

## Snohomish County Housing Sales Price Report and Affordability Analysis Methodology

### Source of Data

Housing sales price information is based on extracts from Metroscan and CAMA databases. Both databases contain information organized by Snohomish County Assessor's tax parcel numbers. Metroscan, a commercial product of Transamerica, provides information regarding real property transfers in Snohomish County. The CAMA (Computer Assisted Mass Appraisal) database is maintained by the Snohomish County Assessor's office. It contains current housing and real property characteristic information that is used to enhance Metroscan extracts. The initial Metroscan extract consisted of 28,349 records representing all tax parcel deed recordings reported for the year 1998. For each tax parcel record, 52 fields of parcel data were sought including parcel location, land use, lot size, building improvements, and sales price. In cases where parcel data was not available from the Metroscan database, supplemental information was provided by the CAMA database.<sup>1</sup> The two databases were joined by parcel number.

PARCEL DATA RETAINED FOR HOUSING SALES PRICE DATABASE			
PARCEL NUMBER	DOCUMENT NUMBER	OWNERS NAME	TAX RATE AREA
ACCESS STREET	EXCISE TAX NUMBER	PARCEL TYPE	TOPOGRAPHY
ASSESSMENT, LAND	TAX EXEMPT CODE	PERCENT TRANSFERRED	TOPOGRAPHIC PROBLEMS
ASSESSMENT, STRUCTURE	LAND USE CODE, NUMBER	PRICE	TRANSFER DATE
ASSESSMENT, TOTAL	LAND USE CODE, TEXT	SCHOOL DISTRICT	ELECTRIC SERVICE
BATHROOMS, TOTAL	LOT ACRES	SEWER TYPE	VOLUME NUMBER
BEDROOMS	MAP QUARTER SECTION	SITE ADDRESS, NUMBER	VOLUME PAGE
BUILDING ID NUMBER	MAP RANGE	SITE ADDRESS, STREET	WATER SOURCE
BUILDING STYLE	MAP SECTION	SITE CITY	YEAR BUILT
CENSUS BLOCK	MAP TOWNSHIP	SITE ZIP CODE	EFFECTIVE YEAR BUILT
CENSUS TRACT	MULTIPARCEL TRANSACTION	BASEMENT SF	ZONING
DEED TYPE	NEIGHBORHOOD CODE	TOTAL SF	PRIOR PRICE
DEVELOPMENT TYPE	NUMBER OF UNITS	SUBPLAT	PRIOR TRANSFER DATE

### Database Refinement

Not all deed recordings in the initial database extract represented housing sales. The extract was comprised of deed recordings related to all kinds of real property, including commercial buildings, apartment buildings, and vacant land. In addition, some of the deed recordings reflected either administrative or judicial matters, such as a deed re-recording, an affidavit of death, a correction deed, or a deed in lieu of foreclosure. In other cases, such as quit claim deeds, it was not clear whether the deed recording represented an actual house sale and, if so, whether the full value of the sale was reflected in the tax parcel record. The extract also included some tax parcel records with key information missing, such as the parcel's land use or the house sales price reported as \$0. Other irregularities included parcel file records where the sales price represented the aggregate sum of a multiple parcel sale, rather than the individual

---

<sup>1</sup> The CAMA database was primarily used to provide up-to-date housing and property characteristics for parcels with building improvements that occurred after the Metroscan database was frozen in December 1995 as well as deed type information missing in some Metroscan records.

house sales price, and duplicate parcel records for single dwelling unit parcels with multiple buildings.

To avoid miscounting and overcounting, six types of parcel records were sorted and removed from the initial 28,349 record extract. These included:

- 3,031 parcel records without a parcel tax number or land use code;
- 517 duplicate parcel records for parcels with multiple buildings;
- 4,140 parcel records associated with a variety of deeds other than warranty deeds and special warranty deeds;
- 6,646 records for parcels with specified land use codes other than single family detached (11101), condos (11001), townhouses (11201), and mobile homes on fee simple property (11301, 19111);
- 633 records where the individual parcel sales price was coded as the aggregate sales price for a multiple parcel sale; and,
- 362 parcel records with sales price given as \$0.

