



STAFF REPORT
INFORMATION AND ACTION ITEM

SUBJECT: Review of Town Ordinance Compliance for Route 7/690 Interchange

DATE OF MEETING: March 02, 2023

STAFF CONTACTS: Dale Lehnig, PE, CFM, Director of Engineering, Planning and Development

SUMMARY and RECOMMENDATIONS:

At their February 16, 2023 meeting, the Town Planning Commission considered the Route 7/690 Interchange project. The Staff Report from that meeting is Attachment #1. The Planning Commission heard the Staff Report and also had the opportunity to ask questions of the Loudoun County representatives regarding the effect of the interchange on traffic in the Town. A discussion regarding the floodplain was also held, with Town Staff and the Town's engineering consultant answering questions to provide clarification of the possible change in the floodplain, due not to the 7/690 interchange project, but because of changes to the modeling and parameters of modeling compared to the 1970's model used to define the existing NFIP (National Flood Insurance Program) mapping and effective floodplain. The Planning Commission asked Staff to provide a listing of possible mitigation measures to address concerns, as well as a listing of questions to be asked at the next regular Planning Commission meeting. Many of the questions discussed at the February 16 meeting revolved around environmental concerns, so staff has asked Loudoun County to have their environmental consultant attend the next meeting.

The following list includes the staff suggested mitigative actions, as well as some questions to ask of the County's environmental consultant:

1. Open Space Requirements. Although there is no violation of the Town's open space requirements, Loudoun County could do a boundary line adjustment with CMHOA Parcel A and unused portions of Lot 74 in order to increase the remaining acreage of Parcel A after right-of-way acquisition.
2. Stream and Creek Buffer. Stream side forested buffer should be re-established if necessary.
3. Floodplain Overlay District. Although the project has shown that the 7/690 project alone does not change the base flood elevation, the effective mapping would change due to

changes in the modeling, and the requirement to use the best available data for the floodplain.

- a. Increase size of 21st Street stream culverts. Would need specific regarding sizing, timing, downstream effect.
 - b. Is there a way to decrease the effects of the fill due to the ramp of the interchange? For example, a retaining wall instead of fill which extends further into the floodplain?
 - c. Floodplain stream modeling performed by Loudoun County would decrease Town costs for modeling to update the FEMA floodplain maps.
 - d. Go through this process as if this were a Conditional Letter of Map Revision, with proper notifications, public meetings, and an opportunity for concerns to be heard. This could be done simultaneously with the public hearing for the request to vacate the floodplain easement, which is a part of ESMT 20-06.
 - e. Eliminate hydraulic inefficiencies in the channel and floodplain, such as an old road berm (cut it down to increase floodplain capacity), split stream channels, box culvert alignment which causes a pinch point just upstream of the culvert. Grading and/or stream restoration may mitigate the effects.
4. ESMT 20-06. Three party easement between the Loudoun County, the Town and the Catoctin Meadows HOA (CMHOA).
 - a. Loudoun County has requested, as a part of this easement, that the Town vacate a portion of an existing floodplain easement that was established with the Catoctin Meadows Phase 2 plat. Town public hearing is needed to vacate the easement.
 - b. The Town has reviewed the proposed dedications to the Town; legal review is still needed. The dedications from Catoctin Meadows HOA to Loudoun County are to be negotiated privately.
5. Mitigate the flows (that is, decrease the flow rate) entering the Town. Can it be done and if so, how?
6. How will possible environmental effects of the roadway on the stream be mitigated? To include:
 - a. Road trash and other pollution from the roadway (spills, trash, etc.)
 - b. Water temperature increase. Is a temperature increase predicted?
 - c. Impact to wildlife due to tree clearing.
 - d. Show the actual area of construction on an aerial map to show more accurately the amount of tree removal expected. The Environmental Assessment report shows 15 acres of tree removal. What is the actual acreage of tree removal?

A Planning Commission finding should be submitted to the Town Council as soon as possible after this meeting.

BACKGROUND:

As noted above, at the Planning Commission meeting on February 16, 2023, the Town Staff presented an analysis of the Town zoning codes with respect to the Route 7/690 proposed interchange. Loudoun County representatives attended for further discussion about the effect of the interchange on Town Streets, and particularly to discuss the extensive research and findings that had been presented to the Planning Commission by Commissioner Ron Rise, Sr. In his presentation, Mr. Rise correctly shows that the Level of Service for many of the intersections studied does not change. However, a better understanding of Level of Service will help to clarify the results of the Interchange Justification Report. For example, an intersection can “drop” in LOS from C to D with a 1 second increase in delay, but can stay LOS D with a 19 second reduction in delay. I believe the most effective graphic to represent anticipated conditions in the town in the attached excerpt from the IJR.

Table 1. Level of Service Criteria for Signalized Intersections		
Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Loudoun County further clarified that although the Level of Service may not have changed (since there is a range for the Level of Service lettering) the traffic will move through the intersections more quickly (that is, with less delay) with the proposed change AND that the number of vehicles is also decreased with the build vs. no build. (See attachments 2 & 3).

The floodplain discussion noted that the project will be changing the characteristics of the floodplain, by filling for the ramp and also the removal of trees. However, the floodplain modeling, provided by the County and reviewed by the Town’s consulting engineer, shows that the base flood elevation is not changed by the project. Town Staff has recommended that the

Town should consider remodeling of the floodplain and a revision of the floodplain regardless of the status of the interchange.