



Cal-B/C Training Module 8e

Cal-B/C Intermodal Freight (IF)

Understanding Project Input Sheets and Data

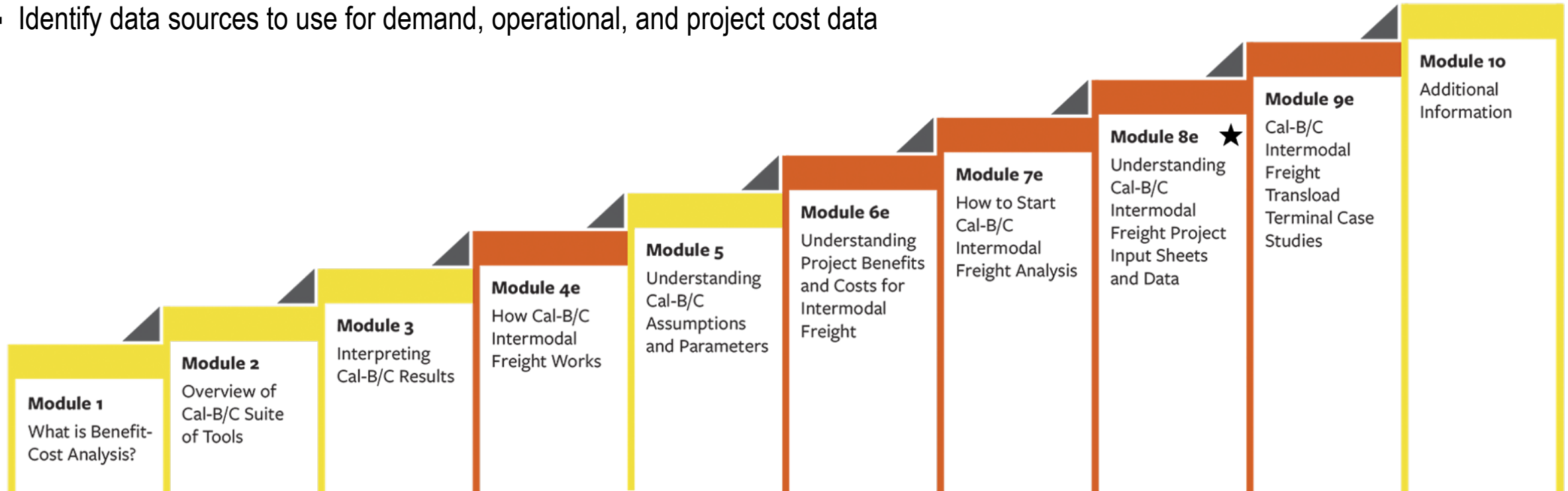


01

About This Module

This module will...

- Build on Modules 4e and 7e to provide more details on how to get data for your benefit-cost analysis (BCA) using Cal-B/C IF
- Identify data sources to use for demand, operational, and project cost data



★ *This module is covered in this presentation*

Previous Modules...

- **Module 1** provided a basic introduction on benefit-cost analysis (BCA) and a general overview of how to conduct a BCA
- **Module 2** described the Cal-B/C suite of tools, discussed the types of projects that can be evaluated, and provided guidance on which tools to use for various project types
- **Module 3** presented the Cal-B/C results page, detailed what each output measure means, and explained how they are calculated
- **Module 4e** presented an overview of how Cal-B/C IF works including a review of all worksheets and inputs
 - This current module complements Module 4e
- **Module 5** highlighted the information in the Parameters worksheet and discussed key assumptions used by Cal-B/C tools
- **Module 6e** provided detailed information on how Cal-B/C IF calculates benefits
- **Module 7e** presented the 1-2-3 approach to starting a Cal-B/C IF analysis
 - This current module complements Module 7e

Requirements for Making Full Use of This Module

- Basic understanding of intermodal freight, transportation planning methodologies, data and terminology
 - Examples: Average short tons per truck or railcar, total tons shipped by truck or rail, freight drayage, collision rates
- Basic understanding of modal diversion, freight network improvements, transload operations, and terminal efficiency improvements
- Ability to navigate websites and download relevant data
- Knowledge of Microsoft Excel and data analysis features

Terminology

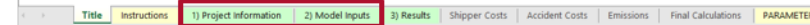
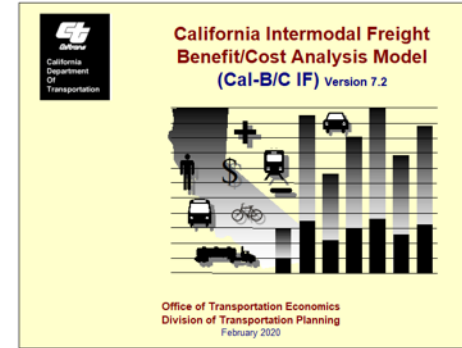
Term	Definition
Bulk	Bulk cargo is loose cargo such as grain, coal, and iron ore. Bulk freight is not unitized or packaged and typically transported in cargo holds via bulk carriers. Bulk volumes are measured in short tons in Cal-B/C IF.
Break bulk	Break bulk cargo is cargo that is unitized and loaded individually. Break bulk cargo is generally packaged (e.g., bags, boxes, barrels, etc.) and not containerized. Break bulk volumes are measured in short tons in Cal-B/C IF.
Short tons	Short tons/US ton is measurement of weight equal to 2,000 pounds. Used as the unit of measure for bulk/break bulk volumes in Cal-B/C IF.
TEU	Twenty-foot equivalent unit (TEU) refers to container freight equivalent to a 20-footlong intermodal container. For instance, a 40-foot container would be equivalent to 2 TEU's.
Intermodal	Freight transportation that requires multiple modes of transportation without any handling of the freight itself when changing modes
Intermodal Train	A freight train that carries goods or commodities loaded into domestic or international shipping containers or highway semi-trailers on their own wheels.
Transload	The process of transferring a shipment from one mode of transportation to another.
Drayage	The transportation of goods over a short distance and usually part of a longer overall move – for instance from a port to a nearby rail yard.
Empty-haul trip	The movement of empty freight trucks and railcars.
Modal Diversion	The process of diverting freight volumes from one transportation mode to another. For instance, diverting freight shipments from trucks to rail.

