TripSum (version 4.0.21)

Revision History
14 February 2011 Created by Volpe Center

The TripSum program summarizes trip and/or activity records. TripSum can be used to

1. Summarize trip or activity file records for reports.
2. Select trip or activity file records for output to a new file.
3. Select and/or summarize by mode, trip purpose, origin or destination zone or polygon.
4. Randomly select a subset of trips or activity by origin, destination and time period.
5. Generate trip time and distance distributions by mode and trip purpose.
6. Produce zone or district trip tables by mode and time of day.
7. Summarize trip ends by link, location, and/or zone.
8. Generate demand/capacity ratio reports by link and time of day.
9. Create diurnal distributions of the start, end, and mid-trip times.
10. Expand travel statistics from survey activities to the total population.

TripSum is a console-based program that runs in a command window on either Windows or Linux. The command syntax is:

```
TripSum [-flag] [control_file]
```

The control_file is the file name of an ASCII file that contains the control strings expected by the program. The control_file is optional. If a file name is not provided, the program will prompt the user to enter a file name. The flag parameters are also optional. Any combination of the following flag parameters can be included on the command line:

-Q[uiet] = execute without screen messages
-H[elp] = show program syntax and control keys
-K[eyCheck] = list unrecognized control file keys
-P[ause] = pause before exiting
-N[oPause] = never pause before exiting
-B[atch] = execute in batch processing mode

The program automatically creates a printout file based on the control_file name. If the file name includes an extension, the extension is removed and ".prn" is added. The printout file will be created in the current working directory and will overwrite an existing file with the same name.

Known Gaps in this Document

1. Traveler Scaling Factor
2. Household Person Count
3. Select Probability File and Format

Control File Examples

EXAMPLE 1 PRODUCE SOME REPORTS

```
TITLE                          Summarize Trips

NET_DIRECTORY                  ../network
NET_LINK_TABLE                 Link.txt
NET_NODE_TABLE                 Node.txt
NET_LANE_USE_TABLE             Lane_Use.txt
NET_ACTIVITY_LOCATION_TABLE    Activity_Location.txt
NET_PROCESS_LINK_TABLE         Process_Link.txt
TRIP_FILE                      Trip.txt

SUMMARY_TIME_PERIODS           7:00..9:00
SUMMARY_TIME_INCREMENT         60

TRIPSUM_REPORT_1               TOP_100_LINK_TRIP_ENDS
TRIPSUM_REPORT_2               TOP_100_LANE_TRIP_ENDS
TRIPSUM_REPORT_3               TOP_100_TRIP/CAPACITY_RATIOS
TRIPSUM_REPORT_4               TRIP_TIME_REPORT
TRIPSUM_REPORT_5               TRIP_LENGTH_SUMMARY
TRIPSUM_REPORT_6               TRIP_PURPOSE_SUMMARY
TRIPSUM_REPORT_7               MODE_LENGTH_SUMMARY
TRIPSUM_REPORT_8               MODE_PURPOSE_SUMMARY
```

This example reads the Trip.txt file, and produces reports for the period 7:00 – 9:00. The reports are summarized in 60-minute increments.

EXAMPLE 2 SUMMARIZE TRIP DISTANCES AND TRIP ENDS

```
TITLE                          Summarize Trip Distances and Trip Ends

NET_DIRECTORY                  ../network
NET_LINK_TABLE                 Link.txt
NET_NODE_TABLE                 Node.txt
NET_LANE_USE_TABLE             Lane_Use.txt
NET_ACTIVITY_LOCATION_TABLE    Activity_Location.txt
NET_PROCESS_LINK_TABLE         Process_Link.txt
TRIP_FILE                      Trip.txt

SUMMARY_TIME_PERIODS           7:00..9:00
SUMMARY_TIME_INCREMENT         60
SUMMARY_LENGTH_INCREMENT       400
NEW_TRIP_DISTANCE_FILE         TripDistance.txt
DISTANCE_CALCULATION           RIGHT_ANGLE
NEW_LINK_TRIP_END_FILE         LinkTripEnd.txt
NEW_LOCATION_TRIP_END_FILE     LocTripEnd.txt

TRIPSUM_REPORT_4               TRIP_TIME_REPORT
TRIPSUM_REPORT_5               TRIP_LENGTH_SUMMARY
```

This example produces a list of trip distances at 400 meter (roughly ¼ mile) increments, as well as trip ends by link and activity location.

EXAMPLE 3 TRIP TIME AND TIME DISTRIBUTION

```
TITLE                          Trip Time and Time Distributions

NET_DIRECTORY                  ../network
NET_LINK_TABLE                 Link.txt
NET_NODE_TABLE                 Node.txt
NET_LANE_USE_TABLE             Lane_Use.txt
NET_ACTIVITY_LOCATION_TABLE    Activity_Location.txt
NET_PROCESS_LINK_TABLE         Process_Link.txt
TRIP_FILE                      Trip.txt

NEW_TRIP_TIME_FILE             TripTime.txt
NEW_TIME_DISTRIBUTION          TimeDist.txt

TRIPSUM_REPORT_4               TRIP_TIME_REPORT
TRIPSUM_REPORT_5               TRIP_LENGTH_SUMMARY
```

This example uses the default SUMMARY_TIME_PERIODS (ALL) and the default SUMMARY_TIME_INCREMENT (15 minutes) to produce trip time and time distribution files.

