

**Draft Scoping Document for the
Draft Environmental Impact Statement (DEIS)**

Energy Recovery Linac (ERL) Project

Cornell University

August 18, 2010

Revised September 29, 2010 to Incorporate Public Comments

Executive Summary

This Draft Scoping Document has been prepared to satisfy the requirements of the State Environmental Quality Review Act (NYCRR Part 617) to describe the content of the Draft Environmental Impact Statement (DEIS) that will be prepared by the Energy Recovery Linac (ERL) Project sponsor, Cornell University (Cornell).

Part 1 of a Full Environmental Assessment Form (EAF) was prepared and submitted to the Town of Ithaca Planning Board for this action. The Town of Ithaca Planning Board has formally requested and has obtained Lead Agency status. As Lead Agency, the Town Planning Board completed Part 2 and Part 3 of the EAF and, based on the information available, has issued a positive declaration of environmental significance.

Based upon the applicant's revised sketch plan and project narrative, dated May 25, 2010, and reviewed by the Planning Board at its July 20, 2010 meeting, the Town of Ithaca Planning Board has determined that a SEQR positive declaration of significance continues to apply to this project, and that a Draft Environmental Impact Statement (DEIS) will be required.

This Draft Scoping Document was prepared by the applicant, working with planning staff from the Town of Ithaca, and revised to incorporate comments from the Town of Ithaca Planning Board. In addition, this document was revised to incorporate comments by the Town Planning Board and community members at a Public Comment session held on September 21, 2010 at a Town of Ithaca Planning Board meeting.

Chapter One: Description of the Proposed Action

The first chapter of the DEIS will include a Description of the Proposed Action. The following project description was extracted from information included in the Long EAF, updated to reflect the current (August 2010) scope and Town of Ithaca Planning Board comments:

The proposed action is the construction of the Cornell Energy Recovery Linac (ERL). The ERL will include underground tunnels and both surface and subsurface buildings, which will extend the existing Cornell Electron Storage Ring (CESR) and synchrotron. The underground work includes an extension of the existing underground synchrotron ring with a new looped accelerator tunnel. The total length of the tunnel addition is approximately 1 kilometer.

The new laboratory addition will extend from the east end of the existing facility, Wilson Laboratory. The Laboratory expansion will include about 195,000 gross square feet. A smaller

expansion to the west will include approximately 14,000 gross square feet. Each of these laboratory expansions will include experiment spaces, laboratories, offices, circulation spaces, and other support spaces; the larger eastern expansion will also include a conference area. A new cryogenics plant, an electrical substation, and cooling units are also required to support the installation. The cryogenics plant will be constructed to the east of Judd Falls Road, south of Campus Road and to the north of Route 366; this portion of the construction will occupy about 53,000 additional gross square feet. The electrical substation will be built near to the cryogenics plant.

Based on projected funding and approvals schedules, construction of the new facility is anticipated to begin in 2013 at the earliest. Construction of the facility will take approximately 42-48 months and, following an extensive equipment installation, start-up, and testing period, the new systems would be operational in 2019, based on a 2013 construction start.

Construction and operation of the ERL will require funding approval from the National Science Foundation and site plan and special permit approval by the Town of Ithaca Planning Board. An area variance (height) approval from the Town of Ithaca ZBA may also be required. Additional permit requirements will also be delineated in the DEIS.

A detailed Project Narrative will be included in the DEIS to provide details about the overall scope of work and a summary of the overall environmental assessment of the project.

The DEIS will expand upon the prior LEAF Project Narrative and will include the following details:

- Introduction and Project Overview
 - Major Project Components
 - Laboratory Expansion
 - Tunnel Extension
 - Facilities for Support and Operations
 - Facility Operations
 - Operational management and oversight – Roles of Cornell and the National Science Foundation.
 - Operating Standards
 - Project Purpose, Public Need, and Benefits (including social and economic considerations)
- Location, Setting, Zoning, and Planning Context. This section will include a discussion of the project location and layout within the surrounding area and a description of how campus and local planning efforts influenced the project and site design, including a discussion of how the project conforms to the Cornell Master Plan, Transportation Generic Environmental Impact Statement (TGEIS), and the Cornell Climate Action Plan.
- Site Layout and Landscape Design
 - Use of Existing Facilities and Site Features

