

I-293 Transportation Planning Study

EXITS 6 & 7

Manchester #16099



Study Purpose

The New Hampshire Department of Transportation (NHDOT) has retained a Study Team led by Vanasse Hangen Brustlin, Inc. (VHB) for the purpose of conducting a transportation planning study. The Study is aimed at addressing capacity and safety related deficiencies along I-293 and at the Exit 6 and 7 interchanges. The Planning Study (Part A) is the first part of a three part process. The Planning Study will be followed by Preliminary Engineering and Environmental Documentation (Part B) and Final Design Plans (Part C) and ultimate construction.

The purpose of the Planning Study (Part A) is to evaluate potential broad, transportation system changes and establish a range of practicable alternatives for further development and more detailed evaluation under Part B.

The study involves an extensive public outreach effort including working closely with a Technical Advisory Committee and soliciting input through a series of public meetings and workshops. Additionally, a study website (www.293planningstudy.com) provides the public with an opportunity to review study documents, presentations, and meeting notes. Most importantly a feedback page where the public can submit questions and comments is provided.

Public Input

At a September 18, 2012 public workshop, attendees were asked to help define the study corridor Problems, Issues and Constraints, and Potential Solutions. This input combined with feedback received through the study website and input from local community officials helped define the corridor deficiencies.

In addition, the development of conceptual alternatives requires an understanding of the environmental, socio-economic, cultural, topographical and basic engineering constraints along the corridor.

Base mapping was prepared depicting the existing topography, infrastructure, roadways, homes and business, rivers, ponds and streams, within the study area.

Conceptual Alternatives

A range of alternatives aimed at addressing the safety and mobility needs of the study corridor are being evaluated. The alternatives include various upgrades to the I-293 mainline and to the Exit 6 and 7 interchanges. The evaluation also considers a No Build alternative, which serves as the basis for comparison to the range of alternatives.

In addition to the upgrade alternatives, Transportation System Management (TSM) and Transportation Demand Management (TDM) strategies are also being considered. TSM strategies are low cost, easy to implement actions aimed at optimizing the performance of the existing transportation system. Examples include traffic signal coordination, access management, and incident management. TDM refers to strategies or policies aimed at reducing travel demand. Examples include carpool programs, increased transit use, and alternative work scheduling.

This newsletter describes the various mainline and interchange alternatives.

I-293 Mainline

The three-mile mainline study corridor begins just north of Exit 5 (Granite Street) and extends northerly through Exit 6 (Amoskeag Street) and Exit 7 (Front Street) for approximately one mile where alternatives for a new fully directional interchange replacing the existing Exit 7 are being examined. Options to address the capacity and safety deficiencies along the mainline include:

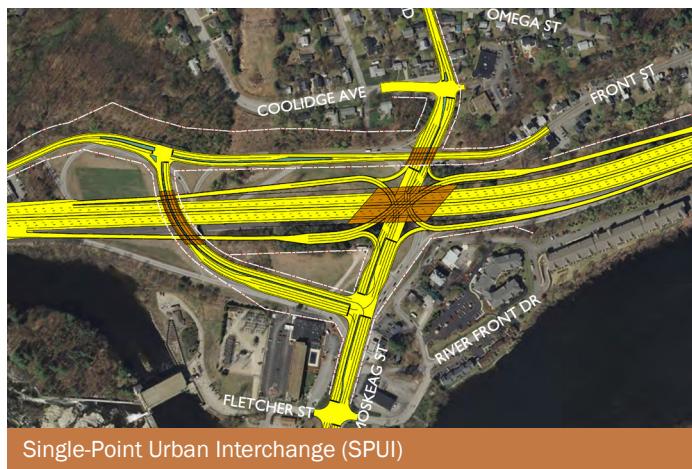
- maintain the current two lanes in each direction while upgrading only the interchanges, or
- widen I-293 to provide three lanes in each direction in combination with various interchange upgrades.

Exit 6 Interchange

Some of the existing problems at Exit 6 include:

- congestion and weaving at the Amoskeag Circle,
- queuing from the northbound exit-ramp back onto the I-293 mainline,
- the weaving condition at the southbound entrance and exit ramps, and
- limited acceleration length at all entrance ramps.

