street A) approach, the minimum volume criteria for the minor leg will be satisfied (Warrant 1: >70 veh/hr, Warrant 2: >80 veh/hr, Warrant 3B: >100 veh/hr). Therefore, based on Existing Year 2019 and Opening Year 2021 traffic volumes, a traffic signal is recommended for Opening Year at the intersection and used for intersection capacity analysis.

Table 7: Summary of MUTCD Signal Warrant Results (2019 Traffic)

| Warrant | Existing Year 2019 Warrant Criteria Satisfied? | Opening Year 2021 Warrant Criteria Satisfied? |
|---|---|--|
| Warrant 1 (8 Hour Volumes) | No | Yes |
| Warrant 1A (Minimum Volume) | No | Yes |
| Warrant 1B (Interruption of Continuous Traffic) | No | Yes |
| Warrant 1C (Combination of Warrants) | No | Yes |
| Warrant 2 (4 Hour Volumes) | No | Yes |
| Warrant 3 (Peak Hour) | Yes | Yes |
| Warrant 3A (Peak Hour Delay)* | NA | NA |
| Warrant 3B (Peak Hour Volumes) | Yes | Yes |
| Warrant 7 (Crash Experience) | No | No |

* - Delay data not available

8. OPERATIONS

a. Capacity Analysis

Intersection capacity analyses were completed using *Synchro 10* analysis software. The *Highway Capacity Manual 6th Edition* (HCM 6) methodology was used for unsignalized intersections. Synchro methods were used for signalized intersections in order to consider right turns on red. Intersection delay is a function of traffic factors such as traffic volume, turning vehicles, vehicle types and arrival patterns, as well as geometric

factors such as number of lanes and traffic control. Intersection operations are categorized by equating average vehicular delay to level of service (LOS) criteria.

Table 8 shows the Level of Service (LOS) criteria for determining operational performance. LOS A provides the least delay, and LOS F provides the most delay. Typically, LOS D is the minimum acceptable LOS for urban intersections. However, LOS E-F is not unusual for stop controlled minor street or driveway approaches to higher volume arterial streets during peak hours.

Table 8: Level of Service (LOS) Definition

| LOS | Average Delay per Vehicle (seconds) | |
|-----|-------------------------------------|---------------------------|
| | Signalized Intersection | Unsignalized Intersection |
| A | < 10 | < 10 |
| B | 10 to 20 | 10 to 15 |
| C | 20 to 35 | 15 to 25 |
| D | 35 to 55 | 25 to 35 |
| E | 55 to 80 | 35 to 50 |
| F | > 80 or V/C > 1.0 | > 50 or V/C > 1.0 |

V/C = Volume to Capacity Ratio

Capacity analysis results for existing, opening year and design year scenarios are shown in **Table 9**. Detailed capacity analysis output worksheets are included in the Appendix. The 2019 existing condition for the Ziegler Drive NW and NE Hubbell Ave. intersection is Stop controlled on Ziegler Drive NW. Existing conditions analysis indicates excessive delay with LOS of C/F during peak hours for minor street left turns.

For Opening Year 2021, a new west intersection leg will be constructed to access the proposed convenience store and intersection improvements are proposed to include a traffic signal. The analysis results shows improvement in LOS operations for opening year with the addition of traffic signalization.

Between Opening Year 2021 and Design Year 2050, growth of through traffic on US 65 (NE Hubbell Avenue) may necessitate additional through lane capacity from four lanes (two northbound and southbound) to a six lane corridor (three lanes northbound and southbound). Both of these Design Year scenarios are shown in **Table 9**. **Exhibits 1-3** summarize intersection LOS and lane configurations.

Table 9: Capacity Analysis Results

| Scenario | Intersection | Intersection Traffic Control Type | AM Peak | | PM Peak | |
|--------------------|------------------------------------|-----------------------------------|-------------|-----|-------------|-----|
| | | | Delay (sec) | LOS | Delay (sec) | LOS |
| Existing Year 2019 | US 65 & Street A | NW/SE Two-way Stop Control | 24 | C | 91 | F |
| Opening Year 2021 | US 65 & Street A | Traffic Signal | 20 | B | 9 | A |
| Design Year 2050 | US 65 & Street A | Traffic Signal (4-lane US 65) | 57 | E | 30 | C |
| | US 65 & Street A | Traffic Signal (6-lane US 65) | 33 | C | 20 | B |
| | Street A & 21 st Street | Roundabout | 7 | A | 8 | A |
| | Street A & NE 62 nd Ave | Roundabout | 8 | A | 7 | A |

b. Vehicle Queuing Analysis

Vehicle queuing was evaluated using Synchro. Calculated 95th percentile queue lengths (in feet) for Existing year 2019, opening year 2021 and design year 2050 are shown in **Table 10**, **Table 11** and **Table 12** respectively.

