BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF DIRECTING THE CHIEF OPERATING OFFICER TO SUBMIT THE PERFORMANCE MEASURES REPORT TO THE OREGON DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT	) Resolution No. 03-3262)) Introduced by the 2002 Community) Planning Committee)	

WHEREAS, ORS 197.301(1) requires Metro to adopt performance measures and to report to the Department of Land Conservation and Development on the measures at least every two years; and

WHEREAS, the Regional Framework Plan requires the Metro Council to develop performance measures in consultation with the Metropolitan Policy Advisory Committee ("MPAC"); and

WHEREAS, Title 9 of the Urban Growth Management Functional Plan requires Metro to establish performance measures to monitor implementation of the plan and requires the Council President to assess the measures and recommend any necessary corrective actions to the Council; and

WHEREAS, the first performance measures report has been developed in consultation with the MPAC and the Joint Policy Advisory Committee on Transportation ("JPACT"); and

WHEREAS, by Ordinance No. 03-991A, adopted March 27, 2003, the Council adopted performance measures; and

WHEREAS, by Ordinance No. 02-969B, adopted on December 5, 2002, the Council took corrective actions to improve performance under the Functional Plan; now, therefore,

BE IT RESOLVED:

The Chief Operating Officer shall:

(1) Submit the Performance Measures Report, with the performance measures adopted by the Metro Council in Ordinance No. 03-991A, to the Oregon Department of Land Conservation and Development as soon as practical, in compliance with ORS 197.301(1);

(2) Prepare for Council consideration appropriate amendments to the Regional Framework Plan to incorporate the 2040 Fundamentals, as set forth in Exhibit A, attached and incorporated into this resolution;

(3) Prepare for Council consideration a prioritization of performance measures (indicators) and recommendations, if any, for changes to or additions or deletions of measures;

(4) Prepare for Council consideration a set of "benchmarks" or targets against which changes recorded through performance measurement are evaluated; and

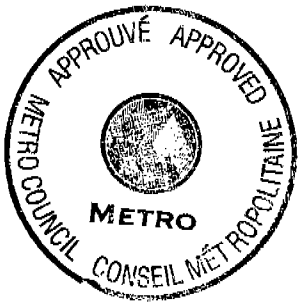
(5) Present items (2) through (4) to MPAC and JPACT for recommendations on those items to the Council.

ADOPTED by the Metro Council this 27th day of March, 2003.

David Bragdon, Council President

Approved as to Form:

Daniel B. Cooper, Metro Attorney



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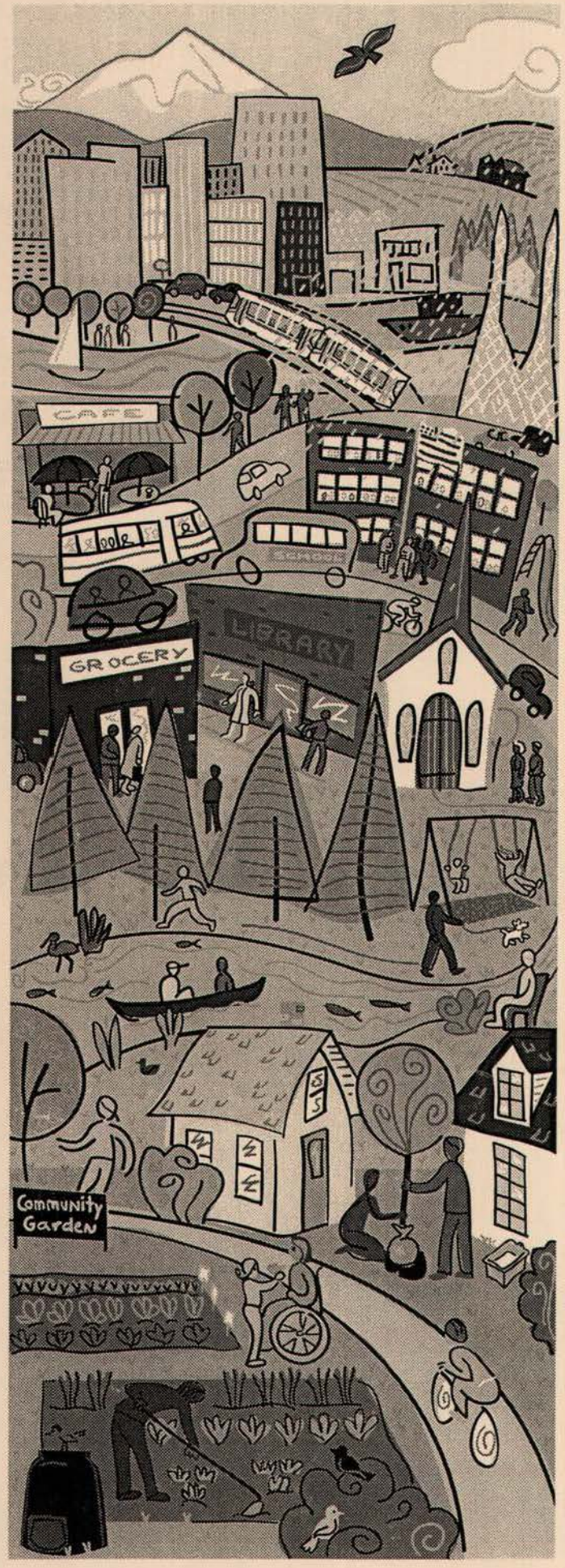

Exhibit A to Ordinance No. 03-991A

Performance Measures Report

Complete results

An evaluation of 2040 growth management policies and implementation

Planning Department
March 2003

METRO

PEOPLE PLACES
OPEN SPACES

Metro

People places • open spaces

Metro serves 1.3 million people who live in Clackamas, Multnomah and Washington counties and the 24 cities in the Portland metropolitan area. The regional government provides transportation and land-use planning services and oversees regional garbage disposal and recycling and waste reduction programs.

Metro manages regional parks and greenspaces and owns the Oregon Zoo and the Oregon Convention Center. It also oversees the operation of the Portland Center for the Performing Arts and the Portland Metropolitan Exposition (Expo) Center.

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Carl Hosticka, District 3
Susan McLain, District 4
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Metro's web site: **www.metro-region.org**

For more information about this report, call Metro's planning hotline at (503) 797-1888 option 5.

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ACKNOWLEDGEMENT

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If you don't measure results, you can't tell success from failure.
If you can't see success, you can't reward it.
If you can't see failure, you can't correct it.
Osborne and Gaebler, Reinventing Government, 1992

TABLE OF CONTENTS

Descriptions of Performance Measures Reports

Complete Results

The Complete Results report contains a thorough explanation of the process that Metro followed to complete this first report. The report provides a context for Metro's performance measures work and contains information on Metro and State performance measure requirements in addition to detailing the process for identifying and prioritizing the performance indicators, and collecting data. Most importantly, the Complete Results includes an analysis of the data collected for each performance indicator and explains the regional policies the indicators were intended to measure.

Summary of Results

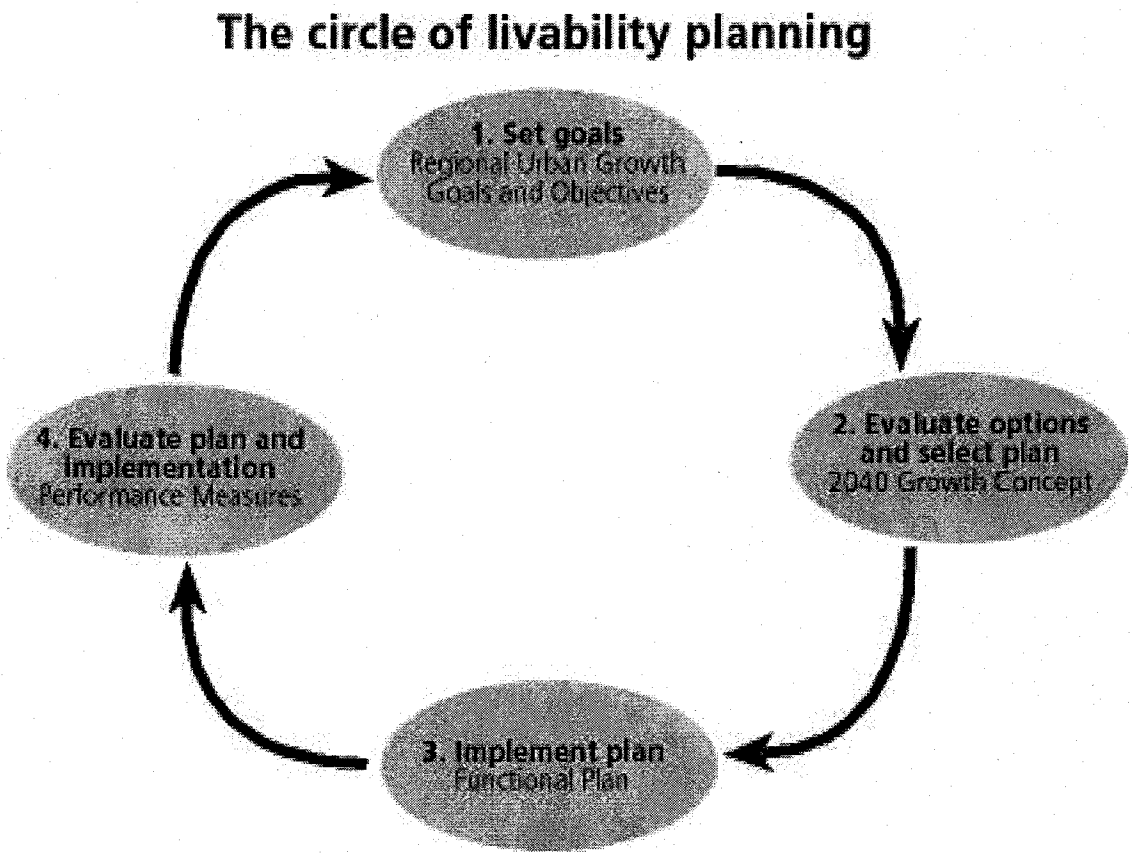
The Summary of Results report presents a sampling of the most noteworthy indicators measured in the Complete Results and includes where possible, comparison data collected from other parts of the country, and comparison of the results with Metro targets or goals. The Summary of Results attempts to provide a policy context for interpreting the results of groups of indicators. Additionally, the Summary of Results contains basic statistics for the Metro region that are not found in the Complete Results.

The Portland Region: How are we doing? Highlights of the region's land use and transportation performance measures

The How are we doing? report is a citizen-friendly overview of the key findings generated in the analysis of the region's growth management policies. The information presented in this "snapshot" format is derived from the content of the Complete Results and Summary of Results reports. Some comparison data are included in this report.

PREFACE

For the first time, the region's growth management policies are being explicitly evaluated to determine the degree to which these policies and other issues of regional concern are being achieved. This task completes a powerful systems management approach of setting goals, completing a plan, implementing the plan and evaluating results.



This Performance Measures report attempts to answer the question: "How are we doing?"

With the development of the Regional Urban Growth Goals and Objectives (RUGGOs) and the adoption of the 2040 Growth Concept, including the 2040 Growth Concept Map, a clear set of regional goals were set. Policies for managing those regional goals were brought together with the adoption of the Urban Growth Management Functional Plan (Functional Plan, 1996) and the Regional Framework Plan (1997).

Title 9 of the Functional Plan established eight performance measures for monitoring the implementation and outcome of the policies contained in the plan, and are in Metro Code sections 3.07.910 and 3.07.920. Based upon recommendations of the Metro Policy Advisory Committee (MPAC), the Metro Council adopted Resolution No. 99-2859 (November 18, 1999) directing staff to draft an ordinance to add new measures and to revise the schedule of reporting progress to the Metro Council. Ordinance No. 03-991 reflects the changes directed by Resolution No. 99-2859.

Oregon State Law (ORS 197.301) also established nine performance measures for Metro to compile and report to the Department of Land Conservation and Development ..."at least every two years" (see Appendix A1 for the required measures). Metro must also comply with OAR 197.296, which requires Metro to estimate the capacity of the remaining lands within the existing urban growth boundary and to compare this with a 20-year forecast of new jobs and housing to determine whether to increase the capacity of the urban growth boundary." Metro's Periodic Review program used a variety of data and assumptions to estimate the remaining capacity within the current urban growth boundary to accommodate additional jobs and housing and compare it with the forecast need to satisfy this State requirement.

OAR 197.296 further requires that Metro consider "new measures that demonstrably increase the likelihood that residential development will occur at densities sufficient to accommodate housing needs for the next 20 years without expansion of the urban growth boundary." The Metro Council adopted three new measures when it considered Periodic Review work elements in late 2002 (see Appendix A3 for the new measures). Future urban growth boundary (UGB) periodic review analyses completed for the urban growth boundary capacity/forecast comparison would include and take account these new measures.

This report is intended to address the State requirements as well as the self-imposed Metro Code requirements and additional measures in order to more fully explore how well the region is, or is not doing with regard to its stated goals and objectives. The process of identifying indicators for the measures follows.

In 2000, the Metro Council Community Planning Committee reviewed the list of required state and Metro performance measures and came to the conclusion that these measures alone were too narrow in scope to adequately evaluate the 2040 Growth Concept. See "What is the 2040 Growth Concept" at the end of this section.

Accordingly, adopted regional policies evaluated in this report were synthesized into the following eight fundamental values.

- ***Encourage the efficient use of land*** *within the UGB by focusing on development of 2040 mixed use centers and corridors*
- ***Protect and restore the natural environment*** *through actions such as protecting and restoring streams and wetlands, improving surface and ground water quality, and reducing air emissions*
- ***Provide a balanced transportation system*** *including safe, attractive facilities for bicycling, walking and transit as well as for motor vehicles and freight*
- ***Maintain separation between the Metro urban growth boundary and neighboring cities*** *by working actively with these cities and their respective counties*
- ***Enable communities inside the Metro urban growth boundary to preserve their physical sense of place*** *by using, among other tools, greenways, natural areas, and built environment elements*
- ***Ensure availability of diverse housing options*** *for all residents by providing a mix of housing types as well as affordable homes in every jurisdiction*
- ***Create a vibrant place to live and work*** *by providing sufficient and accessible parks and natural areas, improving access to community resources such as schools, community centers*

and libraries as well as by balancing the distribution of high quality jobs throughout the region, and providing attractive facilities for cultural and artistic performances and supporting arts and cultural organizations

- ***Encourage a strong local economy** by providing an orderly and efficient use of land, balancing economic growth around the region and supporting high-quality education.*

In the rest of this report, the 2040 Fundamentals are numbered as well as the related indicators, only for the purpose of organizing and tracking performance indicators.

With the eight fundamentals as an organizational guide, several groups were involved in the development of the project work program, the framework used to identify additional performance measures (or indicators), and the criteria used to prioritize the indicators. These groups included members of the Metro Technical Advisory Committee (MTAC), Transportation Policy Alternatives Committee (TPAC), Greenspaces Technical Advisory Committee (GTAC), Water Resources Policy Advisory Committee (WRPAC), Metro Committee for Citizen Involvement (MCCI) and the Affordable Housing Technical Advisory Committee (HTAC).

The Metro Council Community Planning Committee directed staff to prepare the performance measures report as a livability report. The committee also instructed staff to address the following:

a) Progress of the 2040 Growth Concept Plan
b) Outputs (the amount of effort that has been made) and outcomes (how the region has improved)
c) Existing conditions
d) Areas where the region and local governments have met or exceeded goals
e) Public survey to augment the quantitative data.

Performance indicators were identified for each 2040 fundamental by Metro staff and MTAC and TPAC performance measures subcommittees. A total of 138 indicators were identified initially and prioritization of indicators and data availability reduced the number of indicators measured to 80 (58 percent) in this phase of the performance measures project. The following criteria were used in the prioritization:

1. *Is the indicator required by the state?*
2. *Does the indicator measure the 2040 fundamental values directly or indirectly?*
3. *Can the results of the indicator be used to set targets/benchmarks?*
4. *Does the indicator address issues within Metro's authority?*
5. *What is the difficulty of data collection?*
6. *How reliable is the available data?*

The remaining 58 indicators (42 percent) would be considered for measurement in the future (see Appendix C).

A table like the one that follows was used to establish the relationship between adopted policies and specific performance indicators.

Policy, Standards and Performance Indicators

(A) Implemented Metro Policies (UGMFP, RTP, etc.)	(B) Policy Standards For Local Govt. Compliance	(C) Local Government Compliance Status	(D) Output[1] Indicators (Effort) of Implemented Policies	(E) Outcome[2] Indicators (Effect) of Implemented Policies
This column includes adopted Metro policies relevant to each 2040 fundamental	This column includes the standards that Metro has adopted for local governments	This column indicates how local government have progressed toward adopting Metro standards	This column includes indicators that measure the effort in converting resources into a product. They measure activity, but not necessarily public satisfaction. For example: Miles of transportation improvements built; land regulated by Title 3 (wetlands, floodplains, riparian areas, and steep slopes)	This column includes indicators that focus on public satisfaction and more directly measure Metro's progress in meeting stated goals and objectives. For example: a) Levels of congestion; b) Percent of floodplain area converted to use since the implementation of Title 3

In addition, a *Data Collection Table* (see Appendix B) was used to define and track for each indicator the data components, type of data (actual or forecast/synthetic data), data points (years data is available), and data sources. The *Data Collection Table* made it possible to track and document the difficulties experienced during the data correction process.

The performance measures report analyzes trends and focuses on outputs (how much effort has been made). Outcomes (how the region has improved) were also addressed, but were based on a very clear and strong relationship between an adopted policy and an outcome. Data limitations were also identified when necessary.

The report does not set benchmarks or targets that must be realized to meet regional planning objectives. The report attempts to avoid editorial commentary and to avoid suggestions of which policies may need revamping.

Quantitative information serves as the foundation of the report. However, qualitative excerpts from the *Survey of Elected Officials and Planning* Commissioners are also included and are noted with a checkmark (✓). The goal of the survey was to get public officials' input on the assessment of the qualities of the region and to identify present and future growth management challenges. The 22-question survey was mailed directly to the Metro region's 330 elected officials and planning commissioners. The total number of completed survey received was 93, representing a 28 percent response rate.

[1] Output indicators measure an agency's effort in converting some resources into some type of product. They measure agency activity or performance, but stop short of identifying results as viewed by intended beneficiaries.
[2] Outcome indicators focus on customer satisfaction (beneficiaries of the agency's service). They measure an agency's success in meeting stated goals and objectives.

Report Organization

This report is organized by indicators grouped within the eight 2040 fundamental values. Each of the eight data analysis sections of this report begins with the title of the 2040 fundamental value and a list of questions used to identify indicators for the 2040 fundamental value. Following the questions is a complete list of indicators the report analyzes. The indicators required by Title 9 of the Metro Functional Plan and/or Oregon State Law (ORS 197.301) are identified as "required."

The indicators measured under each fundamental value are grouped according to theme. The title of each of these themes appears above a summary box that gives an abbreviated description of the data collected for each of the indicators that falls within this theme. Indicators are numbered according to the 2040 fundamental value they measure. For example, Indicator 1.2a was identified to measure 2040 fundamental value 1 and Indicator 7.1 was identified to measure fundamental value 7. The bullets that accompany each indicator within the summary box are abbreviated results of the analysis of the data collected for each indicator.

Also within the summary box is an abbreviated description of the Metro policies that relate to the theme and this grouping of indicators under the label "Policy." A detailed analysis of the policy related to each group of indicators as well as a more in-depth analysis of each indicator is available on the pages that follow each summary box.

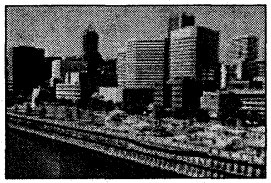
An Important Note About Findings/Conclusions

Although this reports compiles and analyzes a large amount of data, it may be premature to use this information to reach many clear conclusions. As the reader will note, data collected for the performance indicators were in many cases only available for one and two-year periods of time. The reader should keep in mind that this performance measures report represents Metro's initial attempt at evaluating its own policies. Additional performance measures will be conducted as data becomes available and these efforts will provide a greater degree of clarity in analyzing regional policies.

What is the 2040 Growth concept?

The Metro 2040 Growth Concept and Map were adopted in December 1995 and define the preferred form of regional growth and development that the Portland metropolitan region will follow for a period of up to 50 years. This concept addresses the long-term growth management of the region and includes a general approach to building better communities for people who live here today and will live here in the future. The Growth Concept is based on containing growth within a carefully managed UGB, maintaining and enhancing the multi-modal transportation system that ensures mobility of people and goods throughout the region, and preserving access to nature.

The 2040 Growth Concept Map provides a visual reference to the urban form described in the text of the 2040 Growth Concept. There are ten 2040 design types that fall into main categories of mixed use areas, employment and industrial areas, neighborhoods and corridors (which support both housing and employment). The 2040 Growth Concept is based on mixed use areas supporting higher densities of employment and housing closely linked to multi-modal transportation systems. These mixed use areas are intended to be areas of compact development that offer diverse retail opportunities and numerous recreational and cultural activities all within walking distance of adjacent neighborhoods. Mixed use areas include the Central City, Regional Centers, Town Centers, Main Streets and Station Communities. The circles that represent the mixed use areas on the 2040 Growth Concept Map are intended to show a general location and scale. Jurisdictions in the region define the actual boundary and characteristics of their mixed use areas, and other 2040 Design Types.



Central city

Downtown Portland serves as the hub of business and cultural activity in the region. It has the most intensive form of development for both housing and employment, with high-rise development common in the central business district. Downtown Portland will continue to serve as the finance and commerce, government, retail, tourism, arts and entertainment center for the region.

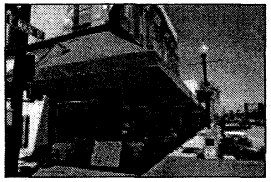
It is intended to serve the entire region 1 million people and grow in employment share commensurate with total regional employment growth.

Recommended average density for housing is 250 persons per acre.

Regional centers

As centers of commerce and local government services serving a market area of hundreds of thousands of people, regional centers become the focus of transit and highway improvements. They are characterized by two- to four- story compact employment and housing development served by high-quality transit. In the growth concept, there are seven regional centers – Gateway and Gresham serve Multnomah County; Hillsboro, Beaverton and Washington Square serve Washington County; Oregon City and Clackamas Town Center serve Clackamas County. Effectively, the eighth regional center is Vancouver serving southwest Washington.

Recommended average density for housing is 60 persons per acre.



Town centers

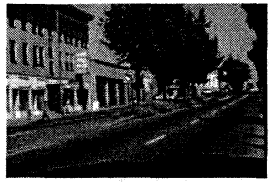
Town centers provide localized services to tens of thousands of people within a two- to three-mile radius. Examples include small city centers such as Lake Oswego, Tualatin, West Linn, Forest Grove and Milwaukie and large neighborhood centers such as Hillsdale, St. Johns, Cedar Mill and Aloha. One- to three-story buildings for employment and housing are characteristic. Town centers have a strong sense of community identity and are well served or planned to be well served by transit.

Recommended average density for housing is 40 persons per acre.

Station communities

Station communities are areas of development centered around a light-rail or high-capacity-transit station that feature a variety of shops, services and high density housing that will remain accessible to bicyclists, pedestrians and transit users as well as cars.

Recommended average density for housing is 45 persons per acre.



Main streets

Similar to town centers, main streets have a traditional commercial identity but are on a smaller scale with a strong sense of the immediate neighborhood. Examples include Southeast Hawthorne in Portland, the Lake Grove area in Lake Oswego and the main street in Cornelius. Main streets feature good access to transit.

Recommended average density for housing is 39 persons per acre.

Corridors

Corridors are major streets that serve as key transportation routes for people and goods. Examples of corridors include the Tualatin Valley Highway and 185th Avenue in Washington County, Powell Boulevard in Portland and Gresham and McLoughlin Boulevard in Clackamas County. Corridors are served extensively by transit.

Recommended average density for housing is 250 persons per acre.

Employment Areas

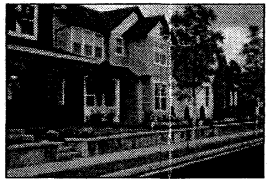
An area of mixed employment that can include various types of manufacturing, distribution and warehousing uses as well as commercial and retail development and some residential. However, the retail uses primarily serve the needs of the people working or living in the immediate employment area. Retail uses more than 60,000 square feet in size are generally not permitted.

Recommended average density for housing is 20 persons per acre.

Industrial areas

Serving as hubs for regional commerce, industrial land and freight facilities for truck, marine, air and rail cargo provide a place for jobs and the ability to generate and move goods in and out of the region. Access to these areas is centered on rail, the regional freeway system and key roadway connections. Keeping these connections strong is critical to maintaining a healthy regional economy. Retail use over 60,000 square feet is prohibited.

Recommended average density is 9 employees persons per acre.



Neighborhoods

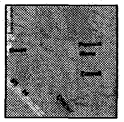
Under the 2040 Growth Concept, most existing neighborhoods will remain largely the same. Some infill or redevelopment is expected so that vacant land or underused buildings could be put to better use. New neighborhoods are likely to have an emphasis on smaller single-family lots, mixed uses and a mix of housing types including row houses and accessory dwelling units. The growth concept distinguishes between slightly more compact inner neighborhoods, and outer neighborhoods, with slightly larger lots and fewer street connections.

Recommended average density for housing is 14 persons per acre.

Neighboring cities/green corridors

Communities such as Sandy, Canby, Newberg and North Plains have a significant number of residents who work or shop in the metropolitan area. Cooperation between Metro and these communities is critical to address common transportation and land-use issues. Neighboring cities are connected to the metro area by green corridor transportation routes intended to maintain a clear separation between Metro and these neighboring cities.

Rural reserves/open spaces



An important component of the growth concept is the availability and designation of lands that will remain undeveloped, both inside and outside the urban growth boundary. Rural reserves are lands outside the UGB that provide a visual and physical separation between urban areas and farm and forest lands intended for future urban growth boundary expansion. Open spaces inside the urban growth boundary include parks, stream and trail corridors, wetlands and floodplains for active and passive recreation, and fish and wild life habitat.

Analysis by Fundamental

Fundamental 1

Encourage efficient use of land within the UGB by focusing on development of 2040 mixed use centers and corridors.

To evaluate this fundamental, the performance indicators address the following related questions.

a) How is land being used inside the UGB and in mixed use centers, and how mixed are the centers?
b) Which uses are occupying land in mixed use centers and are these uses diverse?
c) How convenient are the services in the mixed use centers?
d) How much of the region's growth is occurring in the mixed use centers?
e) How effective are the policies accommodating growth?

INDICATORS MEASURED

Efficiency of Land Use

1.1d: Population and dwelling unit density.

1.2a: Consumption of buildable land by residential sector. **(Required)**

1.2b: Consumption of buildable land by employment sector. **(Required)**

1.2c: New housing units (SFR/MFR) permitted through redevelopment and infill. **(Required)**

1.2f: Gross consumption of vacant land by population growth. **(Required)**

Mixed use opportunity for Employment and Housing

1.2e: Mixed use index map for data comparison of 2000 vs. 2022 forecast.

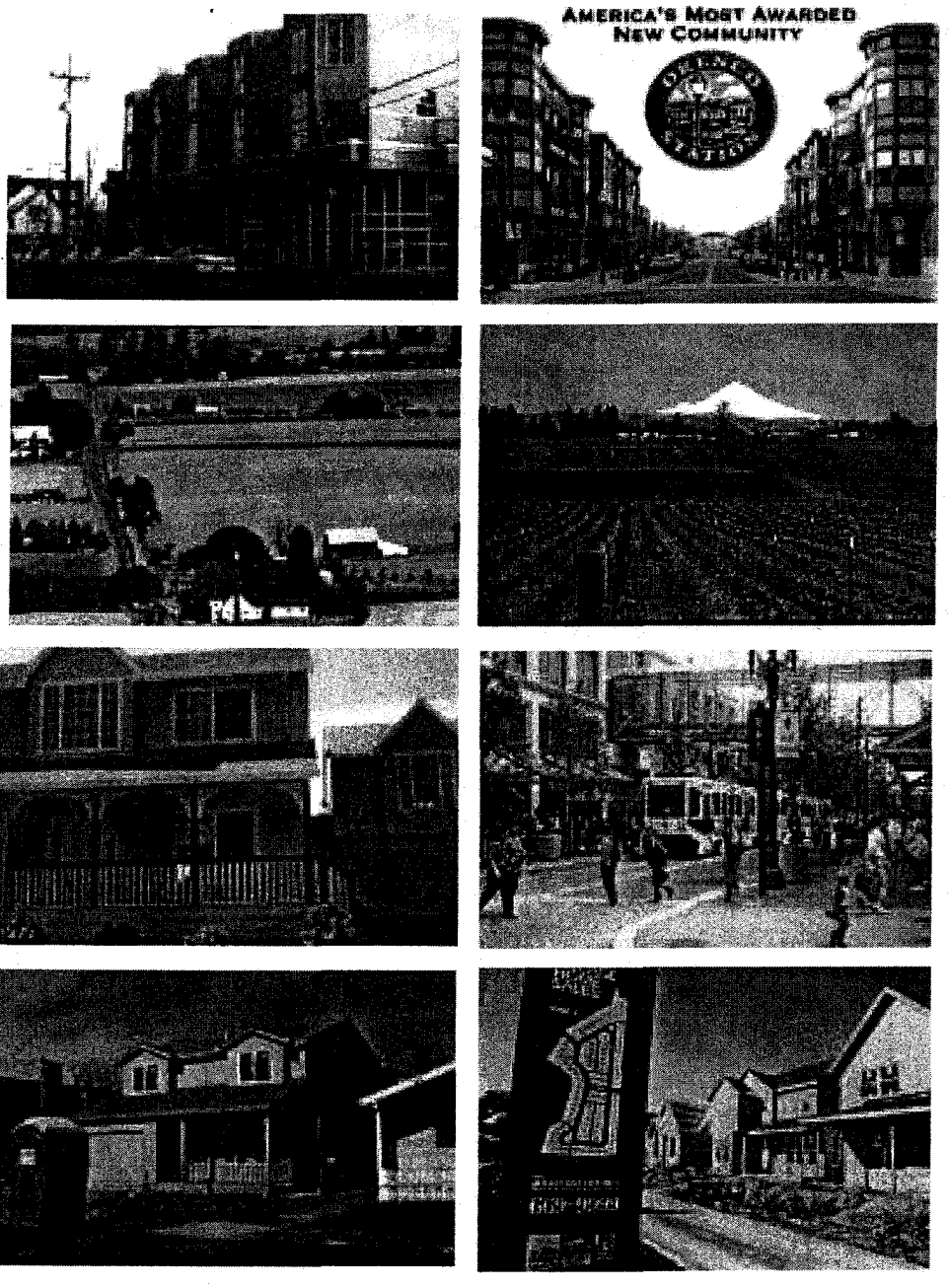
Population and Employment Accommodated in the UGB and 2040 Design Type Areas

1.1a: Mixed use and Corridor capture rate – the proportion of the population, employment and household growth inside the Metro UGB that is located in mixed use areas and corridors.

1.1b: Capture rate inside the Metro UGB

1.1c: Employment in mixed use centers. **(Required)**

Encouraging efficient use of land



Efficiency of Land Use

Purpose

To measure land consumption patterns as a way to assess the region's land use efficiency.

Summary

Policy

The progress of the region, including local governments within the Metro region, toward maximizing the efficiency of land consumed for residential and commercial uses is a primary indicator for judging whether the region is achieving a principal goal of the 2040 Growth Concept – compact urban form. This goal is to be achieved through a combination of approaches. Some of these approaches include using less land per home in new, vacant land development, through the redevelopment of existing structures, and through the development of vacant and underdeveloped parcels within built up areas, or "infill."

Indicators

1.1d: Population and dwelling unit density by census tract.
Data years: 1990 and 2000. Source: Metro Data Resource Center and US Census.

- *Some established single family neighborhoods experienced slight increases or modest decreases in population and dwelling units per acre between 1990 and 2000, while newer, suburban neighborhoods experienced more substantial increases.*

1.2a Consumption of buildable land by residential sector in the Metro UGB. (Required – Metro and State)
Data years: 1999 and 2000. Source: Metro Data Resource Center and U.S. Census.

- *From 1999 to 2000, there was an increase in the number of multi-family residential (MFR) units developed per net acre from 16.4 to 21.6 (32 percent increase), and number of single family residential (SFR) units developed per net acre from 5.9 to 6.2 (5 percent increase). As the data also show during the same period the amount of land consumed by the residential sector decreased from 1,468 acres in 1999 to 1,087 acres in 2000. The increases in units developed per acre represent progress in efficiency of residential land use and progress toward achieving the 2017 target capacity for housing.*

1.2b Consumption of buildable land by employment in industrial and non-industrial areas. Required – Metro and State)
Data years: 1998-2000. Source: Metro.

- *During the 1998 to 2000 period, non-industrial or commercial employment in the UGB increased by 1.5 percent or 6,406 jobs (from 441,356 to 447,762) while land consumed in the areas zoned non-industrial increased by 12.7percent or 1,707 acres (from 13,459 to 15,166 acres). Industrial employment increased by 8 percent or 25,193 jobs (from 310,738 to 335,931), while land consumed in the areas zoned industrial decreased by approximately 1 percent or 219 acres (from 24,742 to 24,523 acres). The decrease in land consumed during this period takes into account lands that were developed or removed and/or added due to rezoning.*
- *Non-industrial or commercial jobs accommodated per acre decreased from 32.8 in 1998 to 29.5 in 2000, while industrial jobs accommodated per acre increased from 12.6 in 1998 to 13.7 in 2000.*

1.2c New housing units permitted through redevelopment and infill – Refill Rate. (Required – Metro)
Data years: 1995-1996 and 1997-1998. Source: Metro Data Resource Center Refill Study (1999).

- *In the period for which data is available (1995-1996 and 1997-1998), refill (or redevelopment and infill) activity in the region accounted for about 26 percent of all residential development.*

1.2.f Gross consumption of vacant land as compared to population growth.
Data years: 1999 and 2000. Source: Metro Data Resource Center.

- *A comparison of the vacant residential land consumption pattern and the UGB population in 1999 and 2000 shows that the region accommodated between 15 persons and 30 persons per gross acre in this period. The increase in population in the 1999-2000 period by 32,970 (2.6 percent) was accompanied by a decrease of 627 acres (30 percent) of land consumed over the 1999 level. (Note: Consumed land is vacant land that has been converted to an urban use.)*
- *If one assumes that the remaining residential land supply will be consumed at the 1999 and 2000 rates (15 and 30 persons per gross acre), the region would consume this supply in 12 to 15 years.*

Survey Results of Local Officials and Planning Commissioners

✓ *How land is used*: 42 percent of the respondents were satisfied with the way land is being used and 5 percent rated the way land is used as excellent. 14 percent were unsatisfied with the way land is being used, while 8 percent rated the way land is being used as poor. 31 percent were neutral on this issue.
✓ *Growth Accommodation*: 42 percent of the respondents thought that their communities can accommodate more growth, while 24 percent said their communities would not be able to accommodate more growth.
✓ *Type of growth that can be accommodated by local jurisdictions*: respondents mentioned mixed use development, commercial development, industrial development, housing (also along transit corridors), redevelopment and infill, and industrial sector. Growth could be accommodated within these jurisdictions.

Policy Rationale

The Metro Council originally approved the RUGGOs in 1991and in 1998 these goals were made a part of the Regional Framework Plan. The RUGGOs established a policy framework for managing the growth of the Metro region that is based on maintaining a compact urban form inside a carefully managed UGB. This greater efficiency of land use was expected to:

- allow for a more cost-effective provision of public facilities and services
- limit the loss of valuable farmland and natural resources located outside the UGB
- limit vehicle miles traveled (VMT) thereby reducing air pollution and the need for highway expansion
- encourage the development and redevelopment of established urban areas.

The 2040 Growth Concept refined and detailed how the goals for efficient land use contained in the RUGGOs could be achieved. The Growth Concept states that increased efficiency of land use would be achieved through encouraging more compact new development on vacant land, especially in centers, and through infill development and redevelopment where appropriate. The 2040 Growth Concept also stresses the importance of protecting the character of existing single family neighborhoods while allowing for smaller lot sizes.

Higher densities and increases in residential and commercial development intensity are to be achieved in 2040 Design Type areas that include the central city, regional centers, town centers, main streets, station communities and corridors.

These policies were developed with significant input and review by the region's local government representatives on the Metro Policy Advisory Committee (MPAC). Citizen input was solicited through a series of surveys and through other public outreach efforts that continue today. Through these surveys and public forums, the residents of the region have continually expressed support for protecting

valuable farmland and natural resources, acknowledging that the means to achieve this goal includes increasing efficiencies of land use and housing density where appropriate inside the UGB.

Adopted Targets

In order to provide a consistent, regionwide approach to implementing the Regional Framework Plan, the Metro Council adopted the Functional Plan in 1996. The Functional Plan contains 2040-related recommendations and requirements for cities and counties.

Title 1 of the Functional Plan requires that local governments in the Metro region take a number of steps to maximize the efficient use of land. Table 3.07 – 1 of the Functional Plan sets target capacities for housing and employment for jurisdictions. Each local government was required to conduct a capacity analysis to demonstrate how the targets would be met. Target capacity means that local governments are required to have capacity in their zoning code or amend their zoning code to achieve the targets set in Table 3.07-1 of the Functional Plan.

Title 1 also requires that local jurisdictions adopt a minimum density standard to use urban land more efficiently. Title 1 allows local governments flexibility on how to meet their target capacities but requires that they adopt the following provisions:

a) Local governments are required to adopt minimum density standards for residential zones
b) Local governments can not prohibit partitioning or subdividing of land where existing urban lots are two or more times that of the minimum lot size and
c) Local governments can not prohibit construction of an accessory dwelling unit within any detached single family residential dwelling.

Redevelopment of existing structures and development of vacant parcels in built areas or "infill" were identified in the RUGGOs, the 2040 Growth Concept, and the Regional Framework Plan as methods for maximizing efficiency of land use. Redevelopment and infill, referred to as "refill," within the UGB increases the capacity of residential land, complements other strategies contained within the 2040 Growth Concept, and moves the region toward a more compact urban form. The rate at which refill occurs within the UGB is an important measure of whether the goal of a more compact urban form is being met. The Functional Plan does not contain an explicit target of the amount of refill that must occur. However, the capacity analysis contained in the 1997 Urban Growth Report assumed a refill rate of 28.5 percent for the 20-year planning period.

The standards described above were developed for the purpose of using land more efficiently and helping to achieve the target capacity for housing and employment. Specific and uniform accounting procedures were not developed to track how land use standards adopted by local jurisdictions are achieving target capacities for housing and/or employment.

Compliance Summary

As of December 5, 2002, all but three jurisdictions have adopted minimum density standards and maps of design types. All but one jurisdiction has adopted partitioning standards and just two governments have yet to adopt regulations allowing accessory dwelling units. Only one government in the Metro region has yet to complete a capacity analysis.

Most jurisdictions in the region found it necessary to increase their capacity to some degree in order to meet Functional Plan targets. For some jurisdictions, even extensive efforts to increase capacity did not result in meeting the target capacities set out in Table 3.07-1.

During the initial development of Functional Plan target capacities a 5,000-acre expansion of the urban growth boundary was assumed. Through discussions at the Metro Technical Advisory Committee and the Metro Policy Advisory Committee, it was determined that a no-expansion position would be taken and the targets were adjusted accordingly. In 1998 the Metro Council expanded the urban growth boundary approximately 3,000 acres. With the combination of the reported capacities of the jurisdictions and the capacity included in the 3,000 additional acres, the region as a whole met and exceeded the capacity targets.

The target capacities of Table 3.07-01 have been replaced with "zoned capacities" for each jurisdiction based on the capacities reported through efforts to comply with the requirements of the Functional Plan. Amendments to the text of Title 1 include a requirement that any reduction in capacity be balanced with an increase in capacity. A revised Table 3.07-1 (below) had a dwelling unit capacity target of 243,995 and the reported capacity is 246,053 dwelling units. The employment capacity target was 499,218 and the reported employment capacity is 516,873 jobs.

Table 3.07-1
Zoned Capacity for Housing and Employment Units – Year 1994 to 2017
Section 3.07.120(A)(1)(b)

City or County	Dwelling Unit Capacity	Job Capacity
Beaverton	13, 635	21,368
Cornelius	1,285	3,054
Durham	243	522
Fairview	2,929	7,063
Forest Grove	3,054	5,943
Gladstone	880	1,569
Gresham[3]	20,020	27,679
Happy Valley[4]	5,705	1,418
Hillsboro[5]	16,106	59,566
Johnson City	38	82
King City[6]	461	470
Lake Oswego	4,049	13,268
Maywood Park	12	5
Milwaukie	3,188	3,650
Oregon City	9,750	8,298
Portland[3]	72,136	209,215
Rivergrove	20	0
Sherwood	5,216	9,518
Tigard	6,308	17,801
Troutdale	3,260	7,222
Tualatin[7]	4,054	12,301
West Linn	3,732	1,935
Wilsonville[2]	4,425	15,030
Wood Village	458	1,074
Clackamas County[1,3]	13,340	31,901
Multnomah County[8]	0	0
Washington County[1]	51,649	55,921
Regional Total	**246,053**	**516,873**

[1]Standards apply to the urban unincorporated portion of the county only.
[2] Wilsonville has not completed its capacity analysis (as of October 2002), 1996 Title 1 data used.
[3]Includes capacity for Pleasant Valley Concept Plan, former Urban Reserve Nos. 4 and 5.
[4]Includes capacity for former Urban Reserve Nos. 14 and 15.
[5]Includes capacity for former Urban Reserve No. 55.
[6]Includes capacity for former Urban Reserve No. 47.
[7]Includes capacity for former Urban Reserve No. 43.
[8]Capacity for unincorporated Multnomah County is included in the capacities of the Cities of Gresham, Portland and Troutdale.

Data Analysis
The following indicators were used to assess the region's progress toward achieving a more compact urban form and more efficient use of land.

Indicator 1.1d: Population and dwelling unit density by census tract.
Data years: 1990 and 2000. Source: Metro Data Resource Center and US Census.

Finding:

- *Most established built out single family neighborhoods experienced slight increases or modest decreases in population and dwelling units per acre between 1990 and 2000, while newer, suburban neighborhoods, with vacant buildable land experienced more substantial increases.*

This indicator measures changes in the density of population and single family dwelling units across the region. When measuring changes in density, it is important to distinguish between older established neighborhoods that were in existence prior to the adoption of the Functional Plan (1996) and newer, developing neighborhoods. Older, established neighborhoods experienced modest increases in the number of new dwelling units and new population as a result of infill and redevelopment and/or accessory dwelling units. However, more significant increases were experienced in developing and newer neighborhoods that have space for new development.

Population and dwelling unit data was collected for persons per acre and single family dwelling units per acre by census tract inside the Metro UGB (see Appendix E.3). Some census tracts that represent the broad categories of inner and outer neighborhoods that are generally found in the Metro area were identified for the purpose of showing the extent of changes in density in these neighborhoods.

The 13 areas identified for this abbreviated analysis are included in Table 1.1d(1) and Table 1.1d(2). Between 1990 and 2000, two established neighborhoods (Hawthorne and Irvington) experienced a 4 percent decrease in persons per acre and as much as 2 percent increase in single family dwelling units per acre. These changes reflect decreases in average household size while a few new units, perhaps accessory dwellings, were added to these established and mostly built-out neighborhoods. Persons per acre in the census tract in newer neighborhoods in Hillsboro and Sherwood increased 395 percent and 329 percent, respectively, while single family dwelling unit per acre in these two neighborhoods increased 71 percent and 167 percent. These increases reflect the construction of new homes on vacant lands.

Table 1.1d(1): Change in Neighborhoods in Persons Per Acre

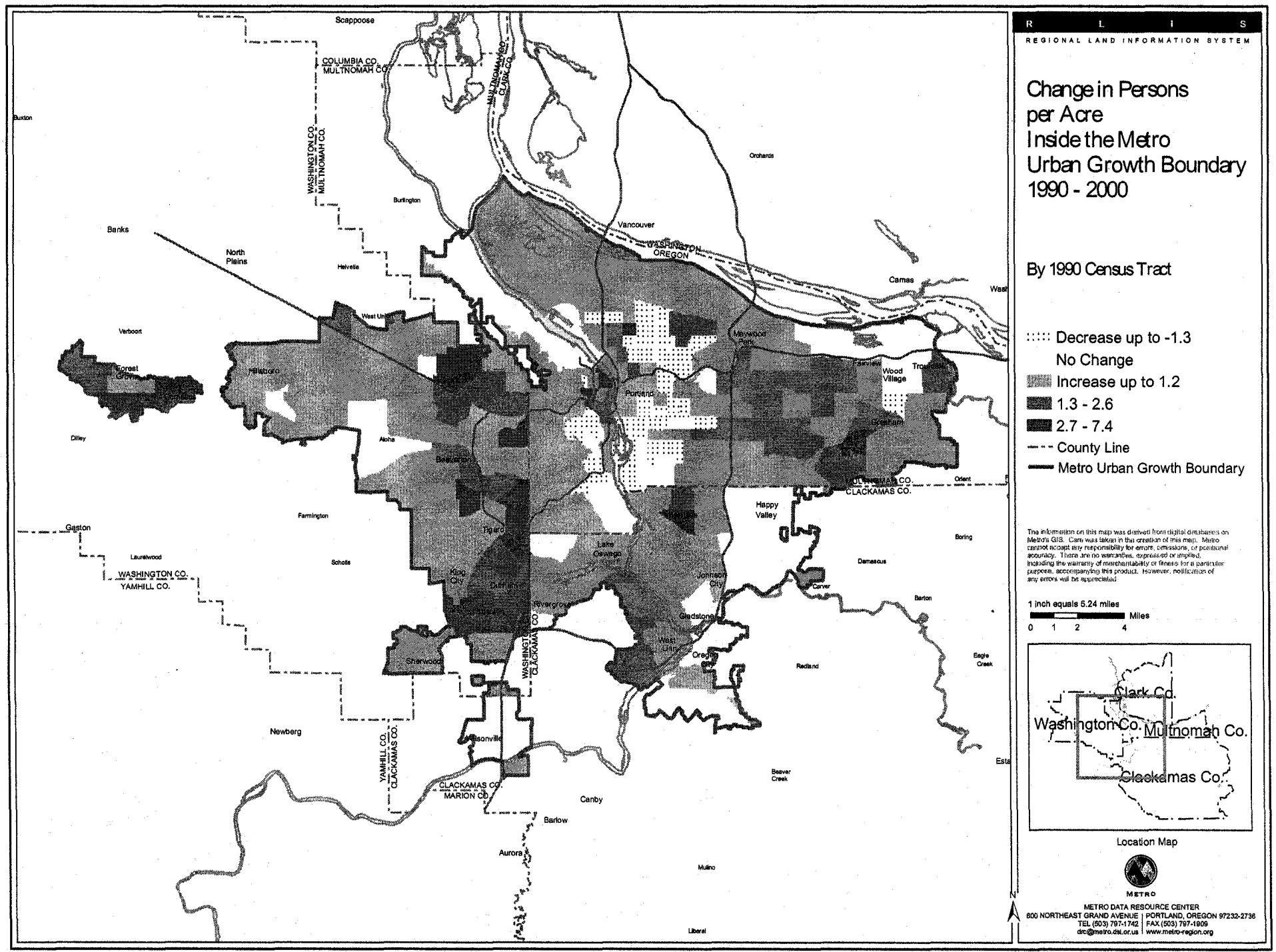
Neighborhood or Locale (and Census tract #)	Persons per Acre 1990	Persons per Acre 2000	% Change 1990-2000
Beaverton (312)	10.4	11.7	13%
Gresham (99.01, 100)	5.8	7.5	29%
Hawthorne (13.02)	15.2	14.6	-4%
Hillsboro (324.04)	6.3	7.1	13%
Hillsboro new neighborhood (326.02)	1.9	9.4	395%
Irvington (24.01, 25.01)	14	13.5	-4%
NW 23rd St. (48)	33.2	37	11%
Oak Grove (213, 214)	5.5	5.8	5%
Outer SE PDX - I205 (6.01, 6.02)	9.5	10.7	13%
Pearl District (51)	4.8	10.7	123%
Sherwood (321.01)	0.7	3	329%
Tigard (308.01)	5.6	6.4	14%
West Linn (206)	3.1	4.2	35%

Table 1.1d(2): Change in Neighborhoods in Single Family Dwelling Units Per Acre

Neighborhood or Locale (and Census tract #)	Dwellings per Acre 1990	Dwellings per Acre 2000	% Change 1990-2000
Beaverton (312)	5.2	5.3	2%
Gresham (99.01, 100)	2.1	3	43%
Hawthorne (13.02)	6.7	6.8	1%
Hillsboro (324.04)	2.1	2.5	19%
Hillsboro new neighborhood (326.02)	0.7	1.2	71%
Irvington (24.01, 25.01)	5.3	5.4	2%
NW 23rd St. (48)	25.2	25.8	2%
Oak Grove (213, 214)	2.2	2.5	14%
Outer SE PDX - I205 (6.01, 6.02)	3.7	3.9	5%
Pearl District (51)	2.1	6.8	224%
Sherwood (321.01)	0.3	0.8	167%
Tigard (308.01)	2.3	2.7	17%
West Linn (206)	1.2	1.6	33%

Maps in the following pages show the density distribution across the region. The first map shows that most areas in the region experienced increases up to 1.2 persons per acre. The same map also shows that some areas in the Portland central city area, inner north, northeast and inner southeast experienced decreases up to 1.3 persons per acre.

The second map shows that most single family dwelling unit areas in the region experienced increases up to 1.7 single family dwelling unit per acre. The second map also shows that some areas in the Portland central city, inner north, northeast, southeast, and some areas in suburban communities like Aloha, King City and Wood Village experienced no change.



R L I S

REGIONAL LAND INFORMATION SYSTEM

Change in Persons per Acre Inside the Metro Urban Growth Boundary 1990 - 2000

By 1990 Census Tract

- Decrease up to -1.3
- No Change
- Increase up to 1.2
- 1.3 - 2.6
- 2.7 - 7.4
- County Line
- Metro Urban Growth Boundary

1 inch equals 5.24 miles

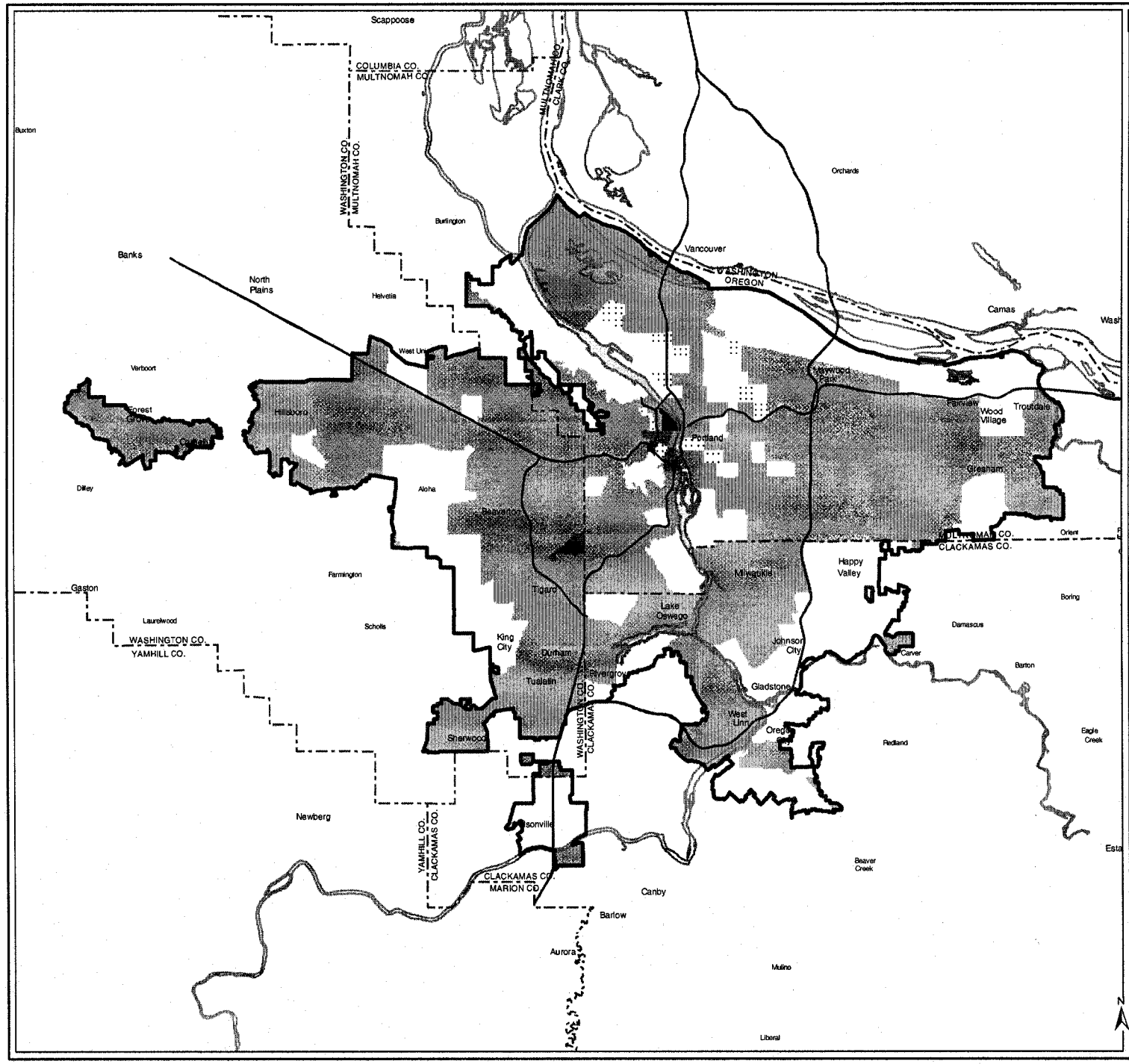
0 1 2 4 Miles

Location Map

METRO

METRO DATA RESOURCE CENTER
600 NORTHEAST GRAND AVENUE | PORTLAND, OREGON 97232-2736
TEL (503) 797-1742 | FAX (503) 797-1909
drc@metro.dst.or.us | www.metro-region.org

Project Date: Jan 17, 2003 Plot time: Mar 18, 2003 J:\larson\03021\PopPerDiff.mxd



R L I S

REGIONAL LAND INFORMATION SYSTEM

Change in Single Family Housing Units per Acre Inside the Metro Urban Growth Boundary 1990 - 2000

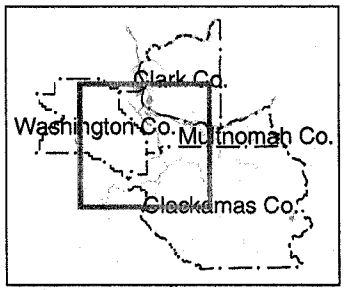
By 1990 Census Tract

- Decrease up to -.7
- No Change
- Increase up to 1.7
- 1.8 - 2.8
- 2.9 - 5.9
- Metro Urban Growth Boundary
- County Line

1 inch equals 5.25 miles

Miles

0 1 2 4



Location Map

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Project Date: Jan 17, 2003 Plot time: Mar 14, 2003 J:\Varson\0302\DUPerDiff.mxd

Indicator 1.2a: Consumption of buildable land by residential sector in the Metro UGB.
Data years: 1999 and 2000. Source: Metro Data Resource Center and U.S. Census.

Finding:

- *From 1999 to 2000 there was an increase in the number of multi-family residential (MFR) units developed per net acre from 16.4 to 21.6 (32 percent increase), and number of single family residential (SFR) units developed per net acre from 5.9 to 6.2 (5 percent increase). As the data also show, during the same period, the amount of land consumed by the residential sector decreased from 1,468 acres in 1999 to 1,087 acres in 2000. The increases in units developed per acre represent progress in efficiency of residential land use and progress toward achieving the 2017 target capacity for housing.*

This indicator measures change in dwelling units per buildable acre. As was mentioned in the previous section entitled "Adopted Targets," specific and uniform accounting procedures are needed in order to track how land use standards adopted by local jurisdictions are achieving Functional Plan target capacities for housing and/or employment. Indicator 1.2a represents the next best method for assessing residential land use efficiency and calculates the number of residential units built per buildable acre.

Table 1.2a shows how vacant land available for development was used to accommodate single family residential and multi-family residential dwellings in 1999 and 2000. Due to data limitations, the trend in the number of units built per gross vacant buildable acre (GVBA) in the period from the adoption of the Functional Plan (1996) to 1999 is not available.