- Extension and Modification within the Existing Developed Site
- Existing and proposed Transportation Infrastructure
- Pedestrian Bridge over Cascadilla Creek
- Subsurface Tunneling

- Architectural Design

- Sustainable Design
 - Green Building Design
 - Energy Conservation and Sustainable Site Design

- Site Utilities
 - Existing Site Utilities
 - Proposed Utility Extensions and Connections
 - Conformance with campus utility planning efforts

Chapter Two: Potential Significant Impacts and Mitigating Measures

In this Chapter, areas of potentially significant adverse environmental impacts will be addressed. For each impact area addressed, the DEIS will include descriptions of the existing conditions, the potential negative impacts of the proposed project, applicable mitigation measures which are proposed to reduce those negative impacts, and any impacts that are unavoidable (cannot be mitigated).

The Lead Agency, with the assistance of Town staff professionals, has reviewed the information and analysis including in the EAF. Based on the environmental impact assessment performed by Town staff from the information included in the Long EAF, and subject to the concurrence of Town Planning Board members, the following potential areas of significant adverse impact will be included in the DEIS:

- Land
 - Changes to Local Lands
 - Work in and around Natural Areas and methods used to protect those areas.
 - Temporary and permanent changes to land use from construction operations and temporary contractor support areas.

Impact to land resulting from the excavation and the off-site spoils disposal needed for the project. Excavation quantities have been estimated at up to 225,000 cubic yards total for the laboratory, support buildings, and tunnel excavation work.

- Water
 - Stormwater Management and Runoff to Cascadilla Creek
 - Erosion and Sedimentation or increase runoff quantity from construction operations and erosion and sediment controls measures to be implemented during construction.

- Changes in run-off quality or quantity as a result of physical changes to the site and permanent storm water control features and the effect of those changes on downstream waterways.
- Improvement in storm water quality from restoration of stream buffer area
- Stream Set Backs: The DEIS will address compliance with the Town's pending Stream Set Back Regulations or, alternatively, the need for a variance therefrom.
- Wetlands – Direct and indirect impacts to wetlands in and around the Project Area. The wetland evaluation provided in the EAF will be used as the basis for this assessment.
- Aesthetic and Recreational Resources
 - Community Visual Impacts resulting from the project, including both the laboratory building and planned accessory/support buildings (such as cooling units). This section will discuss the placement of the cooling units and cryogenics plant below surface grade to minimize visual impacts, and the placement of the building within the topographical “bowl” of the current site, which lowers visual impacts of the facility within the community. Computer-generated images will be used to assess the visual impact of the building.
 - Site lighting around the building exterior, at building entries, in the parking areas, and along the pedestrian bridge over Cascadilla Creek. Both general design standards and sample fixture photometric data will be included in this discussion.
 - Changes to recreational trails and paths that will result from the project. The construction operations will require a temporary detour of the local bike and pedestrian trail which parallels Judd Falls Road, coincident with the Judd Falls single-lane temporary closure. In addition, the proposed pedestrian bridge will intersect the “soft” walking trail opposite Wilson Laboratory, to the south of Cascadilla Creek. Both temporary construction modifications and any permanent changes resulting from this project will be addressed and the proposed detour for local bike and pedestrian trails shall be clearly delineated.
- Transportation. Access, Circulation, and Parking in the vicinity of the ERL were evaluated in the Full EAF and its attached Transportation Impact Analysis (TIA). The TIA was produced by the transportation consulting firm Martin Alexiou Bryson (MAB) of Raleigh, NC. The following intersections were included in the study area and were analyzed for existing and future conditions as applicable:
 - Dryden Road (NYS Rt. 366) at Hoy Road (unsignalized)
 - Dryden Road (NYS Rt. 366) at Pine Tree Road/Site Access #1 (unsignalized)
 - Dryden Road (NYS Rt. 366) at Judd Falls Road (unsignalized)
 - Judd Falls Road at Campus Road (unsignalized)
 - Judd Falls Road at Tower Road (unsignalized)
 - Dryden Road (NYS Rt. 366) at Tower Road (unsignalized)
 - Tower Road at Campus Road (unsignalized)
 - Dryden Road (NYS Rt. 366) at Caldwell Road/Palm Road (signalized)
 - Campus Road at Wing Drive/Site Access #2 (unsignalized)
 - Campus Road at South Morrison Lot Driveway/Site Access #3 (unsignalized)
 - Dryden Road (NYS Rt. 366) at T Lot Driveway/Central Heating Plant Driveway (unsignalized)