02

Cal-B/C IF Data Entry Worksheets Overview

Cal-B/C IF Data Entry Worksheets

- For most analyses, two worksheets will be needed for data entry
 - Project Information: Main data input worksheet. For many projects it would be the only sheet in which the user must enter input values.
 - Model Inputs: Allows the user to review and replace several values used in the model



Worksheets where data will be entered

Worksheets where Cal-B/C performs calculations and tabulates results

Title	Instructions	1) Project Information	2) Model Inputs	3) Results	Shipper Costs	Accident Costs	Emissions	Final Calculations	PARAMETERS
	<p>Instructions:</p> <p>Summary instructions on how to fill out each data item in Cal-B/C IF</p>	<p>Project Information:</p> <ul style="list-style-type: none"> Project Location Freight Capacity Freight Volumes and Shipments by Mode Highway Accident Data Freight Shipping Costs Transload Operations Data Project Costs 	<p>Model Inputs:</p> <p>Input Data for</p> <ul style="list-style-type: none"> Freight volumes Transload operations Safety <ul style="list-style-type: none"> Collision Rate 	<p>Results:</p> <ul style="list-style-type: none"> BCA results Itemized Benefits (\$) Emission Savings (Tons) 	<p>Shipping Costs:</p> <p>Calculates total shipper cost benefits for modal diversion, drayage, terminal efficiency and transload operations</p>	<p>Accident Costs:</p> <p>Calculates accident reduction benefits for modal diversion and drayage</p>	<p>Emissions:</p> <p>Calculates emission benefits for modal diversion, drayage, and terminal efficiency</p>	<p>Final Calculations:</p> <p>Tabulates final results, including:</p> <ul style="list-style-type: none"> Net present value Internal rate of return Payback period 	<p>Parameters:</p> <p>Key default analysis parameters and assumptions for all Cal-B/C tools</p>

Review: Cell Color-Coding

- Cal-B/C IF requires few user inputs, but allows you to enter more inputs when data is available
- Cells in the worksheets are color-coded:
 - **Green** cells indicate required data
 - You must input values for Cal-B/C IF to work for the type of analysis being performed
 - Cal-B/C IF descriptions tell you what cells need to be used for a given analysis
 - **Red** cells provide default values that you can change if needed
 - For example, Cal-B/C IF provides default annual increase in shipper costs (net of inflation)
 - **Blue** cells contain values calculated by the model
 - You can override the values in these cells if better data is available
 - **Gray** cells cannot be overridden and contain values calculated by the model. Most of these cells represent data quality checks for the user

Suggested Data Sources for Evaluations in Cal-B/C IF

Model Data


- Freight Analysis Framework
- Bureau of Transportation Statistics
- Data from Ports or Freight Rail Institutions

Traffic Collision and Safety Data

- Caltrans Traffic Accident Surveillance and Analysis System (TASAS)
- California Highway Patrol (CHP) Statewide Integrated Traffic Records System (SWITRS)
- Other sources (e.g., Transportation Research Board publications)

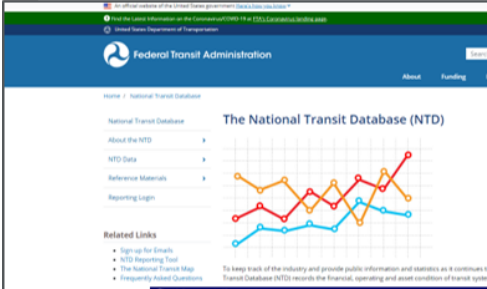
Project Costing Data

- Project Study Report (PSR) or other documents
- Project Report (PR)




Caltrans website screenshot showing the Freight Planning section. The page features a table titled "Stats - TEU By Year" with the following data:

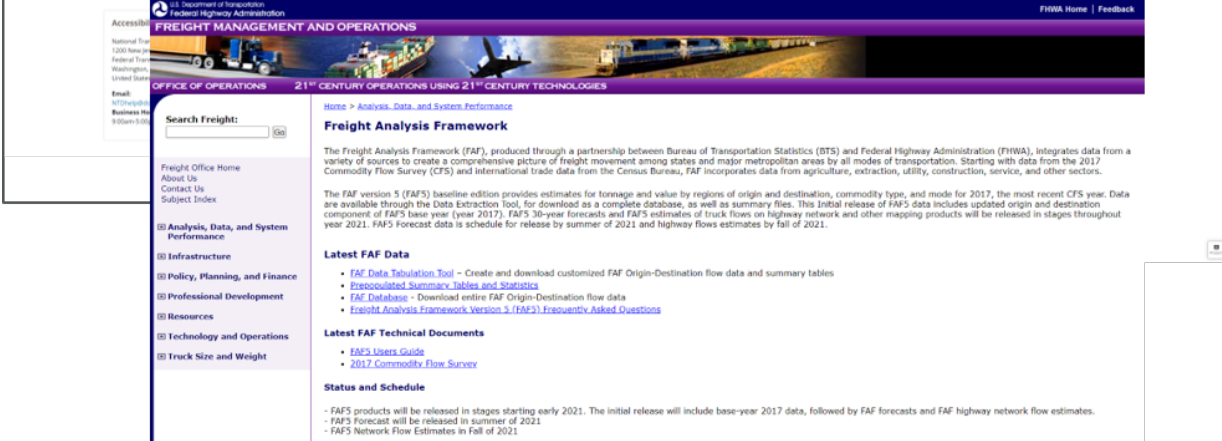
Year	Loaded Inbound	Loaded Outbound	Total Loaded	Empties Inbound	Empties Outbound	Total Empties	Total Throughput
2020	3,998,340	1,475,888	5,474,227	146,370	2,492,718	2,639,088	8,113,315
2019	3,758,438	1,472,802	5,231,240	74,706	2,326,087	2,400,792	7,632,032
2018	4,097,377	1,523,008	5,620,386	91,364	2,379,274	2,470,638	8,091,023
2017	4,144,314	1,533,701	5,678,015	75,710	2,135,096	2,210,806	7,888,821
2016	4,972,073	99,349	5,071,422	1,703,750	1,803,098	3,506,848	8,578,270
2015	5,150,825	101,560	5,252,385	1,939,684	2,041,244	3,980,928	9,233,313



Federal Transit Administration website screenshot showing "The National Transit Database (NTD)". The page includes a line graph and a "Reporting Login" section.



FHWA website screenshot showing "Freight Facts and Figures". The page features a large image of a highway interchange at night and a "Freight Facts and Figures" banner.



FHWA website screenshot showing the "Freight Analysis Framework" section. The page includes a search bar and a list of resources:

- FAF Data Tabulation Tool - Create and download customized FAF Origin-Destination flow data and summary tables
- Precomputed Summary Tables and Statistics
- FAF Database - Download entire FAF Origin-Destination flow data
- Freight Analysis Framework Version 3 (FAF3) Frequently Asked Questions

Latest FAF Technical Documents:

- FAF3 Users Guide
- 2017 Commodity Flow Survey

Status and Schedule:

- FAF3 products will be released in stages starting early 2021. The initial release will include base-year 2017 data, followed by FAF forecasts and FAF highway network flow estimates.
- FAF3 Forecast will be released in summer of 2021
- FAF3 Network Flow Estimates in fall of 2021.

