

SCOPE OF SERVICES

FTA Alternatives Analysis Draft/Final Environmental Impact Statement Phase II

Feasibility Study Danbury Branch Electrification

Project 302-0008



**CONNECTICUT DEPARTMENT OF TRANSPORTATION
Bureau of Public Transportation**

November 2007

FEASIBILITY STUDY DANBURY BRANCH ELECTRIFICATION PHASE II

Scope of Services

Table of Contents

Study Overview

- 1.0 Purpose and Need, Phase I
- 2.0 Results of Phase I
- 3.0 Phase II Work Program

Scope of Services Phase II

- Task 1.0 Project Management
- Task 2.0 Coordination
- Task 3.0 Public Outreach
- Task 4.0 Base Map Preparation
- Task 5.0 Environmental Data Collection And Evaluation
- Task 6.0 Transportation Alternatives Development And Evaluation
- Task 7.0 Conceptual Engineering and Evaluation
- Task 8.0 South Norwalk to New Milford
- Task 9.0 FEIS – South Norwalk to New Milford

FTA ALTERNATIVES ANALYSIS DRAFT AND FINAL ENVIRONMENTAL IMPACT STATEMENT

PHASE II FEASIBILITY STUDY DANBURY BRANCH ELECTRIFICATION

OVERVIEW OF PHASE I

1.0 Purpose and Need of Phase I

The Connecticut Department of Transportation as part of Phase I of this study conducted an evaluation of the feasibility of electrifying the New Haven Line's Danbury Branch. The term feasibility was construed in the broad sense of the word. The scope of the study included more than a simple evaluation of the ability to physically construct the catenary and power supply infrastructure and an estimation of the costs involved. The desire to evaluate the feasibility of electrifying the Danbury Branch was rooted in the perception that electrification would increase the utility of the Branch, allowing for reduced travel time and more frequent service. These improvements would place the Branch in a better position to address two corridor-wide concerns; automobile congestion in the Route 7 and other adjacent north/south corridors, and the exodus of Connecticut rail commuters to the Harlem Line in New York. The purpose of the Phase I study was to evaluate a range of infrastructure and service improvements within the corridor to determine their potential to significantly enhance the Branch's attraction as a competitive alternative to driving in the Route 7 and other adjacent north/south corridors, or commuting on the Harlem Line.

In addition, the state's Transportation Strategy Board identified the need to evaluate the needs of the New Haven Line's Danbury, Waterbury, and New Canaan Branch rail passenger services.

2.0 Results of Phase I

The Connecticut Department of Transportation (ConnDOT), the South West Regional Planning Agency (SWRPA), the Housatonic Valley Council of Elected Officials (HVCEO) and stakeholders in the study corridor identified the need to provide transportation system improvements, capital improvements and/or multimodal transportation systems between the communities of Norwalk, Wilton, Redding, Ridgefield, Bethel, Danbury, Brookfield and New Milford. The transportation system and capital improvements in this scope include commuter rail service and operational changes, supporting feeder bus shuttle service where appropriate, construction of a new catenary system and potential track alignment changes, passing siding additions, and a possible extension of rail service. Other corridor studies have extensively

examined potential roadway improvements to Route 7, including lane additions and new intersections. Community opposition, environmental constraints and potential congestion attainment factors have made relocation of Route 7 unfeasible, limiting Route 7 improvements to widening to four lanes. A public transit improvements (commuter rail) feasibility/alternatives assessment study was completed for this project, and identified four alternatives to be examined in greater detail in an Alternatives Analysis/Draft Environmental Impact Statement (EIS).

The alternatives under consideration, in addition to the No Build Alternative, are:

- Transportation System Management (TSM) Alternative
- Build Alternative – rail alignments, passing sidings, and electrification
- Extension of rail passenger service from Danbury to New Milford
- Partial Electrification from South Norwalk to the vicinity of the Merritt Parkway with expanded feeder and regional bus service

3.0 Phase II Work Program

Building upon the significant engineering efforts and Alternatives Summary Evaluation presented in the Phase I Final Report, Phase II of this study will be designed to satisfy the Federal Transit Administration’s (FTA) Alternatives Analysis/ Draft and Final Environmental Impact Statement (AA/DEIS) requirements as well as the combined Federal Highway Administration (FHWA) and FTA National Environmental Policy Act (NEPA) policy guidelines, Council on Environmental Quality (CEQ) NEPA regulations, and Connecticut Environmental Policy Act (CEPA) criteria for environmental documents. This Phase II Study will concurrently provide the documentation necessary to support an FTA Small Starts application for the extension of service from Danbury to New Milford if that is selected as part of the locally preferred alternative.

The following scope of services provides the transportation, engineering and environmental tasks anticipated to develop and complete an AA/DEIS and the supporting documentation for an FTA Small Starts application. It has been prepared as a basis for fee negotiations and study development. Below is the outline:

- | | |
|---------------|--|
| TASK 1 | Project Management |
| TASK 2 | Coordination |
| TASK 3 | Public Outreach |
| TASK 4 | Base Map Preparation |
| TASK 5 | Environmental Data Collection and Impact Evaluation |
| TASK 6 | Transportation Alternatives Development and Evaluation |
| TASK 7 | Conceptual Engineering and Evaluation |
| TASK 8 | Draft Environmental Impact Statement – South Norwalk to New Milford |
| TASK 9 | Final Environmental Impact Statement – South Norwalk to New Milford |

SCOPE OF SERVICES - PHASE II

TASK 1 PROJECT MANAGEMENT

1.0 Consultant Project Management

The Consultant shall assign a Project Manager who will communicate regularly with ConnDOT's Project Manager on technical and policy matters and issues affecting completion of this study. The Consultant's Project Manager will also supervise individual discipline leaders to assure appropriate and/or required coordination with the Study Advisory Committee, federal, state, regional or local agencies, community or other special interest groups has been accomplished.

A Phase II study kick-off meeting will be held and attended by key study team members, including the Project Manager, Engineering Manager, and senior representatives of the major project subconsultants. (It is anticipated this meeting will last 2 hours).*

1.1 Study Spokesperson

The ConnDOT Project Manager will serve as the spokesperson for this study. At times, and at the direction of the ConnDOT Project Manager, the Consultant Project Manager will function as study spokesperson at meetings and public briefings to assure consistency of information disseminated.

1.2 Study Record

Relevant technical data, drawings and reports will be maintained by the Consultant and delivered to ConnDOT at completion of this study. Management and financial records will be maintained for possible review or audit for a period of three years following completion of this contract.

1.3 Monthly Progress Reports (30 progress meetings)

The Consultant will develop and submit monthly reports documenting the progress of each task during the reporting period. Reporting shall identify activities accomplished during the reporting period, as well as activities anticipated during the next reporting period. Monthly Progress Reports shall also identify whether funding is sufficient to complete each task, issues to be resolved, and schedule modifications.

Progress reports will accompany the monthly invoices and be in a format specified by ConnDOT. A 36-month schedule has been assumed to complete all of the Phase II tasks of this Scope of Services.

* A matrix of all meetings anticipated for this study has been prepared and can be found at the end of the Scope of Services document, in Appendix A.

The Consultant anticipates meeting with ConnDOT staff on or about a monthly basis for the first 30 months of the project (30 meetings) to discuss the status of this assignment, as well as policy and technical matters. It is anticipated that monthly meetings will no longer be necessary after this period.

TASK 2 COORDINATION

This task will include coordination with the Study Advisory Committee, Metro North Railroad, the Housatonic and Providence & Worcester Rail Freight Operators, Federal and State Regulatory Agencies, Municipalities, Regional Planning Organizations and corridor Stakeholders. ConnDOT will be responsible for maintaining close coordination with the Connecticut Transportation Strategy Board with assistance from the Consultant as needed. A summary matrix of all anticipated meetings, field trips and site visits for this study is presented in Appendix A.

2.1 Study Advisory Committee (4 meetings)

The Study Advisory Committee established in Phase I will be continued for Phase II of this study. The primary responsibility of the Advisory Committee will be to participate in the overall study process, provide and disseminate information, review and comment on draft documents and address specific issues associated with the development of study recommendations. Study Advisory Committee meetings are anticipated to occur: (1) Corridor Site Review, (2) Alternatives Refinement, (3) Administrative Draft DEIS, and (4) Administrative Draft FEIS.

In addition to appropriate ConnDOT staff, the following will again be invited to participate in the Study Advisory Committee:

- A representative from the Transportation Strategy Board;
- Each of the study corridor communities' first official or their representative;
- A representative from the two regional planning organizations within the study corridor (Southwest Regional Planning Agency and the Housatonic Valley Council of Elected Officials.
- A representative from the Federal Transit Administration (FTA) – Regions 1 and 2;
- A representative from the Federal Railroad Administration (FRA);
- A representative from each of the appropriate state and federal regulatory agencies, including but not limited to, CT Department of Environmental Protection (DEP), U. S. Environmental Protection Agency (EPA), CT State Historic Preservation Office (SHPO), CT Department of Economic and Community Development (DECD), U. S. Fish & Wildlife Service, U. S. Army Corps of Engineers (ACOE);
- Representation from Metro North Railroad;
- Representation from freight railroad operators along the study corridors (Providence and Worcester Railroad Company and the Housatonic Railroad Company);
- A representative from local bus service operators in the study corridor, including Housatonic Area Regional Transit (HART) and Norwalk Transit District
- A representative from regional bus service providers in the study corridors (CT Transit);

- A representative from the New Milford Rail Restoration Society
- A representative from the CT Rail Commuter Council;
- A representative from Metropool, Inc;
- A representative from the CT Public Transportation Commission; and
- Members from other interested parties - to be determined.

It is anticipated that the Advisory Committee will meet up to four times (4) times during Phase II of this study. These meetings are anticipated to last up to two hours each. It is possible that one of the Advisory Committee meetings may be in conjunction with a survey train ride with the Advisory Committee members, to view and assist them to better understand the physical and operational characteristics of the Danbury Branch Line as well as the freight track from Danbury north to New Milford.

The Consultant will:

- Maintain a database of Advisory Committee members;
- Be responsible for scheduling the date and time, identifying the meeting location, and developing draft meeting notices for ConnDOT approval;
- Send (via mailed postcard or email) meeting reminders to each of the Advisory Committee members three days prior to each meeting;
- Distribute/publish (ground mail, email) Advisory Committee meeting notices and agenda to Advisory Committee Members and posting meeting notices and agenda on the study web site, two weeks prior to the scheduled meeting;
- Distribute/publish (ground mail, email) Advisory Committee meeting minutes and posting meeting notices and agenda on the study web site, within two weeks following the scheduled meeting; and
- At the direction of ConnDOT, distribute/publish (ground mail, email) all draft documents to each Advisory Committee member (2 copies each) for their review and comment, at least two weeks prior to a scheduled meeting such documents will be discussed.

2.2 Metro North Railroad Coordination (6 meetings)

The Consultant team will continue the existing liaison with Metro North Railroad planning and operations. The intent will be to continue working with Metro North Railroad on an as-needed basis through the course of the study. It is anticipated that there would be up to six (6) meetings with Metro North Railroad staff in conjunction with this study. These meetings are anticipated to last up to two hours each with two members of the consultant team attending.

Metro North Railroad will be requested to provide information, such as the following:

- Engineering documentation for the line;
- Engineering documentation for stations;
- Input on intercity ridership patterns and potential ridership;
- Input of future intercity passenger services;
- Input on capital costs for the line;
- Input on operating costs for the line;
- Utility mapping along corridor;
- Input on train performance calculation and traction power modeling;

- Input on rail storage and fueling requirements for the Branch
- Annual maintenance costs (i.e. per track mile, for stations, for parking facilities); and
- Rail right of way maps.

2.3 Freight Service Operators Coordination (5 meetings)

The Consultant team will continue the liaison established with the freight service operators along the study corridor. The Consultant will update the freight current frequency of use and schedule table, active sidings, and anticipated future freight service. The Consultant team will work with the Housatonic Railroad and Providence & Worcester Railroad to determine its shippers' requirements so that any potential conflicts with commuter rail operations can be resolved. The intent will be to work with the operators on a continuing basis through the course of this study. It is anticipated that there would be up to five (5) meetings in conjunction with this subtask. These meetings are anticipated to last up to two hours each with two members of the consultant team attending.

2.4 Coordination with Federal Transit Administration (FTA) (4 Meetings)

The Consultant will coordinate a minimum of four meetings with the FTA at either the FTA Region I /II offices or with FTA in Washington, D.C. as it relates to the following:

- Present Phase I findings and review Phase II Scope of Services for AA/DEIS/FEIS
- Travel Demand Modeling Methodology and Definition of Baseline Alternative
- Travel Demand Modeling (Ridership Forecasting) Results
- Presentation on Locally Preferred Alternative for Input from FTA, DEIS Findings and ADA Requirements

It is anticipated that each meeting will last 90 minutes with three members of the consultant team attending.

2.5 Other Federal and State Agencies Coordination (10 meetings)

There are various other agencies that will need to be informed of the study progress and findings, requiring meetings. These include regulatory agencies such as FRA, DEP, EPA, SHPO, and USACOE, among others. Also, periodically, the Consultant will participate in the Bureau of Policy and Planning's monthly coordination meetings with agencies to provide project updates and coordinate any issues that might arise during the course of the study. It is assumed that there will be up to a total of ten (10) meetings with these other agencies. It is anticipated that a minimum of two members of the Consultant team will attend each of these meetings and they will last an average of one hour each.

2.6 Regional / Local Officials Meetings (10 meetings)

Meetings with local officials will be held through each regional planning organization, with any of the municipalities that could be directly affected by actions considered or recommended by this study. The purpose of these meetings is to provide an overview of the study's activities, present service, infrastructure, station and parking concepts and solicit their views on the current

conditions, station development issues, and vision for the future of the Danbury Branch Line. It is anticipated that two members of the Consultant team will attend each of these meetings and they will last an average of one hour each.

2.7 Stakeholders Meetings (5 meetings)

It is anticipated that additional meetings/presentations to various stakeholders in the study area will be required. The purpose of these meetings is to provide them with an overview of the study's activities and to solicit their views on the current conditions and vision for the future of the Waterbury and New Canaan Branch Lines. These meetings may include but are not limited to the following stakeholders:

- Local Chambers of Commerce;
- Community / Neighborhood groups;
- United States Congress and
- Co-Chairs and the Ranking Members of the Connecticut General Assembly Transportation Committee, and/or their representatives

Up to five (5) of stakeholder meetings will be held during Phase II of this study. It is anticipated that two members of the Consultant team will attend these meetings and they will last an average of one hour each.

2.8 CT Transportation Strategy Board (1 meeting)

It is anticipated that one presentation to the Transportation Strategy Board (TSB) will be made near the end of this Phase II study. The Project Manager and Engineering Manager will be required to attend; it is anticipated the consultant will spend two hours at the Strategy Board Meeting.

2.9 Meeting Coordination and Meeting Minutes

For each of the coordination meetings identified in Task 2, the Consultant will be responsible for:

- Scheduling the date, time and meeting location, developing handout material, preparing and giving presentations;
- Preparing all display graphics needed. ConnDOT shall review all display graphics prior to publication;
- Developing draft meeting minutes and making changes based on ConnDOT review and comments;
- Distributing the approved meeting minutes to each of the participants; and
- Maintaining a log of each meeting.

TASK 3 PUBLIC OUTREACH

Because of the numerous communities and stakeholders associated with this study, this Public Outreach task is intended to supplement Task 2 Coordination activities.

3.1 NEPA Scoping Coordination (1 Overall Agency meeting)

Although the Phase II Danbury Branch study has been preceded by significant study and needs assessment work in Phase I (which identified existing conditions, the range of alternatives to be studied, the project study area, and preliminary environmental concerns), formal scoping under the National Environmental Policy Act (NEPA) and Connecticut Environmental Policy Act (CEPA) is still required. This scoping process will identify the environmental resources to be investigated; the level of detail required for each resource studied; and further refinement of the alternatives. Participation of the federal cooperating agencies as well as SWRPA is important in establishing the scope for the DEIS at an early stage. Although this is sometimes accomplished through the cooperating agencies attending the public scoping meeting, it is best done through a separate scoping meeting with the participating state and federal agencies.

As part of the scoping process, resource agencies will be contacted with a letter explaining the project and inviting them to serve as participating agencies in the NEPA process. It should be noted that each resource under SAFETEA-LU the USDOT or its representing State agency must invite all agencies with interest in the project to be “participating agencies”. These agencies must accept this invitation unless they have no jurisdiction or authority with respect to the project or have no expertise or knowledge relevant to the project or if they do not intend to submit comments.

