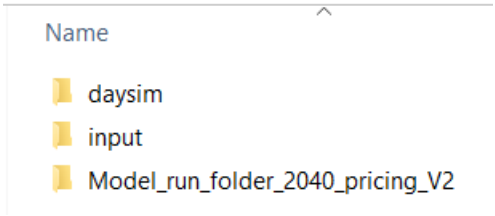
2.5 Preparing a model run

This section is to provide practitioners of SACSIM how to set up the SACSIM19 input structure to create a scenario to run. The scenario requires three subfolder directories as shown in Figure 2-2. The model inputs section above provides files names and descriptions of the required files. If multiple scenario have the same input daysim and input folder inputs, which is common for multiple scenarios using the same scenario forecast year, you can create multiple "Scenario" in the same directory to call the daysim and input files. Each scenario will require its own SACSIM19 run script (.s file) and associated inputs

Figure 2-2 SACSIM Run Folders



2.5.1 Model run scenario structure

The following figures represent examples of a model files and folder structure ready to be ran. For more information on files review model inputs section above and Appendix A DAYSIM Reference Guide.xlsx for descriptions, requirements and file type information.

Figure 2-3 Example Scenario Input Folder Setup

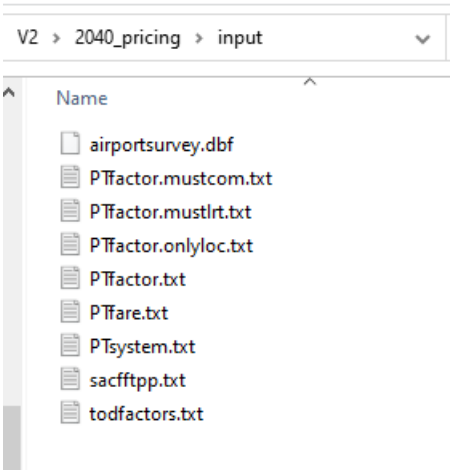


Figure 2-4 Example Scenario daysim Folder Setup

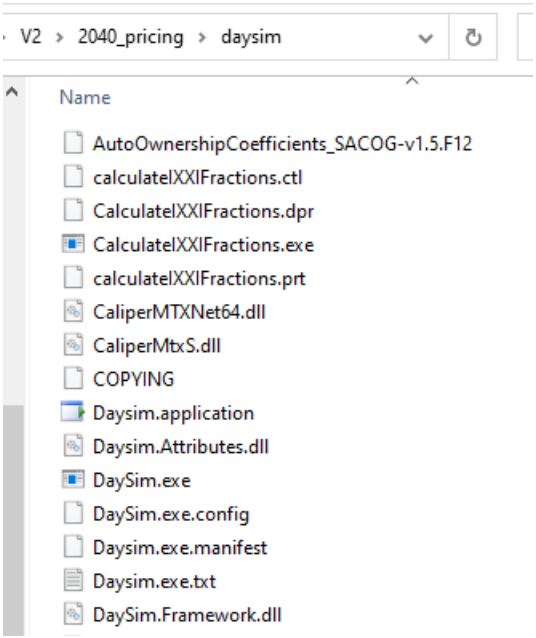
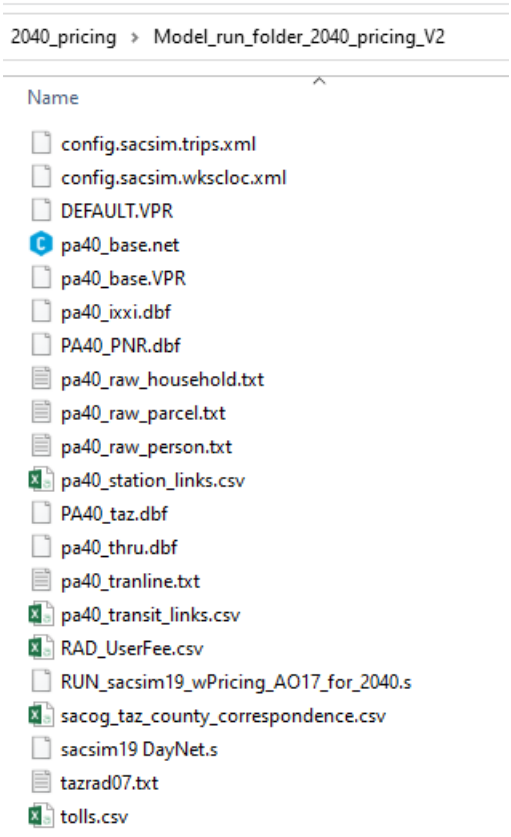


