

7.2 Transit Lines

The major fixed route transit services in the SACOG region are explicitly represented in the transit networks as “lines”, or series of stops served by a transit vehicle at a specified service frequency. Table 7-1 provides a listing of the operators included. Each line operating on a fixed (or largely fixed) route, and with a published schedule, is coded into the SACSIM transit networks.

7.2.1 Transit Service Periods

SACSIM fixed-route transit considers five different service periods:

- Period 1, spanning from 5:00am until 9:00am
- Period 2, from 9:00am until 3:00pm
- Period 3, from 3:00pm until 6:00pm
- Period 4, from 6:00pm until 8:00pm
- Period 5, from 8:00pm until 11:00pm

By breaking up transit service into these periods, SACSIM aims to accurately represent how transit service varies throughout the day, e.g.:

- Transit availability and frequency differences throughout the day
- How transit is affected by changes in highway traffic congestion throughout the day

7.2.2 Transit Line Attributes

Table 7-2 provides a listing of the key variables coded for each transit line.

- The NAME of the line.
 - For lines existing in the base year, the first 4 characters refer to the operator name:
 - AMTR – Amtrak Capitol Corridor service
 - AUBT – Auburn Transit
 - CSUS – California State University Sacramento Hornet Shuttle
 - ELDO – El Dorado Transit
 - ETRN – E-Tran, in Elk Grove
 - FOLS – Folsom Stage Line
 - PLAC – Placer County Transit
 - RSVL – Roseville Transit
 - SCTL – South County Link (serving south Sacramento County)
 - SRTD – Sacramento Regional Transit District
 - UTRN - Unitrans
 - YOLO – Yolo County Transportation District (Yolobus)
 - YUSU – Yuba-Sutter Transit
 - The next characters up until the underscore (_) refer to the line number
 - The A/B indicator after the underscore refers to the direction
 - Example: SRTD1_ A = Sacramento Regional Transit route 1, direction A
 - Not all routes are split out by direction
- TIMEFACs are factors applied multiplicatively to the time on the transit supply link (for transit only links like LRT or BRT) or the congested time from the highway network for the appropriate [service period](#) (for lines operating in mixed traffic on the road network) to factor

in stops and dwell time into overall transit travel times. Table 7-3 shows the typical transit time factors used in SACSIM.

- ONEWAY is an indicator for a one-way direction route. An example of a true one-way route is one of the many commuter buses into Downtown Sacramento, which operate inbound-only in the morning, and outbound-only in the afternoon. ONEWAY is also used on many two-way routes that are broken out into two separate, one-way routes to account for routing or scheduling differences between the two directions.
- CIRCULAR is an indicator of routes operating as a loop, with the last station or stop on one trip being the first station or stop on the next trip. Riders of CIRCULAR routes do not incur any wait time penalty if their trip takes them through the route's last/first stop.
- OPERATOR is a variable which serves both as an identifier for the operating entity for each line, and as a lookup reference for fares.
- MODE is an indicator of the transit "submode" for each line. Submodes include: rail; commuter bus; and all other bus.
 - Note - links added to the lines through the Cube PT "autogenerate" functions (MODE =12, 13) are used for controlling access to and from stations or stops
- COLOR indicates more general service types, listed below. Important to note is that COLOR value does not in any way affect a line's attractiveness, travel speed, etc. It is primarily used to visually denote different service types when mapping transit lines, or for getting ridership or other tallies grouped by service type.
 - 1 = *Light Rail*. Lines are generally longer, linear, run in their own dedicated right of way, and outside of downtown centers usually have stops spaced more than 0.5 miles apart.
 - 3 = *Commuter Bus*. These bus services usually serve only during the AM and PM peak periods and serve major employment centers such as downtown Sacramento and UC Davis. These services generally have several stops at the "home end" where users live and at the "work end" where users work, with few if any stops in between.
 - 4 = *Bus Rapid Transit (low)*. As discussed under [Working with the Transit Network](#), bus rapid transit, or BRT, usually has routes that are similar to fixed-route local buses, but with varying levels enhancements like dedicated lanes, queue-jump lanes, off-board fare payment, etc. to improve operations and provide an experience closer to rail service.
 - 5 = *Fixed Route Local Bus*. Local fixed-route buses typically travel longer, linear routes that cross large parts of the operator's service area. Stops are generally less than 0.25mi apart.
 - 6 = *Regional/Commuter (Heavy) Rail* includes service such as Amtrak's Capitol Corridor service to the Bay Area. Regional rail has generally infrequent service, but has higher speeds and long distances (10+ miles) between stops.
 - 7 = *Neighborhood shuttle*. Like a local fixed-route bus but serves a smaller area and is more likely to be a circular or loop-shaped route rather than a longer linear route. Most of UC Davis's Unitrans routes are considered neighborhood shuttles.
 - 8 = *Streetcar*. Like light rail, but generally has more frequent stops and serves a smaller area.

