



Engineering Department

DATE: April 21, 2020

FROM: Gabe Schell, City Engineer

ITEM: Interstate 94 – Exit 161 (Centennial Road/Bismarck Expressway)

Interchange Reconstruction (HC 131)

REQUEST

Consider approval of North Dakota Department of Transportation (NDDOT) Preliminary Engineering Reimbursement Agreement

Please place this item on the 4/28/2020 City Commission meeting agenda.

BACKGROUND INFORMATION

The NDDOT is pursuing the reconstruction of Interstate 94 Exit 161 (Centennial Road/Bismarck Expressway) interchange as part of project IM-1-094(212)161, PCN 22648, City project HC 131. A field review kick off meeting was held at NDDOT on February 24, 2020. At this point in project development, the NDDOT requests the City enter into a preliminary engineering reimbursement agreement. The City does not have a financial responsibility in any of the preliminary engineering NDDOT or its consultant are currently performing. There may be a financial responsibility for construction of the project but that would be subject to the environmental process under way and ultimately the decisions made on the project by NDDOT and the City at a later date.

The purpose of the preliminary engineering reimbursement agreement is to secure the City's participation in the process and agree to pay back the NDDOT the engineering costs if the City unilaterally and voluntarily terminates the agreement. This is a process the NDDOT uses to protect the agency from a local political subdivision potentially backing out of a project. While it is within the rights of the political subdivision to do so, they would have to reimburse the NDDOT for the engineering work that has been completed on the project to date.

RECOMMENDED CITY COMMISSION ACTION

Approve NDDOT Preliminary Engineering Reimbursement Agreement for Interstate 94-Exit 161 reconstruction.

STAFF CONTACT INFORMATION

Gabe Schell, PE, City Engineer, 355-1505, gschell@bismarcknd.gov

**North Dakota Department of Transportation
PRELIMINARY ENGINEERING REIMBURSEMENT AGREEMENT**

This agreement is between the state of North Dakota, acting by and through its Director of Transportation, hereinafter referred to as NDDOT, whose address is 608 East Boulevard Avenue, Bismarck, North Dakota 58505-0700, and city of Bismarck, North Dakota, hereinafter referred to as the City.

WHEREAS, the City has requested that NDDOT proceed with project development activities for the reconstruction of the Exit 161 interchange in Bismarck, IM-1-094(212)161, PCN 22648; and;

WHEREAS, the City requests that the project be designed in accordance with Attachment A, attached hereto and incorporated by reference.

NOW, THEREFORE, it is agreed that NDDOT will take all necessary steps to design and construct the project in accordance with the Environmental Document and plans approved by the City, and schedule a bid opening at such time as funding and plan completion allows.

The City agrees that should it unilaterally and voluntarily terminate this agreement by whatever means or action, it shall reimburse NDDOT for any and all costs it has incurred for engineering services under this agreement.

The City further agrees that should it request or otherwise cause a material alteration to, or a reduction of the scope of the project, it shall reimburse NDDOT for any and all costs it has incurred for engineering services under this agreement.

In the event the City fails to reimburse NDDOT, such failure shall constitute an assignment of funds, derived from the State Highway Tax Distribution Fund now or hereafter coming into the hands of the State Treasurer to the credit of the City, and that the State Treasurer is hereby directed to deliver and pay over to NDDOT all funds credited to the City until the total thereof equals the sum billed pursuant to this agreement.

Appendices A and E of the Title VI Assurances, attached, are hereby incorporated into and made a part of this agreement.

The Risk Management Appendix, attached, is hereby incorporated and made a part of this agreement.



Executed by the city of Bismarck, at Bismarck, North Dakota, the last date below signed.

APPROVED:

CITY ATTORNEY (TYPE OR PRINT)

City of _____

SIGNATURE

NAME (TYPE OR PRINT)

DATE

SIGNATURE

*

TITLE

DATE

ATTEST:

CITY AUDITOR (TYPE OR PRINT)

SIGNATURE

DATE

Executed for the North Dakota Department of Transportation by the Director at Bismarck, North Dakota, the last date below signed.