Table 1.2a – Consumption of Buildable Land by Residential Sector – Metro UGB

A	B		C			D			E			F		
Year	GBVA		Consumed Land (gross acres)			Permits Issued (# of permits)			Units/GVBA* (# of units)			Units/NVBA*		
	SFR	*MFR*	*SFR*	*MFR*	*Total*	*SFR units*	*MFR units*	*Total*	*SFR*	*MFR*	*Total*	*SFR*	*MFR*	*Total*
1999	15,682	2,562	1,183	285	**1,468**	4,920	3,263	**8,183**	4.2	11.4	**5.6**	5.9	16.4	**8.0**
2000	14,732	2,019	945	142	**1,087**	4,112	2,145	**6,257**	4.4	15.1	**5.8**	6.2	21.6	**8.2**

Source: Metro Data Resource Center
U.S. Census

*GVBAs (Gross Vacant Buildable Lands)
*Net Vacant Buildable Acres = GVBA - 30 percent
*30 percent includes:

a) Vacant federal, state, county and city-owned lands
b) Acres of platted single family lots (16,300 lots)
c) Acres of streets
d) Acres of schools
e) Acres of parks
f) Acres of places of worship and social organizations
g) Easements for major public utilities, including gas lines

Column B displays the total number of GVBA by year upon which single family residential and multi-family residential units could be built. The decrease during the period account for single family residential and multi-family residential lands that were developed and single family residential and multi-family residential lands removed due to rezoning (approximately five acres zoned-out of single family residential and 401 acres zoned-out of multi-family residential). It should be pointed out that during the same period, some jurisdictions rezoned to add land to the single family residential and multi-family residential zones. These changes were included in the total.

Column C displays the number of acres (gross) of buildable land consumed each year in the construction of residential dwellings. Column D shows the number of multi-family residential and single family residential building permits that were issued during a two-year period for all jurisdictions inside the UGB. The proportion of multi-family residential to single family residential permits in 1999 and 2000 (which were 40 percent and 34 percent, respectively) represents an increase from the historic trend. Currently, multi-family residential accounts for 32 percent of all the residential units in the region.

Column E of the table displays the average number of housing units (single family residential and multi-family residential) that were built annually on a gross acre of land (Units/GVBA[3]). Available data for 1999 and 2000 shows an increase in the number of housing units developed per gross acre. Multi-family residential units built per gross acre increased from 11.4 to 15.1 (a 32 percent increase). Single family residential units built per gross acre increased from 4.2 to 4.4 (a 5 percent increase). It should be noted that multi-family homes are usually built after vacancy rates are low and are therefore more subject to volatile changes or cycles of building.

Column F of the table displays the average number of housing units that were built on a net acre of land (Units/Net Vacant Buildable Acre) after subtracting land (30 percent of gross acres) used for infrastructure such as streets, schools, parks and churches. Multi-family residential units built per net acre increased form 16.4 to 21.6 (a 32 percent increase). Single family residential built per net acre increased from 5.9 to 6.2 (a 5 percent increase).

Overall, the increase in the development of single family residential units per buildable acre (4.2 to 4.4) and multi-family residential units per buildable acre (11.4 to 15.1) represents progress toward achieving the 2017 target capacity for housing in Table 3.07-1 of the Functional Plan. Although the increase in combined single family residential and multi-family residential developments built per gross and net acre is small, there was a substantial increase in multi-family residential units developed per acre. This may suggests that the region is making progress in achieving greater efficiency of residential land use in areas allowing higher density.

Data Limitations

Indicator 1.2a:
The following assumptions behind the data in Table 1.2a are helpful for the reader in choosing how to interpret the data:

a) Metro monitors land consumption by existing zoned categories and not by what is actually built on the land
b) Permit data is based on voluntary reporting by local jurisdictions that may not match with the U.S. Census data
c) Permit data is for developments completed in the year reported. *Note: Building permits issued in a given year do not necessarily match with land consumed or developed in the same year* and
d) The 30 percent of land that is deducted for infrastructure (or Net Vacant Buildable Acres) is a statistical estimate that may be slightly more or less from one area to another.

---

[3] GVBA in the UGB excludes Title 3 land, but includes:
a) Vacant federal, state, county and city-owned lands
b) Acres of platted single family lots (16,300 lots)
c) Acres of streets
d) Acres of schools
e) Acres of parks
f) Acres of places of worship and social organizations
g) Easements for major public utilities, including gas lines

The above explanation of data limitations is not to suggest that the data is not useful as an indicator. The most important consideration is the overall trend in the data and the 30 percent assumption does not detract from this trend. As the data demonstrates, there is an upward trend in the number of housing units being built on vacant land. This upward trend is a sign that the region is making progress towards the goal of increasing the efficiency of land use.

Indicator 1.2b: Consumption of developed land in the UGB by non-industrial and industrial employment
Data years: 1998-2000. Source: Metro.

Finding:

- *During the 1998 to 2000 period, non-industrial or commercial employment in the UGB increased by 1.5 percent or 6,406 jobs (from 441,356 to 447,762) while land consumed in the areas zoned non-industrial increased by 12.7percent or 1,707 acres (from 13,459 to 15,166 acres). Industrial employment increased by 8 percent or 25,193 jobs (from 310,738 to 335,931), while land consumed in the areas zoned industrial decreased by approximately 1 percent or 219 acres (from 24,742 to 24,523 acres). The decrease in land consumed during this period takes into account lands that were developed or removed and/or added due to rezoning.*
- *Non-industrial or commercial jobs accommodated per acre decreased from 32.8 in 1998 to 29.5 in 2000, while industrial jobs accommodated per acre increased from 12.6 in 1998 to 13.7 in 2000.*

1.2b Consumption of Buildable Land by Employment* Change by Sector (in UGB)

Year	Tri-County Employment Levels		UGB Employment Levels				UGB Developed Acres				UGB Jobs Per Developed Acre	
	Non Industrial	Industrial	Non Industrial	% Change	Industrial	% Change	Non Industrial	% Change	Industrial	% Change	Non Industrial	Industrial
1998	456,654	321,509	441,356	Na	310,738	na	13,459	Na	24,742	na	32.8	12.6
1999	469,288	303,010	453,567	2.8%	292,859	-5.8%	13,994	4.0%	24,925	0.7%	32.4	11.7
2000	463,282	347,574	447,762	-1.3%	335,931	14.7%	15,166	8.4%	24,523	-1.6%	29.5	13.7

*Employment is defined as Covered wage and salary jobs (excludes proprietors)

This indicator measures the consumption of developed land by industrial and non-industrial (commercial) employment in the UGB. The data in Table 1.2b shows that total employment in both the tri-county area and in the UGB increased during the 1998 to 2000 period with total industrial and non-industrial jobs in the UGB increasing by 4 percent (or 31,599). This increase was accompanied by a 3.9 percent (or 1,488 acres) increase in total developed industrial and commercial land in the UGB.

These figures show that approximately 45 industrial and non-industrial jobs were accommodated on each acre of developed land zoned commercial and industrial in 1998, while in 2000, 43 industrial and non-industrial jobs were accommodated on one acre of developed land zoned for industrial and commercial uses.

In 1998, total land consumed for non-industrial (commercial) uses accounted for 35 percent of all land zoned industrial and non-industrial, while land consumed for industrial uses accounted for 65 percent of all land zoned industrial and non-industrial. In 2000, total land consumed for non-industrial (commercial) uses accounted for 38 percent of all land zoned industrial and non-industrial, while land consumed for industrial uses accounted for 62 percent of all land zoned industrial and non-industrial.

Measuring jobs per developed acre is one method of assessing the efficiency of commercial and industrial land use, however, additional data points (beyond 1998 - 2000) would make this measure more reliable. Current employment data is not available at the local government level to determine if local governments are making progress towards the 2017 target capacity for employment in Table 3.07-1 of the Functional Plan.

Indicator 1.2c: New housing units (single family residential and multi-family residential) permitted through redevelopment and infill – Refill Rate.
Data years: 1995-1996 and 1997-1998. Source: Metro Data Resource Center Refill Study (1999).

Finding:

- *In the period for which data is available, refill (or redevelopment and infill) activity in the region accounted for about 26 percent of all residential development in the region.*

This indicator is a key measure of how well policies and the economy are working to promote efficient re-use of existing developed land and the conservation of raw, undeveloped land. The methodology for estimating the refill rate involves selecting a representative sample of single family and multi-family building units. These units are then compared with building permits and Metro's Regional Land Information System (RLIS) data to determine whether the structures were placed on vacant or previously developed tax lots. If the unit was constructed on a developed parcel without removing the existing improvement, the permit is considered infill development. If the unit was constructed on a parcel where the existing improvement was removed, the permit is considered redevelopment.

Table 1.2c shows the residential refill rate for 1995-1996 and 1997-1998. Refill estimates for recent years are not available at this time. Refill activities in the region were estimated to be 25.4 percent during 1996 and 26.3 percent during 1998. The 1998 refill rate includes 16.3 percent of infill development and 10 percent redevelopment.

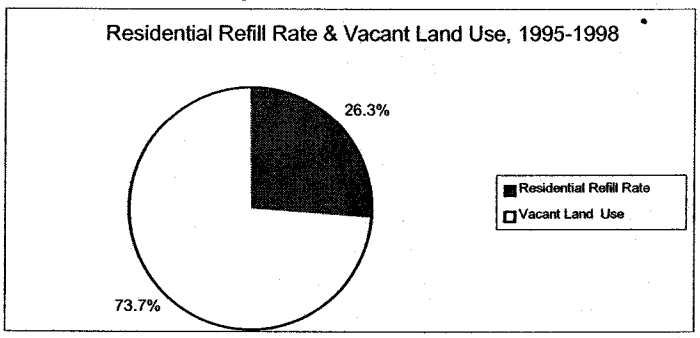
Table 1.2c – Residential Redevelopment and Infill (Refill) Rate within the UGB

Year	Residential Refill Rate
1995-96	25.4%
1997-98	26.3%
1998-00	N/A

Source: Refill Study, Metro DRC

As pointed out earlier, the 1997 Metro Urban Growth Report assumed that the growth occurring through infill and redevelopment could average 28.5 percent for the 20-year planning period. Substantial infill stock, or substantial increases in the redevelopment rate are crucial for any increases in the refill rate to be realized. In the absence of efforts to encourage refill development, the scarcity of infill sites in the coming years is expected to cause the refill rate to decrease. A comparison of 1995-98 refill activities (26 percent) and non-refill activities (74 percent) in the region is shown in Figure 1.2c.

Figure 1.2c



Source: Metro DRC

Data Limitations

Refill data is reported in two fiscal year periods (1995/1996 and 1997/1998). These are one-year rates.

Indicator 1.2f: Gross consumption of vacant land as compared to population growth.
Data years: 1999 and 2000. Source: Metro Data Resource Center.

Finding:

- *A comparison of the vacant residential land consumption pattern and the UGB population in 1999 and 2000 shows that the region accommodated between 15 persons and 30 persons per gross acre in this period. The increase in population in the 1999-2000 period by 32,970 (2.6 percent) was accompanied by a decrease of 627 acres (30 percent) of land consumed over the 1999 level. (Note: Consumed land is vacant land that has been converted to an urban use.)*
- *If one assumes that the remaining residential land supply will be consumed at the 1999 and 2000 consumption rates (15 and 30 persons per gross acre), it will take the region between 12 to 15 years to use the supply of vacant land at the time this data was collected.*

This indicator measures the amount of land consumed between two periods and the corresponding change in population. Land can be classified in three ways: non-buildable, buildable and consumed. Consumed land is developed land. Buildable land is vacant land that does not have any natural or regulatory constraints to prevent development. Land that is affected by environmental regulations, has natural barriers (i.e., too steep) or will be used for infrastructure (roads, schools, churches, etc.) is considered to be "non-buildable." To calculate the number of acres that are "buildable," consideration must be given to environmental regulations, natural barriers and infrastructure. In this case, buildable land is equal to GVBA as described earlier in Indicator 1.2a.

Baseline data of buildable land and annual land consumption in Table 1.2f(1) show that from 1999 to 2000, total buildable land in the Metro UGB decreased by approximately 5 percent (1,402 acres), while the consumption level decreased by 30 percent (627 acres). During this time period, local jurisdictions were engaged in rezoning activities that transferred land from one land use category to another as the supply of buildable land and annual land consumption were both decreasing.

During the same period (1999 to 2000), total residential buildable land decreased by approximately 8 percent (from 18,244 acres to 16,751 acres), while the consumption level decreased by 26 percent (from 1,468 acres to 1,087 acres). Commercial buildable land decreased 11 percent (from 2,179 to 1,930 acres) while the consumption level decreased by 54 percent (from 237 to 109 acres). Mixed use

buildable land increased by 163 percent (from 402 to 1,058 acres), while consumption increased by 280 percent (from 15 to 57 acres) during the same period. Industrial buildable land decreased by only 3 percent (from 9,927 to 9,611 acres) while the consumption decreased by 41 percent (from 393 to 233 acres).

Table 1.2f(1) – Gross Consumption of Vacant Land and Population Growth – Metro UGB

	Buildable Land (acres)					Total Buildable Land (acres)	Annual Land Consumption (acres)					Total Consumed (acres)	Population (and change)
Year	SFR	MFR	COM	IND	MIXED		SFR	MFR	COM	IND	MIXED		
1998	16,865	2,847	2,416	10,320	417	32,865	--	--	--	--	--	--	1,226,500
1999	15,682	2,562	2,179	9,927	402	30,752	1,183	285	237	393	15	2,113	1,248,500 (22,000)
2000	14,732	2,019	1,930	9,611	1,058	29,350	945	142	109	233	57	1,486	1,281,470 (32,970)

Source: Metro DRC (land and consumption data), Portland State University and Census 2000 compiled by Metro DRC (population data)
Note: Figures Represent GVBA within the UGB. Population is within the UGB only.

Table 1.2f(1) shows that most land was developed for single family homes (1,183 acres or 56 percent), followed by industrial uses (393 acres or 18 percent), multi-family homes (285 acres or 13 percent), commercial (237 acres or 11 percent) and mixed land use (15 acres or about 1 percent).

Further analysis of 1999 and 2000 residential land consumption patterns with buildable land supply in Table 1.2f(2) shows that if assume the 1999 and 2000 consumption rates (15 and 30 persons per gross acre) will continue, it will take the region between 12 to 15 years to consume the remaining supply of buildable land available as of 1999 and 2000. These consumption rates are a reflection of increased efficiency of land use in the region.

Table 1.2f(2): Years Left to Consume Remaining Residential land in UGB Based on 1999 and 2000 Consumption Levels

	Total Buildable Residential Land Supply (acres)	Total Residential Land Consumed (acres)	New Population Accommodated	Years Left to Consume Total Buildable Land
1999	18,244	1,468	22,000	12
2000	16,751	1,087	32,970	15

Source: Metro DRC

From 1999 to 2000, land consumed for single family residential uses decreased by 238 acres (20 percent), while the amount consumed for multi-family residential uses decreased by 143 acres (50 percent). During the same period, consumption of commercial land decreased by 54 percent and industrial land consumption decreased by 160 acres (41 percent). Mixed use land consumption increased by 42 acres (280 percent). The increase in acreage of land consumed for mixed use land is likely a reflection of increased development activities in the 2040 design centers.

Mixed Use Opportunities for Employment and Housing

Purpose

To assess the degree to which the land within the boundaries of designated 2040 centers are accommodating a wide range of services and housing. This indicator will also assess the degree to which these 2040 areas support a variety of land uses, circulatory efficiency, diverse transportation options, and pedestrian-friendly streetscapes.

Summary

Policy

The 2040 Growth Concept calls for the creation of 2040 design type areas that allow a mix of residential and commercial uses and greater transportation efficiency. The Functional Plan set forth requirements and recommendations for local governments to implement growth management policies outlined in the 2040 Growth Concept in order to maximize the efficient use of land. Title 1 of the Functional Plan requires local governments to adopt zoning in these areas that allows, and encourages a mix of land uses including jobs and housing, all within close proximity of frequent transit service. Many local governments are currently rezoning centers, station communities and main streets that fall within their jurisdictions in order to accommodate a greater mix of uses.

Indicator

1.2e Mixed Use Index: Progress of development of mixed use opportunities for employment and housing in the region in the central city, regional centers and town centers.
Data years: 1996 and 2000. Source: Metro Data Resource Center.

- *The transportation analysis zones within the boundaries of the central city (downtown Portland) scored the highest on the mixed use index in both 1996 and 2000. Several TAZ areas in the highest mixed use categories of the central city became slightly less mixed in 2000 than in 1996, perhaps due to large redevelopment projects.*
- *The regional centers scored second to the central city on the mixed use index in 1996 and 2000. Regional centers became slightly more mixed from 1996 to 2000.*
- *Town centers scored third on the mixed use index for 1996 and 2000 and became more mixed in 2000 than in 1996 in some, but not all categories.*

**The most mixed use areas support a variety of land uses, circulatory efficiency and a variety of transportation options, a pedestrian friendly environment, a better streetscape and buildings oriented to the street.*

Survey Results of Local Officials and Planning Commissioners

✓ *Most important issues that should be addressed in the region*: Design of mixed use development (ranked #5 in frequently mentioned items).
✓ *Preferred top features for 2040 Centers*:
66 percent said local retail establishments.
63 percent said public square or focal point.
62 percent said mixed use centers with retail and housing together.
60 percent said frequent public transit options.
56 percent said variety of job and service opportunities.

Policy Rationale

The 2040 Growth Concept calls for higher densities and an increase in residential and commercial development in 2040 design type areas that encourage a mix of uses and coincide in many cases with existing commercial centers. The 2040 mixed use design types include the central city, regional centers, town centers, station communities and main streets.

The Functional Plan, adopted by the Metro Council in November 1996, sets requirements and recommendations for local governments to implement growth management policies outlined in the 2040 Growth Concept. Metro Code 3.07.120 (Title 1 of the Functional Plan) requires local governments in the Metro region to take a number of steps to maximize the efficient use of land. These efforts were all intended to increase the capacity of the Metro region in order to accommodate new population and employment, encourage a vibrant regional economy, make better use of existing infrastructure investment, minimize the loss of farm land, and to minimize vehicle miles traveled (VMT).

Title 1 of the Functional Plan requires cities and counties with one or more 2040 design type within their jurisdiction to adopt firm boundaries for these areas. Title 1 also requires local governments to adopt zoning in these areas that allows for, and encourages a mix of land uses including jobs, and housing within close proximity of frequent transit service. These efforts by local governments define the boundaries of the design types and create zoning overlays that allow for new mixed use opportunities that are the foundation of the 2040 Growth Concept.

The 2040 Growth Concept is based on establishing 2040 design type areas throughout the region and helping cities within the Metro region to define a unique community character while providing convenient and diverse shopping and employment options for residents. These mixed use areas were also intended to serve as an environment where greater concentrations of population could locate and be served by numerous transit options.

Data Analysis

Indicator 1.2e: Mixed Use Index: Progress of development of mixed use opportunities for employment and housing in the region in the central city, regional centers and town centers.
Data years: 1996 and 2000. Source: Metro Data Resource Center.

Finding:

- *The transportation analysis zones within the boundaries of the central city (downtown Portland) scored the highest on the mixed use index in both 1996 and 2000. Several TAZ areas in the highest mixed use categories of the central city became slightly less mixed in 2000 than in 1996, perhaps due to large redevelopment projects.*
- *The regional centers scored second to the central city on the mixed use index in 1996 and 2000. Regional centers became slightly more mixed from 1996 to 2000.*
- *Town centers scored third on the mixed use index for 1996 and 2000 and became more mixed in 2000 than in 1996 in some, but not all categories.*

Metro's Data Resource Center and Travel Forecasting division created the mixed use index to help land use and transportation planners better understand the extent of job opportunities and accessibility options offered by the mixed use areas. Intersections are a key variable of the mixed use index because a concentration of intersections is generally associated with a variety of land uses, circulatory efficiency, pedestrian accessibility, and safe streetscapes. By examining the concentration and relationship between jobs, households and intersections over time, it is possible to measure the progress that the 2040 mixed use design types are making in supporting a greater mix of uses.

The analysis of the mixed use index presented in this report is based on cataloging the mixed use values assigned to Traffic Analysis Zones (TAZs or Zones) that intersect the actual boundaries of 2040 mixed use design types areas for which data was available. Due to data limitations, the central city, regional centers and town centers are the only design type areas measured.

The range of the index values begins at zero and represents the lowest value assigned to areas that offer a limited range of land uses and transportation connectivity. A score of 15,000 is the highest value and is associated with areas that offer the greatest variety of land uses, circulatory efficiency, and a wide range of transportation options. Table 1.2 e (1) further explains the range of values in the mixed use index.

Table 1.2e (1): Mixed Use Index Values

Index Scores represent intensity, connectivity and mix of uses graduated from low to high.	
0 – 1000	***LOWEST****: Areas receiving this score are generally located on the fringes of the UGB or outside of the UGB. These areas offer a limited range of land uses and transportation connectivity and options and support low density patterns of development.*
1001 – 2500	
2501 – 5000	
5001 – 7500	
7501 –15000	***HIGHEST****: These areas support a variety of land uses, circulatory efficiency or variety of transportation options, pedestrian friendly and better streetscape and buildings oriented to the street. The areas receiving this score are also located in densely-developed urban areas where a wide range of services and housing are available.*

The boundaries of the central city (downtown Portland) intersect with 43 TAZs. As data in Table 1.2e (2) shows, in both 1996 and 2000 the TAZs within the central city account for the highest score on the mix use index (between 5000 to 15,000). This implies that the greatest concentration of a mix of uses in the region is occurring in this area. In 1996, about 53 percent of the TAZs in the central city were in the highest two categories of the mixed use index (5,001-7,500 and 7,501-15,000). In 2000, roughly 49 percent of the TAZ zones in the central city were in these highest two categories of the mixed use index. These areas offer a wide range of services and housing and are intensely served with the widest variety of transportation options. The data shows that one of the central city TAZs in each of these highest two categories of the mixed use index (5,001-7,500 and 7,501-15,000) moved into lower categories of the mix use index. These changes may reflect a temporary reduction in mix use while redevelopment occurs in the central city, however, additional years of data will be needed to reveal if the decreases in the number of TAZs in the highest two categories of the mix use index reflect a trend.

Table 1.2e (2): Change in Mixed Use Index Scores: 1996 and 2000

Mixed Use Area	# of TAZs	TAZs scoring 0-1000		% change	TAZs scoring 1001-2500		% change	TAZs scoring 2501-5000		% change	TAZs scoring 5001-7500		% change	TAZs scoring 7501-15000		% change
		1996	2000		1996	2000		1996	2000		1996	2000		1996	2000	
Central City	43	0	0	N/A	1	1	0%	19	21	11%	14	13	-7%	9	8	-11%
Regional Centers	74	4	3	-25%	28	29	4%	39	40	3%	2	2	0%	0	0	N/A
Town Centers	130	11	8	-27%	88	89	1%	27	30	11%	4	3	-25%	0	0	N/A
Total	*247*	*15*	*11*	*-27%*	*117*	*119*	*2%*	*85*	*91*	*7%*	*20*	*18*	*-10%*	*9*	*8*	*-11%*

Source: Metro DRC

The boundaries of regional centers intersect with a total of 74 TAZs throughout the region. The mixed use index data shows that in 1996, most (53 percent) of the TAZs in the regional centers were located within the middle category of the mix use index (2,500 –5,000). About 38 percent of the TAZs were in the next lowest (1,001-2,500) category of the mixed use index. In 2000, one more TAZ moved into these two lower categories.

The boundaries of the town centers intersect with a total of 130 TAZs throughout the region. In 1996, 76 percent of the TAZs intersecting with the boundaries of town centers were in the two lowest categories of the mixed use index (0-1,000 and 1,001-2,500), while in 2000 the percent of TAZs in these categories decreased by two TAZs (1 percent). The decrease in the number of TAZs in these lower categories during this period was due to some of the TAZs becoming more mixed and moving up to the next middle category of mix use index (2,501-5,000 and 5,001-7,500). Four TAZs moved into the middle category of the mix use index (2,501-5,000 and 5,001-7,500) from 1999 to 2000.

Methodology

As stated earlier, the mixed use index was created to help measure the progress that the 2040 mixed use design types are making in supporting a mix of land uses. The index specifically measures the concentration of local intersections in a given area and how households interact with employment opportunities in these mixed use centers. The result is an index which blends these three factors or variables (normalized households, employment, and local intersections) into a single index that describes the degree of mix use opportunities, including accessibility.

This process is conducted within a half-mile radius of the centroid of each TAZ inside the Metro UGB. The geometric mean of the three variables for a given TAZ is calculated and the TAZs with the greatest concentration of these three variables receives a higher score or ranking. For example, a TAZ with a medium level of employment and a high number of households and high number of intersections would receive a higher mixed value than a TAZ with a high number of employment, low number of households and few intersections.

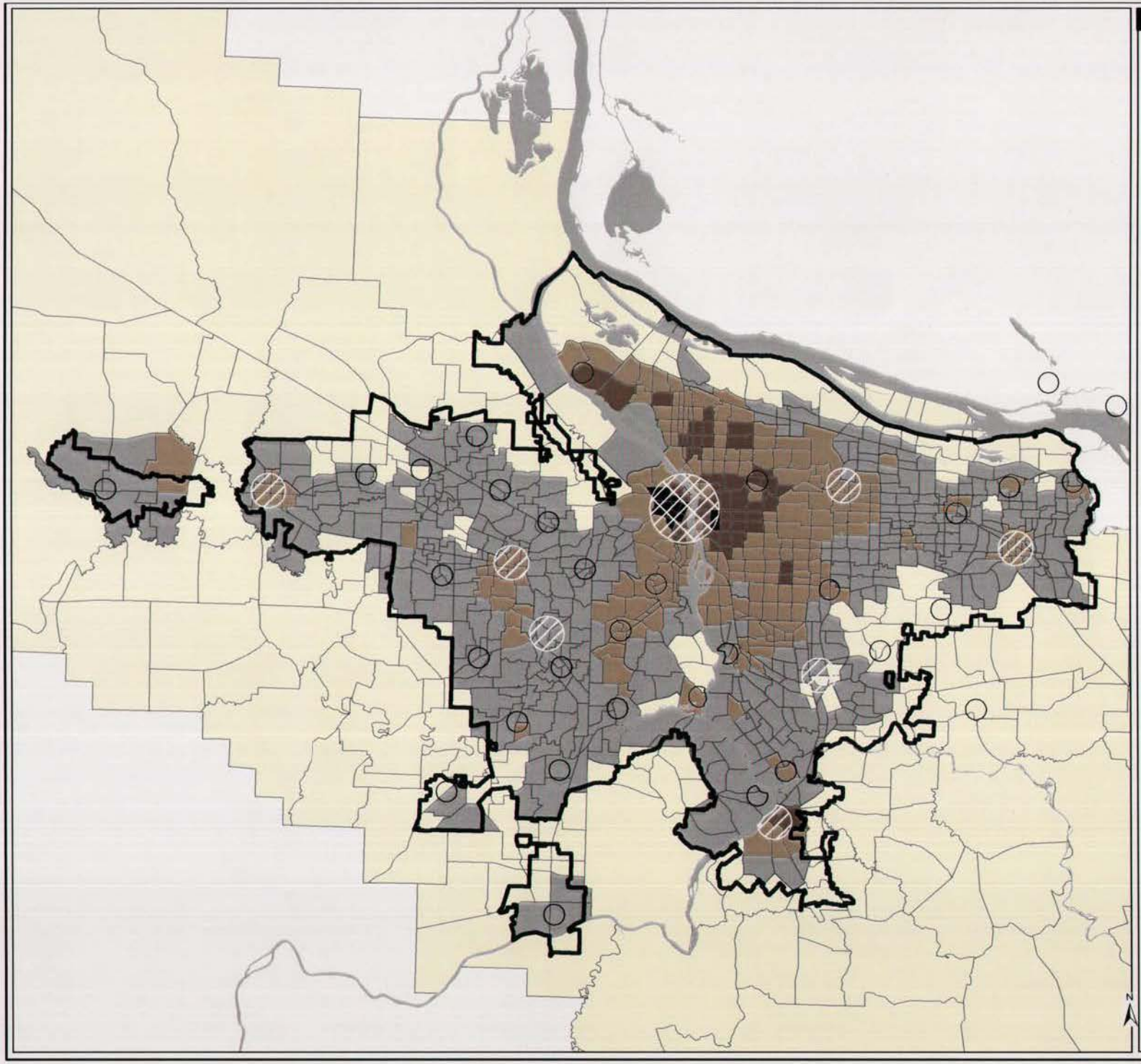
The formula and examples:

$$MUI_J = \frac{HH_J \times E_{Jj} \times \frac{(\Sigma Hh_j)}{(\Sigma E_j)}}{HH_J + E_J \times \frac{(\Sigma Hh_j)}{(\Sigma E_j)}} + I_J \times \frac{(\Sigma Hh_j)}{(\Sigma I_j)} \quad \text{where } j = 1...969 \text{ TAZs}$$

Note: MUI_J is the mixed use index for a TAZ
HH is the normalized households within a TAZ
E is the normalized employment within a TAZ
I_J is the number of intersection within a TAZ

Data Limitations

- It is very important to note that a relatively small portion of a TAZ that scores high on the mixed use index will influence the score that the entire TAZ receives. For this reason, the geographic area that certain TAZs represent is not an indication that this entire area supports a mix of uses.
- The five-year period for which data was collected may prove to be too short for an effective measure of conversion or loss of mixed use areas. Many of the areas located in 2040 mixed use centers are being rezoned and redeveloped and do not currently support substantial levels of employment and local street connectivity.



R L I S
REGIONAL LAND INFORMATION SYSTEM

1996 Mixed Use Index Map

(Household & job density w/ street intersections)

- Central City
- Regional Centers
- Town Centers
- Urban Growth Boundary

Mixed Use Index

- 0.00 - 1000.00
- 1000.01 - 2500.00
- 2500.01 - 5000.00
- 5000.01 - 7500.00
- 7500.01 - 15000.00

SOURCES:

TAX LOT MAP
County Assessment and Taxation offices, 2001. Data collection scale is 1"=100' in urban areas and 1"=200' or 1"=400' in rural areas. Horizontal accuracy is plus or minus five feet or better in Beaverton, Milwaukie, Oregon City, Tigard and Multnomah County. Other areas are plus or minus ten feet.

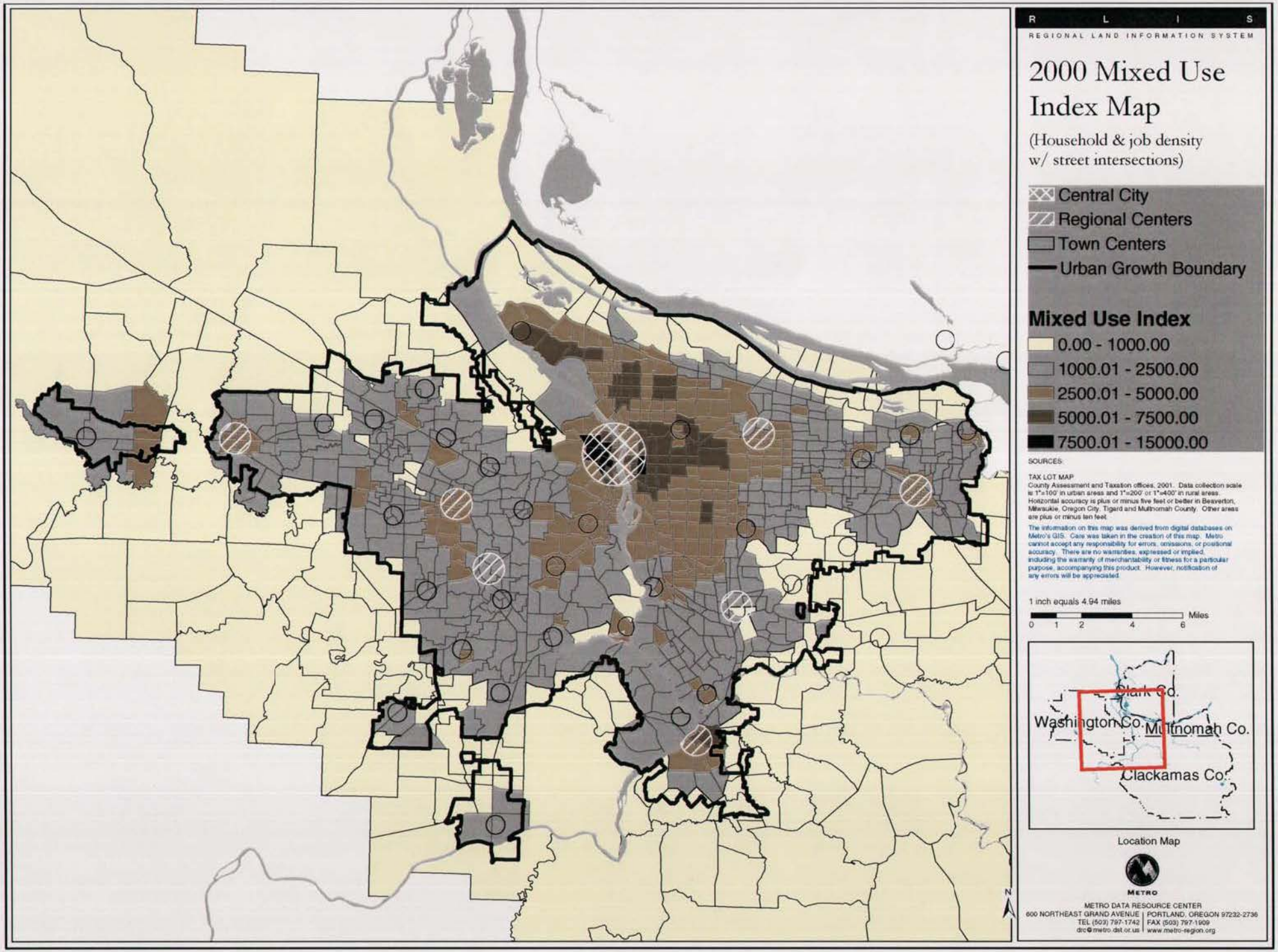
1 inch equals 5.03 miles

0 1 2 4 6 Miles

Location Map

METRO

METRO DATA RESOURCE CENTER
600 NORTHEAST GRAND AVENUE | PORTLAND, OREGON 97232-2736
TEL (503) 797-1742 | FAX (503) 797-1909
drc@metro.dst.or.us | www.metro-region.org



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Population and Employment Accommodation in the Metro UGB and 2040 Design Type Areas

Purpose

To assess the degree to which population and employment locating inside the Metro UGB, including the 2040 Design Type mixed use areas and corridors, are accommodated and use this information as a measure of increased land use efficiency.

Summary

Policy

The Functional Plan sets requirements and recommendations for local governments to implement growth management policies outlined in the 2040 Growth Concept in order to maximize the efficient use of land. Title 1 of the Functional Plan requires local governments to adopt zoning in these areas that allows for, and encourages a mix of land uses including jobs, and housing all within close proximity of frequent transit service. Mixed use centers are the centerpiece of the 2040 Growth Concept and must successfully attract residential population and employment in order for the region's adopted vision of growth to be realized.

Indicators

1.1b Capture rate – the proportion of the region's employment, population and household growth inside the Metro UGB as compared to the total (four-county) region.
Data years: 1980 to 2000, and 1990 to 2000. Source: Metro Data Resource Center.

- *The proportion of population and households locating in the four-county area (including Clark County, Washington) that settled inside the Metro UGB during the 1990-2000 period (69 percent and 73 percent, respectively) were higher than the those that settled inside the UGB during the 1980-1990 period (63 percent and 58 percent, respectively). However, the proportion of the employment locating in the four-county area that settled inside the UGB during the 1990-2000 period (73 percent) was lower than that of the 1980-1990 period (76 percent).*

1.1a Mixed use and Corridor capture rate – the proportion of employment, population and household growth inside the Metro UGB that is located in 2040 mixed use areas and corridors. Note: 2040 mixed use areas include central city, regional centers, town centers, station communities and main streets. Corridors are not 2040 mixed use areas.
Data year: 2000. Source: Metro Data Resource Center.

Finding:

- *The 200 baseline data shows that 61 percent (553,446) of the jobs and 30 percent (384,547) of the population are located within 2040 mixed use areas and corridors inside the UGB.*
  - *Mixed use areas support approximately 48 percent (430,571) of the total employment inside the UGB and approximately 16 percent (200,817) of the total population (384,547).*
  - *Of the 2040 mixed use areas, the central city supports the greatest share of employment with 26 percent (144,723), followed by main streets 16 percent (87,651), and station communities, which also support 16 percent (88,045).*
  - *Station communities support the greatest population of all 2040 mixed use areas with 21 percent (81,206) followed by town centers at 11 percent (42,732), and main streets at 10 percent (39,313).*
  - *Corridors support approximately 22 percent (122,875) of employment and 48 percent (183,730) of population in the 2040 design type areas.*

1.1c Employment in 2040 mixed use centers and corridors.
Data year: 2000. Source: Metro Data Resource Center.

- *The 2000 baseline data shows that the service industry is the most predominant employment sector in the mixed use centers (178,770 jobs, or 42 percent of total), followed by retail (102,759 jobs or 24 percent), finance insurance and real estate (52,243 – 12 percent), manufacturing (30,278 – 7 percent), transportation and utilities (25,771 – 6 percent) and others. The service jobs in the mixed use centers represent about 56 percent of all service jobs in the UGB. About 18 percent of the service jobs inside the UGB are located in the central city, while 12 percent are located in station communities, 11 percent in main streets, 8 percent in regional centers, and 6 percent in the town centers.*

Survey Results of Local Officials and Planning Commissioners

✓ *Future focus of growth*: 40 percent of the respondents somewhat agree that growth should occur within existing neighborhoods and business districts within the UGB, while 19 percent strongly agree. 14 percent strongly disagreed and 12 percent somewhat disagree.
✓ *Tradeoffs for slowing or stopping population growth*: The most frequently mentioned results of slowing or stopping growth would be a weak or stagnant regional economy fewer jobs, less housing, less diversity, decreased tax base and inadequate public service.
✓ *Top features of 2040 Centers*: 56 percent said the variety of job and service opportunities.
✓ *Incentives for Productive 2040 Centers*: 33 percent of the respondents thought that incentives will make centers more productive, while 4 percent disagreed.
✓ *Incentives that would help make centers more productive (most mentioned comments) are*: zoning, transportation infrastructure, tax breaks (e.g., five-year tax credit program, payroll tax reductions), development fee waiver, finance (e.g., low-interest financing, redevelopment grant, infrastructure grants), urban renewal district, support with development resourcing, density bonus, public parking and changes to development codes (e.g., formulas for parking ratios, building heights, setbacks and mixed residential/retail).

Policy Rationale

Prior to the adoption of the 2040 Growth Concept by the Metro Council in December 1995, a "base case" scenario reflecting existing policies was modeled to forecast the urban form of the Metro region if land use patterns similar to that of other urban areas on the West Coast were to continue. The results of the base case study showed the UGB expanding by 52 percent (roughly 121,000 acres) by the year 2040. Included in this expansion would be 64,000 acres of exclusive farm use land. An expansion of the UGB of this magnitude would absorb the city of North Plains and consume rural land to a point halfway to the cities of Sandy and Newberg. The new population that would locate outside of the current UGB would be almost completely dependent on the automobile and be forced to travel much greater distances to employment and service centers. The provision of urban levels of service to the quantity of land modeled in the base case would be more costly than any other scenarios studied and could result in the abandonment of existing urban areas as investment dollars and population moved to the region's periphery and beyond.

To avoid a UGB expansion of the magnitude of the base case scenario, and to mitigate the effects of unchecked urban growth, Metro and its regional partners developed the 2040 Growth Concept. The 2040 Growth Concept reflects the input of Metro's regional partners and the majority of citizens of the region (public opinion surveys) to minimize expansion of the UGB while preserving the character of existing neighborhoods.

In order to accommodate expected growth as required by state law, protect farm land, minimize UGB expansion, and minimize the impact of growth on single family neighborhoods, the 2040 Growth Concept calls for the creation of a more compact urban form through infill development and

redevelopment particularly in mixed use centers. Higher densities and an increase in residential and commercial development are to be achieved in 2040 Design Type areas that encourage a mix of uses and coincide in many cases with existing commercial centers. The 2040 mixed use design types include the central city, regional centers, town centers, main streets and station communities. These efforts were intended to increase the capacity of the Metro region in order to accommodate new population and employment, encourage a vibrant regional economy, make the best use of existing infrastructure investment, minimize the loss of farm land, and to minimize vehicle miles traveled (VMT).

The Functional Plan, adopted by the Metro Council in November 1996, sets requirements and recommendations for local governments to implement growth management policies outlined in the 2040 Growth Concept. Metro Code 3.07.120 (Title 1 of the Functional Plan) requires local governments in the Metro region to take a number of steps to maximize the efficient use of land.

Title 1 of the Functional Plan requires local governments to adopt 2040 design types boundaries (listed above). The Metro Code also requires local governments to adopt zoning in these areas that allow for and encourage a mix of land uses including jobs, and housing within close proximity of frequent transit service.

Compliance Summary

As of December 15, 2002, 25 of 27 jurisdictions in the Metro boundary had adopted boundaries for 2040 design type areas.

Data Analysis

Indicator 1.1b: Capture rate – the proportion of the region's employment, population and household growth inside the Metro UGB as compared to the total (four-county) region.
Data years: 1980 to 2000, and 1990 to 2000. Source: Metro Data Resource Center.

Finding:

- *The proportion of population and households locating in the four-county area (including Clark County, Washington) that settled inside the Metro UGB during the 1990-2000 period (69 percent and 73 percent, respectively) were higher than the those that settled inside the UGB during the 1980-1990 period (63 percent and 58 percent, respectively). However, the proportion of employment locating in the four-county area that settled inside the UGB during the 1990-2000 period (73 percent) was lower than that of the 1980-1990 period (76 percent).*

This indicator measures how effectively the region is accommodating growth compared with the larger four-county economic area. The capture rate is most useful when it is shown over a long period of time, such as the 10- and 20-year increments displayed in the Table 1.1b. It is important to note that capture rates can be subject to a wide degree of measurement error. For this reason the results of the capture rates from the data contained in Appendix E2 could be misleading. A number of factors can cause a shift in the amount of population, households or employment locating in the Metro UGB in a two- or three-year period. These include internal intra-migration in the Portland metropolitan area which could result from population in outlying areas (Canby, Sandy, North Plains, Estacada and Newberg) choosing to relocate to areas inside the UGB. Land price and land availability inside the UGB, livability, and the strength of the regional economy are other factors that can also greatly affect the amount of population and employment locating inside the UGB.

The formula for computing the capture rate is as follows:

Capture Rate Equation: An Example

Household Capture Rate = Metro UGB households between two periods divided by Standard Metropolitan Statistical Area (SMSA)* households for the same two periods

**Standard Metropolitan Statistical Area (SMSA) = Clackamas, Clark, Multnomah and Washington counties.*

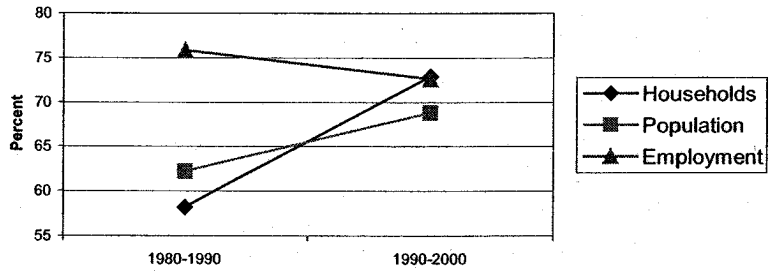
Table 1.1b shows the percentage of the total four-county Portland metropolitan area's households, population and employment located inside the Metro UGB during three time periods. Figure 1.1b depicts the capture rate trend for the two comparable 10-year periods, 1980-1990 and 1990-2000.

Table 1.1b. Metro UGB Capture Rate Trend

Period	Household	Population	Employment
10-Year Capture – 1980 to 1990	58.20%	62.20%	75.80%
10-Year Capture – 1990 to 2000	72.90%	68.80%	72.61%
20-Year Capture – 1980 to 2000	67.80%	66.70%	73.79%

Source: Metro DRC
Note: Data is for the Metro boundary

Figure 1.1b: Metro UGB Capture Rate Trends



Source: Metro DRC. *Note: Data is for area within the Metro boundary.*

A comparison of the household and population data in the above table and figure shows that during the 1980-1990 period, the population locating inside the Metro UGB included households with small family sizes, whereas during the 1990-2000 period, the population locating inside the Metro UGB included households with larger family sizes.

The 1997 Urban Growth Report estimated the land need to the year 2017 and assumed the Metro UGB would capture 70 percent of the region's households and 82 percent of the four-county area region's employment. These estimates were based on data and assumptions developed and used prior to the 1997 planning period. Data in the above table and figure shows that the percent of households (67.80 percent) choosing to locate inside the UGB approaches the 2017 estimate, whereas the percent of employment (73.79 percent) choosing to locate inside the UGB declined during the 1990-2000 period. The decline could be attributed to the boom to recession business cycle that began in the early 1990s and ended in the early 2000.

Assessing the amount of population, households and employment attracted to the metropolitan area and locating inside the UGB is important to planning and managing future growth in the region. Metro has not set a policy or target that dictates the ideal proportion of the regional population, household and employment to be captured inside the UGB in any given year, or during a specific period of time. Although not labeled as such, the assumed/estimated capture rates for households (70 percent) and employment (82 percent) in the Urban Growth Report could be considered the region's targets, but these figures are subject to change based upon the best available information at each five-year periodic review.

Together, the analysis of Indicators 1.1a, 1.1b and 1.1c can help to gauge the degree of effectiveness of the UGB and the mixed use centers in attracting jobs, people and households. The data demonstrates that the UGB is accommodating the majority of household growth and has achieved the 70 percent household target capture rate forecasted in the 1997 Urban Growth Report.

Data Limitations

As pointed out earlier, capture rate can be subject to a wide degree of measurement error due to frequent movement of population and jobs within the four-county metropolitan area. Capture rate is most useful when it is shown over long period of time, such as in 10- and 20-year increments. As shown in Appendix E2, the employment data for the past 20-year period (1980-2000) did not include data for 1995, 1998 and 1999.

Indicator 1.1a: Mixed use and Corridor capture rate – the proportion of employment, population and household growth inside the Metro UGB that is located in mixed use areas and corridors. *(Mixed use areas include central city, regional centers, town centers, station communities and main streets. Corridors are not mixed use areas.)*
Data year: 2000. Source: Metro Data Resource Center.

Finding:

- *The 2000 baseline data shows that 61 percent (553,446) of the jobs and 30 percent (384,547) of the population are located within 2040 mixed use areas and corridors inside the UGB.*
  - *Mixed use design type areas support approximately 48 percent (430,571) of the total employment inside the UGB and approximately 16 percent (200,817) of the total population (384,547).*
  - *Of the 2040 mixed use areas, the central city supports the greatest share of employment with 26 percent (144,723), followed by main streets 16 percent (87,651), and station communities, which also support 16 percent (88,045).*
  - *Station communities support the greatest population of all 2040 mixed use areas with 21 percent (81,206) followed by town centers at 11 percent (42,732), and main streets at 10 percent (39,313).*
  - *Corridors support approximately 22 percent (122,875) of employment and 48 percent (183,730) of population in the 2040 design type areas.*

This indicator is a baseline measure that allows for the assessment of the success of mixed use centers in attracting employment and population. As pointed out in earlier indicators, some local governments have not adopted firm 2040 design type boundaries or rezoned these areas to allow for mixed uses; hence available data may be artificially low. As more local governments adopt design type areas, and as the market responds to the 2040 Growth Concept, the data may better reflect the actual potential of the 2040 Growth Concept. Estimates of the region's jobs and population to be accommodated in 2040 design type areas were included in the adopted Regional Framework Plan and are shown in the last column of the tables below.

Table 1.1a (Part A): Employment in the Mixed Use Areas and Corridors – (year 2000)

Design Type	Employment	% of MU & Corridors Total	% of UGB	Regional Framework Plan Estimates of Future % of UGB Employment
Central City	144,723	26%	16%	20%
Regional Centers	63,079	11%	7%	11%
Town Centers	47,073	9%	5%	7%
Station Communities	88,045	16%	10%	15%[4]
Main Streets	87,651	16%	10%	NA
Mixed Use Subtotal	**430,571**	---	**48%**	---
Corridors	122,875	22%	14%	*See footnote on station communities*
Design Type Total	**553,446**	**100%**	**62%**	---
UGB Total	**904,440**			---

Source: Metro DRC *Notes: Data is for the Metro UGB only.*

Table 1.1a (Part B): People Residing in Mixed Use Areas and Corridors- (year 2000)

Design Type	People Residing	% of Mixed Use & Corridors	% of UGB	Regional Framework Plan Estimates of Future % of UGB Population
Central City	18,654	5%	1.5%	NA
Regional Centers	18,912	5%	1.5%	3%
Town Centers	42,732	11%	3.3%	3%
Station Communities	81,206	21%	6.3%	27%[5]
Main Streets	39,313	10%	3.1%	NA
Mixed Use Subtotal	**200,817**	---	**15.7%**	---
Corridors	183,730	48%	14.3%	*See footnote on station communities*
Design Type Total:	**384,547**	**100.00%**	**30.0%**	---
UGB Total	**1,281,470**			---[6]

Source: Metro DRC *Notes: Data is for the Metro UGB only.*

Among the mixed use centers, the central city accommodated 16 percent of the employment and 1.5 percent of the population inside the UGB as shown in Tables 1.1a (Part A) and Table1.1a (Part B). Both station communities and main streets attracted 10 percent of the jobs inside the UGB. In comparison with other mixed use centers, station communities had the highest population (81,206, or

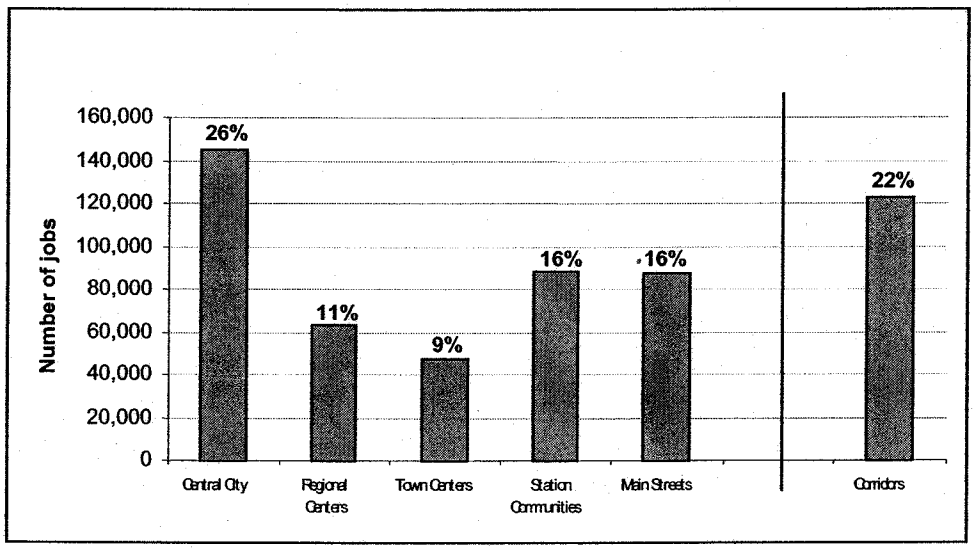
[4] The Regional Framework Plan estimated that both corridors and station communities would jointly accommodate 15 percent of new employment in the region.

[5] The Regional Framework Plan also estimated that corridors and station communities would accommodate 27 percent of new households.

[6] The Regional Framework Plan estimated the proportion of jobs that could be accommodated in inner neighborhoods (15 percent), outer neighborhoods (10 percent), industrial areas (10 percent) and employment areas (14 percent). The Regional Framework Plan also estimated the proportion of households that could be accommodated in inner neighborhoods (28 percent), outer neighborhoods (28 percent), industrial areas (0 percent) and employment areas (5 percent).

6 percent of UGB population). Corridors contained 14 percent of the jobs and 14 percent of the population inside the UGB. The location of corridors along major transportation routes that are highly accessible by bus and automobiles could be a major factor contributing to the attractiveness of these 2040 design type areas. Figures 1.1a (Part A) and Figure 1.1a (Part B) also show the proportion of total employment and population in the mixed uses areas by 2040 design type. 2040 design areas, as a whole, are doing very well in attracting a large share of the employment and population in the Metro boundary. Corridors attract the most significant levels of jobs and population of all design types.

Figure 1.1a (Part A): Percent of Total Employment in Mixed Use Areas by 2040 Design Type, 2000

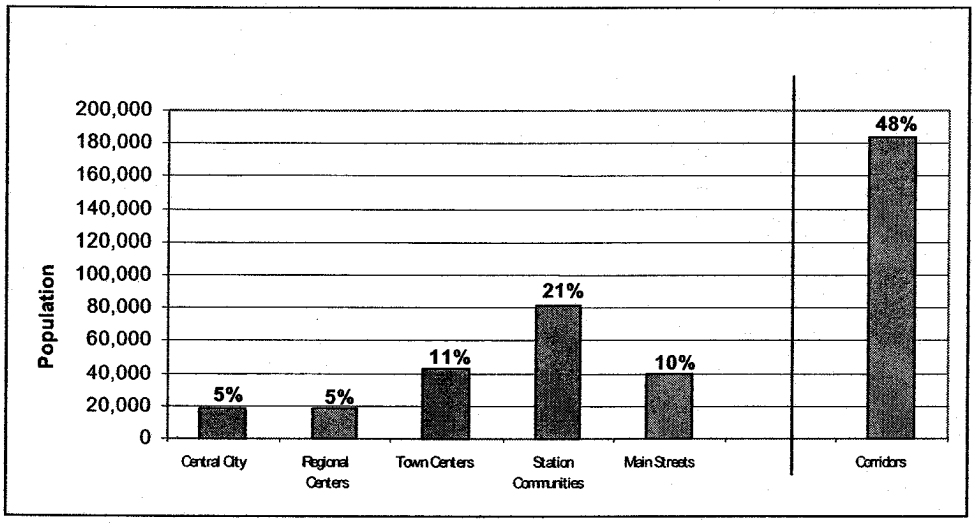


Source: Metro DRC

Data Limitations

Data was not available to measure the employment and population locating in mixed use areas before 2000. Therefore, the 2000 data must serve as baseline for this performance indicator. The data reveals only the most current conditions in centers and future data will be needed to assess how centers have grown over time.

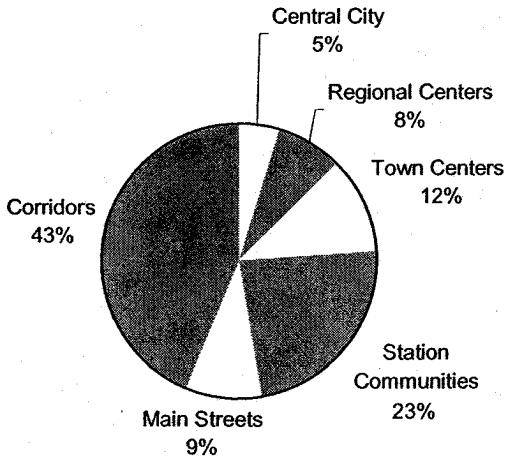
Figure 1.1a (Part B): Percent of Population Residing in Mixed Use Areas by 2040 Design Type, 2000



Source: Metro DRC

Figure 1.1a (Part C) that follows shows the comparison of acreage of the mixed use areas by 2040 design type.

Figure 1.1a (Part C): Comparison of Acreage of Mixed Use Areas by 2040 Design Type



Total acreage for mix use centers (w/o Corridors) = 28,589 acres
Note: Total acreage for all of the above design types = 50,869 acres
Source: Metro DRC

Indicator 1.1c: Employment (types) in mixed use centers and corridors.
Data year: 2000. Source: Metro Data Resource Center.