A scoping meeting will be held with the cooperating and participating federal agencies and DEP to review previous and planned public outreach, and methodologies for the evaluation of existing and future environmental conditions and project impacts, and to review the proposed process for preparation of the DEIS.

The results of the public and agency scoping meeting will be incorporated into a NEPA Scoping Memorandum and Agreement, and circulated among ConnDOT, FTA and the Cooperating Agencies for review and comment. The Scoping Memorandum will be incorporated in the DEIS as a technical appendix.

3.2 Public Information Scoping Meetings (1 set - 3 meetings)

The purpose of these meetings is to obtain input from the general public regarding the development and scope of this study, confirmation of the alternatives presented in Phase I, and general consensus regarding the recommendations that were made in Phase I, in full compliance with NEPA/CEPA requirements. The Public Information meetings will be general "open house" style with brief presentations. It is anticipated that there will be one set of Public Information meetings held in up to three locations agreed to by the Study Advisory Committee and ConnDOT in the study corridor for a total of three public information meetings on scoping issues. These meetings are expected to last up to three hours each.

For each of the scoping meetings (Tasks 3.1 and 3.2), the Consultant will be responsible for:

- Scheduling the date, time and meeting location, developing handout material, preparing and giving presentations;
- Preparing all display graphics needed. ConnDOT shall review all display graphics prior to publication;
- Developing draft meeting minutes and summary of the comments received at each meeting and making changes based on ConnDOT review and comments;
- Publishing/posting the approved meeting minutes on the study web site; and
- Maintaining a log of each meeting.

No formal stenographer or audio recording will be required for this task. These meetings are intended to comply with the scoping requirements of the NEPA process.

It is anticipated that each of these meetings will be attended by up to five members of the Consultant team, along with ConnDOT staff.

3.3 NEPA/CEPA Public Meeting and Public Hearing on DEIS

3.3.1 Pre-DEIS Public Information Meeting (1 set – 3 meetings)

A set of public information meetings is anticipated after the Transportation Alternatives have been developed, station sites have been located, and the general level of environmental impacts from these alternatives have been determined (by preliminary screening). The purpose of the meeting is to inform the public of the chosen potential station sites and the justification for their selection, the general level of environmental impacts anticipated from the alternatives, and any changes in the focus of the impact evaluations since the scoping period. In this way, the public will not be “surprised” by the placement of station sites or level of environmental analysis when the DEIS is published. The Consultant will be responsible for scheduling the date, time and meeting location, handout materials, publishing notice and giving the presentation. The Consultant will be responsible for developing meeting minutes as well as provide the Department with copies and summaries of all comments received at the meeting. It is anticipated that each of these meetings will be attended by up to five members of the Consultant team, along with ConnDOT staff.

3.3.2 Public Hearings (1 Set – 3 Meetings)

The Consultant shall be responsible for the preparation and logistics including fees associated with the required formal NEPA/CEPA Public Hearings associated with the DEIS for both the South Norwalk to New Milford rail improvements. At a minimum, this includes securing appropriate location/s, advertising and various media announcements, the draft text for Federal Register and Connecticut Council on Environmental Quality (CEQ) announcements, provisions for a court reporter will be arranged and conducted by ConnDOT, when needed, and ensuring compliance with the NEPA public hearing process. The ConnDOT Project Manager prior to publication will review all public announcements.

Further, the Consultant shall:

- Develop a Scoping Booklet for agency and public scoping meetings
- Provide the ConnDOT Project Manager with Public Hearing/s transcripts and appropriate responses.
- Publish all required notices including local advertisement and Federal Register notices.
- Schedule, prepare, and record meetings/hearings to satisfy NEPA/CEPA requirements.

It is anticipated that each of these meetings will be attended by up to five members of the Consultant team, along with ConnDOT staff.

3.4 Web Site

The Consultant for use in this study will continue to host the Danbury Branch Study web site established in Phase I at www.danburybranchstudy.com. The Consultant will continue to develop and maintain the web site, and provide a link with the ConnDOT web site. The web site will be used to advertise the public of upcoming meetings or study events, provide project information (e.g. background and contact information, published reports) and show the methods available to communicate with the study team. As the study progresses, meeting announcements will be updated and relevant information added throughout the process. The web site will be in a format that can be uploaded to ConnDOT's Internet Web Page. Over the course of the 30-month project period, a minimum of 30 updates to the website are anticipated.

3.5 Public Advertisements/Press Releases (3 events)

Public advertisements (paid advertisements in newspapers or other media) will be used to advertise the NEPA/CEPA public scoping meetings (1 set), NEPA/ CEPA public hearings (1 set) and public information meetings (1 set). In conjunction with the initial advertisement, a response form (or coupon) will be included to provide individuals with the opportunity to be added to the study mailing list.

The Consultant shall prepare and publish public notice display advertisements, flyers, legal notices and web site postings. The Consultant will be responsible for designing the display ad and paying for its publication. ConnDOT shall review all materials prior to publication.

Advertisements will be placed in regional and local newspapers with circulation along the study corridor as well as in the Metro North New Haven Line Connecticut and New York territories (including the Stamford Advocate, Danbury News Times, the Spectrum, The Norwalk Hour, Wilton Villager, Norwalk Citizen, New Milford Times, Ridgefield Press, Bethel Beacon, Brookfield Journal, Redding Pilot, Wilton Bulletin and the Journal News in NY). Advertisements shall be published twice in the two weeks preceding each meeting.

For the NEPA/CEPA public hearing, the Consultant shall follow all NEPA/CEPA requirements for publication of meeting notices, including publication in the Federal Register.

ConnDOT will prepare (with assistance from the Consultant as needed) and publish ConnDOT Press Releases.

3.6 Study Mailing Lists

A study mailing list of Interested Parties will be maintained throughout the study process. The Interested Parties mailing list shall include, but may not be limited to:

- State Legislators from the study corridor;
- State Legislature Transportation Committee Members;
- Connecticut Congressional Delegation;
- Individuals or organizations that have indicated an interest in this study;
- Stakeholders;
- Media;
- Freight Service Operators along the study corridor;
- Regional Planning Agencies along the study corridor;
- Local municipal officials along the study corridor;
- Transportation Strategy Board; and
- Others.

3.7 Public Information Video

The Consultant shall prepare a Public Information Video to be provided to municipalities, regional planning organizations, libraries, cable television networks and presented at public meetings. The Consultant shall develop a script of the subject video in coordination with ConnDOT. Where appropriate, the Consultant will develop graphics for use in the video. A video production company will be used to develop the video to insure high quality production.

The initial Phase II video will be a 5-10 minute presentation at the beginning of this study, explaining the study purpose, existing conditions, and identifying Preliminary Alternatives and Phase I findings (the final 20-30 minute presentation being completed for use at the Draft Recommendations Public Information Meeting, which will build on the Phase II video).

3.8 Local Access Television and Public Service Announcements

The Consultant will use local access cable television coverage within the study area to facilitate the broadcasting of meeting notices, informational videos, public meeting presentations and discussions. In addition, the consultant will regularly include dissemination of public service announcements to local access cable stations, radio stations and any and all media that accepts them in order to maximize dissemination of meeting information and other relevant project information as the study progresses.

3.9 Newsletter

Three (3) newsletters are proposed as part of Phase II of this study (Tasks 3.1, 3.2 and 3.3). Each will be a four sided, 8.5"x11", color newsletter. It is assumed there will be 250 newsletters for

each of the three mailings. The Consultant will prepare a draft of the Newsletter for ConnDOT review and approval. Upon approval, the Consultant shall publish (ground mail / email) the newsletter to each person on the mailing list and post on the study web site.

3.10 Seat Drop (3 events)

For each set of Public Information and Public Hearing meetings (3 events – Tasks 3.2, 3.3 and 3.3.1), a seat drop will be prepared and distributed on the Danbury Branch and at Harlem Line train stations and/or the Katonah and Brewster shuttle buses between the Branch and the Harlem Line study, in coordination with Metro North Railroad and CT Transit. The total number of printed materials is estimated at 1000 per event. The Consultant will prepare a draft of each Seat Drop for ConnDOT review and approval. Upon approval, the Consultant shall distribute the Seat Drop and post on the study web site.

3.11 Response to Public Comments

The Consultant shall prepare a draft response to all inquiries and comments submitted through Public Outreach opportunities. All draft responses shall be submitted to ConnDOT for review. Responses will be sent either by the Consultant or by ConnDOT, at the direction of ConnDOT.

Products

Public Outreach Plan

The Public Outreach Plan established in Phase I would be reviewed and updated for Phase II and submitted to the Department in draft form for approval. Upon receiving approval from the Department, eight (8) printed copies of the final Public Outreach Plan shall be delivered to the Department as well as one electronic copy on a 3.5-inch disk or Compact Disk in Microsoft Word format. The Public Outreach Plan shall be prepared as a stand-alone report that can be summarized in and incorporated by reference into the DESI and FEIS.

Public Outreach Log

A Public Outreach Log for Phase II shall be maintained throughout the course of this study. This log shall list the date, the participants, and a summary of comments received at all meetings held as part of the Public Outreach Plan. If written comments or letters are received, copies of those comments/letters will become part of the Log. All e-mail comments received at the study web site shall also be included in the Log on a monthly basis and forwarded to the Department. Eight (8) printed copies and one (1) electronic copy on 3.5-inch disk(s) or Compact Disk in Microsoft Word format of each installment of the Log shall be delivered to the Department. A cumulative Public Outreach Log shall be available upon request for detailed viewing in compliance with the NEPA process and submitted to ConnDOT as part of the FEIS documents.

TASK 4 GIS MAPPING AND GRAPHICS PREPARATION

4.0 Base Map Preparation

All mapping and plans prepared for use in this study will be in American (English) units. When making reference to metric scale, for example 1:2500, the closest English scale (1 in = 200 feet) should be referenced in parenthesis.

Project base maps will be prepared that provide detailed topographic mapping for each of the various Phase II alternatives, and that provide a GIS database for all environmental resources considered in the DEIS and FEIS. All maps will be produced using the same coordinate system to facilitate comparisons and production of overlays.

Detailed topographic data with 5-foot contours will be provided in digital format by ConnDOT for a corridor 1,000 feet in width, specifically, 500 feet measured on each side of the Danbury Branch rail right-of-way centerline. This data will be used as needed for developing engineering concepts and as appropriate to illustrate existing conditions and potential impacts from the alternatives.

4.1 GIS Data Layers

A GIS data system will be used throughout the project as a strategic tool for understanding the effects of the alternatives. Specific potential uses of the GIS database are:

- To determine the impact of the alternatives on sensitive resources,
- To identify areas that are likely to be affected by secondary development,
- To build the transportation network model,
- To quantitatively assess the regional context of each environmental resource,
- To identify potential mitigation areas, based on a watershed assessment and landscape context.

Existing GIS data sources (e.g. CTDEP) will be used to portray the location and distribution of natural, cultural, and community resources and will include the most recent ortho-photography (2004). Where feasible, existing GIS information will be scaled to the mapping, and adjusted based on information from field reconnaissance and interpretation of aerial photography. Existing GIS data will be supplemented by new data derived from field observations in accordance with data collection efforts identified under other tasks in this scope. In accordance with the scope, the following information is anticipated to be mapped, with attribute fields to identify types of resources within each category.

- Sensitive receptors (noise)
- Fisheries
- Rare, Threatened and Endangered Species

- Vegetation Cover Types
- Important Wildlife Habitats
- Wetlands
- Wetland Functions and values
- Floodplains and Floodways
- Historical and Archaeological Resources
- Farmlands
- Land Uses
- Hazardous/Contamination Sites
- Surface and Groundwater
- Aquifer Protections Areas and Watershed Lands
- Census block data
- Public Recreational/4(f)/6(f) Lands
- Communities/Neighborhoods
- Environmental Justice
- Scenic Roads

4.2 Data Management

The Consultant will manage the inventory of GIS data and make it available to the Project Team/ConnDOT throughout the course of the project for analysis and public presentation purposes. This task will include:

- Coordinate the acquisition and creation of all data that will become part of the GIS. This will include the oversight of base mapping, image data, use of existing GIS data, modification of existing GIS data, and the conversion of tabular, paper and CAD data into a GIS format. The Consultant's GIS manager will coordinate with ConnDOT during preparation of the final digital mapping, so that the mapping meets the specification necessary to create GIS layers of the mapped features.
- The collection of existing GIS data from public and private sources.
- Documentation and sourcing of GIS data layers that are collected and created throughout the project as well as providing an up-to-date GIS data inventory to all interested persons working on the project.
- Distribution of GIS data.

4.3 Report Graphics

The Consultant will prepare standard 8.5x11 inch and/or 11x17 inch report graphics for inclusion in the DEIS document to illustrate relevant project elements and affected resources in the project area. Graphics will be prepared utilizing existing project base mapping in an ArcView GIS-readable format with the following coordinate system parameters: Connecticut State Plane, NAD83 in English Units. The inventory of GIS data prepared for the project will be used for the preparation of graphics, in addition to other available map sources if appropriate. Report graphics may be a combination of black and white and color. Graphics to be included in the DEIS will be derived from the graphics prepared for the technical memoranda for most topics. Graphics to be created solely for the purpose of the DEIS are assumed to be limited to those associated with the Project Alternatives and Project Facilities (Station Sites, Proposed Electrification Facilities, etc.)

Graphics assumed for the Technical Memoranda are the following (itemized from the subtasks in 5.2 and 5.3):

- 5.2 Tech Memo for South Norwalk – Danbury [X graphics]
- 5.2 Tech Memo for Danbury – New Milford extension [X graphics]
- 5.3 X Tech Memos @ X graphics each = X graphics.

TASK 5 ENVIRONMENTAL DATA COLLECTION AND EVALUATION

Data Collection will provide baseline information on the locations, types, and significance of environmental and community resources and constraints. Impact Assessment will evaluate each of the EIS alternatives with regard to their potential impacts to known and mapped environmental and community resources. This assumes that the preferred alternative treated in the FEIS will be one of the alternatives presented in the DEIS. The information will be presented for the South Norwalk – New Milford corridor. The study corridor will be defined as 1,000 feet in width, specifically, 500 feet measured on each side of the Danbury Branch rail right-of-way centerline, from the existing South Norwalk station to New Milford center.

5.1 Data Collection

The early data collection efforts conducted during the preparation of the DEIS will be used for a screening level evaluation of biological, physical, and community resources within the study corridor. It is assumed that the specific locations of the alternative potential station sites, electrical substations, sidings, and other facilities will not be identified prior to this task. Therefore, it will be assumed that all of these project facilities will be located within the corridor and no data collection will be conducted for areas outside the corridor. For most resources, relevant data will be documented in a technical memorandum through mapping and text, as identified under each resource topic below. For each technical memo will include graphics showing the locations of environmental resources on digital ortho maps. For purposes of negotiation, we assume that each report will include a maximum of 20 11x17 inch graphics.

5.2 Topography, Geology, and Soils

The Consultant Team will review and document readily available data sources relative to project corridor topography, geology and soils, especially as they relate to potential project construction constraints.

5.2.1 Noise and Vibration, Air Quality, and Energy

As part of the Danbury Branch EIS, the Consultant Team will provide an assessment of the noise, vibration, air quality, and energy impacts from each of the alternatives being considered for the Danbury Branch corridor. The Consultant will use guidance contained in the “*Guidance Manual for Transit Noise and Vibration Impact Assessment, U.S. Department of Transportation, Federal Transit Administration, April 1995, as well as “Clean Air Act Regulations, 40 CFR, Parts 51 and 93, Air Quality: Transportation Plans, Programs, and Projects; Federal or State Implementation Plan Conformity; (with updates to August 15, 1997.)*”

Noise and Vibration

Using the *FTA Guidance Manual for Transit Noise and Vibration Impact Assessment (April 1995 or latest version)*, a noise analysis will be conducted that includes:

- Screening
- General Assessment (including clustering)
- Detailed Analysis

Noise predictions will be done for the current year and year 2030. Noise analysis will be completed for the Build Alternative on the existing Danbury Branch line and for the extension to New Milford. These will be compared to existing noise levels (including both freight and passenger service).

Vibration analysis shall be performed for the proposed rail facilities, including station areas, in accordance with the most recent FTA and FHWA guidelines. This will include:

- Screening
- General Assessment (including clustering)
- The Detailed Analysis will not be required until final design

The analysis will identify locations where noise/vibration mitigation measures will be needed, determine which measures are feasible, effective, and cost-effective, and estimate construction and maintenance costs. FTA and FHWA guidelines will be followed for the mitigation determination.

