NCDOT Guidelines for Evaluation of Offsite Detours For Bridge Replacement Projects

Purpose and History of Offsite Detour Analysis

The purpose of these guidelines is to assist in understanding the criteria and protocol used in choosing whether to detour traffic offsite during the construction of a TIP Bridge Replacement Project. Applications to maintenance or widening projects are also possible but were not the primary consideration in developing these guidelines.

Historically, NCDOT used a tool called Road User Cost which attempts to define the additional cost of wear and tear on a vehicle due to additional miles traveled. This value was then compared to the cost of maintaining traffic onsite during construction (i.e. temporary structure and alignment costs, right of way costs, mitigation costs, etc.). This comparison was then weighed with other factors such as EMS input, division concerns, environmental concerns, etc. and a decision was made on whether to detour offsite.

The comparison of cost has always been controversial since the costs to the environment aren't entirely economic and are in some cases very difficult to measure in terms of dollars. With an acknowledgement that the decision to detour traffic offsite has subjective elements, the Department will now use the concept of Acceptable Delay.

Protocols for Evaluation

Acceptable Delay

Acceptable Delay (also referred to as Additional Travel Time) is based on the idea that there are limits to how long the Department can reasonably expect a person to be delayed from their normal travel time. For example, if an offsite detour caused a total delay of only two minutes to the average road user, this would probably be an acceptable delay even over a lengthy construction period. If the delay resulting from an offsite detour were to be two hours per average road user, this would likely be considered unacceptable to any reasonable person. With that concept in mind, the Department has developed the table below from the perspective of traffic operations to define ranges from Acceptable (A) to Unacceptable (U) delays. An Acceptable (A) delay implies an offsite detour. An Unacceptable (U) delay implies the need to maintain traffic onsite. The Evaluation (E) range suggests that an onsite detour is justifiable from a traffic operations standpoint but must be weighed with other project factors to determine if it is appropriate.

Duration of Road Closure (months)

	≤ 1 mo	2 mo	3 mo	4 mo	6 mo	8 mo	10 mo	12 mo	15 mo	18 mo	21 mo	24 mo
<5 min	A	A	A	A	A	A	A	A	A	A	A	A
5 to <10 min	A	A	A	A	Е	Е	Е	Е	Е	Е	Е	Е
10 to <15 min	A	A	Е	Е	Е	Е	Е	Е	U	U	U	U
15 to <20 min	A	Е	Е	Е	Е	U	U	U				
20 to <25 min	Е	Е	Е	Е	U							
25 to <30 min	Е	Е	U	U								
30 to <45 min	Е	Е										
45 to <60 min	Е	U										
More than 60	U											
minutes												

Additional Travel Time

The "Duration of Road Closure" is the duration of time that through traffic will be forced to use the off-site detour under consideration (not necessarily the duration of the project).

The "Additional Travel Time" is defined as the difference between time of travel on the detour route and the time of travel on the normal route by the average road user <u>during the peak hour of travel</u>.

Overriding Considerations

EMS: Contact the county EMS coordinator to determine if an offsite detour is acceptable. **If EMS** expresses and maintains a <u>strong opposition</u> to an offsite detour citing high risk of loss of human life, this factor outweighs all other considerations resulting in maintaining traffic onsite. If EMS states a moderate or low concern, other factors will be considered in the analysis.

Condition of the Detour Route: The condition of the detour route should be at least as good as the route being closed and capable of handling the additional traffic volumes. Therefore, a route should not be closed nor traffic detoured unless the condition, safety and geometry of the offsite detour are acceptable or can be improved to an acceptable level.

Bridges on the Detour Route: Determine the condition and postings of other bridges. The postings and/or geometry should be at least as good as that of the bridge being replaced. If not, a determination must be made whether permanent or temporary improvements to the bridge(s) on the offsite detour in question are possible and/or appropriate.

Improvements to the Proposed Offsite Detour: If improvements are required to use the offsite detour and result in increased footprint impacts, the impacts must be evaluated as part of the NEPA document and weighed as part of the evaluation on using the offsite detour.

Jeopardy Opinion: A jeopardy opinion from USFWS might outweigh an Unacceptable (U) delay.

Other Considerations: There are other possible factors such as High Volumes of traffic on an at-grade railroad crossing or frequent flooding conditions on a detour route. Best judgement must be exercised in coming to a decision

Final Determination

All issues including delay, overriding considerations, impacts to the human and natural environment as well as economics must be weighed in making the final determination. Political and permitting issues must also be considered. The final determination of an offsite detour falls to those who are ultimately responsible for safety and determining whether the costs (both environmental and economical) are acceptable to the Federal Highway Administration (FHWA) and NCDOT. Therefore, the Division and PDEA will reach consensus and then PDEA will seek approval from FHWA in the planning document.