Appendix 1c

Summary of Regional Forecast Advisory Panel Discussions and Conclusions

See attached memo from Dr. Tom Potiowsky (PSU) to Ted Reid (Metro)

Northwest Economic Research Center

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To: **Ted Reid, Senior Regional Planner, METRO**
From: **Dr. Tom Potiowsky - Director, Northwest Economic Research Center**
Janai Kessi, Research Associate, Northwest Economic Research Center
RE: **Summary of Metro Forecast Advisory Panel Discussions and Conclusions**

Metro Regional Forecast Advisory Panel Summary Report

Composition of the advisory panel

Advisory board members have professional backgrounds in economics, demographics or a closely related field. The panel will be chaired by Dr. Tom Potiowsky. Members include:

Dr. Tom Potiowsky, Chair (Director, Northwest Economic Research Center, PSU)
Dr. Jennifer Allen (Director, Institute for Sustainable Solutions, PSU)
Jerry Johnson, (Principal, Johnson Economics)
Dr. Jason Jurjevich (Assistant Director of the Population Research Center, PSU)
Dave Lenar (Business Operations Analyst, NW Natural)
Dr. Randall Pozdena (Managing Director, Senior Economist, ECONorthwest)
Steve Storm (Program Manager of Economic Research and Financial Analysis, NW Natural)
Dennis Yee (Chief Economist, Metro)

The Metro Regional Forecast Advisory Panel met two times over a three month period to review the methodology and outputs of Metro's forecast. Each of these meetings had specific objectives.

Objectives of the first meeting on December 13, 2013:

- "Panel members have a shared understanding of their group charge"
- "Metro staff have the benefit of the panel's advice on the input assumptions that should be incorporated into the upcoming regional population, employment, and household forecast"

Objectives of the second meeting on February 19, 2014:

- "The preliminary results of the regional population, employment, and household forecast"
- "The proposed probabilistic approach to establishing the range forecast"
- "Possible scenarios that could lead to high or low growth within the range forecast"

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This summary report outlines the results of the panel discussion at each of these meetings and concludes with a summary of key points that were raised by advisory panel members. The discussion can be characterized as falling into four main topics:

- First, panel members discussed input assumptions for the forecast model
- Second, panel members reviewed and critiqued the preliminary forecast
- Third, panel members provided insight into potential scenarios that could influence high or low growth within the range forecast
- Fourth, panel members stated their opinions on the reasonableness of the preliminary forecast

Input Assumptions for the Metro Forecast Model

Metro's forecast is primarily used for regional growth management decisions. The forecast is an input for the decision areas such as comprehensive plans, transportation planning, land use planning, and job growth. The Metro Forecast is part of a five year cycle and uses a range forecast to capture uncertainty. The baseline forecast is grounded in the most recent IHS Global Insight forecast.

Discussion of State and National Trends

The first advisory panel meeting began with several presentations covering two main topic areas, population and employment growth. The presenters discussed both observed and expected trends in these topic areas.

Some key discussion points that arose from these presentations and the ensuing discussions were as follows:

- **Job polarization** - The hollowing out of the middle wage jobs is a real issue both nationally and in Oregon.
    - One possible response to this issue could be to direct more policy toward fostering job training and growth in NAICS 54 – Professional, Scientific, and Technical Services
- **Fertility rates** - There was mention that the decline in fertility rates could significantly affect population forecasts if the rates fell below what was anticipated.
    - Predicting fertility rates is challenging due to various factors such in migration of Hispanic populations and other ethnicities with traditionally higher fertility rates than the majority population – i.e., White, Non-Hispanic.
    - However, in recent years Mexico has seen a decline in fertility rates and this is affecting the degree to which Mexican immigrants offset the U.S. fertility rate.

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  - It is very challenging to capture the variability in fertility rates at the sub regional level. For instance within the Portland Metro region there are pockets of high and low fertility rates, but clearly delineating these sub regions is challenging.
- **Shifts in housing Starts** - Housing start estimates should be revised. This is due to "overhang" – excess supply from foreclosures and pre-recession buildup. Also there is variability in the types of housing starts.
  - There is a trend toward lower cost apartment units in multi-family.
  - Also there is a trend toward larger single family units being built. More square feet per single family start.
- **Shifting live/work decisions** - Commuting patterns seem to suggest that people are living in the city and commuting to the suburbs. This may indicate a shift in preferences.

Discussion of Input Assumptions to Incorporate into the Forecast Model

The first meeting concluded with a discussion of key variables to consider including in the forecast model. Many of these variables are not easily quantified making it difficult to incorporate them in the model. The advisory panel recognized this and considered alternative ways to use proxy variables or to simply develop a more qualitative discussion around certain topics that may introduce uncertainty into the model's outputs.

The key points of discussion are as follows:

- **Global trade and other macroeconomic effects**
  - Consideration should be given to variables, such as exchange rates and currency data.
  - Offshoring, re-shoring, and on-shoring could influence industry mix and economic growth, therefore they should be considered in the model assumption conversation.
- **Climate change and related legislative measures**
  - Legislation, such as a carbon tax, could result in shifts in economic activity and land use patterns. These potential effects should be included in the forecast model.
  - Climate change may affect population migration patterns. These potential effects should be considered in the model.
    - A statement was made that climate change effects could already be embedded in the migration data due to migration forecasts being based in historical trends. This is barring a catastrophic event of course.
- **Fertility rates, specifically the uncertainty of future rates**

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- There was a suggestion that the model be run for super low fertility rates. But there was mention that a natural decrease in fertility rates are expected to occur anyway.
    - There was a suggestion that consideration be made for those counties that have high concentrations of foreign born residents relative to other counties.