Finding:

- *The 2000 baseline data shows that the service industry is the most predominant employment sector in the mixed use centers (178,770 or 42 percent of total), followed by retail (102,759 – 24 percent), finance insurance and real estate (52,243 – 12 percent), manufacturing (30,278 – 7 percent), transportation and utilities (25,771 – 6 percent), and others. The service jobs in the mixed use centers represents about 56 percent of all service jobs in the UGB. About 18 percent of all the service jobs inside the UGB are located in the central city, while 12 percent are located in station communities, 11 percent in main streets, 8 percent in regional centers, and 6 percent in the town centers.*

This indicator measures the employment distribution (amount and type of jobs) by industrial category in mixed use centers and corridors. The 2040 Growth Concept relies on mixed use centers to support greater concentration of transportation and other infrastructure, and to provide greater opportunities for housing and employment. Mixed use centers are therefore expected to allow for a diverse and vibrant concentration of businesses that might not exist in areas that are zoned traditionally for commercial use. The type and number of jobs locating in the 2040 centers is important to assessing whether employment opportunities are being encouraged by local government land use actions.

Data in Table 1.1c shows the central city attracts 37 percent of the finance insurance and real estate jobs (28,807) and 13 percent of the retail jobs (21,920) within the UGB. Regional centers and town centers also attract significant portions of the retail jobs (21,456 or 13 percent and 12,583 or 7 percent, respectively). Town centers attract 11 percent of the agriculture, fishing and forestry jobs in the UGB. Station communities attract much of manufacturing (14,724 or 12 percent) and retail jobs (11,995 or 7 percent) in the UGB. Main streets attract a significant share of the retail jobs within the UGB (34,806 or 20 percent).

Corridors attract mostly service jobs (41,886 or 13 percent in the UGB), retail jobs (34,580 or 20 percent in the UGB) and school jobs (13,565 or 33 percent in the UGB).

The following table (Table 1.1c) illustrates this data in detail.

Table 1.1c: Types of Employment (People Employed) in Mixed Use Areas and Corridors – 2000

	SIC	Central City		Regional Centers		Town Centers		Station Communities		Main Streets		Total Mixed Use Centers			Corridors		Total by Industry	Total UGB	
			% of UGB Total		% of UGB Total		% of UGB Total		% of UGB Total		% of UGB Total		% of Mixed Use Total	% of UGB Total		% of UGB Total		% of UGB Total	
1	AFF	177	2%	129	2%	774	11%	205	3%	527	7%	1,811	0.4%	25%	1,783	24%	3,594	49%	7,301
2	Construction	4,986	10%	874	2%	2,001	4%	2,905	6%	3,135	7%	13,902	3.2%	29%	7,240	15%	21,143	44%	47,537
3	FIRE	28,807	37%	6,173	8%	3,931	5%	6,908	9%	6,424	8%	52,243	12.1%	67%	6,848	9%	59,092	76%	78,123
4	Manufacturing	7,171	6%	2,998	3%	2,825	2%	14,723	12%	2,560	2%	30,278	7.0%	25%	8,772	7%	39,050	33%	119,072
5	Retail	21,920	13%	21,456	13%	12,583	7%	11,994	7%	34,806	20%	102,759	23.9%	60%	34,580	20%	137,339	80%	170,743
6	School	277	1%	596	1%	1,096	3%	1,645	4%	812	2%	4,426	1.0%	11%	13,565	33%	17,991	43%	41,453
7	Services	58,557	18%	25,615	8%	20,373	6%	38,412	12%	35,814	11%	178,770	41.5%	56%	41,886	13%	220,656	70%	317,276
8	TPU	14,815	27%	1,903	3%	1,303	2%	6,384	12%	1,366	2%	25,771	6.0%	47%	3,121	6%	28,892	52%	55,172
9	Wholesale	8,013	12%	3,334	5%	2,187	3%	4,869	7%	2,207	3%	20,610	4.8%	30%	5,079	7%	25,690	38%	67,762
	Total	144,723	16%	63,079	7%	47,073	5%	88,045	10%	87,651	10%	430,571	100%	48%	122,875	14%	553,446	61%	904,440

Source: Metro DRC
Note: Data is for Metro UGB only.
*AFF = Agriculture, Fishing and Forestry
*FIRE = Finance, Insurance and Real Estate
*TPU = Transportation and Public Utilities

Data Limitations

Employment data for main streets and corridors should be used with caution because of potential errors resulting from geo-coding of addresses of jobs outside the 2040 design boundary adopted by the jurisdictions.

Fundamental 2

Protect and restore the natural environment through actions such as protecting and restoring streams and wetlands, improving surface and ground water quality, and reducing air emissions.

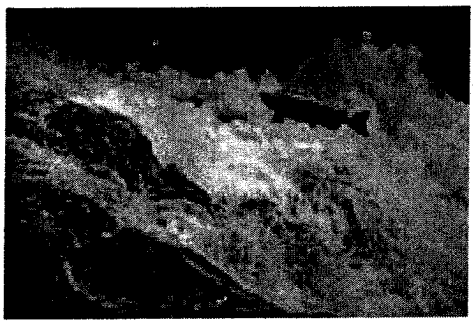
To evaluate this fundamental, the performance indicators address the following related questions.

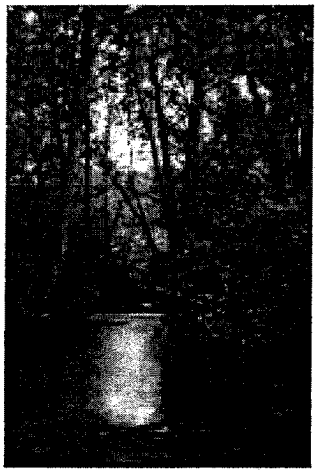
a) Are we successful in protecting and restoring the region's natural environment, including streamside corridor system, wetlands, streamside areas and floodplains?
b) Are the strategies and tools we are using working?

INDICATORS MEASURED

Protection of Environmentally Sensitive Lands within the Metro Boundary **2.1a**: Acres of environmentally sensitive land within Metro Boundary regulated by Title 3 (wetlands, floodplains, streamside areas, and steep slopes). **(Required)** **2.1b**: Percent of stream miles in the Metro region protected by Title 3. **(Required)** **2.2a-b**: Percent of vegetated corridors along Title 3 rivers and streams converted to development (including adjacent steep slopes as defined by Title 3). **(Required)** **2.2c**: Percent of Title 3 floodplain area converted to development. **(Required)** **Features Protected by Acquisition** **2.3a (part 1)**: Acres of greenspaces acquired by Metro, and acquired by local governments and special districts. **2.3b (part 1)**: Miles of stream banks in public ownership/protected through acquisition by Metro, and through acquisition by local governments or special districts. **(Required)** **Forested Land and Water Features Protected and Not Protected** **2.4**: Acres of Title 3 wetlands, streamside areas, floodplains and steep slopes that are vegetated or forested (tree canopy).	**2.5**: Change in acres of vegetated or forested (tree canopy) Title 3 wetlands, streamside areas and steep slopes. **2.6a**: Acres of forested (tree canopy) land that is unregulated by Title 3 and outside of public and private parks and open spaces. **2.7a**: Change in acres of forested (tree canopy) land that is unregulated by Title 3 and outside of public and private parks and open spaces. **Steep Slopes on Non-Regulated Land and Water Features** **2.8**: Acres of vacant steep slopes not regulated by Title 3 and map. **Water Quality** **2.9a**: DEQ water quality index. **2.9b**: DEQ 303(d) list for water quality limited water bodies in the Metro region. **Waste Disposed and Recycled** **2.10a**: Change in the amount of waste generated, recycled and disposed. **2.10b**: Amount of household and hazardous waste collected.

Protecting and restoring the natural environment





Protection of Environmentally Sensitive Lands within the Metro Boundary

Purpose

To assess the degree of protection that Metro's Title 3 regulations offer to environmentally sensitive lands in the Metro region.

Summary

Policy

Protecting streams and floodplains, including the maintenance of vegetated corridors along rivers, streams and wetlands (and associated steep slopes) is part of Metro's effort to create and maintain livable communities now and for future generations. Metro's Title 3 Stream and Floodplain Protection Plan represents the most comprehensive regulatory protection that these environmentally sensitive areas currently receive.

Indicators

2.1a Acres of environmentally sensitive land within the Metro jurisdictional boundary regulated by Title 3 (wetlands, floodplains and streamside areas). (Required – Metro and State)
Data year: 1998. Source: Metro Data Resource Center.

- *The Title 3 maps adopted by the Metro Council on 6/18/98 show the water features, steep slopes, and floodplain that meet the criteria for Title 3 protection. These maps display a one-time snapshot of land in the region affected by these regulations. Although local governments may regulate additional water features, etc. with Title 3 regulations, the initial acreage adopted by Metro will not change. The total acreage of Title 3 areas adopted by the Metro Council was 30,505 acres. Of this acreage, floodplain accounts for approximately 44 percent, streamside areas (including steep slopes) account for approximately 30 percent and wetlands approximately 26 percent.*

2.1b Percent of stream miles within the Metro boundary protected by Title 3. (Required – Metro and State)
Data year: 1998. Source: Metro Data Resource Center.

- *775 miles or 87 percent of the 882 total miles of streams inside the Metro boundary, are regulated by Title 3.*

2.2a/b Percent of vegetated corridors along Title 3 rivers and streams within the Metro boundary converted to development (including adjacent steep slopes as defined by Title 3). (Required – Metro and State)
Data year: 2000. Source: Metro Data Resource Center.

- *When Title 3 was adopted in 1998, 5,280 acres, 51 percent of the 10,434 total acres of Title 3 vegetated corridor areas, were developed. By 2000, an additional 363 acres of the Title 3 vegetated corridors were developed, increasing the total developed areas to 54 percent.*

2.2c Percent of Title 3 floodplain area within the Metro boundary converted to development. (Title 3 Floodplain includes the FEMA 100-year floodplain, areas inundated in 1996, and other floods of record). (Required – Metro and State)
Data years: 1998 to 2000. Source: Metro Data Resource Center.

- *The 1998 vacant land inventory showed that 6,649 acres of vacant land existed in the floodplain area regulated by Title 3. The 2000 vacant land study showed that the amount of vacant land in the floodplain had decreased by 568 acres to 6,082 acres. These changes represent a 9 percent decrease in the amount of vacant land in the floodplain. At this rate, the remaining floodplain area could be developed in about 20 years. [Note: Title 3 does not prohibit development in the floodplain. Instead, it contains a balance cut and fill provision that is intended to limit the loss of flood storage capacity in the floodplain and prevent the loss of life and property as a result of flooding. Hence, the truest measure of Title 3's effectiveness would*

be a measure of the actual storage capacity of the floodplain. However, this measurement is impossible to conduct. While the amount of development occurring in the floodplain is not a measure of Metro policy, data on vacant land consumption in the floodplain has been included.]

Survey Results of Local Officials and Planning Commissioners

✓ *Protection of natural environment*: 56 percent of those surveyed thought the measures being taken to protect the natural environment are satisfactory, while another 15 percent rated the existing measures as excellent. 11 percent rated the measures as unsatisfactory while 8 percent thought the measures are poor.

Policy Rationale

Metro's home rule charter, adopted in 1992, requires Metro to address issues of regional significance through its land use and open spaces planning. Protecting streams and floodplains is part of a larger effort to create livable communities now and for future generations. The Future Vision document states that the regional vision for growth will include the preservation of natural landscapes and the stewardship of the region's natural resources. The Regional Framework Plan calls for the Metro region to "maximize the ability to protect water quality in the future, including support for and participation in watershed-protection and pollution prevention-based approaches."

State land use laws that are applicable to Metro must be coordinated with local government partners in this region. State Land Use Goals 6 and 7, relate to floodplain protection, the improvement of water quality, and the protection of life and property from natural hazards and disasters. In order to meet these goals and respond to community wishes, the Metro Council adopted the Stream and Floodplain Protection Plan in November 1998, which was incorporated into Title 3 of the Functional Plan.

Title 3, Section 4 of the Functional Plan requires local jurisdictions to meet regional performance standards relating to water quality and floodplain management. Title 3 provides specific, quantifiable regional standards that local jurisdictions must implement and enforce. These regulations relate to maintaining vegetated corridors along rivers, streams and wetlands (and associated steep slopes), the adoption of a regional erosion control standard, and provisions concerning hazardous material storage in areas adjacent to rivers and streams.

Title 3 seeks to ensure that new development in the floodplain (FEMA 100-year floodplain and the area of inundation from the 1996 flood) result in no net loss of flood storage and conveyance capacity by requiring that any fills be balanced with cuts of an equal size. Although balance cut and fill is expected to reduce the downstream impacts of floodplain development, Title 3 recognizes that new structures will continue to be built in the floodplain.

Title 3 also requires local governments to adopt regulations concerning vegetated corridors along Title 3 rivers and streams of a standard width. The width of vegetated corridors for streamside areas and wetlands that are associated with steep slopes (greater than 25 percent) is wider. Title 3 requires that any new development and any significant redevelopment occur, to the greatest extent possible, outside of these vegetated areas. Where avoidance of the vegetated corridor area is impossible, limited intrusion is allowed and mitigation for the impacts of development is required.

The vegetated corridor provisions of Title 3 also apply to protect wetlands. However, wetlands fall under the jurisdiction of not only the local government, but also the Oregon Division of State Lands and the U.S. Army Corps of Engineers.

The minimum Title 3 standards adopted by Metro allow for alteration or mitigation of wetlands in situations where no practicable alternatives are available and where the plan for mitigation is reviewed and approved. However, nothing prohibits local governments from adopting more stringent standards relating to wetland mitigation. In cases where a developer is able to meet local government criteria for mitigating a wetland and the mitigation project involves filling less than 50 cubic yards, the local government alone processes the request. In cases where the mitigation plan involves filling more than 50 cubic yards, the applicant must seek approval for mitigation from the Oregon Division of State Lands in addition to the local government.

Data Analysis

Data used in the analysis of Title 3-regulated land and water features was based on: a) a regional inventory of *rivers and streams* that drain an area greater than 50 acres or were known to be perennial at the time the policy was effective in 1998; b) an estimate of *steep slopes* associated with *streamside areas* using USGS 10-foot contour lines; c) federal, state and local inventories of *wetlands*; and d) floodplains derived from the Army Corps of Engineers/FEMA floodplain maps last updated in 1992 and aerial photography taken shortly after the peak of the flood of 1996.

Indicator 2.1a: Acres of environmentally sensitive land within the Metro boundary regulated by Title 3 (wetlands, floodplains and streamside areas[7]).
Data year: 1998. Source: Metro Data Resource Center.

Finding:

- *The Title 3 maps adopted by the Metro Council on June 18, 1998 show the water features, steep slopes, and floodplain that meet the criteria for Title 3 protection. These maps display a one-time snapshot of land in the region affected by these regulations. Although local governments may regulate additional water features, etc. with Title 3 regulations, the initial acreage adopted by Metro will not change. The total acreage of mapped Title 3 areas adopted by the Metro Council was 30,505 acres. Of this acreage, floodplain accounts for approximately 44 percent, vegetated corridors along rivers and streams (including steep slopes) account for approximately 30 percent and wetlands approximately 26 percent.*

Metro's Geographic Information System (GIS) makes it possible to obtain the estimate of the total acreage of land protected by Title 3 within the Metro boundary in 2001 and this information is shown in Table 2.1a. Please note that the total acres shown in Table 2.1a for each land feature avoids double counting and/or under counting that may result from overlapping of land features as shown Figure 2.

Table 2.1a: Environmentally Sensitive Land Regulated by Title 3 -- 1998

Features Protected	Total Acres	Percent of Regional Total
Floodplain	12,822	42%
1996 flood areas exceeding FEMA floodplain	680	2%
Wetlands	7,857	26%
Vegetated corridors along rivers and streams*	9,146	30%
Total	**30,505**	**100%**

Source: Metro DRC

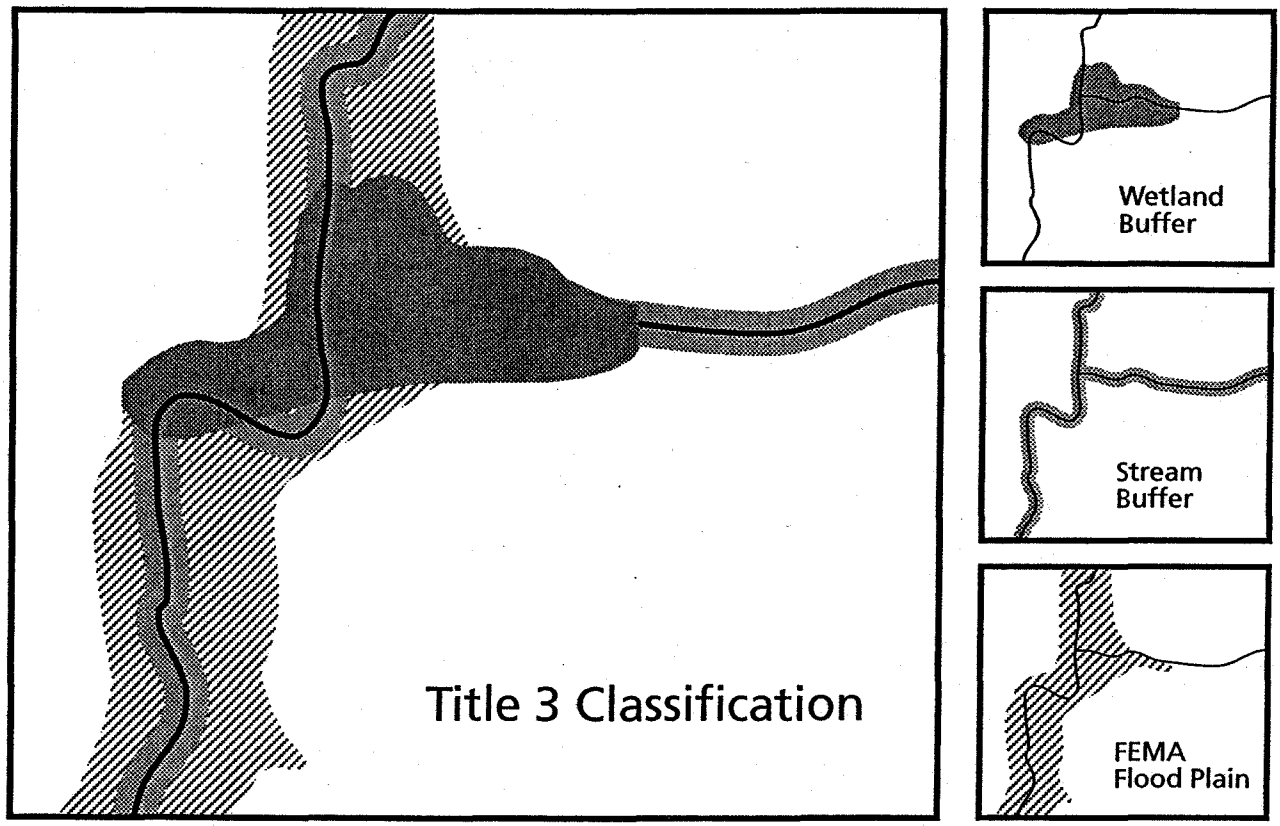
* Includes steep slopes which lay within the boundaries of streamside areas. Upland steep slopes were not included in the calculation. Title 3 vegetated corridor requirements vary in width, from 15 feet along secondary protected streams to 200 feet in areas where a primary streams or wetland are associated with steep slopes.

[7] Note: Steep slopes addressed in Title 3 are associated with streamside areas.

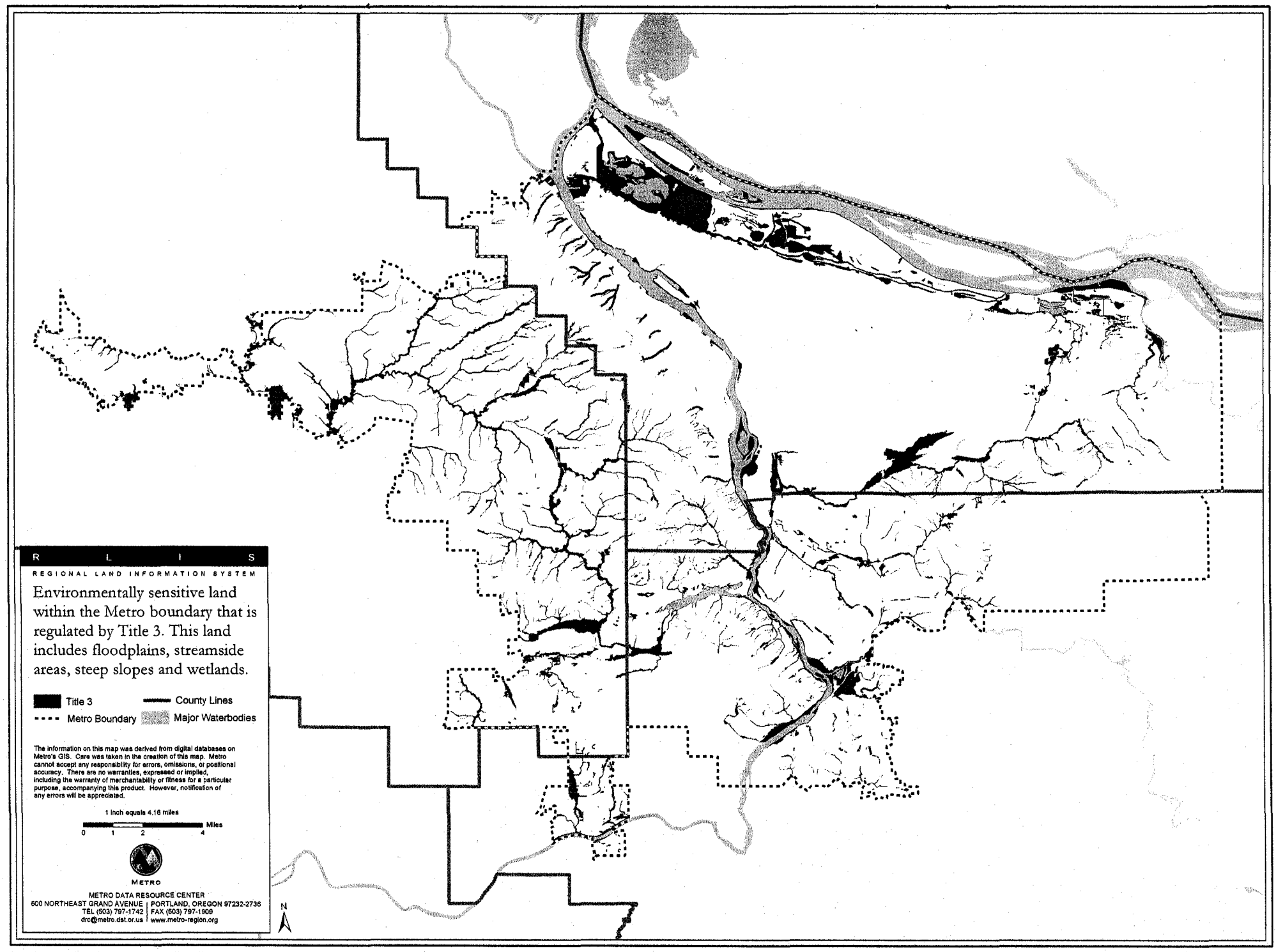
Data Limitations

It is also important to note that due to the accounting scheme described earlier, the total acres shown in Table 2.1a will differ from the total acres for each land features evaluated in Indicators 2.2a-b and 2.2c that follow.

Figure 2. : Methodology for calculating areas of land, by feature, in overlapping Title 3 areas



In the calculation of the proportion of total floodplain, wetland and streamside areas protected in overlapping Title 3, the overlapping of land features creates a double-counting and/or under-counting problem. These problems are addressed with a Metro GIS prioritization scheme as follows: When floodplain, wetland and streamside areas overlap as shown in Figure 2.1a, the GIS would account for or recognize only wetland. When the remaining two land features (floodplain and streamside areas) overlap each other, the GIS would account for or recognize only streamside areas. This accounting/prioritization scheme is based on the importance of wetland and streamside buffer regulations in maintaining and improving the region's water quality. Floodplain regulations have less impact in improving water quality.



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Indicator 2.1b: Percent of stream miles within the Metro boundary protected by Title 3.
Data year: 1998. Source: Metro Data Resource Center.

Finding:

- *775 miles or 87 percent of the 882 total miles of streams known to exist inside the Metro boundary are regulated by Title 3. This number represents 87 percent of the region's total stream miles.*

This indicator measures the proportion of stream miles within the Metro boundary protected by Title 3. The streams analyzed for this indicator were those in Metro's "stream route" database.

Title 3 regulations are not intended to apply to every known stream in the Metro region but instead to a subset of the region's streams and rivers that met a minimum size and flow threshold. Title 3 regulations pertain to all rivers and streams known to be perennial, and all streams that drain an area greater than 50 acres. The streams not regulated by Title 3 did not meet the threshold for protection. The remaining stream miles (107 miles) not protected by Title 3 may be protected by local government regulations. In many cases, these smaller streams are headwater streams.

Compliance

Local governments are responsible for implementing and enforcing the provisions of Title 3. As of December 15, 2002, 21 of the 26 jurisdictions within Metro and with Title 3 water quality resources within their boundaries were in compliance with the standards of Title 3 (see Appendix E1).

Indicator 2.2a/b: Percent of vegetated corridors along Title 3 rivers and streams within the Metro boundary converted to development (including adjacent steep slopes as defined by Title 3).
Data year: 2000. Source: Metro Data Resource Center.

Finding:

- *When Title 3 was adopted in 1998, 5,280 acres (51 percent) of the 10,434 total acres of Title 3 vegetated corridor areas were in a developed state. By 2000, an additional 363 acres of the Title 3 vegetated corridors had become developed making the total developed portion of these areas 54 percent.*

This indicator monitors the effectiveness of regional policies in protecting vegetated corridors along rivers and streams. Table 2.2a-b shows the level of development that has occurred in these areas.

Table 2.2a-b: Vegetated Corridors along Rivers and Streams Converted to Use

Total vegetated corridor acres along rivers and streams regulated by Title 3 = 10,434 acres					
	Acres				
	1998	**1999**	**Change 1998-1999**	**2000**	**Change in 1999-2000**
Total developed acres in Title 3 vegetated corridors along rivers and streams* in Metro UGB	5,280	5,483	203 (2%)	5,642	159 (1.5%)

Source: Metro DRC
*Includes steep slopes which lay within the boundaries of streamside areas.

In 1998, The Metro Council adopted the Title 3 maps that included a total of 10,434 acres of land within Title 3 vegetated corridors along rivers and streams (including steep slopes) inside the Metro boundary. The 10,434 acre figure is different from the total acres stated earlier (9,146 acres) in Table 2.1a. This

difference is due to overlapping of Title 3 areas and the methodology used to calculate the proportion of land, by feature, protected by Title 3 (see the explanation in Figure 2).

Some vegetated corridors along rivers and streams are located on parcels of land that already support a residential, commercial or industrial use. The number of acres of land within Title 3 streamside areas that were already developed in 1998 was 5,280 acres. In 1999, the number of developed acres in Title 3 vegetated corridors along rivers and streams increased to 5,483 acres, signifying a loss of 203 acres (or a 2 percent increase in developed area). In 2000, the acres of developed land in vegetated corridors along rivers and streams again increased to 5,642 acres. This represents a loss of 159 acres (or a 1.5-percent increase in developed area) in the period from 1999-2000. However, local governments have been allowed time to amend the code to incorporated Title 3 and this ramp up may explain some of the definitions in these areas. (See Compliance section.)

Indicator 2.2c: Percent of Title 3 floodplain area within the Metro boundary converted to development.
Data years: 1998 to 2000. Source: Metro Data Resource Center.

Finding:

- *The 1998 vacant land inventory showed that 6,649 acres of vacant land existed in the floodplain area regulated by Title 3. The 2000 vacant land study showed that the amount of vacant land in the floodplain had decreased by 568 acres to 6,082 acres. These changes represent a 9 percent decrease in the amount of vacant land in the floodplain. At this rate, the remaining floodplain area could be developed in about 20 years.*

Title 3 does not prohibit development in the floodplain. Instead, Title 3 contains a balance cut and fill provision that is intended to limit the loss of flood storage capacity and conveyance in the floodplain and to prevent the loss of life and property as a result of flooding. For this reason, the most appropriate measure of Title 3's effectiveness with regard to the floodplain would be a measure of the actual storage capacity of the floodplain. However, this data is impossible to collect.

Indicator 2.2c measures the amount of new development that is occurring within the floodplain and is not a direct measure of Title 3 policy. Instead, this indicator attempts to examine the pressure to develop that is exerted on floodplain areas and allows for a discussion of the way that needs for growth should be balanced with the functions that floodplain areas provide. In particular, this measure is relevant to efforts to design a regional policy for preserving and protecting habitat for fish and wildlife (including federally protected salmonids).

Data in Table 2.2c shows that in 1998, there were a total of 20,599 acres of floodplain area regulated by Title 3 within the Metro boundary. It should be pointed out that this 20,599-acre figure includes wetland and riparian or vegetated corridors along rivers and streams that were excluded in the data in Indicator 2.1a and Table 2,1a.

Table 2.2c: Floodplain Area Converted to Use

Total Floodplain Area in Metro Boundary Regulated by Title 3 = 20,599 acres					
	Acres				
	1998	**1999**	**Change 1998-1999**	**2000**	**Change 1999-2000**
Developed Acres in Floodplain Area in Metro UGB	13,950	14,327	378 (3.56%)	14,517	190 (1.79%)

Source: Metro DRC

Title 3 considered Title 3 flood management areas to be the FEMA 100-year floodplain and the areas beyond the FEMA floodplain were known to have flooded in the 1996 Flood. Portions of the floodplain include existing residential, commercial or industrial development. In 1998, the acres of floodplain that were classified as vacant were 6,649 acres. In 1999, the amount of vacant land in the Title 3 floodplain had decreased to 6,272 acres. This represents the development of 378 acres of floodplain (or a 3.6 percent decrease in the undeveloped portions of the floodplain). In 2000, the vacant acres in floodplain again decreased to 6,082 acres. This represents a loss of 190 acres (or a 1.8- percent decrease in the total of undeveloped floodplain).

Compliance

Local governments were allowed 19 months after Metro's adoption of Title 3 to incorporate these provisions into their local zoning code and comprehensive plans. A number of jurisdictions requested extensions to the compliance deadline. As of December 15, 2002, 23 of 25 jurisdictions with floodplain had adopted floodplain standards and 21of 26 jurisdictions with streams and wetlands adopted Title 3 water quality standards. Lastly, as of December 15, 2001, 26 of 27 jurisdictions had adopted erosion control standards. This ramp-up schedule may explain in part some of the development occurring in Title 3 areas since the Metro's adoption of the policies.

Features Protected by Acquisition

Purpose

To measure the total amount of land that has been acquired for use as greenspaces by Metro and by local governments in the Metro region. The ownership status and public stewardship of these acquired natural areas ensure that these areas are protected from development. The total amount of acquired land can be used as another measure of the region's efforts to preserve natural areas.

Summary

Policy

Metro's primary policy documents (Metro Charter, RUGGOs, 2040 Growth Concept, Regional Framework Plan and Metropolitan Greenspaces Master Plan) affirm Metro's role in protecting and preserving parks and open spaces through a number of means including regulation, stewardship and acquisition. Metro's $135.6 million open spaces, parks and streams bond measure was approved by voters in 1995 with the primary goal of purchasing 6,000 acres of natural areas, trails and greenways. Of the $135.6 million total, local governments were apportioned $25 million to acquire open spaces of concern and interest and to improve existing park and recreation facilities.

Indicators

2.3a Acres of:

- Greenspaces acquired by Metro

Data years: 1995 to 2002. Source: Metro Data Resource Center.

- *More than 1,000 acres of greenspace were acquired by Metro each year from 1996 to 2000 and 1,342 acres were acquired in 2001 and 2002. Metro has exceeded its overall goal of acquiring 6,000 acres of natural areas set by the $135.6 million bond measure. The current total as of December 24, 2002 is 7,877 acres.*

- Greenspaces acquired by local governments and special districts

Data years: only 2001 total available. Source: Local governments.

- *Metro estimated that the $25 million dollar local share portion of the 1995 bond measure would allow local governments to acquire approximately 270 acres of local open space. Though actual local share acres acquired to date are not available, as of April 30, 2002, local governments had spent $16 million in the acquisition of local open space areas. Note: Many times, local share acquisition funds were pooled with Metro acquisition funds to purchase a number of properties jointly. This practice means that overlap exists in the figures for both Metro and local share acquisitions. Also, some local share acquisition projects include improvement costs. Local governments also spend their own (non-bond measure) resources in the acquisition of local open spaces.* ***(Required – Metro and State)***

2.3b Miles of stream banks in public ownership protected through acquisition

- By Metro - ***Data years: 1995 to 2002. Source: Metro Data Resource Center.***
- By local governments and special districts - ***Data years: none available. Source: Local Governments.***
  - *Since 1995, Metro has acquired approximately 63 miles of stream bank. Data reflecting local acquisitions that include stream banks is not available.*

(Required – Metro and State)

Survey Results of Local Officials and Planning Commissioners

✓ *Adequacy of natural areas*: 47 percent saw the natural areas in the region as adequate, while 14 percent rated the amount of natural areas in the region as excellent. 15 percent rated the amount of natural areas in the region as unsatisfactory, while 10 percent rated the amount of natural areas as poor.
✓ Most important issues that should be addressed in the region: *32 percent said protecting open spaces was among the most important issue.*

Policy Rationale

The Metro Charter, approved by voters of the region in 1992, authorizes Metro to acquire, develop, maintain, and operate a system of regional parks and open space. The Metropolitan Greenspaces Master Plan describes goals and policies related to establishing a cooperative, interconnected system of natural areas, open space, trails and greenways throughout the metropolitan area. Additionally, the Regional Framework Plan calls for protection of natural areas, parks, and fish and wildlife habitat. The maintenance of a connection between urban areas and the natural environment is a fundamental theme of the 2040 Growth Concept. The Metropolitan Greenspaces Master Plan puts an emphasis on the public acquisition and protection of these riparian areas in order to preserve them for future generations.

Metro's $135.6 million open spaces, parks and streams bond measure was approved by voters in May 1995 with the primary goal of purchasing at least 6,000 acres of natural areas, trails and greenways for future use as parks, trails, and fish and wildlife habitat. Local governments within the Metro region were to use their share of the bond money ($25 million) to acquire local greenspaces and improve amenities for natural area protection and public recreation.

Metro targeted areas for acquisition that supported a diversity of animal and plant life, were linked to other open space sites, and had the potential for restoration. Metro also targeted natural areas that had potential to serve as educational and scenic resources. Although land was the specific target for acquisition, another goal of the bond measure was to maintain water quality in the region's rivers and streams and to protect the salmon, trout and steelhead residing in these streams. (According to Metro's Scientific Literature Review for Goal 5, 2001, as many as half of all species of wildlife that live in the Metro region are closely associated with streamside areas and 94 percent use these areas regularly). For these reasons, many of the target areas follow stream corridors and the surrounding greenways.

Public acquisition offers the most comprehensive strategy available for protecting the remaining natural areas in the Metro region from development. Regulatory protections such as Metro's Title 3 (*see Indicator 2.1b*) and regulations meant to comply with Oregon Planning Goal 5 (relating to fish and wildlife habitat and other resources) seek to minimize the impact that development has on environmentally sensitive lands.

Data Analysis

Indicator 2.3a: Acres of:

- Greenspaces acquired by Metro

Data years: 1995 to 2002. Source: Metro Data Resource Center.

Finding:

- *More than 1,000 acres of greenspace were acquired by Metro each year from 1996 to 2000 and 1,342 acres were acquired in 2001 and part of 2002. Metro has exceeded its overall goal of acquiring 6,000 acres of natural areas set by the $135.6 million bond measure. The current total as of December, 2002 is 7,877 acres.*

- Greenspaces acquired by local governments and special districts

Data years: 2001 and 2002 estimates only. Source: Local governments.

Finding:

- *Metro estimated that the $25 million dollar local share portion of the 1995 bond measure would allow local governments to acquire approximately 270 acres of local open space. Though actual local share acres acquired to date are not available, as of April 30, 2002, local governments had spent $16 million in the acquisition of local open space areas. Note: Many times, local share acquisition funds were pooled with Metro acquisition funds to purchase a number of properties jointly. This practice means that overlap exists in the figures for both Metro and local share acquisitions. Also, some local share acquisition projects include improvement costs. Local governments also spend their own (non-bond measure) resources in the acquisition of local open spaces.*

Table 2.3a: Acres of Greenspaces Acquired by Metro and Local Governments

Calendar Year	Transactions	Acres Acquired by Metro with Metro Bonds	Acres Acquired by Local Governments with Local Share Component of Metro Bonds
1995*	11	346.44	
1996	27	1,219.73	
1997	54	1,378.97	
1998	48	1,065.28	Actual acreage not yet available
1999	34	1,178.07	
2000	31	1,346.12	
2001	22	714.68	
2002**	13	627.59	
Total	**240**	**7,876.88**	**270 (est.)*** **

Source: Metro DRC and Parks and Greenspaces

*1995 was a partial year data.

** 2002 data represents Metro acquisitions as of December 24, 2002

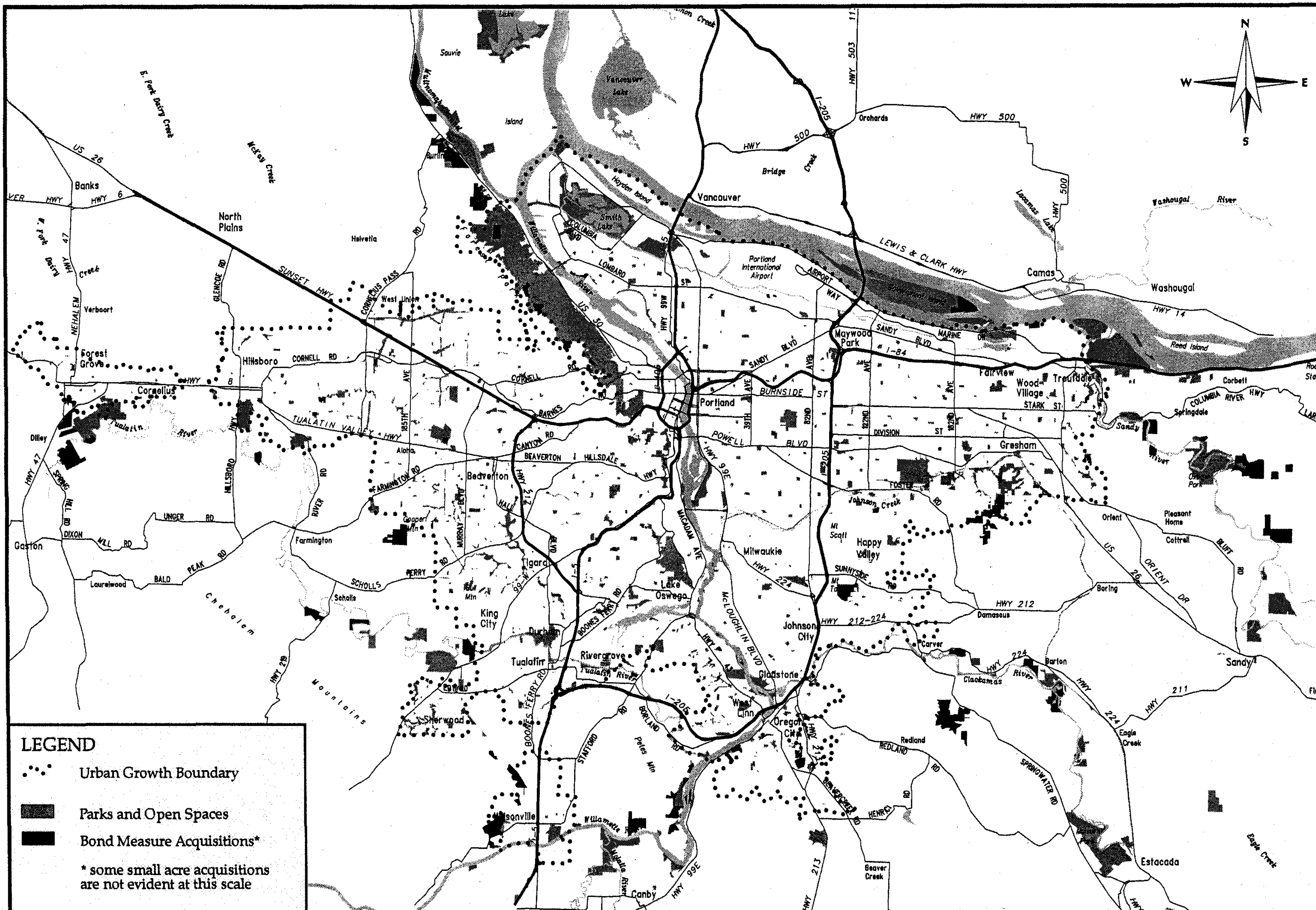
***Metro estimate of the acreage local governments could acquire with $25 million.

The above table displays the acres of greenspaces acquired by Metro and local governments by year. The second column in the table shows the number of property transactions that were completed each year for which data is available. (A transaction consists of Metro's acquisition of a piece of property.) The next column tabulates how many acres of greenspace property Metro acquired each year. For example, in 2000 Metro purchased roughly 1,346 acres of greenspace through 31 different transactions. Many times, local share funds for acquisition were pooled with Metro acquisition funds to

purchase properties jointly. This practice means that overlap exists in the figures for both Metro and local share acquisitions.

The original goal of Metro's $135.6 million open spaces, parks and streams bond measure was to acquire a total of 6,000 acres. As of December 24, 2002, Metro has purchased a total of 7,876.88 acres of greenspaces. This figure exceeds the original goal by 1,877 acres with approximately $8 million remaining for further regional land acquisition.

The final column is a placeholder for data that will show the number of acres of land that have been acquired by local governments in the Metro region. Accurate acreage data for local share acquisitions is not yet available due to a lack of a standard reporting protocol for acreage and the fact that many local governments have limited parks staff and resources to gather this data. However, as of April 30, 2002, data from the Metro's Regional Parks and Greenspaces Department reveals that local governments have spent a total of $16 million of the $25 million bond measure on the acquisition of greenspaces.



Metro Open Spaces, Parks and Streams Bond Measure

(As of May 25, 2001)

Scale: 1" = 4.5 Miles

0 2.25 4.5

METRO

/95212/aml/pltbondbw_811.aml

Indicator 2.3b: Miles of stream banks[8] in public ownership protected through acquisition:

- by Metro

Data years: 1995 to 2002. Source: Metro Data Resource Center.

- by local governments and special districts

Data years: none available. Source: Local governments.

Finding:

- *Since 1995, Metro has acquired approximately 63 miles of stream bank. Data reflecting local acquisitions that include stream banks is not yet available.*

Table 2.3b: Miles of Stream Bank in Public Ownership Protected through Public Acquisition

Year	Miles Acquired by Metro	Miles Acquired by Local Governments
1995*	2	*Data not yet available*
1996	7	
1997	15	
1998	9	
1999	8	
2000	8	
2001	9	
2002**	5	
Total	**63**	

Source: Metro DRC

* 1995 is a partial year.

** Data for 2002 includes acquisitions as of December 24, 2002.

Table 2.3b displays the miles of stream banks protected through acquisition over a eight-year period. As was mentioned in the policy rationale section, Metro does not have an annual stream bank acquisition target. However, the bond measure requires Metro to consider water quality and fish and wildlife habitat in prioritizing areas for acquisition. The data for 2002 includes acquisitions that occurred before December 24, 2002.

Data Limitations

Data includes perennial waterways that appear in Metro's GIS system. When Metro owns both banks of a stream, the frontage on both sides is included. Stream bank frontage data can change when rivers/streams change course and new GIS data is available. In some cases, Metro owns riparian property that does not technically have frontage, but may be only a few feet from water. That frontage is not included here.

[8] In some areas only one side of a stream bank is acquired, and in some cases both sides of a stream bank have been acquired. One mile of stream bank with both sides acquired would be counted as two miles in length.

Forested Land and Water Features Protected and Not Protected

Purpose

To assess the total amount of environmentally sensitive land that is protected by Stream and Floodplain Protection Plan (Title 3) regulations, and the amount of forested land in the region that is not protected by Title 3 or by status as a park/open space. These forested areas are considered non-regulated and with the potential to be converted to urban development.

Summary

Policy

The RUGGOs, 2040 Growth Concept and Regional Framework Plan stress the importance of protecting and preserving the region's natural resource areas while at the same time economizing the use of land. Forested land has aesthetic benefits and serves important hydrologic and wildlife functions, especially when associated with a water feature. Metro's Stream and Floodplain Protection plan (Functional Plan Title 3) required vegetated corridors on land adjacent to specific streams, rivers and wetlands (and associated steep slopes). Title 3 and the public acquisition of open spaces are the two most comprehensive protection programs for the region's forested lands. Forested land that is not publicly owned or inside Title 3 regulated areas has the potential to be developed.

Indicators

2.4 Acres of Title 3 wetlands, vegetated corridors along primary and secondary rivers and streams, floodplains, and steep slopes in the Metro boundary that are forested (tree canopy). (Required – Metro and State)
Data year: 2001. Source: Metro Data Resource Center.

- *As of June 2001, there were roughly 11,840 acres of forested lands in Title 3 areas within the Metro boundary.*

2.5 Change in acres of forested (tree canopy) Title 3 wetlands, streamside areas, floodplains and steep slopes in the Metro boundary. (Required – Metro and State)
Data years: Only 2001 available. Source: Metro Data Resource Center.

- *The change in forested lands in Title 3 areas cannot be measured because data only exists for one year. However, it is possible to calculate the building permits that have been issued on this land. In 1998, 1999 and 2000 there were 389, 204 and 188 building permits issued in Title 3 areas, respectively. In this three-year time span, the number of permits issued on this land has been decreasing.*

2.6a Acres of forested (tree canopy) land in the Metro boundary that are unregulated by Title 3 and outside of public and private parks and open space areas. (Required – Metro and State)
Data year: 2001. Source: Metro Data Resource Center.

- *7,932 acres of forested, non-Title 3, non-park/open space land have been identified inside the Metro boundary.*

2.7a Change in acres of forested (tree canopy) land in the Metro boundary that is unregulated by Title 3 and outside of public and private parks and open space areas. (Required – Metro and State)
Data years: Only 2001 available. Source: Metro Data Resource Center.

- *Data is not yet available to measure change of non-Title 3 and non-parks and open space forested areas, however, 4 building permits were issued in Clackamas County, 6 issued in Multnomah County and 30 issued in Washington County on unregulated forested lands in 2000.*

Note:
➪ Although vegetated water features are protected by Title 3, these areas were not included in the measurement (the current Goal 5 work program will be developing a methodology for measuring vegetated water features.
➪ It should be noted that indicators 2.6a and 2.7a do not directly measure any Metro policy, rather they measure the forested land (tree canopy) in the region that is not affected by Metro's Title 3 regulations or acquisition.

Policy Rationale

With the adoption of the 2040 Growth Concept, Metro and its local government partners responded to citizen and local government input and agreed that a more efficient use of land within the UGB was the most prudent approach to accommodating expected growth. This greater efficiency of land use would allow for a more cost-effective provision of public facilities and services and would limit the loss of valuable farmland and forest located outside the UGB. The strategies contained within the 2040 Growth Concept for achieving a more compact urban form inside the UGB rely partly on infill development and redevelopment. Both higher densities and an increase in residential and commercial development are to be achieved in selected 2040 Design Type areas. (See Indicators 1.2a through 1.2e.) The RUGGOs (Goal 21) stress the importance of economizing the use of land within the UGB and maintaining an efficient urban form.

The RUGGOs also contain goals that call for Metro to commit to protecting the region's natural resources and wildlife (Goals 12 and 15). Maintaining the region's livability through the protection of the natural environment is also a central theme of the 2040 Growth Concept and the Regional Framework Plan. Metro's regional planning efforts are intended to balance between protection of sensitive natural areas and the efficient use of land within the Metro UGB.

The character of many of the region's neighborhoods is defined and enhanced by patches of forested land that are scattered along streams and in upland areas. In addition to their aesthetic value, these forested areas provide habitat for fish and wildlife and create shade that regulates the temperature of storm runoff and streams. Tree canopy or other types of vegetation also serve as a filter and remove sediment and pollutants from stormwater, stabilize soil, prevent erosion and help to direct rainwater back into the soil where it replenishes underground aquifers. Forested land located on steeply sloped areas helps to prevent intense soil erosion and diminishes the potential for landslides.

Generally, the largest contiguous segments of forested land that remain in the Metro region are in public ownership and exist as parks and open space. Many of these forested areas were purchased by cities, counties and special districts or through Metro's 1995 open spaces, parks and streams bond measure *(see Indicator 2.3a)*. In most cases, the public status of these areas will prevent the eventual clearing of tree canopy. Established private open space (Wetlands Conservancy, Nature Conservancy, homeowners associations, etc.) is assumed to be protected in much the same way as public open space.

Much of the non-acquired forested land that remains undeveloped in the Metro region is protected by local government regulations due to its location within Title 3 water quality resource areas *(see Indicator 2.1a)*. Metro's Title 3 water quality regulations are implemented by the local jurisdictions and affect only those forested areas that are associated with Title 3 streams, rivers and wetlands (and associated steep slopes). All wetlands (and associated steep slopes) were regulated by Title 3. Not all streams met the threshold for Title 3 protection (only perennial streams and streams draining an area greater than 50 acres), thus, many forested areas that are adjacent to smaller, non-Title 3 streams remain unprotected by Title 3. Local regulation may offer additional protection (e.g., cleanwater services regulations, tree removal ordinances).

Development or the removal of vegetation in water quality resource areas is not prohibited by Title 3. However, Title 3 establishes regulations that direct new development and significant redevelopment (or any activity that removed more than 10 percent of existing vegetation) away from these areas when possible while minimizing the clearing of existing native vegetation. In cases where Title 3 vegetated corridor regulations would render unbuildable lots or parcels that are located fully/predominantly within the Water Quality Resource Area, cities and counties are allowed the flexibility to reduce or suspend vegetative corridor requirements. Disturbed areas are to be replanted with native plants on the Metro plant list or an approved locally adopted plant list. Cities, counties and landowners are encouraged to protect these vegetated corridor areas further through various means, such as conservation easements and incentive programs. The floodplain provisions of Title 3 focus on limiting the filling of the floodplain and not the maintenance of vegetation or tree canopy.

Development in non-Title 3 forested areas is also not limited by Title 3. Some local governments may protect tree canopy with steep slope and tree removal ordinances or designate forested areas as significant Goal 5 resources. However, these policies are not consistent throughout the region and are generally less comprehensive and restrictive than Title 3. For this reason, it is very difficult to measure the effect or extent of these regulations (i.e., acres of forested land protected by these local efforts). Note: Metro's current efforts to develop a regionwide approach to complying with Goal 5 of the Oregon planning goals may offer some degree of protection to these areas.

Data Analysis

Indicator 2.4: Acres of Title 3 wetlands, vegetated corridors along primary and secondary rivers and streams, floodplains, and steep slopes in the Metro boundary that are forested (tree canopy).
Data year: 2001. Data Source: Metro Data Resource Center.

Finding:

- *As of June 2001, there were about 11,840 acres of forested lands (tree canopy) in Title 3 areas within the Metro boundary.*

This indicator measures the degree to which tree canopy is present in Title 3 areas. Forested areas were only recently inventoried using 2000 aerial photos and entered into Metro's RLIS database. All forested segments that aerial photography showed to be one acre or larger in size were digitized into Metro's RLIS database and added to the total. According to this inventory, 53,518 acres of land with tree canopy are located inside the Metro boundary. Roughly 11,840 acres of these forested land were located in Title 3 areas. Note: This total includes tree canopy that is inside the Title 3 floodplain. As was stated above, vegetation in the floodplain is not protected under Title 3.

Indicator 2.5: Change in acres of forested (tree canopy) Title 3 wetlands, streamside areas, floodplains and steep slopes in the Metro boundary.
Data years: Only 2001 available. Data Source: Metro Data Resource Center.

Finding:

- The change in forested lands in Title 3 areas cannot be measured because data only exists for one year.

Though change data is not yet available, it is possible to track the building permits that were issued in Title 3 areas. Table 2.5 shows that in 1998, 1999 and 2000 there were 389, 204 and 188 building permits issued in Title 3 areas, respectively. In this three-year span, the number of permits issued on this land has been decreasing.

Table 2.5: Forested Wetlands, Streamside areas, Floodplains, and Steep Slopes

	1998	1999	2000
Acres of forested wetlands associated with primary and secondary rivers and streams (including steep slopes), and floodplains.	N/A	N/A	11,840
Building permits granted in Title 3 areas.	389	204	188

Source: Metro Data Resource Center

The decrease in building permits could be attributed to the fact that many local governments began to adopt Title 3 regulations at the local level after the Metro Council approved these regulations in June 1998. However, local governments were allowed 18 months in which to adopt these regulations and many requested and received extensions. The decrease could also be an indication that developable land within Title 3 areas is becoming scarce and more difficult to develop. Future efforts to measure change in tree canopy must distinguish between tree canopy located in the floodplain and tree canopy located in Title 3 vegetated corridor areas.

Indicator 2.6a: Acres of forested (tree canopy) land in the Metro boundary that are unregulated by Title 3 and outside of public and private parks and open space areas. (These areas may include forested acres that occur on non-Title 3 streamside areas, steep slopes, as well as upland areas).
Data year: 2001. Data Source: Metro Data Resource Center.

Finding:

- *7,932 acres of forested, non-Title 3, non-park open space land were identified inside the Metro boundary in 2000.*

This indicator measures the vegetated or forested land existing within the Metro boundary that is not protected as public or private open space or by Metro's Title 3 regulations. This indicator is not a direct measure of any current Metro policy.

In order to ascertain the number of acres of forested land in the Metro region that are not protected by either Title 3 or due to status as parks and open space, the DRC employed a methodology that is explained below.

- The following subtractions were made to the total forested land figure (53,518 acres) in the Metro region.
  - *street rights of way*
  - *water bodies*
  - *public and private parks and open spaces including subdivision common areas*
  - *forested acres that fall within Title 3 water quality resource areas.*

  (Note: Schools, golf courses, cemeteries and fairgrounds were not included in the definition of parks and are included in the 7,900-acre total.)

Indicator 2.7a: Change in acres of forested (tree canopy) land in the Metro boundary that is unregulated by Title 3 and outside of public and private parks and open space areas. (These areas may include forested acres that occur on non-Title 3 and private streamside areas, steep slopes as well as upland areas.)

Data years: Only 2001 available. Source: Metro Data Resource Center.

Finding:

- *Data is not yet available to measure change of non-Title 3 and non-parks and open space forested areas, however, 4 building permits were issued in Clackamas County, 6 issued in Multnomah County and 30 issued in Washington County on unregulated forested lands in 2000.*

Indicator 2.7a will measure the eventual change in acres of unregulated/unprotected private land that is vegetated or forested. Since one more data point is needed to calculate change and for this reason, *Indicator 2.7a* cannot now be analyzed. Although the number of building permits being issued on unregulated forested lands by county is a preliminary indication of the amount of development occurring in these areas, this data is of limited value without data from previous years.

Data Limitations

As was mentioned above, the availability of only one data point for tree canopy data (derived from year 2000 aerial photos) means that measuring change of forested areas impossible. Additionally, the methodology that the Metro Data Resource Center used to digitize forested areas from the 2000 aerial photos focused attention on closed-canopy, or predominantly closed-canopy forest patches that were one acre or larger, (excluding high structure agricultural sites). The scale and regional scope of the mapping effort made including forested patches smaller than one acre difficult (1:4800 was used). However, higher resolution photos would allow for inclusion of patches of a smaller size. This would affect regional forest canopy totals.

Land zoned for timber use and exclusive farm use was not subtracted from the total acres of buildable forested land. The exact acreage of this land has not been calculated. Tree canopy on timber-zoned land is likely to be cleared for harvest, though there is no way to forecast if or when this will occur. Forested portions of exclusive farm use-zoned land could be cleared in order to provide more agricultural land. Also, some orchards located on exclusive farm use land could have been wrongly characterized as tree canopy from aerial photos.

The floodplain accounts for a significant percentage of the land area that falls within Title 3 areas although vegetation removal and development is not prohibited in these areas. Subsequent studies will need to remove floodplain acreage from these estimates. Also, Title 3 protects all natural native streamside vegetation and this measure looks only at closed-canopy trees. Future vegetation data may make these measurements more precise.

Steep Slopes on Non-Regulated Land and Water Features

Purpose

To assess the degree to which environmentally sensitive vacant steep slope areas that are not protected by current regional regulations (Title 3) are being developed.

Summary

Policy

Metro's Stream and Floodplain Protection Plan (Title 3) regulates new development occurring on steep slope areas (greater than 25 percent) that are associated with streams and wetlands meeting the specific criteria for Title 3. Though environmentally sensitive, all non-Title 3 steep slopes in the region are unregulated unless local steep slope or other ordinances require development review or mitigation.