EXAMPLE 4 MANIPULATING TRIP TABLES

```
TITLE                            Combine Trip Files

DEFAULT_FILE_FORMAT              TAB_DELIMITED

NET_DIRECTORY                  ../network
NET_LINK_TABLE                 Link.txt
NET_NODE_TABLE                 Node.txt
NET_LANE_USE_TABLE             Lane_Use.txt
NET_ACTIVITY_LOCATION_TABLE    Activity_Location.txt
NET_PROCESS_LINK_TABLE         Process_Link.txt
TRIP_FILE                      Trip.t*
SELECT_ORIGIN_ZONES            1

NEW_TRIP_FILE                  NewTrip.txt
```

Reads a partitioned trip table (Trip.tAA, Trip.tAB, etc.), select those trips originating in zone 1, and writes the resulting trips in a single file.

Control File Parameters

Control parameters are defined using a control key followed by a string or number. The control parameters can be specified in any order. If a given key is defined more than once, the last instance of the key is used. Note that comment lines or extraneous keys can be included in the file. They will be ignored by the program.

The keys recognized by the **TripSum** program are listed below. These keys can be defined in a variety of different ways to perform different tasks.

A number of output examples are presented in graphs later in this document. Unless otherwise specified, they use the parameters as stated in Example 1, above.

Required Keys

TRIP_FILE

The trip file key is appended to the PROJECT_DIRECTORY key to specify the file name for the input trip file copied. Either a TRIP_FILE or ACTIVITY_FILE are required.

ACTIVITY_FILE

If the ACTIVITY_FILE is provided, all activities for households not included in the household list file will be copied to the new activity file with change. This file is typically used when updating or regenerating activities for household with problems. The key is appended to the PROJECT_DIRECTORY key to specify the file name for the input activity file

Optional Keys

TITLE

Any text string can be used on this line. This text is printed on the top of each output page.

REPORT_FILE

The report file name is optional. If a file name is not provided, the program automatically creates a report file name based on the input control file name plus the partition number. The report file will overwrite an existing file with the same name if the Report Flag key is False or not specified.

REPORT_FLAG

The report flag key is optional. If it is specified as Yes or True, the report file or default printout file will be opened in 'Append' mode rather than 'Create' mode. This permits the user to consolidate the output of several programs into a single report file.

MAX_WARNING_MESSAGES

When the program generates a warning message, a counter is incremented and the total number of warning messages is reported and a warning return coded (2) is set at the end of the execution. By default the program prints up to 100,000 warning messages to the print-out file. If more than 100,000 warning messages are sent, the program stops printing additional messages to the file or terminates the program with an error message.

MAX_WARNING_EXIT_FLAG

If the maximum number of warning messages is exceeded, this flag directs the program in what to do. If the flag is TRUE (the default), the program is terminated with an error message about the warning messages. If the flag is FALSE, the program continues execution, but no additional warning messages are sent to the screen or written to the printout file. The warning message counter continues to count the messages and reports the total at the end of the execution.

PROJECT_DIRECTORY

The project directory key is not required. If it is specified, it is added to all non-network file names required by the program. If it is not specified, all non-network file names should fully specify the file path.

DEFAULT_FILE_FORMAT

Default format for files other than network files. Default is VERSION3. Other possible values include BINARY, FIXED_COLUMN, COMMA_DELIMITED, SPACE_DELIMITED, TAB_DELIMITED, CSV_DELIMITED, DBASE, LANL and SQLITE3.

TRAVELER_SCALING_FACTOR

Undocumented. [In other applications, scales the number of trip, so that each trip in the file represents X trips in reality. It appears to have no effect here.]

NET_DIRECTORY

The network directory key is not required. If it is specified, it is added to all network table names. If it is not specified, the network table names should fully specify the file path.

NET_NODE_TABLE

The node table specifies the name of the TRANSIMS node file within the network directory. The full path and file name for the node table is constructed by appending the value of this key to the value of the NET_DIRECTORY key.

NET_LINK_TABLE

The link table key specifies the name of the TRANSIMS link file within the network directory. The full path and file name for the link table is constructed by appending the value of this key to the value of the NET_DIRECTORY key.

NET_ACTIVITY_LOCATION_TABLE

The activity location table key is optional. It specifies the name of the TRANSIMS activity location file within the network directory. The full path and file name for the activity location table is constructed by appending the value of this key to the value of the NET_DIRECTORY key

NET_LANE_USE_TABLE

The network lane use table key is optional. It specifies the name of the TRANSIMS lane use file within the network directory. The full path and file name for the lane use table is constructed by appending the value of this key to the value of the NET_DIRECTORY key.

NET_PROCESS_LINK_TABLE

The process link table key specifies the name of the TRANSIMS process file within the network directory. The full path and file name for the process link table is constructed by appending the value of this key to the value of the NET_DIRECTORY key. The process link data are used to assign vehicles to parking lots attached to activity locations

VEHICLE_FILE

If a new trip or activity file is created, an input vehicle and new vehicle files are required. The vehicle file contains the parking location of each vehicle used for drive activities. The full path and file name is constructed by appending the value of this key to the value of the PROJECT_DIRECTORY key.