The Consultant will prepare a draft noise and vibration analysis methodology and assessment

report for ConnDOT and FTA approval. A final report will be prepared which includes a Technical Appendix with the supporting data. The noise analysis will determine if the proposed improvements to the Danbury Branch and the extension of rail service from Danbury to New Milford will create adverse noise impacts along the study corridor. The Consultant Team will first collect and compile data on existing and historical noise conditions for the study area obtained from environmental documents prepared for projects that have recently been completed or are proposed in the project area. Using USGS quadrangle maps, aerial photographs (if any), and other mapping from previous studies of this corridor, the Consultant Team will then identify sensitive receptors for the noise assessments. The Consultant Team will examine land use maps and conduct a site visit to select candidate locations for the noise-monitoring program. Locations that represent special noise sensitivity will include residences, schools, hospitals, and places of worship. The final set of sites will be selected and presented to ConnDOT for review and concurrence prior to the start of the noise measurement program.

Product: Base maps modified to show noise sensitive receptor locations. Technical Report providing study methodology, the measurement locations, and measurement results (existing ambient noise levels). It is anticipated two meetings each of one-hour duration attended by two members of the consultant team will be held as part of the Noise and Vibration analysis.

Air Quality

The Consultant will identify existing air quality conditions through examination of current published air quality data sources. Potential areas for receptor locations will be identified through reference to available traffic data and transportation network mapping. It is assumed that potential station sites will not yet be known, so the selection of specific receptor sites and coordination regarding the proposed modeling protocol will be deferred to Task 5.3

Product: Existing air quality status (narrative) will be included in the 5.2 Technical Memorandum. .

Energy

The energy demands of existing transportation facilities associated with the Danbury Branch and those proposed by the project alternatives will be generally inventoried and described. Energy discussions will refer to the energy consumed by train engines (both electric and diesel) using the facility, the energy used to electrify the commuter rail corridor, and the energy needed to operate stations (i.e. electricity, climate control, amenities).

Product: Results of the data collection for energy, in narrative form, will be included in the 5.2 Technical Memorandum.

5.2.2 Biological Diversity

This task will assemble available information on biological diversity, including fisheries, fauna, vegetation, and bio-diversity likely to be present or known to be present within the project study area. This task will be a combination of gathering available published and unpublished

information, coordination with CT DEP natural resource staff, limited analysis of aerial photographs, and reference to topographic maps. It will establish a regional context and identify specific areas within the study area that are important to local and regional biological diversity at the ecosystem, community and species levels.

Vegetation

Vegetation cover types (plant community types) will be identified using the CT DEP available GIS data layers for topography, land cover, and wetlands, supplemented by limited interpretation of aerial photographs. Any unique natural community types identified by CT DEP within the study area will be approximately mapped during the DEIS process with the locations and extents of these communities shown on figures. Literature research will be conducted to determine regional vegetation and plant diversity types and structure for comparative purposes.

Wildlife

Available information from CTDEP and other published resources, atlases and checklists will be used to prepare a list of wildlife species known or likely to frequent or breed within the project area, or that may utilize habitats within the study area for important non-breeding season habitat. The Consultant Team will gather background data on undeveloped habitat areas and subdivide various potential habitat areas into habitat types.

Fisheries

Available information from CTDEP, USFWS, NMFS and other readily available sources will be used to identify fish species present in the streams and down gradient water bodies within the project area. The Consultant Team will identify known or potential anadromous species of concern and classify stream and water body fisheries habitat according to GIS data (e.g., geology, topography, soils, water quality). The Consultant Team will identify up gradient and down gradient migration barriers within stream reaches within the project corridor based on available resource mapping.

Product: Results of the data collection for biological diversity will be assembled in the 5.2 Technical Memorandum, including narratives and maps.

5.2.3 Rare, Threatened and Endangered Species

The Consultant Team will gather GIS and CT DEP Natural Diversity Database background data on known rare species habitat, and will review available habitat types (vegetation cover type, hydrology, rock/soils) relative to other potential flora and fauna rare species within the project corridor. The Consultant Team will coordinate with the U.S. Fish and Wildlife Service, National Maine Fisheries, and CT DEP in the conduct of this task.

Product: Results of the data collection will be assembled in the 5.2 Technical Memorandum, including narrative descriptions and maps.

5.2.4 Wetlands

This task will identify the location of existing wetlands in the study area through mapping of DEP GIS data layers, including state and National Wetland Inventory wetlands. Efforts will be made to create reasonably accurate maps by cross-checking wetland maps with topographic mapping and aerial photography when appropriate. Up-front field checking of all potential alternative facility/improvement sites will also be undertaken. The mapping will be used to identify wetlands as defined by both federal and state regulations.

Product: Results of the data collection will be assembled in the 5.2 Technical Memorandum, including narrative descriptions and maps.

5.2.5 Floodplains, Floodways and Stream Channel Encroachments

The Consultant Team will assemble information from the Federal Emergency Management Agency (FEMA) mapping of 100-year floodplains within the project corridor. This information will be approximately translated to the project area and project area maps. FEMA Flood Studies and profiles for the affected municipalities will be compiled to determine the limits and elevation of the floodplain and floodway for each major waterway within the project area, and stream channel encroachment lines will be mapped.

Product: Results of the data collection will be assembled in the 5.2 Technical Memorandum, including narrative descriptions and maps.

5.2.6 Historical Resources

The Consultant Team will conduct research to identify historic properties that are listed on or eligible to be listed on the National and/or State Registers of Historic Places within the study corridor. Research will include searches of the CT Historical Commission historical and architectural surveys and the State and National Register files housed at SHPO; a search of the on-line National Register of Historic Places data base, and consultations with CT SHPO, the CT State archaeologist, and town historians.

Product: Results of the data collection will be assembled in the 5.2 Technical Memorandum, including narrative descriptions and maps.

5.2.7 Archaeological Resources

A corridor-wide reconnaissance level archaeological survey was previously conducted for the Danbury Branch corridor, from South Norwalk to Danbury. The results of that survey will be reviewed and summarized for Task 5.2.7. In addition, the Consultant Team will conduct a reconnaissance level archaeological survey for the Danbury to New Milford Extension, in order to identify known archaeological sites and loci that exhibit potential for the existence of unknown archaeological sites in the Extension corridor (1,000 feet wide). Methodology will conform to a Stage 1A investigation per the CT SHPO's standards as documented in its Environmental Review Primer for Connecticut's Archaeological Resources (Poirier 1987). It includes searches of the State and National Register files housed at SHPO; a search of the site inventory files in the Office of the State Archaeologist (OSA); searches of various state and town

libraries and archives within the project area for historical documentary and cartographic information, photographs, and local cultural resource management reports; consultations with CT SHPO, the CT state archaeologist, town historians, other scholars and informants; and a walkover and surficial inspection of the proposed impact zones. Based on the latter information, the Consultant will produce an archaeological sensitivity map for the entire corridor, noting areas of low, moderate and high sensitivity for archeology sites within the project area.

Product: Results of the data collection will be assembled in the 5.2 Technical Memorandum, including narrative descriptions and maps. For the Stage 1A investigation, the Consultant Team will submit a summary of findings and recommendations, and a map(s) identifying archaeological sensitivity and archaeological sites that are listed on or may be eligible for listing on the State and/or National Registers of Historic Places.

5.2.8 Prime Farmland and Farms

In accordance with the Act Concerning State Projects Which Affect Prime Farmlands (Public Act 83-102), and in compliance with the Federal Farmland Protection Policy Act (FPPA), ConnDOT must consider the impacts to prime farmlands for any project. For the purpose of this analysis, the project area will consist of the existing railroad right-of-way plus a minimum of 100 feet on each side of the centerline of track (to address any potential alignment reconfigurations).

For the EIS, information regarding farmland will be collected to provide a comprehensive picture of the farming that is occurring in the study area:

- Farmland soils which are protected by the federal Farmland Protection Policy Act (FPPA) of 1981;
- Farmland subject to inclusion in the Connecticut Purchase of Development Rights Program; and
- Local Active Farmland in the study area

Federal

The Consultant Team will produce mapping which identifies the areas that receive protection under the federal Farmland Protection Policy Act. The Prime Farmland Soils GIS layer from the NRCS will be used as a baseline. From this information and the aerial photographs, the Consultant Team will determine which areas that contain these soils have not been developed. A GIS data layer will then be produced which represents areas containing Prime Farmland Soils, which are undeveloped. This layer will represent those areas which receive protection under the federal Farmland Protection Policy Act of 1981 and which therefore pose a constraint to the project.

State

Connecticut protects agricultural lands through a purchase of development rights program pursuant to C.G.S. Chapter 422a. The Consultant Team will obtain mapping of farms that are protected under this program from Connecticut DEP. These properties (if any exist within the study area) will be included on the GIS farmland data layer.

5.2.9 Land Use

The Consultant Team will obtain land use information from a variety of sources to provide detailed land use mapping within the study corridor. General land use mapping will be provided for areas up to ¼ mile outside of the study corridor.

The Consultant Team will use land use and zoning GIS data from Housatonic Valley Council of Elected Officials (HVCEO) and the South Western Regional Planning Agency (SWRPA) and aerial photography available from DEP and/or provided by ConnDOT. The Consultant Team will obtain state, local and regional Plans of Conservation and Development, zoning regulations and other pertinent reports from the eight (8) towns and two (2) Regional Planning Agencies in the study area. The Consultant Team will coordinate with the appropriate town representatives in each of the towns in the study area to confirm that the land use mapping is accurate.

The following land uses will be identified and displayed:

- Residential Development
- Commercial Development
- Industrial Development
- Educational Development
- Municipal and Government Lands
- Hospitals
- Cemeteries
- Religious Institutions
- Undeveloped Land
- Agricultural Land
- Zoning Districts
- Parks and Open Space
- Planned Future Development

Product: Results of the data collection will be assembled in the 5.2 Technical Memorandum, including narrative descriptions and maps.

5.2.10 Hazardous/Contamination

The Consultant Team will determine the relative environmental risk associated with land uses in the vicinity of the alternatives being considered in this study in order to estimate the likelihood for each study alternative to encounter a discharge, spillage, uncontrolled loss, seepage, filtration of hazardous wastes, contaminated materials or other regulated substances.

The study area for this task is a minimum of 100 feet from the track centerline on both sides of the existing railroad right-of-way between South Norwalk and New Milford. The Consultant Team will conduct a database search of the corridor study area using Environmental FirstSearch™ software. The resultant list of sites/incidents within this study area will be

screened and those sites/incidents with potential for being encountered during construction of the alternatives (electrification, alignments, stations, passing sidings) will be investigated further. Local and State record fields for these sites/incidents will be searched and they include: UST, LUST, RCRA, CERCLIS, SPILLS, and ERNS. Local fire department records will be searched regarding spill responses.

The Consultant Team will also consult historical aerial photographs and Sanborn maps to determine historical land uses in the study areas that pose potential risk of contamination.

Sites with moderate to high risk will be visited and photo documented. These sites will be mapped onto the project base map and coded.

Product: A report summarizing results of the database search and file search with data sheets and maps appended.

5.2.11 Surface and Groundwater Resources

The Consultant Team will gather background information for the project corridor to establish existing surface water and groundwater resources, watersheds, public supplies, and classifications, and to identify primary aquifers, general groundwater divides, potential flow directions, proximity to wells. Data will be assembled from existing sources such as the CT DEP GIS data layers, CT Water Quality Standards, and inventory of Community Water Systems. The following resources will be mapped:

- Aquifers (Levels A & B);
- Water Company Lands (Class I & II);
- Potential Well Fields;
- Aquifer Protection Zones;
- Public Drinking Water Well head Protection Zones.

The Consultant Team will identify streams, rivers, and watershed basins. The Consultant Team will

- identify and collect existing background data on water quality for all streams and rivers;
 - identify sensitive water resources based upon Town and CT DEP records (IWWC, CT DEP Water Resources); and
 - identify flood sensitive water resources based upon Town and local information
-
- Identify ongoing well problems or sensitivities in the corridor based upon Town and CT DEP records

Product: Results of the data collection will be assembled in the 5.2 Technical Memorandum, including narrative descriptions and maps.

5.2.12 Public Recreational/4(f)/6(f) Lands

Public open space occurs throughout the EIS study area. Public open space typically occurs as parcels of less than 100 acres. These parcels are ball fields, municipal parks, beaches, golf courses, and open space as required by local subdivision regulations. The Consultant will identify public recreational lands by using existing mapping from the Municipal Open Space and State Owned Land GIS layers, supplemented by coordination with municipal and state officials. This task also includes researching the presence of other Section 4(f) properties, and Section 6(f) lands. The compiled inventory will include:

- Public recreational lands (golf courses, playgrounds, ball fields)
- Parks
- Wildlife Refuges and Management Areas
- Properties on which Land and Water Conservation Funds have been spent
- Public Fishing Access
- Recreational Trails

Product: Results of the data collection will be assembled in the 5.2 Technical Memorandum, including narrative descriptions and maps.

5.2.13 Socioeconomic Environment and Environmental Justice

Socioeconomic Conditions

Existing socioeconomic conditions within the project study corridor will be documented by the collection of data on: population, households, income levels, employment and unemployment trends and rates from 2000 to present, school enrollments and budgets, and real estate trends and values. Data sources will include U.S. Census, regional planning agencies, state agencies, and coordination with state, regional and local officials regarding development trends and patterns in the project area.

Environmental Justice

Demographic data from the 2000 Census (and any updates thereto) including age, income, race, and ethnic origin will be reported at the Census Tract, Block Group and Block levels for the communities in the EIS study area to provide a comprehensive baseline from which to conduct the environmental justice impacts analysis. The Consultant Team will also review and report on existing demographic data from the Connecticut Office of Policy and Management for each community within the EIS study area. The Consultant Team will determine whether more current demographic information is available from each of the towns. If more current information is available, it will be used for the EIS, with the approval of ConnDOT.

Community Cohesion

Communities and neighborhoods within or abutting the study corridor will be identified, described and mapped. Census data and information from local officials will be used to describe the socioeconomic characteristics of the communities and neighborhoods. In the event groups are identified, they will be invited to participate in the relevant meetings already established for this project.

Businesses

The Consultant Team will identify and inventory existing and approved (but not constructed) businesses located within the EIS study area, through coordination with local officials, regional planning agencies, and chambers of commerce. Through this same coordination, data relative to the long-term business needs and business potential in the towns along the study corridor will be collected. Major employers and important commercial centers will be mapped.

Municipal Services and Finances

A description of the municipal services provided in each community within the study area, including the location of emergency services and school bus routes, and a summary of municipal finances will be gathered through contacting the town manager/clerk and assessor's offices in each town within the study area. Data on municipal budgets, assessed valuations, real estate trends, municipal service delivery capacity and capability for the period 2000 to present will be collected and summarized.

Product: Results of the data collection will be assembled in the 5.2 Technical Memorandum, including narrative descriptions and maps.

5.2.14 Scenic Roads

Segments of the roadway adjacent to the railroad right-of-way may be designated as Scenic Roads. The Consultant will verify which roadways in the Study Corridor are scenic roads and will conduct an analysis of the existing character and features of the state designated Scenic Road segments within the current project study area.

Product: Technical Report providing photographic documentation of existing roadway conditions, descriptions of existing scenic roadway features, and maps showing the location of existing scenic roadway elements, such as stone walls, historic features, and vistas.

5.2.15 Visual/Aesthetic

The Consultant will document the dominant visual and aesthetic character and elements within and abutting the study corridor. Based on general windshield observations and aerial photographic review, data to be collected will include:

- Regional visual/aesthetic characteristics, including typical visual landscape elements

- Photographic documentation of key and/or representative visual elements in and abutting the existing study corridor roadways and railroad right of way
- Key visual and scenic vistas along the railroad right of way

Product: Results of the data collection will be assembled in the 5.2 Technical Memorandum, including narrative descriptions, maps, and representative photographs.

5.3 DEIS Impact Evaluation of Alternatives

The impact evaluation phase of the project will examine the potential impacts of each of the alternatives. At this phase, it is assumed that the alternative station sites, siding relocations, and other proposed project-related facility sites will have been identified (results from Task 6.0). Hence the impact analysis will draw upon the general inventory level data assembled in Task 5.2, but may require supplemental existing conditions investigations or characterization studies for the alternative or anticipated facility sites. The activities associated with each resource category are outlined below. For this phase, a separate Technical Memorandum (text and maps) will be prepared for each individual resource topic and will include any supplemental data collection required for the specific facility sites, plus the results of the impact analysis.

