



## March 2013 Design Update

### **About the Project**

The Town of Concord, Concord Public Works (CPW) and the Public Works Commission (PWC) are undertaking the Cambridge Turnpike Improvement Project to develop and implement a comprehensive plan to improve the many problems affecting the roadway from Lexington Road to Routes 2 and 2A (Crosby's Corner). While this project is independent of MassDOT's Crosby's Corner project, CPW is coordinating with the agency on scheduling and construction matters.<sup>1</sup> A primary focus of this project will be construction of improvements to the roadway to address flooding. Notwithstanding, the Town also views this as an important opportunity to address roadway and other public infrastructure improvements to enhance the experience of the people who use the area. To the extent that is feasible, a project objective will be to integrate several modes of transportation in an aesthetically pleasing manner that complements the community's character and is sensitive to the nearby environmental and historical resources that Concord residents value and enjoy.

### **Project Development**

The Town and The Louis Berger Group Team (design team) began work by identifying and gaining an understanding of some of the known critical problems and issues that the roadway presents. To further understand the issues, a comprehensive public involvement program was established and we began to learn about concerns that are important to the community. A questionnaire was developed and distributed to the public in August to encourage feedback and involvement in the project. Following the receipt of completed questionnaires by mail and online, the team compiled and analyzed responses, and identified the community's major issues and design priorities. The PWC conducted a public informational briefing on October 10, 2012 to present the questionnaire results.

### **Design Priorities and Status**

While the primary focus of this project is to address the existing flooding conditions that result in frequent road closures, flooding of homes and businesses and impacts to their septic systems, we recognize the community's priority issues of Traffic, Pedestrian and Bicycle Safety and Traffic Congestion. The design priorities established are:

- Flooding
- Environmental Impacts
- Traffic Safety and Intersection Congestion
- Roadway Width
- Historical Preservation
- Aesthetics - Landscaping, Structures



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<sup>1</sup> For questions and information on the Crosby's Corner project, please visit [http://www.concordma.gov/pages/ConcordMA\\_PublicWorks/Crosbys\\_corner](http://www.concordma.gov/pages/ConcordMA_PublicWorks/Crosbys_corner)

Flooding

As the most critical issue for the project, it is essential to understand the hydrology and hydraulics of the Mill Brook watershed. Data collection and the analysis of the flooding conditions are well underway. In April 2012, the design team began the task of collecting survey data via aerial photography of the roadway and the entire floodplain of reach number 2 of Mill Brook between Main Street and Crosby's Pond (known as Mill Brook 2). The surveyor then followed up with a supplemental ground survey beginning in September. In addition to standard topographical survey for the roadway, this survey field work included the collection of several dozen stream cross section elevations along the length of Mill Brook that would allow the design team to properly analyze the existing watershed conditions.

After this preliminary survey information was compiled and historic flood plain information was gathered, the design team began the hydrological and hydraulic modeling and study of Mill Brook 2. The model developed has been calibrated using historic flooding elevations recorded by the Town. At this time, a draft of the study is being reviewed by the Town and will be finalized in the coming weeks. CPW and the design team anticipate that the hydrologic and hydraulic study will also support a letter of floodplain map revision (LOMR) that will be filed with FEMA.



Environmental Permitting

The project poses a significant challenge to minimize the impacts to environmentally sensitive areas along the roadway. Several permitting processes will be required, including those at the local, state and federal levels. The design team has performed some preliminary environmental field work to support future permitting activities. Wetland resource areas were delineated by the design team, and wildlife/essential fish habitat assessments were performed. Additionally, the design team has performed the field work for the stream geomorphology assessment of Mill Brook 2. The assessment seeks to understand the current watershed and how various existing factors influence the stream behavior, allowing the design team to develop appropriate restoration techniques and stream crossings.



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A draft Environmental Notification Form has been prepared and will be finalized upon the completion of the hydrologic and hydraulic study and sufficient progress of the preliminary roadway design. As noted earlier, a letter of floodplain map revision will be filed with FEMA based on the flood elevations determined in the hydrologic and hydraulic study.

Traffic Safety and Intersection Congestion

The design team has obtained traffic volumes, turning movement counts, vehicle traveling speeds, recorded accident data and intersection sight distances along Cambridge Turnpike. An analysis of this information has begun and a preliminary design report is in development. This report will contain the abovementioned existing data as well as recommendations and possible design concepts that could be incorporated into the project design.



In the interest of maintaining the involvement of those impacted by the project, meetings have taken place with the Concord Museum and the Ralph Waldo Emerson House to discuss possible intersection improvements at Lexington Road. After receiving input from these organizations that are directly affected by potential intersection modifications, CPW and the design team will continue to evaluate appropriate modifications to meet the project goals most effectively, in consultation with historical preservation parties.

