

## **PROJECT LOCATION**

The project is located within Seward County, beginning west of the I-80/N-15 Interchange at RP 377.90, and ending west of the existing I-80/N-103 interchange (RP 388).

## **OVERVIEW**

Project improvements consist of replacing the pavement, bridges, and expanding I-80 to 6 lanes. Project will repair or replace mainline and overhead bridge structures, extend/modify/or construct new culverts, remove and replace guardrail, reconstruct Milford and Seward Interchanges, add solar lighting, modernize ramp lengths, and restripe. Project, as a pilot, will also add wireless in-road charging to eastbound (EB) and westbound (WB) segments of I-80 to provide a seamless charging experience for drivers of electric vehicles to minimize charging and range barriers.

Bridge locations on the project include the following structures - S080 37811, S080 37911, S080 38012, S080 38062L&R, S080 38096L&R, S080 38211, S080 38276, S080 38312, S080 38413, S080 38614L&R, S080 38690, S080 38738L&R.

The Consultant selected under this RFQ will provide the services described below. The project will be developed in two phases. This project will be developed as a Federal-aid project so Consultant must have the capabilities and NDOT certification to conduct the necessary environmental reviews and create documents required for a NEPA evaluation.

The Consultant will collect data to start the preliminary design process and utilize the phasing concept developed for the previous project to the east. This project includes reconstruction of the Milford and Seward Interchanges, including modernizing ramp lengths.

### PHASE I – Preliminary/Functional Design, NEPA, and Interchange Justification Report (IJR) Decision

The Consultant will collect pertinent project data, perform environmental resource reviews and traffic analyses, conduct public meetings, and perform preliminary design of mainline I-80 and of the interchanges at Seward and Milford as part of the alternatives analysis for the NEPA and environmental permitting process.

The Consultant will prepare an Interchange Justification Report in accordance with 23 CFR Part 624, which is under final approval by FHWA, and 23 CFR Part 625.

The Consultant will also collect the In Road/Wireless Charging Systems pertinent project data and identify suitable locations for installation of in-road charging/wireless charging systems. To carry out these activities, the Consultant will combine planning practices with demonstrated experience and proficiency in the design, implementation process, and operation of in-road/wireless electric vehicle charging systems.

The Consultant will design the pilot In-Road charging systems to support wireless electric power transfer to electric vehicles traveling on I-80. This includes design of

## I-80 6-lane Pleasant Dale – Seward, NH-80-8(110), CN 12598

systems for wireless power transfer, dynamic charging systems and vehicle-to-grid integration.

- Includes designing and programming embedded systems for controlling the wireless charging process, including communication protocols, feedback control loops, and sensor integration, etc.
- Includes optimizing the wireless communication and power transmission between the charging infrastructure embedded in the road and the vehicle-mounted receiver.
- Includes designing the physical layout of the infrastructure, including the placement of charging coils, power electronics, and communication components.
- Includes optimizing the efficiency and performance of the charging system and managing peak power demands.
- Includes developing systems architecture plan, instructions, and protocols to assist owner with long term operations and maintenance of the in-road charging system.

The Consultant will consider solar lighting at both interchanges and other appropriate locations to enhance the safety of the traveling public and provide an energy efficient system.

The preliminary plans would be further developed as part of the functional design steps. The plans would be updated as part of the public involvement, NEPA and permitting process. The public involvement process will involve stakeholders and public meetings and a NEPA public information meeting or hearing. The Consultant may be responsible for developing documentation to support a class of action determination, to be approved by FHWA, at the onset of the study.

This phase would conclude after establishing the Preliminary Least Environmentally Damaging Practicable Alternative (PLEDPA) and obtaining a NEPA decision and approved IJR. This project may require an Environmental Impact Statement (EIS), however the final decision on class of action remains with FHWA and will be made as the project progresses.

### PHASE II – Final Design

Consultant will provide final design services for the project. Design plans will be detailed, limits of construction developed, and permits secured. Final plans, quantities/estimates and specifications would be prepared for PS&E submittal. Services during construction for plan revisions, construction consultation and shop drawings may also be requested.

