

December 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 (CTIP) to develop and implement a comprehensive plan to address the problems affecting the roadway from Lexington Road to Routes 2 and 2A (Crosby's Corner). A primary focus of this project is to construct improvements that resolve flooding of the roadway. The Town also views the project as an important opportunity to address safety and other public infrastructure issues to improve the environment for the people who live in and use the area. To the extent feasible, a project objective is 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 are valued and enjoyed by Concord residents and visitors alike.

Design Priorities and Status

The design team has completed the preliminary design report (PDR), which outlines the various project elements that respond to community input received in the earlier phase of the design process. CPW and the PWC are seeking further community input on the draft PDR. It can be viewed on the project [website](#).

While the primary focus of this project is to address the frequent flooding conditions occurring on Cambridge Turnpike, previous public input from the 2012 Community Questionnaire and October 2012 public meeting established additional design priorities, some of which are included in the list below:

- Traffic Congestion, Safety and Speed
- Pedestrian Accommodations
- Sustainable Infrastructure
- Aesthetics - Landscaping, Structures
- Community Character/Historic Preservation
- Environmental Stewardship

The Community Questionnaire Report can be viewed on the CTIP [website](#).

Flooding

As the most critical issue for the project, it is essential to understand the hydrology and hydraulics of the Mill Brook watershed to appropriately address flooding.

The design team has completed the hydrological modeling for the 100 year flood elevation associated with Mill Brook, upstream of Main Street. This more detailed study of the 100 year floodplain has been

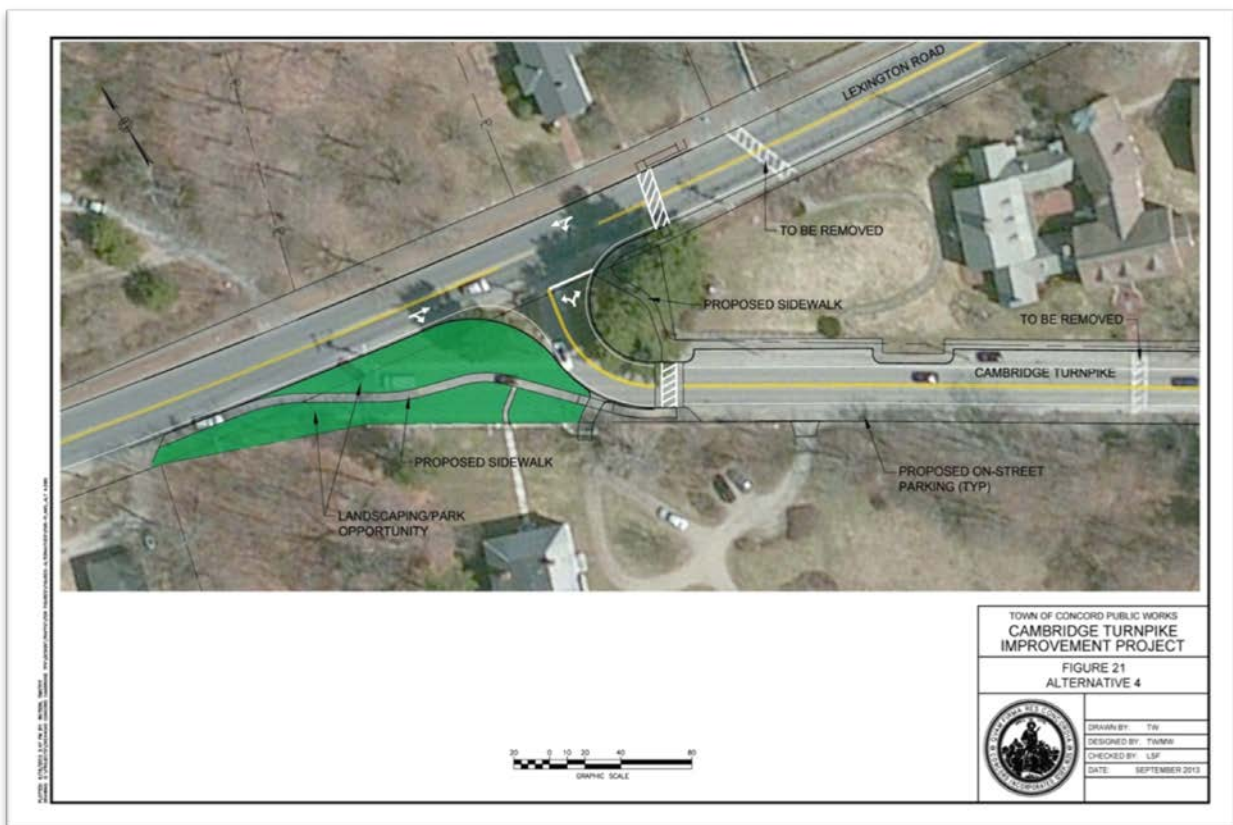
used to support the letter of (floodplain) map revision (LOMR) that was filed with the Federal Emergency Management Agency (FEMA). CPW and the design team anticipate that the FEMA process will be completed in time to accommodate the project permitting schedule. Hydraulic modeling has also been completed for the study of the Mill Brook crossing under the Cambridge Turnpike near the Mill Brook Farm.

Additional flood control studies initiated for this project included a dam breach analysis of the Crosby Pond dam to provide data for protecting the integrity of Cambridge Turnpike in the event of a dam breach (or failure). Stream survey mapping and field reconnaissance were also performed to support stream flow maintenance permitting, which could alleviate upstream flooding. Initial reconnaissance did not identify any clear impediments to stream flow other than beaver activity and the accumulation of sediments. The extremely flat grade of the brook makes any significant improvements to the flow rate unlikely. A stream flow maintenance plan will require significant permitting requirements to be met.