Figure 2-5 Example Scenario Run Folder Setup



2.5.2 Setup for Model Run Pricing Parameters

As part of the 2020 MTP/SCS, SACSIM19 was updated to run a variety of policy-based scenarios. These scenarios vary SACSIM19 base assumptions and require slightly different setups. It's important to understand and check the following scenario files to determine if a baseline, mileage-based user fee, and/or managed or toll lane pricing scenario is setup in the input structure. Further details on costs, fees and pricing can be found in Chapter 9.

2.5.2.1 Setup Mileage Based User Fee

2.5.2.1.1 SACSIM19 run script

To incorporate pricing alternatives into SACSIM's utility cost of travel function, SACSIM19 breaks out auto cost, typically referred to as the "Cost of Driving" and a separate mileage-based user fee. This is a model feature that can be turned on or off by the user based on a few input parameters. Figure 2-6 illustrates variable in SACSIM19 model run script to update mileage-based user fee and auto operating cost. For example, if a model run is testing a mileage-based user fee compared to today's California gas tax, the user would need to factor in the reduction by subtracting a portion of the auto cost per mile input. Therefore, if Mileage Based User fee is tuned off, variable *"userfee_per_mile" is equal to 0.00. If Mileage based user* fee variable turned on, "userfee_per_mile" is equal to a value greater than zero. Important Note: all auto operating costs need to be converted to 2000 dollars for model input. Further description on SACSIM19 pricing implementation is in Chapter 9.

Figure 2-6 SACSIM19 Auto Cost and User Fee Inputs

```
9   ;====================================================================
10
11  ;Set per-mile auto operating cost here
12  auto_cost_per_mile = 0.162
13  userfee_per_mile =   0.014
```

Spatial and Time Period Fee Adjustments

In addition to a mileage-based user fee, spatial and temporal components can be set using the RAD_Userfee.csv input file in the Scenario run folder. Table 2-5 describes the four inputs in the RAD_Userfee.csv required and an example with and without the mileage-based fee adjustments. Source: SACOG 2020.

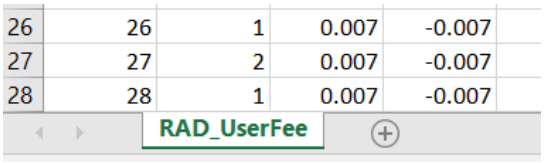
Figure 2-7 shows an example of the RAD_Userfee.csv.

Table 2-5 Spatial and Temporal Mileage-Based Fee Adjustment

Header (Not in actual file)	RAD	Multiplicative Factor	Peak Adjustment	Off Peak Adjustment
Required input description	Regional Analysis Distract Spatial Geography where factor will apply to roadways. **Default is all RAD Zones within region.**	Factor used to multiple userfee_per_mile input. **Default is 1.**	Peak congestion rate adjustment factor applied to AM (7am-10am) and (4PM – 6PM) peak hours. **Default is 0.**	Off Peak period discount rate during non-congested times applied to Evenings (7-9), Nighttime (10-5am) and Midday. **Default is 0**
Example Spatial Adjustment **Turned On**	1	2	0.007	-0.007
Example Spatial Adjustment **Turned Off**	1	1	0	0

Source: SACOG 2020.