Parcel sorting and removal was performed by a dBase program with code written by Snohomish County PDS Demographics staff.<sup>2</sup> dBase was also used to determine if parcels coded as vacant in Metroscan but identified as single family in the CAMA file should be included in the final database. Based on research by PDS Demographics staff, if the sales price was less than \$100,000 the transaction was most likely an unimproved lot sale, not a home sale. These records were removed from the final database. Forty-seven records coded as vacant in Metroscan and single family in CAMA had a sale price greater than \$100,000. Consequently, these records were retained in the final database.

The dBase program was also used for a variety of other data refinements. Several data fields were added to hold new parcel data generated during the recoding and geocoding process. The program entered missing “tax rate area” codes for some records and added an “age of housing unit” field. “New” housing units were coded as those with the “year built” date being either the same or one year preceding the parcel record “document date” (i.e., “new” units in 1998 included all those with a “year built” code of either 1998 or 1997). “Existing” housing units were coded as all the remaining units with the “year built” date being two or more years preceding the parcel record “document date.” A “city name” field was created based on the parcel record’s tax levy code in the “tax rate area” field at the time of the initial Metroscan extract. This served as the effective cut-off date for home sales affected by city annexations. The “city name” field provided the geographic information necessary for the subsequent housing sales price analysis at the city and town level.

### **Analysis of Parcel Data Excluded from Final Database**

Altogether, the culled records comprised 15,329 parcels, or 54% of the initial Metroscan record extract, leaving a final database of 13,020 parcel records. Of the parcel records culled, 517 were duplicate records and 6,646 were not connected with the sales of single family detached homes, condos, townhouses, or mobile homes on fee simple property. These records were considered inappropriate for inclusion in the final database because they either were already counted or they did not represent home sales.

---

<sup>2</sup> DBase is a commercial product of the former Ashton-Tate.

1998		Comparison of Parcel Records Included and Excluded From Housing Sales Price Final Database	
28,349		Initial Metroscan Extract	
15,329		Total Culls	
	517	Duplicate parcel records; inappropriate for inclusion	
	6,646	Parcels not coded single family, condo, townhouse or mobile home; inappropriate for inclusion	
	3,031	"Splits" with too little parcel information; likely includes some sales eligible for inclusion	
	5,135	Parcels coded single family, condo, townhouse or mobile home; likely includes some sales eligible for inclusion	
	362	\$ 0 sales price reported; likely includes some sales eligible for inclusion	
	633	Multiple parcel price; likely includes some sales eligible for inclusion	
	4,140	Non-warranty deeds; likely includes few sales eligible for inclusion	
13,020		Final Database, 1998	

Also removed from the final database was a group of 8,166 records that likely included some home sales eligible for inclusion, but which lacked accurate information as to either which deed recordings represented an actual sale or what the actual sales price was. Included in this group were 3,031 parcel records with little parcel information other than the owner's name and sale price. These records, known as "splits", are placeholders for recent sales which Metroscan has yet to provide full parcel information. These split records likely include some home sales that would be eligible for inclusion in the database if full parcel information was available.

A total of 5,135 parcels with the appropriate residential land use codes were removed from the database. Included in this group were 362 parcels with no sales price information and 633 records where the individual parcel sales price was coded as the aggregate sales price for a multiple parcel sale. Inclusion of these parcel records would have distorted the overall median sales price picture.

