## Questions Raised by Dr. Siim Sööt Following the May Panel Meeting

At the end of our Panel meeting, with time waning, I rushed my presentation and since it was rather ineffectual I am sending the following notes. I have been on the road since returning from Seattle (now 9 time zones to the east) so the data below are not well researched but may be sufficient to start a dialogue. The data presented here were readily available to me and other information may provide a rather different picture.

Preface: Among the most important determinants of future viability of the proposed system is the future strength of the economy and thereby ridership and the revenues accrued. It also has consequences for the environment as well as many other aspect of the social and cultural landscape. For this reason I believe it is particularly important that two variables, employment and population are solid projections and the projected figures are reliable and well understood.

Caveat: Employment data used in transportation studies are rife with variable meanings. They include data on employment, workers, labor force, commuters and jobs. Each has a special meaning. Further on the 'population' side the ratio of 'jobs' to ...... may use total population, population 16 and over, or population 16 to 64 . Therefore the ratios between variables (data) may be rather different. Caution needs to be exercised in interpreting these data.

Introduction: Regarding future ridership, revenue, etc., the following passages from the Regional Transit Long-Range Plan are of particular interest. (Similar data, though carried out to one more decimal place were in a PowerPoint presentation.)

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From a base of more than 2.8 million today, the Region's population is expected to grow by over 30 percent to more than 3.7 million in 2040. During

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the same period, employment is expected to grow even faster, from approximately 1.5 million jobs
to over 2.5 million, an increase of 62 percent.

An initial step in interpreting the data is to compute the proportion of the population that is working (again, there are many ways in which engagement in economic activity is measured and expressed such as labor force, workers, jobs, commuters and it is easy to inadvertently compare 'apples with oranges.') The data representing the current status indicates that nearly $54 \%$ of the population is working. In comparison with other large metropolitan areas this puts the Seattle near the top.

For example following metro areas have percentages over 50\% (2000 data - I do not recall seeing percentages over $55 \%$ except in places such as the former Soviet bloc):

Seattle, Washington DC, Atlanta, Denver, Minneapolis/St. Paul.
Places with percentages less than $45 \%$ include:
New York, Los Angeles, Pittsburgh, Tampa, New Orleans.
The figure for the nation as a whole is $46.5 \%$ :
2014: USA 148.3 m jobs / 318.9 m pop $=46.5 \%$

Clearly the percentages vary across the country. At the same time it is important to note that in recent years the percentage has been declining.
A little history. The Chicago and Seattle areas experienced the following (Table 1 in approximate figures):

Table 1. Percent of the population working

| Year | Chicago | Seattle |
| :---: | :---: | :---: |
| 1960 | $36 \%$ |  |
| 1970 | $40 \%$ |  |
| 1980 | $44 \%$ | $46.2 \%$ |
| 1990 | $48 \%$ | $50.5 \%$ |
| 2000 | $46 \%$ | $50.0 \%$ |
| 2010 |  |  |
| "today" |  | $53.6 \%$ |

Nationally, the percentage has been declining for many years. The recent decline has become politically charged and I wish to avoid that debate. Still

I would like to note that in the 1960s and 1970s the US was the leading economy in the world with low participation rates while many today interpret the declining figure as a sign of economic weakness.
Figure 1 shows the peak in one ratio at te beginning of the millennium.
Figure 1. Percent of the working-age population employed, 1950-2013
Source: $\underline{\text { http://data.bls.gov/pdq/SurveyOutputServlet }}$


Figure 2. Labor-force participation by gender, 1950-2004


Given the discussion above the following computation needs exploration.
Yr 2040: 2.5 jobs / 3.7 pop $=67.6 \%$
If the ST district were an isolated island, then the $67.6 \%$ figure would be difficult to understand. One would expect that many of the 2.5 m workers reside outside the ST district. Since we are discussing the number of 'jobs' there is also the possibility that in the future there are many more workers employed at multiple jobs-possible but not a particularly admirable goal.

Let's assume that the percentages remains the same (53.6\%) in which case the district workers account for 2 million workers and 500,000 commute into the district.
$(53.6 \%) \times(3.7)=2.0 \mathrm{~m}$ jobs 500,000 imported

This is quite possible but the number is decidedly higher than some of the recent cross-county commuting data. Using the relatively recent U.S. Census data we find the following number of daily commuters:

2006-2010 ACS data: Snohomish => King 116K
Pierce => King 85K

Thurston => Pierce ??
Approximately 200,000 workers commute daily into King County from adjacent counties-the five-year ACS data likely do not reflect the more recent commuting volumes. Nevertheless, 500,000 workers commuting into the district seems high.

If the 500 K is accurate, then a large number of commuters are benefitting from the transportation network funded by district residents.

It raises the question, would there be an encouragement for people and employers to locate outside the district thereby contributing to urban decentralization. I would be interested in a Panel discussion regarding this point.

Further interpretation. Let's assume that one of the two projections needs to be altered. First, if the population estimate remains but the number of jobs is decreased, then it would suggest that there would be a negative effect on the number of commuters and therefore ridership and revenues. The number of jobs in a region is highly related to transit ridership.

Conversely, if the 'jobs' prediction is unaltered then the population estimate may need to be increased. Using the $53.6 \%$ of the population that is working figure would yield a population of 4.5 million residents. This computation does not account for workers commuting into the district.

There may well be a simple explanation that I am missing. I would benefit from a discussion regarding the items presented above.


