7 Transit Networks

The transit network represents major fixed-route transit services. In the SACSIM model, the transit network is essentially an overlay on the road network, primarily by designation of bus transit lines on the road network. Separate transit-only links are coded for light rail transit lines, which generally operate on exclusive right-of-way. The SACSIM model can represent the impacts of increased road congestion on bus travel times as well as time savings for buses traveling in HOV or managed lanes.

7.1 Working with the Transit Network

7.1.1 Fixed-Route Regular Bus Services

1. Open the transit line file (tranline.txt) in Cube to edit fixed-route, normal bus service attributes:
    - Line geometry (which streets bus routes use)
    - Line attributes, discussed below
2. Use the Cube interface to add new lines or delete lines.

7.1.2 Rail Transit Services

1. Edit the geometry (i.e., where the rail line goes):
    a. Open the transit.txt line file in Cube
    b. Add nodes to the SACSIM highway network at each stop location and significant vertex (e.g. where the line makes a significant turn).
    c. Update the CSVs of rail links and station links in Excel.
2. Update the node list and other transit line attributes in Cube.

7.1.3 Bus Rapid Transit (BRT)

There is no established, single way to represent BRT in SACSIM, but below are some general guidelines to follow depending on the flavor of BRT you intend to represent.

- For BRT that acts more like rail, with total or near-total separation from mixed-flow vehicular traffic, it may be best to code as a rail transit service.
- For bus services that have some of the operational features of BRT that speed up service (e.g. off-board fare payment, queue-jump lanes, etc.) but operate with some mixed-flow vehicular traffic, SACOG convention has been to code it as a normal bus service, but to adjust the time factor attribute to have the bus speed be closer to that of non-transit vehicular traffic.

7.1.4 Park-and-Ride Lots

To edit or update park-and-ride facilities in SACSIM, refer to the section on Park-and-Rides.

7.1.5 Coding Future or Forecasted Transit Service

How you code in future transit service into the model network entails essentially the same procedures and file types as coding in or editing existing transit service, described above. However, *what* you code in (e.g., where you put future service, how frequent you make it, what times of day it

runs, which stops have park-and-ride facilities, etc.) depends on the application or scenario you are modeling transit for. Some examples include:

- Modeling future services explicitly planned by a transit agency, such as a planned rail line extension, service reorganization, or new bus route.
- Aligning future transit service with expected population in job growth, even if it is not based on explicit transit agency plans, which rarely forecast transit service more than five years out. SACOG's 2020 MTP-SCS applied this approach in developing its future-year transit services, providing new service or increased service levels to areas in which it forecasted significant job or population grown.