

Appendix Z: Cost Estimate Methodology

To: San Diego Association of Governments and Caltrans District 11

From: North County Comprehensive Multimodal Corridor Plan (CMCP) Project Team

Date: December 2022

Subject: North County Comprehensive Multimodal Corridor Plan (CMCP) – Cost Estimate Methodology

Overview

During development of the North County CMCP implementation phase, the project team developed high-level cost estimates for each of the recommended projects in the project inventory. This memorandum documents the process, sources, and unit cost assumptions used to develop planning-level cost estimates for the recommended projects by strategy layer.

The overall cost of the 48 mobility programs, projects, and services is approximately \$8.5 billion with approximately \$5.5 billion for transportation infrastructure and \$3 billion in operating costs. The breakdown of the overall cost by layer is approximately:

Table 1: Capital and Operating Cost for Each Strategy Layer

Strategy Layer	Capital Cost (Millions)	Operating Cost (Millions)
Regional Smart Highway Capacity	\$2,500	(1)
Smart Arterials and Intersections	\$100	(1)
Transportation Interfaces	\$300	(1)
Active Transportation	\$580	(1)
Mobility as a Service	\$50	\$370
High Frequency Core, <i>Rapid</i> , and Commuter Services	\$270	\$1,300
SPRINTER	\$1,400	\$1,300
TSMO/ICM	\$70	\$60
Complementary Programs	\$200	\$50

Notes: (1) Incorporated under TSMO/ICM operating costs.

Process

The process for developing planning-level cost estimates consisted of the following steps:

1. Assigning and Grouping by Strategy Layer
2. Quantity Calculation
3. Unit Cost Development
4. Planning-Level Cost Estimate Development

Each of these steps are further explained in the sections below.

STEP 1: ASSIGNING AND GROUPING BY STRATEGY LAYER

The recommended projects were grouped into the nine (9) strategy layers identified in the North County CMCP (see **Table 2**). It should be noted that projects may fit into multiple strategy layers. To prevent double counting of planning-level costs for projects, projects were assigned and grouped into the primary strategy layer.

Table 2: North County CMCP 9 Strategy Layers

North County CMCP Strategy Layers	Recommended Project Type
Regional Smart Highway Capacity Management	<ul style="list-style-type: none"> • Urban Corridor Managed Lanes: SR 78 • Dynamic Lanes: SR 76 (I-5 to I-15) • Rural Corridor: SR 78 (I-15 to Ramona) • Interregional Corridor Managed Lanes: I-5 (Manchester to Vandegrift) • Interregional Corridor Managed Lanes: I-15 (County Line to Valley Parkway) • Direct Access Ramp • Freeway Connector: I-15/SR 78 • Managed Lanes Connector: I-5/SR 78
High Frequency Core, Rapid, and Commuter Services	<ul style="list-style-type: none"> • BRT Services • Commuter Services • Frequent Transit Services • FLEX Services
Smart Arterials and Intersections	<ul style="list-style-type: none"> • Smart Intersections
SPRINTER	<ul style="list-style-type: none"> • SPRINTER Double Track • Planned Grade Separation • Proposed Grade Separation
Transportation Interfaces	<ul style="list-style-type: none"> • Interchange Improvements • Overpass Improvements • Underpass Improvements • Rail Crossing Improvements • Rail Crossing with Planned/ Proposed Grade Separations

North County CMCP Strategy Layers	Recommended Project Type
TSMO/ICM	<ul style="list-style-type: none"> • Communication Backbone • SPRINTER Signal Coordination • Transit Signal Coordination • Signal Coordination along ICM • Connected Ramp/Signal Integration • Transit Signal Priority
Active Transportation	<ul style="list-style-type: none"> • Planned/Proposed Class I Facilities • Planned/Proposed Class IV Facilities • Trailhead Improvements • Intersection Improvements along Mobility Boulevards
Mobility as a Service	<ul style="list-style-type: none"> • Microtransit • NEV • Micromobility
Complementary Programs	<ul style="list-style-type: none"> • Supporting Policies and Programs • EV Infrastructure • Passenger Loading Zones • Micromobility Charging and Parking • Interactive Travel Kiosks • Parcel Delivery Lockers • Carshare Parking • Evacuation Response

STEP 2: QUANTITY CALCULATION

The recommended projects were digitized into ArcGIS to obtain quantities for each recommended project. The recommended project types were divided into points and linear geometric features. Point geometric features were counted and summed for each individual point geometric feature. For linear geometric features, the calculate geometry function of ArcGIS was used to develop quantities in miles.


Projects grouped in the SPRINTER Strategy Layer received a more detailed quantity calculation for each associated cost item. Associated cost items included guideway and track elements, stations, stops, terminals and intermodals, support facilities, sitework and special conditions, systems, ROW, land and existing improvements, vehicles and professional services.

STEP 3: UNIT COST DEVELOPMENT

Unit costs were developed for each recommended project type. Unit costs were developed based on the following sources:

- 2021 Regional Plan cost estimates
- Previous regional strategy documents
- Local city and transit agency plans
- Recent construction cost estimates for various project types (e.g., active transportation projects)





Unit costs were developed in 2020 dollars. Where applicable, unit costs in previous year dollars were escalated to 2020 dollars using the Caltrans Price Index. The Price Index is based on quarterly data of opened bids and provides the quarterly index and last 12 months' index for the current and previous years.

Projects grouped in the SPRINTER Strategy Layer received more detailed development for unit costs.

STEP 4: PLANNING LEVEL COST ESTIMATE DEVELOPMENT

For projects identified in the 2021 Regional Plan and local city and transit agency plans, the costs were taken from those sources and escalated to 2020 dollars using Caltrans Price Index. The unit costs developed in Step 3 were then multiplied by the estimated quantities from Step 2 to develop the planning-level cost estimate for each project.