As reported in the Full EAF, analysis was performed under four Scenarios: Existing, No-Build, Build, and a Construction Phase. The Existing Scenario included A.M. and P.M. peak hour analyses based on turning movement data primarily collected in April 2008. This data will be extended with more a more recent traffic count at the most critical intersection (Pine Tree Road and NYS Route 366/Dryden Road) to ensure that the 2008 data remains accurate, as well as pedestrian/bike counts along the pedestrian path just to the east of Judd Falls Road between Route 366 and Campus Road so that impacts to bicyclists and pedestrians can be quantified and assessed. In addition, MAB will analyze traffic data and projections to estimate any impacts the construction or operation of the project may have on residential neighborhoods along or near construction traffic routes (for example, for the transport of spoils or new equipment). The unsignalized intersection of Forest Home Drive and Warren Road will be added to the study area and analyzed for existing and future (construction and operation) conditions and impacts.

The No-Build Scenario included existing traffic with projected annual growth. The Build Scenario included the No-Build volumes with the addition of site trips generated by the proposed development. The Construction Scenario accounts for the No-Build volumes with the addition of construction related traffic, including vehicles of construction workers and trips made by dump trucks hauling the removed dirt away from the site.

MAB's prior evaluation determined that, while some existing intersections were in need of improvement based on overall campus growth and development potential, no significant adverse environmental impacts will result from the operations of the ERL facility. This result will be reassessed in the updated traffic study.

In addition, the MAB study did not predict significant adverse impacts from construction traffic based on the analysis completed. This analysis looked only at the maximum anticipated rate of hauling from the site excavation, overlaying this data on a model which anticipated steady campus growth through at least 2016 (the year 2016 was chosen as representing the highest traffic – worst case – scenario in this model, even though peak construction traffic will likely occur in early, less congested years).

The Town has requested that potential impacts of construction activities on transportation be further assessed due to the large scale of the project (physically and especially in terms of excavated soil hauling) in comparison to typical local projects. The assessment of potential impacts to transportation from construction operations will be included in the DEIS, and will include the following areas of assessment:

- Contractor Traffic and Parking
- Sequencing of Construction
- Staging and Temporary Storage of Equipment
- Employee Parking during Construction
- Impacts to Campus (private) Roads from Construction

- Construction Delivery and Hauling – magnitudes, frequencies, and routes will be documented and assessed to determine what impacts might result and what mitigation measures are appropriate to reduce adverse impacts on local traffic and transportation infrastructure.
 - Proposed restrictions to Judd Falls Road will be discussed. Based on the project re-design, it is now expected that the Project will require the closure of a single lane of Judd Falls Road between NYS Route 366 and Campus Road for a period of approximately six months. Mitigation recommendations and impacts will be included in the DEIS. Tower Road will be the primary detour route during this period. This section of Judd Falls Road is currently owned by the Town.
 - Pedestrian, Bicycle, and Public Transit. The DEIS will evaluate what temporary and permanent changes in these transportation modes will result from the project and how any adverse impacts may be mitigated.
 - The DEIS will discuss potential installation of access roads, as necessary, for the truck hauling of soil and debris from the site.
 - The DEIS will assess traffic hazards related to the repeated movement of trucks and equipment and any anticipated delays both on roadways and at intersections.
 - The DEIS will address all potential construction impacts on local roadways. The DEIS will describe plans to involve and coordinate with appropriate highway agencies, including the NYSDOT and Town and County Highway Departments, regarding appropriate arrangements for work permits related to heavy roadway use, likely disturbance of local roads for site development, truck removal of soil and debris from the site, and truck delivery of stone, concrete, and other components and materials.
 - The DEIS will identify and address any current existing limitations or deficiencies of roads, culverts or bridges impacted by the proposed construction.
 - The DEIS will describe and address potential construction effects, including temporary damage, upon Town and County roadways, both within the host municipality and upon delivery routes to the site.
 - The DEIS will fully describe the applicant's responsibility for remediation of damage to local roads and pedestrian/bicycle pathways that result from the proposed project, and shall include pre- and post-construction documentation of road conditions of roadways impacted by the proposed project construction. The DEIS will address provision for issuance of a public improvement bond prior to commencement of construction activities or other similar mechanism to ensure appropriate allocation of any maintenance or repair costs. The DEIS shall describe anticipated seasonal limitations, restoration standards and financial assurances for roadway and pathway improvements and restoration.
- Construction Noise. Future noise from the operation of the ERL was addressed in the EAF and that discussion remains valid. The DEIS will also address construction noise and associated mitigation measures. Additional discussion or analysis will be included only if the Town determines that a significant adverse environmental impact may result from construction noise on this project or from vibrations during construction or operation.