APPROVED as to substance by:

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

LOCAL GOVERNMENT ENGINEER (TYPE OR PRINT)

DIRECTOR (TYPE OR PRINT)

SIGNATURE

SIGNATURE

DATE

DATE

*Mayor or President City Commission

CLA 17057 (Div. 38)
L.D. Approved 7-17-89; 08-18



**North Dakota Department of Transportation
AUTHORIZATION**

At a _____ meeting held on the ____ day of _____ 20____, it was moved by _____ and seconded by _____ that the attached agreement be approved and that the * and city auditor be authorized to execute in behalf of the city of _____ and that two executed copies be returned to the North Dakota Department of Transportation Director.

Adopted on a vote of _____ aye, _____ nay, _____ absent.

ATTEST:

APPROVED:

CITY AUDITOR (TYPE OR PRINT)

City of _____

SIGNATURE

NAME (TYPE OR PRINT)

DATE

SIGNATURE

*

TITLE

DATE

*Mayor or President City Commission



**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
APPENDIX A OF THE TITLE VI ASSURANCES**

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the Contractor) agrees as follows:

1. Compliance with Regulations: The Contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, the Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. Non-discrimination: The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the Contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. Information and Reports: The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Recipient or the Federal Highway Administration as appropriate, and will set forth what efforts it has made to obtain the information.
5. Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Nondiscrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - a. withholding payments to the Contractor under the contract until the Contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. Incorporation of Provisions: The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.



**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
APPENDIX E OF THE TITLE VI ASSURANCES**

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the Contractor) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.P.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes nondiscrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*).



Risk Management Appendix

Routine* Service Agreements With Sovereign Entities and Political Subdivisions of the State of North Dakota:

Parties: **State** – State of North Dakota, its agencies, officers and employees

Governmental Entity – The Governmental Entity executing the attached document, its agencies, officers and employees

Governments – State and Government Entity, as defined above

Each party agrees to assume its own liability for any and all claims of any nature including all costs, expenses and attorney's fees which may in any manner result from or arise out of this agreement.

Each party shall secure and keep in force during the term of this agreement, from insurance companies, government self-insurance pools or government self-retention funds, authorized to do business in North Dakota, the following insurance coverages:

- 1) **Commercial general liability and automobile liability** insurance – minimum limits of liability required of the Governmental Entity are **\$250,000 per person** and **\$500,000 per occurrence**. The minimum limits of liability required of the State are **\$250,000 per person** and **\$1,000,000 per occurrence**.
- 2) **Workers compensation** insurance meeting all statutory limits.
- 3) The policies and endorsements may not be canceled or modified without **thirty (30) days prior written notice** to the undersigned State representative.

The State reserves the right to obtain complete, certified copies of all required insurance documents, policies, or endorsements at any time.

Each party that hires subcontractors shall require any non-public subcontractors, prior to commencement of work set out under an agreement between that party and the non-public subcontractor, to:

Defend, indemnify, and hold harmless the Governments, its agencies, officers and employees, from and against claims based on the vicarious liability of the Governments or its agents, but not against claims based on the Government's contributory negligence, comparative and/or contributory negligence or fault, sole negligence, or intentional misconduct. The legal defense provided by the Subcontractor to the Governments under this provision must be free of any conflicts of interest, even if retention of separate legal counsel for the Governments is necessary. Subcontractor also agrees to defend, indemnify, and hold the Governments harmless for all costs, expenses and attorneys' fees incurred if the Governments prevail in an action against Subcontractor in establishing and litigating the indemnification coverage provided herein. This obligation shall continue after the termination of this agreement.