NEW_TRIP_FILE

The new trip file key is appended to the PROJECT_DIRECTORY key to specify the file name for the output trip file created by the program. The program generates one trip record for each trip in the input trip tables. If a new trip or activity file is created, an input vehicle and new vehicle files are required.

NEW_ACTIVITY_FILE

The new activity file is appended to the PROJECT_DIRECTORY key to specify the file name for the output activity file created by the program. The program generates multiple activity records for each household person. If a new trip or activity file is created, an input vehicle and new vehicle files are required.

NEW_VEHICLE_FILE

The new vehicle file key is appended to the PROJECT_DIRECTORY key to specify the file name for the output vehicle file created by the program. The program generates one vehicle record for each vehicle trip in the input trip tables. If a new trip or activity file is created, an input vehicle and new vehicle files are required.

HOUSEHOLD_LIST

The household list file is optional. If it is not provided, activities will be generated for all households in the household file. If it is provided, the key is appended to the value of the PROJECT_DIRECTORY key to identify the full path to one or more household list files. A household list file is a simple list of the household ID numbers. A sample appears below:

3
20
32
49
100
120

The household list key can be the path to a specific file or the root path to a group of partitioned files. If the command line includes a partition parameter, the program will add '.t*' to the household list key. If the partition number is '0', the household list will include the '.tAA' extension. If the partition number is '1', the '.tAB' extension is used.

HOUSEHOLD_PERSON_COUNT

Not documented

TIME_OF_DAY_FORMAT

The time of day format defines how the activity start and end times are written to the activity file. The default format will display values in seconds. The format options include HOURS, SECONDS, 24_HOUR_CLOCK, and 12_HOUR_CLOCK

SUMMARY_TIME_PERIODS

Defaults to All time periods. A Time Range (e.g., 0:00..6:00, 18:00..23:00) can be entered.

SUMMARY_TIME_INCREMENT

Defaults to 15 minutes, with a range of 0 to 240 minutes.

SUMMARY_LENGTH_INCREMENT

Defaults to 500 meters with a range of 10 to 2000 meters.

SELECT_TRIP_MODES

Limits selection of trips to certain modes. According to the ConvertTrips documentation, the mode codes are

```
1 Walk
2 Drive
3 Transit
4 Transit with Rail Bias
5 Park-&-Ride Outbound
6 Park-&-Ride Inbound
7 Bicycle
8 Magic Move
9 School Bus
10 Two Person Carpool
11 Three Person Carpool
12 Four Person Carpool
13 Kiss-&-Ride Outbound
14 Kiss-&-Ride Inbound
```

SELECT_TRIP_PURPOSES

Limits selection of trips to certain purposes

SELECT_ORIGIN_ZONES

Limits selection of trips to certain origin zones

SELECT_DESTINATION_ZONES

Limits selection of trips to certain destination zones

SELECT_ORIGIN_POLYGON

A subarea polygon, used to select certain trips.

SELECT_DESTINATION_POLYGON

A subarea polygon, used to select certain trips.

SELECT_PROBABILITY_FILE

Undocumented

TIME_PERIOD_EQUIVALENCE

The time period equivalence file is optional. It is required when time periods greater than one are included in the zone skim file. The time period equivalence key is appended to the PROJECT_DIRECTORY key to specify the file name for a time period equivalence. This is an unformatted text file with one line of time ranges corresponding to each time period value. A sample time equivalence file for six time periods is show below:

```
0:00..6:00, 9:00..12:00
6:00..9:00
12:00..13:00
13:00..15:30, 18:30..21:00
15:30..18:30
21:00..24:00
```

RANDOM_NUMBER_SEED

This key specifies the random number seed. If the key is not provided or the key value is zero, the random number seed will be set by the computer clock.

CREATE_INDEPENDENT_TRIPS

Enables the program to convert each trip encountered in an input Plan File to a separate household and vehicle. Input and output vehicle files must be specified. Possible values are true/false/yes/no/1/0, with a default of false.

STARTING_HOUSEHOLD_ID

This key specifies the integer number used to begin the household ID numbering. The default value is one. If the results of this application are to be combined with the results of the Activity Generator or other ConvertTrips applications, the user must define an appropriate offset to ensure unique Household IDs in the combined file.

STARTING VEHICLE_ID

This key specifies the integer number used to begin the vehicle ID numbering. The default value is one. If the results of this application are to be combined with the results of the Activity Generator or other ConvertTrips applications, the user must define an appropriate offset to ensure unique Vehicle IDs in the combined file.

NEW_HOUSEHOLD_LIST

The new household file key is appended to the PROJECT_DIRECTORY key to specify the file name for the output household file created by the program. One household is generated for each trip in the input trip tables

NEW_LINK_TRIP_END_FILE

Output file showing the trip ends by link. An example appears below:

LINK	ANODE	BNODE	AB_700_800	AB_800_900	BA_700_800	BA_800_900
1	12	22	597	781	616	794
2	10	24	1351	1728	0	0
3	10	21	0	0	1346	1736
4	**22**	**23**	**209**	**309**	**210**	**288**
…	…	…	…	…	…	…
22	15	17	171	244	191	212

NEW_TIME_DISTRIBUTION

The name of a file which provides a time-of-day distribution of trip start, mid-trip, and end. A partial example appears below. This example indicates that 219 trips started between 0:00 and 0:15, 228 trips between 0:15 and 0:30, and so on.

