effects have been established in a new Section 106 MOA, which was signed by FHWA, NHDHR, NHDOT and certain Concurring Parties.

3.17 Irreversible and Irretrievable Commitment of Resources

Implementation of the Project would involve a commitment of a range of natural, physical, human, and fiscal resources. Fossil fuels, labor, and construction materials such as cement, steel, timber decking, aggregate, and bituminous material would be expended. Additionally, labor and natural resources would be used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use would not have an adverse effect upon continued availability of these resources. Any construction would also require a substantial one-time expenditure of both state and federal funds, which are not retrievable.

The decision to commit these resources is based on the concept that residents in the immediate area, region, and state, as well as visitors or tourists, would benefit from the reestablished pedestrian and bicyclist access between Dover and Newington. This benefit is expected to outweigh the commitment of these resources.

3.18 Cumulative Impacts

Cumulative impacts are defined as "impacts that result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions, without regard to the agency (Federal or non-Federal) or individual who undertakes such other actions." (40 CFR 1508.7) Cumulative impact analyses capture the effects resulting from the proposed action in combination with the effects of other actions completed or future actions in the same geographic area. Cumulative impacts can result from individually small or minor impacts but collectively equal more significant adverse impacts over time.

The analysis of cumulative impacts includes projects within the Study Area that are were completed in the past, are currently under construction, or are reasonably foreseeable—in other words, projects that are planned or programmed for construction within the time frame of this analysis or which are likely to occur. Reasonably foreseeable actions do not include those actions that are highly speculative or indefinite. (43 CFR 46.30)

Cumulative impacts can include both direct and indirect effects. Direct effects occur at the same time and place as when a Proposed Action is being implemented. (40 CFR 1508.8) These effects are discussed in previous section of this chapter, and may include noise impacts from construction equipment, traffic disruptions or detours, impacts to natural resources, or property impacts. Indirect effects are caused by the action and are later in time or further removed in distance (from the Project) but are still reasonably foreseeable, and are also discussed above. Indirect effects can also include growth-inducing impacts, changes in land use patterns, increased population density or growth rates, and impacts on natural resources. (40 CFR 1508.7)

Because this section evaluates the cumulative impacts for multiple resources, the structure of this section differs from the previous sections of **Chapter 3** that focused on impacts on a single resource area.

The 2007 FEIS evaluated the cumulative impacts of the Spaulding Turnpike Improvements, which have the potential to cause more cumulative impacts from the construction of additional lanes through the Seacoast Region of New Hampshire. As the Project does not pose any changes to roadway or highway infrastructure, the potential for cumulative impacts is far less.

3.18.1 Affected Environment

The evaluation of cumulative effects encompasses the geographic area affected by the Project because cumulative effects are focused on those areas where the impacts of the Project overlap with impacts of other past, present, and reasonably foreseeable future projects. These impacts are evaluated within the Study Area used for all resources evaluated in the FSEIS.

3.18.1.1 Historical Development Context

The larger Newington-Dover, Spaulding Turnpike Improvements Project has been under construction since 2010. The purpose of the Spaulding Turnpike Transportation Improvements Project is to improve long-term mobility and safety along the Spaulding Turnpike between Exit 1 and the Dover toll plaza, just north of Exit 6, which was designed to be accomplished through five contracts, or phases of construction.[68]

- Contract L – New Little Bay Bridge and Wentworth Terrace
- Contract O – Rehabilitate Little Bay Bridge
- Contract M – Newington Exits 3 and 4
- Contract Q – Dover and Exit 6
- Contract S – Rehabilitate General Sullivan Bridge (Note that this FSEIS has reevaluated this contract.)

Past development in Strafford and Rockingham Counties were key drivers in the need for the Spaulding Turnpike Improvements. The Rockingham Planning Commission's 2015 Regional Master Plan states, "*… [the Spaulding Turnpike] carries commuter and tourist traffic, and serves as a gateway from the Seacoast to the Lakes Region and the east side of the White Mountains. This facility is currently being improved between Exits 3 and 6 by widening the bridges and roadway to 4 lanes in each direction and reconfiguring the interchanges. Additional work will occur on connecting roadways to improve traffic flow on and off of the highway*." The larger Newington-Dover, Spaulding Turnpike Improvements Project presented a major change in roadway infrastructure in this region of New Hampshire, and with these changes was the potential for growth impacts. Therefore, the 2007 FEIS included an in-depth cumulative impacts assessment.

In the 2007 FEIS, anticipated impacts from induced growth were evaluated in Strafford, Rockingham and Carroll Counties, spanning 33 municipalities. The time period considered for the analysis was 35 years prior (1970 to 2005) and 20 years into the future (2005 to 2025). The

[68] Refer to the project website (http://www.newington-dover.com/index.html) for further information on the contract phases of the Spaulding Turnpike Transportation Improvements Project.