Cal-B/C IF Data Entry – Project Information Worksheet

- The primary data entry worksheet for Cal-B/C IF
- Other worksheets should be modified if project specific information is available

1A Project Data

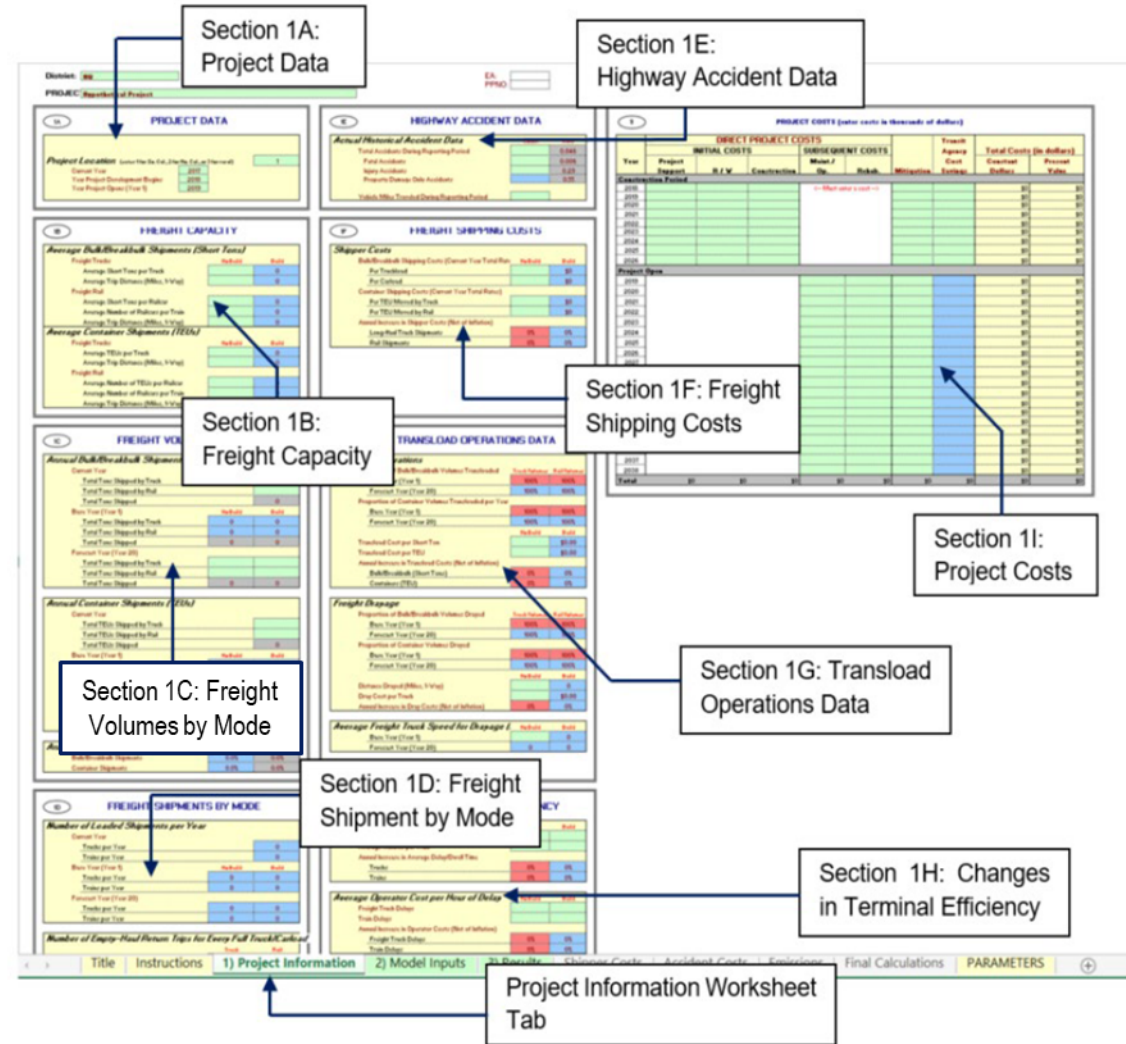
- Required for all projects

1B Freight Capacity

- Average capacity and distance traveled by mode and type of freight

1C Freight Volumes by Mode

- Volumes of bulk / break bulk and containers shipped by mode relevant to project



Cal-B/C IF Data Entry – Project Information Worksheet

1D Freight Shipments by Mode

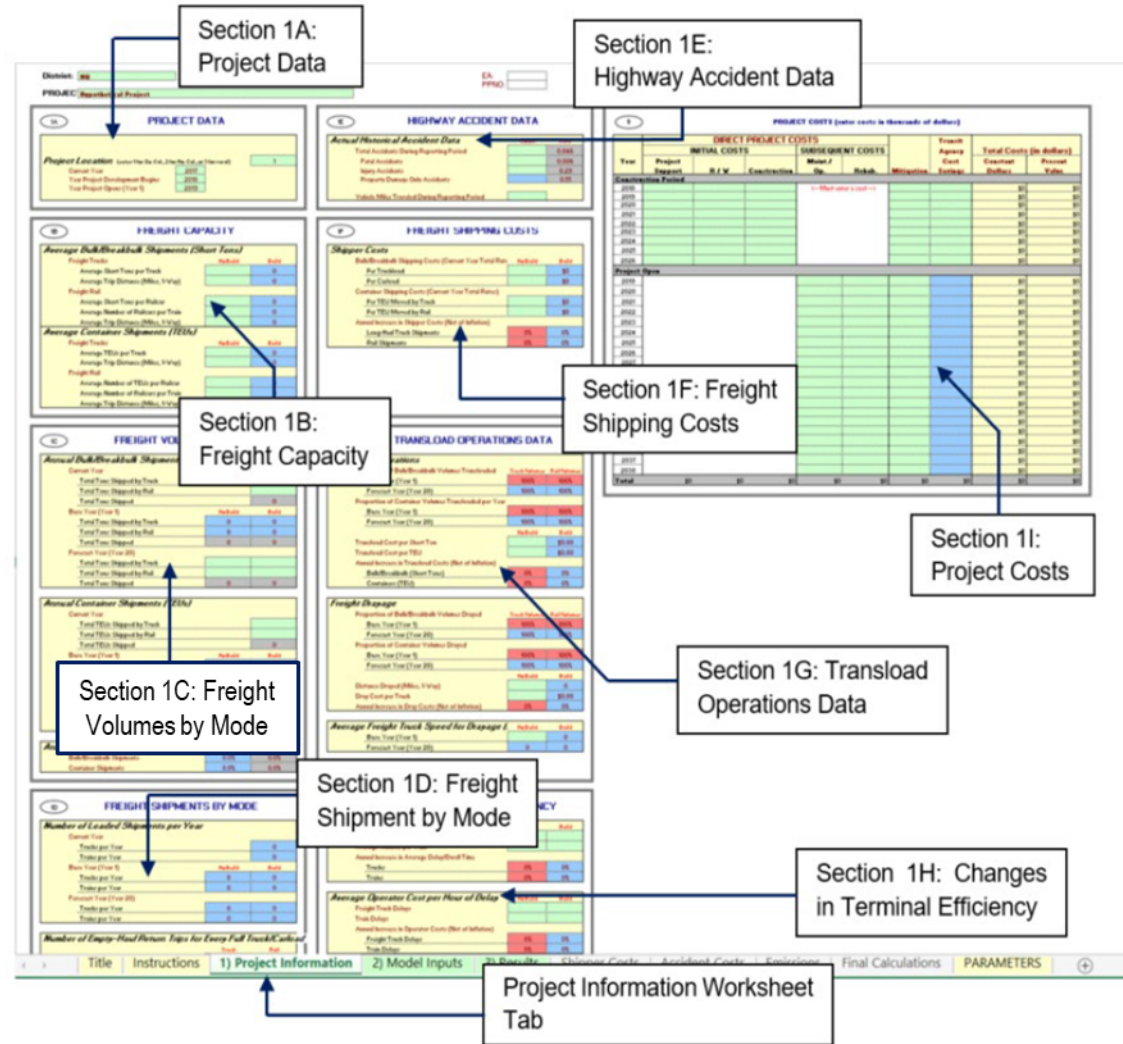
- Calculated values for total number of trucks and trains
- Number of empty-haul returns
- Average truck speeds (for emissions benefits)