5.3.1 Noise and Vibration, Air Quality and Energy

Noise and Vibration

The objective of the noise analysis is to determine if the proposed project will create adverse noise impacts along the proposed project's transportation corridor. This analysis will evaluate rail sound levels using the most recent Federal Transit Administration (FTA) and Federal Highway Administration (FHWA) noise guidelines and procedures. These federal guidelines and procedures require that the noise analysis evaluate the transportation corridor to identify noise sensitive locations, establish existing and future sound levels using monitoring and modeling, determine if receptor locations are adversely impacted, and recommend and evaluate noise mitigation measures, if appropriate.

Adverse noise impacts are considered to occur if either of the following conditions exists:

- The predicted future sound level approaches or exceeds the FTA guidelines, or
- The predicted future sound level results in a substantial increase from the existing sound level (A 15 decibel increase is considered substantial)

Train operations may increase sound levels at noise sensitive locations adjacent to the railroad right of way where any service is increased or sidings are installed. The FTA "*Transit Noise and Vibration Impact Assessment*," guidelines will be used to predict rail sound levels and to determine if noise impacts would occur. These guidelines specify transit noise exposure. The residential criteria are based on the day-night average sound levels (Ldn), which include a nighttime noise penalty that accounts for people's increased noise annoyance during the night. The non-residential criteria are based on the daytime, peak-hour equivalent sound level (Leq) for

the noisiest hour of transit related activity during which human use occurs at the sensitive location. The rail impact criteria are based on the relationship between existing and projected noise levels. The criteria are divided into three categories (no impact, impact, and severe impact) based on the predicted project noise exposure with the existing sound level determined for each particular noise sensitive location.

The noise analysis will determine if any sensitive receptors located in the 1st or 2nd row are impacted by noise. Where a noise impact occurs, noise abatement measures will be evaluated to determine if the measures are both reasonable and feasible. Where a noise impact occurs and no prudent solution is reasonable available, this will be stated and the reasons given. The feasibility of noise mitigation along the railroad right of way would be provided.

The specific noise tasks will include:

- Agency coordination
- Noise Monitoring
- Evaluation of current rail traffic and adjacent roadway traffic data
- Calibration of the computer model based upon existing monitoring data
- Calculate future rail sound levels
- Determine Noise Impacts
- Develop Mitigation measures
- Prepare Report Documentation

Product: The results of the noise and vibration analyses will be documented in a technical report that can readily be incorporated by reference into the Draft EIS/EIE. All technical details, including the data used, the measured noise and vibration data, the analysis methods, the modeling assumptions, and necessary discussions to substantiate our findings, will be provided.

Air Quality

The objective of the air quality analysis is to determine if the proposed project would interfere with attainment or maintenance of the National Ambient Air Quality Standards (NAAQS), as established by the Federal Clean Air Act Amendments (CAAA). It is assumed that the project is or will be included in the most recent conforming Transportation Improvement Program (TIP) by the time the DEIS is published. Therefore, the consultant will only briefly summarize the project's transportation conformity and a mesoscale analysis will not be required or conducted for this EIS.

A microscale analysis will be performed in accordance with federal regulations and U.S. Department of Transportation (USDOT) and EPA guidance documents. The microscale analysis will be conducted using the EPA's MOBILE 6.2 and CAL3QHC to estimate CO concentrations at receptor locations. The selection of receptor sites will be based on traffic concentrations (traffic data from Task 6.1.10), reasonableness of locations, and existing and proposed land use characteristics, subject to approval by ConnDOT prior to modeling. Microscale prediction modeling of CO concentrations will be conducted at up to three (3) signalized intersections,

project-wide, that are potentially affected by station-related traffic and that are projected to have the worst Level of Service (LOS). The three (3) intersections with the highest traffic volumes will also be included/modeled. A maximum of six (6) intersections will therefore be assumed for the entire project.

The receptor locations along with the proposed modeling protocol and methodology will be forwarded to ConnDOT for review and approval. Meetings or telephone conversations will occur with ConnDOT, Connecticut Department of Environmental Protection (CTDEP), and with the EPA if necessary, to reach agreement on the modeling protocol. It is estimated that two (2) meetings will be required for this task, with two members of the project team attending.

The air quality microscale analysis will be summarized by intersection in tabular format for easy viewing of corresponding 1-hour and 8-hour CO levels. A brief summary of the microscale analysis results will be provided for the EIS that will include a discussion of potential mitigation measures for those intersections predicted to be in violation of 1-hour and 8-hour CO standards. . Based on the results of the microscale analysis, a Project-Level Conformity Determination will be provided.

In addition to the detailed microscale analysis to be conducted in relation to proposed new commuter station locations along the Danbury to New Milford Branch, a qualitative air quality discussion will be provided in the EIS that addresses the positives and negatives of commuter rail electrification from Norwalk to Danbury and extension of non-electrified (diesel) commuter rail service to New Milford. A qualitative assessment of Mobile Source Air Toxics (MSATs) will be conducted for the U.S. Environmental Protection Agency's (EPA's) six priority MSATs. These are *benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene*. The qualitative assessment will compare, in narrative form, the expected effect of the project on traffic volumes, vehicle mix, or routing of traffic, and the associated changes in MSATs for the project alternatives, based on vehicle miles traveled (VMT), vehicle mix, and speed. It will discuss the national trend data projecting substantial overall reductions in emissions due to stricter engine and fuel regulations issued by EPA. Because MSAT science is still evolving, the tools and techniques for assessing project-specific health impacts from MSATs are limited and EPA has not established regulatory concentration targets for the six relevant MSAT pollutants. The discussion will reference these limitations, in compliance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information, to explain that current science is not sufficient to accurately estimate human health impacts that would result from a transportation project in a way that would be useful to decision-makers. Also in compliance with 40 CFR 150.22(b), it will reference current studies on the health impacts of MSATs.

Product: A Technical Memorandum documenting the air quality analysis in this task will be prepared in support of the EIS. Two meetings with meeting minutes will be part of this task.

Energy Impacts

Potential changes in energy use, including energy consumption as well as energy savings associated with each alternative under consideration will be assessed. The major direct and/or indirect energy impacts and conservation potential of each alternative will be identified and described. Direct energy impacts refer to the energy consumed by train engines (both electric and

diesel) using the facility, the energy used to electrify the commuter rail corridor, and the energy needed to operate new stations (i.e. electricity, climate control, amenities). Indirect impacts include construction energy and energy impacts related to potential changes in automobile usage and travel patterns/habits precipitated by project construction and operation. Potential energy conservation measures that might be applicable to proposed new stations will be discussed, including “Green Building” or LEED measures to improve the energy efficiency of buildings (new stations).

The assessment will be conducted, using information collected in Task 5.2.1, in a qualitative manner supported by references. Detailed quantitative measures and comparisons using detailed calculation of BTUs associated with each alternative are not anticipated as part of this scope.

Product: A Technical Memorandum documenting the energy impact analysis will be prepared in support of the EIS. One meeting with meeting minutes will be part of this task.

5.3.2 Biological Diversity

The Consultant Team will overlay the project alternatives onto the maps developed in Task 5.2.2 for vegetation, wildlife, and fisheries to determine the number, location, and size of impacted habitat areas. Potential project impact areas -- associated with new stations, station improvements, grade crossings, passing sidings, electrical substations -- will be observed in the field to better characterize impacted areas. Data to be collected will include vegetative community descriptions, locations of undeveloped habitat areas in and contiguous to the study corridor, potential wildlife corridors and crossings, fish and aquatic habitat features, and unique community types. The locations and extent of these features in the impact areas will be hand-sketched onto project base maps, for transfer onto report graphics.

The impact analysis will be prepared that describes and characterizes the potential impact on biological resources. Analysis will include a description and characterization of the potential impact on biological diversity, including the number of affected forest/wildlife habitat blocks, the size and number of fragmented blocks, and the effects of new “edges” on habitat quality and size. The potential impacts to area-sensitive forest wildlife species will be qualitatively assessed based on existing information and a review of pertinent scientific literature, fisheries and wildlife resources. Mitigation measures, where feasible, will be identified and defined. Applicable regulations and requirements will be identified and discussed. State agencies will be consulted to confirm assessments of impacts and obtain concurrence with potential mitigation strategies.

Product: Technical Report

5.3.3 Rare, Threatened and Endangered Species

The Consultant Team will overlay the alternatives onto the project corridor maps developed for rare species to determine whether any of the alternatives affect known rare species habitat. An analysis will be prepared that describes and characterizes the potential impact to rare, threatened and endangered (T&E) species.

For the purposes of this scope, it is assumed that three locations with potential habitat for state-listed rare species (one species at each location) may be identified as potentially impacted by the project. For these three locations, field inspections and field-mapping of potential habitat areas for the target species will be conducted by qualified biologists during a season when critical habitat features for the target species would be evident. These inspections are intended only to verify the presence of potential habitat but not to verify the presence of the target species. Prior to commencing the field reviews, the Consultant will identify any potential areas requiring railroad flagman protection and present that list to ConnDOT. The Consultant Team biologists will record plants and wildlife by sight, sign, and call during the field reviews to help characterize the habitat potential at each location. Narrative descriptions of the habitat observed and its potential to harbor the target species will be prepared for each site, even if no sign of species is found.

Based on potential impacts to rare species, mitigation measures, where feasible, will be identified and defined. Applicable regulations and permit requirements will be identified and discussed. USFWS, NMFS, and CT DEP will be consulted to confirm assessments of impacts and obtain concurrence with potential mitigation strategies.

This scope of services does not include detailed site-specific investigations of impacts or consultation such as required by Section 7 of the Endangered Species Act. If a project alternative is determined likely to affect T&E species or their critical habitat, the scope for a detailed site-specific study will be drafted in consultation with state and federal agencies.

Product: Technical Report

5.3.4 Wetlands

The Consultant Team will analyze the overlay of the alternatives on the wetlands base map to determine the number, location, and size of potentially impacted wetland areas. Once these areas have been identified, they will be observed during field visits in order to confirm the approximate accuracy of the project wetland mapping and to classify, describe and assess the affected wetlands and their functions and values. Objectives of this task are to identify the scale of magnitude of wetland impacts and the importance (value) of the impacted wetlands for the purposes of determining whether mitigation would be feasible and appropriate. This work is not intended to be used for environmental permitting of the project, which is not included in this Scope of Work.

Field Review of Potentially Impacted Wetlands

Mapped wetlands in and contiguous to the potentially impacted project areas will be field-verified, and the boundaries thereof will be edited (based on observed wetland indicators) by way of sketch mapping. For the purposes of this scope, it is assumed that 25 wetlands will be reviewed in the field and additional ditch-like wetlands or drainage swales with wetland properties along the railroad will be inventoried. Wetlands observed during the field reviews that were not shown by existing data layers will be added to the data layer by way of manual measurements in the field and sketch-mapping. Each wetland area subject to field review will be assigned an identifying

code to assist in analysis and impacts assessment. Flagging of wetlands will **not** be performed at this level of the study, soils will not be sampled, and no ACOE field data forms will be prepared.

Functions & Values Assessment

A functions and values assessment of the 25 (maximum) field-reviewed wetlands will be conducted in accordance with the U.S. Army Corps of Engineers (ACOE) New England Division descriptive approach. Specifically, the assessment will be based on qualitative analysis of the 13 functions and values outlined in the ACOE *Highway Methodology Workbook Supplement: Wetland Functions and Values* (ACOE 1995), which are the following:

1. Groundwater Recharge/Discharge
2. Floodflow Alteration
3. Fish and Shellfish Habitat
4. Sediment/Toxicant/Pathogen Retention
5. Nutrient Removal/Retention/Transformation
6. Production Export (Nutrient)
7. Sediment/Shoreline Stabilization
8. Wildlife Habitat
9. Recreation (Consumptive and Non-Consumptive)
10. Educational Scientific Value
11. Uniqueness/Heritage
12. Visual Quality/Aesthetics
13. Endangered Species Habitat

Professional judgment will be applied to develop an objective assessment of the extent to which each wetland provides the identified functions. To develop this assessment the following information will be collected for each wetland, using a combination of mapped data and field observations:

- Wetland type (palustrine, lacustrine)
- Hydrologic type (open water, scrub-shrub, swamp, etc.)
- Size
- NWI wetland classification (per Cowardin's system based on hydrogeomorphic qualifiers)
- Vegetation cover type and dominant species
- Connectivity to other wetlands
- Fisheries habitat features
- Landscape position
- Surrounding land uses
- Wildlife habitat features

The wetland impact analysis will describe and characterize the potential impact on wetlands from the project alternatives, including the number and size of affected areas, and tabulated by NWI wetland type, function and value, and sub watershed. Where there are no practicable

alternatives for avoiding impacts, potential mitigation options will be discussed, along with the associated documentation required for a "Wetlands Finding" in accordance with 23 CFR 777.3 and Executive Order (E.O.) 11990. It is understood that secondary impacts are not to be covered under a Wetlands Finding, if one is prepared.

It is assumed that there will be no more than two (2) acres of total project impact. For project wetland impacts, potential compensatory mitigation areas within the same watershed as the impacted wetlands will be identified, and a conceptual wetland mitigation plan will be described, with the objectives of replacing the impacted vegetation cover types, functions and values.

Products: Technical Memorandum providing a regional overview of wetland systems, a description of each field-reviewed wetland (up to 25), and an assessment of the functions and values of those wetlands. Included will be maps coded with wetland location, type, and key functions and values. Up to 25 Highway Methodology Functions and Values forms will be prepared, including rationale notations (considerations/qualifiers). Text and tabular descriptions of project impacts by alternative will be provided. A conceptual wetland mitigation plan encompassing up to four (4) acres will be developed for one compensatory mitigation site, based on the premise of replacing the impacted wetlands' types and functions. The search for mitigation areas will be limited to state-owned or publicly owned properties, starting close to the project site and moving outward if necessary, but within the watershed. Meetings undertaken in association with this task are included in Task 2.5.

5.3.5 Floodplains, Floodways and Stream Encroachment Lines

The Consultant Teams will analyze the overlay of the alternatives on the floodplains base map to determine the number, location, and size of impacted areas. An estimate will be prepared on the loss of flood storage potential and any potential flood hazard resulting from the conceptual design of the various alternatives. Compensatory mitigation measures, where feasible, will be identified and defined. Applicable regulations and permit requirements will be identified and discussed. It is anticipated there will be two meetings for this task.

Product: A Technical Memorandum will be prepared documenting impacts and potential mitigation. Areas of impact and mitigation will be mapped. Two meetings and meeting minutes are included.

5.3.6 Historical Resources

In consultation with the CT SHPO and based on the inventory of historic resources from Task 5.2.6, the Consultant will evaluate impacts to historical structures, districts, and landscapes for the project alternatives. Within the areas of direct project impact, it is assumed that the Consultant will need to analyze the National Register eligibility of up to three historic structures/properties (three total project-wide). The Consultant will research the properties' available cartographic, photographic, and survey data, and provide summary historic contexts to facilitate the evaluation of each individual property in regard to criteria of eligibility to the State/National Register of Historic Places (35CFR60) and the amended Section 4(1) of the Department of Transportation Act of 1966. Based on potential project impacts to eligible

properties, in consultation with CT SHPO, the Consultant will develop alternative mitigation procedures.

The National Historic Preservation Act (Section 106) regulations at Section 800.4 require that federally-recognized Native American Tribes, as well as other tribal groups, be afforded the opportunity to comment on federal projects and to participate as interested and consulting parties. However, there are no federally-recognized tribes in the project area, so no efforts relative to tribal coordination are included in this scope.

Product: A Technical Memorandum with maps will be prepared documenting impacts and potential mitigation. Two meetings and meeting minutes are included.

5.3.7 Archaeological Resources

The Consultant will overlay project alternatives on the archaeological sensitivity maps to identify potential impacts to archaeological resources. Where direct impacts to archaeological resources could occur, such areas will be identified and quantified. Based on potential impacts and consultation with SHPO, recommendations for further surveys, to characterize the presence and nature of the resources, will be made. This scope does not include such additional surveys (such as a Stage 1B archaeological reconnaissance survey at new station sites).

Product: A Technical Memorandum with maps will be prepared documenting potential direct impacts to archaeological resource areas and providing recommendations for additional surveys, if appropriate.

5.3.8 Prime Farmland and Farms

The Consultant Team will overlay the alternatives on the completed GIS Farmland data layer. The Consultant Team will identify, describe, enumerate and characterize the impact of each alternative on the area of farmland soils or active farms.