Table 10: Existing Year 2019 Vehicle Queues

| Intersection | Traffic Control | Lane-Movement | 95 th Percentile Queue (ft) | | Existing (e) or Proposed (p) Turn Lane Length (ft) |
|---|----------------------|---------------|--|---------|--|
| | | | AM Peak | PM Peak | |
| US 65 (NE Hubbell Ave) & Ziegler Drive NW | Two-Way Stop (NW/SE) | NE-L | <25 | 0 | 200 ft (e) |
| | | NW-LTR | <25 | 110 | - |
| | | SW-L | <25 | 0 | 350 ft (e) |

Table 11: Opening Year 2021 Vehicle Queues

| Intersection | Traffic Control | Lane-Movement | 95 th Percentile Queue (ft) | | Existing (e) or Proposed (p) Turn Lane Length (ft) |
|---|-----------------|---------------|--|---------|--|
| | | | AM Peak | PM Peak | |
| US 65 (NE Hubbell Ave) & Street A/Ziegler Drive | Traffic Signal | SE-L | 60 | 60 | 200 ft (p) |
| | | SE-TR | 40 | 30 | |
| | | NW-L | <25 | 55 | 150 ft (p) |
| | | NW-TR | <25 | 25 | - |
| | | NE-L | 90 | 25 | 200 ft (e) 480 ft (p) |
| | | NE-T | 105 | 220 | - |
| | | NE-R | <25 | <25 | 500 ft (p) |
| | | SW-L | 30 | <25 | 350 ft (e) 480 ft (p) |
| | | SW-T | 370 | 140 | - |
| SW-R | <25 | <25 | 500 ft (p) | | |

Table 12: Design Year 2050 Vehicle Queues (Six-lane US 65)

| Intersection | Traffic Control | Lanes | 95 th Percentile Queue (ft) | | Existing (e) or Proposed (p) Turn Lane Length (ft) |
|--|-----------------|-------|--|---------|--|
| | | | AM Peak | PM Peak | |
| US 65 (NE Hubbell Ave) & Street A/Ziegler Drive | Traffic Signal | SE-L | 125 | 110 | 200 ft (p) |
| | | SE-T | 65 | 30 | |
| | | SE-R | 70 | 80 | 150 ft (p) |
| | | NW-L | 35 | 90 | 150 ft (p) |
| | | NW-TR | 30 | 60 | - |
| | | NE-L | 295 | 230 | 200 ft (e) 480 ft (p) |
| | | NE-T | 135 | 450 | - |
| | | NE-R | 25 | 40 | 500 ft (p) |
| | | SW-L | 90 | 50 | 350 ft (e) 480 ft (p) |
| | | SW-T | 620 | 270 | - |
| 21 st St. NW & Street A | Roundabout | NB | 100 | 85 | - |
| | | SB | 65 | 55 | |
| | | EB | 20 | 40 | |
| | | WB | 25 | 30 | |
| NE 62 nd Ave/25 th St. NW & Street A | Roundabout | NB | 30 | 40 | - |
| | | SB | <25 | <25 | |
| | | EB | 80 | 55 | |
| | | WB | 30 | 50 | |

9. IMPROVEMENT COST OPINIONS

To be included with final report.

10. CONCLUSIONS/RECOMMENDATIONS

a. Number of Lanes, Lane Widths, and Cross Section

Based on projected future traffic volumes and development plans, the primary recommendation throughout the NE 62nd Avenue corridor is a three-lane cross-section providing one through lane in each direction and a center two-way left turn lane or dedicated left turn lanes at primary intersections. The recommended right of way will also have room for right turn lanes as needed throughout the corridor. A shared-use path on one side of the street is also recommended to provide a separated space for pedestrian and bicyclists using the corridor.

The daily traffic volumes support two through lanes (one in each direction) as summarized in Iowa SUDAS planning criteria. The provision of left turn lanes (via a continuous center two-way left turn lanes due to access spacing or dedicated left turn lanes) is supported by left turn volume warrant criteria in the Transportation Research Board (TRB) National Cooperative Highway Research Program (NCHRP) reports, such as Report 745: “Left-Turn Accommodations at Unsignalized Intersections” and NCHRP Report 457: “Evaluating Intersection Improvements: An Engineering Study Guide”.

Lane widths of 12-ft for through lane and 14-ft for TWLTL are recommended for Phase-1 due to the industrial usage along the corridor. Lane widths will be further studied for the Phase-2 portion of the study.

Exhibit 4 shows the general corridor lane recommendations including a typical section.

b. Intersection Traffic Control – Roundabouts and Traffic Signals

US 65 (NE Hubbell Avenue) & Ziegler/Street A

The existing intersection of Ziegler Drive NW and US 65 is currently two-way Stop controlled and is recommended to be signalized in Opening Year 2021. Due to the high speeds and high volumes along US 65, and roadway functional prioritizing US 65 through traffic, the following principles should guide US 65 & Street A/Ziegler Drive intersection and traffic signal design:

- Separate through traffic from decelerating and turning vehicles.
 - Construct left turn lanes and right turn lanes with adequate length to provide queue storage and partial deceleration.
- Provide positive-offsets to provide intersection sight distance for conflicting permissive movements.
 - Left turns from US 65 may operate on a permissive or protected-permissive phasing during off-peak periods. The US 65 median is 40-60 ft wide. Therefore left turn lanes should be reconstructed to provide a positive offset so opposing vehicles can see through traffic
 - Traffic turning right from the proposed Street A to southbound US 65 may do so while southbound US 65 has a green light and is traveling at posted speed limit of 55 mph. Therefore, the turning vehicle will need to identify an adequate gap to accelerate to through traffic speeds. Vehicles in a parallel right turn lane along US 65 may block the view of these right-turning vehicles to US 65 through traffic. Therefore, the proposed right turn lane should be offset a minimum of 8 ft, as provided at nearby US 65 & NE 62nd Street intersection.

