

Session 3: Network Development Workshop

Calculate the Impedance from Zone 5 to Zone 1

Step 1: Using link travel speeds and distances (from network data on pages that follow) calculate the highway travel time ($60 \cdot D/S$) from Zone 5 to Zone 1.

Network Data			
Link	Distance (miles)	Speed (mph)	Time (minutes)
5 to 141			
141 to 137			
137 to 143	1.10	58	1.14
143 to 130	1.15	67	1.03
130 to 124	1.20	47	1.53
124 to 123	1.10	28	2.36
123 to 103	1.15	25	2.76
103 to 122	0.60	25	1.44
122 to 119	0.00	0	0.00
119 to 102	0.50	22	1.36
102 to 1	0.50		3.00

Step 2: Calculate time equivalent of money costs, and identify appropriate terminal times.
(Parking cost and terminal times on page 3-47)

Terminal time at the production end: _____

Terminal time at the attraction end: _____

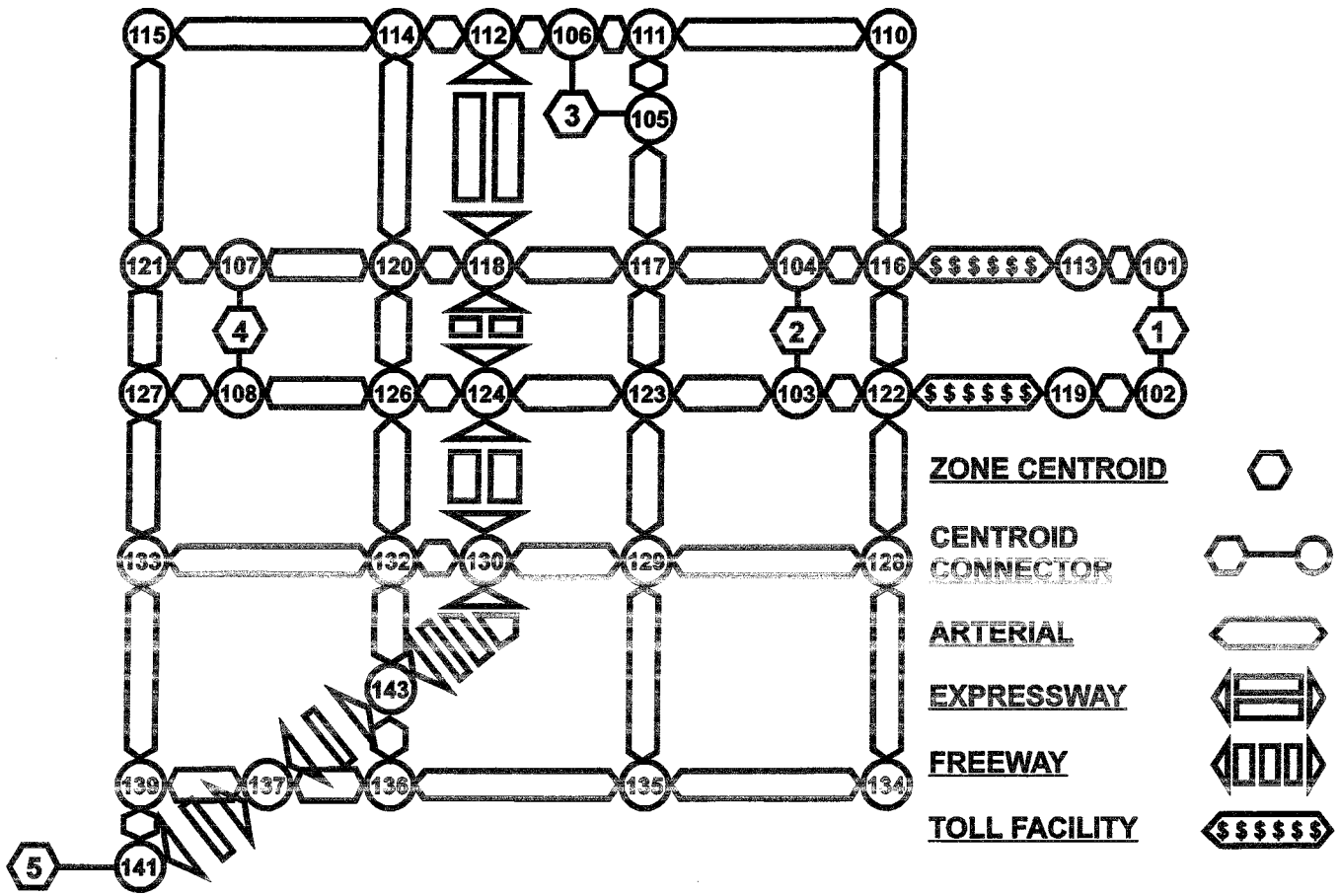
Toll (\$.50) in time units: _____