Subcontractor shall secure and keep in force during the term of this agreement, from insurance companies, government self-insurance pools or government self-retention funds authorized to do business in North Dakota: 1) commercial general liability; 2) automobile liability; and 3) workers compensation insurance all covering the Subcontractor for any and all claims of any nature which may in any manner arise out of or result from this agreement. The minimum limits of liability required are \$250,000 per person and \$1,000,000 per occurrence for commercial general liability and automobile liability coverages, and statutory limits for workers compensation. The Governments shall be endorsed on the commercial general liability policy and automobile liability policy as additional insureds. The Governments shall have all the benefits, rights and coverages of an additional insured under these policies that shall not be limited to the minimum limits of insurance required by this agreement or by the contractual indemnity obligations of the Contractor. Said endorsement shall contain a "Waiver of Subrogation" waiving any right of recovery the insurance company may have against the Governments as well as provisions that the policy and/or endorsement may not be canceled or modified without thirty (30) days prior written notice to the undersigned representatives of the Governments, and that any attorney who represents the State under this policy must first qualify as and be appointed by the North Dakota Attorney General as a Special Assistant Attorney General as required under N.D.C.C. Section 54-12-08. Subcontractor's insurance coverage shall be primary (i.e., pay first) as respects any insurance, self-insurance or self-retention maintained by the Governments. Any insurance, self-insurance or self-retention maintained by the Governments shall be excess of the Contractor's insurance and the Subcontractor's insurance and shall not contribute with them. The insolvency or bankruptcy of the insured Subcontractor shall not release the insurer from payment under the policy, even when such insolvency or bankruptcy prevents the insured Subcontractor from meeting the retention limit under the policy. Any deductible amount or other obligations under the Subcontractor's policy(ies) shall be the sole responsibility of the Subcontractor. This insurance may be in policy or policies of insurance, primary and excess, including the so-called umbrella or catastrophe form and be placed with insurers rated "A-" or better by A.M. Best Company, Inc. The Governments will be indemnified, saved, and held harmless to the full extent of any coverage actually secured by the Subcontractor in excess of the minimum requirements set forth above. The Government Entity that hired the Subcontractor shall be held responsible for ensuring compliance with the above requirements by all Subcontractors. The Governments reserve the right to obtain complete, certified copies of all required insurance documents, policies, or endorsements at any time.

*See *North Dakota Risk Management Manual*, section 5.1 for discussion of "unique" and "routine" agreements.

RM Consulted 2007
Revised 11-19



MEMO TO: Michael Johnson
Local Government Division

FROM: Darell Arne (Design Division - Project Manager)
Brian Raschke (Bridge Division)

DATE: April 16, 2020

SUBJECT: NDDOT Scope of Work for Project IM-1-094(212)161, PCN 22648.

The NDDOT will provide overall project management for this project by utilizing a designated Project Manager. This will involve coordinating with all needed representatives from the NDDOT, City of Bismarck, FHWA, as well as stakeholders.

The NDDOT will complete the Environmental Document for this project to comply with NEPA. To start this process, the NDDOT will begin the public outreach process by sending out Solicitation of View (SOV) letters. After the consultant completes the Traffic Operations Report, the NDDOT will hold a Management Presentation. The NDDOT may hold a business owner meeting prior to completing and signing a Decision Document with the proposed interchange alternative(s). The NDDOT will hold a Public Input Meeting to get comments from all stakeholders regarding the proposed alternative(s) that were advanced. During the environmental stage, the NDDOT will complete many different field studies and/or reports. These field studies and/or reports include the wetland delineation, section 106 process for cultural resources, and the endangered species act consultation. The NDDOT will incorporate all field studies and/or reports, including the consultant completed noise analysis, into the environmental document. Based on which build alternative(s) is/are chosen in the decision document the NDDOT will prepare a Work Zone Safety and Mobility document, with help on the work zone traffic analysis from the consultant, while following the guidelines set forth by the Work Zone Safety and Mobility Program. All the above-mentioned work will be incorporated into the environmental document so the NDDOT can obtain a CATEX.