Indicator

2.8 Acres of vacant steep slopes inside the Metro boundary not regulated by Title 3 (Required – Metro and State).
Data Years: 1998 and 2000. Source: Metro Data Resource Center.

- *Data collected to this point seems to show that 7,815 acres of vacant unregulated steep slopes existed in 1998 and by 2000 this number had decreased to 7,271 acres.*

Policy Rationale

Metro's Stream and Floodplain Protection Plan (Title 3, Section 4 of the Functional Plan) requires local jurisdictions to meet regional performance standards relating to water quality and floodplain management. Title 3 provides specific quantifiable regional standards that local jurisdictions must meet for future development. Among other things, these regulations relate to maintaining vegetated corridors along Title 3 rivers, streams and wetlands (and associated steep slopes). For more information on Title 3 see Indicators 2.1a through 2.2c.

Under Title 3, all wetlands, perennial streams, and streams draining an area greater than 50 acres were deemed to be worthy of protection and assigned a vegetated corridor of 15 or 50 feet. Where slopes exceeded 25 percent adjacent to the Title 3 vegetated corridors, the corridor width was expanded to include these slopes until the break in slope or a maximum distance of 200 feet from the stream was reached. Steep slopes were included in the Title 3 vegetated corridors due to the increased potential for erosion and landslides in these areas. The clearing of vegetation from steep slope areas that can accompany development increases this potential dramatically.

Some local governments require environmental review before approving development on steep slopes (Forest Grove, Gresham, Hillsboro, etc.) and many others have erosion control measures specific to development on steep slopes. Additionally, local Goal 5 inventories may include steep slope areas that are not associated with a Title 3 stream corridor and provide these areas some degree of protection. However, Title 3 steep slope/vegetated corridor regulations remain the most comprehensive protection that steep slopes in the Metro region receive.

Metro's efforts to develop a regionwide approach to complying with Goal 5 of the Oregon Planning Goals will likely provide more protection of steep areas that have significant wildlife habitat value.

However, Metro's Goal 5 efforts are in the early stages of development and will not provide any additional protection to natural areas for some time to come.

Steep slope areas in the Metro region that are not associated with a Title 3 corridor or protected by any of the local regulations mentioned above are zoned and have the potential to be developed.

The strategies contained within the 2040 Growth Concept for achieving a more compact urban form inside the UGB rely partly on infill development and redevelopment. Both higher densities and an increase in residential and commercial development are to be achieved in 2040 Design Type areas (see Indicators 1.2a through 1.2e). More efficient use of land within the UGB could mean that many of the remaining steep slope areas that are inventoried in Indicator 2.8 may receive additional pressure to develop. Although appropriate increases in density are one of many strategies contained in the 2040 Growth Concept, the loss of these steep slope areas could negatively impact the region's quality of life by adversely affecting the quality of the region's water and habitat for fish and wildlife.

Data Analysis

Indicator 2.8: Acres of vacant steep slopes inside the Metro boundary not regulated by Title 3.
Data Years: 1998 and 2000. Source: Metro Data Resource Center.

Finding:

- *Data collected to this point seems to show that 7,815 acres of vacant unregulated steep slopes existed in 1998 and by 2000 this number had decreased to 7,271 acres.*

Steep slopes are considered to be those slopes greater than 25 percent. These sloped areas are subject to development restrictions if occurring within a certain distance of Title 3 regulated wetlands or streams. Zoning permitting, all other vacant steep slope areas are technically buildable unless local steep slope or other environmental regulations apply. This indicator has some overlap with Indicator 2.6a which measures among other things, the acres of forested land found on steep slopes.

Indicator 2.8 relies on Metro's RLIS system to estimate the number of acres of vacant steep slope areas inside the Metro boundary (slope is estimated using 10-foot contour lines) that are outside of Title 3 regulated areas. Slopes considered in the analysis must be vacant or undeveloped. Slopes occurring in parks and open spaces were excluded. In 1998, there were 7,815 acres of vacant unregulated steep slopes. By 2000, this number had decreased to 7,271 acres. A visual inspection of a map showing the general location of these 544 acres illustrates that many of these vacant, non-Title 3 areas were located in newly-acquired parks and open spaces. Although the exact number of acres has not been calculated, expansions of Portland's Forest Park, and Metro open space bond acquisitions in areas such as the Boring Lava Domes account for the conversion of many of these vacant steep slope areas.

Future performance measures efforts may reveal consumption of vacant, non-Title 3 steep slopes for development rather than parks. Results such as these in the future may indicate that more extensive efforts (like Metro's regional Goal 5 program) may be needed to protect these areas in order that they continue to serve a number of natural functions, including water quality.

Data Limitations

Some of the steep slope areas included in the vacant land and non-Title 3 inventory may be too steep to accommodate development or located in areas where zoning severely limits development.

Water Quality

Purpose

To measure the effects of current efforts to improve water quality in the Metro region.

Summary

Policy

Metro's Future Vision document, RUGGOs and Regional Framework Plan stress the importance of maintaining water quality of the region's rivers and streams. Title 3 of Metro's Functional Plan responded to state planning goals related to water quality and natural hazards/public safety and coordinated a regional approach to addressing these concerns.

Indicators

2.9a DEQ Water Quality Index.
Data years: 1990, and 1995 to 1999. Source: Oregon Department of Environmental Quality.

- *DEQ water quality monitoring in the Metro UGB shows that the 12 streams monitored had a significant increase in general water quality during the 1991-2000 period, however, most of these streams experienced decreased water quality during the low flow summer months.*

2.9b DEQ 303(d) list of water quality limited water-bodies (streams, rivers and lakes) in the Metro UGB.
Data year: 1998. Source: Oregon Department of Environmental Quality.

- *The 1998 303(d) list shows that 27 streams in the Metro region are water quality limited. Four water bodies (lakes) in the Metro region were included on the 303(d) list as water quality limited.*

Survey Results of Local Officials and Planning Commissioners

✓ *Most important issues that should be addressed in the region*: 43 percent said water quality was among the most important issue (ranked #2 behind traffic congestion).

Policy Rationale

The Future Vision document, the RUGGOs and the Regional Framework Plan stress the importance of maintaining water quality in the region's rivers and streams. Poor water quality negatively affects drinking water supplies, agricultural production, industrial water users and other regional commerce. Degraded water quality also has negative impacts on habitat important to fish and wildlife, and can limit recreational opportunities. These factors all contribute to the overall livability of the Metro region.

The list of strategies contained within the Regional Framework Plan to protect and enhance the water quality of the region were incorporated into Title 3 of the Functional Plan and adopted by the Metro Council in June 1998. Title 3 sets water quality protection and flood hazard mitigation standards for the Metro region and requires all local governments to adopt erosion control standards and to limit development along certain streams, wetlands and areas floodplain. For more information on Title 3 see Indicators 2.1a and 2.1b.

The Oregon Department of Water Quality (DEQ) regularly samples a select number of rivers and streams throughout the state for levels of contaminants. According to the DEQ, these water quality measures are a long-term, and reliable indicator of water quality in the Metro region. The results of the samplings of streams that fall within the Metro area will help to reveal if current water quality regulations (including Title 3) will have an affect on improving water quality.

DEQ is required by the Federal Clean Water Act to maintain a list of water features throughout the state that are water quality limited. This list is referred to as the 303(d) List because of the section of the Clean Water Act that requires the listing of streams, rivers, lakes and estuaries that do not meet water quality standards. States must submit a list of these "water quality limited" waters to the Environmental Protection Agency (EPA) every two years.

Data Analysis

Indicator 2.9a: Oregon DEQ's Oregon Water Quality Index.
Data years: 1990, and 1995 to 1999. Source: Oregon Department of Environmental Quality.

Finding:

- *DEQ water quality monitoring in the Metro UGB shows that the 12 streams monitored had significant increase in general water quality during the 1991-2000 period, however, most of these rivers experienced decreased water quality during the low flow summer months.*

The Oregon Water Quality Index was designed to allow comparison of water quality among different stretches of the same river or between different watersheds. It was also developed for the purpose of providing a simple, concise and valid method for expressing the significance of regularly generated laboratory data, and is primarily intended to aid in the assessment of water quality for general recreational uses. The index expresses water quality by integrating measurements of nine water quality parameters (temperature, dissolved oxygen, biochemical oxygen demand, pH, ammonia nitrate, nitrogen, total phosphates, total solids and bacteria) in a trend analysis.

Table 2.9a (1) below shows the 12 monitoring sites within the Metro UGB that were monitored by DEQ during water years[9] from 1991 to 2000. Each site with significant data is analyzed for changes in all parameters mentioned above. The values in the table represent readings for the parameters over the 10-year water period.

The "Minimum Seasonal Average Score" in the table accounts for the general water quality especially for the low flow summer months. The scores take into account the water quality among different stretches of the same river or between different watersheds and compare them between the low flow summer months (June – September) and higher flow fall, winter and spring months (October – May). The "Category of Seasonal Score" column ranks the seasonal average score.

Another important analysis of water quality conducted by the Oregon DEQ determines the magnitude of increase or decrease in water quality during the 10-year period. The analysis is based on a non-parametric Seasonal-Kendall trend methodology that detects the presence of statistically significant trend in water quality at any given monitoring site. The "Magnitude" column in Table 2.9a (1) indicate magnitude of increase or decrease in general water quality during a ten-year period. The "Significance" column indicates whether a significant trend exists in water quality during the ten-year period.

[9] Water years start in October 1 and end on September 30.

Table 2.9a (1): River Sites in the Metro UGB Monitored by DEQ Laboratory Showing Trend in General Water Quality (for Water Year 1991 – 2000)

	Monitoring Site	Minimum Seasonal Average Score	Category of Seasonal Score	Trend Result*	
				Magnitude	Significance Level
1	Tualatin R. at Boones Ferry Rd.	55	Very Poor	+24.4	99
2	Tualatin R. at Rood Rd.	73	Poor	+12.5	99
3	Beaverton Ck. at Cornelius Pass Rd. (Orenco)	54	Very Poor	+10.2	99
4	Willamette R. at SP&S RR Br. (Portland)	75	Poor	+10.1	99
5	Willamette R. at Hawthorne Br.	79	Poor	+9.9	99
6	Swan Island Channel midpoint	73	Poor	+9.1	99
7	Fanno Ck. at Bonita Rd.	62	Poor	+9.8	98
8	Clackamas R. at High Rocks	89	Good	+6.7	99
9	Sandy R. at Troutdale Br.	91	Excellent	+4.9	99
10	Columbia R. at Marker 47 (u/s Willamette)	81	Fair	+5.0	95
11	Columbia Slough at Landfill Rd.	37	Very Poor	+8.3	98
12	Johnson Creek at SE 17th Ave. (Portland)	26	Very Poor	*	*

Source: Oregon Department of Environmental Quality, Laboratory Division, Water Quality Monitoring Section
*Note: The Johnson Creek site did not show any significant trend in general water quality.

Figure 2.9a is a map that displays the results explained in the previous paragraphs. First, the map shows the rivers that are in "excellent" (blue line) to "very poor" (red line) condition, especially during the low flow summer months (minimum seasonal averages). The map also shows the rivers with an improving/increasing trend (upward arrow) and decreasing trend (lighting symbol) in water quality (trend analysis results). Apparently all the rivers in the region are improving in water quality.

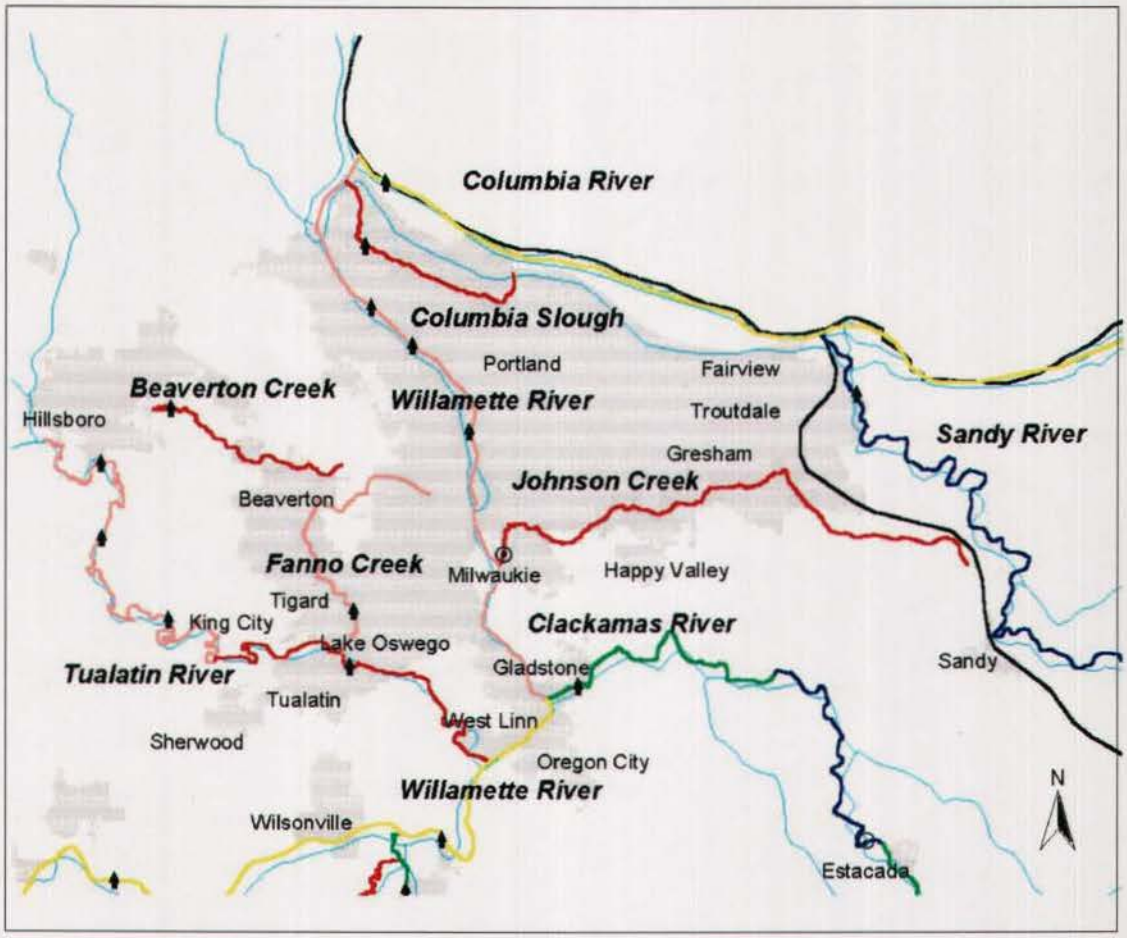
According to the DEQ, the improvement in water quality is attributable to the department's comprehensive strategy to addressing water quality problems through issuing of Total Maximum Daily Loads (TMDLs) for each pollutant entering the river. The TMDLs were issued in 1998 to entities responsible for discharges into the rivers. These entities were required to reduce the type and amount of pollutants they discharge into the rivers or face reduction in their discharge allocation. Actions taken by these entities contribute to improving trend in water quality of the rivers in the region. Examples of the actions are: a) Unified Sewage Agency building a new sewage plant; b) Rock Creek and Durham Sewage Plant upgrade to advanced treatment; c) City of Portland sewer overflow reduction projects and aggressive re-vegetation program; and d) Port of Portland addressing pollution from de-icing at airport.

Data Limitations

As was mentioned earlier, the analysis does not consider changes in toxic concentration, habitat, or biology. According to DEQ, another potential limitation is that the trend analysis does not consider variations in meteorological or hydrological conditions or variations in simple time.

Figure 2.9 – Metro OWQI Information – WY (1991 – 2000)

Oregon Water Quality Index (OWQI) for Metro Streams



Trend Analysis Results
- Increasing Water Quality
- Decreasing Water Quality
- No Trend
- Insufficient Data

Minimum Seasonal Averages
- Excellent (90 - 100)
- Good (85 - 89)
- Fair (80 - 84)
- Poor (60 - 79)
- Very Poor (0 - 59)

- Metro-area Streams
- Urban Areas

Oregon Department of Environmental Quality
Laboratory Division May 2002

Indicator 2.9b: DEQ 303(d) list of water quality limited water bodies (streams, rivers and lakes) in the Metro UGB.

Data year: 1998. Source: Oregon Department of Environmental Quality.

Finding:

- *The 1998 303(d) list shows that 27 streams in the Metro region are water quality limited. Four water bodies in the Metro region were included on the 303(d) list as water quality limited.*

This indicator measures the health of water in streams, rivers and lakes in the region. As was mentioned above, every two years Oregon DEQ is also responsible for compiling a list of all streams and water bodies in the state that do not meet federal clean water standards.

Table 2.9b: 303d Listed Streams in Metro UGB – 1998

Case	Name	Length (feet)
1	Ash Creek	19,446
2	Beaverton Creek	51,677
3	Bronson Creek	34,415
4	Butternut Creek	13,712
5	Cedar Creek	12,548
6	Cedar Mill Creek	30,839
7	Chicken Creek	3,388
8	Clackamas River	21,406
9	Columbia River	103,409
10	Columbia Slough	106,551
11	Council Creek	21,652
12	Dairy Creek	8,591
13	Fairview Creek	24,807
14	Fanno Creek	73,572
15	Gales Creek	3,864
16	Hedges Creek	16,626
17	Johnson Creek	149,176
18	McKay Creek	2,919
19	Nyberg Creek	6,969
20	Rock Creek	55,789
21	Sandy River	48,001
22	Spring Brook Creek	12,329
23	Summer Creek	20,895
24	Tryon Creek	26,665
25	Tualatin River	69,981
26	Willamette River	158,547
27	Willow Creek	26,215
Sum in feet		**1,123,992**
Sum in miles		**212.877**

Source: Oregon DEQ

Table 2.9b shows the most recent 303(d) list (1998) of 27 streams in the Metro region that are water quality limited. These 27 streams represent roughly 213 miles of streams in the Metro area.

DEQ's 303(d) standards include parameters such as bacteria, pH, turbidity, dissolved oxygen, temperature, total dissolved gas, certain toxic and carcinogenic compounds, habitat and flow modification, and aquatic weeds or algae that affect aquatic life. Any one of these factors, or a combination of several factors can trigger the listing of a water body.

According to Oregon DEQ, a different methodology was used to compile the 1998 303(d) list than previous years and this makes comparisons of the most recent data with earlier years difficult. According to the DEQ fact sheets, "The 1994-96 list included 870 segments of water bodies throughout the state that failed to meet water quality standards for one or more parameters. Many of the "segments" actually included the entire stream. In 1998, DEQ was able to be more precise about what constituted a stream segment because of information it received during the public "request for data" from September 22 to November 21, 1997. Therefore, the 1998 list establishes segments in a different manner, making direct comparisons between segments from the 1998 list and the previous list very difficult. One stream "segment" from the 1994-96 list may be divided into three or more segments."

Waste Disposed and Recycled

Purpose

To assess the region's efforts to recycle and reduce waste.

Summary

Policy

The standards that Metro uses to manage the region's solid waste are based on policies in the Regional Solid Waste Management Plan (RSWMP). This plan contains goals related to the solid waste recovery rate, and efforts aimed at reducing the toxicity of mixed solid waste and the overall amount of hazardous material that is processed.

Indicators

2.10a Change in the amount of waste generated, recycled and disposed in the Metro boundary.
Data years: 1995 to 2000. Source: Oregon Department of Environmental Quality, August 2000.

- *The change in the amount of waste recovered from 1995 to 2000 (735,230 tons to 970,850 tons or 32 percent) has increased faster than the amount disposed (995,035 tons to 1,207,348 tons or 21.3 percent).*

2.10b Amount of household hazardous waste collected in the Metro boundary.
Data years: 1995 to 2000. Source: Metro Regional Environmental Management Department.

- *The amount of hazardous waste collected per household has been increasing. The amount collected rose 7 percent between 1995 and 1996, went up 13 percent in both 1997 and 1998, and increased by 11 percent from 1999-2000.*

Policy Rationale

The Metro Council adopted the Regional Solid Waste Management Plan (RSWMP) in November 1995 in response to state requirements. The RSWMP contains policies and standards relating to the management of solid waste and includes strategies for developing and implementing a regional waste-reduction program. Local governments in the region develop programs that are consistent with Metro's RSWMP. Both Metro and local governments are committed by the RSWMP to serving the solid waste needs of the region during the period from 1995 to 2005.

Goal 1 and Goal 7 of the RSWMP state that the region will develop and implement solid waste practices that are environmentally sound and that achieve the maximum feasible reduction in solid waste sent to the landfill. The RSWMP set the goal of a 52 percent recovery rate by 2000. The RSWMP addresses strategies for achieving this goal and calls for eliminating, to the greatest extent possible, the deposition of solid waste materials into landfills and increasing the amount reused, recycled, composted or from which energy can be recovered.

In 1998, Metro saw that the region was not likely to reach the waste reduction goals called for in the RSWMP. Metro worked with local government solid waste directors to address this issue and develop new initiatives in order to reach waste reduction targets. Initiatives were developed that applied to

businesses in general, businesses with organic wastes, and industries related to the construction and demolition. These initiatives are now being funded and implemented.

Goal 13 of the RSWMP calls for a reduction in the toxicity of mixed solid waste and for increased efforts to keep hazardous waste out of the mixed solid waste collection and disposal system. This goal also stresses the need to educate residents of the region about alternatives to hazardous products, and requires Metro to provide convenient disposal service for these hazardous materials. Goal 13 strives to reduce the impacts of these materials on those who are responsible for their collection, transportation, processing and disposal.

Metro's involvement with managing household hazardous waste began in 1986 when Metro-sponsored pilot collection events were held at two locations. Metro expanded the program during the next four years. In 1990, Metro's biannual household hazardous waste collection events served a total of 5,755 customers.

In 1989, as a part of HB 3515, the Oregon Legislature required Metro to "establish depots to receive household hazardous waste ... from the general public on an ongoing basis." In response to this mandate, Metro designed and built the state-of-the art Metro South hazardous waste facility in Oregon City, which received its first waste in January 1992. A similar facility was built at Metro Central in Northwest Portland, which began operation in November 1993.

During the first full year with two operational facilities, 13,294 customers delivered household hazardous materials to one of Metro's facilities. However, in order to increase convenience for residents living in areas removed from permanent facilities, Metro staff began conducting a series of mobile one-day collection events. Starting with only four events in 1993, these collection events have grown to be an important part of the household hazardous waste program, with 23 events held during 2000.

Metro has continued to strive to collect the maximum amount of hazardous waste possible. Beginning in 2001, Metro's collection events have evolved into a new program known as "roundups." These events, ranging from one to three days in length, are held every weekend from mid-March to mid-November and are designed to target stockpiles of hazardous waste still found in homes. These events include an education component, which provides information about reducing the amount of household hazardous waste generated.

In addition to the management of household hazardous waste, Metro's program has expanded to include management of waste from small businesses. Today Metro's permanent hazardous waste collection program is considered one of the leading programs in the country. The program maintains high standards of customer service, protection of public health and the environment as well as cost-efficiency.

Data Analysis

Indicator 2.10a: Change in the amount of waste generated, recycled and disposed in the Metro boundary.

Data years: 1995 to 2000. Data Source: Oregon Department of Environmental Quality, August 2000.

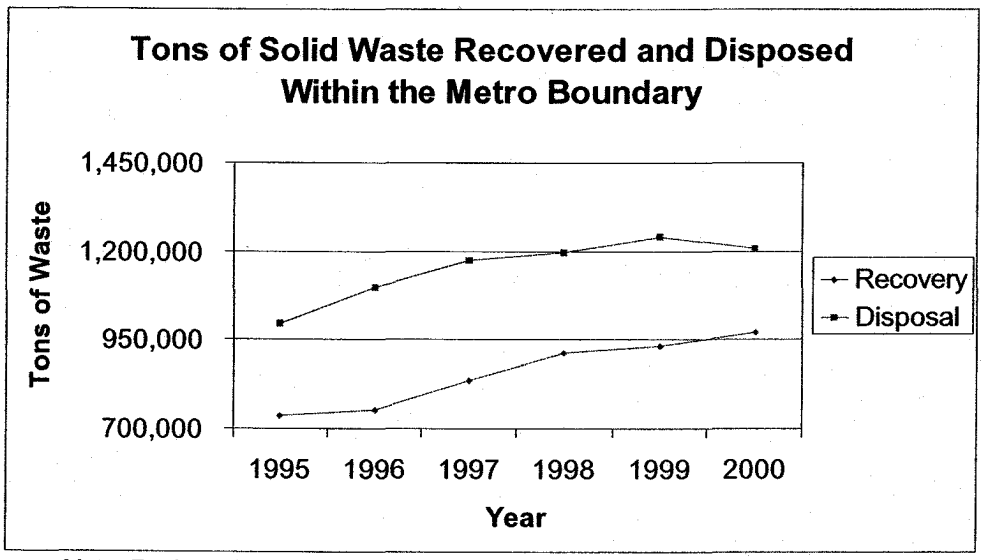
Finding:

- *The change in the amount of waste recovered from 1995 to 2000 (735,230 tons to 970,850 tons or 32 percent) has increased faster than the amount disposed (995,035 tons to 1,207,348 tons or 21.3 percent).*

These indicators measure the region's success in reducing the amount of natural resources used by residents and businesses in the production and consumption of goods and services. Figure 2.10a presents the amount of waste recovered and disposed within the Metro boundary. The "Waste Generation Total" is equal to the "Waste Recovery Total" plus the "Waste Disposal Total." The "Recovered Total" represents the amount reused, recycled, composted and recovered for energy. About 99 percent of all waste generated originates inside the Metro boundary.

The amount of waste generated (recovered and disposed) increased every year between 1995 and 2000. The amount of waste recovered from 1995 to 2000 (32 percent) increased slightly faster rate than the amount disposed of (21.3 percent). The growth relationships are apparent in the chart below. The steeper trend line from the years 1996 through 2000 shows that recovery has outpaced disposal.

Figure 2.10a -Tons of Solid Waste Recovered and Disposed within the Metro Boundary



Source: Metro Regional Environmental Management Department

Note: Calculations are based upon the population within the Metro UGB in the specified years. Calculations include waste from households, businesses, and construction and demolition activities.

The 2000 recovery information was used by Metro to estimate the environmental benefits of recycling and composting, applying a methodology developed by the EPA (Recycling for the Future: Consider the Benefits, November 1998). The environmental benefits are as follows:

- Weight of recyclable materials marketed from the Metro region was 810,591 tons
- Market value of the recyclable materials marketed from the Metro region was $50.8 million
- Recycling prevented the release of 468,776 tons of carbon into the air
- The amount of gas (carbon dioxide) prevented from release into the region's air due to decreased fossil fuel use when using recycled feedstocks is equivalent to taking 351,582 cars off the road for one year
- Recycling saved 5.9 trillion BTUs (British thermal units)
- The BTUs saved is equivalent to energy used by 58,597 households in one year
- Landfill space saved due to waste recovery is equivalent to 1.9 million cubic yards.

Indicator 2.10b: Amount of household hazardous waste collected in the Metro boundary.
Data years: 1995 to 2000. Data Source: Metro Regional Environmental Management Department.

Finding:

- *The amount of hazardous waste collected per household has been increasing. The amount collected rose 7 percent between 1995 and 1996, went up 13 percent in both 1997 and 1998 and increased 11 percent from 1999-2000.*

This indicator measures the region's success in diverting household hazardous waste from improper storage and improper disposal where it might cause injuries to persons or damage to streams and groundwater. Household hazardous wastes must be carefully disposed of or they can have detrimental effects on people and the environment. Household hazardous waste includes chemicals, such as cleaners and toxins, like motor oil. The amount of hazardous waste collected per household has been increasing. The amount collected rose 7 percent between 1995 and 1996, went up 13 percent in both 1997 and 1998 and increased 11 percent in 1999-2000. The rise is attributable to several factors, including growth in awareness of Metro services and efforts to make the services more accessible. The increases can be seen in Table 2.10b. The increases in household hazardous waste collected mean that citizens of the region have been choosing to dispose of hazardous waste properly. The increase is also indicative that the collection services are more accessible and thereby getting to the stockpile of household hazardous waste in garages and basements across the region. The more hazardous waste that is collected, the less that ends up in a landfill or poured down a drain where it could contaminate drinking water supplies.

As a greater portion of waste is recovered and hazardous waste is collected, Metro is taking steps toward protecting and restoring the natural environment, one of the fundamental values of the 2040 Growth Concept.

Table 2.10b: Amount of Household Hazardous Waste Collected in the Metro Boundary

Year	Population	Households Served	Amount Collected (Pound - lbs)	Amount Collected Per Capita
1995	1,175,633	21,495	1,758,445	1.50
1996	1,194,826	23,277	1,891,340	1.58
1997	1,209,589	24,620	2,143,669	1.77
1998	1,215,803	29,944	2,414,833	1.99
1999	1,277,100	34,239	2,604,496	2.04
2000	1,305,574	33,330	2,880,812	2.21

Source: Metro Regional Environmental Management Department

Fundamental 3

Provide a balanced transportation system including safe, attractive facilities for bicycling, walking and transit as well as for motor vehicles and freight.

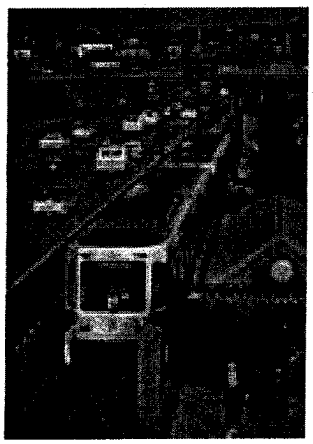
To evaluate this fundamental, the performance indicators address the following related questions.

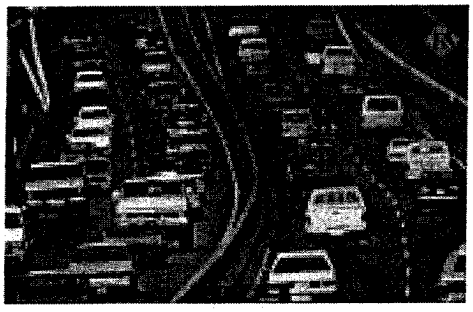
a) Are we providing equal access to residents of this region?
b) Are we spending money equitably for all modes of transportation infrastructure?
c) How well are we handling traffic volumes at intersections, neighborhoods and mixed use centers?
d) What is the level of service provided in the mixed use centers?
e) How successful are we in minimizing VMT in the region?
f) What is the level of our success in providing alternative transportation infrastructure and services?

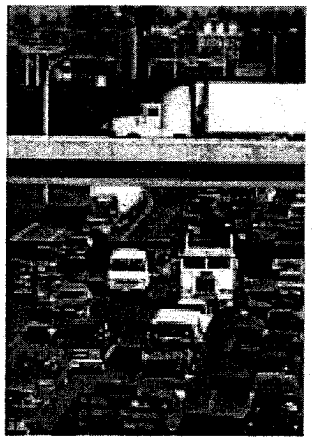
INDICATORS MEASURED

Transportation System **3.1a**: Percent of the region (based on acres inside Metro boundary) with an adopted transportation system plan in compliance with the 2000 RTP. **3.1b**: Percentage of the RTP Priority System motor vehicle and freight projects funded by the MTIP. **3.1c**: Percentage of the RTP Priority System bicycle and pedestrian projects funded by the MTIP. **3.1f**: Percentage of RTP Priority System transit projects funded by the MTIP. **3.1g**: Percentage of RTP Priority System boulevard projects funded by the MTIP. **RTP Priority System** **3.1h**: Total cost of motor vehicle and freight projects as a percentage of the total Regional Flexible Funds (RFF) allocation (years 2000-2005). **3.1i**: Total cost of bicycle and pedestrian projects as a percentage of the total Regional Flexible Funds (RFF) allocation (years 2000-2005). **3.1l**: Total cost of transit projects as a percentage of the total Regional Flexible Funds (RFF) allocation (years 2000-2005). **3.1m**: Total cost of boulevard projects as a percentage of the total Regional Flexible Funds (RFF) allocation (years 2000-2005).	**Local Street Connectivity** **3.3a**: Portions of the region meeting street connectivity requirements. **Congestion Policy** **3.4a(1)**:Traffic volume on major freeways in the region. **3.4a(2)**: Change in average travel times in key corridors by motor vehicle, freight, transit. **(Required)** **Modal Targets** **3.5c**: Gross transit rides. **3.5d**: Transit rides per capita. **3.5e**: Originating rides by bus and rail. **3.5f**: Service hours per capita. **3.5h**: Change in transit use in 2040 centers: central city, regional centers, town centers. **3.5l**: Vehicle miles traveled per capita. **(Required)** **Air Quality** **3.7a**: Progress made implementing or exceeding commitments in the Portland Ozone Maintenance Plan for increase in transit, bicycle and pedestrian facilities. **(Required)** **3.7b**: Difference between currently estimated On-Road Mobile emissions and the amount allowed in the Portland Maintenance Plan for Ozone and Carbon Monoxide. **(Required)**

Providing a balanced transportation system







Transportation System

Purpose

To assess the degree to which the region is funding its transportation project needs.

Summary

Policy

Regional Transportation Plan (RTP) Policies 20.0: Ensure that the allocation of fiscal resources is driven by both land use and transportation benefits, 20.1; Implement a regional transportation system that supports the 2040 growth concept through the selection of complementary transportation projects and programs, and 20.2; Emphasize the maintenance, preservation and effective use of transportation infrastructure in the selection of the RTP projects and programs.

Indicators

3.1a Percent of the region (based on acres inside Metro boundary) with an adopted transportation system plan in compliance with the 2000 RTP.
Data year: 2000. Source: Metro Planning Department.

- *Data show that no city or county in the Metro region has an adopted Transportation System Plan (TSP) that has been found to implement all the policies and requirements identified in the 2000 RTP. However, approximately 28 percent of the land area in the region adopted a TSP prior to the adoption of the 2000 RTP, representing 10 jurisdictions. These plans address many of the requirements included in the 2000 RTP, but may need to be amended to fully address the plan. In addition, nearly 10 percent of the land area in the region is currently going through the final stages of adoption of a TSP, representing five jurisdictions. More than 61 percent of the land area in the region is in the process of developing their plan, representing seven jurisdictions. Less than 1 percent of the region is not required to develop a TSP because these five cities have fewer than 2,500 residents, which is the Transportation Planning Rule's threshold for development of TSPs.*

3.1b Percentage of RTP Priority System motor vehicle and freight projects funded by the MTIP.
Data year: 2000. Source: Metro Planning Department.

- *Data show that .9 percent ($34 million) of the RTP Priority System motor vehicle, bridge and freight projects were funded in the most recent six years of regional flexible fund allocations. Assuming regional flexible funds continue to provide approximately 7 percent of annual capital spending, only 46 percent of the RTP Priority System motor vehicle, bridge and freight projects will be constructed by the end of 20 years.*

3.1c Percent of RTP Priority System bicycle and pedestrian projects funded by the MTIP.
Data year: 2000. Source: Metro Planning Department.

- *Data show that 6.2 percent ($14.6 million) of the RTP Priority System bicycle and pedestrian projects were funded in the most recent six years of regional flexible fund allocations. Assuming regional flexible funds continue to provide approximately 49 percent of annual capital spending, only 39 percent of the RTP Priority System bicycle and pedestrian projects will be constructed by the end of 20 years.*

3.1f Percent of RTP Priority System transit projects funded by the MTIP.
Data year: 2000. Source: Metro Planning Department.

- *Data show that 1.1 percent ($35.6 million) of the RTP Priority System transit projects were funded in the most recent six years of regional flexible fund allocations. Assuming regional flexible funds continue to provide approximately 11 percent of annual capital spending, only 34 percent of the RTP Priority System*

transit projects will be constructed by the end of 20 years.

3.1g Percent of RTP Priority System boulevard projects funded by the MTIP.
Data year: 2000. Source: Metro Planning Department.

- *Data show that 7.8 percent ($12.9 million) of the RTP Priority System boulevard projects were funded in the most recent six years of regional flexible fund allocations. Assuming regional flexible funds continue to provide 89 percent of annual capital spending, only 30 percent of the RTP Priority System boulevard projects will be constructed by the end of 20 years.*

Survey Results of Local Officials and Planning Commissioners

✓ *Most important issues that should be addressed in the region*: a) Traffic congestion (ranked 1 in frequently mentioned items) and b) 57 percent said traffic congestion was among the most important issue.
✓ *Transportation choices*: 34 percent thought the measures being taken to provide choices for the way we travel was satisfactory, while 8 percent thought the measures were excellent. 29 percent thought the measures were unsatisfactory, while 9 percent rated the measures as poor.

Policy Rationale

In order to implement the 2040 Growth Concept, a transportation system that adequately serves planned land uses and provides travel mode choices to serve all segments of the population must be provided. The Regional Transportation Plan's (RTP) Priority System has been found to adequately serve the 2040 Growth Concept for the region through the year 2020.

Metro and the Joint Policy Advisory Committee on Transportation (JPACT) distribute federal funding to local jurisdictions and regional transportation providers in two-year cycles. This funding represents approximately 10 percent to 20 percent of the funding spent on transportation capital projects in the Metro region. Criteria for distributing these funds are linked to the policies of the RTP and attempt to prioritize the implementation of projects included in the 20-year plan. As the MTIP allocates funding in two-year increments and the RTP Priority System is a 20-year plan, there are 10 allocation opportunities to fully fund the priority system.

Adopted Targets

The RTP identifies several potential strategies for obtaining the funding necessary to construct the Priority Transportation system over the course of the 20-year planning period, however, there are no adopted requirements for providing this amount of funding as there is no way to guarantee that tax and free revenues will be available.

Compliance Summary

There are no requirements for local jurisdictions to fund transportation improvements called for in the RTP Priority System. No project may receive MTIP funding, however, this is not included in the RTP's Financially Constrained System (a subset of the Priority System that has been tested for compliance with air quality regulations).

Annual capital, preservation and maintenance needs compared to spending:

Approximately $635 million is spent annually on transportation in the Metro area on capital, preservation and maintenance. This includes spending for roads, public transportation, bike facilities, sidewalks, and miscellaneous other projects. 70 percent of that total ($430 million) goes to preserve and maintain the existing system of roads, bridges, and other facilities and to operate the transit

system. In order to implement the $8 Billion package of priority projects, the region should be investing $375/year in new capital projects. As can be seen, investments in all modes of travel are lagging.

Average Annual Regional Transportation Capital Needs and Annual Capital Spending (millions of $)

Travel Mode	Average Annual Regional Need (2000-2020)	Annual Spending (2000)
Roads, Highways, Bridges, Freight	$197	$91
Transit	$157	$54
Boulevards	$8.30	$2.50
Pedestrian and Bicycle	$12.60	$5
Total	**$375**	**$152.50**

Data Analysis

Indicator 3.1a: Percent of the region (based on acres inside Metro boundary) with an adopted transportation system plan in compliance with the 2000 RTP.
Data year: 2000. Source: Metro Planning Department.

Findings:

- *Data show that no city or county in the Metro region has an adopted Transportation System Plan (TSP) TSP that has been found to implement all the policies and requirements identified in the 2000 RTP. However, approximately 28 percent of the land area in the region adopted a TSP prior to the adoption of the 2000 RTP, representing 10 jurisdictions. These plans address many of the requirements included in the plan, but may need to be amended to fully address the 2000 RTP. In addition, nearly 10 percent of the land area in the region is currently going through the final stages of adoption of a TSP, representing five jurisdictions. More than 61 percent of the land area in the region is in the process of developing their plan, representing seven jurisdictions. Less than 1 percent of the region is not required to develop a TSP because these five cities have fewer than 2,500 residents, which is the Transportation Planning Rule's threshold for development of TSPs.*

Table 3.1a: Percent of the region within the Metro boundary with an adopted TSP in compliance with the 2000 RTP

Area	Acres	Percent of Region's Land Area (based on acres)	Jurisdiction
Portion of the region with an adopted TSP prior to 8/10/00	84,275	28.47%	Cornelius, Fairview, Forest Grove, Gladstone, Happy Valley, Hillsboro, Milwaukie, Troutdale, West Linn, Clackamas County*
Portion of the region exempt from developing a TSP	810	0.27%	Durham, Johnson City, King City, Maywood Park, Rivergrove
Portion of the region currently going through final stages of a TSP adoption process	29,150	9.85%	Beaverton, Oregon City, Tigard, Tualatin, Wood Village
Portion of the region currently developing a TSP	181,782	61.41%	Gresham, Lake Oswego, Portland, Sherwood, Wilsonville, Multnomah County,* Washington County*

Source: Metro Planning Department
** Portion of the county outside of a city limits and inside Metro jurisdictional boundary.*

While a small portion of the region is not required to adopt a TSP consistent with the 2000 RTP due to population size, Table 3.1a shows that the remaining cities and counties in the Portland metropolitan region did not meet the one-year deadline for adopting a TSP that implements all of the requirements contained the 2000 RTP. Many jurisdictions adopted an interim TSP to address the Oregon Transportation Planning Rule and transportation-related requirements identified in Metro's Functional Plan dealing with street design and street connectivity. These jurisdictions will likely need to go through minor updates to address new requirements included in the 2000 RTP.

Jurisdictions representing more than 60 percent of the region land area are developing a TSP to address TPR and 2000 RTP requirements. Several jurisdictions are in the final stages of adopting a TSP to address TPR and 2000 RTP requirements. These jurisdictions have developed draft TSPs that are now undergoing final public review and adoption.

Implementation of the 2000 RTP through local comprehensive plans and implementing ordinances is an important component to achieving the region's longer-term 2040 Growth Concept vision.

Indicator 3.1b: Percentage of RTP Priority System motor vehicle and freight projects funded by the MTIP.

Data year: 2000. Source: Metro Planning Department.

Finding:

- *Data show that .9 percent ($34 million) of the RTP Priority System motor vehicle, bridge and freight projects were funded in the most recent six years of regional flexible fund allocations. Assuming regional flexible funds continue to provide approximately 7 percent of annual capital spending, only 46 percent of the RTP Priority System motor vehicle, bridge and freight projects will be constructed by the end of 20 years.*

Table 3.1b - Percent of Planned Motor Vehicle and Freight Improvements Allocated MTIP Funding

Allocation Years	MTIP Funding Allocated to Motor Vehicle and Freight Projects in the RTP Priority System ($ millions)	Costs of Motor Vehicle and Freight Projects in RTP Priority System (2001 - 2020) ($ millions)	Percentage of RTP Priority Motor Vehicle and Freight System Project Costs Allocated Funding by MTIP
2000-03	$22.9		.6%
2004-05	$11.1		.3%
Total	$34.0	$3,933.3	.9%

Source: Metro Planning Department

Table 3.1b shows the rate of progress that regional funding allocations are contributing to funding a motor vehicle system that is necessary to implement the 2040 Growth Concept. With the first six years of MTIP allocations within the 20-year RTP planning period, only .9 percent of the RTP Priority motor vehicle system costs were funded. This amount is well short of funding necessary to fund or to leverage other funding for a road system needed to support the 2040 growth concept.

This category of costs include large scale projects such as new freeways and highway improvements that MTIP funding would typically not fund or only be used for planning and local match for such projects. Even with this consideration, however, other funding sources for motor vehicle road improvements (such as the state highway trust fund, local gas tax revenues and property tax based

revenues dedicated to road improvements) are not expected to make up the difference needed to fully fund the RTP Priority System's motor vehicle and freight projects.

New funding sources will be necessary to construct motor vehicle improvements to implement the 2040 Growth Concept.

Indicator 3.1c: Percentage of RTP Priority System bicycle and pedestrian projects funded by the MTIP.
Data year: 2000. Source: Metro Planning Department.

Finding:

- *Data show that 6.2 percent ($14.6 million) of the RTP Priority System bicycle and pedestrian projects were funded in the most recent six years of regional flexible fund allocations. Assuming regional flexible funds continue to provide approximately 49 percent of annual capital spending, only 39 percent of the RTP Priority System bicycle and pedestrian projects will be constructed by the end of 20 years.*

Table 3.1c - Percent of Planned Bicycle and Pedestrian Improvements Allocated MTIP Funding

Allocation Years	MTIP Funding Allocated to Bicycle and Pedestrian Projects in the RTP Priority System ($ millions)	Costs of Pedestrian Projects in RTP Priority System (2000 - 2020) ($ millions)	Percentage of RTP Priority Pedestrian System Project Costs Allocated Funding
2000-03	$6.21		2.6%
2004-05	$8.43		3.6%
Total	$14.64	$236.95	6.2%

Source: Metro Planning Department

Table 3.1c shows the rate of progress that regional funding allocations are contributing to funding a bicycle and pedestrian system that is necessary to implement the 2040 Growth Concept. Six years of MTIP allocations funded only 6.2 percent of the 20-year RTP Priority bicycle and pedestrian system. This amount is well short of funding necessary to provide a bicycle and pedestrian system needed to support the 2040 growth concept. Other funding sources for pedestrian improvements (such as local development fees, local gas tax revenues, and state highway trust fund revenues) are not expected to make up the difference needed to fully fund the RTP Priority bicycle and pedestrian system.

Additional funding sources will be necessary for bicycle and pedestrian improvements needed to implement the 2040 Growth Concept.

Indicator 3.1f: Percentage of RTP Priority System transit projects funded by the MTIP.
Data year: 2000. Source: Metro Planning Department.

Finding:

- *Data show that 1.1 percent ($35.6 million) of the RTP Priority System transit projects were funded in the most recent six years of regional flexible fund allocations. Assuming regional flexible funds continue to provide approximately 11 percent of annual capital spending, only 34 percent of the RTP Priority System transit projects will be constructed by the end of 20 years.*

Table 3.1f - Percent of Planned Transit Improvements Allocated MTIP Funding

Allocation Years	MTIP Funding Allocated to Transit Capital Projects in the RTP Priority System ($ millions)	Costs of Transit Projects in RTP Priority System (2000 - 2020) ($ millions)	Percentage of RTP Priority Transit Capital System Project Costs Allocated Funding
2000-03	$19.5		.6%
2004-05	$16.1		.5%
Total	$35.6	$3,141.5	1.1%

Source: Metro Planning Department

Table 3.1f shows the rate of progress that regional funding allocations are contributing to funding transit capital improvements that implement the 2040 Growth Concept. With 10 MTIP funding cycles within the RTP planning period, each cycle would need to fund approximately 10 percent of the priority transit project costs to fully fund the system with regional MTIP funds.

The most recent MTIP cycle funded only 1.1 percent of the RTP Priority transit system capital costs. This cost category includes large-scale capital projects such as light rail and rapid bus. MTIP funding has successfully been used in recent allocations to provide planning and local match to leverage other federal funding to construct these types of projects. The amount of funding allocated between the years 2000 and 2005 is well short of what is necessary to provide a transit system needed to support the 2040 growth concept. Other funding sources for transit improvements (such as the employer tax, passenger fares and advertising revenue) are not expected to make up the difference needed to fully fund the RTP Priority System.

Additional funding sources will be necessary for transit improvements needed to implement the 2040 Growth Concept.

Indicator 3.1g: Percentage of RTP Priority System boulevard projects funded by the MTIP.
Data year: 2000. Source: Metro Planning Department.

Finding:

- *Data show that 7.8 percent ($12.9 million) of the RTP Priority System boulevard projects were funded in the most recent six years of regional flexible fund allocations. Assuming regional flexible funds continue to provide 89 percent of annual capital spending, only 30 percent of the RTP Priority System boulevard projects will be constructed by the end of 20 years.*

Table 3.1g - Percent of Planned Boulevard Improvements Allocated MTIP Funding

Allocation Years	MTIP Funding Allocated to Boulevard Projects in the RTP Priority System ($ millions)	Costs of Boulevard Projects in RTP Priority System (2000 - 2020) ($ millions)	Percentage of RTP Priority Boulevard System Project Costs Allocated Funding
2000-03	$9.8		5.9%
2004-05	$3.1		1.9%
Total	$12.9	$165.7	7.8%

Source: Metro Planning Department

Table 3.1g shows the rate of progress that regional funding allocations are contributing to funding a boulevard system that is necessary to implement the 2040 Growth Concept. With a 20-year RTP planning period, the most recent six years of MTIP allocations funded only 7.8 percent of the RTP Priority boulevard project costs. While boulevard projects typically have a local jurisdiction match of between 10 percent and 50 percent of total project cost, the recent MTIP allocations are well short of funding necessary to provide a boulevard system needed to support the 2040 growth concept. Other funding sources for motor boulevard improvements (such as the development fees, local gas tax revenues and property tax based revenues) are not expected to make up the difference needed to fully fund the RTP Priority System.

Additional funding sources will be necessary for boulevard improvements needed to implement the 2040 Growth Concept.

Data Limitation

This data does not measure the amount of all money spent on motor vehicle, pedestrian, bicycle, freight, transit and boulevard projects in the region. Historically, other sources of non-MTIP funds provide most of the funding for these systems in the region, particularly motor vehicle and transit projects. Therefore, this data by itself does not measure whether any of the RTP project categories will be fully constructed by the 2020 plan year.

Regional Transportation Plan Priority System

Purpose

To measure what transportation capital projects are being constructed and compare with regional policy and goals on funding transportation projects.

Summary

Policy

RTP Policies 20.0; Ensure that the allocation of fiscal resources is driven by both land use and transportation benefits; 20.1; Implement a regional transportation system that supports the 2040 growth concept through the selection of complementary transportation projects and programs, and 20.2; Emphasize the maintenance, preservation and effective use of transportation infrastructure in the selection of the RTP projects and programs.

Indicators

3.1h Total cost of motor vehicle and freight projects as a percentage of the total Regional Flexible Funds (RFF) allocation (Years 2000 - 2005).
Data years: 2000 to 2005. Source: Metro Planning Department.

- *Data show that 26.9 percent of Regional Flexible Funds (RFF) were spent on motor vehicle and freight projects compared to 51.7 percent of RTP Priority System costs that motor vehicle and freight projects represent.*

3.1i Total cost of bicycle and pedestrian projects as a percentage of the total Regional Flexible Funds (RFF) allocation (Years 2000 - 2005).
Data years: 2000 to 2005. Source: Metro Planning Department.

- *Data show that 11.6 percent of Regional Flexible Funds (RFF) were spent on bicycle and pedestrian projects compared to 3.1 percent of RTP Priority System costs that bicycle and pedestrian projects represent.*

3.1l Total cost of transit projects as a percentage of the total Regional Flexible Funds (RFF) allocation (Years 2000 - 2005).
Data years: 2000 to 2005. Source: Metro Planning Department.

- *Data show that 28.2 percent of Regional Flexible Funds (RFF) were spent on transit capital projects compared to the 41.4 percent of RTP Priority System costs that transit capital projects represent.*

3.1m Total cost of boulevard projects as a percentage of the total Regional Flexible Funds (RFF) allocation (Years 2000 - 2005).
Data years: 2000 to 2005. Source: Metro Planning Department.

- *Data show that 10.2 percent of Regional Flexible Funds (RFF) were spent on boulevard projects compared to the 2.2 percent of RTP Priority System costs that boulevard projects represent.*

Policy Rationale

In order to implement the 2040 Growth Concept, a transportation system that adequately serves planned land uses and provides travel mode choices to serve all segments of the population must be

provided. As mentioned earlier, the RTP's Priority System has been found to adequately serve the 2040 Growth Concept for the region through the year 2020.

The Priority System provides a transportation system, balanced with improvements to the motor vehicle, pedestrian, bicycle, freight, transit and boulevard systems. The funding distributed to those modes should be balanced proportionate to the cost of the Priority System.

Adopted Targets

There are no adopted requirements for providing balanced funding to the respective modes of the transportation system.

Compliance Summary

There are no adopted requirements for providing balanced funding to the respective modes of the transportation system.

Data Analysis

Indicator 3.1h: Total cost of motor vehicle and freight projects as a percentage of the total Regional Flexible Funds (RFF) allocation (Years 2000 - 2005).
Data years: 2000 to 2005. Source: Metro Planning Department.

Finding:

- *Data show that 26.9 percent of RFF funds were spent on motor vehicle and freight projects compared to 51.7 percent of RTP Priority System costs that motor vehicle and freight projects represent.*

Table 3.1h - Percent of RFF Allocated to Motor Vehicle and Freight Projects

Allocation Years	Total Amount of RFF Allocation ($ millions)	Amount Allocated to Motor Vehicle and Freight Projects ($ millions)	Percent of RFF Allocation to Motor Vehicle and Freight Projects
2000-03	$75.77	$22.9	30.2%
2004-05	$50.54	$11.1	22.0%
Total 2000-05	$126.31	$34.0	26.9%

Source: Metro Planning Department

Table 3.1h measures the modal balance of regional funding allocated to motor vehicle projects.

In the six years of allocations (Years 2000 through 2005) motor vehicle and freight projects are not receiving funding proportional to the percentage of costs they represent in the RTP Priority system. The RTP Priority system is the regionally adopted network of transportation projects needed to implement the 2040 Growth Concept.

There are two probable reasons for the apparent imbalance of RFF allocations to these cost categories. First, this category of projects contains large-scale freeway and highway expansion projects that have historically been funded primarily with federal transportation grants that are appropriated outside the allocation of RFF. RFF can and are being used for planning and local matching funds for these types of projects. For example, $2 million of RFF was allocated for planning for the Sunrise Corridor study for the years 2004-05.

Secondly, State Highway Trust Fund money, the single largest source of transportation funding in the region, is constitutionally limited to maintenance and construction of road projects. The RFF have often been used to provide a balance of funding to non-motor vehicle projects.

Indicator 3.1i: Total cost of bicycle and pedestrian projects as a percentage of the total Regional Flexible Funds (RFF) allocation (Years 2000 - 2005).
Data years: 2000 to 2005. Source: Metro Planning Department.

Finding:

- *Data show that 11.6 percent of RFF funds were spent on bicycle and pedestrian projects compared to 3.1 percent of RTP Priority System costs that bicycle and pedestrian projects represent.*

Table 3.1i - Percent of RFF Allocated to Bicycle and Pedestrian Projects

Allocation Years	Total Amount of RFF Allocation ($ millions)	Amount Allocated to Pedestrian Projects ($ millions)	Percent of RFF Allocation to Pedestrian Projects
2000-03	$75.77	$6.21	8.2%
2004-05	$50.54	$8.43	16.7%
Total 2000-05	$126.31	$14.64	11.6%

Source: Metro Planning Department

Table 3.1i measures the modal balance of regional funding allocated to pedestrian projects.

In the six years of allocations (years 2000 through 2005), bicycle and pedestrian projects have received a larger share of funding relative to other mode categories than what their costs represent in the RTP Priority System. The amount allocated, however, is still less than what is necessary to implement the RTP Priority System. The RTP Priority system is the regionally adopted network of transportation projects needed to implement the 2040 Growth Concept.

Indicator 3.1l: Total cost of transit projects as a percentage of the total Regional Flexible Funds (RFF) allocation (years 2000-2005).
Data years: 2000 to 2005. Source: Metro Planning Department.

Finding:

- *Data show that 28.2 percent of RFF funds were spent on transit projects compared to the 41.4 percent of RTP Priority System costs that transit projects represent.*

Table 3.1l - Percent of RFF Allocated to Transit Capital Projects

Allocation Years	Total Amount of RFF Allocation ($ millions)	Amount Allocated to Transit Capital Projects ($ millions)	Percent of RFF Allocation to Transit Capital Projects
2000-03	$75.768	$19.5	25.7%
2004-05	$50.54	$16.104	31.9%
Total 2000-05	$126.308	$35.604	28.2%

Source: Metro Planning Department

Table 3.1l measures the modal balance of regional funding allocated to transit projects.

In the six years of allocations (years 2000 through 2005), transit projects have received less funding than what their costs represent in the RTP Priority System. The RTP Priority system is the regionally adopted network of transportation projects needed to implement the 2040 Growth Concept.

There are two probable reasons for the apparent imbalance of RFF allocations to these cost categories. First, this category of projects costs contain large-scale projects that have historically been funded primarily with federal transportation grants that are appropriated outside of the RFF allocation. RFF can, and are being used for planning and local matching funds for these types of projects. For example, $6 million per year of RFF funds have been used as a portion of local match for the Interstate light rail project.

Secondly, in recent allocations, the RFF funded improved transit operations which are not accounted for in the above capital project allocations. As there is no regionally adopted policy on prioritizing types of transit operations (just as there is no regional policy on road operation and maintenance), there is no RTP Priority System cost category for transit operations. Therefore, money allocated for transit operations were not included in the measure of money allocated to transit capital project costs. However, JPACT and Metro decision makers likely considered these allocations as providing balance to the transit portion of the transportation system when considering the balance of RFF allocations across the various mode categories.