- Operational analysis in this report, as well as the traffic analysis recently completed for the new Amazon warehousing site to the northeast in Bondurant, and others indicate US 65 may need additional widening to provide three northbound lanes and three southbound lanes by Design Year 2050
 - Traffic signal pole locations, grading, right turn lane design and intersection radii should be designed to accommodate this widening
- Prioritize through US 65 traffic to minimize delays and rear-end crash conflicts.
 - Coordinate signals with adjacent traffic signals. Construct advance warning flashers with traffic signals to alert through traffic to a potential stopped condition.
 - Provide left turn lanes on minor street approaches to increase side street capacity and shorten side street signal phases.

Ziegler Drive east of US 65

Ziegler Drive will experience additional light industrial development which will result in additional truck traffic and driveway locations. Additional development in Bondurant may connect Ziegler Drive east to NE 72nd Street. This corridor should be widened from its existing two-lane urban cross section to a three-lane urban cross section providing a continuous center two-way left turn lane (TWLTL). The access intersections along Ziegler Drive are anticipated to be two-way stop control.

Street A & 21st Street, and Street A & NE 62nd Avenue

Intersections between the existing NE 62nd Ave corridor and US 65 (NE Hubbell Avenue) are recommended to be roundabout intersections to provide safe and efficient access to the future development. Design of entry radii, splitter islands, pavement markings, and mountable center island aprons will accommodate truck traffic.

The primary roundabout benefits to consider along NE 62nd Ave. are safety (roundabouts have been shown to greatly reduce or eliminate severe crashes due to reduction in right angle crashes and left turn crashes) and traffic calming (lower average speeds and higher compliance with posted speed limit and fewer extreme speeding incidents). Roundabouts are listed in the Federal Highway Administration's publications of "Proven Safety Countermeasures", along with two-way left turn lanes and Access Management. In addition, roundabouts are well suited to the new intersections due to recommended three-lane cross section, which results in a single-lane roundabout that is intuitive for drivers. Single lane roundabouts can be designed for potential future widening without need for closure/reconstruction.

Exhibit 5 shows the proposed US 65 & Street A / Ziegler Drive NW Intersection Improvements.

Table 13: Roundabout and Traffic Signal Comparisons

| Criteria | Single Lane Roundabout | Traffic Signal |
|--------------------------------|---|--|
| Safety | Significant reduction in overall crashes (37%) and injury (-75%) and fatal (-90%) crashes, due to reduction in higher severity head-on, right angle, and left turn crashes. | Reduction in right angle crashes, left turns depend on phasing, may result in new rear end crashes. |
| Capacity | Higher traffic flow capacity. More continuous flow of traffic, slow to yield when stop unnecessary, reduced 'lost time' due to red-green start up and yellow light phases. | Clearly assigns right of way to conflicting traffic. Operations can be optimized with added detection and frequent timing updates. |
| Peak Hour Delay | Varies depending on balance of traffic from major and minor direction. Some traffic may yield vs stop. | Additional turn lanes may be needed to handle peak hour turn movements. |
| Off-peak Hour Delay | Less 'off-peak' delay due to yield movements instead of stop at red signal indication. | More off-peak delay since major road must stop for red signal to allow traffic on minor approach to proceed. |
| Aesthetic Design Opportunities | Center island landscaping. Decorative poles for roadway lighting. | Decorative and/or painted poles. Pole mounted decorations. |
| Pedestrian/Bicyclists | Crossings use splitter islands to cross in two stages, one direction of traffic at a time. Drivers are slowing down for yield. | Accommodated via pedestrian signal phases. Potential conflicts with right turn vehicles and permissive left turns. |
| Maintenance | Landscaping. Special snow removal planning. | Equipment and electricity costs, battery back-up. |

c. Access Management

As described by the Federal Highway Administration, "Access management refers to the design, application, and control of entry and exit points along a roadway. This includes intersections with other roads and driveways that serve adjacent properties. Thoughtful access management along a corridor can simultaneously enhance safety for all modes, facilitate walking and biking, and reduce trip delay and congestion."

Per the Iowa Statewide Urban Design and Specifications (SUDAS), access spacing for an arterial street is recommended to be at least 300' when possible to provide a safe and efficient roadway for motorists. The following are recommendations to provide good access management for Phase 1:

- Prohibit full access on Street A northwest of US 65 to 21st Street NW by including a raised median between the intersections
- Work with future development to provide 300' spacing between full access points along the existing and proposed portions of the corridor

Additional information can be found at these resources:

- Iowa Statewide Urban Design Standards (SUDAS) Chapter 5L: Access Management
 - <http://www.iowasudas.org/manuals/design/Chapter05/5L-1.pdf>

- Iowa Access Management Handbook (Iowa DOT/ISU Institute for Transportation)
 - <http://www.ctre.iastate.edu/research/access/amhandbook/AMhandbook.pdf>
- Iowa DOT Access Management Policy
 - <https://iowadot.gov/traffic/access-management/access>

