FEDERAL WAY LINK EXTENSION
FEDERAL WAY, WASHINGTON, U.S.A.

SERVICES
Durability Design
Service Life Modeling
Durability Testing
Construction Phase Consulting

PROJECT SIZE
$3,100,000,000

KEY PERSONNEL
Ali Inceefe, Project Manager
Kyle Stanish, Vice President – Engineering
Neal Berke, Vice President – Research

REFERENCE
Oscar R. Antommattei, P.E.
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Source: SoundTransit (https://www.soundtransit.org/system-expansion/federal-way-link-extension)

Tourney Consulting Group was contracted through Kiewit to provide a durability design to meet a 100-year service life design requirement for the Federal Way Link Extension Project. The project is a design and construction of 7.8 miles of light rail transit consisting of aerial guideway, bridges, cut-and-cover structures, and permanent retaining walls. Certain concrete elements in this project were made of Type IL cement to reduce the carbon footprint. TCG performed an investigation of the transport properties of concretes using this type of cement to be considered in service life analyses. Exposure conditions were determined by chloride profiling of sister structure samples and associated data processing. Accordingly, TCG developed a durability plan for the concrete and steel elements using a combination of probabilistic and deterministic approaches. The protection plan included strategies for design detailing, materials selection and prequalification testing, construction quality, inspection, QA/QC of materials and construction, operations and maintenance, and repair to ensure the 100-year service life is met. TCG also developed and implemented a prequalification testing program for the concrete mixes to be used in the project.

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