Conceptual Alternatives (continued)

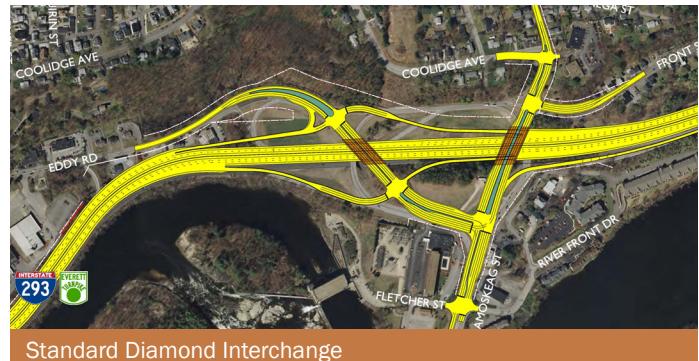


Single-Point Urban Interchange (SPUI)

One alternative to address these problems is to consider a **Single-Point Urban Interchange (SPUI)**. A SPUI is controlled by a traffic signal at the center of the interchange. The signal controls traffic at the ramps as well as along the thru street. The SPUI alternative for Exit 6 would be similar to the SPUI at Exit 5 with the exception that I-293 would pass below the SPUI at Exit 6.

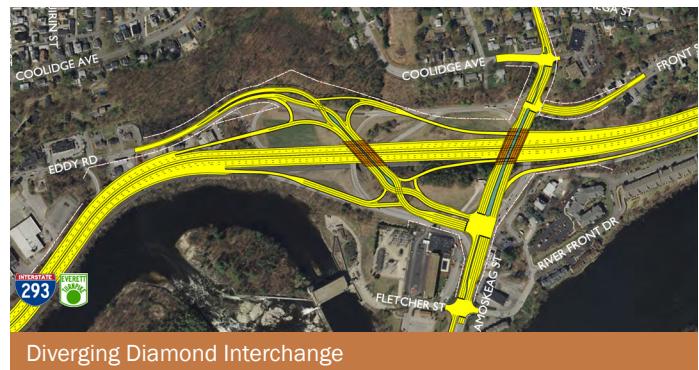
One challenge with considering a SPUI at Exit 6 is that the signalized Goffstown Road/Eddy Road/Front Street intersection would be too close to the interchange. For that reason, the SPUI alternative eliminates the Goffstown Road/Eddy Road/Front Street intersection. To maintain connections to all existing roadways, the alternative calls for Goffstown Road to bridge over Eddy Road and Front Street connecting directly to the SPUI while a second bridge over I-293, located south of the SPUI would connect Eddy Road and Front Street to Amoskeag Street.

Traffic signal control would be required at each end of the connecting bridge – one at Eddy Road and one at Amoskeag Street. Note that under the SPUI alternative, the existing I-293 SB entrance ramp near McGregor Street would be retained, but reconstructed to meet current design standards. Maintaining this access to the highway would avoid traffic being diverted onto the local street system (McGregor Street) to enter I-293 at Exit 5.



Standard Diamond Interchange

An alternative to the SPUI is to consider the placement of a **Standard Diamond Interchange**. The Standard Diamond Interchange would connect Eddy Road to Amoskeag Street with the northbound entrance and exit ramps and the southbound entrance and exit ramps forming two separate traffic signal controlled intersections. Under this alternative, a separate bridge structure would maintain the Goffstown Road /Amoskeag Street connection with Front Street intersecting Goffstown Road at a T-type intersection.



Diverging Diamond Interchange

An alternative to the Standard Diamond Interchange is what is known as a **Diverging Diamond Interchange (DDI)**. The general layout of the DDI alternative would be similar to that of the Standard Diamond Interchange; however the operation is different. The two directions of traffic on the connector roadway cross to the opposite side of the bridge resulting in the traffic on the bridge briefly traveling on the left side of the roadway. Two of the principal benefits of the DDI are:

- the reduction in vehicular conflict points from 30 with a typical diamond interchange to 18 with a DDI and
- each of the two signalized intersections of a DDI can be operated under a simple two-phase operation resulting in improved efficiency.

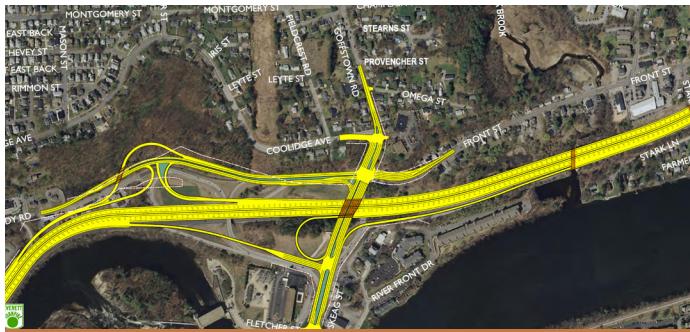
These conceptual solutions are presented for the purpose of soliciting public input and are subject to change. No decisions have been made for advancing these plans at this time.



