



MEMORANDUM

DATE: October 13, 2008

TO: Whatcom County Comprehensive Planning Team

FROM: Brett Sheckler and Kapena Pflum

RE: DRAFT: ALLOCATING COUNTYWIDE FORECASTS – Proposed Methods

BACKGROUND AND PURPOSE

Whatcom County is embarking on a multi-year process to review and update the Whatcom County Comprehensive Plan. As the County develops plans for accommodating future growth, the County commissioned Berk & Associates to perform a series of tasks. These tasks include:

- Provide County decision makers with data and analyses that will inform their identification of countywide forecasts of population and employment growth through 2031.
- Work with technical staff and decision makers to develop methods for:
 - Allocating countywide forecasts to planning areas within the county;
 - Translating anticipated growth into demand for housing, commercial, industrial, retail, and institutional space, and ultimately, to demand for developable land;
 - Assessing the existing capacity within cities and urban growth areas to accommodate anticipated 20-year demand; and
 - Ongoing monitoring of how the County Comprehensive Plan compares with the reality of growth.

This memorandum focuses on the development of methods for allocating countywide forecasts to planning areas within the county. These planning areas include Whatcom County's seven existing cities and their associated urban growth areas, the unaffiliated Columbia Valley and Birch Bay UGAs, Cherry Point, the Point Roberts Rural Area, and the remaining rural areas of Whatcom County.

The goal of this memorandum is to lay out, with a great deal of specificity, future actions that will be carried out to allocate anticipated 20-year growth. Implementation of these methods will occur in the upcoming phase of the Comp Plan Update process, which will begin in January of 2009.

STARTING POINT – EXPECTATIONS FOR COUNTYWIDE GROWTH

Based on discussions of historical trends, existing forecasts, and an assessment of existing conditions, Whatcom County's Growth Management Coordinating Council (GMCC) has recommended that, as a starting point, county planners should anticipate that Whatcom County will have 251,490 residents in the year 2031. The GMCC also recommends that planners anticipate 123,230 jobs in the same year. These figures translate into expected growth of 60,490 new residents and 19,430 new jobs (from 2008 to 2031).

PROPOSED FRAMEWORK FOR ALLOCATIONS

Berk & Associates proposes a two-step process for developing 2031 allocations of growth:

1. Perform a technical, algorithm-based allocation of growth based on historical trends and economic theory. This allocation might be viewed as *unconstrained demand*. In effect, this algorithm-based analysis answers the question: Where might population and commerce go in the absence of potential constraints like limitations in land supply or public policies that encourage or discourage development.
2. Using the technical allocation as a starting point, open up the allocation process for discussion and negotiation among the affected jurisdictions (i.e. the County and cities). In this latter step constraints like land supply (a set of analyses that will need to be completed prior to negotiations), policy choices, and other special circumstances will be taken into consideration. Presumably, with these factors on the table, the algorithm-based allocations will be adjusted to reflect policy choices and real-world constraints.

The following two sections discuss methods and principles that Berk & Associates believes should guide these two steps.

PHASE 1: TECHNICAL ALLOCATION

Berk & Associates recommends a three-phase technical allocation of population and employment:

1. Identify and allocate new "regional" employment (i.e. employment in industries that seek to serve the entire region, like Western Washington University or regional retailers). This regional employment will be allocated to areas of Whatcom County that best suit such businesses: the county's existing and emerging regional centers.
2. Recognizing (1) allocations of regional employment and (2) historic patterns of development, allocate expected population growth.
3. Based on the allocation of population growth and expected patterns of commerce, allocate non-regional employment to all study areas.

The following discussion spells out underlying principles and proposed methods for an algorithm-based allocation of population and employment growth.

Employment Allocations

Location Theory

When businesses make location decisions, they select a site by balancing three primary factors:

1. Access to markets for their goods and services;
2. Access to factors of production, including access to labor pools and production supplies; and
3. The cost of their physical plant (primarily reflecting costs of land and construction).

How these factors are weighed depends on the industry in question. For brick-and-mortar retailers, geographic access to markets is key. Regional retailers who rely on drawing from a very large population of potential shoppers are looking for centrally-located sites, and most often, they look for areas that offer a critical mass of retail attractions—hence the emergence of regional retail centers. Community and convenience retailers, who look to capture retail sales from customers in more concentrated areas, look for sites that afford proximity and ease of access to a sufficient pool of residents.

On the opposite end of the spectrum, a high-tech software-development firm cares very little about picking a site that is accessible to potential buyers. For them, the key siting considerations may be (1) access to a pool of high-skill employees and (2) a campus that is located in an area with amenities that will enable them to compete for (and retain) employees that have options regarding where they live and work.

Different location criteria for different types of business underlie Berk's recommendation to distinguish between regional and local businesses, allocating employment associated with regional businesses to regional centers and allocating local employment based on expectations about where people will live.