COMPARISON OF "DEED TYPE CULLS" FROM PARCELS CODED SINGLE FAMILY, CONDO, TOWNHOUSE OR MOBILE HOME, 1998						
	1998			1998		
QUIT CLAIM	2,492	60.19%	QUIET TITLE ACT	1	0.02%	
RE-RECORD	16	0.39%	ADMIN DEED	3	0.07%	
PERSONAL REP	83	2.00%	DEED OF TRUST	3	0.07%	
AFF DEATH (MISC)	36	0.87%	EXECUTORS	3	0.07%	
TRUSTEES	48	1.16%	MEMO AGREE SALE	1	0.02%	
RE CONTRACT	33	0.80%	DEATH CERTIF	1	0.02%	
MISC	6	0.14%	SPSAL PROP ORDR	1	0.02%	
IN LIEU OF FORC	5	0.12%	PROBATE	2	0.05%	
AFFIDAVIT	11	0.27%	CONTRACT OF SALE	-	0.00%	
BARGAIN & SALE	22	0.53%	GIFT	1	0.02%	
COURT ORDER	2	0.05%	LIFE ESTATE	2	0.05%	
AFF IDENT & SURVIV	1	0.02%	BRGN, GRANT & SALE	1	0.02%	
CORRECTION	4	0.10%	FIDUCIARY	3	0.07%	
ASSIGN OF CONTRACT	3	0.07%	NAME CHANGE	-	0.00%	
COMM PROPERTY	11	0.27%	TRUST TRANSFER	1	0.02%	
DEED	2	0.05%	OTHER (BLANK)	1,341	32.39%	
AGREEMENT FOR SALE	1	0.02%	Grand Total	4,140	100.00%	

In addition, a group of 4,140 parcel records coded single family, condo, townhouse, or mobile home were excluded from the final 1998 database due to deed types other than warranty deeds and special warranty deeds. Approximately 32% of the 4,140 records had no deed type listed (compared with 0% in previous years) and are included in the table above in the "other" category. 89% of the remaining parcel records that did list a deed type involved quit claim deeds (just over 60% of the total 4,140 deed type culls). This compares to approximately 79% of single family residential deed type culls coded as quit claim deeds in 1995/96 and 81% in 1996/97. It is not known how many of these "deed type culls" represented actual sales that

would have otherwise been eligible for inclusion in the final database, especially with so many blank deed type fields.<sup>3</sup> However, inclusion of the "deed type culls" was judged to contribute more error than precision, therefore, the records were excluded from the final database.

### **Representativeness of Final Database**

Based on past analysis of the 1994-95 final database, it appears that the exclusion of parcel record groups as described above does not introduce a significant bias to the final database. 1994 housing sales price analysis indicates that the average price of a single family home in Snohomish County was \$161,237. This is 99.5% of the average price of \$162,063 computed by TRW REDI Property Data<sup>4</sup> for single family residences sold in Snohomish County during the same period. However, there did appear to be an understatement of the total number of sales due to the parcel record group exclusions of the 1994-95 database. According to the TRW REDI Property Data report, a total of 9,881 single family residences were sold in 1994. This compares to a total of 8,266 single family homes reported in the Growth Monitoring Report final database for the same year, an understatement of about 16.3%.

Since the 1994-95 database was analyzed, TRW REDI Property Data was acquired by Experian, Inc. (now known as First American Real Estate Solutions) and a different approach to compiling sales data was adopted.<sup>5</sup> As a result, a significant discontinuity emerged between the two data series limiting the meaningfulness of comparisons between the Experian/First American Real Estate Solutions data series and the Growth Monitoring Report database. First American Real Estate Solutions reports on quarterly average sale prices of mortgaged single family homes.<sup>6</sup> From this information a 1998 Snohomish County average sale price of \$174,900 was derived. The average 1998 sale price of single family dwellings reported in the Growth Monitoring Report was \$196,615 (a 12% difference).

The Northwest Multiple Listing Service (NWMLS) reports sales price figures for homes in Snohomish County and can be used for comparison with the Growth Monitoring Report database. The principal difference between the two data sources is that the NWMLS database does not include owner-sold homes. Therefore, the total number of sales reported for 1998 by

---

<sup>3</sup> It may be assumed that the closer the culled group resembles the final database, the smaller is the margin of error resulting from the exclusion of the culled group. Initial analysis of the 4,140 "deed type culls" from 1998 indicated that 86% were single family detached houses, compared to 84% in the final 1998 database. The proportion of condos and townhouses was 6% in the culled group and 12% in the final database. 8±% of records in the culled group were mobile homes compared to only 4% in the 1998 database. In terms of housing unit age, the percentage of sales involving existing units was higher in the culled group, 93%, compared to 76% in the final database. Housing lot size proportions also vary between the two groups. Most notably, 80% of the 1998 database involved lot sizes less than 0.5 acres whereas only 40% of the culled sales were small lot properties (40% of the deed type cull files also had lots sizes listed as 0 or blank).