APPENDIX

Exhibit 1 – Existing Year 2019 Turn Movement and Lane Configuration

Exhibit 2 – Opening Year 2021 Turn Movement and Lane Configuration

Exhibit 3 – Design Year 2050 Turn Movement and Lane Configuration

Exhibit 4 – Phase 1 Corridor Improvement Concept

Exhibit 5 – US 65 & Street A/Ziegler Drive Improvement Concept

Exhibit 6 – Mixed Use Development Concept

Intersection and Corridor Crash Reports

Existing Intersection Turning Movement Counts

Future Traffic Forecast from Des Moines Area MPO

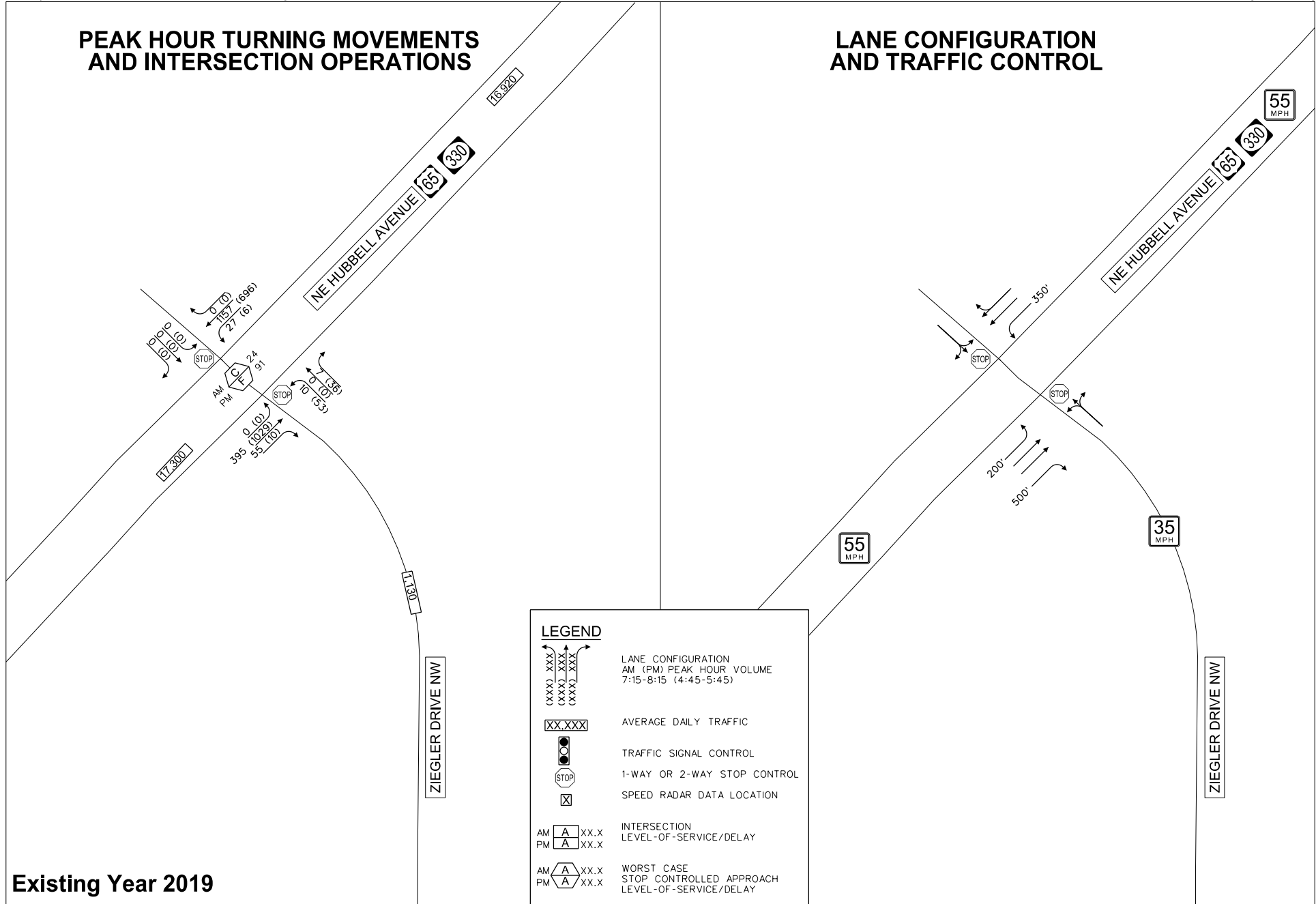
Trip Generation

Traffic Signal Warrant Analysis Worksheets (PC-Warrants)

