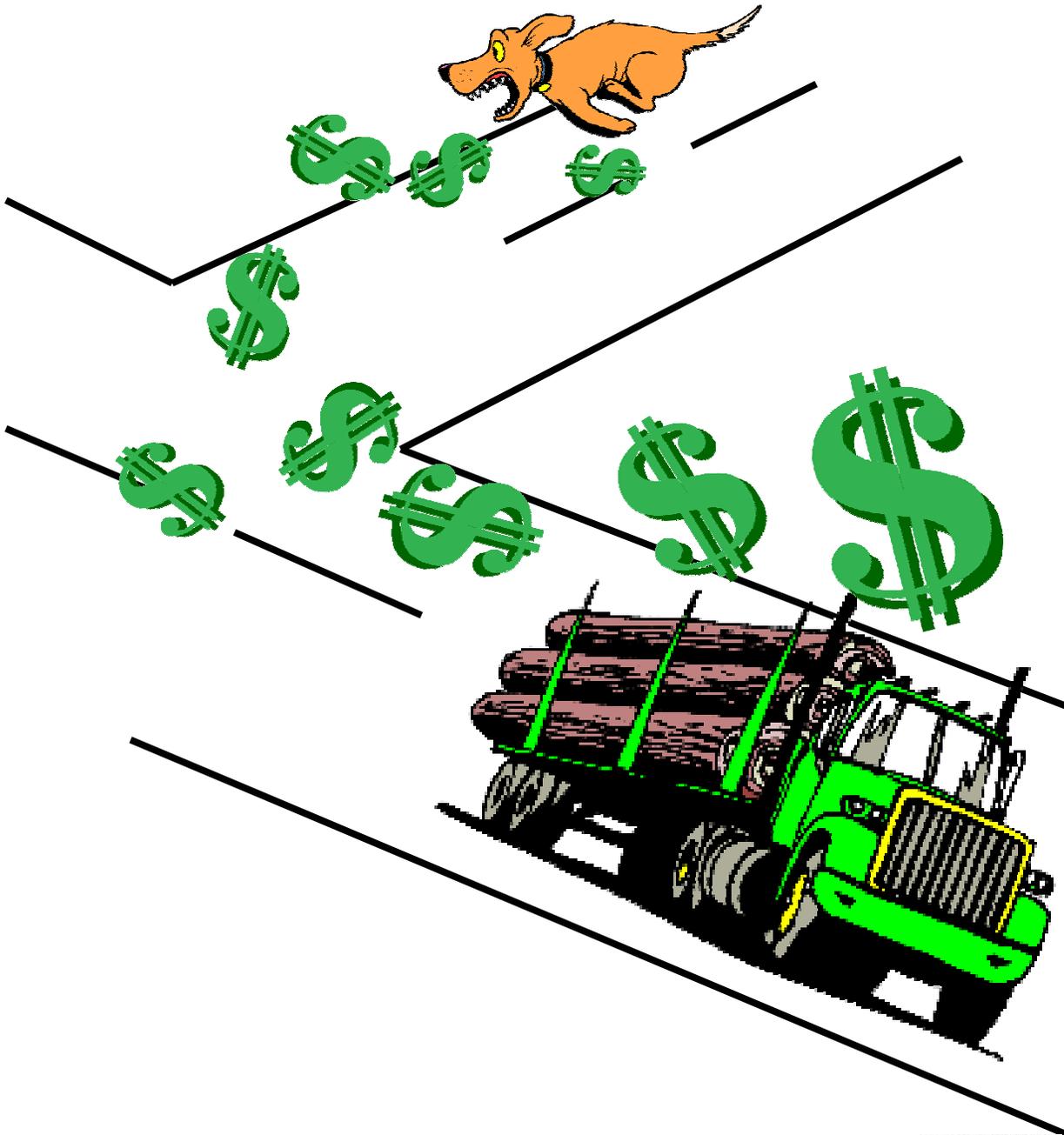


# Route Chaser

A Program to Calculate Hauling Costs



# **Route Chaser**

## **Overview**

The Route Chaser program has been developed for the purpose of aiding logging contractors in assessing trucking costs. Route Chaser also allows the contractor to track costs such as equipment, labor, fuel, insurance, etc., on a daily, per ton, and per ton mile basis. This program is being offered to you at no cost in appreciation for your cooperation in our ongoing Cost and Productivity study at Mississippi State University. The program uses a variety of inputs specific to your business as well as some suggested values for wear and tear, and repair and maintenance to display the changing costs associated with different shipping routes. It can also be used to determine what effect factors such as turn-around time can have on trucking costs. The following information describes the specifics of the program as well as some sample input and output information.

## **Program Notes**

This program is designed as a quick tool for estimating trucking cost from a specific tract to a specific mill, although it can be used other types of transportation cost estimation.

1. A sample set of inputs are provided with the program, any entry in a white box may be changed by simply placing the cursor on the cell and typing in a new value.
2. Be sure that the new number is in the same format as the one it is replacing.
3. Once a value is changed, it will remain until you change it. Saving the program after it has been set up with your values will cause those to overwrite the sample set.

## **Job and Equipment Inputs Sheet**

This group of entries provides basic information about the truck and job to be used in the calculations:

## Scheduling and Equipment

**Scheduled Work Days per Year** - Best estimate

**Hours per Day** - Length of normal work day,

**Allowable Extra Hours**-The program will allow "going over" by a maximum of this many hours, if necessary, to get an extra load on long hauls

**Overtime(Y/N)** - If Y (yes) any hours over eight per day will be computed at 1.5 times base pay, if N (no) base pay will be used

## Equipment

**Gross and Tare Weights** -Enter in pounds

The screenshot shows a Microsoft Excel spreadsheet titled "RouteChaserPrototype". The spreadsheet is divided into sections for "Scheduling" and "Equipment".

Row	Section	Field	Value	Description
1	Scheduling	RunTitle	88000	
2		Inputs		
4		Work Days per Year	200	Best Estimate