Diamond Interchange with Roundabouts

A variation of the traffic signal controlled Diamond Interchange would be a **Diamond Interchange with Roundabouts**. Like the DDI alternative, the Diamond Interchange with Roundabouts alternative would have a similar general layout as the Diamond Interchange in that it would connect Eddy Road with Amoskeag Street with the northbound entrance and exit ramps and the southbound entrance and exit ramps forming two intersections. The difference would be that traffic at the intersections would be controlled by roundabouts.

A roundabout is a circular intersection where entering motorists yield to motorists already traveling within the roundabout. Although small roundabouts serve to slow and calm traffic, roundabouts at high volume interchanges such as at Exit 6 tend to be larger and in this case would require multiple lanes.



Off-Set Diamond Interchange

One additional alternative is the **Off-Set Diamond Interchange**. The layout of this alternative differs from the others as the northbound entrance and exit ramps are at Amoskeag Street while the southbound entrance and exit ramps are located to the south at Eddy Road. Traffic signal control would be provided at the Amoskeag Street/NB ramps intersection and at the Eddy Road SB ramps intersection. The Eddy Road SB ramps intersection would also include a fly-over ramp that would allow motorists traveling southbound on Eddy Road to enter onto the I-293 SB entrance ramp without passing through the signalized intersection. Additionally, unlike the other alternatives, full access would be maintained at a traffic signal controlled Goffstown Road/Eddy Road/Front Street intersection.

Exit 7 Interchange

The problem at Exit 7 is that the existing interchange only provides access to and from the south on I-293. There are no ramps connecting north. One alternative examines the potential of constructing a new fully directional interchange at the existing Exit 7 location.



Diamond Interchange at Existing Exit 7 Location

An alternative to reconstructing Exit 7 at its current location is to construct a new full access interchange with northbound and southbound ramps at a location just north of the Manchester Landfill. Connections would be provided to Front Street and Dunbarton Road with the new connector roadway passing under the I-293 mainline. The northbound exit and entrance ramps would be in a diamond configuration while the southbound entrance ramp would be configured in a loop in the northwest quadrant to avoid impacting the landfill.



Relocated Exit 7 Interchange

Consideration is currently being given to two possible alignments for providing connection from the new relocated interchange to Front Street. Each alternative would intersect Front Street at a "T"-type traffic signal controlled intersection with access provided to both the Manchester Community College and the residential community at Country Club Drive along the new connector roadway.



Front St Alignment Option A

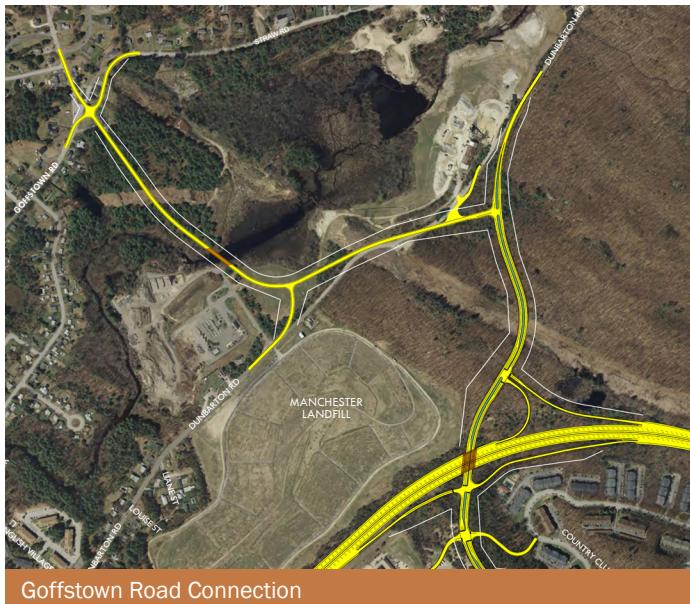


Front St Alignment Option B

There are currently two westerly connection alternatives that are being examined. One alternative considers extending a new roadway from the new interchange to Dunbarton Road, while a second alternative considers the roadway extending beyond Dunbarton Road to Goffstown Road. The Town of Goffstown has expressed a strong desire to have any future westerly connection extend to Goffstown Road.



Dunbarton Road Connection



Goffstown Road Connection

Next Public Meeting

The general public will have an opportunity to hear more and ask questions regarding these conceptual plans. In addition, the results of an evaluation of the alternatives will be discussed at a public meeting scheduled for:

Tuesday, June 11, 2013
7:00 pm
Manchester Community College
Room 126
1066 Front Street
Manchester, NH

If you have questions or comments regarding the conceptual plans depicted or the study in general please visit www.293planningstudy.com and click on the Public Feedback Link. You may also contact the following individuals:

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