SWG 2022-00334, SH99 (CSJ: 3187-01-005) Alternative Analysis Discussion

Segment I-2 is an environmentally approved (partially constructed) 15-mile, four-lane, controlled access toll road with intermittent frontage roads from SH 225 to I-10 East. The latest approved environmental document for Segment I-2 is a Re-evaluation, which was approved November 17, 2017.

Drainage analyses were completed as part of the SH99, Segment I-2 project, and the drainage easement (proposed in this permit) was identified as a natural drainage pattern for the roadway hydrology in this area. The drainage pattern in the proposed project area has aggraded over time that has created an impediment to the hydrologic flow from the SH99 roadway ditch system to the outfall/confluence on the downstream end. Alternatives considered for the proposed project are described below.

Alternative 1 included a No Action. The no action alternative consists of doing nothing to the channel. If nothing is done to the drainage channel, flooding will continue, aggradation of the area will continue over time, inherently increasing flooding onto the roadway creating additional hazards and safety issues for commuting public on SH99. Alternative 1 was not carried forward as it does not meet the purpose and need of the project to alleviate a safety hazard and reduce flooding along SH99, Segment I-2.

Alternative 2 considered a detention area upstream of the drainage channel prior to releasing flows into the stream. This detention pond was considered impractical due to the lack of existing ROW and presence of existing development. Multiple direct and indirect impacts to existing development, including potential displacements, would occur to develop this detention area.

Alternative 3 considered a detention area downstream of SH99, on the upper reach of the drainage channel. This alternative would increase impacts to special aquatic sites and based on hydrology studies, inefficient due to lack of connectivity to a reliable outfall channel.

Alternative 4 considered maintenance and management upgrades to the existing channel. Based on the hydrology studies, it was determined that maintenance in the areas that have aggraded on the natural system would not provide adequate capacity to transport water and sediment from the SH99 roadway system and would therefore aggrade over time creating a long-term maintenance issue. Additionally, this alternative would impact much of the same stream and wetland areas as the proposed Alternative 5 (Full Channel Development).

Alternative 5 considered developing the proposed flood control channel along a natural drainage feature. This alternative utilized the natural topography, providing a functional channel that will transport water and sediment, and provide a direct connection to tidal water. This alternative eliminated the need for a detention area, reducing additional impacts to special aquatic features and direct impacts to existing development. Additionally, Alternative 5 meets the purpose and need of the project and reduces flooding and eliminates a safety hazard for traveling commuters.