Synchro Capacity Analysis Reports

PEAK HOUR TURNING MOVEMENTS AND INTERSECTION OPERATIONS

LANE CONFIGURATION AND TRAFFIC CONTROL

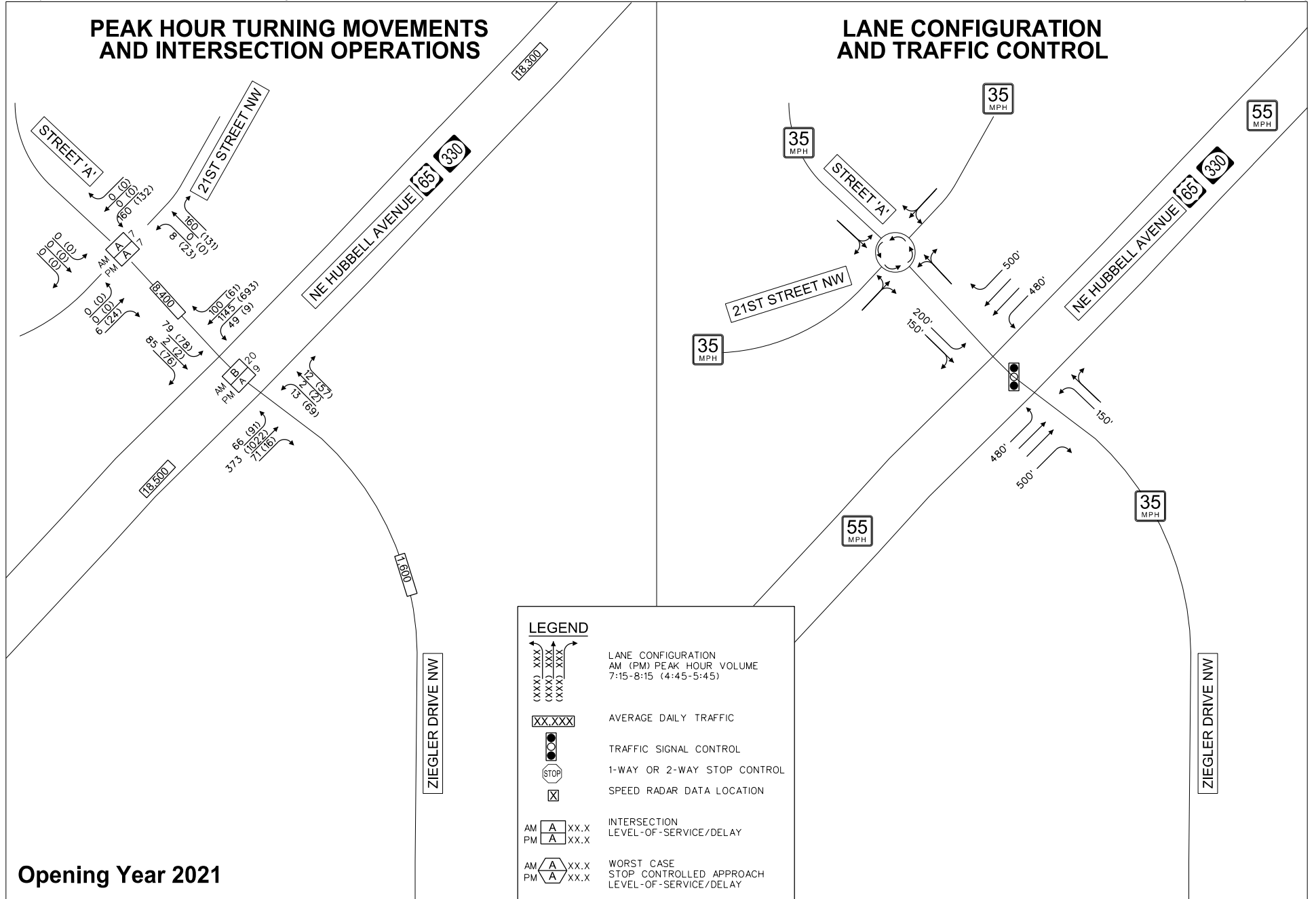


LEGEND

- LANE CONFIGURATION
 AM (PM) PEAK HOUR VOLUME
 7:15-8:15 (4:45-5:45)
- AVERAGE DAILY TRAFFIC
- TRAFFIC SIGNAL CONTROL
- 1-WAY OR 2-WAY STOP CONTROL
- SPEED RADAR DATA LOCATION
- INTERSECTION
 LEVEL-OF-SERVICE/DELAY
- WORST CASE
 STOP CONTROLLED APPROACH
 LEVEL-OF-SERVICE/DELAY