Time1	Time2	Start	Mid-Trip	End
0:00	0:15	219	123	43
0:15	0:30	228	233	225
0:30	0:45	233	228	232
0:45	1:00	237	237	229
…	…	…	…	…
6:15	6:30	750	686	632
6:30	6:45	930	847	774
6:45	7:00	1115	1044	967
7:00	7:15	1319	1246	1143
7:15	7:30	1514	1421	1352
7:30	7:45	1692	1628	1531
7:45	8:00	1836	1773	1727

NEW_TRIP_TABLE_FILE

The new trip file key is appended to the PROJECT_DIRECTORY key to specify the file name for the output trip file created by the program. The program generates one trip record for each trip in the input trip tables.

NEW_TRIP_TIME_FILE

The new trip time file is appended to the PROJECT_DIRECTORY key to specify the file name for outputting the distribution of trip travel times by mode and origin and destination purpose. The number of trips or tour legs in 60 second increments of trip duration (length) is saved to the tab-delimited text file. An example appears below. In it, one trip with mode=1 and purpose=1 had a length of 600 – 719 seconds, while 18 trips had a length of 840 to 899 seconds.

MODE	PURPOSE1	PURPOSE2	LENGTH	TRIPS
1	0	1	600	1
1	0	1	720	1
1	0	1	780	1
1	0	1	840	18
1	0	1	900	5
…	…	…	…	…
1	0	1	2220	9
1	0	7	720	7
1	0	7	780	4
…	…	…	…	…

ZONE_EQUIVALANCE_FILE

The zone equivalence file is a tab, space, or comma-delimited ASCII file with special format rules. A sample equivalence file is shown below.

```
1  0  Portland CBD - 1
1  1  1..16
2  0  West Suburbs - 2
2  1  79..307, 1248..1253
3  0  Southwest Suburbs - 3
3  1  308..403, 931..933
4  0  Southeast Suburbs - 4
4  1  404..557, 934..943, 1254..1258
5  0  East Portland - 5
5  1  561..563, 714..721, 731..738, 763..929, 949..961, 963..969
6  0  East Suburbs - 6
6  1  558..560, 564..713, 722..730, 739..762, 1259..1260
7  0  West Portland - 7
7  1  17..78, 930, 944..948, 962, 1247
8  0  Clark County - 8
8  1  970..1246
```

If the file contains a header record, it is ignored by the software. The first integer on each subsequent record is the district or zone group number. This number is followed by an index number that is used to

associate multiple records with a given district. If the index number is zero, the software interprets everything that follows the index number as the district label. The first 25 characters of the label are printed in reports.

If the index number is not zero, the values that follow are interpreted as a range of zone numbers. Individual zone numbers and ranges of zone numbers can be specified on a given record. A range of zone numbers is specified using the first and last number in the sequence connected by two or more periods. For example, '79..307' represents all of the zone numbers between 79 and 307.

NEW_TRIP_DISTANCE_FILE_*

The new trip distance file is appended to the PROJECT_DIRECTORY key to specify the file name for outputting the distribution of trip lengths by mode and origin and destination purpose. The number of trips or tour legs in 500 meter increments of trip length is saved to the tab-delimited text file.

DISTANCE_CALCULATION

The program calculates the distance between activity locations as part of the location choice process. The distance values are provided to the location choice scripts and used to estimate the trip travel time for the activity scheduling process. By default, this distance is the straight-line distance between the activity location coordinates. This key can be used to select other distance calculation methods. The key values include STRAIGHT_LINE, RIGHT_ANGLE, SIMPLE_AVERAGE, and WEIGHTED_AVERAGE. Right angle distance is the sum of the absolute difference of the X and Y coordinates. Simple average is the average of the straight line distance and the right angle distance. Weighted average uses the right angle distance for near-by locations and straight line distance for far-away locations.

NEW_LOCATION_TRIP_END_FILE

Output file containing the distribution of trip ends by activity location. An example appears below.

ID	IN_700_800	IN_800_900	OUT_700_800	OUT_800_900
1	0	0	592	707
2	549	716	0	0
3	0	0	1319	1564
4	1180	1584	0	0
5	**21**	**24**	**63**	**63**
6	**15**	**22**	**47**	**55**
7	**19**	**26**	**39**	**66**
8	**12**	**27**	**47**	**69**
9	**12**	**31**	**52**	**56**
10	**19**	**23**	**50**	**55**
…	…	…	…	…
42	8	19	60	54

NEW_ZONE_TRIP_END_FILE

Undocumented

NET_DEFAULT_FORMAT

Default format for network files. The default file format is set by DEFAULT_FILE_FORMAT. Other options include VERSION3, BINARY, FIXED_COLUMN, COMMA_DELIMITED, SPACE_DELIMITED, TAB_DELIMITED, CSV_DELIMITED, DBASE, LANL.