Indicator 3.1m: Total cost of boulevard projects as a percentage of the total Regional Flexible Funds (RFF) allocation (years 2000 - 2005).
Data years: 2000 to 2005. Source: Metro Planning Department.

Finding:

- *Data show that 10.2 percent of RFF funds were spent on boulevard projects compared to the 2.2 percent of RTP Priority System costs that boulevard projects represent.*

Table 3.1m - Percent of RFF Allocated to Boulevard Projects

Allocation Years	Total Amount of RFF Allocation ($ millions)	Amount Allocated to Boulevard Projects ($ millions)	Percent of RFF Allocation to Boulevard Projects
2000-03	$75.768	$9.819	13.0%
2004-05	$50.54	$3.114	6.2%
Total 2000-05	$126.308	$12.933	10.2%

Source: Metro Planning Department

Table 3.1m measures the modal balance of regional funding allocated to boulevard projects.

In the six years of allocations (years 2000 through 2005), boulevard projects have received a larger share of funding relative to other mode categories than what their costs represent in the RTP Priority System. The amount allocated, however, is still less than what is necessary to implement the RTP Priority System. The RTP Priority system is the regionally adopted network of transportation projects needed to implement the 2040 Growth Concept.

Data Limitation
This data does not measure the modal balance of all money spent on motor vehicle, pedestrian, bicycle, freight and transit projects in the region. Historically, other sources of transportation funds provide most of the funding for these systems in the region.

Local Street Connectivity

Purpose

To measure what percentage of new development in residential and mixed use areas are meeting regional street connectivity standards.

Summary

Policy

Provide a connected street system that supports an efficient transportation system by making walking and bicycling (and access to transit) more direct and by allowing local vehicle trips to not have to access the regional street network to complete their trip. This supports the use of non-vehicular modes and slows the need to provide additional travel lanes and intersection capacity projects on the regional street system.

Indicator

3.3a Portions of region meeting street connectivity requirements.
Data years: 1996 to 2000. Source: Metro Planning Department.

- *All the jurisdictions in the Metro region have amended their development codes to require 10 street connections per mile in new developments that construct new streets so as to reduce delay on the regional system and decrease arterial traffic.*
- *Based on a survey of seven study areas, some portions of the region are meeting regional street connectivity requirements as measured by a standard of 10 intersections per linear mile (100 intersections per square mile), while other areas will need to leverage new growth to bring existing street systems up to regional connectivity standards.*

Location	Intersections Per Square Mile in Developed Portion of Sample Area *(1996)*	*Intersections Per Square Mile in Developed Portion of Sample Area (2000)*	*Change in Intersections Per Square Mile in Developed Portion of Sample Area (1996 - 2000)*
Hollywood	254	254	0
Elmonica	28	32	+4
Forest Grove	46	83	+37
Gresham - Pleasant Valley	115	110	-5
Oregon City	68	85	+17
Sherwood	86	103	+17
Sunnyside	135	169	+34

**The regional standard for intersections per square mile is 100.*

Policy Rationale

Providing a connected street system that supports an efficient transportation system by making walking and bicycling (and access to transit) more direct and by allowing local vehicle trips to not have to access the regional street network to complete their trip. This supports the use of non-vehicular modes and slows the need to provide additional travel lanes and intersection capacity projects on the regional street system.

Adopted Targets

Jurisdictions were required to update their development codes to implement the regional standards for street connectivity within one year of adoption of the Metro Functional Plan Title 6 (adopted 1999). This requirement was updated and included in adoption of the RTP in September 2000.

The regional standard for street connectivity requires new construction of streets in residential and mixed use developments to provide a street connection no further apart than 530 feet, unless prevented by an existing barrier. If a barrier prevents a street connection within 530 feet, a development must try to locate a multi-use path connection within 330 feet of another street or path connection.

Data Analysis

Indicator 3.3a: Portions of region meeting street connectivity requirements.
Data years: 1996 to 2000. Source: Metro Planning Department.

Finding:

- *All the jurisdictions in the Metro region have amended their development codes to require 10 street connections per linear mile in new developments that construct new streets so as to reduce delay on the regional system and decrease arterial traffic.*
- *Based on a survey of seven study areas, some portions of the region are meeting regional street connectivity requirements as measured by a standard of 100 intersections per square mile, while other areas will need to leverage new growth to bring existing street systems up to regional connectivity standards.*

One method of reducing congestion is to develop a connected street system. A connected street system disperses longer distance trips on to the arterial system that is designed for higher speeds and less access to property. A connected system of local and collector streets can then handle short distance trips and access to property.

By connecting streets at between 10 to 16 connections per linear mile, delay on the regional system can be reduced by up to 19 percent and arterial traffic decreased by up to 12 percent. Pedestrians and bicyclists also benefit from having direct routes to shopping, transit lines or other destinations.

To measure whether new development in the region is meeting regional street connectivity standards for residential and mixed use development, aerial photos have been analyzed for the developed portions of seven regional sample areas of one square mile in size. For measurement purposes, a street connection every 530 feet is equivalent to 10 intersections per linear mile (or 100 street intersections per square mile or 6.4 street intersections per acre).

One sample area was selected in a built out area of the region (Hollywood) to serve as a basis for comparison to the other sample areas. The other sample areas were selected in parts of the region that have experienced recent development and/or are expected to experience more development in the near future. This will allow future analysis to track the progress of local jurisdictions in providing street connectivity.

The street connectivity of the development in these target areas was measured in the base year of 1996 and for additional development in the year 2000. The intersections per square mile of new development was then calculated and compared to the regional minimum standard of 100 intersections per square mile. The number of intersections per square mile in the new development is also compared to the number of intersections per square mile in previous development in each study area

and the overall rate of change is calculated to measure examine the trend of how a particular jurisdiction is performing in providing street connectivity.

An intersection is only counted if it is an intersection with a street that is not a closed end street (such as a cul-de-sac or looped street). This is because the intersection measurement is being used to measure the connectivity of a street system and closed end streets do not provide a connection to any other street. Therefore, these streets they do not provide the benefits of a connected street system such as alternative routes for local vehicle trips and more direct routes for bicycle and pedestrian trips that is being measured. Alleys in the old commercial center of Sherwood were counted as street connections as they provide some level of street connectivity. Offset intersections; intersections where two streets intersect a cross street within 100 feet of each other in opposite directions, are counted as one intersection.

The column labeled developed area in Table 3.3a(1) is the total acreage of the total study area after subtracting areas that are likely to develop or redevelop. The determination of which areas are likely to develop or redevelop was based on a review of aerial photography, zoning and land parcel data. Local planners with more precise information regarding the potential for future development were not consulted. Measurement of developable and redevelopable areas are approximate and were not measured to the parcel level.

Please note that natural areas and large parcels such as school sites are not subtracted from the developed area calculation even though these areas are not likely to develop or redevelop in the future. These areas are a part of a community that are expected to meet an overall level of street connectivity that can be measured as 100 intersections per square mile.

Hollywood

The Hollywood area is a built out area in Northeast Portland that contains a commercial center and commercial corridor along Sandy Boulevard surrounded by residential development. The square mile study area selected has the Hollywood commercial district in its southwest corner and extends eastward to encompass portions of the Alameda ridge and Rose City Park neighborhoods. The Alameda ridge is the only geologic barrier to providing direct street connections.

Relative to other study areas, natural areas such as stream corridors were not preserved in Hollywood, nor does it happen to contain any large public facilities such as schools or cemeteries.

There are no parcels that were not developed in the base year of 1996. This study area represents a built-out street system in a mature urban area that exceeds regional minimum requirements for street connectivity.

The Hollywood study area included 254 street intersections in its square mile area, more than two and one-half times the regional standard of 100 per square mile. No new streets were constructed between the years 1996 and 2000.

Table 3.3a(1): Hollywood Study Area

Year	Developed Area (Acres)*	Number of Intersections in Developed Area	Intersections per Square Mile in Developed Area
1996	640	254	254
2000	640	254	254
Difference ('96 - '00)	0	0	N/A

Source: Metro Planning Department
** 640 acres per square mile*

Elmonica

The Elmonica study area is primarily residential land but also contains a large nature preserve (68 acres) and a stream corridor. There is also a light rail station area near a segment of industrial land and a few undeveloped parcels that present the potential for infill development in the future. The nature preserve, the stream corridor and a large school site present potential barriers to future street connectivity.

Table 3.3a(2): Elmonica Study Area

Year	Developed Area (Acres)*	Number of Intersections in Developed Area	Intersections per Square Mile in Developed Area
1996	528	23	28
2000	535	27	32
Difference ('96 - '00)	7	4	+4

** 640 acres per square mile*

The Elmonica study area is far from reaching 100 intersections per square mile. However, with development of approximately 7 acres (6 percent of its redevelopment potential) between 1996 and 2000, the Elmonica area increased its level of street connectivity by 14 percent. Furthermore, the redevelopment that occurred created a framework to easily provide more connections as future development occurs, rather than developing barriers to future street connections. While early development patterns in this area present challenges to providing street connections, it appears recent development is beginning to correct earlier street connection deficiencies.

Forest Grove

The Forest Grove study area is located in the northwest portion of Forest Grove. The area is primarily developed with single family residential lots. Most of the study area, however, remains in farm and other use.

Table 3.3a(3): Forest Grove Study Area

Year	Developed Area (Acres)*	Number of Intersections in Developed Area	Intersections per Square Mile in Developed Area
1996	309	22	46
2000	345	45	83
Difference ('96 - '00)	36	23	+37

** 640 acres per square mile*

As development occurs, it appears that the study area is fast approaching the regional standard for street connectivity.

Gresham/Pleasant Valley

Table 3.3a(4): Gresham - Pleasant Valley Study Area

Year	Developed Area (Acres)*	Number of Intersections in Developed Area	Intersections per Square Mile in Developed Area
1996	162	29	115
2000	180	31	110
Difference ('96 - '00)	18	2	- 5

** 640 acres per square mile*

Oregon City

The Oregon City study area is a mix of single family residential, large lot rural residential and institutional uses.

Table 3.3a(5): Oregon City Study Area

Year	Developed Area (Acres)*	Number of Intersections in Developed Area	Intersections per Square Mile in Developed Area
1996	350	37	68
2000	376	50	85
Difference ('96 - '00)	26	13	+17

** 640 acres per square mile*

Sherwood

The Sherwood study area contains an older downtown commercial district surrounded by newer single family residential areas. This area also contains two large school sites of approximately 42 acres and a stream corridor with several tributaries that are potential barriers to street connectivity.

Table 3.3a(6): Sherwood Study Area

Year	Developed Area (Acres)*	Number of Intersections in Developed Area	Intersections per Square Mile in Developed Area
1996	433	58	86
2000	528	85	103
Difference ('96 - '00)	95	27	+17

** 640 acres per square mile.*

In the four years between 1996 and 2000, Sherwood increased the number of intersections per square mile within the selected study area to a level that meets regional minimum requirements.

It is worthy of note that 38 of the street intersections occur in the old commercial center of Sherwood, accounting for 65 percent of the intersections in the study area in 1996 and 45 percent of the intersections in 2000. This was accomplished in an area of only 30 acres or less than 10 percent of the developed study area. If this area were subtracted from the study area, the developing portions of the study area would still need to increase the levels of street connectivity provided to reach the 100 intersections per square mile measure.

Four non-vehicular connections are provided in the study area where full street connections were not made, allowing for increased street connectivity for pedestrians and bicycles that is not accounted for in the above figures.

Sunnyside

The Sunnyside study area straddles Sunnyside Road in the vicinity of 147th Avenue. It is the location of Sunnyside Village, a residential mixed use development. The remainder of the study area is undeveloped.

Table 3.3a(7): Sunnyside Study Area

Year	Developed Area (Acres)*	Number of Intersections in Developed Area	Intersections per Square Mile in Developed Area
1996	104	22	135
2000	224	59	169
Difference ('96 - '00)	120	37	+34

** 640 acres per square mile.*

Comparison of Study Areas

Table 3.3a(8): Street Connectivity

Location	Intersections Per Square Mile in Developed Portion of Sample Area (1996)	Intersections Per Square Mile in Developed Portion of Sample Area (2000)	Change in Intersections Per Square Mile in Developed Portion of Sample Area ('96 - '00)
Hollywood	254	254	0
Elmonica	28	32	+4
Forest Grove	46	83	+37
Gresham – Pleasant Valley	115	110	-5
Oregon City	68	85	+17
Sherwood	86	103	+17
Sunnyside			

**The Regional standard for intersections per mile is 100.*

Data Limitations

This data is only for sample areas in the region, not a comprehensive analysis of street connectivity in all residential and mixed use area of the region.

The measurement of 100 intersections per mile is an example of street connections at the regional requirement of at least one street connection every 530 linear feet (with exceptions for certain types of barriers). It does not ensure that the street connections are built in the optimal location to provide the benefits of street connectivity.

Congestion Policy

Purpose:

To measure the reliability and efficiency of the regional transportation system, including the movement of motor vehicles, transit and freight.

Summary

Policy

RTP Policy 14.3; Regional Public Transportation Performance. Provide transit service that is fast, reliable, and has competitive travel times compared to the automobile. Policy 15.0; Regional Freight System. Provide efficient, cost-efficient, and safe movement of freight in and through the region. Policy 13.0; Regional Motor Vehicle System. Provide a regional motor vehicle system of arterials and collectors that connect the central city, regional centers, industrial areas and intermodal facilities, and other regional destinations, and provide mobility within and through the region.

Indicators

3.4a(1): Traffic volume on major freeways in the region
Data Years: 1997 and 2000. Source: Oregon Department of Transportation.

- *Vehicle volumes continued to grow on the freeway system between 1997 and 2000, reflecting the region's overall growth in population and jobs. The freeway systems continue to provide adequate mobility within the region, connecting the central city, regional centers, industrial areas and intermodal facilities and other regional destinations.*
- *Increased traffic volumes in the I-205 corridor reflect the residential growth in Clackamas and Clark counties.*
- *The regional growth in both employment and population resulted in large increases in freeway traffic on the Sunset Highway and Highway 217.*

3.4a(2): Change in average travel times in key corridors by motor vehicle, freight and transit.
Data Years: 1994 and 2020. Source: Metro model.

The following transportation results are forecasted with the implementation of the Preferred System:

- *In most parts of the region, evening two-hour peak period auto travel times will increase from 1994 travel times while overall transit travel times will decrease. The largest increases in auto travel times are expected to occur along I-205 from I-5 to Gateway; I-5 north of the central city to Vancouver, Washington; Highway 224 from Milwaukie Town Center to Clackamas Regional Center, and between Terminal 6 and I-205 along NE Portland Highway.*
- *Transit travel times are faster throughout much of the region, reflecting expanded service, including rapid bus and light rail, and transit preferential improvements in many corridors. The largest decreases in transit travel times are expected to occur in corridors where rapid bus or light rail service is proposed. Transit travel times are generally less than 1.5 times the two-hour peak period auto travel time for the same corridor. (In all of the corridors examined except for I-205 between Gateway and Oregon City Regional Centers.)*
- *Truck hours of delay are expected to increase by more than five-fold during the evening two-hour peak period between 1994 and 2020. This represents a change from 4 percent of truck hours experiencing delay in 1994 to nearly 13 percent of truck hours experiencing delay during the evening two-hour peak period. Overall, the preferred system results in adequate mobility and access for freight movement in the region.*

Note: The No-Build Scenario (which shows where additional regional transportation system needs are created by the estimated population and employment growth if no new transportation projects or programs are constructed) *predicts increases in travel times in many of the key corridors and does not meet the policy objectives of the RTP and 2040 Framework. The Preferred System Scenario meets the policy objectives, while accepting a certain level of congestion.*

Policy Rationale

The Regional Motor Vehicle System is designed to provide access to the central city, regional centers, industrial areas and intermodal facilities with an emphasis on mobility between these destinations. In order to improve travel times in key corridors throughout the region, the system emphasizes the multimodal capacity of the motor vehicle system. The 2040 Growth Concept maximizes the efficiency of existing motor vehicle infrastructure by reducing the number of single occupancy vehicle (SOV) trips that in turn reduces travel times in key corridors.

Traffic volume data in key freeway corridors throughout the region allows for analysis of where growth in traffic is occurring, whether adequate mobility and access to the region's primary land use components are being maintained, and where congestion choke points are likely to occur.

Travel time data in key corridors throughout the region are needed in order to prioritize future transit projects. More people will choose transit if the regional transit network is fast and frequent and serves regional growth centers such as the central city, regional centers, industrial areas and intermodal facilities such as the Portland International Airport. An easily accessible and reliable transit system will attract new transit riders and help relieve congestion in the region. This will reduce the need for road expansion while improving mobility in the region.

Freight travel times need to be predictable and reliable in order to maximize the amount of freight moving through the region. Relieving congestion by moving people onto transit and other non-SOV modes, will improve freight mobility. The movement of goods and services contributes significantly to the regional economy, and will likely play and even larger role in the future. A study of goods movement in the region, the 2040 Commodity Flow analysis, predicts freight volume will more than double by 2040, a rate higher than projected population growth. The analysis indicates the need to continue maintaining and enhancing the freight transportation network.

Compliance Summary

Local jurisdictions must adopt the policies in the RTP in their Transportation System Plan (TSP), including systems maps and modal targets.

Data Analysis

3.4a(1): Traffic volume on major freeways in the region
Data Years: 1997 and 2000. Source: Oregon Department of Transportation

Finding:

- *Vehicle volumes continued to grow on the freeway system between 1997 and 2000, reflecting the region's overall growth in population and jobs. The freeway systems continue to provide adequate mobility within the region, connecting the central city, regional centers, industrial areas, intermodal facilities and other regional destinations.*

- *Increased traffic volumes in the I-205 corridor reflect the residential growth in Clackamas and Clark Counties.*

- *The regional growth in both employment and population resulted in large increases in freeway traffic on the Sunset Highway and Highway 217.*

The freeway system continues to provide mobility to the region's primary land use components with growth in traffic volumes reflecting growth in population and employment. As growth continues as

expected in Washington and Clackamas counties, corridor-wide improvements, including additional freeway capacity and efficiency improvements, will need to be implemented in the I-205, Highway 217 and Highway 26 corridors as called for in the RTP to provide adequate access and mobility to the primary 2040 land-use components in these corridors.

As Table 3.4a(1) shows, Washington County freeway travel reflects the intense growth in employment and population in Washington County and growth in travel along I-205 reflects increasing residential growth in Clark and Clackamas Counties.

Table 3.4a(1): Average Weekday Freeway Volumes 1997-2000 (Both Directions)

Freeway	1997 Volume	2000 Volume	Percent change
I-5 @ Fremont Bridge	158,700	160,000	0.8
I-5 @ Capitol Highway	135,300	136,800	1.1
I-405 @ SW Taylor	112,700	114,400	1.5
I-84 @42nd	181,700	183,500	1.0
I-84 East of Sandy River	25,500	26,400	3.5
I-205 @ Airport Way	141,500	151,500	**7.1**
I-205 @ 82nd Drive (Clackamas River)	130,800	137,400	**5.0**
US 26 – Sunset Highway @ Skyline	146,700	156,300	**6.5**
US 26 – Sunset Highway @ 185th	58,800	72,000	**22.4**
Highway 217 @ Walker Road	97,300	108,200	**11.2**
Highway 217 @ I-5	91,000	98,000	**7.7**

Indicator 3.4a(2): Change in average travel times in key corridors by motor vehicle, freight and transit
Data Years: 1994. Source: Metro.

Finding:
The following transportation results are forecasted with the implementation of the Preferred System:

- *In most parts of the region, evening two-hour peak period auto travel times will increase from 1994 travel times while overall transit travel times will decrease. The largest increases in auto travel times are expected to occur along I-205 from I-5 to Gateway; I-5 north of the central city to Vancouver, Washington; Highway 224 from Milwaukie Regional Center to Clackamas Regional Center, and between T-6 and I-205 along NE Portland Highway.*
- *Transit travel times, in contrast, are faster throughout much of the region, reflecting expanded service, including rapid bus and light rail, and transit preferential improvements in many corridors. The largest decreases in transit travel times are expected to occur in corridors where rapid bus or light rail service is proposed. Transit travel times are generally less than 1.5 times the two-hour peak period auto travel time for the same corridor. (In all of the corridors examined except for I-205 between Gateway and Oregon City Regional Centers.)*
- *Truck hours of delay are expected to increase by more than five-fold during the evening two-hour peak period between 1994 and 2020. This represents a change from 4 percent of truck hours experiencing delay in 1994 to nearly 13 percent of truck hours experiencing delay during the evening two-hour peak period. Overall, the preferred system results in adequate mobility and access for freight movement in the region.*

Note: The No-Build Scenario (which shows where additional regional transportation system needs are created by the estimated population and employment growth if no new transportation projects or programs are constructed) predicts increases in travel times in many of the key corridors and does not meet the policy objectives of the RTP and 2040 Framework. The Preferred System Scenario meets the policy objectives, while accepting a certain level of congestion.

Table 3.4a(2): Change in average travel times in key corridors by motor vehicle, freight and transit for the No-Build and Preferred Systems

TRAVEL TIMES IN KEY CORRIDORS IN THE NO BUILD SCENARIO	2 Hour Peak Travel Time (in minutes)					
	1994		2020 No Build System		Percent Change	
	Motor Vehicle	Transit	Motor Vehicle	Transit	Motor Vehicle	Transit
Central City to Beaverton on Highway 217	20.63	34.35*	23.28	22.61	13%	-34%
Central City to Vancouver on I-5	23.46	28.65*	42.52	50.28	81%	75%
Central City to Milwaukie on 99E	19.57	26.54*	29.52	38.11	51%	44%
Washington Square to Oregon City on Higway 217, I-5, and I-205	28.45	70.72*	55.84	102.36	96%	45%
Gateway to Gresham on Division Street	17.77	18.29	23.12	17.96	30%	-2%
Gateway to Oregon City on I-205	21.75	80.91*	35.85	102.39	65%	27%
Milwaukie to Clackamas on Highway 224	10.48	11.56*	14.36	14.67	13%	27%
Beaverton to Hillsboro on TV Highway	19.62	35.41*	22.38	26.03	14%	-26%
I-5 to I-205 on NE Portland Highway	23.1	n/a	28.87	n/a	25%	n/a
Portland International Airport to Gateway on Airport Way	9.98	n/a	15.74	12.01	58%	

Source: Metro

Note: The No-build Scenario does not expand roads or transit service.
The Preferred System Scenario includes expanded transit service such as rapid bus and light rail.

TRAVEL TIMES IN KEY CORRIDORS IN THE PREFERRED SYSTEM SCENARIO	2 Hour Peak Travel Time (in minutes)					
	1994		2020 Preferred System		Percent Change	
	Motor Vehicle	Transit	Motor Vehicle	Transit	Motor Vehicle	Transit
Central City to Beaverton on Highway 217	20.63	34.35*	21.49	22.61	4%	-34%
Central City to Vancouver on I-5	23.46	28.65*	30.73	32.87	31%	13%
Central City to Milwaukie on 99E	19.57	26.54*	23.72	23.46	21%	-13%
Washington Square to Oregon City on Higway 217, I-5, and I-205	28.45	70.72*	48.78	51.12	71%	-28%
Gateway to Gresham on Division Street	17.77	18.29	19.55	17.96	10%	-2%
Gateway to Oregon City on I-205	21.75	80.91*	30.78	47.92	42%	-41%
Milwaukie to Clackamas on Highway 224	10.48	11.56*	13.14	12.54	25%	8%
Beaverton to Hillsboro on TV Highway	19.62	35.41*	17.08	25.44	-13%	-29%
I-5 to I-205 on NE Portland Highway	23.1	n/a	26.76	n/a	16%	n/a
Portland International Airport to Gateway on Airport Way	9.98	n/a	15.72	12.01	58%	

Source: Metro

Freight System Performance in the No Build Scenario	1994	2020 No-Build System	Percent Change
Average weekday total truck trips	54,598	72,118	32%
Average weekday truck average travel time	37	48	30%
Average weekday truck average trip length	22.64	23.96	6%
Peak period truck vehicle hours of delay	132	1222	826%

Source: Metro

Freight System Performance in the Preferred System Scenario	1994	2020 Preferred System	Percent Change
Average weekday total truck trips	54,598	72,118	32%
Average weekday truck average travel time	36.53	42.86	17%
Average weekday truck average trip length	22.64	23.9	6%
Peak period truck vehicle hours of delay	132	713	440%

Source: Metro

The system performance predicted in the 2020 Preferred System meets the policy goals in the RTP and the 2040 Framework.

Data Limitations

The data is based on model results that does not reflect actual data and are based on continuing evolution of delay functions. The functions calculate a travel speed based upon speed limit, volume and capacity conditions. The use of new functions would yield non-comparable results.

Travel times can be better measured in several different ways including both ODOT Intelligent Transportation System (ITS) and probe vehicle Global Positioning System (GPS) devices. If field data is collected with probe vehicles, care must be taken to capture the correct travel time data. Probe vehicle travel time data is expensive to collect and count data must be captured at the same time as the speed runs to determine how the spread measurement coordinates with the traffic flow. Speed runs under high volume conditions do not compare well with runs under low volume conditions.

ITS should be able to provide all the data necessary for analysis. Count data should be examined to determine the extent of "peak spreading."

Transit travel times can be readily obtained from GPS devices on transit vehicles.

Modal Targets

Purpose

To measure how the region is performing in promoting trips that utilize modes other than the motor vehicle.

Summary

Policy

RTP Policy 14.0; Provide an appropriate level, quality and range of public transportation options to serve this region and support implementation of the 2040 Growth Concept. RTP Policy 19.0; Regional Transportation Demand Management. Enhance mobility and support the use of alternative transportation modes by improving regional accessibility to public transportation, carpooling, telecommuting, and bicycling and walking options. Objective: Establish a Non-SOV modal target for each 2040 Design Type consistent with Table 3.5.

Indicators

3.5c Gross transit rides.
Data years: 1995 to 2000. Source: TriMet.

- *Gross transit rides have grown an average of 6.6 percent per year between 1995 and 2000. This rate of growth is more than the 4.1 percent average annual growth in gross transit rides (by 1.5 percent) needed to meet the ridership projected for transit with implementation of the RTP Priority System by the year 2020.*

3.5d Transit rides per capita.
Data years: 1995 to 2000. Source: TriMet.

- *Transit rides per capita have grown at an average annual rate of 3.2 percent between 1995 and 2000. This rate of growth is greater than what is needed to meet the ridership objectives of the transit portion of the RTP Priority System (if sustained through the year 2020).*

3.5e: Originating rides by bus and rail
Data Years: 1995 to 2000. Source TriMet.

- *Between 1998 and 2000, the average weekday originating rides by bus and rail increased by 24 percent.*
- *Total originating rides by rail and bus fixed route services increased an average of 6.99 percent per year between 1995 and 2000. This rate of growth is short of the 8.11 percent average annual growth in originating rides (by 1.12 percent) that is needed to meet the transit trips projected in the RTP Priority System by the year 2020.*

3.5f: Service Hours per Capita
Data Years: 1995 to 1999. Source TriMet.

- *Total service hours per capita for TriMet fixed route services increased an average of 1.12 percent per year between 1995 and 1999. This rate of growth is short of the 4.07 percent average annual growth rate projected in the RTP Priority System by 2.95 percent.*

3.5h Change in transit use in 2040 centers: central city, regional centers, town centers.
Data years: 1995 to 2000. Source: TriMet.

- *As reliable data for bus and light rail boardings in previous years is not available, current data will form the data baseline for measuring change in transit use in future years in the central city and regional centers.*

3.5i: Vehicle miles traveled per capita
Data Years: 1990 to 2000. Source: FHWA through ODOT and the HPMS program

Finding:
Vehicle miles traveled (VMT) per person per day in the region has fluctuated each year from an average of 6 percent in 1993 to decreases of 4 percent in 1994 and 1997. The average of these fluctuations between 1990 and 2000 equates to an increase of .64 percent per year. The RTP 2020 Priority System only projects a .07 average annual increase in VMT per capita. While the average growth rate of VMT in the last 10 years is slightly higher than regional goals the region may be able to meet a lower per capita growth rate if recent trends in VMT reduction continue.

Policy Rationale

Providing options to driving alone, especially during peak commute periods, can improve the efficiency of the region's transportation system and have less impact on the environment. Providing these options can also save costs by delaying the expansion of the regional motor vehicle system to serve these trips.

The Non-SOV Modal Targets[11] are intended to be goals for cities and counties to work toward as they implement the 2040 Growth Concept at the local level. They may also serve as performance measures in Areas of Special Concern.[12] Improvement in non-single-occupancy vehicle mode share will be used to demonstrate compliance with per capita travel reductions required by the state Transportation Planning Rule. The most urbanized areas of the region will achieve higher non-SOV mode shares than less developed areas closer to the urban growth boundary.

Adoption of the 2040 Growth Concept established a new direction for planning in the Portland Metropolitan Region by linking urban form to transportation. The plan is based on the efficient use of land and a safe, cost-effective and efficient transportation system that supports the land uses in the 2040 Growth Concept and serves all forms of travel.

The 2040 Growth Concept promotes land use patterns and a transportation system that make it more convenient for people to walk, bicycle and use transit, and drive less to meet their daily needs. The Regional Transportation Plan policies complement the region's efforts to meet other objectives including containing urban development, reducing the cost of public services, protecting farm and forest land, reducing air, water and noise pollution, conserving energy, and reducing emissions of greenhouse gases that contribute to global climate change.

Providing alternatives to driving provides people with options of how to travel throughout the region. By having a variety of choices people can eliminate some trips and switch to alternative modes of travel for other trips. These changes in travel behavior can help the region maximize the efficiency of the existing transportation system and improve air quality. Measuring the number of vehicle miles each person in the region travels daily is one way to determine if people are making the choice to use alternatives modes in traveling throughout the region.

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[11] Non-SOV modal targets shows all other person trips besides those people driving alone (e.g., bike, walk, transit, carpool, vanpool). The targets include all daily trips.

[12] These places are relatively small geographic areas with special characteristics that make it difficult to determine actual Non-SOV modal performance based on analysis of the regional model. These places include the Portland International Airport, Oregon Health Sciences University and Oregon Zoo.

Adopted Targets

Alternative mode share targets established in the RTP, and summarized in the following table, are goals for cities and counties to work toward as they implement the 2040 Growth Concept. Target levels are linked to land use type, as the ability to achieving alternative mode trips corresponds to the mix and density of land uses in an area.

Compliance Summary

Local jurisdictions have one year from adoption of the RTP (August 2000) to update their local Transportation System Plans (TSP's) to be in compliance with the RTP. The RTP requires local jurisdictions to demonstrate substantial progress toward the 2040 regional modal targets in their local TSP's.

The 2040 regional modal targets are as follows:

Table 3.5: *2040 Regional Non-SOV Modal Targets*

2040 Design Type	Non-SOV Modal Target
Central City	60-70%
Regional centers Town centers Main streets Station communities Corridors	45-55%
Industrial areas Intermodal facilities Employment areas Inner neighborhoods Outer neighborhoods	40-45%

Source: Metro Planning Department

The following Regional Transportation Plan policies help achieve the above Non-SOV modal targets and implement the 2040 Growth Concept.

Policy 3.0: Urban Form. Facilitate implementation of the 2040 Growth Concept with specific strategies that address mobility and accessibility needs and use transportation investments to leverage the 2040 Growth Concept.

Policy 4.0: Consistency Between Land-Use and Transportation Planning. Ensure the identified function, design, capacity and level of service of transportation facilities are consistent with applicable regional land use and transportation policies as well as the adjacent land use patterns.

Policy 5.0: Barrier-Free Transportation. Provide access to more and better transportation choices for travel throughout the region and serve special access needs for all people, including youth, elderly and disabled.

Policy 5.1: Interim Special Needs Transportation Policy. Serve the transit and transportation needs of elderly and disabled in the region.

Policy 5.2: Interim Job Access and Reverse Commute Policy. Serve the transit and transportation needs of the economically disadvantaged in the region by connecting low-income populations with employment area and related social services.

Policy 16.1: Bicycle Mode Share. Increase the bicycle mode share throughout the region and improve bicycle access to the region's public transportation system.

Policy 17.1: Pedestrian Mode Share. Increase walking for short trips and improve pedestrian access to the region's public transportation system through pedestrian improvements and changes in land-use patterns and increasing densities.

Metro does not have policies relating to the efficiency of the transit system. The RTP and 2040 Framework are primarily concerned with providing enough transit service to improve the non-SOV mode share.

Data Analysis

Indicator 3.5c: Gross transit rides.
Data years: 1995 to 2000. Source: TriMet.

Finding:

- *Gross transit rides have grown an average of 6.6 percent per year between 1995 and 2000. This rate of growth is more than the 4.1percent average annual growth in gross transit rides (by 1.5 percent) needed to meet the ridership projected for transit with implementation of the RTP Priority System by the year 2020.*

Table 3.5c - Gross Vehicle Transit Rides

Year	Annual Boardings*
FY 1995	61,188,000
FY 1996	63,912,000
FY 1997	66,780,000
FY 1998	68,952,000
FY 1999	76,309,200
FY 2000	81,237,600

Source: TriMet.
** Note: Boarding Rides include all rides made on MAX, bus and LIFT service by TriMet, including transfers.*

Table 3.5c shows the annual ridership on the TriMet transit systems for the fiscal years 1995 through 2000. The average annual growth rate over this five-year period is 6.6 percent per year.

The RTP Regional Priority System projects ridership to the year 2020 that equates to an annual growth rate over the plan period of 4.1 percent. TriMet, the region's primary transit provider has been able to achieve this growth by providing increased levels of service hours. TriMet derives most of its operating revenues from an employer tax and due to the strong performance of the regional economy has been able to provide increased levels of service. It will be a challenge for TriMet to sustain this level of growth in service and ridership as the regional economy fluctuates over the next 20 years.

Indicator 3.5d: Transit rides per capita.
Data years: 1995 to 2000. Source: TriMet.

Finding:

- *Transit rides per capita have grown at an average annual rate of 3.2 percent between 1995 and 2000. This rate of growth is greater than what is needed to meet ridership objectives of the transit portion of the RTP Priority System if it can be sustained through the year 2020.*

Table 3.5d: Transit Rides Per Capita

Year	Population	Annual Boarding Rides	Annual Boarding Rides per Capita
FY 1995	1,305,100	61,188,000	47.3
FY 1996	1,325,700	63,912,000	48.6
FY 1997	1,341,700	66,780,000	50.2
FY 1998	1,363,100	68,952,000	51.1
FY 1999	1,378,450	76,309,200	55.9
FY 2000	1,444,219	81,237,600	56.3

Source: TriMet
Note:
Population estimates are from PSU Center for Population Research and reflect tri-county (Multnomah, Clackamas and Washington Counties) population.
Boarding rides include rides made on TriMet MAX, bus and LIFT
FY = Fiscal Year (July-June)

Regional population is estimated to be 2,348,900 persons by the year 2020. Transit ridership with the implementation of the Priority transit system is projected to be 593,778 average weekday boardings and multiplies by 307.2[13] will equal 182,426,415 annual boardings. This results in an annual boarding rides per capita figure by the year 2020 of 77.7 rides.

To reach this goal, the growth rate in annual rides per capita will need to average approximately 1.9 percent per year through the year 2020.

In the previous six years, annual boarding rides per capita has grown at a rate of approximately 3.2 percent. This rate of growth is more than what is necessary to help meet ridership projected for the adequate level of transit service to implement the 2040 Growth Concept.

Indicator 3.5e: Originating rides by bus and rail
Data Years: 1995 to 2000. Source TriMet

Finding

- *Between 1998 and 2000, the average weekday originating rides by bus and rail increased by 24 percent.*
- *Total originating rides by rail and bus fixed route services increased an average of 6.99 percent per year between 1995 and 2000. This rate of growth is short of the 8.11 percent average annual growth in originating rides (by 1.12 percent) that is needed to meet the transit trips projected in the RTP Priority System by the year 2020.*

[13] Annualization factor for average weekday boardings was calculated from current TriMet data (11/01) for average weekly boardings for fixed route service.

Table 3.5e (1)– Average Weekday Originating Rides, Bus & Rail

Bus & Rail	Year		% Change 1998-2002
	1998	2002	
Bus Total	152,400	160,100	5%
MAX			
Eastside MAX	25,000	32,800	31%
Westside MAX		24,300	
Airport MAX		2,300	
MAX Total	25,000	59,400	138%
Bus & MAX Total	177,400	219,500	24%

Source: TriMet
*Westside MAX opened early in FY 99; Airport MAX opened early in FY 02
*FY 02 bus & rail values are averages for the period *after* the opening of Airport MAX

Table 3.5e(1) shows the average weekday originating rides by bus and rail for 1998 and 2002. In this period, the overall change in average weekday originating rides for bus and rail was 24 percent. Bus rides increased by approximately 5 percent while rail rides increased by 31 percent on the Eastside MAX.

Table 3.5e (2)– Total Originating Rides by Bus and Rail on TriMet Fixed Route Services

Year	Total Originating Rides	Percent Change
1995	47,685,900	--
1996	49,801,900	4.44%
1997	52,045,800	4.51%
1998	53,750,000	3.27%
1999	60,327,600	12.24%
2000	64,344,200	6.66%
Average Annual Growth Rate		**6.99%**

Source: TriMet

Table 3.5e(2) shows the annual originating rides on the TriMet transit systems for fiscal years 1995 through 2000. The average annual growth rate over this five-year period was 6.99 percent. The RTP Regional Priority System projects originating rides in the year 2020 to be equal to an annual growth rate over the plan period of 8.11 percent. To achieve this growth rate, more resources need to be provided.

Indicator 3.5f: Service Hours per Capita
Data Years: 1995 to 1999. Source TriMet

Findings

- *Total service hours per capita for TriMet fixed route services increased an average of 1.12 percent per year between 1995 and 1999. This rate of growth is short of the 4.07 percent average annual growth rate projected in the RTP Priority System by 2.95 percent.*

Table 3.5f – Total Service Hours Per Capita for TriMet Fixed Route Services

Year	Service Hours Per Capita	Percent Change
1995	1.049	--
1996	1.050	0.10%
1997	1.035	-1.43%
1998	1.040	0.48%
1999	1.096	5.38%
2000	n/a	N/A
Average Annual Growth Rate		**1.12%**

Source: TriMet

Table 3.5f shows the annual transit service hours per capita for TriMet fixed route and Lift services for the fiscal years 1995 through 1999. The average annual growth rate over the four-year period is 1.12 percent.

The RTP Regional Priority System projects 2.38 transit service hours per capita in the year 2020, which equates to an average annual growth rate of 4.07 percent. To achieve this growth rate more resources need to be provided to improve the service hours per capita for rail and bus.

Indicator 3.5h: Change in transit use in 2040 centers: central city, regional centers, town centers.
Data years: 1995 to 2000. Source: TriMet.

Finding:

- *As reliable data for bus and light rail boardings in previous years is not available, current data will form the data baseline for measuring change in transit use in future years in the central city and regional centers.*

Table 3.5h: Change in Transit Use in the Central City and Regional Centers

Regional Centers	BUS (Spring 2000) Boarding	%	MAX (1998) Boarding	%	TOTAL Boarding	%
Beaverton	5,128	2%	2,547	4%	7,675	3%
Clackamas TC	2,992	1%	--	--	2,992	1%
Gateway	4,484	2%	4,072	7%	8,556	3%
Gresham	1,502	1%	2,767	5%	4,269	2%
Hillsboro	1,663	1%	2,535	4%	4,198	2%
Oregon City	1,325	1%	--	--	1,325	0%
Wash. Square	1,779	1%	--	--	1,779	1%
Central City	60,810	28%	26,988	46%	87,798	32%
Centers Total	79,683	37%	38,909	66%	118,592	43%
System Total	214,831	100%	58,712	100%	273,543	100%

Source: TriMet

Indicator 3.5i: Vehicle miles traveled per capita
Data Years: 1990 to 2000. Source: FHWA through ODOT and the HPMS Program

Finding:

- *Vehicle miles traveled (VMT) per person, per day in the region has fluctuated each year from an average of 6 percent in 1993 to decreases of 4 percent in 1994 and 1997. The average of these fluctuations between 1990 and 2000 equates to an increase of .64 percent per year. The RTP 2020*

Priority System only projects a .07 average annual increase in VMT per capita. While the average growth rate of VMT in the last 10 years is slightly higher than regional goals, the region may be able to meet a lower per capita growth rate if recent trends in VMT reduction continue.

Table 3.6a Daily Vehicle Miles (DVMT) of Travel Per Capita

Year	DVMT	DVMT/capita	Percent Change
1990	19,400,000	18.8	--
1991	20,000,000	19.2	2%
1992	20,900,000	19.8	3%
1993	22,600,000	20.9	6%
1994	22,100,000	20.1	-4%
1995	23,300,000	20.9	4%
1996	24,600,000	21.7	4%
1997	25,300,000	20.8	-4%
1998	26,000,000	21	1%
1999	25,800,000	20.5	-2%
2000	26,200,000	20	-2%
Average Annual Increase in DVMT			**0.64%**

Source: State Highway Performance Monitoring System (HPMS) reported to the Federal Highway Administration (FHWA), 1990-2000.

In order to meet our regional goal for reducing the average annual increase in VMT, more resources need to be dedicated to transportation demand management programs that help reduce the reliance on the automobile.

Air Quality

Purpose

To measure the performance measures set by the State Improvement Program's Ozone Maintenance Plan as required by the federal Clean Air Act.

Summary

Policy

Policy 9.0 Clean Air. Protect and enhance air quality so that as growth occurs, human health and visibility of the Cascades and the Coast Range from within the region is maintained.

Indicators

3.7a: Progress made implementing or exceeding commitments in the Portland Ozone Maintenance Plan for increase in transit, bicycle, and pedestrian facilities.
Data Years: 1996 to 2002: Metro

- *From 1996 to 2002, the region added a total of 33 bikeway miles and over 12 miles of pedestrian ways, which far exceeds the average biennial miles required in the Ozone Maintenance Plan. The region continues to add bike and pedestrian ways in an effort to provide convenient alternatives to the single occupant vehicle typically responsible for air quality impairments.*

- *The average annual increase in transit service hours has been 2.84 percent since 1996. This far exceeds the 1.5 percent average annual increase called for in the air quality maintenance plan. The region has been adding light rail service hours at a faster rate. One light rail train set equals the passenger carrying capacity of approximately six buses, therefore adding light rail service is more valuable for improving air quality than the equivalent bus service hours.*

3.7b: Difference between currently estimated On-Road Mobile emissions and the amount allowed in the Portland Maintenance Plan for Ozone and Carbon Monoxide.
Data Years: 1996 to 2001: Metro

- *From 1996 to 2001, the carbon monoxide standard has not been exceeded. The ozone standard was exceeded only in 1998 due to high temperature, however, the exceedence did not trigger a violation of the federal Clean Air Act.*

Policy Rationale

The financially constrained system in the 2000 RTP has been demonstrated to conform with the federal Clean Air Act.

The financially constrained system in the RTP includes the region's most critical project and program, and adequately meets the adopted performance measures. The federal Clean Air Act Amendments of 1990 establish air quality standards for key air pollutant including carbon monoxide, ozone and particulate matter. Areas that do not meet the standards are designated in varying degrees of non-attainment from "marginal" to "extreme."

In 1991, The Portland-Vancouver Interstate Air Quality Maintenance Area (AQMA) received a marginal non-attainment designation for ozone and moderate non-attainment designation for carbon monoxide. However, by the end of 1991, the area began to meet federal zone and carbon monoxide standards on

a consistent basis. As a result, the region began to work on 10-year maintenance plans and attainment designation requests for both pollutants. These plans were finalized and approved in 1996 and submitted to the US EPA as revision to the Oregon State Implementation Plan (SIP). In 1997 the Portland-Vancouver AQMA moved to attainment status.

The Portland Ozone Maintenance Plan is included in the SIP, and requires that five miles of bikeways and 1.5 miles of pedestrian facilities are constructed per MTIP cycle (every two years). Transit hours also are required to increase by 1.5 percent every year.

Compliance Summary

The Portland Ozone Maintenance Plan is included in the SIP, and requires that five miles of bikeways and 1.5 miles of pedestrian facilities are constructed per MTIP cycle (every two years). Transit hours are also required to increase by 1.5 percent every year. The criteria in the Ozone Maintenance Plan has been met through 2008 and 2012 for bikeways and pedestrian facilities, respectively. The average annual transit service hours have increased by 2.84 percent since 1996, which means that region is far exceeding the performance criteria required in the Ozone Maintenance Plan.

Data Analysis

Indicator 3.7a: Progress made implementing or exceeding commitments in the Portland Ozone Maintenance Plan for increase in transit, bicycle and pedestrian facilities.
Data Years 1996 to 2002. Source: Metro

Findings:

- *From 1996 to 2002, the region added a total of 33 bikeway miles and over 12 miles of pedestrian ways, which far exceeds the average biennial miles required in the Ozone Maintenance Plan. The region continues to add bike and pedestrian ways in an effort to provide convenient alternatives to the single occupant vehicle typically responsible for air quality impairments.*

- *The average annual increase in transit service hours has been 2.84 percent since 1996. This far exceeds the 1.5 percent average annual increase called for in the Ozone Maintenance Plan. The region has been adding light rail service hours at a faster rate. One light rail train set equals the passenger carrying capacity of approximately six buses, therefore, adding light rail service is more valuable for improving air quality than the equivalent bus service hours.*

Tables 3.7a(1) and 3.7a(2) below contain more details:

Table 3.7a(1): Number of Bicycle and Pedestrian Miles Constructed in the Portland Metropolitan Region

Year	Bike	Pedestrian		
1996	11 miles			
1998	14 miles			7 miles
2000			In compliance through 2012	
2002	8 miles			5 miles
2004				
2006				
2008	30 new miles of bike ways required: 33 miles actually built			
2010				
2012				

Source: Metro

Table 3.7a(2): Average Annual Increase in Transit Service Hours in the Portland Metropolitan Region

Year	Transit Service Hours	Annual Increase
1996	1,391,985	
1997	1,388,660	-0.24%
1998	1,417,624	2.09%
1999	1,510,781	6.57%
Average Annual Increase		**2.84%**

Source: Metro

Indicator 3.7b: Difference between currently estimated On-Road Mobile emissions and the amount allowed in the Portland Maintenance Plan for Ozone and Carbon Monoxide.
Data Years 1996 to 2001. Source: Metro

Findings:

- *From 1996 to 2001, the carbon monoxide standard has not been exceeded. The ozone standard was exceeded only in 1998 due to high temperature, however, the exceedence did not trigger a violation of the federal Clean Air Act.*

Table 3.7b Air Quality: Number of Days Exceeding Standard

Year	Carbon Monoxide	Ozone
1996	0	1
1997	0	0
1998	0	3
1999	0	0
2000	0	0
2001	0	0

Fundamental 4

Maintain separation between the Metro urban growth boundary and neighboring cities by working actively with these cities and their respective counties.

To evaluate this fundamental, the performance indicators address the following related questions.

a) What effort has been made by Metro, the counties and neighboring cities to keep the separation between the metropolitan area and the neighboring cities?
b) Are there new developments in the areas between Metro UGB and the neighboring cities and what type of developments are there?

INDICATORS MEASURED

Separation of Communities and Preservation of Rural Character

IGA Designated Rural Land

4.1: Amount of land in intergovernmental agreement (IGA) areas that has been brought within the Metro UGB or the UGB of a neighboring city after participating jurisdictions agreed these areas would remain in rural use.

IGA Green Corridors

4.2: Number of new rural commercial, rural industrial, non-residential and non-agricultural permits (including square footage) granted within 200 feet of both edges of the right of way of adopted green corridors (Highway 99E and US 26).

Population and Employment

4.3: Employment and population locating outside the Metro UGB: – the proportion of the region's population, employment and household growth locating in the four-county areas outside the Metro UGB:

Maintaining separation between the Metro urban growth boundary and neighboring cities

Separation of Communities and Preservation of Rural Character

Purpose

To assess the degree to which the rural areas between the Metro UGB and the UGBs of Metro's neighboring cities are converting from farmland to urban use.

Summary

Policy

The Regional Framework Plan and the RUGGOs stress the importance of maintaining a separation between Metro and its neighboring cities (Sandy, Canby and North Plains). Intergovernmental agreements (IGAs) have been signed by Metro, Clackamas County, and the cities of Sandy and Canby that are intended to avoid the physical merging of these jurisdictions. These IGA areas are meant to help maintain a separate physical identity for these neighboring cities, and to maintain the rural character in the areas between.

Indicators

4.3 Employment, population and households (Non-Metro Capture rate): The proportion of the region's population, household and employment growth locating in the four-county (Oregon and Washington) areas outside the Metro UGB.
Data years: 1990 to 2000. Source: Metro Data Resource Center.

- *From 1990-2000, 28 percent of all new jobs, 31 percent of all new population, and 27 percent of all new households are located outside the Metro UGB. While this actual employment figure exceed, the estimates for employment (18 percent) that was made in the 1997 Urban Growth Report, the actual household figure was lower than the estimate (30 percent) in the same report. The Urban Growth Report does not estimate a capture rate for population.*

4.1 Amount of land in IGA areas that has been brought within the Metro UGB or the UGB of a neighboring city.
Data year: 2001. Source: Metro, Local Jurisdictions.

- *Metro Council urban growth boundary amendments approved in December of 2002 included approximately 86 acres of land located within the Sandy/Metro IGA, and approximately 12 acres of land contained in the Canby/Metro IGA.*

4.2 Number of new rural commercial, rural industrial, non-residential and non-agricultural permits granted within 200 feet of both edges of the right of way of adopted green corridors (Highway 99E and US 26).
Data year: 2001. Source: Metro Data Resource Center.

- *No new rural commercial, rural industrial, non-residential non-agricultural building permits have been granted within 200 feet of both edges of the right-of-way of adopted green corridors (Highway 99E and US 26). Therefore, the IGA is being implemented.*

Survey Results of Local Officials and Planning Commissioners

✓ *Future focus of growth*: 34 percent of the respondents agree strongly or somewhat agree that growth should occur in new communities outside the UGB, while 50 percent somewhat or strongly disagree.

Policy Rationale

Although Metro's regional growth management policies are directed primarily at land within the Metro region and the UGB, the policies have a definite effect on the neighboring cities such as Canby, Sandy, Estacada, Newberg and North Plains and the rural land that is located in-between.

The Regional Framework Plan and the RUGGOs stress the importance of maintaining a separation between Metro and the cities located close to, but outside of the Metro area. The rural land that separates Metro from its neighboring cities allows jurisdictions both inside and outside the Metro UGB to maintain a physical sense of community and separation. In addition, the agricultural activity occurring in these rural areas contributes greatly to the region's agricultural economy. A clear separation between neighboring cities and the Metro area also serves to minimize the transportation impacts that could result from the significant unplanned development of the rural land and the neighboring jurisdictions outside of Metro's boundary.

Metro Code 3.07.510 (Title 5 of the Functional Plan) committed Metro to pursue IGAs with Multnomah, Clackamas and Washington Counties and the neighboring cities of Sandy, Canby and North Plains. These agreements were intended to ensure that a separation between these localities and Metro would be observed.

Two intergovernmental agreements (IGAs) were signed in December 1997 between Metro, Clackamas County, and the cities of Sandy and Canby. (The Oregon Department of Transportation was listed as a co-signer of the IGA but has not signed these IGAs.) The current agreements designate two areas into which Metro, and the neighboring cities pledge to avoid expansion of their UGB areas. The agreements also established green corridors that discourage non-rural development within 200 feet of both sides of two significant highways. These agreements are voluntary agreements of cooperation and pledges to cooperate in ways that preserve the separation of communities[14].

On March 23, 2001, the Land Conservation and Development Commission (LCDC) adopted amendments to Oregon Administrative Rule 660-004-0040 put minimum limits on the subdivision of rural residential or "exception" areas." Within one mile of Metro's UGB these limits are more stringent than the two-acre limits imposed on most exception land in the state. The changes to this state goal can help to preserve the rural character of rural residential or exception land. The development of exclusive farm use land and the pressure being put on resource land to serve rural residential uses presents a more serious challenge to policy makers intent on preserving rural character and sustaining the agricultural productivity of these areas.

Data Analysis

The analysis of the data collected for measuring the separation of communities and preservation of rural character starts with an explanation of the trends in employment and population growth, and household location. This is followed by an explanation of existing intergovernmental agreements and development trends within 200 feet of Metro's adopted green corridors.

[14] These agreements do not legally bind the parties.

Indicator 4.3: Employment, population and households locating outside the Metro UGB (Non-Metro Capture rate): – the proportion of the region's population, household and employment growth locating in the four-county (Oregon and Washington) areas outside the Metro UGB.
Data years: 1990 to 2000. Source: Metro Data Resource Center.

Finding:

- *From 1990-2000, 28 percent of all new jobs, 31 percent of all new population, and 27 percent of all new households are located outside the Metro UGB. While this actual employment figure exceed, the estimates for employment (18 percent) that was made in the 1997 Urban Growth Report, the actual household figure was lower than the estimate (30 percent) in the same report. The Urban Growth Report does not estimate a capture rate for population.*

This indicator measures the growth pressure being placed on rural land between Metro and neighboring cities as well as on neighboring cities themselves. It assesses the amount of employment, population and number of households locating outside the Metro UGB, in the rural three-county area between Metro and Metro's neighboring cities (Sandy, Canby, North Plains, Estacada, Banks, Newberg). Table 4.3 displays the proportion of employment and population locating outside the Metro UGB which is often referred as the Non-Metro Capture Rate (or the amount of growth in employment, population and households for the years 1990-2000 that was not contained within the Metro UGB). The Non-Metro Capture Rate is calculated as the change in non-UGB growth between periods as a proportion of growth in the entire four-county area that includes Clark County (Southwest Washington).

Between 1990 and 2000, approximately 28 percent of all new jobs, 31 percent of all new population, and 27 percent of all new households chose to locate outside the Metro UGB (or in the three-county and Clark County areas). Further analysis of the population and household data in Table 4.3 indicates that there was an insignificant formation of new households in the neighboring areas during the same period.

Table 4.3: Non-Metro Capture Rate Employment, Population and Households

Employment, Population and Households Non-Metro Capture Rate (1990-2000)				
	In Metro	Three County Non-Metro	Clark County	Total*
Employment	73%	**11%**	17%	100%*
Population	69%	**3%**	28%	100%
Households	73%	**0%**	27%	100%

Source: Metro DRC
*Note: Total percent may not be exactly 100 percent due to rounding.

Increases in the three demographic categories shown in Table 4.3 occurring in rural areas and neighboring cities instead of the Metro urban area could be the result of a number of factors. Of most concern to Metro would be unexpected growth occurring on the periphery that could be attributed to Metro growth management policies such as a lack of housing options inside the UGB (i.e., large rural lots), or a deficit of affordable housing and land inside the UGB.

The data shows that the three-county non-Metro area is attracting an 11 percent share of the employment locating in the four-county area. This is in comparison to the 73 percent of employment locating within the UGB, and 17 percent locating in Clark County. The data also shows that the three-county non-Metro area is capturing three percent of the four-county population growth, while the Metro UGB is receiving 69 percent and Clark County 18 percent. Household growth rates for the four-county area show that three-county non-Metro area is receiving less than one percent, while the Metro area attracts 73 percent and Clark County captures 27 percent.

Data Limitation

The current data which measures population, employment and households locating outside the Metro UGB does not specify whether this activity is occurring within the boundaries of neighboring cities, or in the rural areas between Metro and these areas. Subsequent performance measures efforts could benefit from collecting census data on population and households for each neighboring city.

Indicator 4.1: Amount of land in IGA areas that has been brought within the Metro UGB or the UGB of a neighboring city after participating jurisdictions agreed these areas would remain in rural use.
Data year: 2001. Source: Metro, Local Jurisdictions.

Finding:

- Metro Council urban growth boundary amendments approved in December of 2002 included approximately 86 acres of land located within the Sandy/Metro IGA, and approximately 12 acres of land contained in the Canby/Metro IGA.

This indicator measures the region's success in keeping a desired separation between communities. IGA areas are mapped areas that are located in-between the Metro UGB and the communities of Canby and Sandy that the jurisdictions involved agreed would remain rural. *(See map entitled "IGA Areas Between Metro UGB and Neighboring Cities").* These agreements were designed to avoid a scenario in which the Metro UGB and the UGBs of Canby and Sandy meet or grow together. The consequences of such encroachment would be a merging of the Metro UGB with the urban areas of Canby and Sandy. This could make the urban area of the Metro region indistinguishable from the urban area of these neighboring cities and cause in a number of impacts, not the least of which would be the loss of identity of these neighboring cities and suburban Metro jurisdictions.