Consultant shall have the necessary knowledge, education, training, certification, and experience to complete the following tasks which support both phases of this project:

### **PRELIMINARY SCOPE OF SERVICES**

Preliminary Design services, including Environmental Documentation as required by the FHWA, must be completed for project approval and 404 permitting.

***Environmental Services***

- Prepare necessary environmental documentation including other environmental surveys or services necessary to support and complete the Section 404(b)(1) evaluation process.
- Wetland delineation services to support Section 404 Permit application.
- Development of a 404 Permit application on behalf of NDOT. NDOT assumes an Individual Section 404 permit will likely be required.
- Aid in development of wetland mitigation requirements:
  - Conceptual mitigation plan and mitigation ratio development
  - Mitigation site baseline delineation
  - Final mitigation plan
- A preliminary SOS for this work category is included with the RFQ supporting documents.

***Roadway Design Services***

- Roadway Design to support the services being performed internally and externally for the other work categories.
- Preparation of Preliminary plans, Functional plans (Phase I), Limits of Construction plans, plans for distribution to utilities and plans for PS&E submittal (Phase II).
- The Roadway Design will be conducted with consideration of practical design opportunities, solving transportation and safety problems in a manner to minimize cost of improvements that provide positive performance benefits.
- Documenting design decisions and, when necessary, preparing and presenting design exceptions and design relaxations to the Board of Public Roads Classifications and Standards.
- Utility coordination services, including utility locates and mapping, Subsurface Utility Engineering (SUE), conflict determination, avoidance, and coordination with Utility companies.
- Solar lighting.
- A preliminary SOS for this work category is included with the RFQ supporting documents.

***Hydraulic & Hydrologic Services***

- Includes performing hydraulic and hydrologic analysis at all stream crossings and floodplain analysis along this project
- Preparation of preliminary bridge hydraulic data sheets.
- Flood analysis to determine the profile of the new two lanes and potential modification to the existing two lanes.
- The potential exists that the project may require the preparation of a Conditional Letter of Map Revision (CLOMR).
- A preliminary SOS for this work category is included with the RFQ supporting documents.
- Additional bridge information listed below.

## I-80 6-lane Pleasant Dale – Seward, NH-80-8(110), CN 12598

Structure Number	Location	Feature intersected	Roadway Carried	Year Built	Work Strategy
S080 37811	1W Seward Interchange	I80	COUNTY HIGHWAY	1964	Replace
S080 37911	Seward Interchange	I80	N15	1964	Replace
S080 38012	1E Seward Interchange	I80	COUNTY HIGHWAY	1964	Replace
S080 38062L	2E Seward Interchange	BNSF RR 073-210-R	I80	1964	Replace
S080 38062R	2E Seward Interchange	BNSF RR	I80	1964	Replace
S080 38096L	1W Milford Interchange	Big Blue River	I80	1964	Replace
S080 38096R	1W Milford Interchange	Big Blue River	I80	1964	Replace
S080 38211	Milford Interchange	I80	L80H MILFORD CNLK	1995	Preservation
S080 38276	1E Milford Interchange	WOLF CREEK	I80	1962	Replace
S080 38312	1E Milford Interchange	I80	COUNTY HIGHWAY	1962	Replace
S080 38413	2E Milford Interchange	I80	COUNTY HIGHWAY	1962	Replace
S080 38614L	2W Pleasant Dale Interchange	COLL 43C/STREAM	I80	1962	Replace
S080 38614R	2W Pleasant Dale Interchange	COLL 43C/STREAM	I80	1962	Replace
S080 38690	1W Pleasant Dale Interchange	STREAM	I80	1995	UIP, CBC
S080 38738L	1W Pleasant Dale Interchange	S BR MIDDLE CREEK TRIB	I80	1962	Replace
S080 38738R	1W Pleasant Dale Interchange	S BR MIDDLE CREEK TRIB	I80	1962	Replace

### **Bridge Design Services**

- All bridges listed in the project overview will be replaced, unless noted.
- A preliminary SOS for this work category is included with the RFQ supporting documents.
- A listing of bridge sized structures is listed above.
- Overhead bridges are planned to be designed in-house

**Survey Services**

- An aerial survey is being completed by NDOT.
- Supporting preliminary ground survey will be performed by the Consultant.
- Right-of-way survey will be performed by NDOT.
- A preliminary SOS for this work category is included with the RFQ supporting documents.

