TRAVEL DEMAND FORECASTING EXTERNAL TECHNICAL PEER REVIEW PANEL REPORT - EXECUTIVE SUMMARY

DRAFT

April 2024

Prepared By:
Link21 Technical Peer Review Panel

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Table of Contents

Executive Summary 1
Link21 Program Overview 1
Purpose of the Report 1
Structure and Composition of the Panel 2
Goals and Objectives of the Panel 2
Meeting Summaries 3
Conclusions 4

Tables

Table 1. Panel Members 2
Table 2. Panel Meetings and Discussion Topics 3

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Executive Summary

Link21 Program Overview

The Link21 Program (Link21) is a transportation program that is sponsored by the San Francisco Bay Area Rapid Transit District (BART) and the Capitol Corridor Joint Powers Authority (CCJPA). It aims to transform the passenger rail network serving the 21-county Northern California Megaregion (Megaregion), which includes the greater San Francisco Bay Area (Bay Area), Monterey Bay Area, Sacramento Area, and Northern San Joaquin Valley. Link21 will build on the existing BART and Regional Rail[1] systems and include a new transbay passenger rail crossing project (Crossing Project) between Oakland and San Francisco that will serve the busiest and most congested corridor in the Bay Area. The Crossing Project will increase capacity and bring new passenger rail connections and services to the Megaregion.

Purpose of the Report

Link21 is a highly complex and long-term effort that will require travel demand forecasting through different phases of the program. In the initial Program Definition phase, an initial modeling tool was used to screen potential Link21 concepts during the early part of the subsequent Project Identification phase, when a refined travel demand model (refined modeling tool) was developed to evaluate the concepts screened by the initial modeling tool and inform the selection of a Preliminary Project. The model also will be used (potentially with additional refinements) for project evaluation and refinement in the upcoming Project Selection phase.

The Program Management Team (PMT), which includes BART/CCJPA and the Program Management Consultants (PMC), convened an independent external technical peer review panel (Panel) to guide development of the refined modeling tool that was developed by the Travel Demand and Land Use (TDLU) Consultant Team (led by Cambridge Systematics). The Panel was charged with providing expert recommendations and guidance to the PMT in the development and application of the travel demand model. This report summarizes the key issues, findings, and recommendations from the Panel, and the TDLU Consultant Team's responses during the stages of model design and development, model testing, and sensitivity analyses.

[1] It could include intercity, commuter, or high-speed rail.

Structure and Composition of the Panel

The Panel consisted of representatives from ten metropolitan planning organizations (MPO), state, and federal agencies and two representatives from academia.

Dr. Eric Miller from the University of Toronto was the panel chair. The list of current and past Panel members is provided in **Table 1**. They are listed in alphabetical order by last name.

Table 1. Panel Members

Member Name	Affiliation
Dr. Chandra Bhat	University of Texas at Austin
Wilson Fernandez	Miami-Dade Transportation Planning Organization
Robert Guerrero	Solano Transportation Authority (STA)
Matthew Kelly	Contra Costa Transportation Authority (CCTA)
Benson Kwong	California Department of Transportation (Caltrans)
Louisa Leung	Santa Clara Valley Transportation Authority (VTA)
Henry McKay	Caltrans
David Melko	Placer Country Transportation Planning Agency (PCTPA)
Dr. Eric Miller	University of Toronto
Ryan Niblock	San Joaquin Council of Governments (SJCOG)
Yanmei Ou	Sacramento Area Council of Governments (SaCOG)
Brent Rosenwald	Solano Transportation Authority (STA)
Jeffrey Roux	Federal Transit Administration (FTA)
Daniel Tischler	San Francisco County Transportation Authority (SFCTA)
Lisa Zorn	Metropolitan Transportation Commission (MTC)

Goals and Objectives of the Panel

The goals and objectives of the Panel were to:

- Provide expert opinion on and review of the methodology, assumptions, structure, parameters, and performance of the refined modeling tool.
- Share experiences and insights from academia and funding and planning agencies on other megaprojects of regional significance.
- Advise on creating a modeling suite that would serve as a robust tool to analyze concepts.
- Review the travel demand model's application results.

The Panel acted as an independent body that was outside the PMT, and its recommendations were advisory in nature.

Meeting Summaries

The Panel had six virtual meetings with the TDLU Consultant Team and PMT. These meetings took place at three-to-four month intervals and each one lasted several hours each day over multiple days (ranging from a single day to three days at the most).

Over the course of the first five meetings, the TDLU Consultant Team presented, in detail, their work progress to the Panel, starting from the model design and development phase and transitioning to the model testing (including model calibration and validation) and sensitivity analysis phases. They presented high-level application results to the Panel during the sixth (and last) Panel meeting.

Table 2 provides a high-level summary of the main topics and discussion items from the six meetings. Readers interested in learning more about the technical peer review process in general, key discussion points, or the TDLU Consultant Team's responses can read the main body of the *Travel Demand Forecasting External Technical Peer Review Panel Report*, which is available upon request.

Table 2. Panel Meetings and Discussion Topics

Meetings	Main Topics	Key Discussion Topics
Meeting #1 (March 28, 29, 31, 2022)	Model design and development	• Purpose of technical peer review • Link21 background • Model strategy • Model system • Model structure • Mode choice • Networks • Assignment/path building • Calibration and validation plan
Meeting #2 (July 13, 2022)		• Link21 new approach • Travel demand modeling revised approach • Transit congestion/crowding • Detailed calibration and validation plan

Meetings	Main Topics	Key Discussion Topics
Meeting #3 (October 21, 24, 26, 2022)	Model testing and sensitivity analysis	• Activity Based Model (ABM) key decisions • ABM calibration • Sensitivity testing plan • Transit crowding • Path building • Assignment validation • Project schedule
Meeting #4 (February 14, 2023)		• Project concepts • Model calibration and validation • Sensitivity testing • Project schedule
Meeting #5 (May 11, 16, 18, 2023)		• Uncertainty tests • Model calibration and validation • Sensitivity testing • Overview of model application
Meeting #6 (November 3, 2023)	Model application	• Preliminary baseline, concept, and uncertainty test results

Conclusions

Overall, the Panel was appreciative of the effort undertaken by the TDLU Consultant Team while working under the schedule, scope, and budget constraints based on the materials presented to the Panel over the course of the meetings. Given the program timelines, the Panel also acknowledged that the model was set and recognized the difficulty of changing the model or its structure any further at this stage of the modeling work.