Parking cost in time units: _____

Step 3: Total Impedance: _____

Question: Are all cost included in the above total?

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UTOWN HIGHWAY NETWORK

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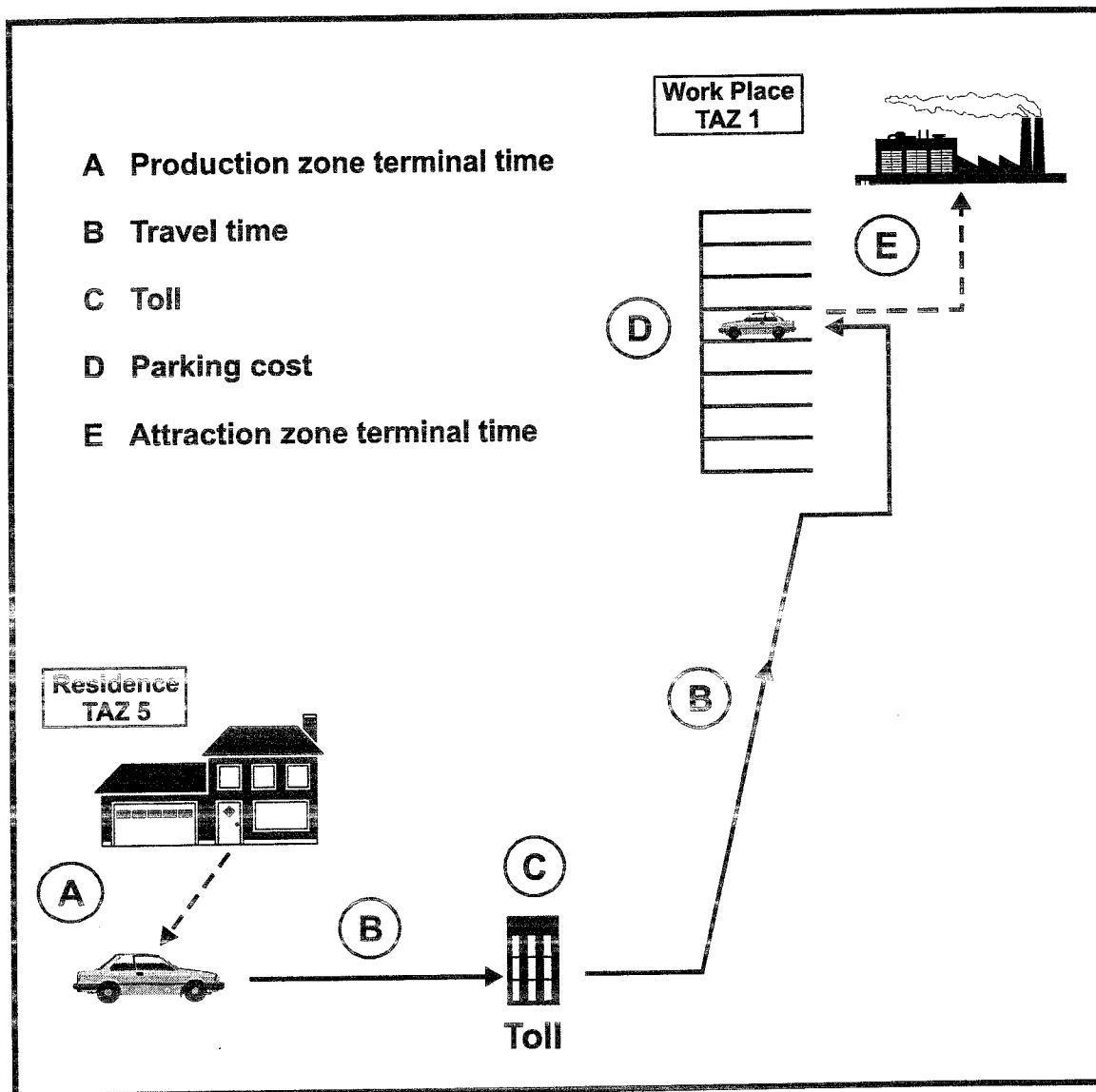
A-Node	B-Node	Distance	Speed or Time Flag	Speed or Time
1	101	.50	T	3.0
1	102	.50	T	3.0
2	103	.30	T	1.8
2	104	.30	T	1.8
3	105	.50	T	2.0
3	106	.50	T	2.0
4	107	.30	T	1.2
4	108	.30	T	1.2
5	141	.50	T	2.0
101	113	.50	S	22
102	119	.50	S	22
103	123	1.15	S	25
103	122	.60	S	25
104	117	1.15	S	24
104	116	.60	S	19
105	111	.55	S	28
105	117	1.10	S	5
106	112	.60	S	20
106	111	.50	S	22
107	121	.65	S	26
107	120	1.10	S	22
108	127	.65	S	26
108	126	1.10	S	9
110	111	1.75	S	22
110	116	1.65	S	25
112	114	.65	S	22
112	110	1.65	S	47
113	116	0.0	S	0
114	115	1.75	S	28
114	120	1.65	S	22
115	121	1.65	S	28
117	118	1.10	S	28