Figure 2-7 RAD_Userfee.csv Example

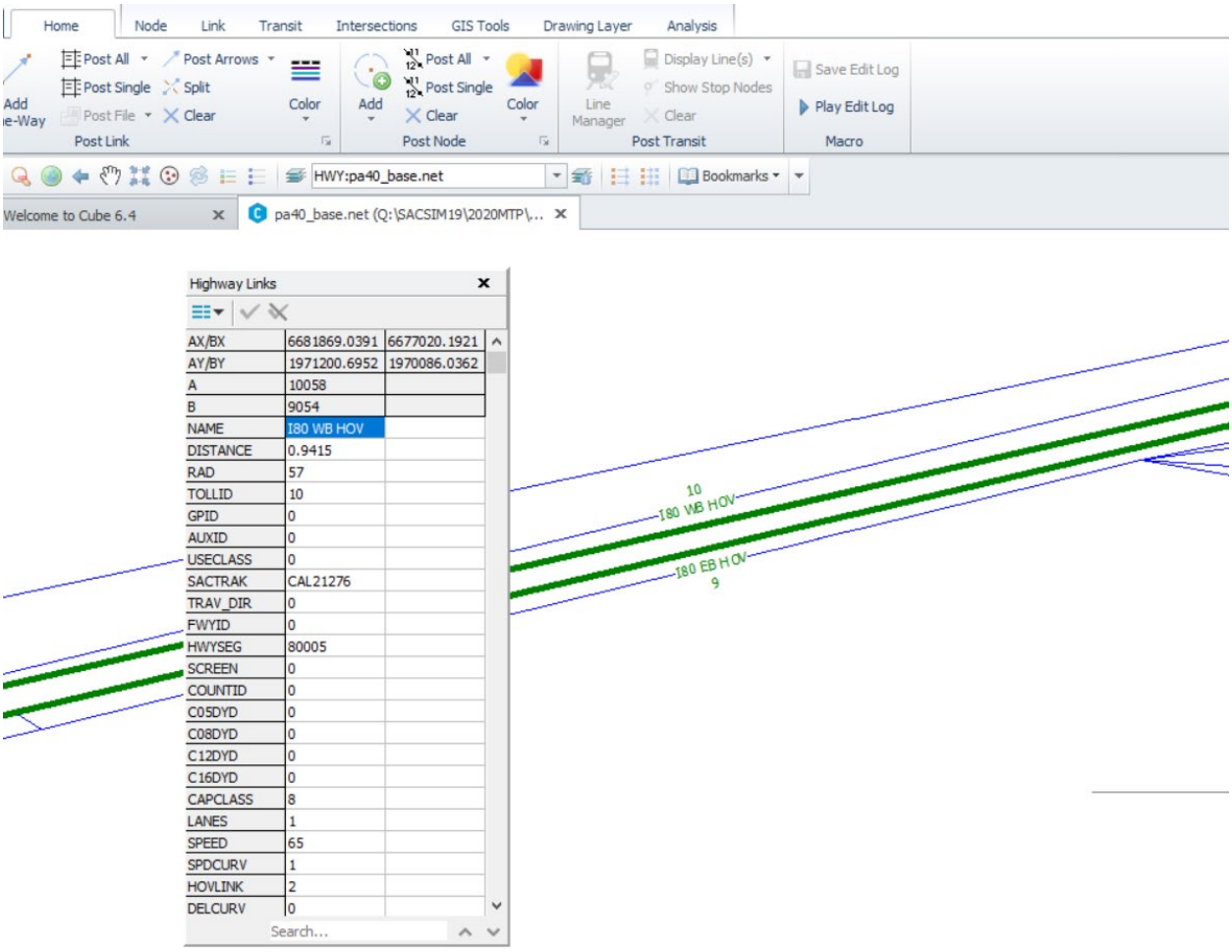


2.5.2.2 Setup Managed Lanes Tolling

2.5.2.2.1 Base Scenario Model Network

A scenario's model highway network is typically named **<scenario year>_base.net.** Every priced facility must have a TOLLID number associated. For parallel general purpose and auxiliary lanes, the same ID number must be assigned to GPID (general purpose lanes) and AUXID (auxiliary lanes). This is used to determine the cost of the managed facility relative to the congestion on the parallel "free" facilities. Depending on the type of managed lane, USECLASS must also be set with a value of 0, 2, or 3 to determine the allowed vehicle type on the managed facility. Zero allows all users to drive on the facility being priced, 2 allows only vehicles with 2 or more passengers, while 3 allows only vehicles 3+ passengers. Note, USECLASS does not determine which vehicles are *priced*; it just determines which vehicles are allowed to use the facility. Prices are set in the Toll Input File described below. Figure 2-8 shows an example of a managed lane facility coding on the base network. In this example all vehicle types are allowed on the managed lane facility.