As was mentioned above, the UGB and IGA areas are several ways in which a separation of communities and the character of rural areas are preserved. Other mechanisms include Green Corridor Buffers, which Indicator 4.2 addresses.

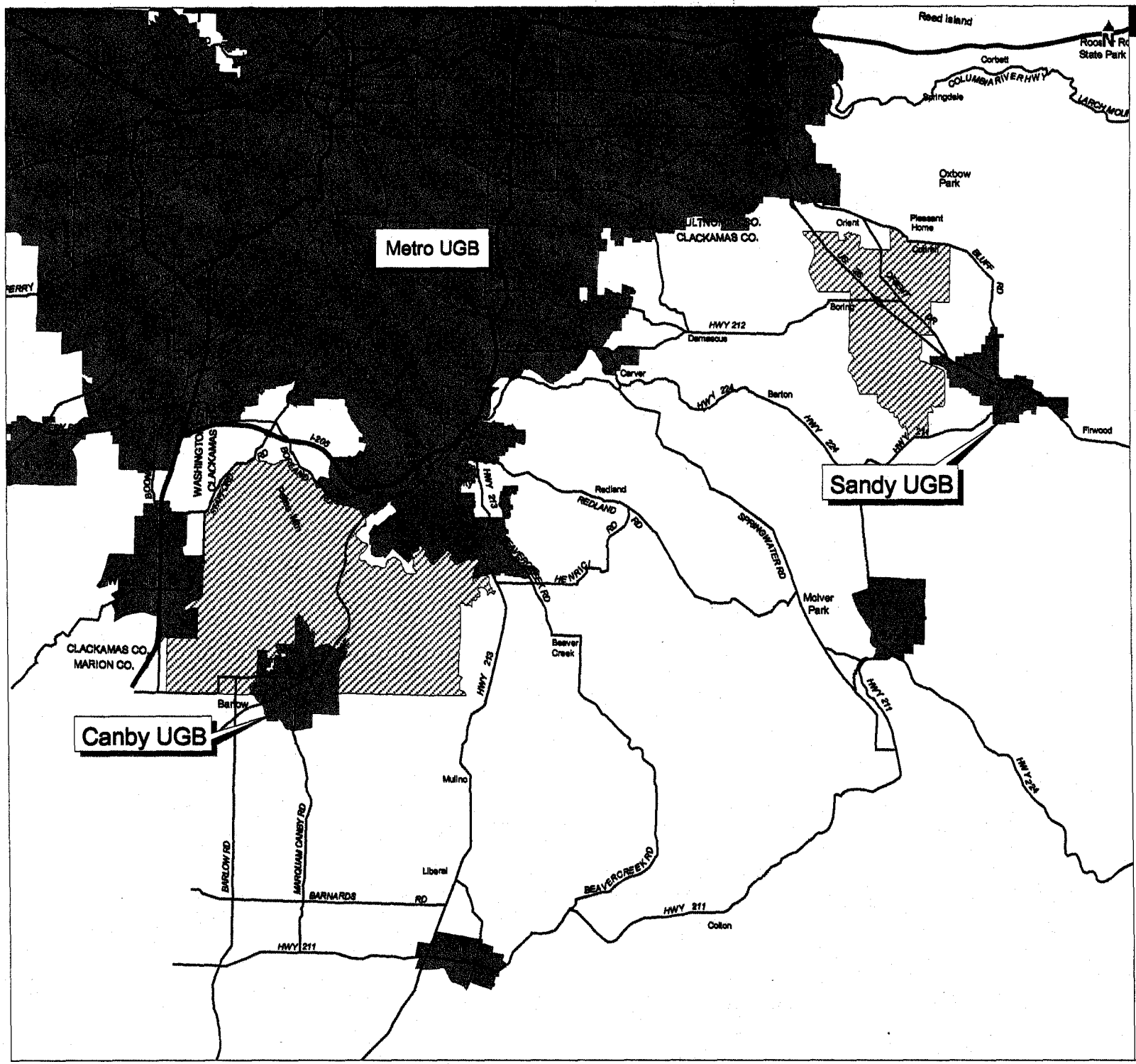
On Dec. 5, 2002, the Metro Council completed more than two years of deliberation and approved a major expansion of the urban growth boundary (UGB). This expansion brought more than 18,638 acres into the boundary, and included new policies to protect existing neighborhoods, provide additional land for jobs, improve local commercial centers and main streets, and to develop complete communities.

One area approved by the Metro Council for expansion of the Metro UGB (Area 12) is situated to the south of the City of Gresham. An 86-acre portion of this area south of the Multnomah/Clackamas County line and situated between Telford Road and US 26, is contained within the Sandy/Metro IGA area.

The City of Gresham, one of the key proponents of the Metro UGB expansion into this area, testified before the Metro Council in support of the proposed expansion. Gresham testified that the inclusion of the area was integral and critical for secondary access and local circulation from US 26 to Springwater [UGB expansion area to north for industrial development]. The City of Gresham is the likely candidate for governance in this expansion area and has proposed green corridors along highway 26 that would include major tree plantings in the wide US 26 right of adjacent urban development. Gresham has stated that it supports the Green Corridor IGA and would become part of it. Gresham's proposed "Green Gateway" would mitigate any potential impacts to the Green Corridor principles discussed in indicator 4.2, and would help to maintain the rural nature of the area by visually screening adjacent urban development. *(See map entitled "Sandy IGA Area and Metro UGB").*

Additionally, GIS data shows that roughly 12 acres of land located in the Canby/Metro IGA area was included in another Metro UGB expansion. Although effort was made to follow the boundaries of the IGA

area in this instance, the12 acres of overlap are the result of the boundaries of the initial IGA areas bisecting individual tax lots. The UGB expansion included entire tax lots that are partially included in the IGA. This discrepancy could be corrected by amending the IGA map to be tax lot specific. *(See map entitled "Canby IGA Area and Metro UGB").*



R L I S

REGIONAL LAND INFORMATION SYSTEM

IGA Areas Between Metro UGB and Neighboring Cities

Metro and Neighboring Cities' UGBs

IGA Areas

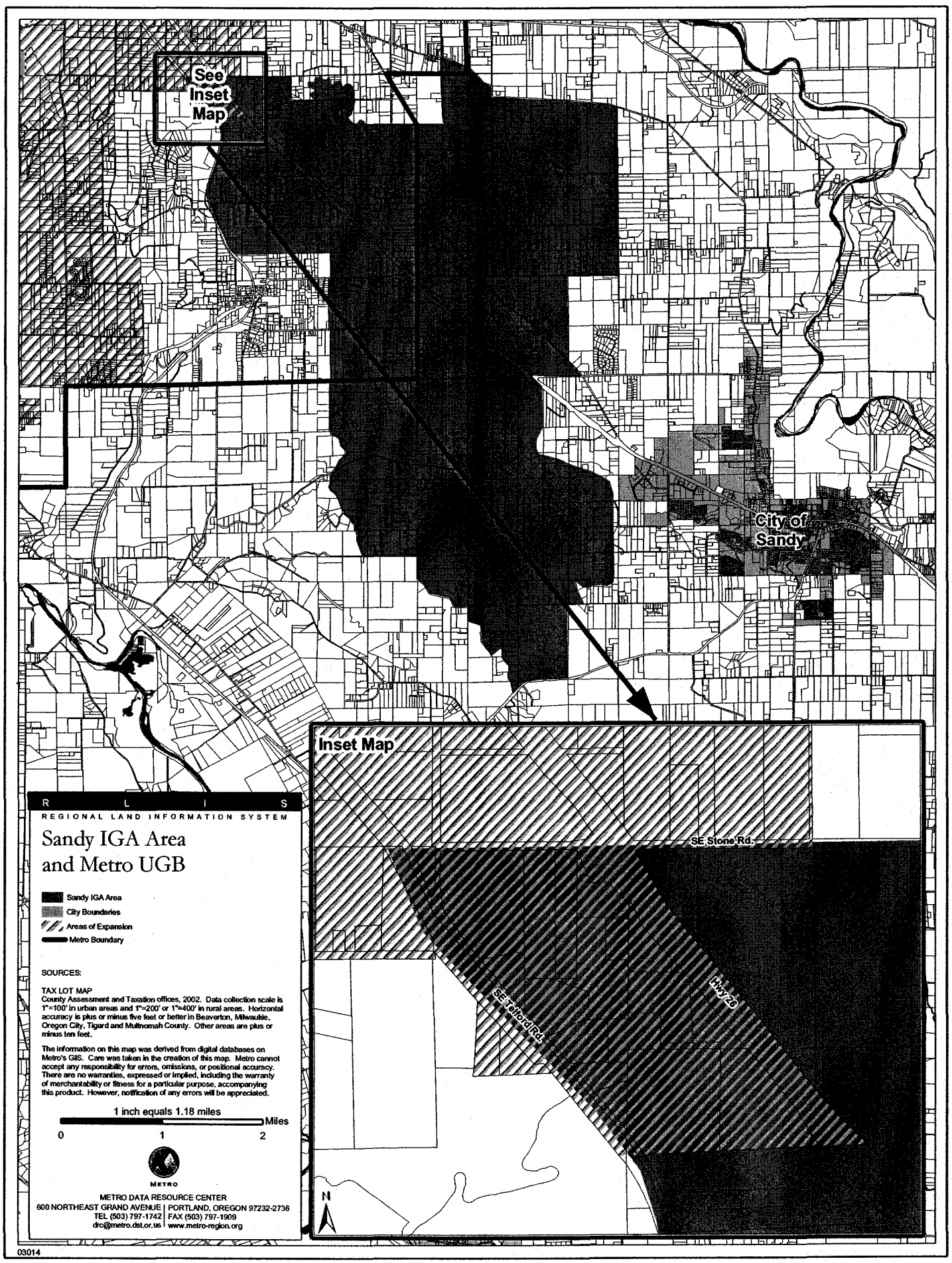
0 1 2 3 4 5 Miles

1"= 3.5 miles

METRO

600 NE Grand Ave.
Portland, OR 97232-2736
503 797-1742 FAX 503 797-1909
Email: drc@metro.dst.or.us

Plot date: Oct 29, 2001; nll



R L I S

REGIONAL LAND INFORMATION SYSTEM

Sandy IGA Area and Metro UGB

- Sandy IGA Area
- City Boundaries
- Areas of Expansion
- Metro Boundary

SOURCES:

TAX LOT MAP
County Assessment and Taxation offices, 2002. Data collection scale is 1"=100' in urban areas and 1"=200' or 1"=400' in rural areas. Horizontal accuracy is plus or minus five feet or better in Beaverton, Milwaukie, Oregon City, Tigard and Multnomah County. Other areas are plus or minus ten feet.

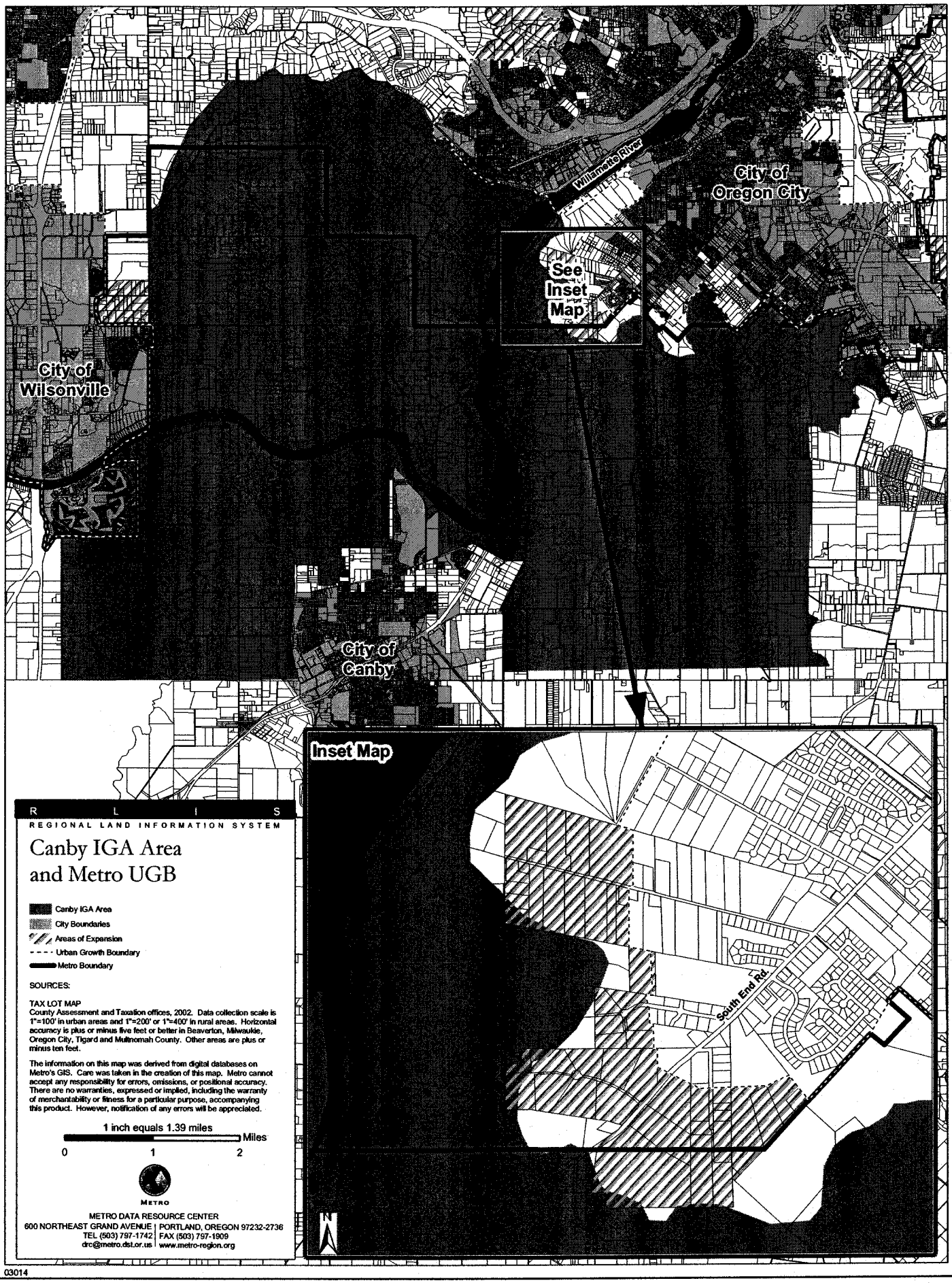
1 inch equals 1.18 miles

0 1 2 Miles

METRO

METRO DATA RESOURCE CENTER
600 NORTHEAST GRAND AVENUE | PORTLAND, OREGON 97232-2736
TEL (503) 797-1742 | FAX (503) 797-1909
drc@metro.dst.or.us | www.metro-region.org

03014



R L I S

REGIONAL LAND INFORMATION SYSTEM

Canby IGA Area and Metro UGB

- Canby IGA Area
- City Boundaries
- Areas of Expansion
- Urban Growth Boundary
- Metro Boundary

SOURCES:

TAX LOT MAP
County Assessment and Taxation offices, 2002. Data collection scale is 1"=100' in urban areas and 1"=200' or 1"=400' in rural areas. Horizontal accuracy is plus or minus five feet or better in Beaverton, Milwaukie, Oregon City, Tigard and Multnomah County. Other areas are plus or minus ten feet.

The information on this map was derived from digital databases on Metro's GIS. Care was taken in the creation of this map. Metro cannot accept any responsibility for errors, omissions, or positional accuracy. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, accompanying this product. However, notification of any errors will be appreciated.

1 inch equals 1.39 miles

0 1 2 Miles

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Indicator 4.2: Number of new rural commercial, rural industrial, non-residential and non-agricultural permits granted within 200 feet of both edges of the right of way of adopted green corridors (Highway 99E and US 26).

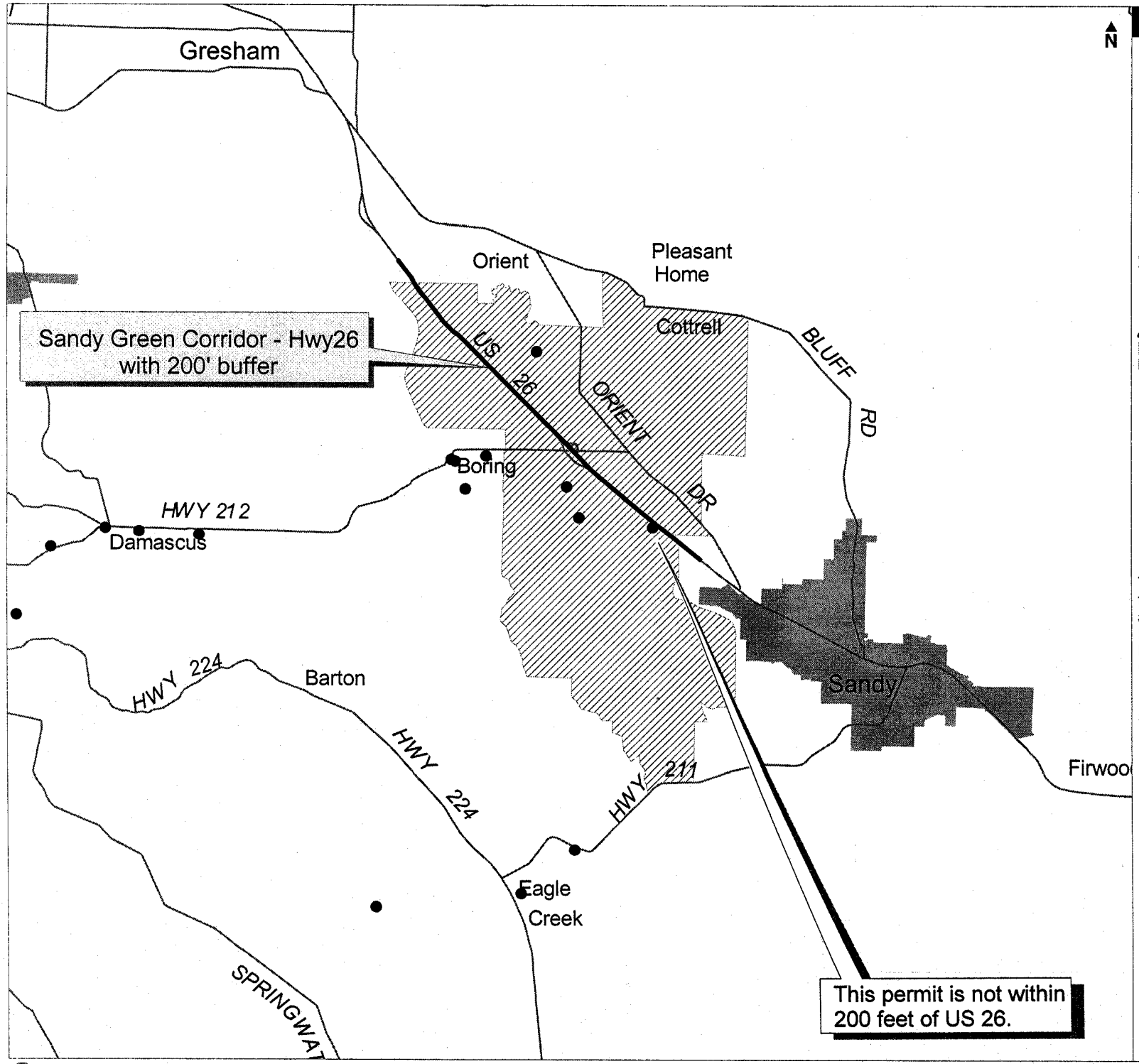
Data year: 2001. Source: Metro Data Resource Center.

Finding:

- *Data indicates that Clackamas County, one of the parties that signed the Sandy and Canby IGAs to preserve separation of communities, has not allowed any new development in the green corridor areas along Highway 99E and US 26.*

This indicator measures the extent to which new developments are altering the rural character of green corridors since the signing of IGAs. As stated in the agreements, a 200-foot green corridor buffer was designed to avoid non-rural development along two sections of the major highway connecting the Metro region with the neighboring communities. One green corridor buffer section is the 16-mile span of US 26 between the UGB near Gresham and Sandy. The other green corridor buffer straddles Highway 99E as it stretches from the Metro UGB near Oregon City to Canby.

In the period from December 1997 until July 2001, there were no non-rural building permits issued in the green corridor buffer zones. To date, the parties involved have adhered to the terms of the IGAs (including green corridor buffers). However, pressure on these areas to achieve some level of rural urbanization is only expected to increase over time.



N

R L I S

REGIONAL LAND INFORMATION SYSTEM

Rural Permits in Green Corridor Buffers

Sandy UGB and IGA Area

Fundamental 4.2

- Rural Non-residential Building Permits
- 2040 Concept Green Corridor
- IGA Area
- Canby and Metro UGB

These permits were issued for rural, commercial, industrial, and office builldings since the IGA adoption date of 12/03/97. No permits are within the Green Corridor Buffer.

Source: RLIS, 2001

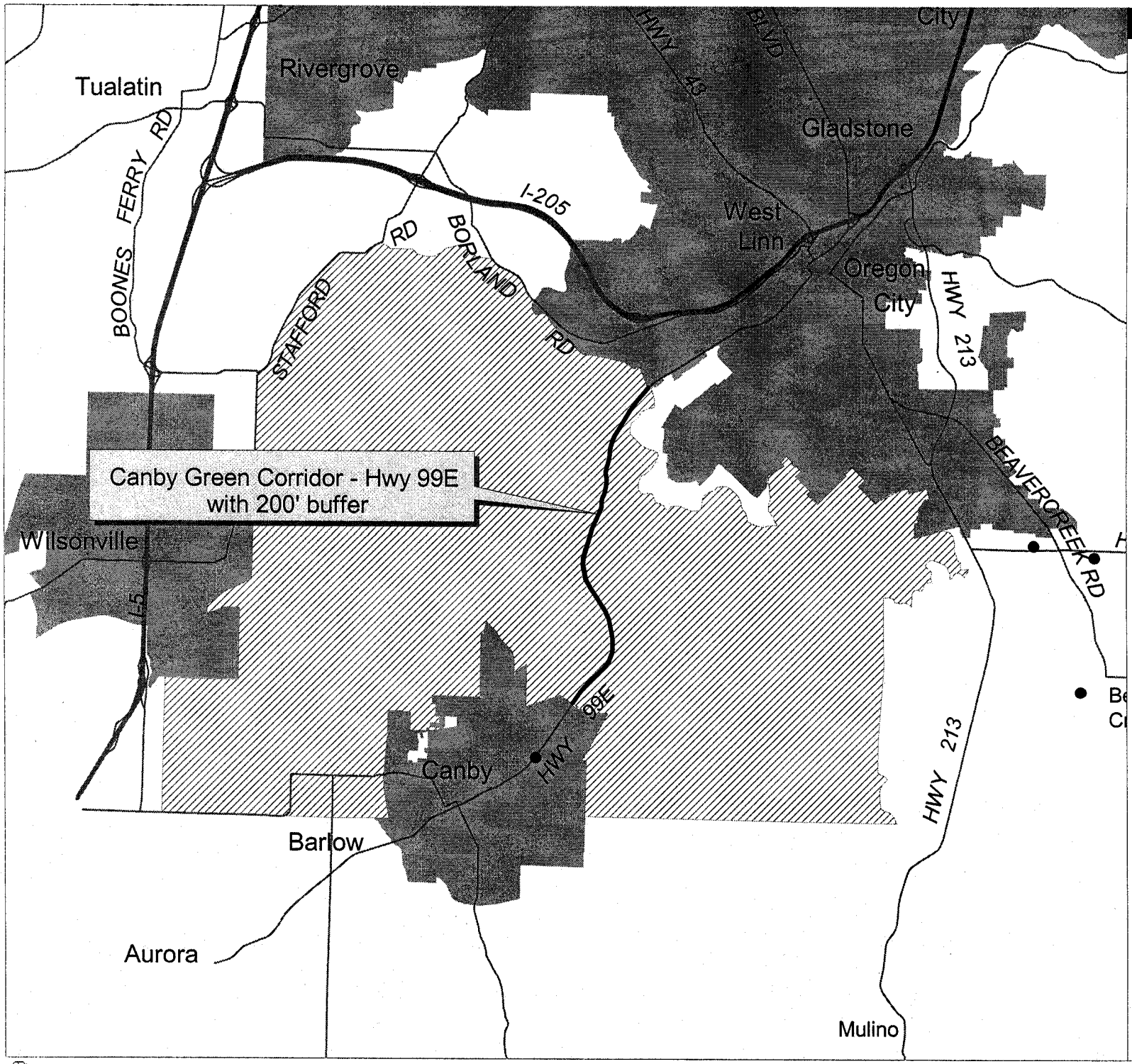
0 0.5 1 1.5 2 Miles

1"= 1.6 miles

METRO

600 NE Grand Ave.
Portland, OR 97232-2736
503 797-1742 FAX 503 797-1909
Email: drc@metro.dst.or.us

Plot date: Jan 22, 2002; e:\perf_meas\cc_iga.apr



R L I S

REGIONAL LAND INFORMATION SYSTEM

Rural Permits in Green Corridor Buffers

Canby UGB and IGA Area

Fundamental 4.2

- Rural Non-residential Building Permits
- 2040 Concept Green Corridor
- IGA Area
- Canby and Metro UGB

These permits were issued for rural, commercial, industrial, and office builldings since the IGA adoption date of 12/03/97. No permits are within the Green Corridor Buffer.

Source: RLIS, 2001

0 0.5 1 1.5 2 Miles

1"= 1.6 miles

METRO

600 NE Grand Ave.
Portland, OR 97232-2736
503 797-1742 FAX 503 797-1909
Email: drc@metro.dst.or.us

Plot date: Jan 22, 2002; e:\perf_meas\cc_iga.apr

Fundamental 5

Enable communities inside the Metro urban growth boundary to preserve their physical sense of place by using, among other tools, greenways, natural areas and built environment elements.

To evaluate this fundamental, the performance indicators address the following related questions.

1. What actions has Metro taken that have contributed to a positive physical identity of communities in the region? (e.g., Functional Plan policies; transportation funding action, greenspaces bond money)
2. What actions has Metro taken that have not contributed to, or negative affects the physical identity for communities in the region?

Policy Rationale

The Regional Framework Plan stresses the important relationship that neighboring jurisdictions within the Metro area have with one another. "*The planning and growth management activities of many jurisdictions*" the Framework Plan states, "*affect and are affected by the actions of other jurisdictions in the region.*" Implicit in this statement is the notion that the choices made in one community have the potential to affect adjacent communities in both positive and negative ways. The Framework Plan addresses this interconnectivity and contains comprehensive approaches to land use and transportation policies that are strictly local, and that cross local jurisdictional boundaries.

The 2040 Growth Concept is based on mixed use 2040 Design Type areas being located in strategic locations throughout the region and creating focused and diverse economic, commercial and residential opportunities. The 2040 Growth Concept and Regional Framework Plan encourage local jurisdictions to take steps to adopt a "*unique mix of characteristics to retain the sense of place of each locality, consistent with the overall 2040 Growth Concept.*"

Citizen input collected during the Region 2040 process revealed that one of the core values of the region's residents was the preservation of communities as distinct and individual areas. An early Metro report that documented the results of these surveys stated that, "*citizens take great pride in the unique features of their neighborhoods or communities and want them protected from inappropriate change.*"

The Regional Framework Plan stresses that the efforts that local governments make to create a distinct identity should be focused on, among other things, "the protection of critical open space features," "diversity and excellence in design," and "responsiveness to needs for privacy, community, sense of place and personal safety in an urban setting." Despite the encouragement the Regional Framework Plan gives to local governments in this regard, Metro does not require local governments in the Metro area to take steps to achieve a unique local identity.

After referral by the Metro Council in May 2001, MPAC gave informal approval to the concept of local governments identifying and employing tools such as greenways, natural areas and built environment areas to help local jurisdictions maintain a physical sense of place. This action by MPAC led Metro staff to solicit comments from local governments on the tools that could be used to ensure that communities are able to maintain a sense of place.

Enabling communities inside the Metro urban growth boundary to preserve their physical sense of place

SOME INDICATORS IDENTIFIED BY LOCAL GOVERNMENTS AS PHYSICAL CHARACTERISTICS THAT HELP TO DEFINE THEIR COMMUNITY'S SENSE OF PLACE. THIS INPUT WILL BE USED IN THE NEXT PHASE OF PERFORMANCE MEASURES TO IDENTIFY INDICATORS FOR ASSESSING COMMUNITY SENSE OF PLACE

Key Physical Characteristics of Community's Sense of Place

City of Beaverton

1. Beaverton is a large and diverse community geographically, with varied topography and neighborhoods. There is no one outstanding physical feature associated with the community, but several features contribute positively (and sometimes negatively) to the city's image, including the following:
   i. Buildings in the city's Old Town area, the original downtown, including the Beaverton Bakery
   ii. Commercial development along Canyon Road and Cedar Hills Boulevard, viewed by many people as they drive through the city
   iii. The Beaverton Town Square, a shopping area with an internal courtyard area that has a tall clock tower at its center
   iv. Griffith Park and surrounding office buildings, the location of the annual Taste of Beaverton
   v. The city's many residential areas which make Beaverton a good place to live
   vi. Cooper Mountain in the southwest corner of the city, which is the highest point in the city and is the location of several tree groves that are visible from other parts of the community
   vii. The Tualatin Hills Nature Park in the western part of the city, a large natural area bisected by two major streams, Beaverton Creek and Cedar Mill Creek
   viii. The Tualatin Hills Park and Recreation District Recreation Center, a large complex serving Beaverton and the surrounding area
   ix. Several large office/industrial campuses in or adjacent to the city limits including the Nike campus, the IBM campus, the Tektronix campus, the Cornell Oaks campus and development along Nimbus Avenue.
2. A prominent physical feature of the city in the making is the Round mixed use development at the Central Beaverton MAX station. During the last few years, this site has had a negative impact on the city's physical image due to uncompleted buildings that have stood there. However, construction of the development is underway again. At its completion, this development should be a positive physical presence in the downtown Beaverton area.

City of Cornelius

1. Tualatin Valley Highway (HWY. B) bisects the city east to west.
2. Southern Pacific Railroad and Portland & Western Railroad both run through Cornelius, the first just south of TV Highway, and the second just north of TV Highway.
3. Tualatin River and related green space form a natural boundary along the southern city limits.
4. Council Creek and related green space form a natural boundary along the northern city limits.
5. Job's Ditch, a seasonal drainage way runs, north/south, roughly connecting Council Creek and the Tualatin River near the eastern city limits.
6. City Hall, three elementary schools, Central Cultural, Virginia Garcia Clinic and half a dozen churches are nodes of activity in this community.
7. The Main Street District envisioned in our Comprehensive Plan but yet undeveloped will be a central physical, economical and social element of our community's sense of place.

City of Fairview

1. Columbia River
2. Blue and Fairview lakes
3. Fairview Creek and associated streams and wetlands
4. Fairview and Metro parks systems

5. I-84
6. UPRR Mainlines
7. Historic Original Fairview
8. The Village

City of Gresham

1. Historic downtown Gresham
2. Gresham Civic Neighborhood development on light rail
3. Springwater Trail – multi-use path with Johnson Creek greenway
4. Wooded buttes in south Gresham
5. Inter-connected park and open space trail system
6. Views of Mt. Hood
7. City borders farms and forests (south and east)
8. Columbia River
9. Bedroom community without adequate economic base
10. Disconnected state highway system (I-84 to US 26)
11. Big, congested and ugly street grid

City of Tigard

1. Fanno Creek, which flows north-south through the middle of the city and is the backbone of the city's trail network
2. The Tualatin River, which defines the city's southern boundary and provides a major aesthetic and recreational resource for community residents
3. Cook Park, a 79-acre regional park, located along the Tualatin River
4. Downtown Main Street, the community's historic center
5. Washington Square shopping mall, the west side's retail hub

City of Troutdale

1. Gateway to the Columbia River Gorge National Scenic Area
2. Sandy River – Recreational opportunities include swimming, fishing, kayaking, smelt runs
3. Beaver Creek Canyon runs through the city
4. Revitalized downtown with trendy shops, boutiques and specialty stores
5. Troutdale Airport
6. Small-town atmosphere

Survey Results of Local Officials and Planning Commissioners

- *Impact of regional policies affected changes in communities*: More than half (53 percent) of the respondents stated that regional policies have affected changes in their community.
- *Elements affected by regional policies: (most mentioned comments)*
  a) Patterns of development
  b) Coordination of development in residential and business areas with transportation and road systems
  c) Housing affordability
  d) Housing choices
  e) Parking conditions
  f) Building design
  g) Visual appearance of business areas
  h) Visual appearance of neighborhood and community
  i) Transportation choices
  j) Natural environment protection
  k) Natural areas.

Fundamental 6

Ensure availability of diverse housing options for all residents by providing a mix of housing types as well as affordable homes in every jurisdiction.

To evaluate this fundamental, the performance indicators address the following related questions.

a) How diverse is the range of housing (types, prices, rents, etc.) within the region and the jurisdictions in the region?
b) How affordable are the houses across the region?
c) How successful are local governments in achieving regional affordable housing production goals.
d) How balanced are the jobs and housing of all types within subregions in the Metro region?

INDICATORS MEASURED

Type and Quantity Housing Units

6.1a: Change in number of dwelling units by type. **(Required)**

6.1b: Number of dwelling units by the following type **(Required)**:

- Detached Single Family Units
  Various lot sizes (<5,000 sq.ft.; 5,000-7,500 sq.ft.; 7,500-10,000 sq.ft. and >10,000 sq.ft.)
  Accessory residential units
  Manufactured homes
- Attached Multi-family Units
  Duplex and Townhouses (attached SF classified as MFR(2-4))
  Other Multi-family

6.2: Change in the proportion of single family residential to multi-family housing. **(Required)**

Density of Change for Multi-Family Dwellings
6.3: Change in the average number of multi-family units per net acre. **(Required)**

Vacancy Rate
6.5: Vacancy rate for multi-family (apartments). **(Required)**

Income and Affordability
6.6a: Change in median family income.

6.10: Number of units affordable to households in the following income groups:
a. Less than 30 percent of median household income
b. Less than 50 percent of median household income.

Affordability Surplus and Homeownership
6.6b: Home ownership affordability surplus.

6.11: Percent of owner-occupied homes (homeownership) in the region.

Housing Cost

6.8: Median rent of multi-family residential.

6.9: Median sales price of single family residential. **(Required)**

Ensuring availability of diverse housing options for all residents








Type and Quantity of Housing Units

Purpose
To assess the variety of housing choices available for the wide variety of residents in the region.

Summary

Policy

Metro's role in creating a regional plan to accommodate growth while maintaining a broad range of housing types is contained in the Future Vision document, the RUGGOs, the 2040 Growth Concept, and the Regional Framework Plan. The Affordable Housing Technical Advisory Committee developed the Regional Affordable Housing Strategy, adopted by the Metro Council in June 2000, that contains recommendations for achieving affordable housing goals. Portions of the strategy are mandatory while the rest are only recommended.

Indicators

6.1a Change in number of dwelling units by type. (Required – Metro)
Data years: 1996 through 2000. Source: U.S. Census and Census estimates.

- *Between 1996 and 2000 the number of single family dwelling units increased by 6.7 percent, while the number of multi-family dwelling units increased by 13.77 percent.*

6.1b Number of new dwelling units by the following type: (Required – Metro)

- ❑ Detached Single Family Units
  - Various lot sizes (<5,000 sq. ft.; 5,000-7,500 sq. ft.; 7,500-10,000 sq. ft. and >10,000 sq. ft.)
  - Accessory residential units
  - Manufactured homes
- ❑ Attached Multi-family Units
  - Duplex and Townhouses (attached SF classified as MFR(2-4))
  - Other Multi-family

Data years: 1996 through 2000. Source: Metro Data Resource Center.

- *40 percent of all single family residential units built in the Metro UGB (per tax lot) between 1996 and 2000 were on lots* between 5,000 and 7,500 square feet in size. The remaining units were built on lots under 5,000 square feet (26 percent), between 7,500 and 10,000 square feet (20 percent), and over 10,000 square feet (14 percent).
- *Between 1996 and 1999, the average number of apartment complex units permitted each year was 3,750, and in the year 2000, permits were issued for 1,030 apartment complex units.*

6.2 Change in the proportion of single family residential to multi-family residential housing. (Required – Metro)
Data years: 1990 through 1998. Source: U.S. Census.

- *Between 1990 and 2000, the proportion of new single family (SFR) to multi family (MFR) units permitted in Clackamas and Washington Counties were* 67 percent to 33 percent *and* 66 percent to 34 percent, *respectively, while the proportion in Multnomah County for this time period was evenly split. Between 1996 and 1999, more multi family permits than single family permits were issued in Multnomah County.*

Survey Results of Local Officials and Planning Commissioners

✓ *Housing choices*: 47 percent rated housing choices in the region as satisfactory, while 10 percent rated them as excellent. 22 percent rated housing choices as unsatisfactory, while only 1 percent rated them as poor.

Policy Rationale

Affordable housing has long been considered as a significant regional issue. The RUGGOs, the Future Vision document, the 2040 Growth Concept and the Regional Framework Plan address the need to develop a regional plan to accommodate growth and maintain a broad-range of housing types that are affordable to citizens of all income levels. RUGGOs Objective 17 (Housing) calls for the Metro Council to adopt a "fair share" strategy for meeting the housing needs of the region's population. The fair share strategy provides for a diverse range of housing types and specific goals to ensure that sufficient and affordable housing is available to households of all income levels that live. These early policy documents also suggest possible strategies to address the challenge of keeping housing affordable and these general policies are incorporated into the Regional Framework Plan.

In 1998, the Metro Council created the Affordable Housing Technical Advisory Committee (HTAC) to take action in response to the policies in the Regional Framework Plan. In June 2000, HTAC presented its recommendations in the Regional Affordable Housing Strategy (RAHS) to the Metro Council. These recommendations included a methodology for the "equitable distribution" of housing opportunity among local jurisdictions that includes an objective to work toward a similar distribution of household incomes within each Metro jurisdiction reflecting regional income distribution. HTAC's key recommendation in the RAHS was for the Metro Council to adopt affordable housing production goals to serve as a guide for local jurisdictions. The goals are to be achieved with appropriate land use and non-land use tools and strategies.

In January 2001, the Metro Council amended the Regional Framework Plan and Title 7 of the Functional Plan to incorporate HTAC's key recommendations.

The amended Title 7 contains voluntary affordable housing production goals for local governments to adopt as a guide to measure progress, and requirements for local governments to amend their comprehensive plans to include affordable housing strategies. These requirements are primarily designed to encourage a more efficient use of land. Increased affordable housing opportunities through a diverse range of housing types, and the provision of sufficient housing for households of all income levels. These requirements are mandatory, however, no Metro policy requires local governments to construct or subsidize affordable housing.

Compliance

Local governments were required to complete progress reports 12, 14 and 36 months after adoption of the amended Title 7 of the Functional Plan. The first reports were due in January 2002. The first progress reports submitted by nine local jurisdictions were presented to the Metro Council in December 2002 for initial review and discussion.

Data Analysis

Indicator 6.1a: Change in number of dwelling units by type.
Data years: 1996 through 2000. Source: U.S. Census and Census estimates

Finding:

- *Between 1996 and 2000 the number of single family dwelling units in the tri-county area increased by 6.7 percent, while the number of multi-family dwelling units increased by 13.8 percent.*

Table 6.1a: Number of Dwelling Units in the Tri-County Area (Clackamas, Multnomah and Washington Counties)

Type of Unit	1996 (est.)	2000 (census)	Percent Change
SFR	388,496	414,520	6.70%
MFR	165,577	188,370	13.77%
Total:	**554,073**	**602,890**	**8.81%**

Sources: 1996-97 Population, Households and Dwelling units, Census Tract Estimates
1999 Population, Households and Dwelling Units, Census Tract Estimates
2000 U.S. Census (www..upa.pdx.edu/CPRC/profiles.html) as of June 5, 2002

This indicator measures the trend in the number of dwelling units between two periods. Table 6.1a above measures the change in dwelling units between 1996 and 2000 in the tri-county area of Clackamas, Multnomah, and Washington Counties. To promote diverse housing choices within the UGB, the Functional Plan has placed emphasis on increasing the supply of multi-family units. The data indicates that the increasing number of multi-family housing units is helping to meet the needs of a wide range of housing consumers by providing a greater diversity of choices. Additionally, growth in the multi-family housing sector provided local governments with another tool with which to meet target capacity for housing and to achieve a more efficient use of residential land. (For related measures see Indicator 1.2a.)

Indicator 6.1b: Number of new dwelling units by the following type.

- Detached Single Family Units
  - Various lot sizes (<5,000 square feet; 5,000-7,500 square feet; 75,00-10,000 square feet and >10,000 square feet)
  - Accessory
  - Manufactured
- Attached Multi-family Units
  - Duplex and Townhouses (attached SF classified as MFR(2-4))
  - Other Multi-family

Data years: 1996 through 2000. Source: Metro Data Resource Center.

Finding:

- *40 percent of all single family residential units built in the Metro UGB (per tax lot) between 1996 and 2000 were on lots* between 5,000 and 7,500 square feet in size. The remaining units were built on lots under 5,000 square feet (26 percent), between 7,500 and 10,000 square feet (20 percent), and over 10,000 square feet (14 percent).
- Single family units built on lots under 5,000 square feet in size increased from 1,071 in 1996 to 2,490 in 2000, a 132 percent increase. All larger lot sizes experienced decreases.
- *Between 1996 and 1999, the average number of apartment complex units permitted each year was 3,751, and in the year 2000, permits were issued for 1,384 apartment complex units.*

This indicator measures the diversity of housing in the Metro UGB. Table 6.1b(1) illustrates the number of newly built single family residential units by lot size within the Metro UGB from 1996 to 2000, as recorded by the county tax assessors. A total of 33,416 units of new single family units were built during the five-year period. About 26 percent of the units built in that period were on lots under 5,000 square feet, however, most of the units built (40 percent) were on lots between 5,000 and 7,500 square feet in size. Approximately 20 percent of the units built in this period were on lots between 7,501 and 10,000 square feet in size, while 14 percent of the units were built on lots over 10,000 square feet.

From 1996 to 2000, the only lot size category showing an increasing trend in units built is the under 5,000 square feet category. In this period, the 5,000-7,500 square foot lot category decreased by 32 percent, the 7,500-10,000 square foot lot category decreased by 37 percent and the over 10,000 square foot lot category decreased by 47 percent.

Table 6.1b (1): New Single Family Residential Units Based on Tax Assessor Data of Built Units in the Metro UGB

Year	Tax Lot Size				Total Units Built
	Under 5,000 sq. ft.	5,000 to 7,500 sq. ft.	7,501 to 10,000 sq. ft.	Over 10,000 sq. ft	
1996	1,071	3,153	1,610	1,336	7,170
1997	1,648	3,731	1,748	1,283	8,410
1998	1,403	1,952	959	733	5,047
1999	2,103	2,284	1,275	775	6,437
2000	2,490	2,137	1,021	704	6,352
Total by Type	**8,715**	**13,257**	**6,613**	**4,831**	**33,416**

Source: Data Resource Center (RLIS tax lot data)
*Note: ***Data for 2000 is for a partial year*

Table 6.1b(2) below illustrates two types of non-traditional single family units (accessory dwelling units and manufactured homes) and four groups of multi-family residential units (apartment complex, duplexes/row houses/condos, mixed use, and group quarters) permitted from 1996-2000 within the Metro UGB. A total of 12,638 apartment units were permitted during the five-year period. A moderate amount of manufactured homes were built with few accessory dwelling units and duplexes/rowhouses and condominiums being added to the stock.

Table 6.1b (2): New Multi Family and Non-Traditional Single Family Residential Units Based on Permits* in the Metro UGB

Year	Non-Traditional Single Family Units Permitted*		Multi-Family Units Permitted*				Total Units Permitted
	*Accessory Dwelling Units****	*Manufactured Homes*	*Apartment Complex Units*	*Duplexes/ Row Houses/ Town Houses/ Condos*	*Mixed Use Units*	*Group Quarters*	
1997	9	196	3,885	253	324	15	4,682
1998	12	249	4,243	340	50	247	5,141
1999	18	119	3,126	430	--	--	3,683
2000	4	29	1,384	261	--	--	1,678
Total by Type	**33**	**593**	**12,638**	**1,284**	**374**	**262**	**15,184**

Source: Data Resource Center (RLIS building permit database)
*Notes: * Building permit data is based only on geo-coded permits.*
**** Many local jurisdictions do not have a procedure for distinguishing ADU permits from other single family.*

Data Limitation

- Local government submission of permit data to Metro is voluntary and a uniform methodology does not exist for collecting and tracking this data. For example, some local governments do not distinguish permits for accessory dwelling units from permits for single family dwelling units. About

one-third of local governments provide permit data in electronic format, while some send hard copies and some do not send reports.

Indicator 6.2: Change in the proportion of single family residential to multi-family residential housing.
Data years: 1990 through 1998. Source: U.S. Census.

Finding:

- *Between 1990 and 2000, the proportion of new single family (SFR) to multi family (MFR) units permitted in Clackamas and Washington Counties were* 67 percent to 33 percent *and* 66 percent to 34 percent, *respectively, while the proportion in Multnomah County for this time period was evenly split. Between 1996 and 1999, more multi family permits than single family permits were issued in Multnomah County.*

This indicator reveals the extent of housing diversity in the region and can be used with other indicators to gauge the success of local jurisdictions in implementing affordable housing policies. Table 6.2 records the number of single family (SFR) and multi family (MFR) units permitted by Clackamas, Multnomah and Washington Counties between 1990 and 2000. From 1990 to 2000, Washington County permitted the greatest number of residential units (52,855), and 66 percent of these units were single family while 34 percent were multi family [see Figure 6.2(1)]. Clackamas County permitted the least number of units in this period (29,047), however, the SFR to MFR proportion of 67 percent to 33 percent mirrors the Washington County results. Multnomah County permitted 33,913 residential units from 1990 to 2000 and the proportion of single family to multi family units is even. From 1996 to 1999, Multnomah County permitted more multi family than single family units.

Table 6.2: Ratio of SFR to MFR Units Permitted in the Tri-County Area

	Clackamas County			Multnomah County			Washington County		
Year	SFR units permitted	MFR units permitted	% SFR & MFR units permitted	SFR units permitted	MFR units permitted	% SFR & MFR units permitted	SFR units permitted	MFR units permitted	% SFR & MFR units permitted
1990	1,725	1,536	53% - 47%	1,259	1,342	48% - 52%	2,694	2,371	53% - 47%
1991	1,473	713	67% - 33%	1,345	731	65% - 35%	2,110	516	80% - 20%
1992	1,536	327	82% - 18%	1,478	821	64% - 36%	2,828	327	90% - 10%
1993	1,849	493	79% - 21%	1,535	730	68% - 32%	3,277	703	82% - 18%
1994	1,898	1,105	63% - 37%	1,675	888	65% - 35%	3,271	1,933	63% - 37%
1995	1,605	1,347	54% - 46%	1,503	1,128	57% - 43%	3,689	3,355	52% - 48%
1996	1,912	1,019	65% - 35%	1,849	3,062	38% - 62%	3,339	2,540	57% - 43%
1997	1,938	1,123	63% - 37%	1,669	2,662	39% - 61%	3,433	2,855	55% - 45%
1998	1,787	776	70% - 30%	1,679	2,325	42% - 58%	3,661	2,227	62% - 38%
1999	1,971	608	76% - 24%	1,583	2,058	43% - 57%	3,254	659	83% - 17%
2000	1,756	550	76% - 24%	1,420	1,171	55% - 45%	3,207	606	84% - 16%
Total	**19,450**	**9,597**	**67% - 33%**	**16,995**	**16,918**	**50% - 50%**	**34,763**	**18,092**	**66% - 34%**

Source: U.S. Census C-40 Reports (and data Resource center)

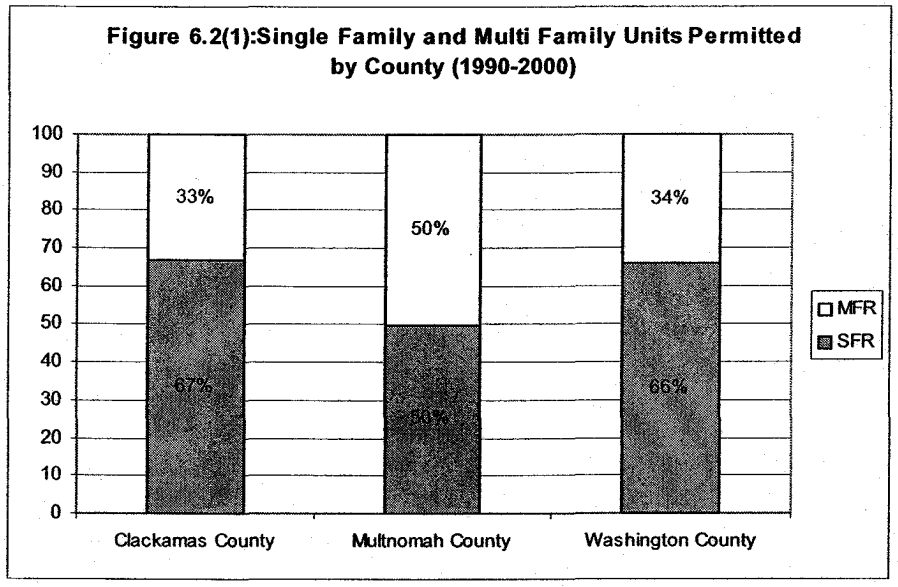
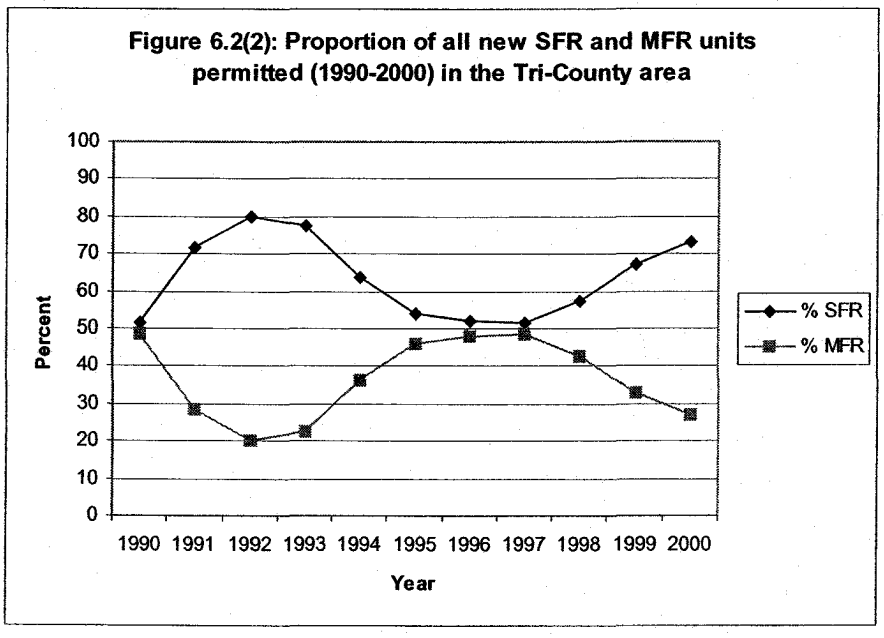


Figure 6.2(2) shows the split of new single family to multi family units in the entire tri-county area permitted from 1990 to 2000. A total of 115,815 residential units were permitted in this period (71,208 single family permits and 44,607 multi family permits). A converging of the single family and multi family graph lines at 50 percent signifies that the proportion of single family to multi family units is split evenly. Separation between the two graph lines indicates that one category is outpacing the other.

Every year from 1990 to 2000, more single family units were permitted in the tri-county area than multi family units. The tri-county's proportion of SFR to MFR was nearly balanced in 1990 and in 1996/1997. The disparity between SFR and MFR was at its most severe in 1992. Since 1997, this disparity has again increased.



Data Limitation

- Local jurisdictions are asked to voluntarily submit building permits each month. It is estimated that approximately 3 percent of residential building permits data is unreported to Metro.
- Data for some jurisdictions not reporting regularly to the Census was estimated by the Metro Data Resource Center staff.

Density Change for Multi Family Dwellings

Purpose

To assess the efficiency at which multi-family residential units are developed on land in the region.

Summary

Policy

The success of local governments within the Metro region in maximizing the efficiency of land consumed for multi-family unit development is one of the key indicators for judging the way the region is achieving a principal goal of the 2040 Growth Concept – compact urban form inside the UGB. Redevelopment of existing structures and development of vacant parcels in built areas, or "infill" are other key indicators for judging the region's effort.

Indicator

6.3 Change in average number of multi-family units per net acre. (Required – Metro and State)
Data years: 1999 and 2000. Source: Metro Data Resource Center.

- *Available data for 1999 and 2000 shows that the efficiency at which multi-family residential units are developed on land in the Metro UGB has increased by 32 percent, from 11.4 units to 15.1 units developed per GVBA.*

Policy Rationale

A full text of related policy rationale is provided in *Indicator 1.2a.* Metro policy documents maintain that managing the growth of the Metro region through compact development allows for a more cost-effective provision of public facilities and services, including housing. Metro's growth management policies also seek to limit the loss of valuable farmland located outside the UGB and encourage the development and redevelopment of existing urban areas and reduce VMT and curb air pollution.

As discussed in Fundamental 1, Title 1 of the Functional Plan requires local governments in the region to take a number of steps to maximize the efficient use of land. These requirements include the adoption of minimum density standards and other strategies to accommodate the capacity targets in Table 3.07 – 1 of the Functional Plan. Table 3.07 – 1 sets target capacities for housing and employment for jurisdictions to achieve by 2017. Title 1 allows local governments flexibility to meet their target capacities but requires that local governments adopt the following provisions:

- Local governments are required to adopt minimum density standards
- Local governments cannot prohibit partitioning or subdividing where existing urban lots are two or more times that of the minimum lot size
- Local governments cannot prohibit construction of at least one accessory dwelling unit within any detached single family dwelling.

In addition, Metro Code 3.07.220 (Title 2 of the Functional Plan) adopts parking ratios that seek to encourage efficiency in land use.

The redevelopment of existing structures and the development of vacant parcels in built areas or "infill" is also called for in the policy documents. The Functional Plan does not provide any numerical target for redevelopment and infill, referred to collectively as "refill," expected to occur in the region in any given time period. However, compliance with the provisions listed above is required. The rate at which refill occurs within the UGB is one performance measure that indicates whether the goal of a more compact urban form is being met.

Data Analysis

Indicator 6.3: Change in average number of multi-family units per net acre.
Data years: 1999 and 2000. Source: Metro Data Resource Center.

Finding:

- *Available data for 1999 and 2000 shows that the efficiency at which multi-family residential units are developed on land in the Metro UGB has increased by 32 percent from 11.4 units to 15.1 units developed per GVBA.*

This indicator measures the efficiency at which multi-family residential units are developed on land in the region. For a full analysis of the density in the residential sector, please refer to the earlier analysis for Indicator 1.2a.

As stated in the analysis of Indicator 1.2a, the minimum density provisions adopted by local jurisdictions to comply with the Functional Plan are determined to be an inconclusive way to calculate density or residential land use efficiency. The most reliable methodology available is based on measuring the number of units built per buildable acre. Hence, density data for multi-family units below were derived from Table 1.2a.

Data in Table 6.3 shows the number of units that were built on a per gross vacant buildable acre (GVBA[14]). This data represents the average number of multi-family housing units that were built on each acre of developed land during the 1999-2000 period.

Available data for 1999 and 2000 shows that, during this period, there was a 32 percent increase in the number of housing units developed per GVBA (11.4 to 15.1). This information suggests the region is making progress in the way land is used for multi-family units production.

Table 6.3: Change in average number of multi-family units per acre (Metro UGB)

Units/Gross Vacant Buildable Area	
Year	**MFR**
1999	11.4
2000	15.1

Source: Metro DRC

[14] GVBA are vacant arces from which a 30 percent deduction for infrastructure such as streets, schools, parks and churches has not been deducted.

Data Limitation

The minimum density provisions contained in the Functional Plan and adopted by local jurisdictions were meant to increase the efficiency of land use in the region. Specific and uniform accounting procedures were not developed to track how land use standards adopted by local jurisdictions are achieving target capacities for housing and/or employment.