Data Collection

In its 2002 study, ECONorthwest used Washington State Employment Security Department (ESD) ES202 data (counts of employees who are covered by unemployment insurance, as tracked by ESD) to describe the distribution of covered employment by study area. The report summarized employment by major category (commercial, industrial, and retail) by study area. In addition to using these data, we recommend that analysts contact ESD and request a breakout of covered employment by study area for 2001 and 2008.¹ The requested breakout should focus on covered employment by

¹ Lisa Norberg at ESD has indicated that she will summarize covered employment by industry classification (NAICS major sector) for each of the study areas. Analysts will need to contact Lisa and arrange to send her GIS polygons in NAD83 State Plane South projection, and she will summarize current employment by industry. Depending on the number and size of employers, ESD figures may be suppressed for a given NAICS major sector. Depending on the specifics, analysts may be able to work around the suppression issue by generating independent estimates of suppressed data based on other sources. It may be useful, however, to request the data in two forms: (1) at the NAICS major sector level, for each subarea; and (2) at the broadest industry classification used for determining land demand (i.e. commercial, industrial, and retail [see Exhibit 1]). With these more general classifications, issues of suppressed data are likely to be diminished.

2-digit NAICS classification (with data for *Accommodations and Food Service* broken out into the 3-digit level [codes 721 - *Accommodations* and 722 - *Food Service and Drinking Places*]).

Exhibit 1 offers a suggested structure for sorting industries (2-digit NAICS titles) into major land-use classifications.

Exhibit 1 Suggested Components of Major Industry Classification by 2-Digit NAICS Title

Commercial	Industrial	Retail
Information	Utilities	Retail Trade
Finance and Insurance	Construction	Food Service and Drinking Places (3-digit NAICS - 722)
Real Estate and Rental and Leasing	Manufacturing	
Arts, Entertainment, and Recreation	Wholesale Trade	
Professional, Scientific, and Technical Services	Transportation and Warehousing	
Management of Companies and Enterprises		
Administrative and Support and Waste Management and Remediation Services		
Health Care and Social Assistance		
Educational Services		
Accommodations (3-digit NAICS - 721)		
Other Services (except Public Administration)		
Public Administration		

Source: Berk & Associates

Note: For comparisons of major industry classification figures with ECONorthwest figures, note that ECONorthwest excluded government (Public Administration) and Education jobs from their commercial classification.

Proposed Allocation Steps - Employment

Develop Base Data	
Step 1: Generate estimates of new countywide jobs to be accommodated, by industry.	Using overall estimate of job growth through 2031, allocate new jobs to major industry classification based on relative shares as they are summarized in the ECONorthwest forecasts. ECONorthwest forecasts and allocations were based on SIC industry classifications, so the allocations of forecasted employment will need to use the same classification scheme. Once forecasts have been generated by industry, the industries can be aggregated to major classifications as follows: Commercial → Finance, Government, and Services Industrial → Construction, Manufacturing, Wholesale Trade, Transportation, and Utilities Retail → Retail

Step 2:
Distinguish
Regional and
Local
Employment

The goal of this task is to distinguish the relative shares of commercial, industrial, and retail employment that should be treated as *regional*, and the remainder of employment that will be treated as local.

In the allocation process, regional employment will be allocated to study areas that have historically served as regional centers.

If the analysis team desires, designation of regional shares can be based on subjective estimates (for an example of such estimates see the table below) or they can be based on analysis of covered employment data the County will be receiving from ESD.

2007 NAICS US Code	2007 NAICS US Title	Regional Share	Local Share	Category
22	Utilities	50%	50%	Industrial
23	Construction	50%	50%	Industrial
31-33	Manufacturing	70%	30%	Industrial
42	Wholesale Trade	80%	20%	Industrial
44-45	Retail	60%	40%	Retail
48-49	Transportation and Warehousing	90%	10%	Industrial
51	Information	80%	20%	Commercial
52	Finance and Insurance	50%	50%	Commercial
53	Real Estate and Rental and Leasing	40%	60%	Commercial
54	Professional, Scientific, and Technical Services	90%	10%	Commercial
55	Management of Companies and Enterprises	90%	10%	Commercial
56	Administrative and Support and Waste Management and Remediation Services	80%	20%	Commercial
61	Educational Services	30%	70%	Commercial
62	Health Care and Social Assistance	60%	40%	Commercial
71	Arts, Entertainment, and Recreation	40%	60%	Commercial
721	Accommodation	80%	20%	Commercial
722	Food Services and Drinking Places	30%	70%	Retail
81	Other Services (except Public Administration)	50%	50%	Commercial
92	Public Administration	40%	60%	Commercial

If the analysis team chooses the latter course, the analysis would probably involve:

1. Identifying a single study area (perhaps Bellingham and its UGA) or a cluster of study areas (perhaps Bellingham, Ferndale, and their respective UGAs) as the regional center.
2. Run an ordinary least squares regression analysis of employment for each sector, with the dependent variable being employment by study area and the explanatory variables being (1) study area population and (2) designation as a regional center. (The analyst may want also want to test a regression with a third variable that identifies communities of less than, say, 5,000 residents to capture potential threshold effects.) The regression analysis should give an indication of share of employment that is regional in nature.