1E Highway Accident Data

- Project-specific highway accident data

1F Freight Shipping Costs

- Shipping cost information (to calculate benefits for projects that involve modal diversion)



Cal-B/C IF Data Entry – Project Information Worksheet

1G Transload Operations Data

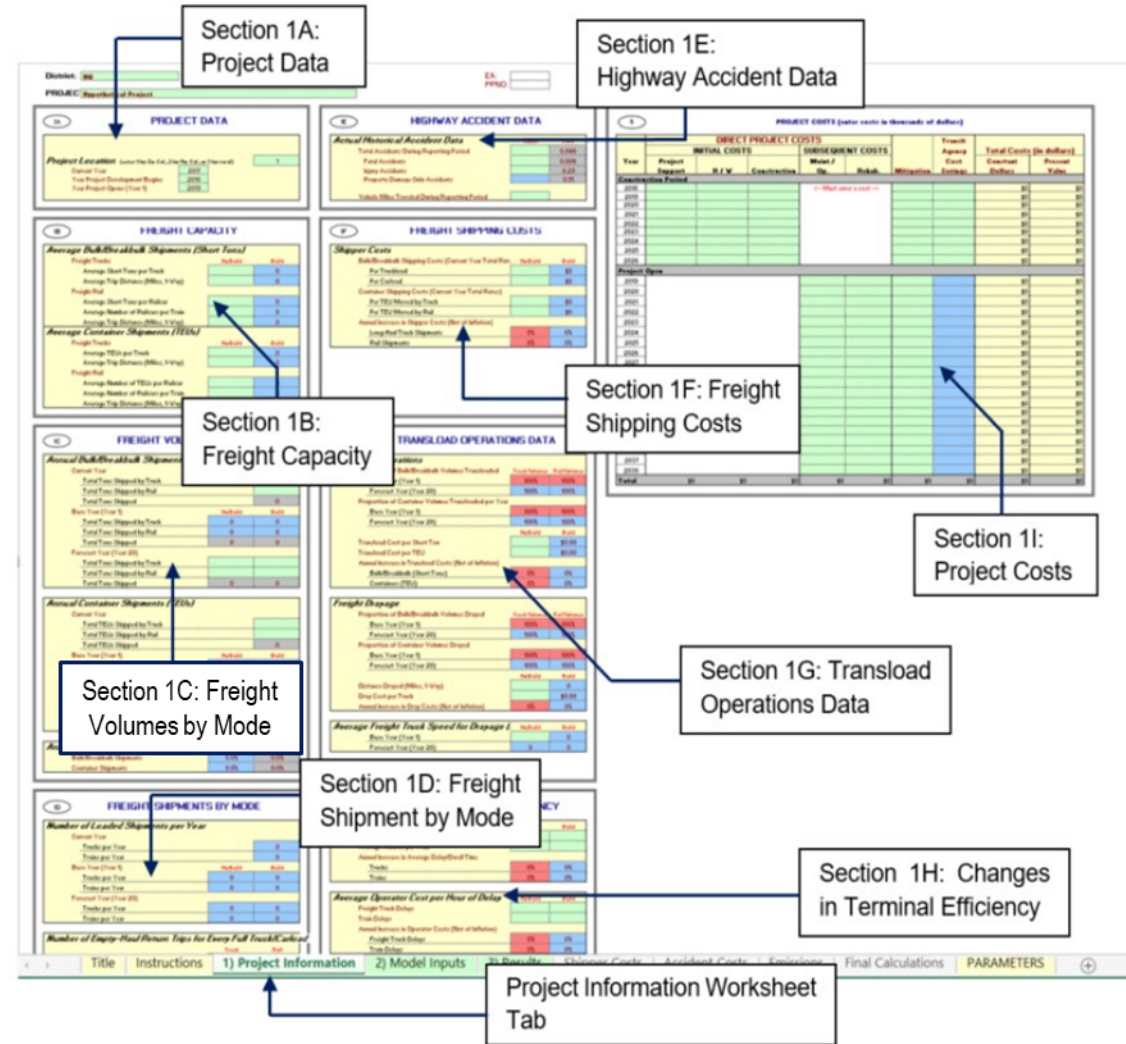
- Required data for freight projects that include changes in transloading operations or drayage

1H Changes in Terminal Efficiency

- Required data for freight projects that impact terminal efficiencies
- Captured through reduced delay or dwell time

1I Project Costs

- Required to fill in each year of construction period
- Recommended to estimate O&M costs based on existing relevant transload terminal projects
- O&M costs should be the difference between the No Build and Build Scenarios



Cal-B/C IF Data Entry – Model Inputs Worksheet

- Review this worksheet to make sure that your freight volume and transload operations input make sense
- This worksheet also lists the accident rates calculated for the project in the No Build and Build scenarios. Review to ensure that the rates make sense.
- You should not adjust the blue cells directly if alternative values are to be used
 - Identify which inputs need adjustments and use the green cells located next to the blue cells for making any changes
- Specify “Reason for Change” for any values overridden by user
 - Example: Federal Highway Administration (FHWA) grant reviewers examine these cells closely and users should have citing documents ready if values are overridden

The image displays three worksheets from a data entry model. Each worksheet is organized into 'No Build' and 'Build' scenarios, with columns for 'Conditional', 'Changed', and 'Fixed' values. The worksheets are:

- FREIGHT VOLUME INPUTS (Section 2A):** Contains input fields for freight volume, with callouts pointing to the top of the 'No Build' and 'Build' sections.
- TRANSLOAD OPERATIONS INPUTS (Section 2B):** Contains input fields for transload operations, with a callout pointing to the top of the 'No Build' section.
- ACCIDENT RATE INPUTS (Section 2D):** Contains input fields for accident rates, with a callout pointing to the top of the 'No Build' section.
- TERMINAL EFFICIENCY INPUTS (Section 2C):** Contains input fields for terminal efficiency, with a callout pointing to the top of the 'No Build' section.