<sup>4</sup> TRW REDI Property Data, "Mean (Average) Sales Price: Single Family Residences:", Seattle-Everett Real Estate Report, Fall 1995, Volume 46, Number 2, p. 1. The TRW report summarized "single-family market sales" and excluded "foreclosures, sales of partial interest, transfers between related parties, most quit claim deeds, sales to relocation services, etc."

<sup>5</sup> Based on discussions with Bruce Wagner of First American Real Estate Solutions the changes in methodology that occurred under Experian, Inc. are still in place and currently only sale prices of mortgaged transactions are reported as opposed to all sales within the county.

<sup>6</sup> First American Real Estate Solutions (formerly Experian). "Mean Sales Price: Single Family Residences", Central Puget Sound Real Estate Report. Spring 1998, Vol. 49 No.1, p.1; Fall 1998, Vol. 49 No. 2, p.1; Spring 1999, Vol. 50 No. 1, p.1.

NWMLS, 11,393, is lower than the figure indicated in the Growth Monitoring Report of 13,020. 1998 countywide median sales price of single family homes and condos as reported by NWMLS was \$168,950 and median sales price derived from the Growth Monitoring Report database was \$166,000, a difference of 1.8%.<sup>7</sup>

### **Parcel Geocoding**

Following the data refinement process, the home sales database was geocoded in order to provide a geographic basis for housing analysis at the subcounty level. Information regarding city geographic coverages was derived from city levy codes specified in the database's "tax rate area" field. The geographic coding of the unincorporated parcels at the other subcounty levels was accomplished by associating a geographic location with each parcel record and then associating each of the geocoded parcel records with their respective UGA or rural area designation.

Most of the unincorporated parcel geocoding (80%) was accomplished by matching each parcel address with the county's street centerline geographic information system (GIS) file. For the parcels that did not match with the centerline file, an attempt was made to match them with the county's quarter-section GIS file. The few remaining unmatched parcels were finally matched with a GIS section file. All GIS files are part of the county's GIS library. The address matching was performed with ArcView software.<sup>8</sup>

In addition to address matching, the ArcView software was also used to perform a variety of quality control tests on the database geocoding. The accuracy of the address matching was confirmed by comparing each parcel record's township and range with the township and range that resulted from the parcel's geocoding. Any discrepancies were manually corrected. A double check was also made of the accuracy of all geocoded parcels situated near the lines dividing unincorporated UGAs from rural areas. At the conclusion of the geocoding process, each of the 13,020 parcels in the final database were coded according to their respective UGA, rural, unincorporated, or city status.

### **Housing Price Report Quantitative Analysis**

The final step in the housing sales price analysis involved calculating the number and price of housing units sold during 1998. In order to accurately compare sales price differences between jurisdictions and previous years, each housing unit sold was categorized according to 6 housing characteristic variables: housing type, housing lot size, housing unit age, bedroom number, housing unit size in square feet, and housing unit price.<sup>9</sup> Parts I and II of the General Profile section of the housing sales price report contain information regarding the number and median price of housing units sold when each of the respective housing characteristic variables is held

---

<sup>7</sup> Northwest Multiple Listing Service. *1998 Statistical Review and Highlights*. p. 8. According to a representative of NWMLS, mobile homes are not separately tracked and are included in the single family homes and condos sale figures.

<sup>8</sup> ArcView is a commercial product of ESRI.

<sup>9</sup> The housing characteristic category information was taken from the following fields in the parcel records and then broken down into the subcategories arrayed across the horizontal axis of the housing sales price report: land use code, lot acres, year built, total square feet and price. Subcategory information was not available for a few isolated parcels and is identified as "NA" in the price report.

constant. General Profile information is reported for the 5 principal geographic areas noted previously: countywide, UGAs, rural, unincorporated UGAs and cities.