Projects that involve impacts to 25 acres or more of Important Farmland of Statewide Importance (or more than 2 acres per mile of roadway) require documentation under P.A 83-102. Compliance with the Act involves processing of USDA forms by FTA and NRCS that document impacts to farmland. This form (ADI 006) is reviewed and evaluated by the NRCS to determine whether or not to proceed with the action. This decision considers the impacts of farmland conversion along with other environmental factors and project need. Evaluation of alternatives that minimize farmland impacts and development measures to mitigate impacts are also a part of the required process. This Scope assumes that the studied alternatives will not result in impacts to Important Farmland of Statewide Importance that exceeds the aforementioned thresholds and, therefore, NRCS consultation will be minimal.

Product: Technical Report

5.3.9 Land Use

Direct land use impacts from any of the Danbury Branch rail improvement alternatives will be determined by measuring the linear distance that each alternative displaces (acquires) land uses outside the existing railroad right of way. While not anticipated for this project, where rail improvements would prevent access to a property or would take a substantial enough portion of the property to preclude much of its use, it will be assumed that the rail re-alignment or passing siding would displace the land use. Impacts to planned, programmed developments will also be assessed. This scope assumes that ConnDOT will be responsible for preparation of relocation plans.

The Consultant Team will determine the impact if any full property takings are required, and note these on the Grand List for each municipality by researching Assessor's records on property valuation. For partial takings, the Consultant Team will work with ConnDOT's Rights-of-Way Division to develop an estimated compensation cost for these partial takings. The Consultant will develop mitigation strategies for negatively affected properties. It is assumed that such impacts will be minor.

Indirect land use impacts will be discussed in a qualitative manner, with consideration of changes in commuter travel patterns and transit-oriented development. Inputs will be included from discussions with local and regional planning agencies, obtained at meetings conducted during other tasks.

The Consultant Team will review each alternative to determine consistency with available local regional and state plans.

Product: Technical Memorandum documenting impacts and potential mitigation.

5.3.10 Hazardous/Contamination

Information on the presence of known and potential release sites will be used to evaluate two kinds of impacts: the potential for increased construction costs or lengthened construction schedules for the alternative transportation improvements, and the potential for the construction of proposed railroad alignments to impact conditions or future remedial actions at nearby release sites.

The assessment will focus on expected construction activities and release site information. Expected construction activities relevant to this assessment will be summarized, such as the expected depth of excavation and the potential need for dewatering. Sites will be ranked as having a low, medium, or high potential to impact or be impacted by the construction of proposed transportation improvements.

The rank will be based on distance from proposed alignments and rail stations, topographic and likely hydraulic relationship to the alignments, and information available on the characteristics of the release.

5.3.11 Surface and Groundwater Resources

The Consultant Team will overlay the alternatives onto the GIS data layers for water resources to determine the number and location of public or private community water systems or wells located within 1/4 miles of the railroad right of way, new substation, or new rail station. The extent of new construction over productive aquifers will be determined and an analysis will be prepared that describes and characterizes the potential water resources, including the potential effects of increased stormwater flow and changes in groundwater recharge characteristics. Potential mitigation strategies will be identified for protection of drinking water wells, aquifers, and surface water bodies. The analysis of potential impacts to groundwater resources will include an examination of public and private wells associated with preferred alternative for new alignment, passing siding and rail station construction, evaluating surface water discharge locations, bedrock cuts, and potential impacts associated with drainage at the new stations and maintenance facility/yard. Applicable regulations and permit requirements will be identified and discussed. State agencies will be consulted to confirm assessments of impacts and obtain concurrence with potential mitigation strategies. Mitigation elements to be evaluated will include the identification of Best Management Practices to avoid potential impacts to public and private wells associated with the preferred alternative for railroad and new station construction.

Product: Technical Memorandum documenting impacts and potential mitigation. Areas of impact will be mapped.

5.3.12 Public Recreational 4(f) and 6(f) Lands

Impacts to publicly owned recreational facilities are regulated under Section 4(f) of the Department of Transportation Act of 1966, which states that: the administrator shall not approve use of significant historic resources, public recreation lands, or public wildlife refuges unless it can be demonstrated that there are no feasible alternatives to the use of the resources and all possible planning measures have been taken to minimize the adverse impacts. Recreational properties purchased or maintained with funds allocated under the Land and Water Conservation Funds Act ("Section 6(f)") are regulated under Section 4(f) and are governed by requirements for mitigation and coordination under Section 6(f) as well. Privately owned recreation areas are not regulated under either Section 4(f) or 6(f).

The Consultant will overlay the alternatives on the completed GIS Recreational Lands datalayer. For each alternative, the Consultant will identify, describe, and characterize the impact of the alternative on the recreational area or trail. Impacts to recreation lands and trails will be discussed for each alternative. In locations where the alternative alignments would interrupt a recreational trail, an explanation of the cause for interruption will be provided, and an explanation of the action required to allow continued use of the trail will be provided.

Product: Technical report, containing descriptions and documentation of any project-related impacts to recreational and/or open space properties subject to Section 4(f) or Section 6(f). The report will include maps showing the locations of potential impacts. An avoidance analysis will be developed for any direct or construction impacts. The report will also document the consultation process.

5.3.13 Socioeconomic Environment and Environmental Justice

The analysis of impacts will include compliance with the Environmental Justice Executive Order, assessment of community impacts, municipal services, and impacts to community businesses.

Environmental Justice and Title VI

The Consultant will undertake an environmental justice (EJ) assessment consistent with and in compliance with Federal Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority populations and Low-Income Populations*. The mission of this executive order is to identify and address potential disproportionately high and adverse human health or environmental effects of federal programs, policies, and activities on minority populations and low-income populations. In part, Title VI of the Civil Rights Act of 1964 is to ensure that “no person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”

The Consultant will determine potential impacts to EJ populations in two ways: 1) utilizing the SWRPA and HVCEO EJ assessments and impact methodologies as applicable to the study area; and 2) identifying and evaluating EJ populations per the USDOT definition -- concentrations of either low income or minority individuals in the affected area as compared with a larger geographic region. The consultant will utilize the most recent/available Census data (2000) by Block Group and/or Tract for the study area to identify concentrations of environmental justice populations in relation to the larger geographic area.

Concentrations of environmental justice populations in the study area will be evaluated and potential impacts to those populations will be described. The determination of impact will be based on consideration of the following, as relevant:

- Traffic related safety reduced for target population area
- Qualitative estimate of air and noise impact potential
- Destruction or disruption of natural or cultural resources
- Destruction or loss of aesthetic values
- Destruction or disruption of community cohesion
- Destruction or disruption of community economic vitality
- Destruction or disruption of availability of facilities and services
- Adverse employment effects (impacts to journey to work)
- Increased traffic congestion
- Isolation (access to and from the target population area is more circuitous or cut-off)
- Denial or reduction in receipt of benefits (will access to benefits of the alternative be denied or reduced for the target population area).

For unavoidable adverse impacts, measure to avoid, minimize, or mitigate impacts will be explored and proposed.

Community Cohesion

Impacts to community cohesion are unlikely to occur as a result of the proposed alternatives for railroad improvements on the Danbury Branch or the extension to New Milford. However, to assess whether there may be impacts to community cohesion, the Consultant Team will examine the Build alternatives to determine where new track alignments, substations, and rail stations may cross through residential areas, and whether it would impact any portions of a neighborhood or isolate one section from another. Impacts are anticipated to be minor for this resource.

Economic Impacts to Businesses

Impacts to businesses in the project area can occur as a result of new railroad stations or construction of substations for electrification. Impacts can be permanent or temporary, direct or indirect. To assess the economic impact to businesses, the Consultant Team will consider the following for the railroad build alternatives:

Impacts to businesses that are directly impacted (disturbed) by new railroad construction will be quantitatively assessed. Information on revenues, number of employees and tax generation will be gathered to compile a total economic impact dollar amount. Indirect impacts from economic ripple effects will be qualitatively discussed.

Temporary impacts to businesses as a result of construction activities will also be evaluated. Potential construction staging activities that could affect access or visibility of businesses will be assessed and means to mitigate these impacts through signage or alternate access routes will be developed.

Municipal Services and Finances

The Consultant Team will describe the impacts of the alignment changes, passing sidings, New Milford extension, and electrification configuration alternatives on municipal services and finances of the eight (8) municipalities in the study area. Specifically, impacts to emergency services, school bus routes and municipal finances resulting from mainline improvements and interchange reconfigurations will be discussed.

Product: Technical Memorandum inclusive of impacts relative to EJ/Title VI, community cohesion, businesses, and municipal services and finances, with potential mitigation solutions where appropriate.

5.3.14 Scenic Roads

Impacts to scenic roadway elements will be assessed using field reconnaissance, available base mapping and aerial photographs. Locations where stone walls will be lost will be identified, and changes in scenic views to or from the railroad right of way and adjacent roadway will be identified. Mitigation strategies (replacement of stone walls, landscaping) will be identified where appropriate.

Product: Technical report providing impact analysis, map showing locations where scenic elements affected, and suggested mitigation.

5.3.15 *Visual/Aesthetic*

Each alternative will be assessed in accordance with FTA guidelines to determine impacts to identified visual and aesthetic elements. The analysis will include changes to regional character, such as impacts to scenic vistas from adjacent roadways that may be affected by rail alignment changes or substation and rail station/facility construction. Impacts to scenic vistas of the existing roadways adjacent to the railroad right of way where improvements occur will be assessed. Computer-generated photographs of post-construction (build alternatives) will be prepared to assess the changes in scenic quality (assumes up to 10 photo-simulations total). Potential mitigation measures and locations, including landscaping, wall replacement/relocation and any potential roadway alignment changes due to railroad realignments, will be investigated to reduce impacts.

Product: Technical report, containing assessments of impacts, potential mitigation, mapping of impact locations and photograph locations, and computer-simulated future condition photographs.

5.3.16 *Construction Impacts*

Construction impacts are anticipated to be generally limited to the track alignment changes, electrification and rail station and facility construction. The impact assessment will provide general information on noise, air quality, water quality and wetland impacts; impacts to businesses and residences; and traffic impacts. Potential mitigation measures and regulatory issues/constraints will be investigated and documented. For each alternative, the Consultant will identify any specific areas of concern during construction, such as noise sensitive receptors, and determine if unusual mitigation measures would be warranted. A special provision on construction noise will be included in the construction contract.

Product: Technical Report

5.3.17 *Secondary and Cumulative Impacts*

Potential secondary impacts associated with the transit oriented development, substations, new rail stations, facilities and track reconfigurations (passing sidings, alignments) will be identified based on an analysis of land use, traffic patterns, municipal and regional plans, and economics. Secondary impacts will be defined as reasonably foreseeable indirect consequences to the environment caused by the action, but that occur either later in time or not in the same location as the direct impacts. Cumulative impacts are defined as the total impacts to environmental resources resulting from the incremental effects of the action when added to other past, present and reasonably foreseeable future actions, regardless of what agency or person undertakes these actions. Cumulative impacts for each of the alternatives will be determined based on a qualitative review of the impacts to environmental resources, cultural and community resources, and public infrastructure when the effects of each of the alternatives are considered together with other developments (e.g. transit oriented development) and infrastructure improvements.

Data Collection

During the data collection phase of the secondary and cumulative impacts analysis, the overall parameters of the analysis will be defined. Steps will include:

- Defining the geographic area and time frame appropriate to the secondary and cumulative impacts analyses, based on the findings of the individual impact analyses for resources, ecosystems, and human community elements.
- Identifying which resources are affected by the project, either directly or indirectly (again, based on the findings of the individual impact analyses for resources, ecosystems, and human community elements)
- Characterizing the existing stresses on the affected resources and their capacity to absorb additional stress or impact.
- Conducting additional research regarding reasonably foreseeable future actions that could affect the pertinent resources, through coordination with local, regional, and state agencies or officials

Impact Analysis

Impact analysis for secondary impacts will generally follow the guidelines in FHWA's *Position Paper on Secondary and Cumulative Impact Assessment* (August 20, 1992). The cumulative impact analysis will generally follow that same guidance, plus the Council on Environmental Quality (CEQ) *Cumulative Effects Handbook* (January 1997). For both analyses, the general steps will include:

- Identifying the important cause-and-effect relationships between the project activities and impacts to resources
- Determining the magnitude and significance of the effects over the relevant time frames, based on the resource characterizations from the data collection phase
- Identifying relevant mitigation measures, either those to be undertaken as project-specific actions or those evolving as general or regulatory trends in the affected area
- Summarizing any unmitigated adverse impacts and their significance.

Product: Technical Report

5.3.18 Meetings

The Consultant Team will attend a minimum of ten (10) meetings with state agency representatives as well as local officials to obtain input regarding the impacts identified through this DEIS. (Presented in detail in the Meeting Matrix, Appendix A)

TASK 6 TRANSPORTATION ALTERNATIVES DEVELOPMENT AND EVALUATION

Tasks 6.0, and its subtask, are intended to provide an analysis of the existing transportation, rail, bus, highway conditions, and intermodal opportunities (including bicycle and pedestrian) in the Danbury Branch/Route 7 corridor between South Norwalk and New Milford. It also includes an analysis of the transportation effects and an analysis of the costs and benefits of each of the alternatives under consideration.

6.1 Existing Conditions

Baseline conditions will be updated and field inspection will be conducted to obtain more detailed information on transportation infrastructure conditions especially in sensitive areas. The field inspection will be documented by photography and measurements/notes. The Danbury Branch, South Norwalk to Danbury is well documented in plans and track charts. Field review and photographing of the railroad, video if possible, will update conditions. This is especially important for the Danbury to New Milford rail sections where a Hi Rail trip with the Housatonic RR must be conducted

6.1.1 Phase I Data Review and Schedule Updates

Under Phase I, the consultant was tasked with becoming fully conversant with essentially all aspects and conditions of the Danbury Branch. The findings were documented in the Phase I Purpose and Needs Report prepared in the fall of 2003. For Phase II, the consultant will update previous information:

The consultants will review and provide comments on the following relevant material:

- *Currently available materials developed under the Department's Danbury Signalization Project (302-007)*
- *Any interim service improvements being discussed between the Department, Metro-North Railroad, & SWRPA*

6.1.2 Review Present Rail Schedules and Service Patterns

- A. The consultant will review the latest Danbury Branch schedule and service patterns, running times, crew requirements, consists, equipment needs, equipment turns, maintenance requirements, fueling requirements and storage requirements.
- B. The consultant will become fully conversant with the Harlem Line schedule and running times. Particular focus shall be placed on Harlem Line ridership that originates in Connecticut.

6.1.3 Review Rail Freight Service Schedule and Service Patterns

The consultant will review with the Housatonic Railroad Company, their freight schedule and service patterns on the Maybrook and New Milford tracks. The Railroad will be requested to provide estimates of likely changes in the level of service, schedule and service patterns for the planning threshold years of 2015 and 2030. Activities will include:

- A High Rail trip will be conducted of the tracks between Danbury and New Milford. It is assumed that HRR will provide the high rail vehicle and will require reimbursement of any costs.
- Clearances, especially horizontal clearance at proposed stations would be reviewed with HRR.

6.1.4 Review Transit Interface

- A. The consultant will review with the Housatonic Area Regional Transit District (HART) bus service, including the Brewster and Katonah Shuttle, and how it interfaces with the Danbury Branch and the Harlem Line.
- B. The consultant will review with the Norwalk Transit District their present bus service as it interfaces with the branch line's schedule.
- C. The consultant will review with CT Transit and DOT Transit Operations their present substitute bus service during rail service disruptions.
- D. The consultant will review with the staff of MetroPool to determine what private or corporate shuttles may serve branch line stations. Information shall be obtained on the number of shuttles, what stations are served, the destinations served, the number of riders, their schedules, and how they are funded.

6.1.5 Rideshare Services

The Consultant will interview the staff of MetroPool and Rideworks to determine what private or corporate shuttles may serve the Danbury Branch Line stations. Information shall be obtained on the number of shuttles, what stations are served, the destinations served, the number of riders, their schedules, and how they are funded.

6.1.6 Review Branch Lines Rights of Way Boundaries

The consultant will review the Department's existing railroad valuation maps and planimetric mapping (State Project No. 884-497) for the Danbury Branch from South Norwalk to Danbury and the Freight right of way from Danbury to New Milford. Based on information provided by ConnDOT's Office of Rail, Property Management Unit, the planimetric mapping will be updated, if required, to reflect any relevant changes since Phase I was completed. Documentation using most current (2004) digital ortho mapping shall be prepared.