5		Hours per day	8	Normal workday Length
6		Allowable Extra Hours	4	Maximum Extra hours
7		Overtime (Y/N)	y	If yes (y), any labor over 8 hours will be computed at time and a half
9		Equipment		
10	Gross Vehicle Loaded Weight (lbs)		88,000	
11	Vehicle Tare Weight (lbs)		30,000	

The spreadsheet also shows a menu bar with "File", "Edit", "View", "Insert", "Format", "Tools", "Data", "Window", "Help", and "Adobe PDF". The status bar at the bottom indicates "Ready" and "NUM".

## Costs and costing

A Cash Flow /Financing costing method is used and assumes the truck and trailer are financed for 3 years regardless of age. The full cost is financed, reflecting that the owner should be receiving the same interest rate on the down payment as the finance company is on the principal. The loan repayment is calculated as a standard equipment loan that adjusts the principle only once a year.

### Equipment Purchase Price

**Tractor** - Enter either purchase price or replacement value

**Trailer** - Enter either purchase price or replacement value

**Taxes, Add ons, etc.** - Enter federal and state sales and excise taxes as well as any modifications or equipment added or not included in purchase price

### Financing

**Amount** - The default value is the sum of the above three items, to overwrite, type in desired value

**APR** - Annual Percentage Rate - enter the rate in decimal form (e.g. 8.5% as 0.085)

**Years** - The life of the loan in full years

	A	B	C	D	E	F	G	H	I
13	<b>Costs</b>								
14	Equipment Purchase Price								
15	Truck tractor.....	\$90,000.00							
16	Trailer.....	\$15,000.00							
17	Add ons _taxes, equipment.....	\$15,450.00							
18	Total Cost	\$120,450.00							
19									
20	<b>Financing</b>								
21	Amount.....	\$120,450							
22	APR .....	0.09							
23	Years.....	3							
24									

## Labor

**Labor Base Wage** -Nominal wages per hour

**Fringe Benefits** - Employers share of Soc. Sec., Medical, State and Fed

Unemployment, Workers Comp, Paid Vacation, Xmas bonus, etc as a percent of base wage

## Operating Costs

**Fuel Cost** - Enter as dollars per gallon

**Repair and Maintenance** - Costs per road mile are requested for common repair and maintenance items.

**The Base Cost**, whether from your own records, trade literature, or research will likely be for "good roads". The values entered will be input as those for limited access highways. Percentage factors for adjusting the "good road" for other road types can be provided in cells to the right of each expense type.