Figure 2-8 Base Network Toll ID Coding



2.5.2.2.2 Toll Input Cost File

The TOLLID coded on the network identifies the toll segments. The costs by vehicle type then need to be associated and defined to the network toll segments. This is done in the Toll Input Cost File **tolls.csv.** Each row represents a unique TOLLID segment by time period. For every tolled segment there will be nine additional rows added to the input file (1 TOLLID X 9 SACSIM time periods). The user must specify initial, minimum, and maximum values for each row for each of the four modes:

- drive alone,
- SOV2,
- SOV3+,
- commercial vehicle.

Table 2-6 shows an example of how the Toll Input Cost File may look. If a scenario requires no toll pricing, Inputs columns 4-22 should all be set to zero. For more information, review Chapter 9 on Roadway and Mileage Based Pricing.

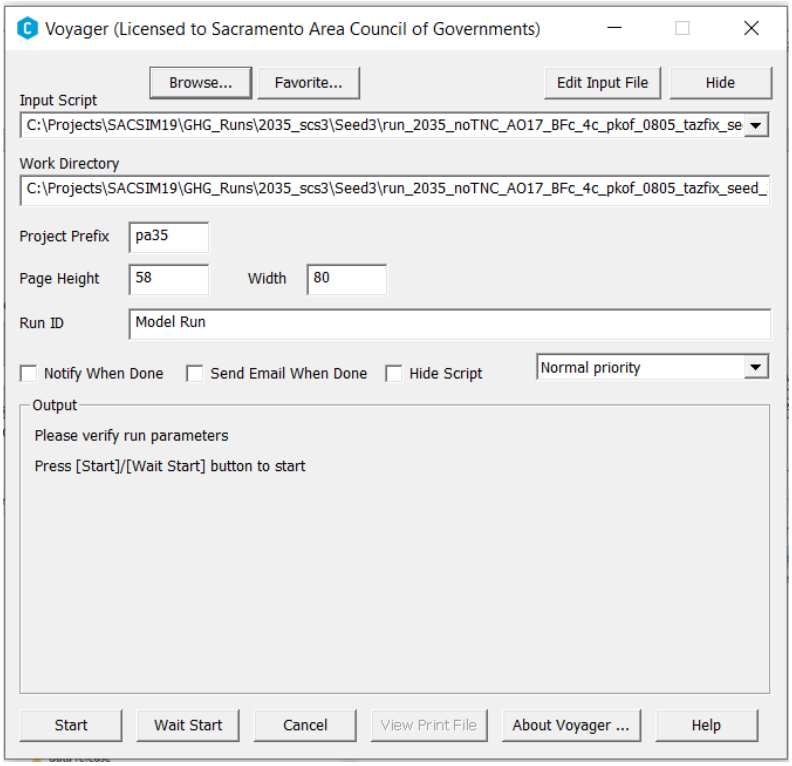
Table 2-6 Toll Cost Input Example

Fac. Index	Seg.	Per.	Fac. Type	Adjust	Toll DA	Toll S2	Toll S3	Toll CV	Min DA	Min S2	Min S3	Min CV	Max DA	Max S2	Max S3	Max CV	Reversable Lane AM	Reversable Lane PM	Shoulder lane AM	Shoulder lane PM	Take a Lane AM	Take a Lane PM
101	1	1	2	1	1	0	0	2	0.1	0	0	0.2	30	0	0	30	0	0	0	0	0	0
102	1	2	2	1	1	0	0	2	0.1	0	0	0.2	30	0	0	30	0	0	0	0	0	0
103	1	3	2	1	1	0	0	2	0.1	0	0	0.2	30	0	0	30	0	0	0	0	0	0
104	1	4	2	1	1	0	0	2	0.1	0	0	0.2	30	0	0	30	0	0	0	0	0	0
105	1	5	2	1	1	0	0	2	0.1	0	0	0.2	30	0	0	30	0	0	0	0	0	0
106	1	6	2	1	1	0	0	2	0.1	0	0	0.2	30	0	0	30	0	0	0	0	0	0
107	1	7	2	1	1	0	0	2	0.1	0	0	0.2	30	0	0	30	0	0	0	0	0	0
108	1	8	2	1	1	0	0	2	0.1	0	0	0.2	30	0	0	30	0	0	0	0	0	0
109	1	9	2	1	1	0	0	2	0.1	0	0	0.2	30	0	0	30	0	0	0	0	0	0