- **Compare forecast outputs with past forecasts**
    - A general consensus was that current forecast outputs should be compared to outputs of previous forecasts. This would provide some narrative around how well the forecasts are matching the reality of what plays out over time.

Review and Critique of the Preliminary Forecast

The review of the preliminary forecast outputs began with a statement that Global Insight's words in their most recent forecast are more optimistic than their numbers. This narrative carried over into the discussion of Metro's preliminary forecast outputs. Key points that emerged were related to what many on the panel perceived to be a conservative population growth estimate. There was minimal discussion regarding the employment forecast. Some key points of this discussion are highlighted below:

- **Death trend for preliminary forecast is higher than the 2000 forecast**
    - A note was made that the death trends are a bit higher for the preliminary forecast than the 2000 forecast. This is a little unexpected given the assumption that life expectancy should increase over time.
    - A note was made to check the data and underlying assumptions
- **Stability of migration data**
    - A question was raised regarding the stability of migration data used in the forecast model
        - The answer was that yes migration data in Oregon has been quite stable for more than 20 years.
- **Inclusion of Housing data**
    - A question was asked whether housing data is included in the forecast model. The answer was that no, there is no housing price data included in the model inputs.
    - A suggestion was made that there may be a market balancing of population. The response to this suggestion was that MetroScope usually shows a 60/40 split in single family/multifamily builds. But more recently it has shifted more toward a 50/50 split. Metro is currently conducting a study on this particular shift in housing demand.

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- **Age breakout of forecasted population**
    - Recent trends indicate that Oregon is retaining more of its older residents. These residents are not fleeing to the SW (i.e., Arizona) as they have in the past. Knowing how well the forecast outputs are capturing this trend would be important.
- **Declining population growth rate**
    - A question was asked regarding what the compounded population growth rate estimates were for the 2008 five year forecast and now the most recent forecast. The answer was 1.3% (2008) and 1.0% (Preliminary). More discussion followed regarding the national shift down in population growth. The Census Bureau is adopting a structural view of this downward shift.
    - In regard to the downward shift, a statement was made that low fertility rates as well as declining immigration are underappreciated as a major driver of this trend.
    - A question was asked regarding how much of the population growth shift is due to structural changes v. business cycle effects. Several panel members suggested that it may be more structural due to generational changes, such as delayed family formation due to student loan debt and rising cost of living. But this also is due to shifts in fertility rates, though this variable is a puzzle due to the unknowns within racial and ethnic sub populations (e.g., Hispanic) and also changing immigration policies. A statement was made that if the surprisingly high forecasted death rates are adjusted to be more in line with what is expected the population growth rate may bump up a bit.
- **Potential issues with applying forecast model distributions to rates**
    - A technical question was raised regarding the statistical ramifications of applying distributions to rates. The ensuing discussion concluded with the decision to utilize the log normal assumption.
- **Fertility and death rate variables should not be weighted equally**
    - A suggestion was made that it would be wise to not use equal probability for population forecast variables. For example death rates tend to be more stable over time and hence easier to predict than fertility rates, which depend on harder to predict issues (e.g., immigration patterns, family formation)
- **Employment growth trends near population growth**
    - The panel members agreed that it seems plausible that employment growth should trend near to population growth rates. That being said there was a suggestion that the growth rate may actually be higher if people are working two jobs.

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Potential Scenarios for High or Low Growth within the Range Forecast

The final advisory panel meeting closed with a discussion of "game changers" (e.g., climate change, declining mobility). These "game changers" could serve as points of discussion regarding the justification of high or low estimates for the forecast range. The results of this discussion are outlined below:

- **Climate change**
  - The panel agreed that the upside rage for the population growth forecast should be greater than the downside range due to climate change and the potential for mass migration to Oregon with its more temperate and abundant climate.
  - Climate change could also affect population migration through shifts in economic activity. For example if national defense spending declines due to energy independence, there may be fewer defense contracts, shifting employment from the defense industry to other industries. Given Oregon's position as a good spot for alternative energy development we may see migration of workers from other locales.
- **Declining mobility**
  - A statement was made that there has been a drop in mobility rates since the 1980s. This decline in mobility definitely affects migration patterns.
- **The rise of "new Portlands"**
  - Attention should be given to the implications of the rise of other "new Portlands", especially in the rust belt. Pittsburgh was given as an example.
- **Technical issues of "range" forecast**
  - Forecast Error Bands. Taking the first or second standard deviations about the expected path to find forecast ranges.
  - Alternative Policy Combos. High and low scenarios of policy assumptions (taxes, productivity, …) and taking the expected path then applying forecast error bands
  - Monte Carlo Simulation. Using the probability distribution of policy or event variables to forecast a range of results.

Reasonableness of the Preliminary Forecast Numbers

In general the panel members agreed that the population growth rate seemed conservative. Some members thought it was more conservative than others, but they all agreed that if certain issues, such as the surprisingly high death rates, were addressed and adjusted the forecast outputs may be more in alignment with what they deemed as reasonable. The panel members agreed that the employment growth rate seemed plausible.

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Another general agreement among panel members was that the up and downside forecast ranges should not be evenly split. In other words there may be more of a chance for population growth to be higher than expected and the model should seek to incorporate this greater likelihood.