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(continued)

A-Node	B-Node	Distance	Speed or Time Flag	Speed or Time
117	123	.95	S	32
118	120	.65	S	27
118	124	.95	S	47
119	122	0.0	S	0
120	126	.95	S	28
121	127	.95	S	28
122	116	.95	S	22
122	128	1.20	S	25
123	124	1.10	S	28
123	129	1.20	S	22
124	126	.65	S	27
124	130	1.20	S	47
126	132	1.20	S	28
127	133	1.20	S	28
128	129	1.75	S	22
128	134	1.60	S	28
129	130	1.10	S	28
129	135	1.60	S	22
130	132	.65	S	28
130	143	1.15	S	67
132	133	1.75	S	22
132	143	.90	S	28
133	139	1.60	S	22
134	135	1.75	S	28
135	136	1.75	S	22
136	137	.90	S	22
136	143	.70	S	22
137	139	.85	S	22
137	141	1.05	S	55
137	143	1.10	S	58
139	141	.60	S	22

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HIGHWAY TERMINAL TIMES (Minutes)

	<u>Production End</u>	<u>Attraction End</u>
Zone 1	4	4
Zone 2	2	3
Zone 3	1	2
Zone 4	2	2
Zone 5	1	2

PARKING COSTS

	<u>Cost</u>
Zone 1	\$6.50
Zone 2	\$5.10
Zone 3	\$4.70
Zone 4	\$4.50
Zone 5	- 0 -

Value of time - \$10 per hour

$$\left[\text{Hint: } \frac{1 \text{ hour}}{\$10} \times \frac{60 \text{ minutes}}{1 \text{ hour}} = \frac{6 \text{ minutes}}{\$} \right]$$