NET_*_FORMAT

The file format key enables the user to specify the input format for an input network file. Replace the * with any of the network file types: node, link, activity_location, lane_use. The default file format is set by NET_DEFAULT_FORMAT. Other options include VERSION3, BINARY, FIXED_COLUMN, COMMA_DELIMITED, SPACE_DELIMITED, TAB_DELIMITED, CSV_DELIMITED, DBASE, LANL.

NEW_DEFAULT_FORMAT

Default format for new output files. The default file format is set by DEFAULT_FILE_FORMAT. Other options include VERSION3, BINARY, FIXED_COLUMN, COMMA_DELIMITED, SPACE_DELIMITED, TAB_DELIMITED, CSV_DELIMITED, DBASE, LANL.

NEW_*_FORMAT

The file format key enables the user to specify the format for output files. Replace the * with any of the output file types: link_trip_end, location_trip_end, zone_trip_end, trip_table. The default file format is set by NEW_DEFAULT_FORMAT. The format options include VERSION3, BINARY, FIXED_COLUMN, COMMA_DELIMITED, SPACE_DELIMITED, TAB_DELIMITED, CSV_DELIMITED, DBASE, LANL.

SELECT_PROBABILITY_FORMAT

Undocumented

TRIPSUM_REPORT_#

TOP_100_LINK_TRIP_ENDS
TOP_100_LANE_TRIP_ENDS
TOP_100_TRIP/CAPACITY_RATIOS
PRINT_ZONE_EQUIVALENCIES
TRIP_TIME_REPORT
TRIP_LENGTH_SUMMARY
TRIP_PURPOSE_SUMMARY
MODE_LENGTH_SUMMARY
MODE_PURPOSE_SUMMARY

Sample Printouts

Sample printout files generated by the TripSum program are shown below. Each printout is an ASCII text file with a maximum of 95 characters per line and 65 lines per page. The file can be viewed or printed using a variety of text editors. For best results in a word processor, use a 10-point Courier font and 0.5 inch margins on all sides. In the examples, headings for reports have been reformatted to improve readability.

Example 1

```
*****************************************
|                                       |
|         TripSum - Version 4.0.21      |
|   Copyright (c) 2009 by AECOM Consult |
|         Mon Feb 14 11:04:39 2011      |
|                                       |
*****************************************

Control File = TripSum.ctl
Report_File  = TripSum.prn (Create)

Summarize Trips

Network Directory = ../network
Node File = ../network\Node.txt
Node File Format = TAB_DELIMITED
Link File = ../network\Link.txt
Link File Format = TAB_DELIMITED
Lane Use File = ../network\Lane_Use.txt
Lane Use File Format = TAB_DELIMITED
Activity Location File = ../network\Activity_Location.txt
Activity Location File Format = TAB_DELIMITED
Process Link File = ../network\Process_Link.txt
Process Link File Format = TAB_DELIMITED

Trip File = Trip.txt

Time of Day Format = 24_HOUR_CLOCK

Summary Time Periods = 7:00..9:00
Summary Time Increment = 60 minutes

Summary Length Increment = 500 meters

Distance Calculation = STRAIGHT_LINE

TripSum Reports:  1. TOP_100_LINK_TRIP_ENDS
                  2. TOP_100_LANE_TRIP_ENDS
                  3. TOP_100_TRIP/CAPACITY_RATIOS
                  4. TRIP_TIME_REPORT
                  5. TRIP_LENGTH_SUMMARY
                  6. TRIP_PURPOSE_SUMMARY
                  7. MODE_LENGTH_SUMMARY
                  8. MODE_PURPOSE_SUMMARY


Number of Node File Records = 17

Number of Link File Records = 20
```

```
Number of Directional Links = 28

Number of Lane Use File Records = 1
Number of Link Use Time Restrictions = 1

Number of Activity Location File Records = 42

Number of Process Link File Records = 84

Number of Trip Records Read = 95800
Number of Trips Used for Reports = 14896
```

Top 100 Link Trip Ends

Link	From	To-Node	Capacity	Time-of-Day	TripEnds	T/C Ratio
15	30	11	4000	8:00..9:00	4226	1.06
15	30	11	4000	7:00..8:00	3307	0.83
16	11	29	1000	8:00..9:00	2871	2.87
16	11	29	1000	7:00..8:00	2244	2.24
…	…	…	…	…	…	…
22	15	17	600	7:00..8:00	171	0.28

```
Number of Records in the Report = 40
```

Top 100 Lane Trip Ends

Link	From	To-Node	Capacity	Time-of-Day	TripEnds	T/C Ratio
16	11	29	1000	8:00..9:00	2871	2.87
16	11	29	1000	7:00..8:00	2244	2.24
15	30	11	4000	8:00..9:00	4226	1.06
15	30	11	4000	7:00..8:00	3307	0.83
3	21	10	4000	8:00..9:00	1736	0.43
…	…	…	…	…	…	…
7	15	22	1600	7:00..8:00	184	0.12

```
Number of Records in the Report = 40
```

Top 100 Trip/Capacity Ratios

16	11	29	1000	8:00..9:00	2871	2.87
16	11	29	1000	7:00..8:00	2244	2.24
1	22	12	600	8:00..9:00	794	1.32
1	12	22	600	8:00..9:00	781	1.30
…	…	…	…	…	…	…
19	26	15	1600	7:00..8:00	194	0.12

```
Number of Records in the Report = 40
```