Existing Year 2019

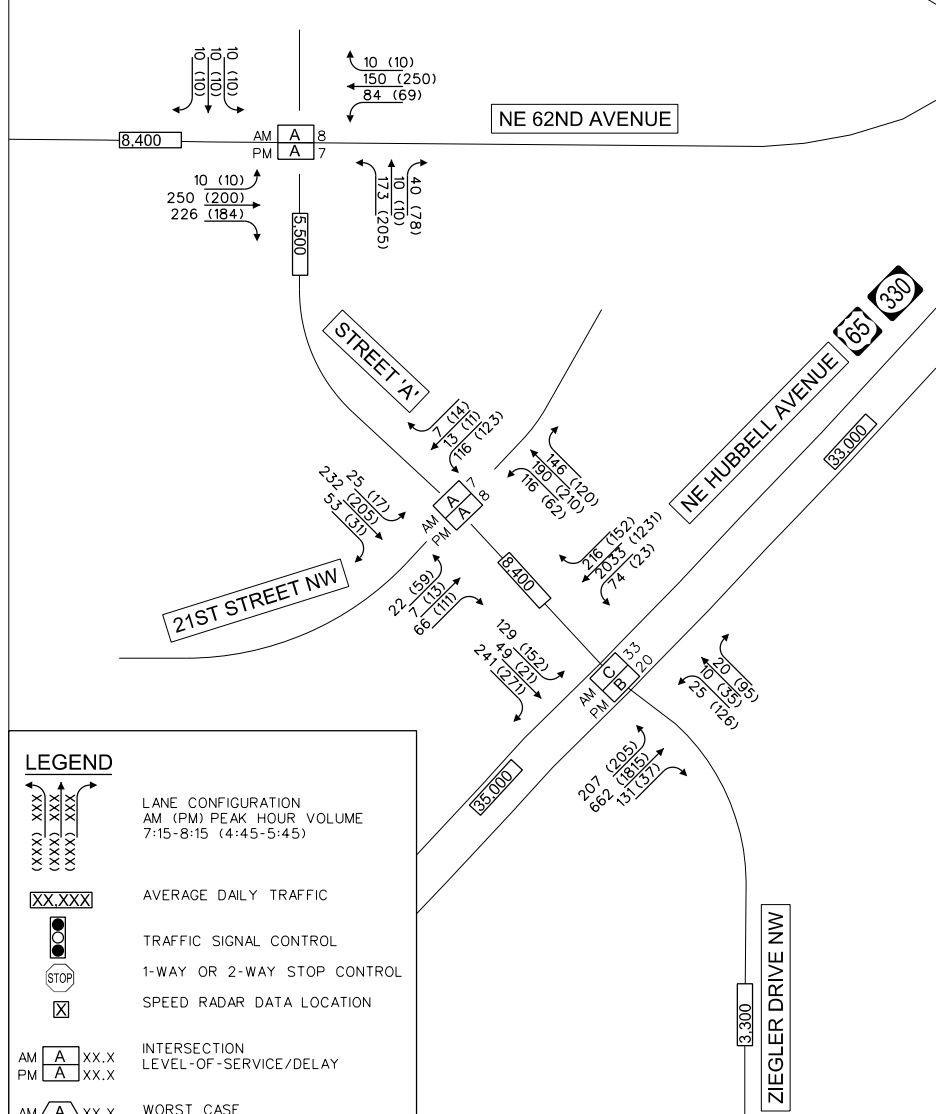




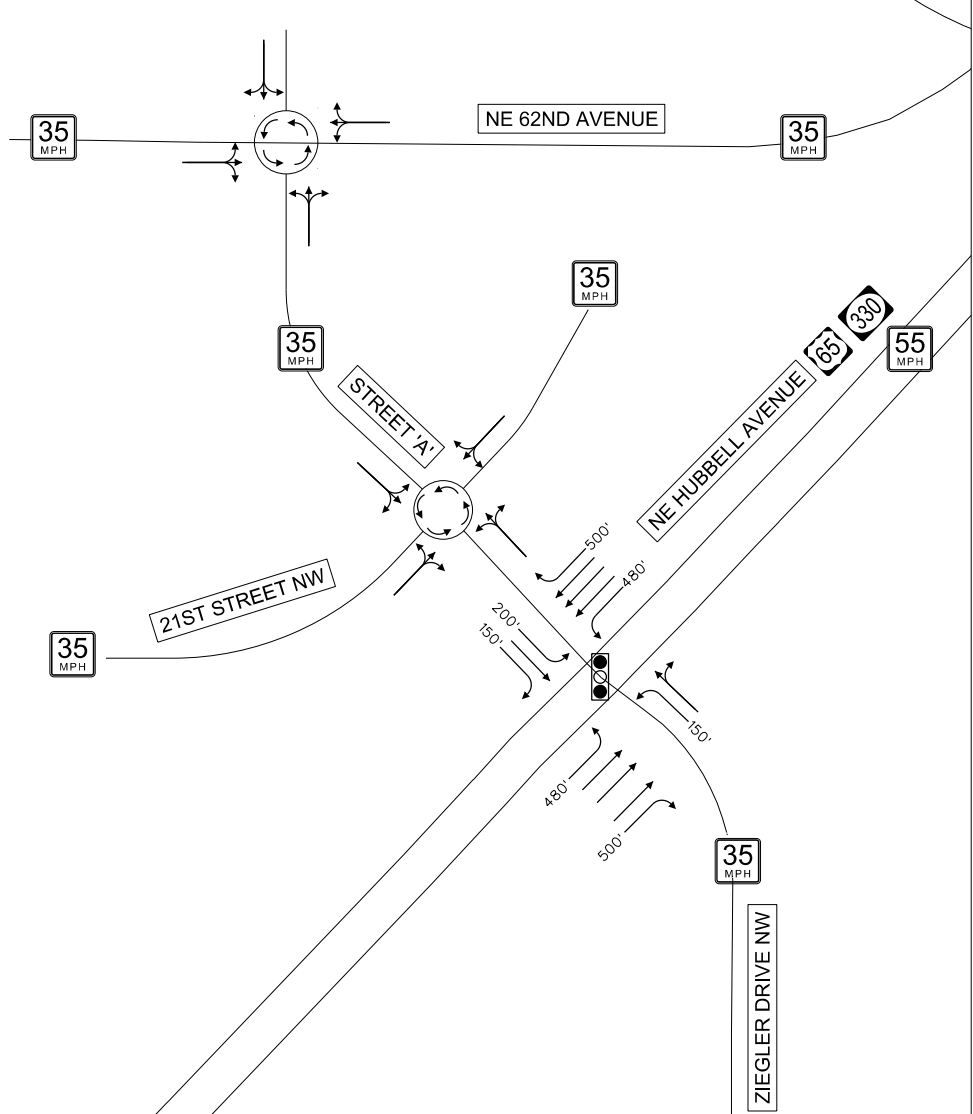
Opening Year 2021



PEAK HOUR TURNING MOVEMENTS AND INTERSECTION OPERATIONS



LANE CONFIGURATION AND TRAFFIC CONTROL



LEGEND

LANE CONFIGURATION
 AM (PM) PEAK HOUR VOLUME
 7:15-8:15 (4:45-5:45)