In the Small Lot Profiles section of the housing sales report, sales counts and median prices are isolated more precisely for 12 particular housing types, all situated on lots of ½ acre or less. Included in the 12 profiles are three different prototypes of new and existing housing units broken down into small, medium and large housing unit sizes. The objective of this section is to facilitate standardized price comparisons of houses built on small, urban-type lots. With the Small Lot Housing Profiles it is possible to zero in on price changes or differences between generic housing types, such as starter homes, "move-up" homes, or "trophy" homes. In 1998, the 12 housing unit profiles accounted for 63% of all house sales countywide and 71% of the sales in UGAs.<sup>10</sup> These distributions are similar to those found since 1994.

The Rural Lot Profiles section of the housing report provides sales counts and median prices for 28 standardized housing unit prototypes sold in rural areas of the county and on a countywide basis for comparison. The 28 Rural Lot Housing Profiles are comprised of a mixture of housing unit ages and sizes and are reported for 4 different lot sizes ranging from less than 1 acre to more than 5 acres. 76% of rural sales were accounted for by the 28 rural lot profiles compared to 67% of countywide sales. The distributions are within 5% of all the rural and 2% of all the countywide sales accounted for by the profiles since 1994. The Rural Lot Profiles information is reported only at the rural and countywide geographic levels.

Price information for 1998 home sales was initially analyzed in terms of both average sales price (\$185,737) and median sales price (\$166,000).<sup>11</sup> In 1998, the average countywide sales price exceeded the median countywide sales price by \$19,737. Unusually expensive house sales prices tend to inflate the average sales price above the median sales price. As a result, the average price of homes on the market appears more expensive than the cost of the home priced exactly in the middle of the market. In order to provide the most realistic representation of both the price of housing on the current market and the distribution of housing prices on the market, housing sales data is presented as median sales price values, rather than average values.

Statistical calculation of the housing sale counts and median sale prices was performed by SPSS/PC+ programs.<sup>12</sup> SPSS code for the housing sales price report was written by Snohomish County PDS Demographics staff. Housing sale counts and median sale price values produced by the SPSS analysis were entered into an Excel Spreadsheet by means of a look-up table routine. All other computations in the housing sales price report, such as "% of countywide sales price" or "% change from year earlier", were calculated by statistical formulas written within the spreadsheet.

---

<sup>10</sup> Housing profiles not reported in the Small Lot Housing Profiles include: 0 & 1 bedroom units comprising more than 1,000 SF; 2 & 3 bedroom units comprising less than 1,000 SF; 2 bedroom units comprising more than 1,500 SF; 3 bedroom units comprising less than 1,000 SF; 4 bedroom units comprising less than 1,500 SF.

<sup>11</sup> Average sales price is calculated as the sum of the total housing sale prices divided by the total number of housing sales. The median sales price is calculated as the middle sales price when all sales prices are arranged in order of value. ½ of the sales prices are more expensive than the median sales price and ½ are less expensive.

<sup>12</sup> SPSS (Statistical Package for the Social Sciences) is a commercial product of SPSS Inc.

### **Affordability Analysis**

Information generated in the Housing Sales Price Report was used to generate the Housing Sales Price/Income Ratio & Index and Supply of Affordable Home Owner Housing Sales by Household Income Group spreadsheets. An estimate of 1998 median household income was used in the affordability analysis as well. In past Growth Monitoring reports, income figures were directly obtained from Market Profile Analysis-Consumer and Business Demographic Reports published by Strategic Mapping Inc. MPA published 1998 income data which indicated a decrease in county household income from 1997 to 1998. MPA's proposed decrease in county income contradicts other income data sources and known trends. Therefore, after additional research on the subject, 1998 income was derived using MPA's 1997 income figure (\$46,780) and the percent change in income between 1997 and 1998 indicated by figures developed by the Office of Financial Management (2.1%). This resulted in a 1998 median income estimate of \$47,762.