

Hi Jean, MassDOT wanted to provide a response to your email regarding the Planning Board outreach and various public requests for a pedestrian bridge crossing at Route 114 connecting Royal Crest to Merrimack College. We wanted to get this response back to you prior to our meeting with the Planning Board.

There was discussion at a recent Board Meeting about a pedestrian bridge over Route 114 requiring significant ramp lengths and the surrounding land being very flat and the bridge likely would not be used, etc. MassDOT would defer to the developer in terms of the specific challenges of the site and their proposed development, but we do want to offer some additional information about the accessibility requirements.

Basically, the referenced 200-300 feet of ramp requirement is due to the accessibility laws (ADA) and the fact that some type of a ramp-like switchback structure would be required to go from the ground elevation to an elevation in excess of 20 feet at the bridge deck level. As you know, the students will simply take the easiest option provided to them so it would be imperative to place the bridge at a location that would make it most convenient for students to get back and forth from the campus to their housing. If a pedestrian bridge was constructed at or within the vicinity as the proposed fully actuated traffic signal with pedestrian phasing and wide crosswalks, then the students would likely use the crosswalks and avoid the extra time associated with navigating the ramps/stairs and bridge. Switchback structures can be obtrusive looking to the landscape but there are measures that can be provided to hide the unpleasant appearance at an additional cost. The natural lay of the land around the pedestrian structure is very important and offers a level of convenience as I will explain below in three examples of existing structures.

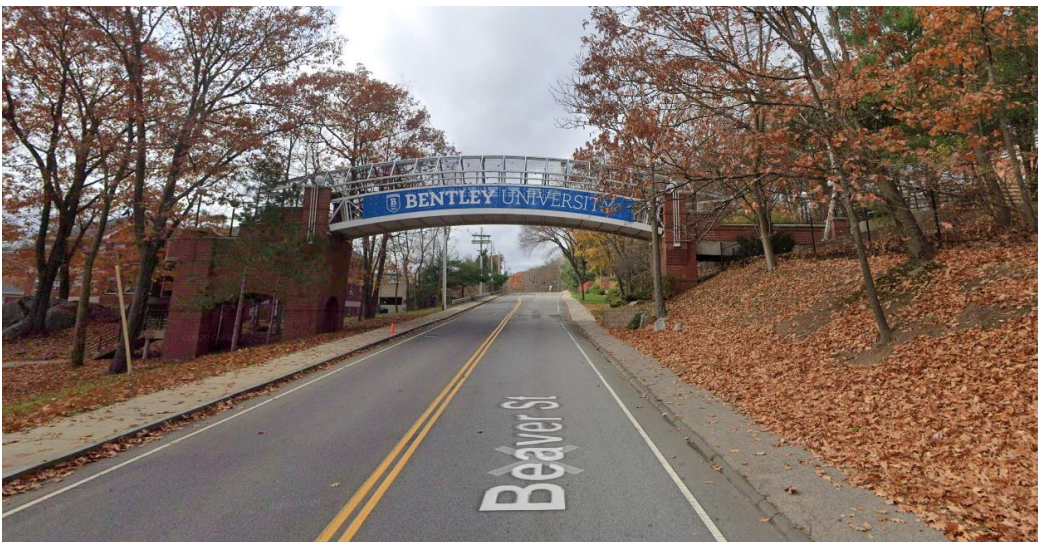
For example, the pedestrian structure at Villanova that you supplied shows the land elevation near the cathedral as significantly higher in elevation than the roadway. This higher land elevation lends itself nicely as there is no requirement for a concrete switchback ramp-like structure. The bridge approach is already at grade with the bridge deck elevation.



Shown below is the other side of the Villanova pedestrian bridge which shows the bridge structure continuing past the building to another elevated crossing over another roadway and parking lot to a rail station. So this bridge approach on this side serves for two bridges. Also, notice the stairs and the glassed-in elevator that is provided which takes the place of a lengthy concrete ramp system switchback. Not shown here, but some pedestrian bridge approaches connect to buildings and the accessibility needs can be addressed inside the buildings with the use of elevators.



Below is another example of a pedestrian bridge at Bentley University over a narrower two lane roadway connecting the upper campus to the lower campus. Once again, notice the land elevation on the right side is much higher than the roadway elevation which allows the students from the upper campus to access the bridge at higher ground elevation to conveniently cross the roadway without any ramp use. Notice the left side is much lower and does require a switchback ramp system which, in this case, is neatly hidden behind the brick structure. This is a good example on how to hide the ramp-like switchback structure for aesthetic reasons.



Another pedestrian bridge example below is located at Framingham State University with a crossing over Route 9. You can see the left side at a much higher elevation lends itself nicely to cross over Route 9. The right side shows the ramp system and stairs which can be quite lengthy if less switchback ramping is used to gradually get down to the ground elevation. These switch back structures use a series of maximum 4.5% grade ramp lengths with level landing areas required at turning locations. In this case, only 2 or 3 ramp lengths are used. More turns on the ramp system would be required if the ramps were held to a shorter length.



Finally, as part of the Route 114 Corridor Project, it is important to clearly state that MassDOT would not participate in the construction cost of a pedestrian bridge as the pedestrian traffic is generated by the College and the future/proposed development. The cost would clearly need to be non-participating, covered by the college and the future development. These types of structures should be well thought out and planned appropriately and integrated into the surrounding landscape, as part of a Master Plan. The Route 114 Corridor project cost is already in jeopardy according to the Regional Planning Agency and we run the risk of delaying any construction for the corridor project. As it stands, the project cost escalation has already pushed the project back to 2024 and it still continues to escalate due to increased project scope, currently estimated with a participating cost over \$30 million. We would agree the land elevations adjacent to Route 114 on both sides are not conducive for a pedestrian bridge structure. We feel it would be a challenge to achieve substantial usage of the pedestrian bridge if it were located directly adjacent to a proposed traffic signal. We don't think the students would bother to climb 20 plus feet of elevation (via stairs or ramps) to cross the street unless the bridge was located in such a way that it would be considered the quickest way back and forth from the campus to student housing. We do not know enough of the proposed development layout to say whether this could be achieved or not. Furthermore, the proposed pedestrian phasing and the use of wider cross walks can safely accommodate the current volumes of students/pedestrians. A fully actuated traffic signal with pedestrian signal phase will also provide safer accommodations than the existing Hawk Signal System, as the signalization is more traditional and better satisfies driver expectations.

We hope some of this information helps answer the inquiries about a pedestrian bridge. The bottom line is that MassDOT cannot participate in the construction of a project element that does not benefit the public. In this case, the bridge connecting Royal Crest to Merrimack College is an issue to be resolved between those privately owned properties. Thank you for giving us the opportunity to comment.