AVERAGE DAILY TRAFFIC

TRAFFIC SIGNAL CONTROL

1-WAY OR 2-WAY STOP CONTROL

SPEED RADAR DATA LOCATION

AM XX.X
 PM XX.X
 INTERSECTION LEVEL-OF-SERVICE/DELAY

AM XX.X
 PM XX.X
 WORST CASE STOP CONTROLLED APPROACH LEVEL-OF-SERVICE/DELAY

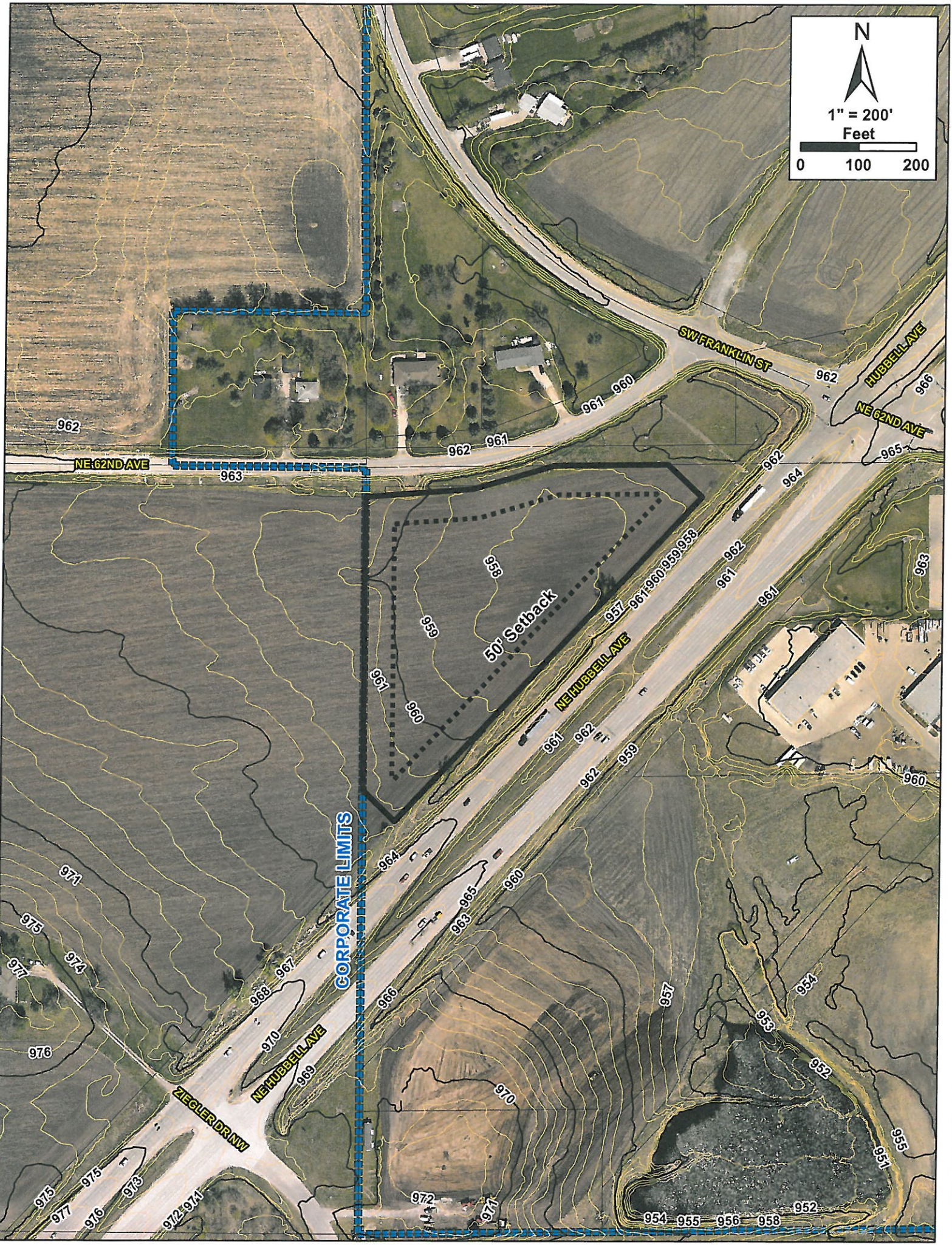
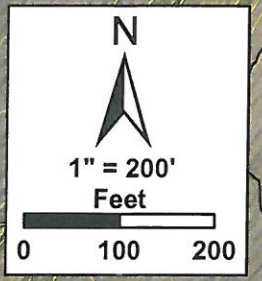
Design Year 2050



N.T.S.