6.1.7 Review Existing Road Network

The consultant shall review the network of state and local roads in the study area. Existing traffic volumes will be documented, as obtained from ConnDOT. Their suitability for local and feeder bus service will be determined.

6.1.8 Rail Rider Survey

The Consultant will develop and conduct two types of surveys for the project. One will be a survey of existing passengers to ascertain various rider characteristics, preferences, and desires. The second will be a survey of potential passengers to gauge potential ridership and other public opinions relative to the existing and proposed Danbury Line commuter service.

Finalize Survey Work Plans

While general survey approaches are proposed in this scope of work, it will be necessary once the project has begun to finalize the details of the methodologies and adjust them to the specific goals and objectives of the surveys. This initial task will therefore be oriented toward agreeing on the surveys' missions and to finalize the survey methodologies, which will be summarized in work plans. This task is anticipated to include several telephone discussions and a meeting with ConnDOT and FTA (at the discretion of FTA) to determine such details as the following:

- Deciding on the interview method (i.e., direct interview vs. self-administered)
- Deciding on the time periods of survey
- Deciding on the desired size of sample
- Deciding on the methodology of input
- Other(s)

After an initial discussion about the mission and methodology of each survey, the Consultant will submit a draft work plan for each survey instrument to ConnDOT/FTA for review. Subsequent to additional discussions and/or a meeting, the Consultant will submit a finalized work plan for each survey instrument to ConnDOT/FTA for approval.

Existing Passenger Survey

For the purposes of this scope of work, it is assumed that the existing passenger survey will consist of hand-out questionnaires to riders on board the Danbury Line commuter trains (On-Board Survey). The work to be carried out for this survey will include Questionnaire Design, Assign and Train Survey Crew, Conduct Survey, and Analyze and Document Survey Results.

Questionnaire design: Following work plan approval, the Consultant will collaborate with ConnDOT/FTA to design a questionnaire that meets the express goals and objectives of the project and survey. After input and revision, the Consultant will submit the draft questionnaire to ConnDOT/FTA for final approval. Survey questions will be oriented to obtain information such as the following (per survey objectives):

- Trip origin and destination
- Trip purpose
- Trip frequency
- Anticipated mode changes at both trip ends
- Preferences regarding service
- Preferences regarding station location(s)
- Suggestions
- Other(s)

Assign and train the survey crews: In accordance with the desired sample size and the times of survey (weekdays and weekends are assumed), the survey crew size will be determined and survey dates assigned over a several week period.

Conduct survey: Surveys will be carried out by trained survey staff per the approved work plan. Coding of the surveys and data entry will be conducted as surveys are completed. For the purposes of this scope, it is assumed that the survey of existing passengers will be conducted on up to 12 (maximum) regularly scheduled train trips between Danbury and Norwalk. Surveys will be completed via hand-out distribution and collection on board or return mailing.

Analyze and document survey results: Survey data will be entered into a computer database for validation and analysis. A customized program will be developed to accommodate the survey instrument. The program will allow sorting and cross-analysis of potentially relevant ridership factors such as travel frequencies, preferred station location(s), and variations among sub-groups (age, gender, profession, and place of residence.) The final report will include the compiled data, methodology, results, highlights, conclusions, and/or recommendations. The Consultant will provide ConnDOT with an electronic form of the survey data for ConnDOT's own use.

A summary of the results will also be prepared in PowerPoint format for use in presentation to the public and other venues.

Potential Passenger Survey

For the purposes of this scope of work, it is assumed that the survey of potential passengers will consist of a zip code survey, oriented toward gauging potential ridership and other public opinions relevant to the existing and future alternatives for the Danbury Line commuter service. The work to be carried out for this survey will include Questionnaire Design and Analysis and Documentation of Survey Results.

Questionnaire design: Following work plan approval, the Consultant will collaborate with ConnDOT and the FTA to design a questionnaire that meets the express goals and objectives of the project and survey. After input and revision, the Consultant will submit the draft questionnaire to ConnDOT/FTA for final approval. Potential survey questions will be oriented to obtain information relative to current commute patterns and travel modes, origin-destination, attitudes toward commuter rail, and others.

Analyze and document survey results: Survey data will be entered into a computer database for validation and analysis. A customized program will be developed to accommodate the survey instrument. The program will allow sorting and cross-analysis of potentially relevant ridership factors such as travel frequencies, preferred station location(s), and variations among sub-groups (age, gender, profession, and place of residence.) The final report will include the compiled data, methodology, results, highlights, conclusions, and/or recommendations.

A summary of the results will also be prepared in PowerPoint format for use in presentation to the public and other venues.

Product: Technical Memorandum resulting from survey

6.1.9 Supplemental Field Review

Supplemental field review will be carried out at proposed rail or multimodal transfer stations and rail vehicle facility sites for the purposes of reviewing peak period operations and as part of the site investigations in task 7.0.

6.1.10 Station and Rail Vehicle Facility Sites

The Consultant will identify existing conditions in the study area of the transportation alternatives relative to roadway conditions, traffic, parking, bike access, pedestrian access, and transit availability. Existing conditions will be evaluated based on the collection, review, and synthesis of data obtained from ConnDOT, SWRPA, HVCEO, and the communities of Norwalk, Wilton, Redding, Ridgefield, Bethel, Danbury, Brookfield and New Milford, as appropriate to the study area sites of interest. Up to 10 meetings may be required for this purpose. Relevant data may include the following:

- Current traffic volumes (ADT – from ConnDOT database)
- Available turning movement counts (< 3 years old)
- Crash data (latest 3 years from ConnDOT and communities)
- Signal plans
- Currently planned or programmed roadway improvements
- Currently proposed developments in the area (STC applications)
- Demographic and other pertinent travel characteristic data if available

For any proposed station sites, support facilities and potential rail vehicle maintenance shop/yard, the Consultant will evaluate existing traffic conditions at key intersections. Existing level of service (LOS) analysis will be performed for up to four (4) signalized intersections at each potential station site (six potential stations assumed). It is assumed that ConnDOT will supply existing and future design year traffic data to the Consultant, including vehicle miles traveled (VMT), and average daily traffic (ADT), for the present, interim and future years. The Consultant will document existing traffic conditions, especially as they relate to project need and safety issues. Traffic evaluations will include a projection of existing peak-hour traffic flow to

determine projected AM, PM, and weekend peak-hour traffic volumes, capacity, and level of service (LOS), based on ConnDOT's projections of ADT.

Product: Existing conditions portion of Traffic and Station Access Technical Memorandum

6.2 Alternatives Development

There are many transportation planning and operational issues that were not included in the Phase I scope. Accordingly, this subtask will focus on refining the alternatives developed in Phase I through preparation of operating plans. Phase I developed conceptual plans for 3 horizontal realignments of the existing Danbury Branch, double tracking the existing and the 3 revised alignments, and passing sidings on each alignment. Through discussions with the Study Advisory Committee and public meetings, the following alternatives were recommended for further consideration in Phase II. Engineering for the alternatives is described in Task 7.

6.2.1 Alternatives – South Norwalk to New Milford

- **No Build** – As described in Task 8.3.1
- **TSM** – As described in Task 8.3.2
- **Build So. Norwalk to Danbury** – The recommended build alternative included 4 major elements or types of improvements;
 - Track realignment – this is minor in scope to include limited curve smoothing and super elevation adjustments to increase maximum operating speeds by 5-10 MPH at selected locations. An overall reduction in trip time of 3.5 minutes was identified.
 - Adding/upgrade passing sidings - presently there are 3 passing sidings on the Branch. The operating plan to be prepared in this task will identify locations where trains traveling in opposing directions would meet.
 - Electrification - the resulting use of Electric Multiple Unit (EMU) rail vehicles could reduce trip times by up to 9 minutes due to improved braking and acceleration compared to the existing diesel locomotives and coaches.
- **New Milford Extension** – this option would extend the existing rail passenger service an additional 14 miles on the Housatonic Railroad's freight line from Danbury to New Milford, with station stops at Danbury North, Brookfield and New Milford. Improvements to the line would include three new stations with high-level platforms, and track realignment to allow maximum track speeds up to 50 mph.

- **Transportation Strategy Board Alternative - Partial Electrification from South Norwalk to the vicinity of Route 15 (Merritt Parkway).** This option would electrify the line from South Norwalk to an area in the vicinity of Route 15 (north of Wilton Station), with the possibility of electrifying to Danbury in the future. Feeder Bus/Rail Service north to Danbury would be implemented.

6.3 Update Travel Demand Forecasts

- A. The consultant shall review Metro-North ridership data for the Danbury Branch and the Harlem Line, current ridership and historic trends.
- B. The consultant shall review the 2000 New Haven Line/Shore Line East Am Peak Rail Survey data for the Branch
- C. The Consultant will work with ConnDOT’s Division of Systems Information, Census/Modeling Section to develop ridership forecasts for the Danbury Branch improvement alternatives that meet FTA’s ridership forecasting requirements under the SAFETEA-LU requirements.

The Consultant will meet with ConnDOT’s Forecasting unit to discuss issues regarding the Statewide Travel Model and the forecasting process as it relates to the Danbury Branch Phase II Study ridership in order to arrive at an agreement on the process to be used for this study, particularly in the event that the 2000 Journey to Work data has not been incorporated into the Statewide Travel Demand Model in time for completion of the DEIS. The consultant and ConnDOT will work together to “fine tune” the model’s networks, mode-split variables or other parts that could improve sensitivity.

Once agreement has been reached, the model will be run to produce base ridership forecasts for the Danbury Branch for the planning threshold years of 2015 and 2030. These forecasts will be based on the Alternatives selected for further study in this phase, including:

- No Build
- Transportation System Management, including skip stop service and express service at a minimum
- Build Alternatives, including alignment improvements, passing siding additions, electrification of the existing Branch
- Extension of passenger service from Danbury to New Milford
- Partial Electrification to vicinity of Merritt Parkway

The model will then be utilized to develop ridership forecasts to support the evaluation of the improvements as contained in the Phase II Preliminary Alternatives.

Product: Technical Report

6.4 Train Performance Model and Simulations

A computer model of the study area, South Norwalk to New Milford will be developed to simulate existing and anticipated train operations. The existing branch and the Phase I alternatives will be treated as a single-track extension of, and be compatible with, the existing New Haven mainline. The work will include modeling the existing infrastructure and current train operations for the entire study area.

The model will be developed using the RAILSIM software by SYSTRA Consulting that was used by Metro North to model the mainline. Once the existing system has been modeled, the simulation software will be used to evaluate the proposed Phase I operational and infrastructure improvements to be considered by the Danbury Branch study team.

Simulation modeling and analysis requirements include the following:

- The Model will be capable of simulating train movements based on operator-provided train consist, performance parameters and schedules/operating service plans developed in this Phase II;
- An iterative simulation process will be used to analyze train movement and identify conflicts. Phase I alternatives that identify improvements to corridor operations and infrastructure will be input to the model;
- Simulation results incorporating the various operating plans will then be evaluated to determine their impact on corridor capacity, train movement and train schedules (running time and headway);

The evaluation performance measures to be incorporated in the analysis include:

- Travel Times
- Headway and resultant throughput.
- Recovery plan

Task 6.4.1 Develop Baseline Simulation Model

Utilizing information obtained through the data collection effort on infrastructure and operations patterns, the consultant shall develop a model that simulates the current base case conditions in the Danbury Branch and extension to New Milford rail study corridor.

Product: The product of this effort will create a comprehensive simulation model to include:

- Track plan and profile
- Speed restrictions
- Passenger station locations
- Planned CTC Signal System

Task 6.4.2 Simulations

The study will utilize the model to simulate the performance of the rail system based on the Phase I alternatives and resulting operation plans developed in this Phase II.

Output from the modeling effort will include an analysis of performance for the:

- Baseline or no build alternative – this includes the model of the existing Branch and extension
- TSM alternative – this would utilize the model of the existing branch and analyze three (3) operation plans that may include skip stop, express, or reverse services w/o track improvements or electrification
- Build alternative, to include three (3) separate models for improved track, electrification, and improved track and electrification
- Extension to New Milford alternative, to include two (2) separate models for the existing track and an improved track alignment
- TSB or partial electrification alternate, this will be a sub set of the build alternative with improvements only being included from South Norwalk to the vicinity of the Norwalk – Wilton Town line. The three (3) models developed for the build alternative would be utilized and three (3) scenarios analyzed.

Thus, the consultant will be responsible for the required modeling and analysis of up to twelve (12) operating scenarios. This output would be presented in a summary technical report. The report will include stringline diagrams and graphics to illustrate and enhance the train operations and conflicts depicted in the stringlines.

Assumptions: The following information is on hand or will be made available for creating the models

1. All existing civil data such as alignment, speed restrictions, curve locations, vertical profile changes.
2. Vehicle data from MNR.
3. Existing electrification data.

Exclusions: Visual displays of the simulations using the RAILSIM Network Simulator are not included due to the high cost to acquire the module. As an alternative, graphic snap shots of train interactions/conflicts will be prepared to enhance the stringline diagrams.

Products:

- Rail trip times for each of the operations scenarios to be used to develop operation plans for each of the alternatives.

- Graphics to depict the operation plans for use in the various presentations

Meetings: 2 meetings, 1 with MNR to establish coordination and obtain required inputs and 1 with ConnDOT to discuss trip time results.

6.5 Traction Power Model and Simulations

This task will be performed to assess the location, number and capacity of substations required to support the desired train operations on the Danbury Branch of the New Haven Line operated by Metro-North. The electrified train operation scenarios will be those identified in this Phase II and as described in Alternatives C & E of Phase I. The study will be performed in accordance with MNR criteria. The initial task will be performed primarily to check the validity of the Traction Power Substation locations already determined during Phase I Study. Subsequently, the study will be modified to provide estimates of capital and operating cost for the various study options. A study of the existing MNR electrified tracks between Grand Central and South Norwalk is not part of this task

The associated sub-tasks are elaborated below.

- Data for vehicles and alignment, will have been collected in the previous Train Performance task: Information such as loaded and unloaded car weight, dimensions, performance and operating voltage limits will be based on a typical MNR Electric Multiple Unit (EMU) vehicle. The alignment data includes track speed restrictions, horizontal curves and grades, and station locations.
- Train operations, meaning peak-period train consist and headway will be established from operating plans. All of the above information is required for initiating computer simulation input.
- Perform Preliminary Computer Simulation: This includes the following sub-tasks
 - ⇒ Prepare input files for alignment, train operations (consist and headway)
 - ⇒ Obtain from MNR, review and input vehicle model based on vehicle data and performance specifications
 - ⇒ Prepare input files for wayside power distribution
 - ⇒ Perform computer simulation and iterations with proposed substation locations
 - ⇒ Analyze locations, evaluate loading and train voltage in accordance with criteria
 - ⇒ Generate Annual Traction Power Consumption for the Danbury Branch electrified alternatives.
 - ⇒ Review the output against traction power criteria.
- Software required: RAILSIM by SYSTRA Consulting (AC Load Flow analyzer modules)

Product: Preliminary and final summary reports.

Meetings: 4 meetings, 2 with MNR to determine inputs, obtain equipment data and discuss results, and 2 with ConnDOT to discuss preliminary and final results

6.6 Evaluation of Alternatives

The consultant will evaluate the study area transportation system to determine the level of transportation benefit realized from each alternative. Consideration will be given to regional effects, station/facility impacts, and rail service effects.

6.6.1 Regional effects

The consultant will review existing Route 7 traffic data with the intent to identify effects to vehicle miles traveled, vehicle hours traveled, and speeds due to rail service improvements. These items may not be quantifiable due to the relatively low rail ridership compared to total highway use.

6.6.2 Station/Facility Impacts

In conjunction with the engineering activities in task 7, the consultant will analyze levels of service at intersections affected by station or facility development, corresponding to those intersections evaluated for existing conditions (task 6.1.10). This scope assumes that up to four (4) intersections will be analyzed per station site, with six (6) possible station sites. Impacts relative to traffic will include considerations of projected AM, PM, and weekend peak-hour traffic volumes, capacity, and LOS analyses. It is assumed that ConnDOT will supply existing and future design year traffic data to the Consultant, including vehicle miles traveled (VMT), and average daily traffic (ADT), for the present, interim and future years.

The Consultant will define the scope and magnitude of parking and off-site or access improvements necessary to support the anticipated proposed station site traffic demand, if any. Furthermore, the Consultant will determine recommended intersection configurations at key access points to the sites, to mitigate potential impacts of the alternatives. The Consultant will also assess pedestrian and bicycle access to stations.