The NDDOT will complete all of the design work for this project and everything needed to complete both the roadway and bridge designs. This will include all survey needed to put together a set of plans. If right of way is needed, the NDDOT will complete the right of way plats and obtain the necessary right of way from the adjacent landowners. Other tasks/reports the NDDOT will complete include roadway hydraulics, linear soil survey, slope stability, bridge soil borings, pavement design, and hot bituminous pavement mix recommendations. The NDDOT, with guidance from FHWA, will put together an Interstate Justification Report if the interstate connection ramps are modified due to the proposed build alternative. After the design has been completed, the NDDOT and the City of Bismarck will come into an agreement with the maintenance responsibilities and the cost participation responsibilities. This agreement will be drafted by the NDDOT and signed by both the NDDOT and the City of Bismarck.

The NDDOT will be utilizing a Public Information Coordinator (PIC) to reach out to the public to give them information regarding the upcoming Exit 161 project. The PIC will be used from the environmental stage all the way through the construction stage.

Attached, the NDDOT milestone dates can be found.

PROJECT: IM-1-094(212)161 CENTENNIAL RD/BIS EXP INTERCHANGE TYPE OF IMPROVEMENT: RECONSTRUCTION
 PCN: 22648 PROJECT LENGTH: 0.0000 FHWA INTERACTION: LIMIT
 PROJECT COMPLETE DATE: 09/01/2023 BID OPENING DATE: 01/01/2024
 TYPES OF WORK: GRADE AGGREGATE BASE PCC PAVEMENT
 WIDENING SIGNALS STRUCTURAL AND INCIDENTALS

EST. #	PROJECTED START	ACTUAL END	PROJECTED END	SEQ #	ACTIVITY/TASK	DIVISION	NON-DOT ENTITY
0		09/12/2019	09/12/2019	3	MILESTONE COMMITTEE REVIEW	PROGRAMMING	
0		09/30/2019	11/01/2019	20	TRAFFIC DATA	PLANNING & PROGRAMMING	
0			07/01/2020	60	DISTRICT TO GET CORE SAMPLE	BISMARCK DISTRICT	
0			08/01/2020	70	MILESTONE CORE ANALYSIS	MATERIALS & RESEARCH	
0	02/24/2020		01/15/2020	130	FIELD REVIEW	DESIGN	
0	03/09/2020		03/01/2020	160	SOLICITATION OF VIEWS SENT OUT LETTERS 1, 4, 6, 7, & 8. LETTER 3 WAS NOT NEEDED SINCE IT IS WITHIN CITY LIMITS	DESIGN	
0			06/01/2020	190	MANAGEMENT PRESENTATION	DESIGN	
0			01/01/2021	205	PUBLIC INPUT MEETING	DESIGN	
0			05/01/2020	250	TRAFFIC OPERATIONS PRELIM. INFO. FOR MGMT. PRESENT. 06/01/20	PROGRAMMING	CONSULTANT
0			08/01/2021	255	WORK ZONE SAFETY & MOBILITY	BISMARCK DISTRICT	
0			08/01/2020	257	DECISION DOCUMENT	DESIGN	
0			10/30/2020	267	PAVEMENT DESIGN DESIGNER: JON STORK	MATERIALS & RESEARCH	
0			09/01/2021	271	WETLAND DELINEATION-FIELD	ETS	
0			10/01/2021	273	WETLAND JURISDICTIONAL REQUEST	ETS	
0			11/01/2021	274	JURISDICTIONAL DETERMINATION	ETS	
0			11/01/2021	282	SECTION 106 COMPLIANCE(CULTURAL RESOURC	ETS	
0			11/01/2021	289	ENDANGERED SPECIES ACT CONSULTATION	ETS	
0			11/01/2021	298	NOISE ANALYSIS	ETS	CONSULTANT
0			12/01/2021	304	DRAFT DOCUMENTED CATEX	DESIGN	
0			03/01/2022	312	INTERSTATE SYSTEM ACCESS CHANGE REQUEST	DESIGN	
0			01/01/2022	314	DOCUMENTED CATEX	DESIGN	
0			02/01/2022	320	CATEGORICAL EXCLUSION	ETS	
0	09/19/2019		09/12/2019	330	ASSIGN PROJECT DESIGNER	DESIGN	
0			01/01/2021	510	AERIAL SURVEY MOSAIC BY 11/15/19	DESIGN	
0			01/01/2021	515	SURVEY TRANSMITTAL	DESIGN	
0			01/11/2022	550	PRELIMINARY UTILITY COORDINATION	DESIGN	CONSULTANT
0			10/01/2022	551	PRELIMINARY UTILITY ENGINEERING	DESIGN	CONSULTANT
0			02/01/2020	552	PRELIMINARY ENGINEERING (PE) AGREEMENT	LOCAL GOVERNMENT	
0			04/15/2023	562	ROADWAY HYDRAULICS	BRIDGE	
0			01/01/2022	565	LINEAR SOIL SURVEY	MATERIALS & RESEARCH	
0			01/01/2022	566	SLOPE STABILITY	MATERIALS & RESEARCH	
0			01/01/2022	595	BRIDGE SOIL BORINGS	MATERIALS & RESEARCH	
0			05/15/2023	610	BRIDGE DESIGN	BRIDGE	
0			06/15/2023	620	BRIDGE PLAN PREPARATION	BRIDGE	
0			01/01/2023	625	HBP MIX RECOMMENDATIONS	MATERIALS & RESEARCH	
0			09/01/2022	655	DESIGN RIGHT OF WAY LIMITS	DESIGN	
0			10/01/2022	660	ABSTRACTS/TITLE INFORMATION	ETS	
0			11/15/2022	671	RIGHT OF WAY PLATS PRELIMINARY TO	ETS	
0						DESIGN	