Exhibit 3 - Design Year 2050 Analysis Summary



CORPORATE LIMITS

50' Setback

NE 62ND AVE

SW FRANKLIN ST

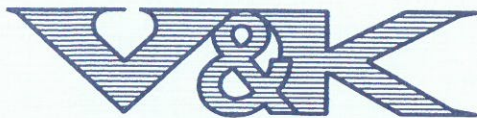
HUBBELL AVE

NE 62ND AVE

NE HUBBELL AVE

ZIEGLER DR NW

NE HUBBELL AVE



VEENSTRA & KIMM, INC.

3000 Westown Parkway • West Des Moines, Iowa 50266-1320

515-225-8000 • 515-225-7848 (FAX) • 800-241-8000 (WATS)

March 9, 2020

Marketa Oliver
City Administrator
City of Bondurant
200 Second Street NE
P.O. Box 37
Bondurant, Iowa 50035

BONDURANT, IOWA
I-80 BUSINESS PARK
TRAFFIC IMPACT
NE 62ND AVENUE & FRANKLIN STREET SW

This letter is in response to your request for Veenstra & Kimm, Inc. to evaluate the impact of the proposed I-80 Business Park on traffic at the intersection of NE 62nd Avenue and Franklin Street SW. Two traffic impact studies have recently been completed in the area of this intersection.

The two traffic studies did not specifically evaluate the intersection. The first traffic impact study was completed by Shive Hattery, on behalf of the City of Bondurant, as part of the Project Bluejay improvements. The traffic study looked at the impact of the intersection of NE 62nd Avenue and Highway 65, but did not specifically evaluate the intersection of NE 62nd Avenue and Franklin Street SW. The second traffic study was completed by Snyder & Associates, Inc. for the I-80 Business Park. That traffic study focused on NE 62nd Avenue in the area of the proposed street through the I-80 Business Park. That study did not look at the intersection of NE 62nd Avenue and Franklin Street SW.

Although the traffic study for the I-80 Business Park did not specifically evaluate the intersection of NE 62nd Avenue and Franklin Street SW, the senior traffic engineer for Snyder & Associates, Inc. provided preliminary thoughts regarding the traffic impact at the intersection of NE 62nd Avenue and Franklin Street SW based on the traffic modeling of NE 62nd Avenue further to the west in the I-80 Business Park. Snyder & Associates, Inc. indicated based on the street configuration only about 10% of the I-80 Business Park traffic would travel on NE 62nd Avenue east of the new street within the I-80 Business Park. That traffic would impact the intersection of NE 62nd Avenue and Franklin Street SW.

Snyder & Associates, Inc. indicated its analysis indicated a significant portion of the traffic on NE 62nd Avenue west of the new street in the I-80 Business Park would utilize the new

street within the I-80 Business Park to reach Highway 65 rather than utilizing NE 62nd Avenue and the intersection of NE 62nd Avenue and Franklin Street SW.

Based on the traffic modeling by Snyder & Associates, Inc. for the I-80 Business Park the projected 2050 volume ADT on NE 62nd Avenue west of the new street in the I-80 Business Park would be about 8,200 vehicles per day. Almost all of this traffic volume would exist with or without the I-80 Business Park. With the new street in the I-80 Business Park it is estimated no more than 5,000 to 6,000 vehicles would use NE 62nd Avenue east of the new intersection in the I-80 Business Park.

The reasonable conclusion of the existing models is if in 2050 the traffic volume on NE 62nd Avenue in the vicinity of the intersection of NE 62nd Avenue and Franklin Street SW and the I-80 Business Park would be about 8,200 vehicles per day without the I-80 Business Park street that traffic would reach the intersection of NE 62nd Avenue and Franklin Street SW. With the new street in the I-80 Business Park this traffic volume would decrease to the range of only 5,000 to 6,000 vehicles.

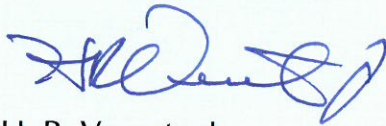
It is recognized the projected 2050 traffic volume is significantly greater than the existing traffic volume. There will be an increase in the traffic volume at the intersection of NE 62nd Avenue and Franklin Street SW over the coming three decades based on the traffic modeling from the MPO. Future improvements to the intersection may be required based on the projected traffic volume.

The impact of the I-80 Business Park and its internal street connecting to Highway 65 would be to reduce the rate of growth of traffic on NE 62nd Avenue and Franklin Street SW. While the new street in the I-80 Business Park will not eliminate the need for future improvements to the intersection of NE 62nd Avenue and Franklin Street SW the modeling would point to the new road in the I-80 Business Park slowing the rate of growth of traffic at the intersection and thus delaying the timeline for improvements to the intersection. While it is not possible to accurately project exactly when improvements to the intersection will be required, it is reasonable to conclude the improvements to the intersection of NE 62nd Avenue and Franklin Street SW would be required earlier without the new street connection in the I-80 Business Park than the improvements would be required with the new street connection in the I-80 Business Park.

Marketa Oliver
March 9, 2020
Page 3

If you have any questions or comments concerning the project, please contact the writer at 225-8000, or at bveenstra@v-k.net.

VEENSTRA & KIMM, INC.

A handwritten signature in blue ink, appearing to read "H. R. Veenstra Jr.", with a stylized flourish at the end.

H. R. Veenstra Jr.

HRVJr:kld
4284

Cc: John Horton, City of Bondurant
Maggie Murray, City of Bondurant