For any proposed station sites, support facilities and potential rail vehicle maintenance shop/yard, the Consultant will evaluate existing traffic conditions at key intersections. Existing level of service (LOS) analysis will be performed for up to four (4) signalized intersections at each potential station site (six potential stations assumed). It is assumed that ConnDOT will supply existing and future design year traffic data to the Consultant, including vehicle miles traveled (VMT), and average daily traffic (ADT), for the present, interim and future years. The Consultant will document existing traffic conditions, especially as they relate to project need and safety issues. Traffic evaluations will include a projection of existing peak-hour traffic flow to

determine projected AM, PM, and weekend peak-hour traffic volumes, capacity, and level of service (LOS), based on ConnDOT's projections of ADT.

Product: Impacts section of Traffic and Station Access Technical Memorandum

6.7 Financial Evaluation

This task will develop the financial analysis of each alternative and the potential sources of funding.

6.7.1 Cost/Benefit Analysis and Economic Development Impacts

In compliance with the Connecticut Environmental Policy Act (CEPA) adopted by the Department of Environmental Protection in 1972 to guide Connecticut state agencies in the preparation of Environmental Impact Evaluations (EIE), (as required by Section 22a-1g of the Connecticut Environmental Policy Act), and in accordance with FTA's Section 5309 New Starts, 49 U.S.C. 5309 (e) and Major Transit Capital Investment Projects Final Rule, 49 CFR Part 611, April 6, 2001, the Consultant will identify economic conditions including personal income, retail sales, and employment within the Danbury Branch study corridor. Additionally, sales tax, property tax and other revenues sources that could be affected by the implementation of an alternative will be identified.

To comply with CEPA regulations, Sec. 22a-1a-7, the environmental impact evaluation shall include a discussion of the potential environmental impacts of the proposed action. This discussion shall include:

“An analysis of the short-term and long-term economic, social and environmental costs and benefits of the proposed action. A comparison of benefits and costs shall be made for reasonable alternatives. The comparative analysis shall explicitly state and evaluate nonquantifiable benefits and costs as well as quantitative benefits and costs.”

The Consultant will develop a cost-benefits matrix including both quantifiable and nonquantifiable benefits and costs. This will be clearly visible within the EIS document and in full compliance with CEPA regulations.

To support the Cost/Benefit analysis, for all of the alternatives considered the Consultant will update the Phase I feasibility study estimates or prepare new estimates for:

- Capital Costs
- Operating and maintenance costs
- Revenue forecasts and
- Right of Way costs

All cost data will be annualized using typical life cycles for all capital items. It is assumed that unit price information for all cost items listed above including ROW and ConnDOT will provide guidelines for fare recovery ratios.

- Specific project activities will include:
- Review of existing capital and operating funding sources
- Analysis of current commitments for transportation funds
- Review of innovative financing solutions nationwide to determine their applicability

Product: The findings of this analysis will be documented in a technical memorandum for inclusion in the EIS along with a cost-benefits matrix for compliance with CEPA requirements.

6.7.2 Meetings

Two meetings will be held with ConnDOT staff to review the Financial Assessment and Cost Benefit analysis.

6.8 Transit Oriented Development (TOD)

The Consultant will coordinate with existing Transit Oriented Development (TOD efforts in the Danbury Branch corridor (e.g. the Georgetown Land Development project) and shall perform an evaluation of TOD opportunities within the corridor. This investigation shall reflect FTA guidance regarding TOD and any new guidance developed by the Department regarding TOD. The Consultant shall work closely with the local and state jurisdictions, including DECD, SWRPA and HVCEO in identifying these TOD opportunities. All potential TOD's should reflect the values of the community, encourage public participation, and meet ConnDOT's objectives for increasing ridership and providing alternatives to the automobile in the Danbury Branch/Route 7 corridor.

The evaluation of TOD opportunities shall be conducted in two phases. The first phase evaluation shall identify opportunities and constraints related to TOD within potential station areas. This evaluation shall consider physical, political, and institutional barriers and opportunities to TOD. During this first phase evaluation, demographics, market potential, existing land use, multimodal access and other elements influencing development shall be identified. Areas to be addressed include the State's Plan of Conservation and Development, the local municipalities plan of development, hazardous materials sites, wetlands, watercourses, cost of developing property proposed for TOD, and a sketch plan of the proposed growth options.

This phase will also document the status of station area planning efforts by local jurisdictions and potential new development adjacent to the corridor/station area. The results of the phase one evaluation shall include an identification of the range of TOD opportunities at station areas within the corridor.

During the second phase of evaluation, a specific action item list shall be developed that identifies the next steps required to move the station area planning at high potential stations further in the development process. The action item list will include a description of the proposed action, the entity responsible and a timeframe for the implementation of the action. Additionally, resources should be identified, either at the local jurisdiction level or elsewhere

that will assist in furthering the development process, as needed. This phase of evaluation shall be conducted jointly with local jurisdictions. It is expected that local jurisdictions will contribute staff and financial resources in partnership with ConnDOT as part of this process. Next steps in the development process may include (but are not limited to):

- Station area planning
- Preliminary site planning
- Advanced site planning
- Zoning and land use regulation changes to promote the implementation of TOD
- Infrastructure improvements to enhance multimodal connections to the station area and encourage TOD
- Financial or regulatory incentive tools that should be utilized by the local jurisdiction to encourage TOD such as tax increment financing
- Identification of private sector partners

Product: Technical Report

TASK 7 CONCEPTUAL ENGINEERING AND EVALUATION

The Consultant will prepare conceptual plans, typical sections, and supporting data using the base mapping, developed in sufficient detail to support geometric and operational improvements as directed by ConnDOT. This work will be undertaken in accordance with the ConnDOT "Consulting Engineers Manual", FTA guidance, and AREMA. Information in Phase I of the Study will be supplemented as required to develop the deliverables in this phase II scope of work.

7.1 Existing Conditions

Field inspection will be conducted to obtain more detailed information on conditions especially in sensitive areas. The field inspection will be documented by photography and measurements/notes. Prior to going into the field, the consultant will prepare a list of anticipated railroad flagging protection requirements and submit this to ConnDOT Rail Operations.

7.2 Conceptual Engineering, Danbury Branch South Norwalk to Danbury

Phase I developed conceptual plans for 3 horizontal realignments of the existing Danbury Branch, double tracking the existing and the 3 revised alignments, and passing sidings on each alignment. Revisions to the CTC system to be installed in State Project 302-007 were identified and considered in the cost estimates. Also a traction power, catenary and substations strategy was developed based on a prior design.

Conceptual engineering will consist of revising/updating the phase I engineering sufficient to adequately support the DEIS as below.

- Review of existing drainage requirements to identify any known deficiencies and/or problem areas and upgrade requirements that may significantly impact proposed track alignment concepts.
- Identification of existing major utilities that will influence the establishment of the proposed railroad upgrade
- Confirm design criteria for rail improvements based on Metro-North RR standards, AREMA, FRA, and accepted national criteria
- Reformat track layouts on new base mapping
- Structural requirements (bridge widening or replacement, walls, large culvert extensions or replacement) identifying type and limits will be developed in sufficient detail to determine preliminary bridge geometry, span length and approximate cost
- Cross-sections at critical locations to identify the approximate limits of grading
- Depiction of existing ROW and property lines
- Identify changes to the Signal System required by new alignments
- Complete a conceptual design for the traction power system utilizing information from the Traction Power Model for system configuration and substation locations
- For each of the assumed 5 substations, up to 3 sites will be identified through field review and discussion with local officials. These locations would then be evaluated on a preliminary basis to determine preferred substation locations. This screening involves field review by rail engineers/planners and environmentalist to ascertain any obstacles
- Phase I identified an upgrade of the southerly end of the branch and the establishment of a multi modal transfer station. Up to 3 sites for the transfer station will be identified through field review and discussion with local officials. These locations would then be evaluated on a preliminary basis to determine a preferred location. This screening involves field review by planners, traffic engineers, rail engineers, bus and rail operations specialists, and environmentalist to ascertain development potential and obstacles. From the definition of a preferred station location, additional conceptual engineering for the station development can occur and a concept plan developed
- Conceptual construction cost estimates in accordance with ConnDOT guidelines for preliminary estimates.

Products:

- For the multi modal transfer station, a site screening/selection report will be prepared that documents the transportation, land use, TOD potential, and environmental considerations that lead to the preferred location.
- Revised conceptual plans and an engineering feasibility report will be the product of this task.

7.3 New Milford Extension Alternative, Danbury to New Milford

Phase I developed conceptual plans for 3 horizontal realignments of the existing Housatonic railroad between Danbury and New Milford, double tracking the existing alignment and the 3

revised alignments, and passing sidings on each alignment. Also Strategies for Signal and Traction Power systems were developed and capital cost estimates prepared.

Conceptual design for the tracks and systems will consist of:

- Revising/updating the phase I engineering sufficient to adequately support the DEIS
- Review of existing drainage requirements to identify any known deficiencies and/or problem areas and upgrade requirements that may significantly impact proposed track alignment concepts
- Identification of existing major utilities that will influence the establishment of the proposed railroad upgrade.
- Confirm design criteria for rail improvements based on Metro-North RR and Housatonic RR standards, AREMA, FRA, and accepted national criteria.
- Reformat track layouts on new base mapping
- Structural requirements (bridge widening or replacement, walls, large culvert extensions or replacement) identifying type and limits will be developed in sufficient detail to determine preliminary bridge geometry, span length and approximate cost.
- Cross-sections at critical locations to identify the approximate limits of grading.
- Depiction of existing ROW and property lines.
- Confirm the Signal System strategy in phase I for the 60 MPH alignment.
- Approximate limits of proposed new right-of-way.
- Conceptual construction cost estimates.

Product: Revised conceptual plans and an engineering feasibility report will be the product of this task.

7.4 Rail Passenger Station screening

Phase I identified 3 rail passenger stations at North Danbury, Brookfield and New Milford. Up to 3 candidate sites for each of the 3 proposed stations will be identified through field review and discussion with local officials. These locations would then be evaluated on a preliminary basis to determine a preferred location. This screening involves field review by planners, traffic engineers, rail engineers, bus and rail operations specialists, and environmentalist to ascertain development potential and obstacles. From the definition of a preferred station location, additional conceptual engineering for the stations can occur and concept plans developed.

7.5 Rail Vehicle Maintenance and Storage Facility screening

Rail passenger service improvements under consideration in this study would include providing some additional rail vehicles. At a minimum, additional rail vehicle storage facilities are anticipated to be required at either Danbury or New Milford. Up to 3 candidate sites for the proposed vehicle storage will be identified through field review and discussion with local officials. These locations would then be evaluated on a preliminary basis to determine a preferred location. This screening involves field review by planners, traffic engineers, rail engineers, rail operations specialists, and environmentalist to ascertain development potential and obstacles. From the definition of a preferred location, additional conceptual engineering for the facility can occur and concept plans developed.

Review of Conceptual Plans

Six (6) meetings with ConnDOT and RR staff are anticipated to review engineering conceptual plans.

7.6 Evaluation of Alternatives

Each existing rail upgrade alternative will be evaluated from an engineering perspective. This information, when combined with the environmental and transportation impacts, will contribute to the selection of a preferred alternative.

The engineering evaluation will allow comparison of the following characteristics of each alternative:

- Length of trackage (new and upgraded).
- Signal system requirements.
- New Traction power system.
- Extent of earthwork required (cut/fill/rock assessment).
- Drainage requirements.
- Extent of major structures work required.
- Additional right-of-way needed, characterized by type (e.g. residential/business displacements).
- Identification of sections where existing environmental constraints prevent conformance with established design criteria.
- Cost of construction.

Product: A memorandum, which provides a synopsis of the engineering issues, associated with each alternative and an engineering comparison among alternatives will

TASK 8 DRAFT ENVIRONMENTAL IMPACT STATEMENT – SOUTH NORWALK – NEW MILFORD

The Consultant will prepare a Draft Environmental Impact Statement (DEIS) in conformance with Council of Environmental Quality (CEQ) and Federal Transit Administration (FTA), Federal Highway Administration (FHWA) NEPA regulations and guidance documents as well as Connecticut's Environmental Protection Act (CEPA) requirements. This DEIS will be for the Danbury Branch improvements in the corridor between South Norwalk and New Milford. The DEIS will include a summary of the Phase I Feasibility Study process and recommendations, and will include an impacts assessment for the No-Build (No-Action) Alternative and the Build and Partial Alternatives. Information and graphics presented in the DEIS will be based on the Technical Reports.

The DEIS narrative will be written and the document will be compiled following the general outline of this scope and in accordance with NEPA and CEPA guidelines. The document will include the project purpose and need, the alternatives considered, existing conditions, environmental impacts, and proposed mitigation measures to address potential impacts from the project alternatives, as well as construction impacts, indirect and cumulative impacts, coordination, cost benefit analysis, and a list of certificates, permits and approvals necessary for project implementation. The document will include a table of contents, glossary of terms, an executive summary, and a summary impact matrix if appropriate. Evidence of the scoping process and necessary consultations will be included. Appendices will include various results of the specialized studies undertaken and documented in technical memos, as well as copies of coordination letters.

8.1 Regulatory Strategy Memorandum and Applicable Standards

The Consultant shall provide a Regulatory Strategy Memorandum to ConnDOT for discussion during the first 30 days of the project. The Regulatory Strategy will identify early environmental action items specific to the Danbury Branch corridor, to assist in the streamlining process. The Regulatory Strategy shall be revised, based on ConnDOT comments, and implemented within 45 days of Notice to Proceed. The Regulatory Strategy will comply with new requirements in Section 6002 of SAFETEA-LU and anticipate issuance of new FTA/FHWA guidance.

The Consultant shall assure all work tasks are in compliance with any and all state and federal regulations and guidance, including but not limited to the following applicable standards:

The National Environmental Policy Act (NEPA), Regulations for Implementation and Final Amendment to 40 CFR 1500-1508; as of July 1, 1986.

- *Guidance Manual for Transit Noise and Vibration Impact Assessment, U.S. Department of Transportation, Federal Transit Administration, April 1995.*
- *Clean Air Act Regulations, 40 CFR, Parts 51 and 93, Air Quality: Transportation Plans, Programs, and Projects; Federal or State Implementation Plan Conformity; (with updates to August 15, 1997)*

- *FTA Regulations for Environmental Impact Statements and Related Procedures (23 CFR Part 771-777)*
- *Executive Order 11514, Protection and Enhancement of Environmental Quality*
- *40 CFR 1502—Federal Register, NEPA Regulations, Incomplete or Unavailable Information, Final Rule, April 25, 1986.*
- *23 CFR 450—Federal Register, Statewide Planning; Metropolitan Planning; Final Rule October 28, 1993.*
- *40 CFR 51 & 93—Transportation Conformity Rule Amendments: Flexibility and Streamlining: Final Rule August 15, 1997.*
- *FTA Reporting Instructions for Section 5309, New Starts Criteria (Includes updates on New Starts Criteria expected in 2006 in response to SAFETEA-LU)*
- *FTA Procedures and Technical Methods for Transit Project Planning including AA/DEIS outline (as updated through September, 2005).*
- *FTA/FHWA, Linking the Transportation Planning and National Environmental Policy Act (NEPA) Processes, February 2005*
- *Connecticut Environmental Policy Act (CEPA) Review - Sections 22a-1 through 22a-1h*
- *SAFETEA-LU, 2005 and 2006 Rulemaking by FTA.*

8.2 Purpose and Need

The Consultant, with appropriate ConnDOT, public and regional planning agency coordination (SWRPA and HVCEO) shall update the Phase I Purpose and Need for the Danbury Branch Corridor as part of the AA/DEIS document. Input from public and agency scoping will be used to help formulate the purpose and need. Information prepared as part of the Phase I study can be used as input to the development of this chapter. The Consultant shall evaluate system performance and identify deficiencies and problems.

The purpose and need should include overall information describing the corridor setting, and transportation project planning and development in the context of the local, regional and federal planning process. The purpose and need shall be consistent with FHWA/FTA joint guidance, *Linking the Transportation Planning and National Environmental Policy Act (NEPA) Processes, (February, 2005)*.

The Consultant shall prepare a draft and final version of this chapter, with appropriate graphics, for the DEIS document. The Purpose and Need will be presented at the public scoping meetings and presented to appropriate regulatory agencies for review, comment, and concurrence.