PROJECT: IM-1-094(212)161 CENTENNIAL RD/BIS EXP INTERCHANGE TYPE OF IMPROVEMENT: RECONSTRUCTION
 PCN: 22648 PROJECT LENGTH: 0.0000 FHWA INTERACTION: LIMIT
 PROJECT COMPLETE DATE: 09/01/2023 BID OPENING DATE: 01/01/2024
 TYPES OF WORK: GRADE AGGREGATE BASE PCC PAVEMENT
 WIDENING SIGNALS STRUCTURAL AND INCIDENTALS

EST. #	PROJECTED DAYS	PROJECTED START	ACTUAL END	PROJECTED END	SEQ #	ACTIVITY/TASK	DIVISION	NON-DOT ENTITY
0				11/15/2022	699	RIGHT OF WAY COST	ETS	
0				12/01/2022	700	RIGHT OF WAY AUTHORIZATION	ETS	
0				03/01/2023	715	APPRAISAL	ETS	
0				06/01/2023	750	BORROW INVESTIGATION	MATERIALS & RESEARCH	
0				06/01/2023	751	SECTION 404 AND WETLAND INFORMATION	DESIGN	
0				08/15/2023	754	SECTION 404 PERMIT	ETS	
0				08/27/2022	819	PRELIMINARY PLAN REVIEW	DESIGN	
0				07/15/2023	820	PLANS IN HAND FIELD INSPECTION	DESIGN	
0				07/15/2023	821	ITS CHECKLIST	MAINTENANCE & ENGINEERING	
0				09/01/2023	828	PLAN COMPLETION DATE	DESIGN	
0				09/01/2023	829	RIGHT OF WAY PLATS FINAL	DESIGN	
0				02/01/2023	830	UTILITY CONFLICT PLANS	DESIGN	
0				09/01/2023	865	ACQUISITION	ETS	
0				09/01/2023	870	PROJECT COMPLETION	DESIGN	
0				01/01/2024	891	RIGHT OF WAY PLATS RECORDED	ETS	
0				07/15/2023	893	CPM INFO TO LOCAL GOVT	DESIGN	
0				10/01/2023	895	COST MAINTENANCE AGREEMENT	LOCAL GOVERNMENT	



APPENDIX A
February 4, 2020
Phase I - Traffic Operations Study,
Work Zone Traffic Analysis, and Noise Analysis
Scope of Services
1-094(212)161, PCN 22648
Centennial Rd/Bis Exp Interchange

PURPOSE

The purpose of this appendix is to describe the scope of services and responsibilities required to complete the traffic operations report, work zone traffic analysis, and noise analysis. The project limits are Centennial Road/Bismarck Expressway from East Century Avenue to East Divide Avenue.