**Traffic Engineering Services**

- The study will include a safety review of the crash history along this corridor.
- Existing traffic volumes are anticipated to be collected by NDOT forces.

**Public Involvement Services**

- Public Involvement services would include public mailers, meeting notices, legal notices, news releases, website development, planning and coordinating stakeholder and public meetings, and responding to public comments.
- Public Involvement services necessary to gather input on project alternatives and for the Section 404 permitting process.
- Presentation support for the NDOT staff to present the project information to the Highway Commission for their recommendation for Governor Approval to advance the project is anticipated.
- Presentation support is anticipated before local boards, chambers of commerce, and citizen groups, and potentially, individual stakeholders and landowners.
- A preliminary SOS for this work category is included with the RFQ supporting documents.

**Right-Of-Way Services**

- The following services will be performed either in-house or by the Consultant and will be determined when individual project schedules are established.
  - Preparation of ownership and right-of-way (ROW) design plans, creation of legal descriptions and condemnation plats
  - Title research services to establish the boundaries and ownership interests in properties along or affected by the project
- ROW survey for the entire corridor has been completed
- NDOT will perform review and oversight for the ROW design process.
- A preliminary SOS for this work category is included with the RFQ supporting documents.

**In-Road Charging Services**

- Identify the target locations for implementing in-road charging systems.
- Conduct a thorough assessment of the local transportation network, including traffic patterns, road conditions, and existing infrastructure.
- Evaluate the feasibility of integrating in-road charging technology into the selected locations based on technical, economic, and regulatory factors.

## I-80 6-lane Pleasant Dale – Seward, NH-80-8(110), CN 12598

- Develop a conceptual design for the in-road charging system, including the layout of charging lanes, placement of charging infrastructure, and integration with existing road infrastructure.
- Consider factors such as the number and locations of charging stations, charging capacity, and compatibility with different types of electric vehicles.
- Refine the conceptual design into detailed engineering plans, including electrical, mechanical, and civil engineering drawings.
- Specify the technical requirements for the charging infrastructure, such as the type of wireless power transfer technology, communication protocols, and safety features.
- Determine the materials, components, and equipment needed for construction and installation.
- Ensure compliance with relevant safety standards, regulations, and certification requirements governing electric vehicle charging infrastructure.
- Address safety concerns related to electrical hazards, electromagnetic interference, and road traffic management.
- Identify necessary permits and approval process from regulatory authorities before proceeding with construction.
- NDOT will procure the necessary materials, components, and equipment for the in-road charging system according to the detailed design specifications.
- NDOT will coordinate with contractors, suppliers, and subcontractors to oversee the construction and installation of the charging infrastructure.
- NDOT will implement quality control measures to ensure that construction activities adhere to safety standards and design requirements.
- The Consultant will conduct comprehensive testing and commissioning of the in-road charging system to verify its performance, functionality, and reliability.
- The Consultant will test the wireless power transfer technology, communication systems, and safety features under various operating conditions.
- The Consultant will address any issues or deficiencies identified during testing and commissioning before the system is put into service.

### ***Grant Assistance***

- The Consultant will provide assistance generating applications for discretionary grant programs to help fund the project. This may include formulation of application strategies, writing project narratives, developing supporting materials such as tables, graphs, charts, maps, project renderings, providing professional knowledge of the project's overall merits, and developing and compiling the application package for NDOT's submittal to USDOT.
- The consultant may also develop a Benefit-Cost Analysis to supplement the grant project narrative.

### **SCHEDULE:**

This project is currently in the Five-Year Planning Program – Capital Improvement Projects. The schedule will continue to be assessed based on funding availability.