**Brakes** - Enter as cost per mile on good roads

**Tires** - Enter as cost per mile on good roads

**Maintenance Lube, Oil, Filters, etc** - enter as cost per mile on good roads

**Repair** - Usual operating repairs, enter as cost per mile on good roads

**Wear and Tear Factors** for other road types, requested as percentages of the base, used to adjust costs to other road types.

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I
25	Labor								
26	Base wage/Hour.....	\$	12.50						
27	Fringe Benefits + WC Percent.....		35						
28									
29	Fuel								
30	Cost per Gallon.....	\$	1.65						
31									
32	Repair and Maintenance								
33									
34									
35	Limited Access Highway as Base	Per Mile							
36	Brakes.....	\$	0.05						
37	Tires.....	\$	0.14						
38	Normal Maintenance -Filters, lube, oil -	\$	0.01						
39	Minor Repair .....	\$	0.02						

Wear and Tear factors by road type (Base)						
	Limited Access	Forest Road	Gravel County	Paved County	State 2 lane	Urban Streets
35	100%	200%	150%	150%	125%	150%
36	100%	200%	150%	175%	100%	100%
37	100%	200%	175%	150%	125%	125%
38	100%	200%	150%	150%	100%	125%
39	100%	200%	150%	150%	100%	125%

## Overheads or Annual Costs

### Insurance

**Liability** - Annual premium cost

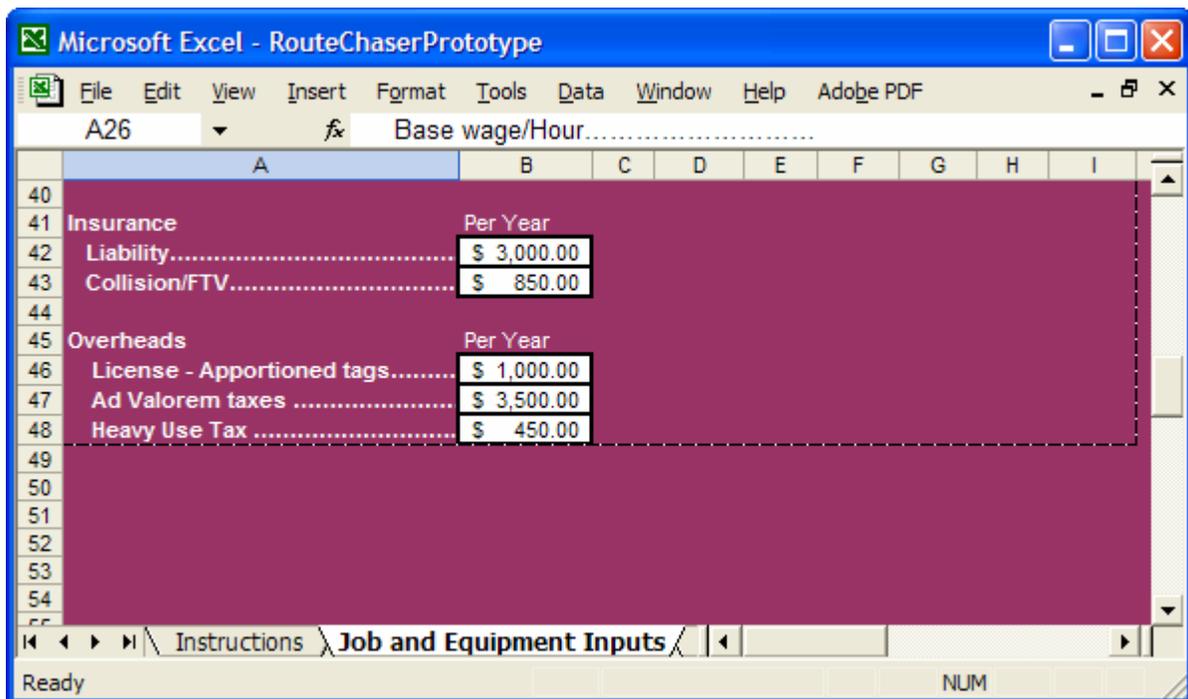
**Collision and Other Insurance** - If not covered by in the premium given for liability