The following assumptions were made in preparing the scope of services:

Traffic Operations Report

The Traffic Operations Analysis will be developed in accordance with the NDDOT Traffic Operations Manual along with the following items:

- Review of the existing conditions utilizing the Bismarck/Mandan MPO traffic projections and traffic model which was completed by Advanced Traffic Analysis Center (ATAC).
- Analyze permanent alternatives for the interchange to reduce queue lengths and to perform at an acceptable level of service based on future traffic volumes and developments.
- Identify secondary impacts within Bismarck caused by traffic control during construction.
- Interchange traffic model simulation for existing conditions as well as a traffic model for all alternatives considered using existing and proposed traffic.
- Existing and planned pedestrian accommodations and/or bike routes

NDDOT will prepare a Decisions Document to coincide with the Draft Traffic Operations Report to determine the number of alternatives to carry forward into the environmental document.

Work Zone Traffic Analysis

A work zone traffic analysis will be completed for this project for up to two (2) alternatives. The work zone traffic analysis will be used in the final Work Zone Safety and Mobility document that will be completed by the NDDOT by 8/1/2021. After proposed alternatives are selected, the work zone traffic analysis will determine the existing Level of Service (LOS) and existing traffic delays as well as the expected LOS and expected traffic delays. There may be multiple iterations based on the Work Zone Safety and Mobility team members recommendations. Traffic model simulations will be prepared for this task.

Highway Traffic Noise Analysis

A highway traffic noise analysis, including a draft and final report, will be prepared for this project for up to two (2) alternatives.

PCN 22648

KLJ 1902-02125

Page 1 of 6



SERVICES TO BE PERFORMED BY KLJ

1.1 PROJECT MANAGEMENT

Project Management & Coordination

KLJ will manage the project and provide overall coordination of the work completed by the planning and design team. This work shall consist of managing work assignments, internal team meetings, client coordination, project budget and schedule.

Progress Reports (Bi-weekly updates) (Est. 25 Updates)

KLJ shall submit a biweekly status report via email to the NDDOT Technical Representative and the City of Bismarck which will summarize the work performed in the current period, upcoming activities in the next period, summary of project decisions and potential out of scope work activities. The reports shall include percent complete for key project activities. The status report shall also identify any milestone activity that is not completed or anticipated not to be completed on time. The report shall include the reasons why any milestone date was missed and what actions will be taken to get the project back on schedule.

Team Meetings (2 Meetings Estimated)

The KLJ project team will meet with representatives from the NDDOT and City of Bismarck to discuss design and planning issues, scheduling, progress and for coordination. There will be a maximum of 2 meetings during the project.

1.2 TRAFFIC OPERATIONS

The objective of the traffic operations report is to provide a range of feasible alternatives designed to mitigate traffic operational and safety needs of the Exit 161 interchange. The key items in the traffic operations report are data collection, existing conditions assessment, future conditions assessment, alternatives development and assessment, report and presentation of findings.

The duration of this task will take five months from notice to proceed to draft report, with an additional 3 weeks to translate comments into a final report.

1.2.1 Data Collection

Turning Movement Counts

KLJ will collect 12 hour turning movement counts that will count vehicular traffic, pedestrian and bicycle traffic and heavy vehicles. Counts will be collected at the following intersections:

- Centennial Road and East Century Avenue (*NDDOT to provide 2019 MioVision Counts*)
- Centennial Road and Chatham Drive
- Centennial Road and Trenton Drive
- Centennial Road and I-94 North Ramps (*NDDOT to provide 2019 MioVision Counts*)
- Bismarck Expressway and I-94 South Ramps (*NDDOT to provide 2019 MioVision Counts*)
- Bismarck Expressway and Miriam Avenue (*NDDOT to provide 2019 MioVision Counts*)
- Bismarck Expressway and Divide Avenue



Data Requests

KLJ will request the following information from NDDOT;

- Mainline I-94 traffic volume, distribution and composition information from 2019 counts
- MioVision Counts as noted
- Five years of crash data
- Signal timing data

1.2.2 Existing Conditions Assessment

Traffic Operations and Capacity Analysis

KLJ will use Vissim microsimulation modeling tool to model the entire study area including the ramp intersections with mainline I-94. KLJ will simulate traffic over a 12-hour period and analyze the following measures of effectiveness; intersection level of service and delay per vehicle, ramp densities, corridor travel times and network-wide delay per vehicle.