As with capacity class designations for the highway network, some of the distinctions between service type COLORS are not black-or-white. Examples are: so-called "hybrid" streetcar systems that operate

more like light rail; or certain types of lower end bus rapid transit (BRT) that operate more like a normal fixed-route local bus. The model user must use his/her professional judgement in such situations to decide which COLOR to assign a specific line.

- HEADWAY(#) is the average headway, or time spacing between scheduled buses or trains, in minutes. The # in parentheses indicates the [service period](#). HEADWAY is computed as follows:
 - Total minutes in service period / Total trips made by the route in service period
 - E.g. if the service period is AM peak, the total minutes is 240. For a route with 4 trips during this period, that route’s AM peak headway is 240/4 = 60 minute headway between arrivals.
 - HEADWAY values of 0 denote times during which there is no service. E.g., if the HEADWAY for midday is 0, it means that route makes no trips during the midday period.

Table 7-1 SACSIM Transit Operators

Operator/Fare Group Number	Description
1	RT light rail lines
2	RT fixed-route bus lines
3	Yolobus commuter/express lines
4	Yolobus local fixed route bus lines
5	Roseville commuter bus lines
6	Roseville local fixed route bus lines
7	Yuba-Sutter Transit commuter lines
8	Yuba-Sutter local fixed route bus lines
9	El Dorado Transit commuter bus lines
10	El Dorado Transit local fixed route bus lines
11	Placer County Transit commuter lines
12	Placer County Transit local fixed route bus lines
13	Unitrans local fixed route bus lines; CSUS Hornet shuttle lines
14	Heavy rail (currently Sacramento region stops for Capitol Corridor)
15	South County Transit (SCT Link)
16	E-Tran commuter lines
17	E-Tran local bus lines
18	Future Neighborhood Shuttle
19	Future Streetcar
20	Folsom Stage Line

Source: SACOG 2020.

Table 7-2 Transit Line File Variables

Variable	Description
NAME	Name of Line
TIMEFAC	Highway to transit running time factor
ONEWAY	1 = line only goes 1 direction; 0 = line runs both directions
CIRCULAR	1= circular, 0 = not circular
OPERATOR	Operator of line and fare group (1-20)
MODE	Transit submode (1-3)
COLOR	Service type
HEADWAY[1]	Morning service period (5:00 AM to 9:00 AM), in minutes
HEADWAY[2]	Midday service period (9:00 AM to 3:00PM), in minutes
HEADWAY[3]	Afternoon peak service period (3:00 PM to 6:00 PM)
HEADWAY[4]	Evening service period (6:00 PM to end of 8:00 PM)
HEADWAY[5]	Evening service period (8:00 PM to 11:00 PM)

Source: SACOG 2020.

7.2.3 Demand-Responsive Transit Services

Dial-a-ride, paratransit, private transit operations, and individual bus routes that operate within a travel analysis zone (TAZ) or that operate very infrequently were not included in the transit network. Such routes are excluded in standard transit modeling practice for several reasons. They cannot be modeled reliably using macro-level measures. Additionally, these services usually carry very small volumes, and are not addressed explicitly in regional planning or corridor studies.

SACSIM19 currently excludes “microtransit” services, such as Sacramento Regional Transit’s SmaRT Ride and West Sacramento’s Via shuttle, which essentially provide on-demand transit service within a defined area and to select light rail stations. Future versions of SACSIM may incorporate microtransit services if they rise as a significant transit mode.