Suggested Data Sources for Cal-B/C IF Evaluations by Input Item

Section Title	Data Input Item	To Find, Look at Cell	Suggested Data Sources (for required input cells; or to update Cal-B/C estimates or default values)	
1A) Project Data	Project Location	H10	Depends on proposed project	
	Project Timing	Current Year	F12	Project Initiation Document (PID)/Project Study Report (PSR)/Project Report (PR) or other source
		Year Construction Begins	F13	
		Year Project Opens	F14	
1B) Freight Capacity	Average Short Tons per Truck	G23; H23	Freight truck technical specifications/Roadway weight limits/Project Initiation Document (PID)/Project Study Report (PSR)/Project Report (PR) or other source	
	Average Trip Distance (Miles, 1-Way)	G24; H24	Project Initiation Document (PID)/Project Study Report (PSR)/Project Report (PR) or other source	
	Average Short Tons per Railcar	G26; H26	Railcar specifications	
	Average Number of Railcars per Train	G27; H27	Project Initiation Document (PID)/Project Study Report (PSR)/Project Report (PR) or other source	
	Average Trip Distance (Miles, 1-Way)	G28; H28		
	Average Number of TEUs per Truck	G31; H31		
	Average Trip Distance (Miles, 1-Way)	G32; H32		
	Average Number of TEUs per Railcar	G34; H34	Railcar specifications/Network restrictions	
	Average Number of Railcars per Train	G35; H35	Project Initiation Document (PID)/Project Study Report (PSR)/Project Report (PR) or other source	
	Average Trip Distance (Miles, 1-Way)	G36; H36		

Suggested Data Sources for Cal-B/C IF Evaluations by Input Item (cont'd)

Section Title	Data Input Item	To Find, Look at Cell	Suggested Data Sources (for required input cells; or to update Cal-B/C estimates or default values)
1C) Freight Volumes by Mode	Total Tons Shipped by Truck [Current Year]	H45	Freight Analysis Framework/ Project Initiation Document (PID)/Project Study Report (PSR)/Project Report (PR) or other source
	Total Tons Shipped by Rail [Current Year]	H46	
	Total Tons Shipped by Truck [Forecast Year]	G53; H53	
	Total Tons Shipped by Rail [Forecast Year]	G54; H54	
	Total TEUs Shipped by Truck [Current Year]	H59	
	Total TEUs Shipped by Rail [Current Year]	H60	
	Total TEUs Shipped by Truck [Forecast Year]	G67; H67	
	Total TEUs Shipped by Rail [Forecast Year]	G68; H68	
1D) Freight Shipments by Mode	Number of Empty-Haul Return Trips for Every Full Truck	G97	Project Initiation Document (PID)/Project Study Report (PSR)/Project Report (PR) or other source
1E) Highway Accident Data	Total Accidents During Reporting Period	Q10	TASAS (Table B)/SWITRS
	Fatal Accidents	Q11	

Suggested Data Sources for Cal-B/C IF Evaluations by Input Item (cont'd)

Section Title	Data Input Item	To Find, Look at Cell	Suggested Data Sources (for required input cells; or to update Cal-B/C estimates or default values)
1E) Highway Accident Data	Injury Accidents	Q12	TASAS (Table B)/SWITRS
	Vehicle Miles Traveled During Reporting Period	Q15	Regional traffic data
1F) Shipping Costs	Bulk/Breakbulk Shipping Costs per Truckload No Build [Current Year Total Rates]	Q23	Project Initiation Document (PID)/Project Study Report (PSR)/Project Report (PR) or other source
	Bulk/Breakbulk Shipping Costs per Carload No Build [Current Year Total Rates]	Q24	
	Container Shipping Costs per TEU Moved by Truck No Build [Current Year Total Rates]	Q26	
	Container Shipping Costs per TEU Moved by Rail No Build [Current Year Total Rates]	Q27	
1G) Transload Operations Data	Transload Cost per Short Ton [No Build]	Q51	Project Initiation Document (PID)/Project Study Report (PSR)/Project Report (PR) or other source
	Transload Cost per TEU	Q52	
	Distance Drayed (Miles, 1-Way) [No Build]	Q65	
	Drayage Cost per Truck [No Build]	Q66	
	Average Freight Truck Speed for Drayage (mph) No Build [Base Year]	Q70	Roadway Speed Limit/Project Initiation Document (PID)/Project Study Report (PSR)/Project Report (PR) or other source

Suggested Data Sources for Cal-B/C Corridor Evaluations by Input Item (cont'd)

Section Title	Data Input Item	To Find, Look at Cell	Suggested Data Sources (for required input cells; or to update Cal-B/C estimates or default values)
1H) Changes in Terminal Efficiency	Average Minutes per Truck	Q80; R80	Project Initiation Document (PID)/Project Study Report (PSR)/Project Report (PR) or other source
	Average Minutes per Train	Q81; R81	
	Average Operator Cost per Hour of Delay – Freight Truck Delays	Q87; R87	
	Average Operator Cost per Hour of Delay – Train Delays	Q88; R88	
1I) Project Costs	Direct Project Costs – Initial Project Costs (Support, R/W, Const.)	X14:Z22	Project Initiation Document (PID)/Project Study Report (PSR)/Project Report (PR) or other source
	Subsequent Costs (O&M, Rehab)	AA24:AB43	
	Mitigation	AC14:AC43	
	Agency Cost Savings	AD14:AD43	

03

Model Data

Freight Analysis Framework

- Data source and tool providing an overview of freight movement in the United States by all modes of transportation
- Allows the user to extract historical and future freight volumes by:
 - Commodity Type
 - Domestic Transportation Mode
 - Domestic Origin and Destination
- Output from the tool highlights the total tonnage, commodity value, and the ton-miles transported
- Tool also allows user to filter for movement type such as:
 - Total freight flow (i.e., domestic and foreign movement of goods)
 - Domestic freight
 - Import freight
 - Export freight
- https://ops.fhwa.dot.gov/freight/freight_analysis/faf/index.htm

The screenshot displays the Freight Analysis Framework (FAF) web application. The header includes the FHWA logo and navigation links. The main content area is titled "Freight Analysis Framework" and provides an overview of the tool's purpose and data sources. Below this, there is a section for "Latest FAF Data" with links to "FAF Data Tabulation Tool" and "FAF Database". The interface features a "Custom Selection of FAF Data" section with various filters: "Flow Type" (Total Flows), "Measure" (tons value), "Origin-Destination Geography" (Domestic Origin, Domestic Destination), "Commodity" (Commodity), "Mode & Distance" (Domestic Mode, Distance Band), and "Year" (2017, 2019, 2020, 2025, 2030, 2035, 2040, 2045, 2050). There are also checkboxes for "Forecast Scenarios" (Low (pes), High (opt)) and a toggle for "Display output labels as descriptive". A "Run" button is present. Below the filters, there is a "Quick Chart Generation" section with three chart thumbnails: "Total tonnage by commodity and mode", "Total tonnage by commodity", and "Mode share by commodity (tons)".

Bureau of Transportation Statistics

- Federal statistics agency that is the source of statistics on transportation activity, economics, and other measures of transportation
 - Statistical products are available for all modes of transportation, as well as both freight and passenger movements
- National Transportation Statistics is one of the few statistical products provided by the Bureau of Transportation Statistics
 - Includes data series that could be used to estimate factors based on national level data including:
 - Transportation Costs
 - Safety
- Granular data products are available though they may not contain the level of detail comparable to the national data
 - State Transportation Statistics
 - County Transportation Profiles
- <https://www.bts.gov/browse-statistical-products-and-data>

The screenshot displays the Bureau of Transportation Statistics website. At the top, there is a blue header with the site name, navigation links (Topics and Geography, Statistical Products and Data, National Transportation Library, Newsroom, About BTS), and a search bar. Below the header, the main content area is titled 'Browse Statistical Products and Data' and dated Thursday, February 18, 2021. It includes a brief description: 'Browse databases, surveys, reports and other statistical products created by BTS. Use BTS tools and apps to build your own statistical tables, graphics and maps.' Three images illustrate data visualization: a laptop with a line graph, a smartphone with a map, and a printed report with a bar chart. Below these are three columns of 'Statistical Products and Data' categorized by letter: A-F, G-N, and P-Z. Each column lists various data series. At the bottom, a large blue banner reads 'National Transportation Statistics' next to a graphic with the text 'National Transportation Statistics'.