Trip Start Time Report

```
Time-of-Day    Start-Trip   Percent    Mid-Trip  Percent     End-Trip  Percent
```

```
7:00..8:00          6361    45.54         6068    44.27         5753    42.95
8:00..9:00          7606    54.46         7640    55.73         7641    57.05

Total              13967   100.00        13708   100.00        13394   100.00
```

Trip Length Summary

		Distance (meters)				Time (minutes)			
Purpose	Trips	Minimum	Maximum	Average	StdDev	Minimum	Maximum	Average	StdDev
1	14754	245	2491	1995	537	10.27	37.60	12.36	1.61
7	142	218	1634	995	403	13.63	37.23	26.59	6.72
Total	14896	218	2491	1985	544	10.27	37.60	12.49	2.22

Trip Purpose Summary

		Distance (meters)				Time (minutes)			
Purpose	Trips	Minimum	Maximum	Average	StdDev	Minimum	Maximum	Average	StdDev
0-1	14754	245	2491	1995	537	10.27	37.60	12.36	1.61
0-7	142	218	1634	995	403	13.63	37.23	26.59	6.72
Total	14896	218	2491	1985	544	10.27	37.60	12.49	2.22

Mode Length Summary

		Distance (meters)				Time (minutes)			
Mode	Trips	Minimum	Maximum	Average	StdDev	Minimum	Maximum	Average	StdDev
1	271	218	1656	1006	400	13.63	37.60	26.76	6.66
2	14625	245	2491	2004	530	10.27	12.77	12.23	0.59
Total	14896	218	2491	1985	544	10.27	37.60	12.49	2.22

Mode Purpose Summary

Mode-		Distance (meters)				Time (minutes)			
Purpose	Trips	Minimum	Maximum	Average	StdDev	Minimum	Maximum	Average	StdDev
1-1	129	262	1656	1017	398	14.35	37.60	26.95	6.63
1-7	142	218	1634	995	403	13.63	37.23	26.59	6.72
2-1	14625	245	2491	2004	530	10.27	12.77	12.23	0.59
Total	14896	218	2491	1985	544	10.27	37.60	12.49	2.22

```
Mon Feb 14 11:04:41 2011 -- Process Complete (0:00:02)
```

Example 2

```
*****************************************
|                                       |
|         TripSum - Version 4.0.21      |
|   Copyright (c) 2009 by AECOM Consult |
|         Mon Feb 14 15:11:01 2011      |
|                                       |
*****************************************

Control File = TripSum.ctl
Report_File  = TripSum.prn (Create)

Summarize Trip Distances and Trip Ends

Network Directory = ../network
Node File = ../network\Node.txt
Node File Format = TAB_DELIMITED
Link File = ../network\Link.txt
Link File Format = TAB_DELIMITED
Lane Use File = ../network\Lane_Use.txt
Lane Use File Format = TAB_DELIMITED
Activity Location File = ../network\Activity_Location.txt
Activity Location File Format = TAB_DELIMITED
Process Link File = ../network\Process_Link.txt
Process Link File Format = TAB_DELIMITED

Trip File = Trip.txt

Time of Day Format = 24_HOUR_CLOCK

Summary Time Periods = 7:00..9:00
Summary Time Increment = 60 minutes

Summary Length Increment = 400 meters

New Link Trip End File = LinkTripEnd.txt

New Trip Distance File = TripDistance.txt

Distance Calculation = RIGHT_ANGLE

New Location Trip End File = LocTripEnd.txt

TripSum Reports:  4. TRIP_TIME_REPORT
                  5. TRIP_LENGTH_SUMMARY

Number of Node File Records = 17

Number of Link File Records = 20
Number of Directional Links = 28

Number of Lane Use File Records = 1
Number of Link Use Time Restrictions = 1

Number of Activity Location File Records = 42

Number of Process Link File Records = 84
```

```
Number of Trip Records Read = 95800
Number of Trips Used for Reports = 14896

Number of New Trip Distance File Records = 20

Number of New Link Trip End File Records = 12

Number of New Location Trip End File Records = 40

Trip Start Time Report

Time-of-Day    Start-Trip   Percent    Mid-Trip  Percent     End-Trip  Percent

7:00..8:00           6361    45.54         6068    44.27         5753    42.95
8:00..9:00           7606    54.46         7640    55.73         7641    57.05

Total               13967   100.00        13708   100.00        13394   100.00

Trip Length Summary

                  ------- Distance (meters) --------  --------- Time (minutes) ---------
Purpose     Trips  Minimum  Maximum  Average   StdDev  Minimum  Maximum  Average   StdDev

    1       14754      245     2941     2244      428    10.27    37.60    12.36     1.61
    7         142      245     2228     1250      514    13.63    37.23    26.59     6.72

Total       14896      245     2941     2234      440    10.27    37.60    12.49     2.22
```