These relative shares could then be used to fill out a version of the table listed above. The final step would be to aggregate regional employment by category to arrive at the share of regional employment for each of the three major employment categories.

Allocate Projected Employment Growth	
<p>Step 3: Allocate regional employment to regional centers</p>	<p>The county's regional employment for the <i>commercial</i>, <i>industrial</i>, and <i>retail</i> categories should be allocated to the study area (or study areas) that have been designated as regional centers.</p> <p>If the analysts so desire, as they look to the future, they might designate more areas as emerging regional centers, assigning each identified area a relative share of regional employment. Such a step might also be introduced as part of the second phase of the allocation process: interjurisdictional conversations and adjustments.</p>
<p>Step 4: Allocate population growth to study areas</p>	<p>See Following Section on Population Allocations</p>
<p>Step 5: Calculate historical changes in employment by study area</p>	<p>Using ESD 2008 and 2001 data (or using 2001 data from the 2002 ECONorthwest study, calculate the change in employment experienced in each of the study areas over recent years, for each major category of employment (commercial, industrial, and retail).</p>
<p>Step 6: Allocate local employment to study areas</p>	<p>After allocating population growth to all study areas, the last step in the process is to allocate local employment to each of the study areas. In general, local-serving employers will locate in urban nodes that are positioned to attract significant numbers of residents.</p> <p>The algorithm-based allocations of local employment should first exclude study areas that do not include commercial land. Local employment growth should be allocated to remaining study areas based on projected increases in resident and, in the case of retail and commercial categories, non-resident population.</p> <p>Local-serving retail and local-serving commercial employment should be allocated to non-excluded study areas, on a pro-rata basis, based on each area's sum of resident population (weighted by a factor of one) and non-resident population (weighted by a factor of, perhaps, 0.5).</p> <p>Each non-excluded study area will receive a share of local retail and local commercial equal to the study area's weighted population factor divided by the sum of all non-excluded study area's weighted population factors.</p>

Population Allocations

Location Theory

When households make decisions about where to live, they balance a range of considerations. Some of the most important of these include:

1. Access to employment opportunities;
2. Access to amenities;
3. Presence of strong public services—particularly schools;
4. Availability and characteristics of housing stock; and
5. Relative costs of homes.

In Whatcom County, the location choices that households will make in coming years are likely to reflect the manner in which choices have been made in recent years. Given Whatcom County's geography and transportation structure, Bellingham can be expected to remain the principal regional center in the county. With most new regional jobs continuing to locate in the Bellingham/Ferndale corridor; with similar commuting patterns; and with similar trade-offs between amenities, levels of public services, and relative costs, new households will face similar choices when they consider where they want to live.

As Whatcom County continues to mature, with communities outside of Bellingham becoming more populous and attracting more local community-serving commerce, the relative attractiveness of the county's smaller cities will increase.² At the same time, as the City of Bellingham continues to mature as an urban center, strengthened attractions like restaurants and entertainment venues will also make Bellingham more attractive to a significant slice of the county's population.

Overall, assuming no land or policy constraints, our default assumption would be that future distributions of growth would mirror distributions of growth Whatcom's communities have seen in recent years.

Again, in the second phase of the growth allocation process, when potential constraints on land supply, community vision, policy choices, and special circumstances are included in the interjurisdictional discussions, final allocations will almost certainly depart from this algorithm-based allocation.

² Smaller, maturing communities will also likely see economies of scale for provision of local services, which will re-enforce the areas' attractiveness.

Proposed Allocation Steps - Population

Step 1:
Generate estimates of 2008 population by study area.

In its 2002 study, ECONorthwest generated estimates of population in each study area for the years 1990 and 2000. Unless analysts want to take the time to re-create ECO's analysis (a very involved process), the analyst team will need to use ECO's 2000 estimates as a basis for 2008 population estimates.

The most direct path to estimating 2008 population includes:

1. Start with ECONorthwest's 2000 population estimates as a base.
2. Add population growth within city boundaries from 2000 to 2008 based on OFM annual estimates (excluding population added through annexation).