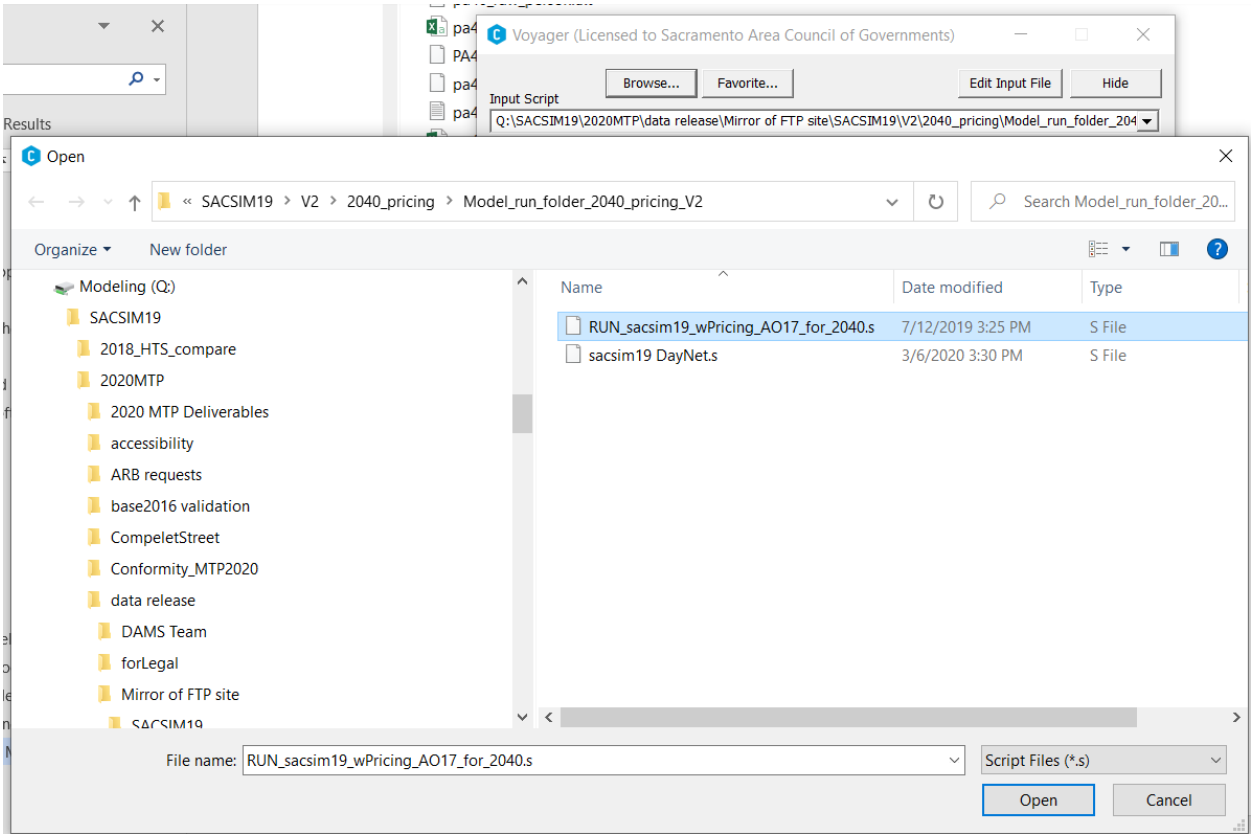
Source: SACOG 2020.

2.5.3 Start Scenario Model Run with Cube Voyager

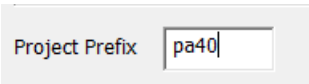
1. Open Cube Voyager Application



2. Select Browse and navigate the SACSIM model run script in Scenario folder created.



3. Check Prefix matches with files structure. For example, for SACOG SACSIM19 2040 modeling scenarios, prefix pa40 is used for all input files using Cube special "Token" inputs in naming.



4. Select "Start" to begin model run.