Roadway Width

The design team performed a roadway cross section evaluation at eight locations along Cambridge Turnpike, considering two separate roadway widths – a 24 foot section and a 26 foot section, exclusive of sidewalks. The eight locations were selected by their varying existing conditions, such as roadway width, cut/fill side slopes, wetlands and the approximate position of the existing roadway within the right-of-way (ROW). The existing roadway is generally 23 to 25 feet wide. There are limited segments 200 feet in length near the existing bridge (farm crossing) and midway between Mildred Circle and Sandy Pond Road that are 26 feet wide, and very limited segments that are 22 feet wide immediately west of Sandy Pond Road and near Crosby’s Pond. A 4 to 5 foot wide sidewalk is located on the northerly side of the roadway for approximately half of the project, from Lexington Road to Hawthorne Lane.



The proposed cross section and roadway width must balance the needs and preferences of all roadway users as well as historical and environmental concerns. As described above, the questionnaire solicited input and comments from the public to help the Town understand the issues that are important to the community. As a result of the input, the Town and the design team selected 24 and 26 foot roadway widths for further evaluation. The pros and cons of each roadway width were noted in the analysis.

During early coordination efforts, the Concord Historical Commission (CHC) expressed the importance of maintaining the historic character including the look of a natural, rural and agrarian community. The Commission specifically requested that the width of the road be kept as narrow as possible. As a result, the project design will proceed with a proposed 24 foot roadway width.

Historical Preservation

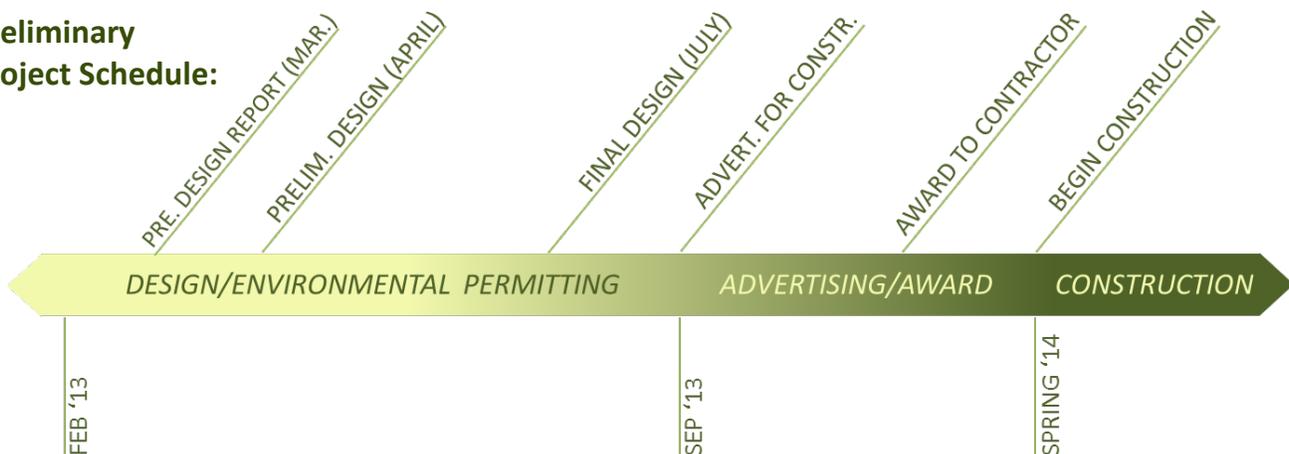
As noted in the sections above, early coordination with the CHC, Concord Museum and the Ralph Waldo Emerson House is underway. Additionally, a Project Notification Form was sent to the Massachusetts Historical Commission in September 2012. As the project progresses, CPW and the design team will continue to engage the appropriate historical preservation parties to ensure their satisfaction with the project.



Aesthetics – Landscaping, Bridge, Retaining Walls and Culvert

CPW and the design team understand the desires of the community to maintain the existing character of the corridor. The project is still in the early stages and the design decisions will be carefully reviewed and analyzed for their appropriateness. In addition to landscaping, CPW and the design team will seek input from stakeholders on the bridge replacement near Mill Brook Farm, the culvert near Crosby Pond, and the earth retention systems associated with each of these structures.

**Preliminary Project Schedule:**



**Public Involvement/Public Comment**

As the project progresses, updates and notices will be posted on CPW’s website at [http://www.concordma.gov/pages/ConcordMA\\_PublicWorks/cambridgetpk](http://www.concordma.gov/pages/ConcordMA_PublicWorks/cambridgetpk). Public meetings will be scheduled at key points throughout the design process. Comments specific to the information in this update are **due by April 5, 2013**. They may be submitted by US Mail to CPW (133 Keyes Rd., Concord, MA 01742) or by email to [CTIPcomments@Concordma.gov](mailto:CTIPcomments@Concordma.gov). We encourage you to become actively involved and thank you for your interest and participation in this exciting project.