2000 to 2008 Population annexed by City	
Bellingham	167
Everson	13
Femdale	17
Lynden	319
Sumas	2

3. Add population growth in unincorporated areas based on Whatcom County permit data.
 - Generate point-level shapefiles for single family, multifamily, and mobile home permits for all unincorporated areas (and recently annexed areas).
 - For single family and mobile home permits, it is probably safe to assume a high percentage (95%) of permitted houses actually got built within two years of the permit being issued, but the analysts can use the most up-to-date ortho layers (and/or field checks) to check the status of major developments. For permits issued after January 2007, assumed conversion of permits to houses should be more conservative (perhaps 50%) and can also be informed by spot-checks.
 - Special attention will need to be paid to permitted multifamily developments. Luckily, there should be relatively few multifamily developments permitted in the unincorporated areas, but most if not all such permits should be verified using ortho layers and, if necessary, field checks.
 - After accumulating counts of new single family houses, multifamily units, and mobile homes, the analyst should estimate new population based on 2000 resident-occupancy rates and household sizes by housing type from the most appropriate census designated place (CDP), or for the most appropriate cluster of one or more census tracts.

<p>Step 2: Calculate shares of population growth by study area.</p>	<p>Using ECONorthwest’s 2000 estimates and the calculated 2008 population for each study area, analysts should calculate each study area’s share of 2000 to 2008 countywide population growth. Analysts should also calculate shares of growth from 1990 to 2000, to see if shares have seen any marked shifts in recent years.</p>
<p>Step 3: Allocate forecasted population growth</p>	<p>Assuming that 2000 to 2008 shares of growth were relatively consistent with 1990 to 2000 shares, forecasted population growth through 2031 should be allocated to each study area based on their calculated shares of growth from 2000 to 2008.</p> <p>If 1990 to 2000 growth shares were significantly different from 2000 to 2008, analysts may want to shift 2031 shares based on an extrapolation of recent shifts. For example, if Birch Bay absorbed 10% of countywide growth from 2000 to 2008, but only 5% of growth from 1990 to 2000, then one could argue that the trend is one of increasing share capture in Birch Bay. For the baseline allocation, the analyst team may want to stick with the allocation based on the 10% share, but the team would probably want to flag the trend towards increasing share capture to inform interjurisdictional discussions phase of the allocation process.</p> <p>Another data point that analysts may want to track on is the regional employment allocation. If, for any reason, future regional employment distributions are forecasted to differ from existing distributions, then the shifts in employment distributions could have an impact on location decisions made by households. Again, the analyst team may not want to alter the algorithm-based allocation to reflect this dynamic, but it will be an important consideration to bear in mind in Phase 2 of the allocations.</p>

PHASE 2: INTERJURISDICTIONAL DISCUSSIONS

As noted above, the purpose of Phase 2 of the allocation process is to fold into the allocation issues like community vision, land capacity constraints, city and County policies, and special circumstances that are difficult to capture in a purely technical allocation.

Phase 2 will need to look at calculated buildable capacities in each study area; potential options for expanding capacity—whether through geographic expansion or through policies to increase or decrease densities in existing urban growth areas; and Whatcom County’s broader vision of what the county should look like in the future.

Even at this early stage of the Comp Plan update, there has been considerable discussion among members of the community and among policy makers of how the county as a whole should think about expected growth. Should the County and cities use policy levers to try to slow the rate of rate of growth?

We anticipate that this question will be at the heart of much of the discussion and negotiations in Phase 2 of the growth allocations. Given that, we believe it may be useful to devote some time discussing precisely *how* public policies can affect growth.

How Does Public Policy Affect the Rate of Growth

Like many other systems, the number of people who will live in Whatcom County in 2031 is a determined through the interaction of supply and demand. The only way to change the number of people is by influencing one of these two factors.

On the demand side, policy makers in the county can shift demand by making the county more or less attractive. To the extent that they are successful in making Whatcom County a great place to live, all else being equal, demand for living in Whatcom County will increase.

On the supply side, policy makers can (1) physically constrain the amount of land available for development, (2) constrain the intensity of uses that are permissible on available land, and/or (3) increase the cost of development through regulations and fees.

Regarding physical constraints on developable land, it is important to recognize that, in its current form, the Growth Management Act (GMA) makes such constraints very difficult. At any given moment in time, the GMA essentially requires that counties and cities ensure that sufficient land capacity exists to accommodate at least ten years of growth. This is a function of GMA's required planning cycle and time horizon.

Specifically, GMA requires ensuring 20 years of capacity as part of 10-year planning cycle. This means that, assuming compliance with the spirit of the GMA, at no time will a county ever get within 10 years of exhausting land supply. As a result, from a *countywide* perspective, it is very difficult if not impossible to use land-supply constraints to actually slow the pace of growth.

Through policies and through setting modest growth targets, individual cities *do* have the ability to limit growth within their boundaries. But in the absence of a mechanism to constrain growth at a county level, constraining growth in one part of the county is likely to be much like squeezing a balloon.

Among the central questions to be resolved through the Comprehensive Planning process are the questions of *where* and *how* the county will accommodate the growth that is coming.