Example 3

```
******************************************
|                                        |
|         TripSum - Version 4.0.21       |
|   Copyright (c) 2009 by AECOM Consult  |
|         Mon Feb 14 15:50:32 2011       |
|                                        |
******************************************

Control File = TripSum.ctl
Report_File  = TripSum.prn (Create)

Trip Time and Time Distributions

Network Directory = ../network
Node File = ../network\Node.txt
Node File Format = TAB_DELIMITED
Link File = ../network\Link.txt
Link File Format = TAB_DELIMITED
Lane Use File = ../network\Lane_Use.txt
Lane Use File Format = TAB_DELIMITED
Activity Location File = ../network\Activity_Location.txt
Activity Location File Format = TAB_DELIMITED
Process Link File = ../network\Process_Link.txt
Process Link File Format = TAB_DELIMITED
```

```
Trip File = Trip.txt

Time of Day Format = 24_HOUR_CLOCK

Summary Time Periods = All
Summary Time Increment = 15 minutes

Summary Length Increment = 500 meters

New Time Distribution = TimeDist.txt

New Trip Time File = TripTime.txt

Distance Calculation = STRAIGHT_LINE

TripSum Reports:  4. TRIP_TIME_REPORT
                  5. TRIP_LENGTH_SUMMARY


Number of Node File Records = 17

Number of Link File Records = 20
Number of Directional Links = 28

Number of Lane Use File Records = 1
Number of Link Use Time Restrictions = 1

Number of Activity Location File Records = 42

Number of Process Link File Records = 84

Number of Trip Records Read = 95800
Number of Trips Used for Reports = 95800

Number of New Trip Time File Records = 56

Trip Time and Time Distributions
Mon Feb 14 15:50:34 2011  TripSum  page 2

Trip Start Time Report

Time-of-Day    Start-Trip   Percent    Mid-Trip  Percent     End-Trip  Percent

0:00..0:15            219      0.23         123     0.13           43     0.05
0:15..0:30            228      0.24         233     0.24          225     0.24
0:30..0:45            233      0.24         228     0.24          232     0.24
0:45..1:00            237      0.25         237     0.25          229     0.24
1:00..1:15            235      0.25         234     0.24          242     0.25
1:15..1:30            235      0.25         233     0.24          233     0.24
1:30..1:45            233      0.24         235     0.25          235     0.25
1:45..2:00            236      0.25         235     0.25          237     0.25
2:00..2:15            235      0.25         238     0.25          236     0.25
2:15..2:30            233      0.24         230     0.24          233     0.24
2:30..2:45            236      0.25         239     0.25          233     0.24
2:45..3:00            230      0.24         237     0.25          236     0.25
3:00..3:15            241      0.25         231     0.24          233     0.24
3:15..3:30            235      0.25         237     0.25          244     0.26
3:30..3:45            241      0.25         238     0.25          229     0.24
```