8.3 Description of Alternatives

The DEIS will include a discussion of the alternatives analyzed in the Phase I Feasibility Study process, and document the screening process which resulted in the selection of the EIS alternatives. Each of the EIS alternatives will be described based on the conceptual designs.

This task should include a summary of conceptual and final alternatives identified, evaluated and

considered in the Phase I of the Danbury Branch study and during this DEIS. The Consultant will present the descriptions/operations plans of the No Build, TSM and Build Alternatives to ConnDOT for concurrence and to ensure that the configuration of the alternatives are appropriate; considering the regional transportation context.

The No Build Alternative provides the basis for determining the environmental impacts of the TSM and Build Alternative(s). Alternatives considered will be analyzed for an opening day, 2015 and a year 2030 scenario. The FTA Alternatives Analysis process will run concurrently with the DEIS. A description of the concurrent process in the proposal is desirable. The consultant shall provide an independent Alternatives Analysis Report to ConnDOT for submittal to FTA, as required.

8.3.1 No Build Alternative

The No Build Alternative is defined as existing plus committed (in the most current ConnDOT 20-year Transit Capital Plan.

8.3.2 TSM Alternative

The TSM alternative is best described as transit improvements lower in cost than the proposed new start, which result in a better ratio of measures of transit mobility when compared to cost than the No Build Alternative; the "best you can do" without a major capital cost or potential FTA New Start investment. The purpose of the TSM comparison is to isolate the costs and benefits of the proposed major transit investment. The TSM may not be analogous to the FTA Baseline Alternative (to be developed by the Consultant in consultation with FTA and ConnDOT). At a minimum, the TSM alternative must include in the project corridor all reasonable cost-effective transit improvements short of investment in a New Start project.

This alternative will include all of the existing transit and highway systems and all projects contained in the currently adopted Transportation Improvement Program (TIP) for the Route 7/Danbury Branch Corridor.

Under the TSM alternative, increased bus service (over current service levels) will be projected to reflect the anticipated increase in corridor population and employment by the year 2030. This means that the amount of transit service per capita in 2030 would be approximately the same as what is provided today.

Under the "TSM" alternative, the Consultant shall prepare a description of the TSM alternative for the Alternatives Considered Chapter, with appropriate graphics, for inclusion into the DEIS.

8.3.3 'Build' Alternative(s)

Relative to the Build alternatives presented in Phase I, the Consultant shall conduct the following work:

- Consider alternatives (consistent with joint FTA/FHWA guidance, February 2005 and new

SAFETEA-LU requirements, with regards to linking planning and NEPA) proposed in Phase I of this study, review and revise the assumptions upon which those alternatives were considered, evaluate project elements, including but not limited to alignment options, passing sidings and station locations, electrification and the extension of commuter rail service to New Milford, in further detail, and confirm that these alternatives meet the project Purpose and Need, as identified in scoping (that may or may not have been previously considered in accordance with NEPA).

- Further refine the description/s of the Build Alternative(s) considered in Phase I. These descriptions shall include alignment, passing sidings, innovative technology, operations, electrification and the extension of commuter rail service to New Milford as well as potential station locations.
- Coordinate with ConnDOT's Office of Policy and Planning, the Study Advisory Committee, and other staff to identify Park-n-Ride access issues and urban design elements at station sites.

The Consultant shall perform all required impact analyses at all station sites.

8.4 Affected Environment

The DEIS Affected Environment section will provide a description of the existing conditions within the project study area, and will establish the basis for comparisons in a regional context (where appropriate). To reduce project costs, we assume that no new graphics will be provided to illustrate existing conditions except as needed to illustrate regional context. Existing conditions will be summarized from information developed.

- Existing Roadway and Rail Systems
- Traffic/Transportation
- Noise
- Air Quality
- Fisheries and Wildlife
- Rare, Threatened and Endangered Species
- Biological Diversity
- Wetlands
- Environmental Justice
- Floodplains and Floodway
- Historical and Archaeological Resources
- Farmlands
- Land Use
- Hazardous/Contamination
- Surface and Ground Water
- Public Recreational Lands and Open Space
- Socioeconomic Conditions

- Scenic Roads
- Visual/Aesthetic Resources

8.5 Project Impacts

The DEIS will provide an analysis of each of the alternatives with respect to environmental and social resources and conditions. Graphics will be provided in primarily 11 x 17 format using digital ortho aerial maps and/or topographic base, as appropriate, to illustrate impacts to the affected environment. Each alternative will also be shown on graphics developed from digitized aerial photographs. Impacts and potential mitigation measures will be summarized from information developed in Tasks 4, 5, 6 and 7 will include:

- Traffic/Transportation
- Noise
- Air Quality
- Fisheries and Wildlife
- Rare, Threatened and Endangered Species
- Biological Diversity
- Wetlands
- Floodplains and Floodway
- Historical and Archaeological Resources
- Farmlands
- Land Use
- Hazardous/Contamination
- Surface and Groundwater
- Public Recreational Lands and Open Space
- Socioeconomic Conditions
- Scenic Roads
- Visual/Aesthetic Resources
- Financial Evaluation

- Environmental Justice

8.6 Secondary and Cumulative Impacts

The DEIS will summarize potential secondary impacts associated with each alternative. Secondary Impacts will be defined as reasonable foreseeable indirect consequences to the environment caused by the action, but that occur either later in time or not in the same location as the direct impacts. Cumulative impacts, defined as the total impacts which result from the

incremental effects of the action when added to other past, present and reasonably foreseeable future actions, will be summarized.

8.7 Section 4(f) Evaluation/Section 106 Evaluation

The Consultant will prepare draft Section 4(f) and Section 106 Evaluations for inclusion in the DEIS. For the purposes of this Scope, it is assumed that these Evaluations include up to 14 (maximum) affected Section 4(f) properties.

8.7.1 Section 4(f) Evaluation

The Consultant will prepare a report that meets the requirements of the Department of Transportation's Federal Transit Administration and Federal Highway Administration Technical Advisory regarding Section 4(f) Evaluation format and content. The report will document that no prudent and feasible alternatives to the proposed project exist that avoid the use of any Section 4(f) property. The Section 4(f) Evaluation will include:

- A description of the proposed project, including an explanation of the purpose and need of the project;
- A description of affected Section 4(f) properties
- A discussion of the impacts of the proposed project on the Section 4(f) properties
- Identification and evaluation of alternatives that would avoid the Section 4(f) properties;
- A discussion of measures that are available to minimize the impacts of the alternatives considered on the Section 4(f) properties; and
- Documentation of the preliminary coordination with the public official having jurisdiction over the Section 4(f) properties and with the Northeast Regional Offices of the Department of Interior by the FTA.
- Correspondence with CTSHPO.

8.7.2 Section 106 Documentation

The consultant will prepare Section 106 documentation to be submitted to the Advisory Council on Historic Preservation and the CTSHPO by the FTA, FHWA and the Connecticut Department of Transportation (ConnDOT). The documentation will include:

- A description of the proposed project,
- A description of the efforts to identify significant historic and archaeological properties in the project area,
- A description of the significant properties within the project area;
- A description of the effects of the proposed project on all significant properties;

- A description and evaluation of the avoidance alternatives that were considered to mitigate the project impacts;
- A summary of all opinions issued by the CTSHPO, other consulting agencies, and any concerned parties
- Correspondence with CTSHPO, including the Determination of Effect letter.

8.8 Summary of Mitigation

The DEIS will include a summary of mitigation measures and a list of Environmental Commitments proposed for each of the considered alternatives, along with a schedule for implementation and a breakdown of costs.

8.8 Permit Requirements

The DEIS will include a list of all required state and federal permits, supported by text that provides an analysis of each alternative with regard to the conditions for issuance of each permit, and a schedule for submittal, review and issuance of environmental permits.

8.10 Public Participation

The DEIS will contain a section documenting the Public Participation and Agency Coordination conducted during the preparation of the DEIS. This will include a list and summaries of meetings held with municipal, state and federal officials, summaries of public information meetings and summaries of comments received via the project information website (www.danburybranchstudy.com) or the via snail mail. Copies of newsletters will be included. A Technical Appendix containing copies of all meeting notes, meeting announcements, handouts, newsletters, and other public participation documents will support this section.

8.11 Draft DEIS Review/Revision

The Draft DEIS will be reviewed and revised in two iterations. The Consultant will provide ConnDOT with a preliminary draft document for internal review. Following ConnDOT's review, the Consultant will revise the draft, and distribute the preliminary draft DEIS to the FTA and cooperating agencies for pre-publication review. The Consultant will revise the draft DEIS and incorporate agency comments into the DEIS prior to publication of the document. A total of six (6) meetings with ConnDOT and Cooperating Agency staff are anticipated for review of the Draft DEIS.

8.12 Executive Summary

The Consultant will prepare an Executive Summary of the DEIS as a stand-alone document for public distribution. Following ConnDOT's review, the Consultant will revise the draft and prepare a final version for distribution.

8.13 Printing and Distribution

The Consultant will prepare copies of the DEIS in hard copy (paper) and compact disk (CD) formats for distribution, and will distribute copies to the required distribution list and public repositories.

TASK 9 Final Environmental Impact Statement (South Norwalk –New Milford)

9.0 Final EIS Preparation

The Consultant will prepare a Final Environmental Impact Statement (FEIS) in conformance with Council of Environmental Quality (CEQ), Federal Transit Administration and Federal Highway Administration (FHWA) regulations and guidance documents. The FEIS will be a stand-alone document that will include a summary of the Alternatives Analysis process, DEIS process, and provide a detailed assessment and rationale for selection of the preferred alternative. The FEIS will also respond to comments received during the public comment period on the DEIS. Information and graphics presented in the FEIS will be based on the DEIS and supplemental material. No supplemental data collection, other than that identified in Task 5.2, is included in this scope of services. Should additional services be required, based on comments to the DEIS, the Consultant will prepare an amendment to this Scope of Services in consultation with ConnDOT.

9.1 Alternatives Examined and Selection of Locally Preferred Alternative

The FEIS will include a discussion of the alternatives analyzed in the DEIS, and document the screening process which resulted in the selection of the Preferred Alternative.

9.2 Preferred Alternative

The FEIS will provide:

- a detailed description of the Preferred Alternative, based on the conceptual design
- a project implementation plan, including phasing of capital and operating funding requirements and sources of funding
- annual costs

9.3 *Affected Environment*

The FEIS will provide a description of the existing conditions within the project study area, and will establish the basis for comparisons in a regional context (where appropriate). Existing conditions descriptions will be based on the Technical Reports and summaries provided in the DEIS, modified to more closely correspond to the modified Preferred Alternative. This analysis assumes that no new environmental resources would be affected, and that there would be no substantial change in impacts as described in the DEIS. Resources or conditions will include:

- Existing roadway and rail systems
- Traffic/Transportation
- Noise
- Air Quality
- Fisheries and Wildlife
- Rare, Threatened and Endangered Species
- Biological Diversity
- Wetlands
- Floodplains and Floodway
- Historical and Archeological Resources
- Farmlands
- Land Use
- Hazardous/Contamination
- Subsurface and Groundwater
- Public Recreational Lands and Open Space
- Socioeconomic Conditions
- Scenic Roads
- Visual/Aesthetic Resources

9.3 *Project Impacts*

The FEIS will provide an analysis of the Preferred Alternative with respect to environmental and social resources and conditions. Impacts and proposed mitigation measures will be summarized from information provided in the DEIS. Graphics will be provided that illustrate impacts for the preferred alternative only. This chapter will include analysis of the following:

- Traffic/Transportation
- Noise
- Air Quality
- Fisheries and Wildlife
- Rare, Threatened and Endangered Species
- Biological Diversity

- Wetlands
- Floodplains and Floodway
- Historical and Archaeological Resources
- Farmlands
- Land Use
- Hazardous/Contamination
- Surface and Groundwater
- Public Recreational Lands and Open Space
- Socioeconomic Conditions
- Scenic Roads
- Visual/Aesthetic Resources
- Financial Evaluation

9.5 Secondary and Cumulative Impacts

The FEIS will identify and summarize the likely secondary and cumulative impacts resulting from the Preferred Alternative.

9.6 Summary of Mitigation

The FEIS will include a summary of mitigation measures and a list of Environmental Commitments proposed for the preferred alternative.

9.7 Section 4(f) Evaluation/Section 106 Evaluation

The Consultant will revise the draft Section 4(f) and Section 106 Documentation contained in the DEIS to reflect the impacts and mitigation associated with the preferred alternative.

9.7.1 Section 4(f) Evaluation

The Consultant will prepare a report that meets the requirements of the Department of Transportation, Federal Transit Administration and Federal Highway Administration Technical Advisory regarding Section 4(f) Evaluation format and content. The report will document that no prudent and feasible alternatives to the preferred alternative exist that avoid the use of any Section 4(f) property. The Section 4(f) Evaluation will include:

- A description of the preferred alternative, including an explanation of the purpose and need of the project.
- A description of all affected Section 4(f) properties
- A discussion of the impacts of the preferred alternative on the Section 4(f) properties

- Identification and evaluation of alternatives that would avoid the Section 4(f) properties;
- A discussion of measures that are available to minimize the impacts of the preferred alternative considered on the Section 4(f) properties; and
- Documentation of the coordination with the public official having jurisdiction over the Section 4(f) properties, the Northeast Regional Offices of the Department of Interior, and the FTA.

9.7.2 Section 106 Documentation

If it is determined by ConnDOT and the Connecticut State Historic Preservation Office that the proposed action has an adverse effect on Connecticut's cultural resource heritage, the Consultant, in cooperation with ConnDOT, CTSHPO, FTA and the Advisory Council on Historic Preservation (ACHP) shall prepare a memorandum of agreement (MOA) to address mitigation measures agreed upon by all parties.

The consultant shall also prepare a Section 106 Case Study Report to be submitted to the ACHP and the CTSHPO by the FTA and the Connecticut Department of Transportation (ConnDOT). The Case Study Report will include:

- A description of the preferred alternative,
- A description of the efforts to identify all significant historic and archaeological properties in the project area;
- A description of the significant properties affected by the preferred alternative;
- A description of the effects of the preferred alternative on all significant properties
- A description and evaluation of the avoidance alternatives that were considered to mitigate the impacts of the preferred alternative;
- A summary of all opinions issued by the CTSHPO, other consulting agencies, and any concerned parties.

9.7.3 Memorandum of Agreement

A draft Memorandum of Agreement (MOA) outlining stipulations to be carried out by the FTA and ConnDOT to eliminate, minimize or mitigate any adverse effects of the proposed project will be prepared and included in the FEIS.

9.8 Permit Requirements

The FEIS will include a list of all required state and federal permits, supported by text that provides an analysis of each alternative with regard to the conditions for issuance of each permit and a schedule for submittal, review and issuance of environmental permits.

9.9 Response to Comments

The Consultant will review all written and oral comments received during the public comment period on the Draft Environmental Impact Statement, and will prepare a Response to Comments section that summarizes these comments, indicates where a response may be found in the FEIS text, or provides a short response to comments not otherwise addressed in the text.

9.10 Public Participation

The FEIS will contain a section documenting the Public Participation and Agency Coordination conducted during the preparation of the DEIS and FEIS. This will include a list and summaries of meetings held with municipal, state and federal officials, summaries of public information meetings, and summaries of comments received via the project information website and mailings/phone calls. Copies of newsletters and a description of the project "Web" page will be included. A Technical Appendix containing copies of all meeting notes, meeting announcements, handouts, newsletters, and other public participation documents will support this section.

9.11 Draft FEIS Review/Revision

The Draft FEIS will be reviewed and revised in two iterations. The Consultant will provide ConnDOT with a preliminary draft document for internal review. Following ConnDOT's review, the Consultant will revise the draft, and distribute the preliminary draft FEIS to the FTA and cooperating agencies for pre-publication review. The Consultant will revise the draft FEIS and incorporate agency comments into the FEIS prior to publication of the document. Two (2) meetings with ConnDOT staff and the Cooperating Agencies have been included in this task.

9.12 Executive Summary

The Consultant will prepare an Executive Summary of the DEIS as a stand-alone document for public distribution. Following ConnDOT's review, the Consultant will revise the draft and prepare a final version for distribution.

9.13 Printing and Distribution

The Consultant will prepare copies of the DEIS in hard copy (paper) and compact disk (CD) formats for distribution, and will distribute copies to the required distribution list, public repositories, and as requested by interested parties for review.

9.14 Record of Decision

The Consultant will prepare a draft of the Record of Decision (ROD) for ConnDOT staff review following FTA decision on the proposed action, and will submit the ROD to FTA for final publication. The Consultant will make the ROD available to the public on the project website.