- Data may provide the overview of volumes transported through the institutions
- Data availability may vary by organization
 - Large ports generally report annual volumes transported through the facility
 - Railroad freight data may be available through annual reports
- Data from organizations may reflect overall volumes transported by the organization and not necessarily reflect the volumes relevant to the project

THE PORT OF LOS ANGELES BOARD AGENDA

COMMONLY SEARCHED TOPICS

HOME BUSINESS COMMUNITY ENVIRONMENT COMMISSION ABOUT

CONTAINER STATISTICS

Home / Business / Statistics / Container Statistics

← Back

About Container Statistics

The information presented on this website is provided free of charge. When sourcing this data, please credit the Port of Los Angeles.

Provided statistical breakdowns include when counting cargo containers of vs

Statistics for the prior month are available here to send an email.

To be added to the Port's email distribution list, please click on the CARGO UPDATES box.

Stats - TEU By Year

Year	Loaded Inbound	Loaded Outbound	Total Loaded	Empties Inbound	Empties Outbound	Total Empties	Total Throughput
2020	3,998,340	1,475,888	5,474,227	146,370	2,492,718	2,639,088	8,113,315
2019	3,758,438	1,472,802	5,231,240	74,706	2,326,087	2,400,792	7,632,032
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2017	3,863,187	1,470,514	5,333,701	75,710	2,135,096	2,210,806	7,544,507
2016	3,442,575	1,529,497	4,972,073	99,349	1,703,750	1,803,098	6,775,171
2015	3,625,264	1,525,561	5,150,825	101,560	1,939,684	2,041,244	7,192,069
2014	3,517,512	1,604,395	5,121,907	89,184	1,609,716	1,698,900	6,820,807
2013	3,455,331	1,704,924	5,160,255	71,760	1,498,558	1,570,318	6,730,573
2012	3,062,301	1,540,179	4,602,479	82,605	1,360,579	1,443,183	6,045,663
2011	3,024,964	1,506,702	4,531,666	107,441	1,421,995	1,529,436	6,061,102
2010	3,128,859	1,562,398	4,691,257	95,907	1,476,334	1,572,241	6,263,498
2009	2,461,137	1,352,052	3,813,189	82,399	1,094,547	1,176,946	4,990,135
2008	3,189,363	1,687,052	4,876,415	112,911	1,498,491	1,611,402	6,487,816
2007	3,704,592	1,574,241	5,278,834	100,309	1,933,323	2,033,632	7,312,465
2006	3,719,681	1,290,843	5,010,523	102,782	2,177,061	2,279,843	7,290,366
2005	3,346,054	1,221,418	4,567,472	133,756	2,008,588	2,142,344	6,709,816
2004	2,987,973	1,007,913	3,995,886	124,006	1,659,955	1,783,960	5,779,846
2003	2,370,364	897,145	3,267,509	107,715	1,206,221	1,313,936	4,581,445
2002	2,450,747	855,202	3,305,949	42,627	1,174,749	1,217,376	4,523,325
2001	2,420,683	952,843	3,373,525	34,419	1,055,033	1,089,452	4,462,977
2000	2,456,189	1,044,198	3,500,387	53,091	1,047,175	1,100,266	4,600,652
1999	2,282,708	979,647	3,262,354	60,490	1,024,855	1,085,345	4,347,699
1998	2,096,902	973,598	3,070,500	108,197	918,943	1,027,139	4,097,639
1997	1,806,734	1,107,492	2,914,225	93,884	496,616	590,500	3,504,725
1996	1,547,578	1,081,722	2,629,299	179,252	258,618	437,869	3,067,169
1995	1,353,320	1,036,213	2,389,533			453,969	2,843,502

Latest Monthly Container Statistics

The table below shows container counts for the month of February:

Category	Value
Loaded Imports	3,625,264
Loaded Exports	3,517,512
Total Loaded	3,455,331
Total Empty	3,062,301
Total	3,024,964
Calendar Year 2021	3,128,859
Fiscal Year 2020/21	2,461,137

04

Traffic Collision Data

Traffic Accident Surveillance and Analysis System (TASAS) – Transportation Systems Network (TSN) Reports

- Highway inventory database which contains the current and historical collisions on the SHS
- Preferred source for SHS collision data
- Data/Reports only accessible through Caltrans Staff
- Data that can be used in Cal-B/C IF includes:
 - Total Accidents (Tot)
 - Fatal Accidents (Fat)
 - Injury Accidents (Inj)
 - Property Damage Only (PDO) Accidents (Tot – (Fat+Inj))
 - Accident Rate (per million vehicle-miles)
 - Percent Fatal Accidents (Pct Fat)
- <https://dot.ca.gov/programs/research-innovation-system-information/office-of-highway-system-information-performance>

OTM22130
01/14/2020
02:30 PM

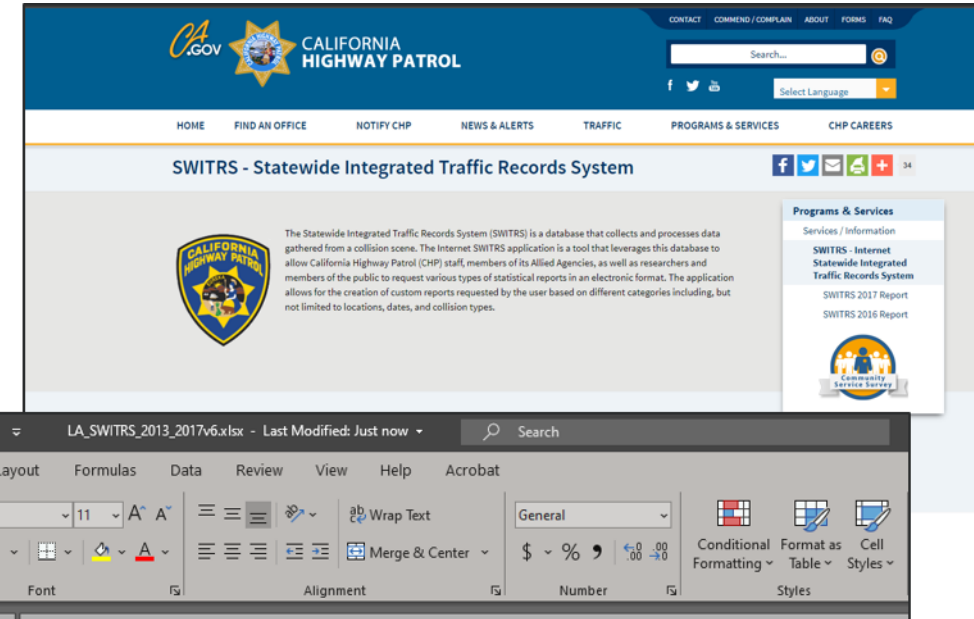
California Department of Transportation
Table B - Selective Accident Rate Calculation