Additional measures to address flooding issues include adjustments to the roadway profile to raise it above the 100-year flood elevation at both the bridge near Mill Brook Farm and at the culverts at Crosby Pond.

Traffic Congestion and Safety

The PDR details information collected such as traffic volumes, turning movement counts, vehicle traveling speeds, recorded accident data and intersection sight distances along Cambridge Turnpike. An analysis of this information was completed to support recommendations and possible design concepts that could be incorporated into the project design.



Five different conceptual alternatives were considered at the intersection with Lexington Road. Coordination meetings were held with representatives from the Concord Museum and the Ralph Waldo Emerson House to present findings and discuss the various possible alternatives for intersection improvements. After receiving input from these organizations that are directly affected by any proposed intersection modifications, alternative #4 from the PDR was tentatively selected as the best practical



alternative for further review and development. This alternative consists of a right angle connection to Lexington Road in the vicinity of the existing right angle connection. The remainder of Cambridge Turnpike from the Ralph Waldo Emerson House drive to Lexington Road would be eliminated, and the area redeveloped as a pocket park and restful gathering place for visitors to the two historic properties, and pedestrians and bicyclists who travel the corridor.

The intersections of Hawthorne Lane, Mildred Circle and Sandy Pond Road were analyzed for possible improvements. Trimming vegetation to improve

sight distance was identified for all intersections and, in response to concerns about high speeds, inclusion of a 2-foot median treatment for traffic calming has been proposed at these locations. In the area of Sandy Pond Road, the profile of Cambridge Turnpike is proposed to be lowered to improve sight distance while entering the turnpike.

Pedestrian Accommodations

Previous input from the community questionnaire and public meeting indicated a desire to balance traffic calming and maintaining a narrow roadway with providing sidewalk facilities for pedestrians and accommodations for bicyclists. In order to best balance these somewhat competing desires, the design team is proceeding with a typical roadway that is 24 feet wide with a 5-foot sidewalk. The sidewalk is planned for the entire length of the project providing connectivity to the downtown Concord area.

Sustainable Infrastructure

A stormwater management and treatment system is planned for the space created by the elimination of a portion of the Cambridge Turnpike at Lexington Road. It will consist of a bioretention basin (vegetated depression) that will capture and treat stormwater, furthering the project goal of implementing sustainable practices to the maximum extent practical.

Sandy Pond Road will be realigned to a “T” intersection with the resulting reclaimed land being developed as an aesthetic improvement containing a small rain garden.



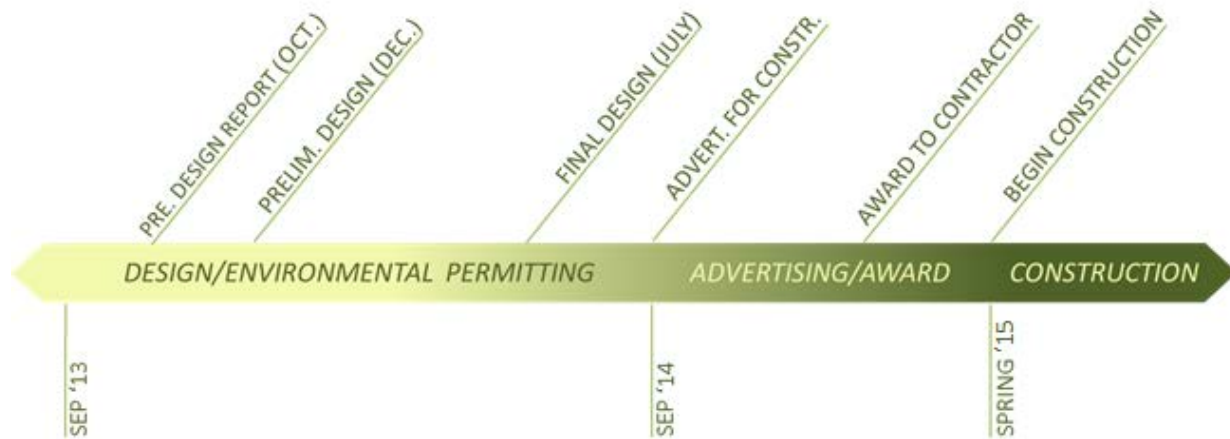
Aesthetics – Landscaping, Bridge, Retaining Walls and Culvert

The design team understands the desires of the community to maintain the existing character of the corridor and this continues to be a priority project goal for CPW and the PWC. In addition to landscaping, CPW and the design team will continue to solicit input from stakeholders on the bridge replacement near Mill Brook Farm, the culverts near Crosby Pond, and the earth retention systems associated with each of these structures.



Retaining walls will be required to limit the impacts to wetlands at the Mill Brook crossings. Various wall, bridge and railing treatments are being considered to ensure the improvements are in keeping with the character of this rural area of the Town and consistent with historic bridges located throughout Concord.

Revised Project Schedule:



Public Involvement/Public Comment

CPW, PWC and the design team value the community’s input and will continue to fine tune the design to ensure it meets the project goals to the maximum extent possible. As the project progresses, updates and notices will be posted on CPW’s website at http://www.concordma.gov/pages/ConcordMA_PublicWorks/cambridgetpk. Public meetings will be scheduled at key points throughout the design process. Comments may be submitted at any time during the project by US Mail to CPW at 133 Keyes Road, Concord, MA 01742, or by email to CTIPcomments@Concordma.gov. We encourage you to become actively involved and thank you for your interest and participation.