### Licenses and Taxes

**Licenses** - Include license for both truck and trailer if appropriate.

**Ad Valorem Taxes** - Include if not a part of the license fee above

**Heavy Use Tax** - Include if appropriate



The screenshot shows a Microsoft Excel spreadsheet titled "RouteChaserPrototype". The spreadsheet is divided into columns A through I and rows 40 through 55. The data is organized into two main sections: Insurance and Overheads. The Insurance section includes Liability and Collision/FTV costs. The Overheads section includes License - Apportioned tags, Ad Valorem taxes, and Heavy Use Tax. The spreadsheet is currently displaying the "Job and Equipment Inputs" worksheet.

	A	B	C	D	E	F	G	H	I
40									
41	Insurance	Per Year							
42	Liability.....	\$ 3,000.00							
43	Collision/FTV.....	\$ 850.00							
44									
45	Overheads	Per Year							
46	License - Apportioned tags.....	\$ 1,000.00							
47	Ad Valorem taxes .....	\$ 3,500.00							
48	Heavy Use Tax .....	\$ 450.00							
49									
50									
51									
52									
53									
54									
55									

# Route Inputs

**Run Title** is used to identify each set of computations. A new name should be given for each set of computations

**Route Mileage** - Use a map, or one of the online programs such as Mappoint (Mappoint.msn.com) or MapQuest (MapQuest.com) to select the route from tract to mill, and add up the mileage by road type. - Forest road, Gravel County etc. and enter in the appropriate cell.

**Speed and Fuel Consumption** - Estimates for coastal plain movement from our research are given -may be changed to reflect local conditions.