3:45..4:00	232	0.24	230	0.24	240	0.25
4:00..4:15	235	0.25	240	0.25	236	0.25
4:15..4:30	237	0.25	235	0.25	230	0.24
4:30..4:45	242	0.25	237	0.25	238	0.25
4:45..5:00	257	0.27	250	0.26	245	0.26
5:00..5:15	280	0.29	271	0.28	257	0.27
5:15..5:30	332	0.35	309	0.32	290	0.30
5:30..5:45	387	0.40	366	0.38	338	0.35
5:45..6:00	486	0.51	439	0.46	412	0.43
6:00..6:15	609	0.64	555	0.58	502	0.53
6:15..6:30	750	0.78	686	0.72	632	0.66
6:30..6:45	930	0.97	847	0.89	774	0.81
6:45..7:00	1115	1.16	1044	1.09	967	1.01
7:00..7:15	1319	1.38	1246	1.30	1143	1.20
7:15..7:30	1514	1.58	1421	1.49	1352	1.42
7:30..7:45	1692	1.77	1628	1.70	1531	1.61
7:45..8:00	1836	1.92	1773	1.86	1727	1.81
8:00..8:15	1924	2.01	1897	1.99	1855	1.95
8:15..8:30	1955	2.04	1943	2.03	1934	2.03
8:30..8:45	1907	1.99	1941	2.03	1940	2.04
8:45..9:00	1820	1.90	1859	1.95	1912	2.01
9:00..9:15	1684	1.76	1747	1.83	1791	1.88
9:15..9:30	1543	1.61	1602	1.68	1656	1.74
9:30..9:45	1410	1.47	1462	1.53	1523	1.60
9:45..10:00	1325	1.38	1349	1.41	1405	1.47
10:00..10:15	1260	1.32	1290	1.35	1308	1.37
10:15..10:30	1224	1.28	1232	1.29	1251	1.31
10:30..10:45	1208	1.26	1217	1.27	1216	1.28
10:45..11:00	1196	1.25	1204	1.26	1217	1.28
11:00..11:15	1207	1.26	1203	1.26	1195	1.25
11:15..11:30	1202	1.25	1206	1.26	1205	1.26
11:30..11:45	1203	1.26	1199	1.25	1192	1.25
11:45..12:00	1201	1.25	1196	1.25	1202	1.26
12:00..12:15	1205	1.26	1214	1.27	1204	1.26
12:15..12:30	1191	1.24	1188	1.24	1208	1.27
12:30..12:45	1202	1.25	1203	1.26	1197	1.26
12:45..13:00	1204	1.26	1204	1.26	1197	1.26
13:00..13:15	1201	1.25	1199	1.25	1206	1.27
13:15..13:30	1202	1.25	1205	1.26	1202	1.26
13:30..13:45	1206	1.26	1198	1.25	1199	1.26
13:45..14:00	1211	1.26	1212	1.27	1205	1.26
14:00..14:15	1224	1.28	1217	1.27	1222	1.28
14:15..14:30	1247	1.30	1250	1.31	1232	1.29
14:30..14:45	1268	1.32	1248	1.31	1239	1.30
14:45..15:00	1318	1.38	1295	1.36	1279	1.34
15:00..15:15	1364	1.42	1342	1.40	1325	1.39
15:15..15:30	1419	1.48	1388	1.45	1365	1.43
15:30..15:45	1488	1.55	1452	1.52	1428	1.50
15:45..16:00	1550	1.62	1521	1.59	1491	1.56
16:00..16:15	1625	1.70	1608	1.68	1572	1.65
16:15..16:30	1694	1.77	1657	1.73	1624	1.70
16:30..16:45	1765	1.84	1728	1.81	1718	1.80
16:45..17:00	1842	1.92	1827	1.91	1767	1.85
17:00..17:15	1897	1.98	1881	1.97	1859	1.95
17:15..17:30	1930	2.01	1905	1.99	1908	2.00
17:30..17:45	1922	2.01	1934	2.02	1925	2.02
17:45..18:00	1892	1.98	1912	2.00	1925	2.02
18:00..18:15	1816	1.90	1853	1.94	1877	1.97

```
18:15..18:30         1723     1.80         1760     1.84         1809     1.90
18:30..18:45         1620     1.69         1666     1.74         1703     1.79
18:45..19:00         1500     1.57         1550     1.62         1597     1.68
19:00..19:15         1369     1.43         1427     1.49         1477     1.55
19:15..19:30         1245     1.30         1295     1.36         1359     1.43
19:30..19:45         1110     1.16         1160     1.21         1217     1.28
19:45..20:00         1001     1.04         1048     1.10         1090     1.14
20:00..20:15          874     0.91          933     0.98          971     1.02
20:15..20:30          773     0.81          812     0.85          875     0.92
20:30..20:45          705     0.74          734     0.77          753     0.79
20:45..21:00          657     0.69          670     0.70          701     0.74
21:00..21:15          621     0.65          638     0.67          645     0.68
21:15..21:30          605     0.63          612     0.64          621     0.65
21:30..21:45          601     0.63          606     0.63          607     0.64
21:45..22:00          592     0.62          595     0.62          590     0.62
22:00..22:15          595     0.62          585     0.61          601     0.63
22:15..22:30          587     0.61          592     0.62          584     0.61
22:30..22:45          580     0.61          567     0.59          590     0.62
22:45..23:00          587     0.61          599     0.63          579     0.61
23:00..23:15          586     0.61          587     0.61          592     0.62
23:15..23:30          583     0.61          584     0.61          583     0.61
23:30..23:45          587     0.61          585     0.61          581     0.61
23:45..24:00          584     0.61          582     0.61          589     0.62

Total               95797   100.00        95560   100.00        95324   100.00

Trip Length Summary

                   ------- Distance (meters) --------  --------- Time (minutes) ---------
Purpose     Trips  Minimum  Maximum  Average   StdDev  Minimum  Maximum  Average   StdDev

    1       94989       30     2491     2001      531    10.15    37.60    12.31     1.29
    7         800      131     1656      991      404    12.18    37.60    26.52     6.74

Total       95789       30     2491     1993      538    10.15    37.60    12.43     1.92

Mon Feb 14 15:50:34 2011 -- Process Complete (0:00:02)
```

Example 4

```
*****************************************
|                                       |
|         TripSum - Version 4.0.21      |
|   Copyright (c) 2009 by AECOM Consult |
|         Mon Feb 14 17:28:32 2011      |
|                                       |
*****************************************

Control File = TripSum.ctl
Report_File  = TripSum.prn (Create)

Combine Trip Files

Default File Format = TAB_DELIMITED

Network Directory = ../network
Node File = ../network\Node.txt
```

```
Link File = ../network\Link.txt
Lane Use File = ../network\Lane_Use.txt
Activity Location File = ../network\Activity_Location.txt
Process Link File = ../network\Process_Link.txt

Trip File = Trip.t*

New Trip File = NewTrip.txt

Time of Day Format = 24_HOUR_CLOCK

Summary Time Periods = All
Summary Time Increment = 15 minutes

Summary Length Increment = 500 meters

Select Origin Zones = 1

Distance Calculation = STRAIGHT_LINE

Number of Node File Records = 17

Number of Link File Records = 20
Number of Directional Links = 28

Number of Lane Use File Records = 1
Number of Link Use Time Restrictions = 1

Number of Activity Location File Records = 42

Number of Process Link File Records = 84

Number of Trip Records Read from tAA = 49060
Number of Trip Records Written = 11028
Number of Trips Used for Reports = 11028

Number of Trip Records Read from tAB = 46740
Number of Trip Records Written = 10772
Number of Trips Used for Reports = 10772

Total Number of Trip Records Read = 95800
Total Number of Trip Records Written = 21800
Total Number of Trips Used for Reports = 21800

Mon Feb 14 17:28:34 2011 -- Process Complete (0:00:02)
```