- **Public Health.** The ERL operations could have an adverse environmental impact that would result in risk to human health and safety if not properly designed and implemented. This section will review the risks and mitigations (design elements, policies, regulatory and institutional oversight, and safety policy & procedures) proposed for this facility to maintain public health, including protection of workers and visitors, throughout the facility. This section will address typical issues such as emergency vehicle access as well as research-specific issues such as the radiation generated within the Wilson facility during operations, the facility's history of managing of similar radiation, and likely changes as a result of the ERL expansion. This section shall address safe transportation and storage of hazardous materials, attendant risks and mitigation measures.
- **Energy.** The ERL will require substantially more energy than the current Wilson Synchrotron and ultimately result in incrementally higher power generation requirements locally or regionally. The DEIS will quantify this energy use, its reasonably-foreseeable local and regional impacts, and mitigation measures to reduce the overall use of energy and the impact of this use. This analysis will address both energy use and the associated Greenhouse Gas (GHG) emissions that result from this energy use; quantify these emissions in terms of Cornell's overall GHG footprint, and address mitigating measures to reduce this impact and maintain Cornell's Climate Action Plan commitment to Climate Neutrality.
- **Noise.** Cornell commissioned a Sound Impact Assessment for the project. The results of this assessment were included as an attachment to the Long Environmental Assessment Form submitted with the original Preliminary Site Plan Approval for the project. This assessment will be included in the DEIS to ensure that DEIS reviewers understand the scope and assessment outcome of that study.
- **Historical and Archeological Impacts.** Cornell commissioned a Historical and Archeological Impacts assessment. The results of this assessment were included as an attachment to the Long Environmental Assessment Form submitted with the original Preliminary Site Plan Approval for the project. This assessment will be included in the DEIS to ensure that DEIS reviewers understand the scope and assessment outcome of that study.
- **De-Commissioning Impacts.** Impacts resulting from the potential future cessation of National Science Foundation (NSF) funding for this facility will be addressed.

Chapter Three: Reasonable Alternatives to the Proposed Action

Reasonable alternatives to Proposed Action that are feasible and consistent with Cornell University's mission will be addressed. Alternatives to be considered will include the following:

- **No Action.** That is, Cornell abandons its plans to develop the ERL project or funding is not made available for the project.
- **Project Design Alternatives:** Changes in the design of the project to mitigate areas of concern, including the following:
 - Alternative Development Locations.
 - Alternative Development Layouts including alternate project size or scale.
 - Alternative Methods of Construction
 - Alternatives methods to route traffic on one lane of Judd Falls Road

A comparative assessment of costs, benefits, and environmental risks will be examined in general terms for each of the alternatives.

Chapter Four: Unavoidable Significant Adverse Impacts and Irretrievable Commitment of Resources, Growth-Inducing Aspects, or Energy Impacts.

Chapter Four of the DEIS will identify any reasonable related short-term or long-term impacts, cumulative impacts, and other associated environmental impacts associated with either the construction or the operations of the Project. This chapter will also document any significant unavoidable environmental impacts, irretrievable commitment of resources, or significant impacts from additional energy use that cannot be appropriately mitigated. This project is not expected to result in any substantial growth or growth-inducing aspects; however, should any be identified through the DEIS process, these will also be documented.

APPENDICES

Supporting materials will be appended to the DEIS where useful to communicate and document the underlying studies and information necessary to evaluate the potential environmental impacts of the ERL Project. These appendices will include the following (*Additional materials may be added to the following list as needed to understand and assess specific impacts areas*):

- A. Storm Water Management Report
- B. Wetlands Report
- C. Archeological Studies
- D. Noise Impact Analysis
- E. Soil Testing Reports
- F. Relevant Correspondence and regulatory guidance regarding the project.
- G. Responses to Public Comments received prior to or during DEIS generation.