Vacancy Rate

Purpose

To assess household demand for rental housing in the region and the housing market's ability to supply needed rental housing.

Summary

Policy

Metro housing policies addressed the need for this region to develop and maintain a broad range of housing types that responds to housing demand, and also recognizes the relationship between social and economic decay of neighborhoods and high vacancy rates.

Indicator

6.5 Vacancy rate for multi-family (apartments). (Required – Metro and State)
Data years: 1990 through 2001. Source: The McGregor Rask Report, 1998 and 2001.

- *The vacancy rate for multi-family housing units was at its lowest in 1993 when 3.4 percent of the units were vacant, and at its highest in 1999 when 7.0 percent of the units in the region were vacant. In 2000 and part of 2001, the rate declined to about 4.2 percent. The cyclical nature of vacancy rates for multi family housing is reflected in the 1990-2001 data.*

Policy Rationale

This indicator is required by ORS 197.301 and Metro Code 3.07.910 (Title 9 of Functional Plan). The multi family vacancy rate is determined by the interaction of a number of market forces, including the number of multi-family housing units available, the relative price of these units in comparison to other housing options, and consumer wages. The vacancy rate can also be influenced by regional policies to increase the supply of multi-family units/affordable housing stock.

As stated earlier in the policy rationale for Indicators 6.1a, 6.1b and 6.2, the RUGGOs, the Regional Framework Plan and the 2040 Growth Concept address the need for developing and maintaining a broad range of housing types that are affordable to the citizens of this region. Metro amended Title 7 of the Functional Plan to include voluntary affordable housing production goals for local governments to adopt as a guide to measure progress and also a requirement for local governments to amend their comprehensive plans to include affordable housing strategies. There are no established vacancy rate targets.

Data Analysis

Indicator 6.5: Vacancy rate for multi-family (apartments).
Data years: 1990 through 2001. Source: The McGregor Rask Report, 1998 and 2001.

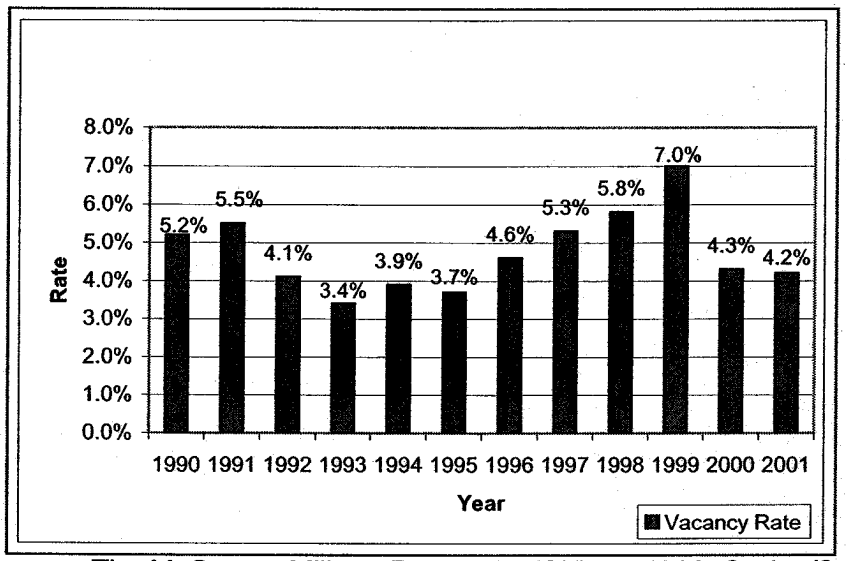
Finding:

- *The vacancy rate for multi-family housing units was at its lowest in 1993 when 3.4 percent of the units were vacant, and at its highest in 1999 when 7.0 percent of the units in the region were*

vacant. In 2000 and part of 2001, the rate declined to about 4.2 percent. The cyclical nature of vacancy rates for multi family housing is reflected in the 1990-2001 data.

This indicator measures the availability of multi-family housing stock and also indicates the low and high demand for housing units. The vacancy rate is the percent of the multi-family housing stock that is unoccupied in a year.

Figure 6.5: Multi-family Vacancy Rate, 1990-2001



Source: The McGregor Millette Report, Fall/Winter 1998, Spring/Summer 2001
Note: -Vacancy Rate is for MFR complexes of five or more units. Complexes with 2, 3 or 4 units were not included in the calculation.
-Data for 2001 is through May of that year.

As shown in the figure above, the MFR vacancy rate started a downward trend in 1991 and reaches a low of 3.4 percent in 1993 and stayed below 4 percent through 1995. An upward trend began in 1996 and reached the highest rate of 7 percent in 1999. The rate dropped sharply to 4.3 percent in 2000 and fell to 4.2 percent by May 2001.

A very low vacancy rate is generally an indication of a high demand for housing, regardless of housing price. A low vacancy rate can indicate a healthy economy and may even be an indication of a particularly livable community. However, low vacancy rates and a high demand for housing can frustrate regional strategies to maintain housing that is affordable to all segments of society. The supply of units and rate at which the market reacts to a supply shortage could cause vacancy rates to be high or low. A low vacancy rate may also indicate that demand for units is far greater than the supply of available units.

A high vacancy rate indicates low demand for housing, regardless of housing price. It is natural for the vacancy rate to fluctuate in response to general market forces. A sudden increase in the supply of units to meet demand can cause a higher vacancy rate. A high vacancy rate is generally considered undesirable and may indicate among other things, that the units themselves are undesirable. In general, if the quality of life in neighborhoods is high, vacancy rates tend to be low. The Regional Framework Plan describes the pattern of social and economic decay of older suburbs and the central part of the city typical to many larger and older metropolitan regions as "a threat to the quality of life and the (Metro) regional economy." This type of decay is usually associated with higher vacancy rates.

Data Limitation

Vacancy Rate used for this analysis is for MFR complexes of five or more units. Complexes with two, three or four units were not included in the calculation (McGregor Milette Report, 1998).

Income and Affordability

Purpose

To use the relationship between income and housing price in the Metro region as a way to determine the extent of housing affordability.

Summary

Policy

State law requires Metro to provide a 20-year supply of housing and employment land within the UGB. The availability of land for housing and jobs is one of many factors that has an indirect effect on wages, the strength of the regional economy, and the affordability of housing and other goods and services. The Future Vision document, the RUGGOs, the 2040 Growth Concept and the Regional Framework Plan assign Metro the role of creating a regional plan to accommodate growth while maintaining a broad range of housing types. Metro's Affordable Housing Technical Advisory Committee (HTAC) developed the Regional Affordable Housing Strategy in 2000 that contained recommendations for achieving affordable housing goals. Only portions of the strategy were mandatory while the rest were also adopted by the Metro Council as recommendations.

Indicators

6.6a Change in median family income (MFI).
Data years: 1990 through 2001. Source: Department of Housing and Urban Development.

- *From 1990 to 2001, MFI for the Portland PMSA rose by approximately 51 percent (from $37,100 to $55,900), while the MFI for the U.S. for the same period rose by approximately 47 percent (from $35,700 to $52,500). The largest increase (7.1 percent) for the Portland PMSA occurred from 1997 to 1998.*

6.10 Number of units affordable to households in the following income groups: a) less than 30 percent of Median Household Income (MHI); and b) less than 50 percent of MHI (Required – Metro and State).
Data year: 1998. Source: Metro Regional Affordable Housing Strategy.

- *In 1998, an estimated 3 percent of housing units in the Metro UGB (16,889 units) were affordable to households earning less than 30 percent of MHI. Approximately 10 percent of housing units in the region in 1998 (56,009 units) were affordable to those who earn between 30 and 50 percent of MHI.*

Survey Results of Local Officials and Planning Commissioners

✓ *Housing affordability*: 22 percent rated housing affordability as satisfactory, while 5 percent rated it as excellent. 43 percent rated it unsatisfactory, while 10 percent rated it poor.
✓ *Most important issues that should be addressed in the region*: Affordable housing ranked 6 in frequently mentioned items.
✓ *Role of public policy and market forces in support of affordable housing options*: 39 percent of the respondents thought that public policy should further support affordable housing options, while 24 percent thought that market forces alone should determine housing affordability. Another 16 percent of the respondents thought that both market forces and public policy should support affordable housing.

Policy Rationale

See Indicators 6.1a, 6.1b and 6.2 for a detailed explanation of policy rationale.

Data Analysis

Indicator 6.6a: Change in median family income[15] (MFI).
Data years: 1990 through 2001. Source: Department of Housing and Urban Development.

Finding:

- *From 1990 to 2001, MFI for the Portland PMSA rose by approximately 51 percent (from $37,100 to $55,900), while the MFI for the U.S. for the same period rose by approximately 47 percent (from $35,700 to $52,500). The largest increase (7.1 percent) for the Portland PMSA occurred from 1997 to 1998.*

This indicator measures the purchasing power of residents in this region and implicitly measures housing affordability.

Table 6.6a: Estimated MHI Portland PMSA and the U.S.

Fiscal Year	MFI Portland MSA	Percent Change Portland	MFI USA	Percent Change Nation
+1990	37,100	--	35,700	--
1991	39,000	5.1%	38,000	6.4%
1992	39,400	1.0%	38,600	1.6%
1993	40,700	3.3%	39,700	2.8%
1994	42,300	3.9%	39,900	0.5%
1995	42,700	0.9%	40,200	0.8%
1996	44,400	4.0%	41,600	3.5%
1997	46,300	4.3%	43,500	4.6%
1998	49,600	7.1%	45,300	4.1%
1999	52,400	5.6%	47,800	5.5%
2000	53,700	2.5%	50,200	5.0%
2001	55,900	4.1%	52,500	4.6%
Total	---	50.7%	--	47.1%

Source: HUD Office, Portland
Note: Incomes are for a family of four living in either the Portland MSA or in the U.S.

The table above displays MFI in the Portland PMSA and the MFI for the U.S. in the years 1990-2001. The Portland PMSA includes six counties (Multnomah, Clackamas, Washington, Columbia and Yamhill counties in Oregon and Clark county in Washington). From 1991 to 2001, the MFI for the Portland PMSA and the U.S. increased each year. The largest increase for the Portland MSA was from 1997-1998 when MFI experienced a 7.1 percent increase. From 1990 to 2001, income in the Portland area rose by approximately 51 percent, while income in the U.S. rose by approximately 47 percent.

[15] The Census defines Median Family Income MFI as "income of all members 15 years and older in each family as summed and treated as a single amount. Members must reside with the family at the time of enumeration – April."

Indicator 6.10: Number of units affordable to households in the following income groups: a) less than 30 percent of MHI; and b) less than 50 percent of MHI.
Data year: 1998. Source: Metro Regional Affordable Housing Strategy.

Note: The only source of data for this indicator is the Regional Affordable Housing Strategy which used median household income, and not median family income, in the calculation of housing units that are affordable top households of various income levels.

Finding:

- *In 1998, an estimated 3 percent of housing units in the Metro UGB (16,889 units) were affordable to households earning less than 30 percent of MHI. Approximately 10 percent of housing units in the region in 1998 (56,009 units) were affordable to those who earn between 30 and 50 percent of MHI.*

Table 6.10: Estimated Housing Units Affordable to Defined Income Groups in 1998 (Metro UGB)

Income Group	*Number of Units**	*Percent of Total Housing Units in the Region*
Less than 30% of MHI	16,889	3%
Between 30-50% of MHI	56,009	10%

Source: Metro Regional Affordable Housing Strategy
** Estimated housing units in the region in 1998 = 537,790.*
Note: The 1998 estimate of housing units published in the Regional Affordable Housing Strategy report was based on the 1995 household data and other factors.

The Metro Affordable Housing Technical Advisory Committee (HTAC) determined that those with the greatest need for affordable housing were households earning 0-30 percent and 30-50 percent of MHI. Thus, these two lowest income brackets are shown in the table above. Housing units include all single family and multi-family types. In 1998, there were an estimated 537,790 housing units in the region. Of this total, 16,889 units were affordable to households earning less than 30 percent of MHI and 56,009 units were affordable to those earning between 30 and 50 percent of MHI.

Data Limitation

- The formula used for the 1998 estimates is based on the percent of households in the region in defined income groups for 1995, when the most recent data is available.
- Estimates may understate the actual total affordable housing need because the methodology used assumed that households will purchase or rent housing commensurate with their income level. Units that appear to be affordable may not necessarily be available to low-income households as households with higher income levels may occupy them.

Affordability Surplus and Homeownership

Purpose

To assess the affordability of homes in the region and trends related to homeownership.

Summary

Policy

See previous section for policy summary (Income and Affordability – Indicators 6.6a and 6.10)

Indicators

6.6b Homeownership affordability surplus. (The difference between the prices of homes that buyers can afford and the prices of homes on the market.) (Required – State)
Data years: 1990 through 2000. Source: Metro Data Resource Center, U.S. Department of Housing and Urban Development.

- *An estimate of homeownership affordability using median sale price, median family income (MFI) and assumptions on loan period, mortgage rate, down payment, indicated that the MFI in 1990 ($37,100) and 2000 ($53,700) could buy a home in the Portland PMSA worth more than the median selling price during the 1990 to 2000 period. In 1990, the MFI could afford a $129,000 home whereas the median selling price was $79,700. In 2000, the MFI could afford a $187,000 home whereas the median selling price was $166,000. The difference indicates an affordability surplus of $49,300 in 1990 and $21,000 in 2000.*

6.11 Percent of owner-occupied homes (homeownership) in the region.
Data years: 1990 through 2000. Source: U.S. Department of Housing and Urban Development.

- *The homeownership rate peaked in the* Portland PMSA in *1991 (67.1 percent) and has declined and recovered over the years, remaining in the 61-62 percent range for the past four years.*

Policy Rationale

See Indicator 6.1b for a detailed explanation of policy rationale.

Data Analysis

Indicator 6.6b: Homeownership affordability surplus
Data years: 1990 through 2000. Source: Metro Data Resource Center, U.S. Department of Housing and Urban Development.

Finding:

- *An estimate of homeownership affordability using median sale price, median family income (MFI) and assumptions on loan period, mortgage rate, down payment, indicated that the MFI in 1990 ($37,100) and 2000 ($53,700) could buy a home in the Portland PMSA worth more than the median selling price during the 1990 to 2000 period. In 1990, the MFI could afford a $129,000 home whereas the median selling price was $79,700. In 2000, the MFI could afford a $187,000 home whereas the median selling price was $166,000. The difference indicates an affordability surplus of $49,300 in 1990 and $21,000 in 2000.*

This indicator measures the difference between the prices of homes that buyers can afford and the prices of homes on the market; this is also described as the homeownership affordability difference or surplus. Table 6.6b assesses affordability by measuring median selling price of single family dwellings and MFI. Housing prices considered to be affordable are those that a family earning the MFI is likely to be able to finance.

Table 6.6b – Affordability Surplus – PMSA

Year	Median Selling Price ($)	MFI	House Price Affordable to a Median Income Family	Affordability Difference (surplus)
1990	79,700	$37,100	$129,000	$49,300
1991	91,750	$39,000	$136,000	$44,250
1992	97,000	$39,400	$138,000	$41,000
1993	107,000	$40,700	$142,000	$35,000
1994	117,000	$42,300	$148,000	$31,000
1995	128,000	$42,700	$149,000	$21,000
1996	139,900	$44,400	$155,000	$15,100
1997	150,000	$46,300	$162,000	$12,000
1998	156,900	$49,600	$173,000	$16,100
1999	160,200	$52,400	$183,000	$22,800
2000	166,000	$53,700	$187,000	$21,000

Source: Metro DRC and HUD

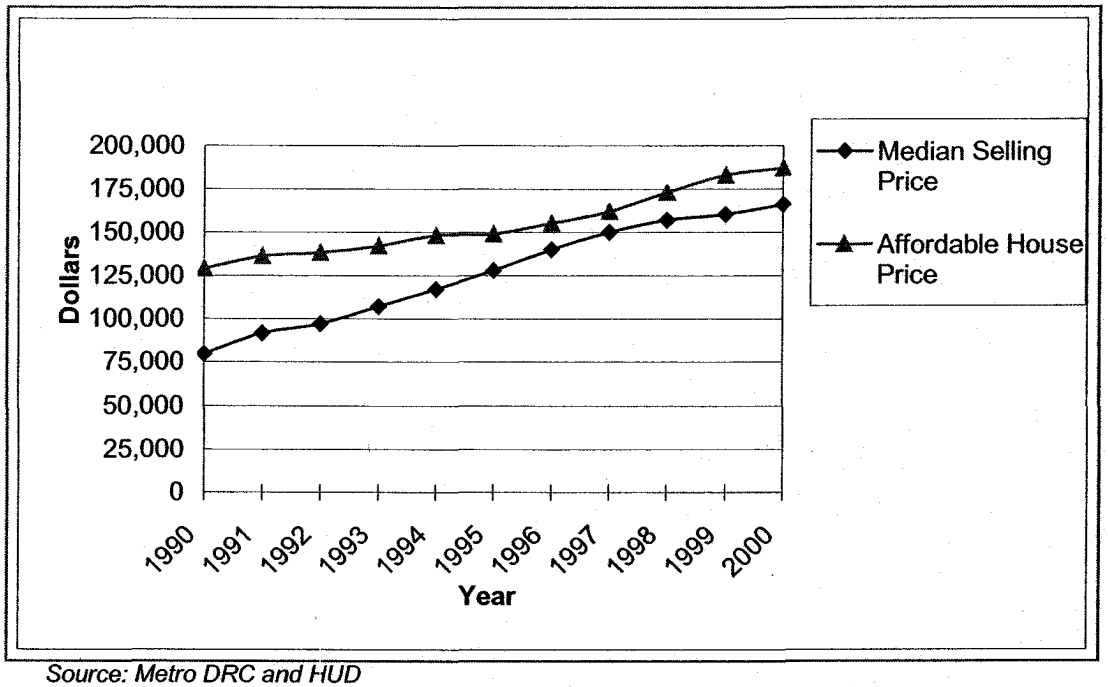
**Notes: Assumes fixed rate of 7 percent annually on a 30-year loan with 20 percent down payment and 30 percent allowable for housing expenses. Data is for single family detached and attached housing only. The dollar figures are in nominal and not real or constant dollars.*

In order to calculate the price at which housing is affordable to the median-income family, it is assumed that the buyer will take a 30-year loan with a fixed rate mortgage of 7.0 percent and contribute 20 percent of the purchase price in the form of a down payment, the average down payment assumed by the National Association of Realtors. These calculations assume 30 percent of the buyer's income would be allowable for housing expenses. The 30 percent allowable for housing expenses is an average value commonly used by the U.S. Department of Housing and Urban Development (HUD).

The homeownership affordability difference (surplus) displayed in the last column represents the difference between the price of an affordable single family house and the market price of a house. An affordability surplus of $49,300 in 1990 indicates that the median family could afford a more expensive house than the market rate house (as measured by median selling price). A negative affordability difference or gap would imply that housing is unaffordable.

The homeownership affordability surplus is especially apparent in Figure 6.6b. Here, the affordability gap is the distance between the trend lines. When the trend line for median selling price is below that of affordable house price, single family housing is affordable to the median buyer. As the distance between the lines decreases, housing becomes less affordable and vice versa. Local housing stock has gradually become less affordable since 1990. In 1999, the downward trend in the affordability surplus reversed and housing became more affordable, before falling again in 2000.

Figure 6.6b: Housing Affordability in Portland PMSA



Source: Metro DRC and HUD

Data Limitation

While the assumptions contained in the affordability index are reasonable, they may not hold true for any given case. The down payment percentage, the percentage allowed for housing expenses, the life of the loan, and the mortgage type and interest rate can all vary.

Indicator 6.11: Percent of owner-occupied homes (homeownership) in the region.
Data years: 1990 through 2000. Source: U.S. Department of Housing and Urban Development.

Finding:

- *The homeownership rate peaked in the* Portland PMSA in *1991 (67.1 percent) and has declined and recovered over the years, remaining in the 61-62 percent range for the past four years.*

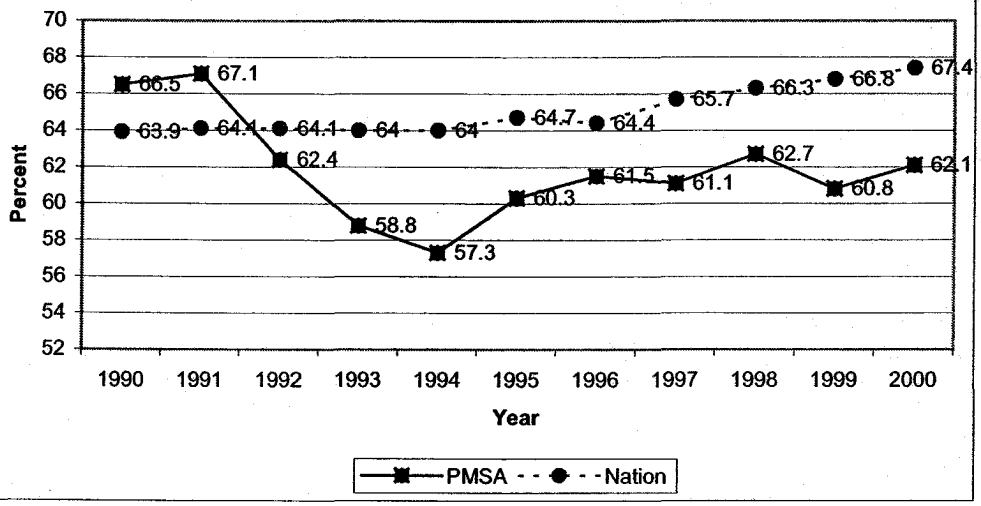
This indicator measures the proportion of homes that are occupied by the homeowner. A housing unit that is owned could be either a single family or multi-family unit. The homeownership rate is considered to be an indication of affordability due to the fact that the more affordable homes become, the more attractive owning a home becomes to potential homeowners. Right or wrong, homeownership is sometimes used as a measure of neighborhood stability.

In the past 10 years, there has been some variation in the homeownership rate in the six-county Portland PMSA (Multnomah, Clackamas, Washington, Columbia and Yamhill counties in Oregon and Clark county in Washington). The peak of homeownership was in 1991 when the rate reached 67.1 percent. The rate slid to a low of 57.3 percent in 1994. More recently, the homeownership rate has remained in the 61-62 percent range.

In theory, homeownership and affordability are closely connected. As housing becomes less affordable (as the affordability gap narrows), the homeownership rate would be expected to decline. However,

this is not the trend that is revealed in Figure 6.6b and Figure 6.11. Although the affordability gap has narrowed and housing has become less affordable, the homeownership rate has remained stable.

Figure 6.11: Annual Homeownership rate (Portland PMSA and Nation)



Source: U.S. Department of Housing and Urban Development

The results show that single family units in the Portland-Vancouver area have remained relatively affordable during the past decade and homeownership rates have remained high. Although, single family units have become less affordable over the course of the last decade, the most recent trend has been toward greater affordability.

Housing Cost

Purpose

To assess the rate of change in the sale price of single family residential units and multi-family residential rents.

Summary

Policy

State law requires Metro to provide a 20-year supply of housing and employment land within the UGB. Metro housing policies recognize the relationship between the availability of land for housing and its indirect effect on the affordability of housing and other goods and services. The Future Vision document, the RUGGOs, the 2040 Growth Concept and the Regional Framework Plan assign Metro the role of creating a regional plan to accommodate growth while maintaining a broad range of housing types. Metro's Affordable Housing Technical Advisory Committee (HTAC) developed the Regional Affordable Housing Strategy in 2000 that contained recommendations for reducing the cost of housing production which wold reduce multi-family rents and single family dwelling sale price.

Indicators

6.8 Median rent of multi-family residential. (Required – Metro and State)
Data years: 1990 through 2000. Source: McGregor Millette Report, 1998 and 2001.

- *Average rents increased by approximately 36 percent between 1990 and 2000 in the Portland metropolitan area.*

6.9 Median sales price of single family residential. (Required – Metro and State)
Data years: 1990 through 2000. Source: McGregor Millette Report, 1998 and 2001.

- *The median selling price of single family dwellings doubled between 1990-2000 in the Portland metropolitan area, an increase of approximately 108 percent.*

Policy Rationale

See Indicators 6.1a, 6.1b and 6.2 for a detailed explanation of policy rationale.

Data Analysis

Indicator 6.8: Median rent of multi-family residential.
Indicator 6.9 Median sales price of single family residential.
Data years: 1990 through 200. Source: McGregor Millette Report, 1998 and 2001.

Findings:

- *Average rents increased by approximately 36 percent between 1990 and 2000 in the Portland metropolitan area.*
- *The median selling price of single family dwellings doubled between 1990-2000 in the Portland metropolitan area, an increase of approximately 108 percent.*

Indicators 6.8 and 6.9 measure the region's progress or lack of progress in the production of affordable rental housing and single family homes to meet housing demand in the region.

Table 6.8: Average Rent and Selling Price in the Portland Metropolitan Area

Average Rent of Multi-Family Residential			Median Selling Price of Single Family Dwellings		
Year	Average Rent	Cumulative % Change	Median Selling Price	Cumulative Change -%	Median Family Income
1990	$489	0.0%	$79,700	0.0%	$37,100
1991	$520	6.3%	$91,750	15.1%	$39,000
1992	$523	7.0%	$97,000	21.7%	$39,400
1993	$539	10.2%	$107,000	34.3%	$40,700
1994	$563	15.1%	$117,000	46.8%	$42,300
1995	$591	20.9%	$128,000	60.6%	$42,700
1996	$617	26.2%	$139,900	75.5%	$44,400
1997	$635	29.9%	$150,000	88.2%	$46,300
1998	$653	33.5%	$156,900	96.9%	$49,600
1999	$654	33.7%	$160,000	100.7%	$52,400
2000	$667	36.4%	$166,000	108.3%	$53,700
10-year Change	***$195***	***36.4%***	***$77,200***	***108.3%***	***$16,600***

Source: The McGregor Millette Report Fall/Winter 1998, Spring/Summer 2001

Table 6.8 above depicts the rate in change of median selling price of single family dwellings and in the average rent of multi-family residential units. The rate of change is based on 1990 base year.

Both single family dwelling sale price and multi-family residential rent have undergone a steady increase since 1990. The median selling price of single family residences in the Portland MSA has increased by an astounding 108 percent. Stated differently, single family homes have doubled in price over the period 1990-1998. Income actually rose more rapidly than did multi family rents from 1990-2001. Average rents increased by approximately 36 percent. See Indicator 6.6b for the impact of the increases in multi-family residential rents and single family dwellings sale prices on housing affordability in the region.

Fundamental 7

Create a vibrant place to live and work by providing sufficient and accessible parks and natural areas, improving access to community resources such as schools, community centers and libraries as well as by balancing the distribution of high quality jobs throughout the region, and providing attractive facilities for cultural and artistic performances and supporting arts and cultural organizations.

To evaluate this fundamental, the performance indicators address the following related questions.

a) Is there a sufficient supply of parks and greenspaces to satisfy the recreational needs of the citizens of the region?
b) Are the services provided in the mixed use centers convenient and diverse?
c) How well are Metro policies contributing to the balance between preservation of neighborhood character and revitalization of neighborhoods where appropriate?
d) How well is the coordination of residential and business development with transportation and road systems?

INDICATORS MEASURED

Recreation/Parks and Open Spaces

7.1: Acres of Metro parks and greenspaces per thousand **(Required)**:
a. Inside UGB open to the public.
b. Inside and outside the UGB open to the public.

7.2: Acres of other (local and state) public parks and greenspaces per 1,000 open to the public. **(Required)**
a. Inside UGB open to the public.
b. Inside and outside the UGB open to the public.

7.3: Miles of completed regional trails.
a. Inside the UGB
b. Outside the UGB

7.4: Percentage of population within walking distance (¼-mile) of public parks, greenspaces and regional trails that are currently open to the public. **(Required)**

Create a vibrant place to live and work

Recreation/Parks and Open Space

Purpose

To measure the total amount of parks, greenspaces, and trails that are available to the residents of the Metro region and to assess the proximity of these resources to the region's population.

Summary

Policy

There is a strong foundation established in Metro's policy history for preserving the role that parks and open spaces play in contributing to the Metro region's livability. The Metropolitan Greenspaces Master Plan, adopted in 1992, identified a cooperative regional system of parks, natural areas, greenways and trails that would enhance recreational opportunities and preserve the connection between the growing population and its natural surroundings. Metro's $135.6 million open spaces, parks and greenspaces bond measure was approved by voters in 1995 with the primary goal of purchasing 6,000 acres of natural areas, trails and greenways. Local governments were apportioned $25 million to acquire and improve open spaces locally.

Indicators

7.1: Acres of Metro parks and greenspaces per thousand: a) inside UGB open to the public and b) inside and outside the UGB open to the public; and

7.2: Acres of other (local and state) public parks and greenspaces per thousand: a) inside the UGB) open to the public and b) outside the UGB) open to the public.
Data year: 1998. Source: Metro Data Resource Center 1998 parks inventory.

- *Metro and local/state jurisdictions provide 28,555 acres of parks and greenspaces inside and outside the UGB that are open to the public.*
- *Based on 1998 population within the UGB, these 28,555 acres equate to 23.94 acres of local/state and Metro parks and open spaces per every 1,000 persons.*
- *1998 parks inventory data show that Metro manages roughly 2,341 acres of parks and greenspaces inside the UGB that are open to the public.*
- *Local/state jurisdictions manage roughly 10,276 acres of additional parks outside the UGB.*

7.4 *Percent*age of population within walking distance (¼-mile) of public parks, greenspaces and regional trails that are currently open to the public. (Required – State).
Data year: 1998. Source: Metro Data Resource Center 1998 parks inventory.

- *64 percent of the region's residents residing in the UGB are within walking distance (¼-mile) of public parks, greenspaces or regional trails.*

7.3 Miles of completed regional trails (Required – State).
a. Inside the UGB.
b. Outside the UGB.
Data year: 1998. Source: Metro Data Resource Center 1998 parks inventory.

- *There are 99 miles of completed regional trails inside the UGB and eight miles of trails outside the UGB.*

Survey Results of Local Officials and Planning Commissioners

✓ *Access to active parks*: 51 percent of the respondents rated access to active parks and natural areas as satisfactory, while 5 percent rated access as excellent. 18 percent rated access as unsatisfactory, while 12 percent rated access as poor.

Other

✓ *Quality if life in the region in the next 20 years*: 62 percent of those surveyed thought quality of life in the metropolitan area will be getting worse in the next 20 years, while 12 percent thought it would stay the same and 11 percent saw it getting better.
✓ *Quality if life in the neighborhood in the next 20 years*: Almost one-third (32 percent) of those surveyed thought quality of life in their neighborhoods would stay the same in the next 20 years, while 22 percent thought it would be getting better and 29 percent saw it getting worse.

Policy Rationale

Planning and policy development to preserve and enhance the quality of life and the environment was identified in the Metro charter as one of Metro's most important services. The RUGGOs, the 2040 Growth Concept and Regional Framework Plan provide a policy foundation for Metro to balance the protection of parks, natural areas and greenways with the creation of an efficient urban form and a transportation system for the Metro region. RUGGOs Goal II, Objective 9 states,

> *"Sufficient open space in the urban region shall be acquired, or otherwise protected and managed to provide reasonable and convenient access to sites for passive and active recreation. An open space system capable of sustaining or enhancing native wildlife and plant populations should be established."*

The Metropolitan Greenspaces Master Plan, adopted in 1992, identified a cooperative regional system of parks, natural areas, greenways and regional trails[16] that would benefit the citizens of the region in addition to enhancing habitat for fish and wildlife. This regional system is based on the concept of protecting and maintaining open spaces for natural resource based recreation for the citizens through the Metro region.

The terms "passive and active recreation," which were used in the above excerpt from RUGGOs Goal II, are broad categories that define different recreational opportunities. Passive recreation relates to natural resource related activities such as bird watching, hiking and boating that occur in open space or natural areas that are open to the public, but remain to a great degree in a natural and non-manicured state. Active recreational opportunities occur in local and regional parks where a greater degree of recreational infrastructure is provided such as sports fields, tennis courts, etc. The Regional Framework Plan recognizes that the desire of the citizens of the region is to "have quality natural areas and parks close to home" that provide "opportunities for, primarily, natural resource dependent recreation and education." However, Metro's regional vision for greenspaces includes cooperating with local park providers to meet local level of service standards to provide community and neighborhood parks, natural areas, trails and recreational programs.

Metro's $135.6 million bond measure for open spaces, parks and greenspaces was approved by voters in 1995 with the primary goal of purchasing 6,000 acres of natural areas, trails and greenways. The

[16] Regional trails are defined as those trails included in the Metro-adopted 1992 Regional Trails Plan, and any additions to that plan made by the Metro Council since then (e.g., Peninsula Crossing Trail).

lands being purchased through this bond measure are currently open to the public only for scheduled volunteer and educational programs. The open spaces bond measure did not provide a source of funding for planning and implementing master plans that would be necessary prior to the opening of acquired open space for public use. Potential future funding sources will make these areas available for natural resource related recreation. For more information on the open spaces bond measure see Indicator 2.3a.

Data Analysis

Indicator 7.1: Acres of Metro parks and greenspaces per thousand: a) inside UGB open to the public and b) inside and outside the UGB open to the public.

Indicator 7.2: Acres of other (local and state) public parks and greenspaces per thousand: a) inside the UGB) open to the public and b) outside the UGB) open to the public.
Data year: 1998. Source: Metro Data Resource Center 1998 parks inventory.

Findings:

- *Metro and local/state jurisdictions provide 28,555 acres of parks and greenspaces inside and outside the UGB that are open to the public.*
- *Based on 1998 population within the UGB, these 28,555 acres equate to 23.94 acres of local/state and Metro parks and open spaces per every 1,000 persons.*
- *1998 parks inventory data show that Metro manages roughly 2,341 acres of parks and greenspaces inside the UGB that are open to the public.*
- *Local/state jurisdictions manage roughly 10,276 acres of additional parks outside the UGB.*

These indicators compare the total acreage of Metro and local parks and greenspaces that are open to the public, with the population residing inside the Metro UGB that is expected to use and enjoy them. (The data is expressed in acres per 1,000.) The combined acreage of parks and greenspaces managed by local governments and Metro inside and outside the UGB (open/not open to the public) is more than 50,576. Local jurisdictions manage about 41,990 acres (83 percent) divided between 3,107 parks and greenspaces. Metro oversees 8,583 acres (17 percent) in 218 parks and greenspaces. Roughly half (52 percent) of the total Metro and local governments' parks and greenspaces acres (26,421) are inside the UGB. The other half are outside the UGB. Additionally, 28,556 acres (56 percent) of the total park and greenspaces acres are open to the public.

Table 7.1: Number of Parks and Acres of Metro/Local Parks and Greenspaces Per Thousand Persons (1998)

Park/Open Space Ownership and Location	Number of Sites	Total Acreage	Number of Sites Open to Public	Total Acreage Open to Public	Parks/Open Spaces Acreage Open to Public (per 1,000 residents)*	Parks/Open Spaces Acreage with and without public access (per 1,000 residents)
Metro (inside UGB)	95	3,086	15	2,341	1.96	
Metro (outside UGB)	123	5,498	16	1,328	1.11	
Total Metro	***218***	***8,584***	***-***	***3,669***	***3.07***	***7.2***
Local (inside UGB)	2,850	23,336	1,217	14,610	12.25	
Local (outside UGB)	257	18,654	74	10,276	8.62	
Total Local	***3,107***	***41,990***	***-***	***24,886***	***20.87***	***35.23***
Total Parks and Open Spaces	**3,325**	**50,574**	**1,322**	**28,555**	**23.94**	**42.42**

Source: Metro Parks and Greenspaces (1998 parks inventory)
Note: Per thousand calculations are based upon the 1998 population within the UGB of 1,192,198
**All ratios are per 1,000 population residing within the UGB.*

Additional Data Highlights

- *Total number of parks and open space sites inside the UGB open to residents = 1,322.*
- *Acres of parks and open spaces inside the UGB open to residents = 16,951.*

- *Total number of parks and open space sites outside the UGB open to residents = 90.*
- *Acres of parks and open spaces outside the UGB open to residents = 11,604.*

Metro's and local governments' parks and greenspaces network includes open space areas that have been acquired since the approval of Metro's Open Spaces, Parks and Streams bond measure in May 1995 (see Indicator 2.3a for more information). These newly acquired open space areas are currently available for educational and volunteer opportunities, but are not equipped with the infrastructure (parking, restrooms, etc.) to allow use by the general public. Most of the other open space areas are open to the public and provide both passive (natural areas, viewpoints) and active (swimming pools, volleyball courts, etc.) recreational opportunities.

Data Limitation

The data used in calculating Indicator 7.1 relied on a 1998 Metro inventory of local and regional parks and 1998 population estimates inside the UGB. Indicator 2.3a, which measures open space acquisitions made by Metro and local governments, reflects acreage of open spaces as of December 2002. This more current data shows that Metro has acquired more than 4,354 acres of open space since the 1998 parks inventory was completed. This increase would affect the "total acreage of parks and open space" column in Table 7.1.

Future performance measures efforts may be able to include information on the recreational opportunities that the parks in the regional network support, and to catalog parks by ownership, and proximity to population centers.

Indicator 7.4: Percentage of population within walking distance (¼-mile) of public parks[17], greenspaces and regional trails that are currently open to the public. (Note: ¼-mile is distance Metro transportation policies consider "walking distance" to transit).

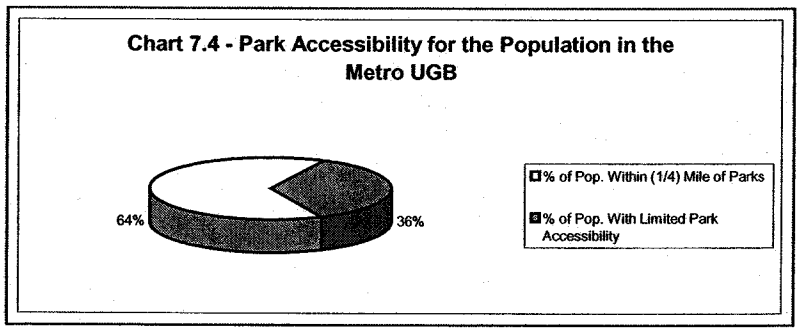
Data year: 1998. Source: Metro Data Resource Center 1998 parks inventory.

Finding:

- *In 1998, the date of the most recent parks inventory, 64 percent of the residents in the UGB were within walking distance (¼-mile) of public parks, greenspaces or regional trails .*

This indicator measures the accessibility of public parks, greenspaces and regional trails to the citizens of the region. Metro transportation policies consider ¼-mile to be within "walking distance" of transit. When this methodology is applied to public parks, greenspaces and regional trails, it becomes possible to measure the accessibility of these features to the region's population. Therefore, population residing more than ¼-mile from public parks, greenspaces or regional trails is considered to have limited access for the purposes of this analysis. This relationship is shown in Figure 7.4 and illustrated on the map on the following page titled "Parks Accessibility."

Note: Metro does not have authority related to access to greenspaces.



Another way that citizens can have greater access to parks, greenspaces and recreational opportunities is through the regional trail system described earlier. The trail system links many of the parks with communities throughout the region, both inside and outside the UGB.

The better the access that can be provided to recreational facilities, the more likely citizens are to use and benefit from these areas. Parks, greenspaces and trails set aside by Metro and local governments are a key way of maintaining a vibrant place for residents of this region to live and work.

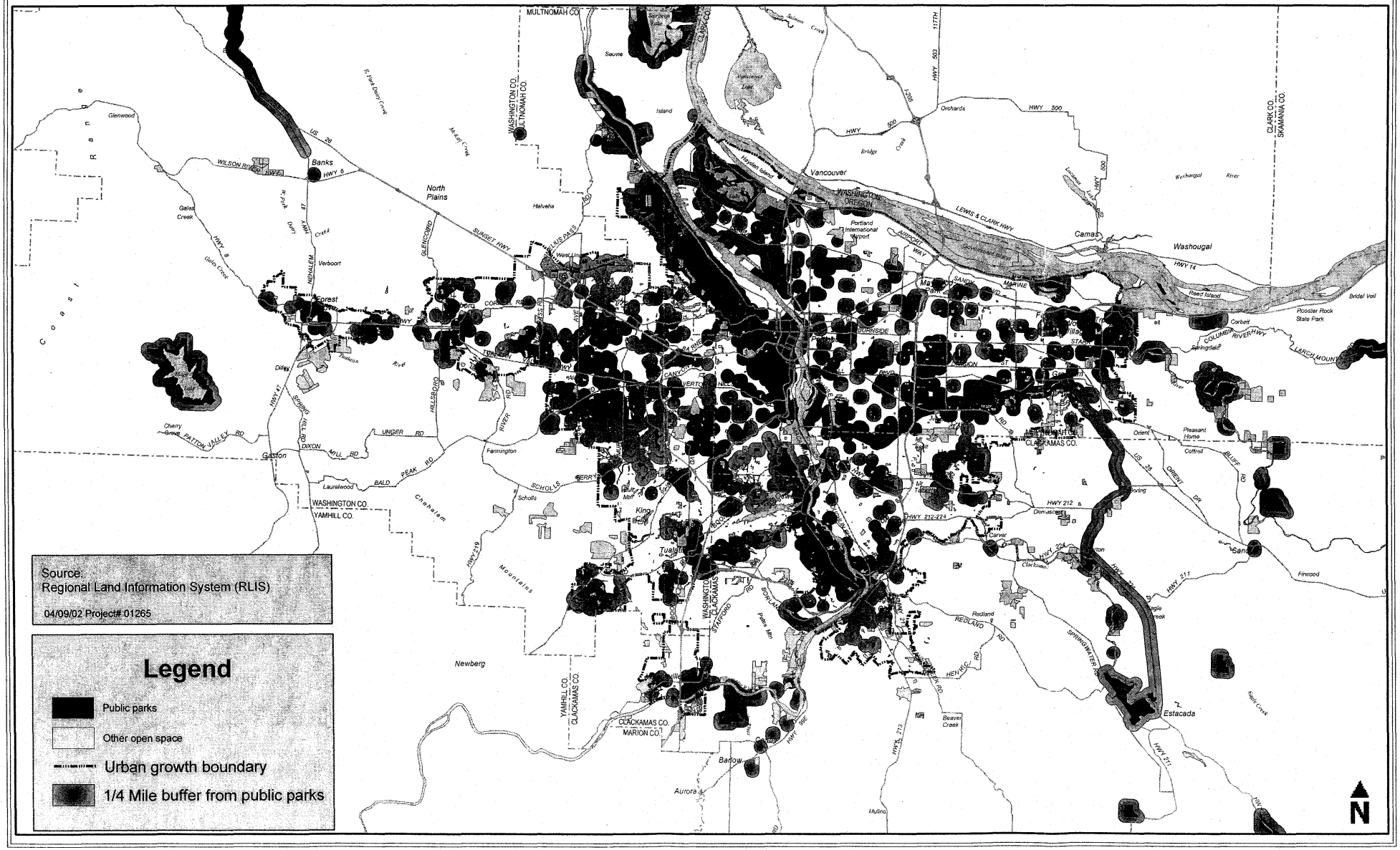
Data Limitation

The methodology used for calculating park accessibility does not take into account natural physical constraints that may serve as a barrier to accessibility such as rivers and steep slopes. Nor does the accessibility methodology account for man-made barriers such as highways and other development. Also, this methodology would consider as accessible a park that is within ¼-mile of a neighborhood even when paths and roads are not available to access the park.

[17] Metro does not have authority related to access to greenspaces.

Parks Accessibility

METRO



Indicator 7.3: Miles of completed regional trails[18]: a) inside the UGB and b) outside the UGB.
Data year: 1998. Source: Metro Data Resource Center 1998 parks inventory.

Finding:

- *There are 99 miles of completed regional trails inside the UGB and 8 miles of trails outside the UGB.*

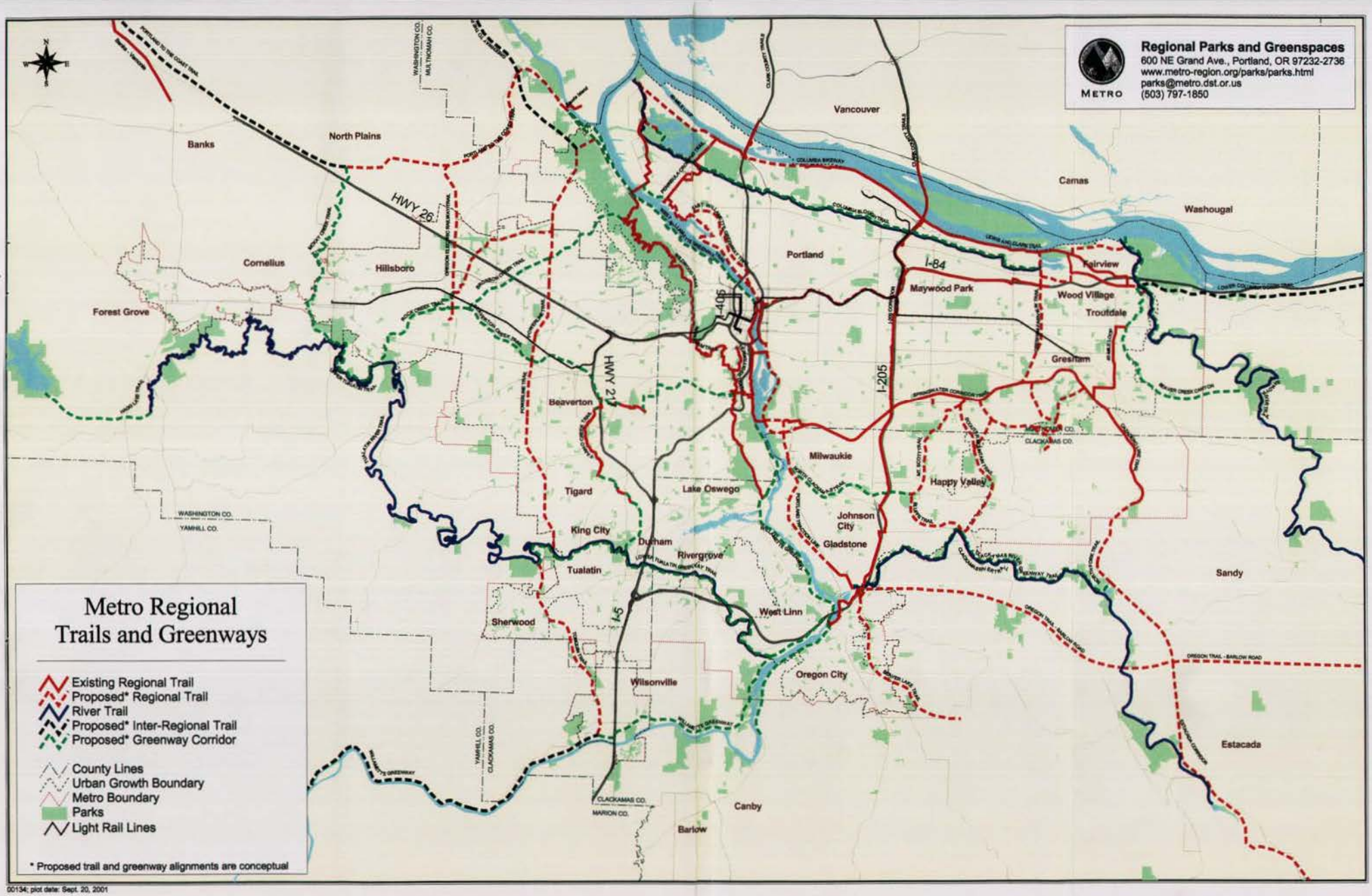
This indicator measures how many miles of the Regional Trails Plan (first adopted as part of the Metropolitan Greenspaces Master Plan in 1992) have been constructed. Table 7.3 shows the number of miles of the regional trial system that have been completed, as of 1998. In that year, there were 99 miles of trails inside the UGB and 8 miles outside for a total of 107 miles of completed trails. All these are also illustrated on the map on the following page titled "Regional Parks and Greenspaces."

Table 7.3: Miles of Completed Regional Trails

Area	Miles
Inside the UGB	99
Outside the UGB	8
Total Miles	107

Source: Metro Parks and Greenspaces

[18] The Metro Council defines regional trails as those trails included in the Metro-adopted 1992 Regional Trails Plan and any additions to that plan made since then (e.g., Peninsula Crossing Trail).


Regional Parks and Greenspaces
600 NE Grand Ave., Portland, OR 97232-2736
www.metro-region.org/parks/parks.html
parks@metro.dst.or.us
(503) 797-1850
METRO
Metro Regional Trails and Greenways
Existing Regional Trail
Proposed* Regional Trail
River Trail
Proposed* Inter-Regional Trail
Proposed* Greenway Corridor
County Lines
Urban Growth Boundary
Metro Boundary
Parks
Light Rail Lines
* Proposed trail and greenway alignments are conceptual
Vancouver
Camas
Washougal
Banks
North Plains
Cornelius
Hillsboro
Forest Grove
Portland
Gresham
Fairview
Wood Village
Troutdale
Maywood Park
Beaverton
Tigard
Lake Oswego
Milwaukie
Happy Valley
Johnson City
Gladstone
King City
Durham
Rivergrove
Tualatin
Sherwood
West Linn
Oregon City
Wilsonville
Sandy
Estacada
Canby
Barlow
HWY 26
HWY 217
I-84
I-405
I-205
I-5
WASHINGTON CO.
YAMHILL CO.
CLACKAMAS CO.
MARION CO.
MULTNOMAH CO.
CLARK COUNTY
OREGON TRAIL - BARLOW ROAD
00134; plot date: Sept. 20, 2001

Fundamental 8

Encourage a strong local economy by providing an orderly and efficient use of land, balancing economic growth around the region and supporting high quality education.

To evaluate this fundamental, the performance indicators address the following related questions.

a) How have Metro's policies encouraged a strong regional economy?
b) Does the economic climate of the region support diverse and strong job growth?
c) Are employment opportunities providing a range of incomes throughout the region?
d) How are the major employment sectors performing in 2040 centers?

INDICATORS MEASURED

Commercial, Industrial and Mixed Use Land Supply

8.1a: Amount of vacant land zoned industrial. **(Required)**
8.1b: Change in consumption of land zoned industrial. **(Required)**
8.2: Vacant buildable industrial land that is readily developable and served with public facilities and classified as Tier A in the 1999 Regional Industrial Land Supply Study.
8.3: Redevelopable buildable industrial land served with public facilities and classified as Tier D in the 1999 Regional Industrial Land Supply Study.
8.4a: Amount of vacant land zoned commercial.
8.4b: Change in consumption of land zoned commercial.
8.4d: Amount of vacant land zoned mixed use. **(Required)**
8.4e: Change in consumption of land zoned mixed use. **(Required)**

Employment

8.5a: Regional Employment Growth. **(Required)**
8.5b: Regional Employment Growth by sector. **(Required)**
8.5c: Regional Employment Capture Rate. **(Required)**
8.5d: Regional Employment Growth by Industry by County. **(Required)**
8.6: Regional Unemployment Rate

Income

8.7: Income Growth, per capita income, wage rates by industry

Real Estate

8.8: Building Permits (single family residential and multi-family residential total).
8.10: Number of home sales

Land Price

8.11: Change in real estate price by following land use type: I) Residential single family ($/unit); ii) Residential multi-family ($/acre); iii) Commercial; iv) Industrial

Business/Trade Volume

8.13: Freight tonnage and value of goods using the following modes:
a) Air
b) Marine
c) Rail
d) Truck
e) Pipeline
8.14: Air passenger volume
8.15: Retail sales per capita

Encouraging a strong local economy







Industrial and Commercial Land Supply

Purpose

To measure how much industrial and commercial land is available in the region and how much has been developed and to compare these trends with regional goals for economic growth and stronger regional economy.

Summary

Policy

The Regional Framework Plan acknowledges Metro's unique position to encourage the protection of the existing supply of industrial land while taking action to provide additional housing and employment land when necessary.

Indicators

8.1a Amount of vacant land zoned industrial.
8.1b Change in consumption of land zoned industrial. **(Required – Metro and State)**
Data years: 1999 and 2000. Source: Metro Data Resource Center.

Finding:

- *In 1999, there were 9,924 acres of vacant, industrial land available inside the UGB. In the year 2000, vacant, industrial land inside the UGB had decreased by 312 acres to 9,612 acres (a 3 percent decrease). Change in the amount of vacant industrial land can result from development of land currently zoned industrial and/or from rezoning.*

8.4a Amount of vacant land zoned commercial.
8.4b Change in consumption of zoned commercial. (Required – Metro and State)
Data years: 1999 and 2000. Source: Metro Data Resource Center.

Findings:

- *In 1999, there were 2,180 acres of vacant commercial land inside the UGB. In the year 2000, vacant commercial land inside the UGB decreased by 251 acres (a 12 percent decrease). Change in the amount of commercial land can result from consumption of land currently zoned industrial and/or from rezoning.*

8.2 Vacant buildable industrial land that is readily developable and served with public facilities and classified as Tier A in the 1999 Regional Industrial Land Supply Study.
Data year: 1999, 2000. Source: Regional Land Study, OTAK Inc. (1999), Metro Data Resource Center (2000).

Finding:

- In 1999, approximately 2,387 acres (26 percent) of the 9,198 net acres of total buildable industrial land in the six-county Portland PMSA were classified as readily developable, or Tier A.
- Of the 1999 Tier A land, 972 acres (19 percent of the six-county total) were located in the tri-county area.
- In 2000, approximately 2,093 acres (32 percent) of the 6,517 acres of vacant buildable industrial land within the UGB was classified as readily developable, or as Tier A.
- Of the 2000 Tier A land, the majority of the parcels (518 acres or 25 percent) are 1-5 acre lots.

8.3 Redevelopable buildable industrial land served with public facilities and classified as Tier D in the 1999 Regional Industrial Land Supply Study.
Data year: 1999. Source: Regional Land Supply Study (1999); Metro Data Resource Center (2000).

Finding:

- In 1999, approximately 820 acres (9 percent) of the 9,198 net acres of total buildable industrial land in the six-county Portland PMSA were classified as redevelopable, or as Tier D.
- Of the 1999 Tier D land, 302 acres (3 percent) were located in the tri-county area.
- In 2000, approximately 623 acres (10 percent) of the 6,517 acres of vacant buildable industrial land within the UGB was classified as land with redevelopment potential, or Tier D.
- Of the 2000 Tier D land, the majority of the parcels (236 acres or 38 percent) are 1-5 acre lots.

Policy Rationale

Maintaining a relationship between enhanced livability and a strong regional economy is a theme that appears throughout the Future Vision Document, the RUGGOs, the 2040 Growth Concept and the Regional Framework Plan. The Future Vision document addressed the issue of the regional economy by recommending that the Regional Framework Plan... "address the further diversification of our economy, the creation of family wage jobs and the development of accessible employment centers throughout the nine-county region... in elements related to transportation, rural lands, urban design, housing and water resources."

Although the Regional Framework Plan recognizes that economic trends are largely cyclical and driven predominantly by national and international factors, it identifies an important role for Metro in maintaining a strong regional economy. The Regional Framework Plan points out that Metro is in a unique position to encourage the protection of the existing supply of industrial land while taking action to provide additional housing and employment land when necessary.

The availability of buildable industrial land within the Metro region greatly influences the region's capacity for industrial growth and shapes, to a great extent, the region's economic landscape. The amount, quality, and location of available industrial land and the rate at which industrial growth occurs all greatly influence the region's quality of life and regional economy.

Active industrial growth generates revenue through state and local taxes including income taxes, fuel taxes, TriMet payroll tax revenues, local property taxes, etc. In many cases the revenue generated from these sources is used by state and local governments to fund critical programs, including education and parks.

The Regional Framework Plan also calls for an equitable distribution of jobs, especially family wage jobs, in appropriate locations throughout the region. Available industrial land encourages industrial job growth and increases secondary job growth in service, retail, and other sectors. The location of industrial land affects the degree to which employment is distributed throughout the region and has a profound effect on wage distribution, transportation efficiency, housing affordability, and community character. The industrial growth that is made possible by a sufficient supply of industrial land leads to the creation of family wage jobs that support the regional economy and contribute to the creation of service-oriented jobs that pay above the median household income (MHI) level.

Commercially zoned land is defined as all non-residential zoning categories that are not industrial. The 2040 Growth Concept is based on creating and supplementing a system of higher density centers with diverse housing and transit options with a strong and diverse commercial aspect. The 2040 Growth Concept and Regional Framework Plan envision that these centers will provide employment opportunities that support the regional economy while providing a variety of goods and services, and the basic infrastructure that businesses need to operate and grow. A supply of commercial land in the region will support the vision of the 2040 Growth Concept and the Regional Framework Plan. The supply and consumption of office commercial and retail land is key to assessing 2040 mixed use centers.