Page# 1
Event ID: 4185099

Location Description	Rate Group (RUS)	No. of Accidents / Significance								Pers Kid Inj	ADT Main X-St	Total MV+ or MVM	Accident Rates				
		Tot	Fat	Inj	F+I	Veh	Wet	Dark	Actual Fat				Actual F+I	Average Fat	Average F+I	Tot	
8,293 MI H U		627	5	243	248	488	64	221	5	131.2	794.27	0.006	31	79	0.003	.24	.77
43,789 MI H NA		10598	31	2854	2885	9474	465	3609	34	226.8	7249.88	0.004	40	146	0.004	.34	1.09
16,763 MI H NA		13269	24	3676	3700	11844	654	4626	25	237.3	8100.70	0.003	46	164	0.004	.34	1.08
1,506 MI H NA		1475	3	394	397	1255	76	478	3	177.1	1487.53	0.002	27	99	0.004	.27	.85

Statewide Integrated Traffic Records System (SWITRS)

- Collects and processes detailed data gathered from a collision scene by CHP and local law enforcement
- Account required to access detailed reports and data
- California collision data by location, date/time and type
- Used for collision data off the State Highway System (SHS) – TASAS should be used for SHS projects
- Downloadable but requires extensive data manipulation
- Data that can be used in Cal-B/C IF includes:
 - Total Accidents (Tot)
 - Fatal Accidents (Fat)
 - Injury Accidents (Inj)
 - Property Damage Only (PDO) Accidents
- <https://iswitrs.chp.ca.gov/Reports/jsp/index.jsp>

A screenshot of an Excel spreadsheet displaying a list of traffic collision records. The spreadsheet has columns for Case ID, Accident Date, Jurisdiction, Collision Date, Collision Time, Officer ID, Reporting District, Day of Week, CHP Shift, Population, and City. The data is organized in a grid format with row numbers and column letters visible.

	A	B	C	D	E	F	G	H	I	J	K	L		
1	CASE_ID	ACCIDENT PROC_DA	JURIS	COLLISION_DATE	COLLISION_TIME	OFFICER_I	REPORTING_DISTRICT	DAY_OF_WEEK	CHP_SHIF	POPULATI	CNTY	CITY_LO		
2	6980428	2015	20151112	1941	20150621		1247	10658		7	5	7	194	
3	8371443	2017	20170609	1941	20170506		2500	10861		333	6	5	7	194
4	8068295	2016	20160621	1941	20160610		500	6311			5	5	7	194
5	8347200	2017	20170417	1941	20170405		333	10911			3	5	7	194
6	8064659	2016	20160624	1941	20160603		556	10805		231	5	5	7	194
7	8513141	2017	20180119	1931	20171213		837	5304		1931	3	5	5	193
8	6244413	2013	20140421	1941	20131007		1748	6287			1	5	7	194
9	8422238	2017	20170803	1941	20170721		520	11007		341	5	5	7	194
10	8151848	2016	20161026	1941	20161009		1244	10042			7	5	7	194
11	8041984	2016	20160527	1909	20160514		1245	560		1909	6	5	4	190
12	8486588	2017	20180109	1931	20171011		912	5304		1931	3	5	5	193
13	8440707	2017	20170911	1931	20170817		1631	5304		1931	4	5	5	193
14	8399963	2017	20170705	1907	20170619		1015	238		2	1	5	4	190
15	6941724	2015	20151019	1941	20150525		2254	10545		221	1	5	7	194
16	6446622	2014	20150305	1941	20140407		503	6287		244	1	5	7	194
17	8283016	2016	20170125	1941	20161227		2140	6042			2	5	7	194
18	8085729	2016	20160727	1948	20160626		235	450		1948	7	5	5	194
19	6693006	2014	20141202	1973	20140924		1900	607		1973	3	5	1	197

05

Project Costing Data

Project Costs – Direct Initial Costs

- The level of detail for cost estimates depends on where the project is in the development process
 - Plans, Specifications and Estimate (PS&E), Project Report (PR), and Project Study Reports (PSR) provide detailed cost estimates
 - These costs typically include support costs (e.g., design), right of way (ROW or R/W), and construction costs (including contingency)
 - Regional Transportation Improvement Programs (RTIP)

11 PROJECT COSTS (enter costs in thousands of dollars)									
Year	DIRECT PROJECT COSTS			SUBSEQUENT COSTS		Mitigation	Other Agency Cost Savings	Total Costs (in dollars)	
	Project Support	R / W	Construction	Maint./ Op.	Rehab.			Constant Dollars	Present Value
Construction Period									
2018								\$0	\$0
2019								\$0	\$0
2020								\$0	\$0
2021								\$0	\$0
2022								\$0	\$0
2023								\$0	\$0
2024								\$0	\$0
2025								\$0	\$0
2026								\$0	\$0
Project Open									
2021								\$0	\$0
2022								\$0	\$0
2023								\$0	\$0
2024								\$0	\$0
2025								\$0	\$0
2026								\$0	\$0
2027								\$0	\$0
2028								\$0	\$0
2029								\$0	\$0
2030								\$0	\$0
2031								\$0	\$0
2032								\$0	\$0
2033								\$0	\$0
2034								\$0	\$0
2035								\$0	\$0
2036								\$0	\$0
2037								\$0	\$0
2038								\$0	\$0
2039								\$0	\$0
2040								\$0	\$0
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Note: Remember to enter costs in thousands of dollars (1000\$). Otherwise, you will not get a correct benefit/cost ratio

Project Costs – Direct Initial Costs (cont'd)

- Pre-planning stages are more difficult
 - Caltrans project cost database with rule-of-thumb cost guides
- Look for a similar completed project in the same region with known costs, then estimate the cost for similar type of improvements
 - If ROW impacts are likely, then a reserve amount should be included. Caltrans has rule-of-thumb for ROW estimates available

11 PROJECT COSTS (enter costs in thousands of dollars)									
Year	DIRECT PROJECT COSTS			SUBSEQUENT COSTS		Mitigation	Other Agency Cost Savings	Total Costs (in dollars)	
	Project Support	R / W	Construction	Maint./ Op.	Rehab.			Constant Dollars	Present Value
Construction Period									
2018								\$0	\$0
2019								\$0	\$0
2020								\$0	\$0
2021								\$0	\$0
2022								\$0	\$0
2023								\$0	\$0
2024								\$0	\$0
2025								\$0	\$0
2026								\$0	\$0
Project Open									
2021								\$0	\$0
2022								\$0	\$0
2023								\$0	\$0
2024								\$0	\$0
2025								\$0	\$0
2026								\$0	\$0
2027								\$0	\$0
2028								\$0	\$0
2029								\$0	\$0
2030								\$0	\$0
2031								\$0	\$0
2032								\$0	\$0
2033								\$0	\$0
2034								\$0	\$0
2035								\$0	\$0
2036								\$0	\$0
2037								\$0	\$0
2038								\$0	\$0
2039								\$0	\$0
2040								\$0	\$0
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Note: Remember to enter costs in thousands of dollars (1000\$). Otherwise, you will not get a correct benefit/cost ratio