Safety Analysis

KLJ will review the past five years of crash data to evaluate crash rates and trends. KLJ will also use the Vissim model to assess conflict points to understand latent safety issues.

Infrastructure Assessment

KLJ will analyze the following areas for potential deficiencies or areas of opportunity:

- Pedestrian and bicycle facilities and crossings
- Roadway and bridge conditions
- Lighting

1.2.3 Future Conditions Assessment

Future traffic Operations and Safety Analysis

KLJ will model and analyze 12 hours of traffic operations, capacity analysis and conflict potential of No Build interchange configuration under the following scenarios. Traffic forecasts will be based on the Bismarck-Mandan's travel demand model developed as part of the most recent Metropolitan Transportation Plan (MTP).

- 2030 Traffic Operations. This scenario will include all planned and programmed improvements included in the MTP through this timeframe.
- 2045 Conditions. This scenario will include all planned and programmed improvements included in the MTP through this timeframe.
- 2045 Sensitivity Scenario. This scenario will include all planned and programmed improvements included in the MTP through this timeframe. This scenario will also include the 66th Street interchange to understand how traffic patterns will change with this concept.

KLJ did not budget for any major changes to data inputs but can do so through amendment to the contract.



1.2.4 Alternative Assessment

Macro-Level Alternative Assessment

KLJ will utilize FHWA's CAP-X Spreadsheet tool and engineering judgment to identify up to 10 concepts to evaluate in the macro-level alternative assessment. Concepts will then be analyzed using the Synchro and Simtraffic traffic modeling tools. These models are less sophisticated than microsimulation tools that will be used in more detailed subsequent micro-level analyses but are an effective way to evaluate alternatives at a more conceptual level. A preliminary assessment of feasible concepts includes;

1. Widening Only
2. Loop Ramps
3. Shifted Alignment with Loop Ramps
4. Displaced Loop Ramp Configuration
5. Single Point Urban Interchange
6. Shifted and Modified Single Point Urban Interchange
7. Diverging Diamond Interchange
8. Contraflow Left-Turn Interchange

Budget for two others has been included for later brainstorming or comments from NDDOT.

As part of this task, no detailed layouts or cost estimates will be developed. CADD centerlines will be developed to understand potential high-level impacts and alignments of concepts to estimate generalized costs and impacts. This assessment will allow the study team to eliminate concepts with fatal flaws and identify best fit concepts. Fatal flaws will be more specifically defined in the report but will focus on major property and environmental impacts. Specific concepts expected to be diagnosed in this section will be loop ramps and their potential impacts. The purpose of this task is to merely identify concepts that will not work at this location to avoid unnecessary efforts later.

Micro-Level Alternative Assessment

KLJ will use the results from the Macro-Level Alternative Assessment to identify five concepts to analyze in the Micro-Level Alternative Assessment. This task will include development of 12-hour existing, 2030 and 2045 Vissim microsimulation models and a two-dimensional CADD drawing to facilitate effective modeling practices and allow for an assessment of impacts and develop cost estimates.

- Mainline Operations: Based on Vissim density outputs at each on and off-ramp connection with I-94.
- Arterial Operations: Based on Vissim intersection delay and level of service and corridor travel times and delay per vehicle.
- Safety: Based on Vissim conflict assessment.
- Cost: based on two-dimensional CADD layouts.
- Impacts: based on two-dimensional CADD layouts.
- Constructability: based on an assessment of potential challenges with the construction process.
- Pedestrian and Bicycle Amenities: based on an assessment of pedestrian and bicycle accommodations.
- Benefit/Cost Analysis: based on a combination of operations, safety and cost benefits and impacts.