**Speed** - Enter average moving speed in MPH for road type

**Fuel Use** - Enter fuel consumption in Miles per Gallon for road type

**Turnaround and Delay Times** are entered in minutes for each trip or load.

**Turnaround** - Times are self explanatory- from the time the truck gets there until it leaves.

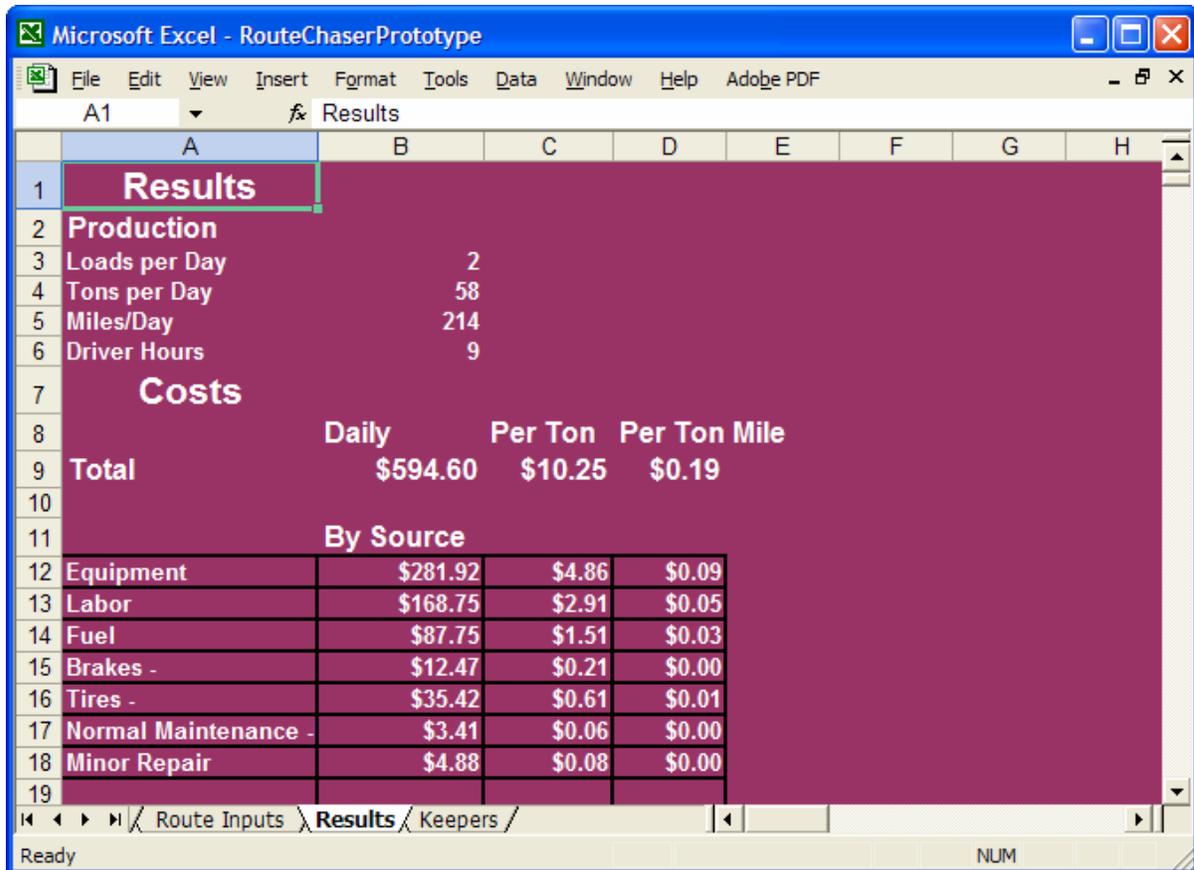
**In Route Delays** - Are included to account for time lost due to school busses, stop lights, rest breaks, or any other cause

**Daily Service** - The time the driver spends fueling and service at the start or end of the shift or at minor repairs during the day

Run Title	88,000			
Inputs				
Route Mileage				
Road type	Miles	Speed MPH	Fuel use MPG	
Forest Road.....	0.5	8	2.0	
Gravelled County Road.....	5	30	2.8	
Paved County Road.....	9	40	3.6	
State or Federal 2 Lane Highway.....	25	45	5.0	
Limited Access Highway.....	10	60	5.0	
Urban Streets.....	4	20	2.3	
Total Travel Distance	53.5			
Turnaround and Delays				
Turnaround				
Woods Wait - Minutes/Trip.....	30			
Mill Wait - Minutes/Trip	30			
Delays				
In Route Delay (Minutes/Trip)	30			
Daily Service (Minutes/ Day)	30			

## Results

The results for any set of inputs appear on the page tabbed "**Results**"



The screenshot shows the 'Results' sheet in Microsoft Excel. The data is organized as follows:

	A	B	C	D	E	F	G	H
1	<b>Results</b>							
2	<b>Production</b>							
3	Loads per Day	2						
4	Tons per Day	58						
5	Miles/Day	214						
6	Driver Hours	9						
7	<b>Costs</b>							
8		Daily	Per Ton	Per Ton Mile				
9	<b>Total</b>	\$594.60	\$10.25	\$0.19				
10								
11		<b>By Source</b>						
12	Equipment	\$281.92	\$4.86	\$0.09				
13	Labor	\$168.75	\$2.91	\$0.05				
14	Fuel	\$87.75	\$1.51	\$0.03				
15	Brakes -	\$12.47	\$0.21	\$0.00				
16	Tires -	\$35.42	\$0.61	\$0.01				
17	Normal Maintenance -	\$3.41	\$0.06	\$0.00				
18	Minor Repair	\$4.88	\$0.08	\$0.00				
19								

## Keepers

If you wish to keep the results of any series of computations - for example testing to see the effects of increasing Interstate haul distances by 10, 20, 30 -etc. miles, a complete list of input variables and outputs are provided on the sheet tabbed "Keepers". The most recent set appears immediately below the header rows of the Current section at the top of the sheet. To save it, click on the row counter "5" at the left edge of the screen, this should highlight the entire row.