Project Costs – Subsequent Costs

- Caltrans and regional agencies have estimates for maintenance and operating costs for various facilities
- Subsequent costs should be entered as a **net** increase or decrease from the No Build case
 - May be positive (e.g., increased cost associated with terminal operations)
 - May be negative (e.g., avoided maintenance or rehabilitation)

11 PROJECT COSTS (enter costs in thousands of dollars)									
Year	DIRECT PROJECT COSTS			SUBSEQUENT COSTS		Mitigation	Other Agency Cost Savings	Total Costs (in dollars)	
	Project Support	R / W	Construction	Maint./ Op.	Rehab.			Constant Dollars	Present Value
Construction Period									
2018				<-- Must enter a cost -->				\$0	\$0
2019				<-- Must enter a cost -->				\$0	\$0
2020				<-- Must enter a cost -->				\$0	\$0
2021								\$0	\$0
2022								\$0	\$0
2023								\$0	\$0
2024								\$0	\$0
2025								\$0	\$0
2026								\$0	\$0
Project Open									
2021								\$0	\$0
2022								\$0	\$0
2023								\$0	\$0
2024								\$0	\$0
2025								\$0	\$0
2026								\$0	\$0
2027								\$0	\$0
2028								\$0	\$0
2029								\$0	\$0
2030								\$0	\$0
2031								\$0	\$0
2032								\$0	\$0
2033								\$0	\$0
2034								\$0	\$0
2035								\$0	\$0
2036								\$0	\$0
2037								\$0	\$0
2038								\$0	\$0
2039								\$0	\$0
2040								\$0	\$0
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Note: Remember to enter costs in thousands of dollars (1000\$). Otherwise, you will not get a correct benefit/cost ratio

Project Costs – Mitigation Costs

- Mitigation costs (in thousands of dollars) include costs to protect communities and the environment from negative impacts
 - Include wetland and community preservation as well as sound walls to reduce highway or rail transit noise
- Plans, PS&E, PR, and PSR will provide mitigation cost estimates (with details found in the appendices)
- Often, these costs can be included in the “construction” costs for a project and may not need to be entered into Cal-B/C IF as separate costs
 - Soundwalls and environmental mitigations are examples of mitigations that are built into the cost of projects presented in PRs
- On-going mitigation costs that continue after the project construction is completed will be included in PRs

PROJECT COST ESTIMATE

EA: 31450 PID: D01234567

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION				
Item code	Unit	Quantity	Unit Price (\$)	Cost
Biological Mitigation				
Total of Section 1-4				
130670	Temporary Reinforced Silt Fence	LF	\$ 144,076,600 x 3.0%	\$ 4,322,300
141000	Temporary Fence (Type ESA)	LF	x	- \$
				Subtotal Environmental Mitigation \$ 4,322,300
5B - LANDSCAPE AND IRRIGATION				
Item code	Unit	Quantity	Unit Price (\$)	Cost
Highway Planting				
Total of Section 1-4				
20XXXX	Highway Planting (Landscaped Status)	ACRE	\$ 144,076,600 x 3.0%	\$ 4,322,300
20XXXX	Irrigation System	LS	x 97,000.00	\$ 3,482,300
204099	Plant Establishment Work	LS	x	- \$
204101	Extend Plant Establishment Work	LS	x	- \$
20XXXX	Follow-up Landscape Project	LS	x	- \$
150685	Remove Irrigation Facility	LS	x	- \$
20XXXX	Maintain Existing (Irrigation or Planted Areas)	LS	x	- \$
206400	Check and Test Existing Irrigation Facilities	LS	x	- \$
21011X	Imported Topsoil (X)	CY/TON	x	- \$
20XXXX	Rock Blanket, Rock Mulch, DG, Gravel Mulch	10QFT/SQYD	x	- \$
200122	Weed Germination	SQYD	x	- \$
208304	Water Meter	EA	x	- \$
2087XX	XX" Conduit (Use for Irrigation x-overs)	LF	x	- \$
20890X	Extended A. Utilization (Use for Extension of Irrigation)	LF	x	- \$
				Subtotal Landscape and Irrigation \$ 7,804,600
5C - EROSION CONTROL				
Item code	Unit	Quantity	Unit Price (\$)	Cost
Move In/Move Out (Erosion Control)				
210010	Fiber Rolls	EA	x	- \$
210350	Compost Sock	LF	x	- \$
2102XX	Roller Erosion Control Product (X)	SQFT	x	- \$
21025X	Bonded Fiber Matrix	QFT/ACRE	x	- \$
210300	Hydromulch	SQFT	x	- \$
210420	Straw	SQFT	x	- \$
210430	Hydroseed	SQFT	x	- \$
210600	Compost	SQFT	x	- \$
210630	Incorporate Materials	SQFT	x	- \$
Total of Section 1-4				
				\$ 144,076,600 x 10.0% = \$ 14,407,700
				Subtotal Erosion Control \$ 14,407,700
5D - NPDES				
Item code	Unit	Quantity	Unit Price (\$)	Cost
130300	Prepare SWPPP	LS	1 x 10,000.00	\$ 10,000
130200	Prepare WPCP	LS	x	- \$
130100	Job Site Management	LS	x	- \$
130330	Storm Water Annual Report	EA	x	- \$
130310	Rain Event Action Plan (REAP)	EA	x	- \$
130320	Storm Water Sampling and Analysis Day	EA	x	- \$
130520	Temporary Hydraulic Mulch	SQYD	x	- \$
130550	Temporary Hydroseed	SQYD	x	- \$
130505	Move-In/Move-Out (Temporary Erosion Control)	EA	x	- \$
130640	Temporary Fiber Roll	LF	x	- \$
130900	Temporary Concrete Washout	LS	x	- \$
130710	Temporary Construction Entrance	EA	x	- \$
130610	Temporary Check Dam	LF	x	- \$
130620	Temporary Drainage Inlet Protection	EA	x	- \$
130730	Street Sweeping	LS	x	- \$
Total of Section 1-4				
				\$ 144,076,600 x 10.0% = \$ 14,407,700
				Subtotal NPDES \$ 14,417,700
TOTAL ENVIRONMENTAL \$ 40,952,300				
Supplemental Work for NPDES				
065595	Water Pollution Control Maintenance Sharing*	LS	x	- \$
065596	Additional Water Pollution Control**	LS	x	- \$
065597	Storm Water Sampling and Analysis***	LS	x	- \$
XXXXXX	Storm Water BMPs	LS	1 x 12,930,000.00	\$ 12,930,000
				Subtotal Supplemental Work for NPDES \$ 12,930,000

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.
 **Applies to both SWPPPs and WPCP projects.
 ***Applies only to project with SWPPPs.

06

Conclusion

In this module, you learned...

- About potential data sources for data input and project costing for Cal-B/C IF
- How to get data from these sources

What's Next?

- **Module 9e** walks through an example project of an Intermodal Freight BCA
- **Module 10** closes out the training and will summarize other resources to learn more about BCA