KLJ will assess and score each built alternative. KLJ has budgeted time to alter and refine proposed concepts and add up to one additional concept for analysis.

1.2.5 Deliverables

Draft Report

KLJ will complete a draft report that will summarize the following activities; Data Collection, Existing Conditions Assessment, Future Conditions Assessment and Alternatives Analysis. The draft report will include all necessary appendices for a complete review of analyses. This report will be submitted to NDDOT and the City of Bismarck. KLJ will prepare Vissim simulations of existing and future conditions for the proposed alternatives as part of this submittal.

Final Report

The final report will address NDDOT and City of Bismarck comments. The final report will also include the following additional items not included in the draft report;

- Executive Summary
- Ranking of Alternatives Based on Technical Criteria
- Detailed design inputs for up to five (5) alternatives including Lane Assignment and Turn Lane Lengths.

Revisions

KLJ has assumed that through the design process, NDDOT will ultimately have some revisions. KLJ has budgeted time to test three minor revisions (i.e. lane reconfigurations) of the recommended alternatives. This will be completed throughout the design process.

Signal Timing Plans

KLJ will develop up to four signal timing plans once the final design concept has been finalized. This is expected to occur later in the design process. Signal timing plans will not be provided in the Traffic Operations Report.

1.3 WORK ZONE TRAFFIC ANALYSIS

The objective of the Work Zone Traffic Analysis is to review up to two (2) potential build concepts to ensure that undue delays are not felt by the public during construction. This task will take 3 months from receiving the work zone concepts to completion of the draft Work Zone Traffic Study.

Work Zone Traffic Analysis Study

KLJ will analyze up to two (2) work zone traffic analysis concepts developed by NDDOT for up to two (2) build alternatives (4 total). KLJ will follow NDDOT Work Zone Safety and Mobility Program guidelines. This includes confirming that the proposed work zone or detour route does not degrade level of service by two grade or induce more than 15 minutes of additional delay. KLJ will use Microsimulation models to analyze proposed work zone concepts. KLJ will compile the report into a concise report with supporting appendices.

KLJ has assumed that that the interchange will remain in operations in some capacity throughout the duration of construction. If work zone concepts include detour routes or ramp closures, an amendment to the contract will be required to facilitate additional data collection and expand the study area.

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1.4 NOISE ANALYSIS

Noise Analysis & Report

KLJ will complete a noise analysis to determine potential traffic noise impacts. The noise analysis shall include the no-build and up to two (2) build alternatives and will be conducted in accordance with the Procedure for Abatement of Highway Traffic Noise and Construction Noise, FHWA Highway Traffic Noise Analysis and Abatement Policy Guidance, and NDDOT Noise Policy and Guidance. KLJ will complete a noise impact analysis for current and projected future (design year) traffic and will evaluate abatement reasonableness and feasibility, if needed. KLJ will prepare and submit a Draft and Final Noise Report.

This scope of work assumes that NDDOT will provide the following:

- Design year build alternatives
- CADD and/or shapefiles for all of the no-build and build alternative alignments, including any future shared-use path(s) (i.e., elevation contours, edge of pavements, lane lines, project extents)
- Speed limits (existing and future for main alignment and side streets)

DELIVERABLES PROVIDED BY KLJ

1. Progress reports at two (2) week intervals.
2. Agendas and minutes for all project meetings.
3. Draft and Final Traffic Operations Analysis & Report
4. Draft and Final Work Zone Traffic Analysis and Report
5. Draft and Final Noise Analysis Report

SCHEDULE

1. Traffic Operations - The duration of this task will take five months from notice to proceed to draft report, with an additional 3 weeks to translate comments into a final report. Estimated date of the *Draft Traffic Operations* is 6/30/20.
2. Work Zone Traffic Analysis and Report – *NDDOT Milestone Date 8/1/2021*
3. Noise Analysis Report – *NDDOT Milestone Date 11/1/2021*