Then copy that row by clicking on "edit", "copy" either from the command bar at the top of the page, or by right clicking the mouse and selecting "copy" from the pop-up menu.

Move down the sheet to where you want to place the data under the Keeper segment of the sheet and click on the row counter for that location.

Then paste the information at that location by clicking on "Edit" on the command bar, followed by "Paste Special", "Values and number formats" and "Okay", or by right clicking on the mouse, selecting "Paste Special" on the pop-up menu, then "Values and number formats" and "Okay"

Data sets built on the Keeper sheet can then be used with other analytical procedures in Excel

The Keepers portion of the sheet has to be cleared manually, highlight the rows containing data, and click on "Edit", "Delete"

Results																			
Current										Per Ton Cos									
Production per Day					Total Costs					Daily Costs By Source									
Title	Loads	Tons	Miles	Hours	Daily	Per ton	Per ton mi	Equipment	Labor	Fuel	Brakes	Tires	Maintenanc	Repair	Equipment	Labor	Fuel	Brake	
88000	2	58	214	9	\$ 594.60	\$ 10.25	\$ 0.19	\$ 281.92	\$ 168.75	\$ 87.75	\$ 12.47	\$ 35.42	\$ 3.41	\$ 4.88	\$ 4.86	\$ 2.91	\$ 1.51	\$ 0	
Results																			
Keepers										Per Ton Cos									
Title	Loads	Tons	Miles	Hours	Daily	Per ton	Per ton mi	Equipment	Labor	Fuel	Brakes	Tires	Maintenanc	Repair	Equipment	Labor	Fuel	Brake	
57650	2	55.12	200	8.5	\$ 538.73	\$ 19.55	\$ 0.39	\$ 276.93	\$ 131.96	\$ 78.22	\$ 11.79	\$ 32.06	\$ 3.33	\$ 4.44	\$ 10.05	\$ 4.79	\$ 2.84	\$ 0	
73,280	2	87.12	200	8.5	\$ 538.73	\$ 12.37	\$ 0.25	\$ 276.93	\$ 131.96	\$ 78.22	\$ 11.79	\$ 32.06	\$ 3.33	\$ 4.44	\$ 6.36	\$ 3.03	\$ 1.80	\$ 0	
80000	2	100	200	8.5	\$ 538.73	\$ 10.77	\$ 0.22	\$ 276.93	\$ 131.96	\$ 78.22	\$ 11.79	\$ 32.06	\$ 3.33	\$ 4.44	\$ 5.54	\$ 2.64	\$ 1.56	\$ 0	
84000	2	108	200	8.5	\$ 538.73	\$ 9.98	\$ 0.20	\$ 276.93	\$ 131.96	\$ 78.22	\$ 11.79	\$ 32.06	\$ 3.33	\$ 4.44	\$ 5.13	\$ 2.44	\$ 1.45	\$ 0	
88000	2	116	200	8.5	\$ 538.73	\$ 9.29	\$ 0.19	\$ 276.93	\$ 131.96	\$ 78.22	\$ 11.79	\$ 32.06	\$ 3.33	\$ 4.44	\$ 4.77	\$ 2.28	\$ 1.35	\$ 0	
88000	2	58	214	9	\$ 594.60	\$ 10.25	\$ 0.19	\$ 281.92	\$ 168.75	\$ 87.75	\$ 12.47	\$ 35.42	\$ 3.41	\$ 4.88	\$ 4.86	\$ 2.91	\$ 1.51	\$ 0	

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