Data Analysis

Indicator 8.1a: Amount of vacant land zoned industrial.
Indicator 8.1b: Change in consumption of land zoned industrial.
Data years: 1999 and 2000. Source: Metro Data Resource Center.

Finding:

- *In 1999, there were 9,924 acres of vacant, industrial land available inside the UGB. In the year 2000, vacant, industrial land inside the UGB had decreased by 312 acres to 9,612 acres (a 3 percent decrease). Change in the amount of vacant industrial land can result from development of land currently zoned industrial and/or from rezoning.*

These indicators measure the amount of land zoned by local jurisdictions for industrial use and the rate of industrial land consumption. Data for these indicators was available for only two years, 1999 and 2000. A table showing the amount of industrial land by jurisdiction is included in Appendix H(1).

Changes in the amount of vacant industrial land can result from land zoned industrial being either consumed or rezoned. Decreases could result from actual absorption, and/or rezoning. It is important to point out that rezoning could mean zoning changes that add more land to the existing stock or take away land from the existing stock.

Note:
Vacant land zoned industrial or commercial is determined using aerial photography. Factors such as redevelopment potential, ownership, constraints, etc. are not considered when identifying vacant land.

Data Limitation

Much of the above analysis was taken from the December 1999 Regional Industrial Land Supply for the Portland-Vancouver Metropolitan Area prepared by OTAK. Tracking industrial land consumption is very difficult and there is no mechanism in place for capturing information on industrial land that is sold or resold.

Indicator 8.4a: Amount of vacant land zoned commercial.
Indicator 8.4b: Change in consumption of land zoned commercial.
Data years: 1999 and 2000. Source: Metro Data Resource Center.

Findings:

- *In 1999, there were 2,180 acres of vacant commercial land inside the UGB. In the year 2000, vacant commercial land inside the UGB decreased by 251 acres (a 12 percent decrease). Change in the amount of commercial land can result from consumption of land currently zoned industrial and/or from rezoning.*

Indicators 8.4a and 8.4b measure the amount of land zoned by local jurisdictions for commercial use and the rate of commercial land consumption. Data for these indicators was available for only two years, 1999 and 2000. A table showing the amount of vacant commercial land in the jurisdictions is included in Appendix H(2).

As stated earlier in Indicators 8.1a and 8.1b, change in the amount of vacant commercial land shown in the above table can result from consumption of land currently zoned commercial and/or from rezoning. It is important to point out that rezoning could mean zoning changes that add to or remove land from the existing stock.

Note:
Vacant land zoned industrial or commercial is determined using aerial photography. Factors such as redevelopment potential, ownership, constraints, etc. are not considered when identifying vacant land.

Data Limitation

Tracking commercial land consumption is very difficult and there is no mechanism in place for capturing information on land that is sold or resold. Hence, the data used for this report is based on snapshot sale information and zoning and rezoning information.

Indicator 8.2: Vacant buildable industrial land that is readily developable and served with public facilities and classified as Tier A in the 1999 Regional Industrial Land Supply Study.
Data year: 1999, 2000. Source: Regional Industrial Land Study, OTAK, Inc. (1999); Metro Data Resource Center (2000)

Finding:

- In 1999, approximately 2,387 acres (26 percent) of the 9,198 net acres of total buildable industrial land in the six-county Portland PMSA were classified as readily developable, or Tier A.
- Of the 1999 Tier A land, 972 acres (19 percent of the six-county total) were located in the tri-county area.
- In 2000, approximately 2,093 acres (32 percent) of the 6,517 acres of vacant buildable industrial land within the UGB was classified as readily developable, or as Tier A.
- Of the 2000 Tier A land, the majority of the parcels (518 acres or 25 percent) are 1-5 acre lots.

Indicator 8.3: Redevelopable buildable industrial land served with public facilities and classified as Tier D in the 1999 Regional Industrial Land Supply Study.
Data year: 1999, 2000. Source: Regional Land Study, OTAK, Inc. (1999); Metro Data Resource Center (2000).

Finding:

- In 1999, approximately 820 acres (9 percent) of the 9,198 net acres of total buildable industrial land in the six-county Portland PMSA were classified as redevelopable, or as Tier D.
- Of the 1999 Tier D land, 302 acres (3 percent) were located in the tri-county area.
- In 2000, approximately 623 acres (10 percent) of the 6,517 acres of vacant buildable industrial land within the UGB was classified as land with redevelopment potential, or Tier D.
- Of the 2000 Tier D land, the majority of the parcels (236 acres or 38 percent) are 1-5 acre lots.

Historically, Metro has measured the total supply of industrial land in the region, but has not quantified the land in terms of suitability of the sites. However, the 1999 Regional Industrial Land Study prepared by OTAK. Inc. employed a four-tier system (A, B, C and D) to categorize the supply of industrial land. The following is an explanation of the tier system:

- Tier A land is land without major development constraints.
- Tier B land is constrained by lack of public facilities, corporate ownership, soils, use constraints, brownfields or transportation access.

Tier C is land with infill sites smaller than one acre and "commercial valued" based on current property tax assessment records.

- Tier D land is considered to be land suited for redevelopment.

Tier A land is considered to be most available for use within a short time frame (less than five years) as a result of the availability of public infrastructure such as roads, streets, water, sewer, etc. Tier D land is considered to be land best suited for redevelopment and is constrained only by buildings, brownfields, and existing uses.

Table 8.2a is a product of the 1999 Regional Industrial Land Study and shows that in 1999, approximately 9,198 net acres of buildable industrial land were available in the six-county Portland PMSA. Approximately 2,387 acres (26 percent) of this supply were classified as Tier A. Of these Tier A acres, 972 (19 percent of the six-county total) were located in the tri-county area.

Approximately 820 acres of buildable industrial land available in the six-county area were classified as suited for redevelopment, or as Tier D land. Of this six-county supply, 302 acres were located in the tri-county area. Approximately 184 acres of the six-county supply were classified as Tier C, or as vacant infill sites that are commercially valued.

The remaining 5,807 acres of the six-county supply were classified as Tier B, the category for industrial sites that are considered to be constrained.

Table 8.2a: Buildable[19] Industrial Land Supply by Tier - Portland PMSA, 1999

County	Tier A	Tier B	Tier C	Tier D	Total	Percent
Clackamas	47	651	-	166	865	9%
Multnomah	442	1,960	87	83	2,572	28%
Washington	483	1,205	26	53	1,766	19%
Tri-County Subtotal	**972**	**3,816**	**113**	**302**	**5,203**	**56%**
Columbia	70	590	-	223	883	10%
Yamhill	-	238	-	5	243	3%
Oregon Counties Subtotal	**1,042**	**4,644**	**113**	**530**	**6,329**	**69%**
Clark County Total	1,345	1,163	71	290	2,869	31%
Total	**2,387**	**5,807**	**184**	**820**	**9,198**	**100%**

Source: Regional Industrial Land Study, 1999, OTAK, Inc.
Note: Measurements of industrial land are taken for the six-county Portland PMSA.

For Metro's 2002 Urban Growth Report, OTAK, Inc conducted an updated review of the vacant industrial land supply maps and the data was compiled by the Metro Data Resource Center. This 2002 update employed a refined methodology developed by the Metro Data Resource Center that is consistent with the Urban Growth Report methodology for calculating net vacant buildable land.

The updated effort included a review of draft vacant industrial land supply maps by real estate brokers, developers, economic development officials, city/county planners, and other industrial experts. This review resulted in 244 requested map changes due to: a) discrepancies between local and Metro interpretation of industrial land use zoning and comprehensive land use plan designations; b) new development that has occurred; c) zone changes; d) changes in property ownership; e) changes in infrastructure (provision of roads/utilities); and e) changes in local regulations of environmental features (i.e., natural resource overlay districts).

This review helped to better define the criteria for categorizing land by tier and yielded results that outside reviewers and Metro staff agreed were an improvement over the 1999 effort. The results are shown in Table 8.2b.

[19] Buildable land: The process of identifying buildable land begins with vacant land, then removes Title 3 land, government and church-owned land, platted lots and buffers of major utilities. The Industrial buildable land supply is then scrutinized by the local development community and local jurisdictional planners who may request that additional parcels be removed from the inventory because they are land banked, are steeply sloped, or are otherwise unsuitable for industrial development.

Table 8.2b: Buildable Industrial Land Supply by Tier and Lot Size – UGB, 2000

Tier*	Under 1 acre lot	1 to 5	5 to 10	10 to 25	25 to 50	50 to 100	100 + acre lot	Total	% Total
A	53	518	431	484	348	171	89	2,093	32%
B	67	789	678	760	769	149	-	3,212	49%
C	281	264	.45	-	-	-	-	590	9%
D	31	236	156	99	47	53	-	623	10%
Total	**432**	**1,807**	**1,309**	**1,343**	**1,164**	**373**	**89**	**6,517**	**100%**

Source: OTAK, Inc. as compiled by Metro Data Resource Center, 2000
Note: Net Acres include partially developed acres.

Table 8.2b shows that in 2000, approximately 32 percent (2,093 acres) of the 6,517 acres of vacant buildable industrial land within the UGB was classified as readily developable (Tier A), while 49 percent (3,212 acres) was classified as constrained by unstable soils, transportation access, farm tax deferral, etc. (Tier B). Approximately 10 percent (623 acres) of the 2000 supply was classified as land with redevelopment potential that is constrained by buildings, brownfields, or existing uses (Tier D). The remaining 9 percent (590 acres) consists of vacant infill sites greater than one-half acre in size and sites considered to be "commercially valued" (Tier C). Table 8.2b also shows that the region is facing a shortage of larger industrial lots.

The difference in Tier A land in 1999 (972 acres) and in 2000 (2,093 acres) can be attributed to the refinement of criteria in the 2002 update for classifying Tier A industrial land. The fluctuations in the supply of other industrial land categories are also likely the result of improved 2002 methodology. Additional years of data are needed to accurately assess trends in consumption.

Lot size data available in the 2000 update shows that the majority of Tier A land (518 acres) and the majority of Tier D land (236 acres) are composed of lots that are between 1 to 5 acres in size.

Mixed Use Land Supply

Purpose

To measure how much mixed use land is available in the region and how much has been developed and to compare these trends with regional goals for economic growth and stronger regional economy.

Summary

Policy

The 2040 Growth Concept called for the creation of 2040 Design Type areas that allow a mix of residential and commercial uses and allow for greater transportation efficiency. Local governments are rezoning 2040 areas that fall within their jurisdictions for a mix of uses.

Indicators

8.4d Amount of vacant land zoned mixed use.
Data years: 1998 and 2000. Source: Metro Data Resource Center.

- *The data shows that in 1998, a total of 5,024 acres of vacant mixed use land was available within the UGB. This number increased by approximately 232 acres (5 percent) to 5,256 acres in 2000.*

8.4e Change in consumption of land zoned mixed use. *(Required – Metro and State)*
Data years: 1998 and 2000. Source: Metro Data Resource Center.

- *The regional supply of vacant mixed use land increased by approximately 232 acres from 1998 to 2000. The supply of vacant mixed use land increased in eleven individual jurisdictions from 1998 to 2000, adding 709.3 acres to the regional supply. Twelve jurisdictions experienced a decrease in this same period and accounted for approximately 478 acres being removed from the regional supply. Four jurisdictions had zero acres of vacant mixed use land in both years for which data is available. One jurisdiction went from zero acres to 84 acres in this period.*

Survey Results of Local Officials and Planning Commissioners

✓ *Most important issues that should be addressed in the region:* Design of mixed use development (ranked 5 in frequently mentioned items).
✓ *Growth Accommodation: Type of growth that can be accommodated*: Mixed use development.
✓ *Top features for 2040 Centers:* 62 percent of the respondents said mixed use centers with retail and housing together.

Policy Rationale

The 2040 Growth Concept calls for the creation of a more compact urban form through the redevelopment and infill development of commercial and residential areas that many times correspond with existing commercial centers. These efforts are intended to increase the capacity of the Metro region in order to accommodate new population and employment, encourage a vibrant regional economy, make better use of existing infrastructure investment, minimize the impact on farm land, and to minimize vehicle miles traveled (VMT).

Title 1 of the Functional Plan requires local governments to adopt firm 2040 design types boundaries (See Indicators 1.1a, 1.1b and 1.1c). The code also requires local governments to adopt zoning in these areas that allows for and encourages a mix of land uses and the location of jobs, services and housing within close proximity of frequent transit service. Mixed use centers are the centerpiece of the 2040 Growth Concept and must successfully attract residential population and employment in order for the region's adopted vision of growth to be realized.

The 2040 Growth Concept relies on mixed use centers to concentrate transportation and other infrastructure, and provide greater opportunities for housing and employment. Mixed use centers are therefore expected to allow for a flexible and vibrant concentration of businesses that might not exist in areas that are zoned strictly for commercial use. The type and number of jobs locating in 2040 centers allows for the assessment of whether employment opportunities are developing as envisioned.

In order to accommodate the mixed use 2040 design types, many local governments found it necessary to develop new zoning overlays or rezone existing areas for a mix of commercial and residential uses. Many local governments had zoning overlays that allowed a mix of uses while others did not and were required to adopt new mixed use zones. (See Indicators 8.1a and 8.1b for related policy rationale.)

Data Analysis

Indicator 8.4d: Amount of vacant land zoned mixed use.
Data years: 1998 and 2000. Source: Metro Data Resource Center.

Finding:

- *The data shows that in 1998, a total of 5,024 acres of vacant mixed use land was available within the UGB. This number increased by approximately 232 acres (5 percent) to 5,256 acres in 2000.*

Indicator 8.4e: Change in consumption of land zoned mixed use.
Data years: 1998 and 2000. Source: Metro Data Resource Center.

Finding:

- *The regional supply of vacant mixed use land increased by approximately 232 acres from 1998 to 2000. The supply of vacant mixed use land increased in eleven individual jurisdictions from 1998 to 2000, adding 709.3 acres to the regional supply. Twelve jurisdictions experienced a decrease in this same period and accounted for approximately 478 acres being removed from the regional supply. Four jurisdictions had zero acres of vacant mixed use land in both years for which data is available. One jurisdiction went from zero acres to 84 acres in this period.*

These two indicators measure the amount of vacant land that falls within areas zoned for mixed use. Mixed use zones are those which allow both residential and commercial uses. This information is presented for each jurisdiction, and for the entire region in Table 8.4d/e which appears in Appendix H(3).

Most local governments in the region have taken steps to provide a supply of mixed use land in one form or another. Some governments have created new, "mixed use" zones while other jurisdictions have rezoned existing commercial or residential areas to allow a mix of uses. The data that was used to calculate these figures attempts to capture the diverse approach that local governments are taking to provide mixed use opportunities. This data was gathered by generalizing into categories all local zoning that meet the definition of mixed use. ***Note: This methodology may not capture high density residential zones that also allow commercial uses or areas where commercial and residential zones are so close together that the area essentially allows a mix of uses.***

The data shows that in 1998, a total of 5,024 acres of vacant mixed use land was available within the UGB. Six jurisdictions had between 1 and 50 acres of mixed use land. Five jurisdictions had between 50 and 100 acres of vacant mixed use land. Ten jurisdictions had between 100 and 999 acres of vacant mixed use land and one jurisdiction had more than 1,000 acres. In 1998, five jurisdictions had no vacant mixed use land. A table showing the amount of vacant mixed use land in the jurisdictions is included in the Appendix H(3).

By the year 2000, the amount of vacant mixed use land in the UGB had increased to 5,256 acres. Seven jurisdictions had between 1 and 50 acres of mixed use land. Six jurisdictions had between 50 and 100 acres of vacant mixed use land. Nine jurisdictions had between 100 and 999 acres of vacant mixed use land and one jurisdiction had more than 1,000 acres (a different jurisdiction than in 1998). Four jurisdictions had no mixed use land.

It is important to note that four of the 27 jurisdictions in the Metro region do not host a 2040 mixed use area. Also, a number of the remaining 23 local governments continue work on rezoning their 2040 mixed use areas.

In subsequent years, this indicator may prove more accurate as a method for calculating each jurisdiction's mixed use acreage becomes more refined. Additionally, future evaluations of the regional supply of mixed use land will allow local governments the opportunity to finish work on rezoning mixed use centers and will better reflect the implemented 2040 Growth Concept.

Employment

Purpose

Acknowledging that enhanced livability is tied very closely to a strong regional economy, the purpose of this section is to measure regional trends.

Summary

Policy

Metro's RUGGOs, Regional Framework Plan and 2040 Growth Concept recognize the relationship between enhanced livability and a strong regional economy that is powered by diverse employment sectors. Although Metro takes the region's employment situation into account as it considers amendments to the UGB to accommodate a 20-year land supply, it is not within Metro's authority to require that either employment or housing locate in any specific area.

Indicators

8.5a Regional employment growth. (Required – Metro and State)
Data years: 1990 to 2000. Source: Bureau of Labor Statistics.

- *Between 1990 and 2000, total employment in the Portland PMSA increased by 34.2 percent, or by 244,500 jobs. Total employment in the region in 1990 consisted of 715,000 jobs, and by 1990 this number had increased to 959,700.*

8.5b Regional employment growth by sector. (Required – Metro and State)
Data years: 1990 to 2000. Source: Bureau of Labor Statistics.

- *In the Portland PMSA, the non-manufacturing sector experienced more rapid growth than the manufacturing between 1990 and 2000. Non-manufacturing sector jobs increased by 221,900 (or roughly 37 percent) from 1990 to 2000 while manufacturing jobs increased from 121,700 to 144,400 (or roughly 19 percent).*

- *Of manufacturing jobs, the high-tech sub-sector was the biggest employer in 2000 and showed the greatest percent increase from 1990 to 2000 (+46 percent). Of non-manufacturing jobs, the Services & Ag., Forestry, Fishing sub-sector was the biggest employer in 2000 and showed the greatest percent increase from 1990 to 2000 (+51 percent).*

8.5d Regional employment growth by industry by county. (Required – Metro and State)
Data years: 1990 to 2000. Source: Metro Data Resource Center and the Bureau of Economic Analysis.

- *Of the 1,164,696 jobs in the four-county region in 2000, 48 percent (563,093 jobs) were located in Multnomah County, 15 percent (175,015 jobs) were located in Clackamas County, Clark County accounted for 23 percent (269,909 jobs) and Washington County 13 percent (156,679 jobs).*
- *The service sector was the largest employer in the four-county area in 2000 (371,398 jobs or 32 percent). Of the service sector jobs, 42 percent were located in Multnomah County and 23 percent in Washington County.*
- *The retail sector was the second largest employer (206,099 jobs or 18 percent) in the four counties. In Washington County, retail sector jobs (50,773 jobs) were about the same as manufacturing sector jobs (50,699 jobs) in 2000.*
- *The manufacturing sector was the third largest employer (126,561 jobs or 11 percent) in the same year, except in Multnomah County where state and local government jobs slightly outnumbered manufacturing sector jobs.*

8.6 Regional unemployment rate.
Data years: 1990-2000. Source: Metro Data Resource Center.

- *The unemployment rate in the Portland PMSA has followed national trends and stayed consistently below the U.S. unemployment rate, with the exception of 1999. Unemployment in the PMSA was at its highest in 1992 (6.4 percent) and at its lowest in 1995 (3.7 percent). Note: This data is through 2000 and does not include recession of 2001.*

Survey Results of Local Officials and Planning Commissioners

✓ Most important issues that should be addressed in the region*: 25 percent said jobs were among the most important issues.*

Policy Rationale

Many of Metro's growth management policies have an indirect impact on the economy of the region. Maintaining a relationship between enhanced livability and a strong regional economy is a theme that appears in the Future Vision Document, the RUGGOs, the 2040 Growth Concept and the Regional Framework Plan. One indicator of the health of the regional economy is the growth of various employment sectors and the rate of combined employment growth.

The Future Vision document, the RUGGOs and the Regional Framework Plan state that Metro should encourage a diversification of the regional economy and the creation of family-wage jobs. Metro policy documents stress that diversified employment opportunities contribute to a strong and stable regional economy that is less reliant on relatively few large businesses.

As Metro complies with state requirements to assess the amount of land that is needed to accommodate a 20-year supply, the RUGGOs and the Regional Framework Plan stress that Metro should identify regional and sub-regional target sectors. These target sectors should broaden and diversify the region's economic base while providing jobs that pay family-level wages or better.

A fundamental of the 2040 Growth Concept is the goal of achieving a balance of employment and housing in centers and in larger regional sub areas. By locating employment near housing (or vice versa) transportation trips are likely to remain local and become more multi-modal. The Regional Framework Plan explains that a balance of jobs and housing will provide for a more equitable distribution of income, create additional investment and tax capacity throughout the region, and support other regional goals and objectives including affordable housing.

Data Analysis

Indicator 8.5a: Regional employment growth.
Data years: 1990 to 2000. Source: Bureau of Labor Statistics.

Finding:

- *Between 1990 and 2000, total employment in the Portland PMSA increased by 34.2 percent, or by 244,500 jobs. Total employment in the region in 1990 consisted of 715,000 jobs, and by 1990 this number had increased to 959,700.*

This indicator measures employment growth in the five-County Portland-Vancouver Primary Metropolitan Statistical Area (PMSA) which includes Multnomah, Clackamas, Washington, Clark and Yamhill Counties. The highest year to year employment increases from 1990 to 2000 occurred from 1993 to 1994, 1994 to 1995, and 1995 to1996 (5 percent each year).

Table 8.5a: Regional Employment Growth

Five-County Portland PMSA (Multnomah, Clackamas, Washington, Clark and Yamhill Counties)					
	Manufacturing		Non-Manufacturing		
Year	Jobs	Percent of Total	Jobs	Percent of Total	Total Employment
1990	121,700	17.0%	593,500	83.0%	715,200
1991	119,800	16.7%	597,700	83.3%	717,500
1992	118,900	16.3%	612,600	83.7%	731,500
1993	121,900	16.1%	635,900	83.9%	757,800
1994	126,700	16.0%	665,600	84.0%	792,300
1995	134,900	16.2%	695,600	83.8%	830,500
1996	139,200	16.0%	730,100	84.0%	869,300
1997	145,000	16.0%	761,900	84.0%	906,900
1998	147,000	15.9%	776,000	84.1%	923,000
1999	142,900	15.3%	792,800	84.7%	935,700
2000	144,400	15.0%	815,400	85.0%	959,700
1990-2000 Increase	**22,700**		**221,900**		**244,500**
1990-2000 % Increase	**18.7%**		**37.4%**		**34.2%**

Source: BLS 790 series (and Data Resource Center)

Data Limitation

Data is available for the entire Portland PMSA only, and is not specific to just the Metro region.

Indicator 8.5b: Regional employment growth by sector.
Data years: 1990 to 2000. Source: Bureau of Labor Statistics.

Finding:

- *In the Portland PMSA, the non-manufacturing sector experienced more rapid growth than the manufacturing sector between 1990 and 2000. Non-manufacturing sector jobs increased by 221,900 (or roughly 37 percent) from 1990 to 2000 while manufacturing jobs increased from 121,700 to 144,400 (or roughly 19 percent).*

- *Of manufacturing jobs, the high-tech sub-sector was the biggest employer in 2000 and showed the greatest percent increase from 1990 to 2000 (+46 percent). Of non-manufacturing jobs, the Services & Ag., Forestry, Fishing sub-sector was the biggest employer in 2000 and showed the greatest percent increase from 1990 to 2000 (+51 percent).*

The "percent of total" columns in Table 8.5a show the percent of manufacturing and non-manufacturing employment that accounted for total regional employment in a given year. For example, in 1990 17 percent of non-farm jobs were in the manufacturing sector and the remaining 83 percent were in non-manufacturing. This data reveals a decreasing trend in the percent of jobs in manufacturing and an increasing trend in the non-manufacturing sector over a 10-year period. The data seems to indicate that this trend will continue in the near future and that more of the region's resources and jobs will be dedicated to the non-manufacturing sector of the economy.

Local economic trends are affected by national and international factors in addition to local policy. Table 8.5b shows the regional employment by sector in the five-county Portland PMSA from 1990 to

2000. Like Table 8.5a, this table categorizes all jobs as either manufacturing or non-manufacturing and groups jobs by specific industry within these headings. The values represent thousands of jobs in each industry by year. For instance, in 1990 there were 9,900 (9.9 thousand) jobs in food processing. The majority of jobs represented by this data are in the non-manufacturing sector. The non-manufacturing industry experienced more rapid growth than did manufacturing in the 10 years in which data was collected.

Table 8.5b Regional Employment by Sector (in thousands)

Five-County Portland PMSA (Multnomah, Clackamas, Washington, Clark and Yamhill Counties)											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Manufacturing	(in 1000s)										
Food Processing	9.9	9.9	9.7	9.7	9.8	10.1	10.0	9.8	9.7	9.1	8.2
Textile and Apparel	4.8	4.7	4.6	4.8	5.0	4.9	4.6	4.4	4.3	3.8	3.4
Lumber and Wood Products	9.3	8.2	7.8	7.9	7.9	7.8	7.7	8.1	7.9	7.5	7.3
Paper Products	7.2	6.8	6.9	7.0	7.1	7.1	6.5	6.3	6.3	6.1	6.0
Printing and Publishing	8.7	9.6	9.6	9.9	10.0	10.2	9.9	10.1	10.4	10.8	11.0
Metals	18.3	17.1	16.5	16.1	17.1	18.6	19.0	19.8	20.6	20.2	20.3
High-Tech	40.1	40.5	39.9	41.7	44.2	49.4	54.2	58.0	58.9	56.0	58.6
Transportation Equipment	10.2	10.0	10.1	10.2	10.2	10.6	10.4	11.1	12.2	13.1	13.2
Other Durable Mfg.	7.5	7.2	7.4	7.9	7.9	8.2	8.1	8.3	8.2	8.3	8.5
Other Non-durable Mfg.	5.8	5.9	6.4	6.8	7.6	8.1	8.8	9.0	8.5	8.0	7.9
Manufacturing Subtotal	121.7	119.8	118.9	121.9	126.7	134.9	139.2	145.0	147.0	142.9	144.4
Non-Manufacturing											
Construction & Mining	36.3	35.3	33.7	35.2	40.1	45.0	51.5	54.5	53.8	52.8	53.1
Transport., Comm. & Utilities	41.6	42.0	42.5	43.3	44.9	47.8	49.4	51.7	53.1	54.2	56.6
Wholesale Trade	55.2	55.4	55.5	56.6	59.6	61.8	63.6	67.9	68.9	67.5	68.5
Retail Trade	128.2	128.6	130.9	134.8	142.1	147.0	153.1	157.6	160.1	164.9	170.2
FIRE	52.1	53.8	55.6	59.0	61.1	59.8	63.0	66.3	66.7	66.2	65.6
Services + Ag., Forestry, Fishing	182.2	182.1	190.3	201.9	211.7	226.1	238.0	250.9	257.7	266.5	274.8
Government, State	79.9	82.8	85.8	86.9	88.6	90.6	93.9	95.1	97.9	103.1	108.2
Government, Federal	18.1	17.7	18.3	18.1	17.6	17.6	17.5	17.8	17.9	17.6	18.4
Non-manufacturing Subtotal	593.5	597.7	612.6	635.9	665.6	695.6	730.1	761.9	776.0	792.8	815.4
Total Employment	715.2	717.5	731.5	757.8	792.3	830.5	869.3	906.9	923.0	935.7	959.7

Source: BLS 790 series

Although employment in some manufacturing sub sectors such as food processing, textile and apparel, and lumber and wood products decreased over this period, other manufacturing sub sectors experienced an increase in the number of jobs. This resulted in an overall increase in manufacturing jobs from 121,700 to 144,400 between 1999 and 2000, which is an approximately 19 percent net increase during the period. The high-tech sector was the dominant manufacturing sub-sector during this period.

All non-manufacturing sub sectors, shown in the bottom section of the table, experienced positive job growth. Construction, mining and services accounted for the largest increases in percentage terms. The combined increase in non-manufacturing jobs between 1990 and 2000 was 221,900 jobs, or 37 percent. Together, the manufacturing and non-manufacturing sectors of the economy constitute the total non-farm wage and salary employment categories. Total growth in number of jobs in non-farm

wage and salary employment was 244,500, almost entirely due to the strength of the non-manufacturing sector.

Positive job creation over time is a sign of a healthy and flexible economy, which ultimately contributes to a higher quality of life in the Metro region. More importantly, job creation in industries that pay family wage jobs encourages a strong regional economy and ultimately a more livable region.

Indicator 8.5d: Regional employment growth by industry by county.
Data years: 1990 to 2000. Source: Metro Data Resource Center and the Bureau of Economic Analysis.

Finding:

- *Of the 1,164,696 jobs in the four-county region in 2000, 48 percent (563,093 jobs) were located in Multnomah County, 15 percent (175,015 jobs) were located in Clackamas County, Clark County accounted for 23 percent (269,909 jobs) and Washington County 13 percent (156,679 jobs).*
- *The service sector was the largest employer in the four-county area in 2000 (371,398 jobs or 32 percent). Of the service sector jobs, 42 percent were located in Multnomah County and 23 percent in Washington County.*
- *The retail sector was the second largest employer (206,099 jobs or 18 percent) in the four counties. In Washington County, retail sector jobs (50,773 jobs) were about the same as manufacturing sector jobs (50,699 jobs) in 2000.*
- *The manufacturing sector was the third largest employer (126,561 jobs or 11 percent) in the same year, except in Multnomah County where state and local government jobs slightly outnumbered manufacturing sector jobs.*

This indicator measures job growth and economic activity by county. Appendix H(4) includes a table that displays employment growth by various industries from 1990 to 2000 in Multnomah, Clackamas and Washington Counties and in Clark County, Washington. The final column of the table highlights the percent change in employment by industry.

Of the 1,164,696 jobs in the four-county region in 2000, Multnomah County had the greatest number of jobs (563,093 or 48 percent of the four-county region) due to the concentration of employment in downtown Portland. Overall, Multnomah County saw roughly a 23 percent increase in employment in the decade. In 2000, the share of the regional employment in Clackamas County was 15 percent (175,015), Clark County accounted for 23 percent (269,909), and Washington County 13 percent (156,679).

The service sector was the largest employer in all counties in 2000 with 371,398 or 32 percent. The service sector experienced the most significant increase by sector during the 1990-2000 period which resulted in 116,150 additional jobs. Nearly 50,000 (or 42 percent) of the service sector jobs were located in Multnomah County and 23 percent in Washington County.

The retail sector was the second largest employer in all counties in 2000 with 206,099 jobs. The manufacturing sector was the third largest employer (11 percent) in the same year, with the exception of Multnomah County where state and local government jobs slightly exceeded that of the manufacturing sector. About 43 percent of all the retail sector jobs were located in Multnomah County in 2000 and 50,773 retail sector jobs and 50,699 manufacturing jobs were provided in Washington County.

During this period, the agriculture sector, the forestry and fishing sector, transportation, communications and public utilities, and construction and retail sectors grew rapidly in all counties. Slow or negative growth occurred in the federal government sectors (civilian and military) in the four counties.

Data Limitation

Data available only for the four-county region and is not specific to the Metro region.

Indicator 8.6: Regional unemployment rate.
Data years: 1990-2000. Source: Metro Data Resource Center.

Finding:

- *The unemployment rate in the Portland PMSA has stayed followed national trends and consistently below the U.S. unemployment rate, with the exception of 1999. Unemployment in the PMSA was at its highest in 1992 (6.4 percent) and at its lowest in 1995 (3.7 percent).*

This indicator compares unemployment in the five-county Portland PMSA with national trends. As mentioned earlier, one indicator of the health of the regional economy is the rate of combined employment growth. Another sign of the health of the regional economy is the unemployment rate.

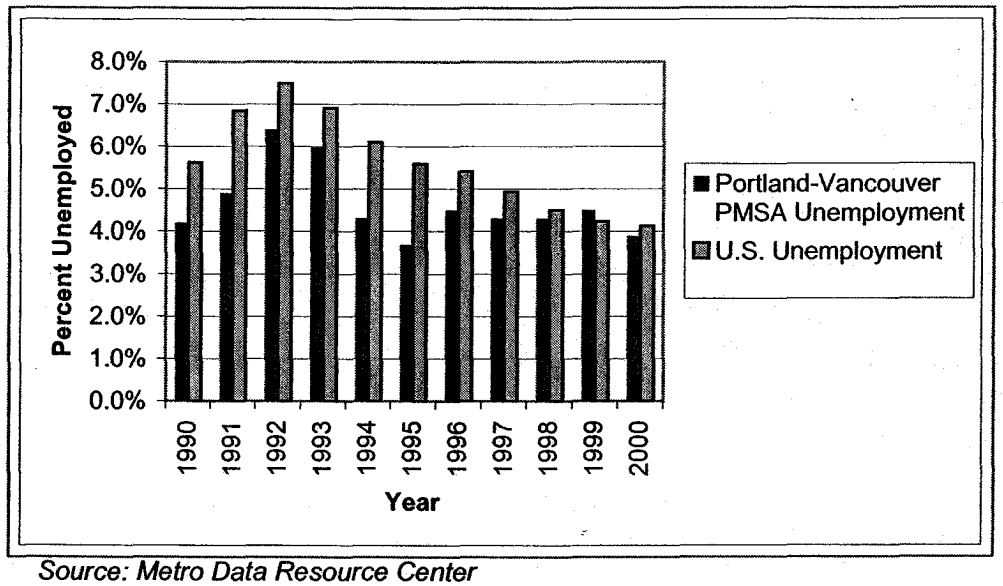
Table and Figure 8.6 show that the Portland region's unemployment rate has stayed consistently below the U.S. unemployment rate, with the exception of 1999. Generally speaking, the unemployment rate in the Portland region has followed national trends. Unemployment in the region was at its highest in 1992 when it reached 6.4 percent and at its lowest in 1995 when it dropped to 3.7 percent.

Table 8.6: Regional Unemployment Rate

Portland PMSA		
Year	**Percent**	**U.S Unemployment Rate**
1990	4.2%	5.6%
1991	4.9%	6.9%
1992	6.4%	7.5%
1993	6.0%	6.9%
1994	4.3%	6.1%
1995	3.7%	5.6%
1996	4.5%	5.4%
1997	4.3%	4.9%
1998	4.3%	4.5%
1999	4.5%	4.2%
2000	3.9%	4.1%

Source: Metro Data Resource Center

Figure 8.6 - Unemployment Rate in the Portland PMSA - 1990-2000



Source: Metro Data Resource Center

The regional economy has shown signs of vibrancy in the past decade. Positive job creation over time is a sign of a healthy and flexible economy and ultimately contributes to a higher quality of life in the Metro region.

Data Limitation

Data available only for the Portland PMSA, and not specific to the Metro region.

Important Note:
The regional employment capture rate analyzed in Indicator 1.1b, is closely related to other indicators analyzed in this section, however this indicator was analyzed in Fundamental 1. The reader should therefore refer to the analysis of Indicator 1.1b for the results of this measure.

Income

Purpose

To measure increases and/or decreases in regional wages and compare them with national trends.

Summary

Policy

The Future Vision document, RUGGOs and the Regional Framework Plan state that Metro should encourage a diversification of the regional economy and the creation of family wage jobs. Metro policies stress that diversified employment opportunities contribute to a strong and stable regional economy that is less reliant on a few large employers. Although Metro takes the region's employment situation into account as it considers the amendment of the UGB to accommodate a 20-year land supply, Metro's authority related to the regional economy and indicators such as income is very limited.

Indicator

8.7 Income Growth, per capita income, and wage rates by industry.
Data years: 1990 to 2000. Source: Bureau of Economic Analysis, U.S. Census and PSU.

- *Data for the period of time from 1990 to 2000 shows that total personal income in the Portland-Vancouver four county area (SMSA) increased by 49 percent. National rates of personal income during the same 10-year period increased by 41 percent. In 1990, the three industries paying the highest hourly wage rates in the Portland-Vancouver four-county area were paper and pulp products ($14.20 per hour), printing and publishing ($13.38 per hour) and primary metals ($11.93 per hour).*

Policy Rationale

See Indicators 8.5a, b, c and 8.6 for detail explanation of policy rationale.

Data Analysis

Indicator 8.7: Income Growth, per capita income, and wage rates by industry.
Data years: 1990 to 2000. Source: Bureau of Economic Analysis, U.S. Census and PSU.

Finding:

- *Data for the period of time from 1990 to 2000 shows that total personal income in the Portland-Vancouver four county area (SMSA) increased by 49 percent. National rates of personal income during the same 10-year period increased by 41 percent. In 1990, the three industries paying the highest hourly wage rates in the Portland-Vancouver four-county area were paper and pulp products ($14.20 per hour), printing and publishing ($13.38 per hour) and primary metals ($11.93 per hour).*

This indicator compares income and wages in the region with national trends over a 10-year period. The data collected shows that between 1990 and 2000, total personal income in the Portland SMSA grew from $29 billion to $57.8 billion, representing a 49 percent increase. National rates of personal income during the same 10-year period increased by 41 percent.

In the period from 1990 to 2000, the per capita income in the Portland SMSA and the nation both increased by 35 percent. In this same period, the population in the Portland SMSA increased by 21 percent, while the national population increased by only 9 percent.

Data from 1990 shows that the three industries paying the highest hourly wage rates in the Portland-Vancouver four-county area were paper and pulp products ($14.20), printing and publishing ($13.38), and primary metals ($11.93). The data for 1990 showed that nationally, the top three highest paying industries were primary metals ($12.92), paper/pulp products ($12.31), and machinery ($11.77). In 2000, the industries paying the highest wages in the Portland SMSA were paper and pulp products ($19.47), machinery ($17.14), and printing and publishing ($16.11). Nationally, the three highest paying industries in 2000 were primary metals ($16.48), paper and pulp products ($16.18), and machinery ($15.53).

Table 8.7 shows that in this 10-year period, the greatest percentage increases in wage by manufacturing industry in the Portland SMSA occurred in textile products (55 percent), machinery (35 percent) and apparel (33 percent). Nationally, the three industries supporting the largest wage increases in this period were textile products (27 percent), apparel (27 percent), and furniture and fixtures (27 percent).

Table 8.7a – Personal Income, per capita income, and wage rates by industry in the Portland SMSA

Portland SMSA (four-county)	1990	2000	Percent Increase
Personal Income (in thousands)[1]	$29,452,976	$57,753,020	49%
Population [2]	1,412,344	1,789,457	21%
Per capita income [3]	$20,854	$32,274	35%
Hourly Wage Rates (Portland SMSA) [4]			
Food Processing	$11.10	$13.81	20%
Textile Products	$6.99	$15.57	55%
Apparel	$6.98	$10.36	33%
Lumber and Wood Products	$10.71	$13.56	21%
Furniture and Fixtures	$10.33	$14.39	28%
Paper and Pulp Products	$14.20	$19.47	27%
Printing and Publishing	$13.38	$16.11	17%
Primary Metals	$11.93	$15.36	22%
Fabricated Metals	$11.04	$14.47	24%
Machinery	$11.11	$17.14	35%
Manufacturing, all	$11.38	$15.44	26%

Source:
1.Bureau of Economic Analysis (BEA), Regional Economic Information System, May 1998. (year 2000 model estimate simulation by Metro DRC).
2.U.S. Census Bureau, 1990 and 2000 decennial census, STF1 and SF1
3. BEA and US Census as compiled by Metro DRC.
4. State of Oregon Employment Department, Research and Statistics Division, Average Hourly Earnings Report.
Note: Non-Manufacturing sector data is currently unavailable.

Table 8.7b: Personal Income, per capita income, and wage rates by industry in USA and Portland SMSA

United States	1990	2000	Percent Increase
Personal Income (in billions)	$4903.23	$8296.21	41%
Population (in millions)	249.44	274.52	9%
Per capita income	$19,657	$30,221	35%
Hourly Wage Rates (Portland SMSA)			
Food Processing	$9.61	$12.36	22%
Textile Products	$8.02	$10.95	27%
Apparel	$6.57	$9.06	27%
Lumber and Wood Products	$9.08	$11.79	23%
Furniture and Fixtures	$8.52	$11.73	27%
Paper and Pulp Products	$12.31	$16.18	24%
Printing and Publishing	$11.24	$14.26	21%
Primary Metals	$12.92	$16.48	22%
Fabricated Metals	$10.83	$13.79	21%
Machinery	$11.77	$15.53	24%
Manufacturing, all	$10.83	$14.33	24%

Source: Federal Bureau of Economic Analysis, US Census, and Federal Bureau of Labor Statistics data as compiled by DRI-WEFA, a Global Insight Co.
Note: The complete data tables for this indicator are available in the Appendix. H(5).

Data Limitation

Data available only for the Portland SMSA, and is not specific to the Metro region. Non-manufacturing sector hourly wage rates for the Portland PMSA not available.

Real Estate

Purpose

To use home sales figures and data on the amount of new residential building permits to assess the general economic health of the region.

Summary

Policy

The Regional Framework Plan recognizes that economic trends are largely cyclical and driven predominantly by national and international factors. Metro's role in contributing to a strong regional economy is primarily focused on providing a sufficient supply of housing and employment land and maintaining the livability of the region.

Indicators

8.8 Building permits (single family residential and multi-family residential total). (Required – Metro)
Data years: 1990 to 2000. Source: U.S. Census.

- *From 1990 to 2000, Clackamas County issued a total of 19,450 building permits for single family residential units. Multnomah County permitted 16,995, and Washington County permitted 34,763 single family units in this period.*
- *During the same period, Clackamas County issued a total of 9,597 building permits for multi-family residential units. Multnomah County permitted 16,918, and Washington County permitted 18,092 multi-family units in this period.*
- *A total of 71,208 single family residential units and 44,607 multi-family residential units were permitted from 1990 to 2000 by Clackamas, Multnomah and Washington Counties.*

8.10 Number of home sales. (Required – Metro)
Data years: 1990 to 1998. Source: Metro Data Resource Center.

- *Between 1990 and 2001, an estimated average of 21,313 single family homes were sold annually in the tri-county area.*
- *In this period single family home sales increased in spurts that followed no particular pattern. The largest one-year percent increases occurred from 1992 to 1993 (10.2 percent) and 1997 to 1998 (9.7 percent).*

Policy Rationale

Policies contained in the Future Vision document, the RUGGOs, the Regional Framework Plan and the 2040 Growth Concept direct Metro to maintain a broad-range of housing types that are affordable to citizens of all income levels. *(See also related policy rationale for Indicators 1.2a, 1.2b, 1.2c, 1.2f, 6.1a, 6.1b and 6.2.)*

Title 1 of the Functional Plan requires local governments in the Metro region to take a number of steps to maximize land use efficiency. Table 3.07 – 1 of the Functional Plan set target capacities for housing and employment for jurisdictions to achieve by 2017. Although Title 1 requires local jurisdictions to adopt minimum density standards to use urban land more efficiently, local governments are granted flexibility in meeting their target capacities for residential units. Nothing in any of Metro's policies or

regulations specifies that local governments must accommodate expected growth with a certain percentage of either single family or multi-family housing.

Data Analysis

Indicator 8.8: Building permits (single family residential and multi-family residential total).
Data years: 1990 to 2000. Source: U.S. Census.

Findings:

- *From 1990 to 2000 Clackamas County issued a total of 19,450 building permits for single family residential units. Multnomah County permitted 16,995, and Washington County permitted 34,763 single family units in this period.*
- *During the same period, Clackamas County approved a total of 9,597 building permits for multi-family residential units. Multnomah County permitted 16,918, and Washington County permitted 18,092 multi-family units in this period.*
- *A total of 71,208 single family residential units and 44,607 multi-family residential units were permitted from 1990 to 2000 by Clackamas, Multnomah and Washington Counties.*

This indicator measures the demand for housing and the health of the residential construction industry. Between 1990 and 2000, Clackamas County permitted an average of 1,768 single family residential units each year. Multnomah County permitted an average of 1,545 single family residential units and Washington County permitted an average of 3,160 units per year.

Table 8.8: Single family residential and multi-family residential building permits in the tri-county area (1990-2000)

County	SFR units permitted (1990-2000)	Average SFR units permitted per year	MFR units permitted (1990-2000)	Average MFR units permitted per year	Total Residential units permitted (1900-2000)	Average of total residential units permitted per year
Clackamas	19,450	1,768	9,597	872	29,047	2,641
Multnomah	16,995	1,545	16,918	1,538	33,913	3,083
Washington	34,763	3,160	18,092	1,645	52,855	4,805

Source: Metro Data Resource Center

Between 1990 and 2000, Clackamas County permitted an average of 872 multi-family residential units each year. Multnomah County permitted an average of 1,538 multi-family residential units and Washington County permitted an average of 1,645 multi-family residential units per year.

The data shows that the number of single family residential units permitted each year for all three counties was less prone to fluctuation than multi-family residential permits. The largest one-year percentage increase in single family units permitted occurred in Clackamas County (+16 percent) and Multnomah County (+19 percent) in 1996. The greatest one-year percentage increase in single family residential units permitted in Washington County occurred in 1992 (+25 percent). The largest one-year percentage decreases in single family residential permits for Clackamas County occurred in 1995 (-17 percent) and the greatest percentage decreases in Multnomah County occurred in 1995 and 1997 (both -11 percent). From 1990 to 1991, Washington County single family permits decreased by 25 percent.

Figure 8.8a(1) Single Family Residential Building Permits by County, 1990-2000

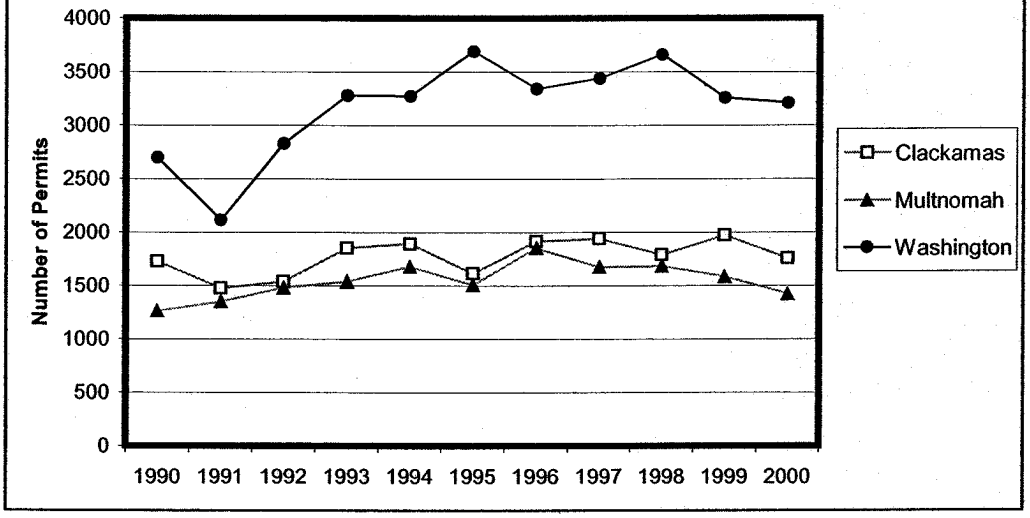
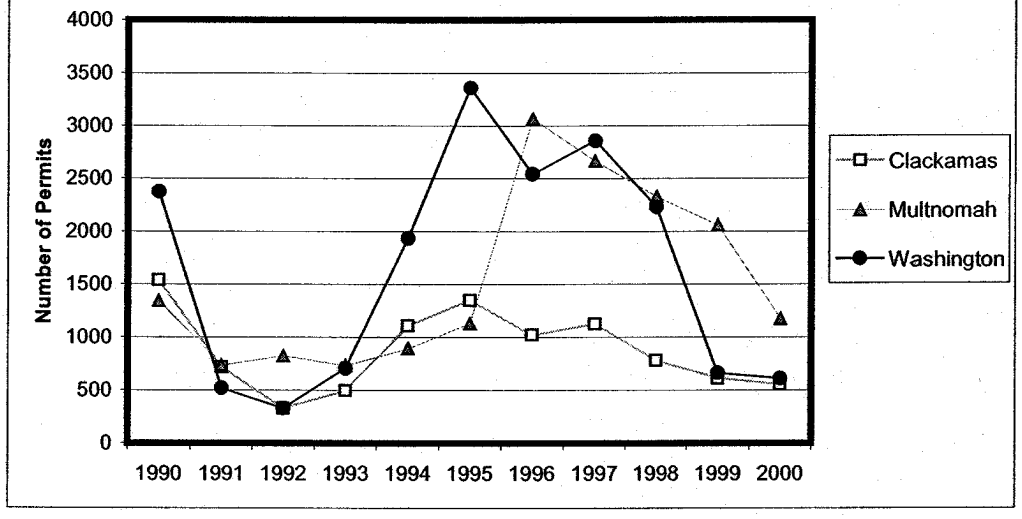


Figure 8.8a(2) Multi Family Residential Building Permits by County, 1990-2000



Multi-family residential permits for all counties experienced more dramatic percentage increases and decreases from year to year in the 11-year period for which data is available. Multnomah County multi-family residential permits in 1996 increased 55 percent from the previous year. Clackamas County and Washington County multi-family residential permits increased 55 percent and 64 percent, respectively, from the previous year. The largest single-year decreases occurred in 1991 for Clackamas County (-29 percent), Multnomah County (-66 percent) and Washington County (-399 percent).

Indicator 8.10: Number of home sales (single family dwellings only)
Data years: 1990 to 1998. Source: Metro Data Resource Center.

Finding:

- *Between 1990 and 2001, an estimated average of 21,313 single family homes were sold annually in the tri-county area.*
- *In this period single family home sales increased in spurts that followed no particular pattern. The largest one-year percent increases occurred from 1992 to 1993 (10.2 percent) and 1997 to 1998 (9.7 percent).*

This indicator measures general regional economic health. Between 1990 and 2001 as estimated 234,446 homes were sold in the tri-county area. Home sales data is not available for 1991 and for this reason trend analysis is difficult for 1990-1993.

Table 8.10 - Number of Home Sales[20]

Year	Number of Sales (Estimated)	Percent Annual Change
1990	15,263	N/A
1991	N/A	N/A
1992	17,839	N/A
1993	19,659	10.2%
1994	20,844	6.0%
1995	20,675	-0.8%
1996	22,535	9.0%
1997	22,556	0.1%
1998	24,751	9.7%
1999	23,847	-3.7%
2000	22,252	-6.7%
2001	24,225	8.9%
Total 1990-2001	234,446	

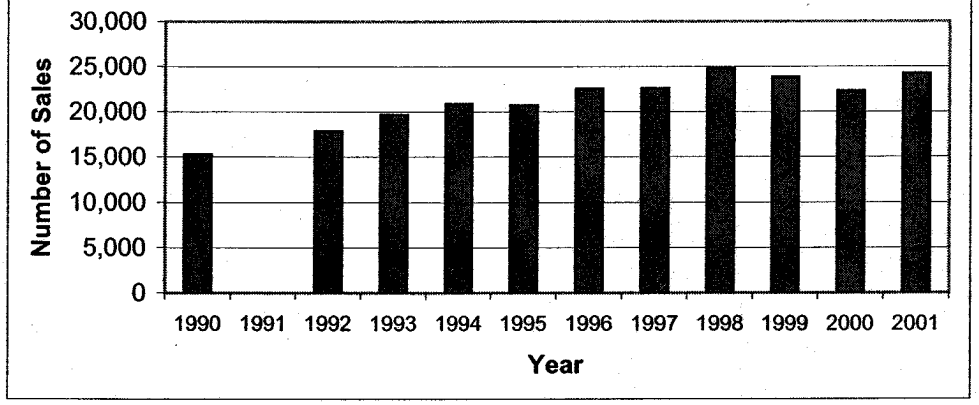
Source: Oregon Title Insurance Company
Note: Figures represent single family dwellings only (SFD)

[20] ❒ Oregon Title Insurance Company home sales data for 1990 to 1999 includes Clackamas, Columbia, Multnomah, Washington and Yamhill Counties. (The data is not disaggregated by county) Figures for 1990 to 1999 are estimates based on subtracting an average of 1,600 home sales per year for Columbia and Yamhill Counties. This figure is based on Oregon Title Insurance estimates of between 1,500 and 1,700 home sales per year for these counties.

❒ Note: Clark County, Washington home sales are not included.

❒ 1991 was the year that the multiple listing services changed from Oregon Multiple Listing Service to Residential Multiple Listing Service and records were very inaccurate.

Figure 8.10: Number of Single Family Home Sales in the Tri-County area (1990-2001)



Source: Metro Data Book; Oregon Title Insurance Company

Land Price

Purpose

To assess the trend of residential, commercial and industrial land price changes.

Notes about data source:
The analysis provided in this section is based on data published in the Urban Land Institute's Market Profile 2000. This publication was discontinued in 2000. Another source of data was the Real Estate Transactions Journal published by the PGP Valuation Inc. This publication was also discontinued. Data limitations will make it almost impossible to update this indicator in the future unless Metro or another group engages in land price data collection. Additional data limitation issues are explained in the end of this section.

Summary

Policy

Metro and state land use policies require the monitoring of land prices. Land prices affect the implementation of the 2040 Growth Concept as well as the overall livability of the region.

Indicator

8.11: Change in vacant land price by following land use type: a) residential single family ($/unit); b) residential multi-family ($/acre); c) commercial; and d) industrial. (Required – Metro and State)
Data years: 1995 to 1999. Source: ULI (Urban Land Institute) Market Profiles (2000).

Findings:

- *Changes in land prices in the Portland PMSA are as follows:* ***Compared to inflation in this period of 12.7 percent (CPI).***
  - *The price of single family residential land (per 10,000 square foot lot) increased from $77,700 in 1995 to $105,167 in 1999, a 35 percent increase. Data was not available for lots below 10,000-sq. ft. in size.*
  - *The price of commercial shopping center land (per acre) increased from $386,410 per acre in 1995 to $414,905 per acre in 1999, a 7 percent increase.*
  - *The price of downtown commercial office building land decreased from $85.50 per square foot in 1995 to $84 per square foot in 1999, a 2 percent decrease.*
  - *The price of suburban high-rise land increased from $12 per square foot in 1995 to $15 per square foot in 1999, a 25 percent increase.*
  - *The price of commercial land for office parks increased from $7 per square foot in 1995 to $9.75 per square foot in 1999, a 39 percent increase.*
  - *The price of industrial land used for industrial parks increased from $54,450-$108,900 in 1995 to $133,000-$190,000 in 1999, a 98 percent increase.*
  - *The price of land for hybrid industrial parks increased from a range of $141,570-$163,350 per acre in 1995 to a range of $255,000-$440,000 per acre in 1999, an increase of 128 percent.*

Policy Rationale

State law (ORS 197.301) requires Metro to measure "the sale price of vacant land." Metro Code 3.07.910 requirements also call for performance measures to assess "the cost of land based on lot

prices according to jurisdiction, Growth Concept design type, and zoning; and according to redeveloped and vacant classification." These measures are intended to ensure that land prices in the Metro region do not adversely affect housing prices, inflate the cost of goods and services, or discourage investment in the regional economy.

State law also requires Metro to provide sufficient land capacity for 20 years. The availability of land for housing and jobs is one of many factors that has an effect on land price, wages, the affordability of housing and other goods and services, and the strength of the regional economy. Metro must balance these state requirements with the goals and vision of the 2040 Growth Concept and Regional Framework Plan, which call for the more efficient use of land in the UGB and the creation of a more compact urban form.

In part, the success of the 2040 Growth Concept is based on striking a balance between the negative impacts of excessive land prices and the advantages that the Metro region can reap from managed growth. If land prices drop too low, or if the supply of land far outweighs demand, partially or fully urbanized areas that are already served with expensive public infrastructure may be underused or abandoned in favor of cheap land on the periphery where infrastructure will again be required. The 2040 goal of more efficient land use can best be achieved if the jurisdictions in the Metro UGB take advantage of existing infrastructure and allow areas already committed to urban development to make efficient use of existing services. Conversely, land supply that is too constrained resulting in land prices that are too high increase the cost of economic investment impact housing affordability and cause growth to spill over into neighboring cities.

Data Analysis

Indicator 8.11: Change in vacant land price by following land use type: a) residential single family ($/unit); b) residential multi-family ($/acre); c) commercial; and d) industrial.
Data years: 1995 to 1999. Source: ULI (Urban Land Institute) Market Profiles (2000).

Finding:

- *Changes in land prices for the Portland PMSA are as follows:*
  - *The price of single family residential land (per 10,000 square foot lot) increased from $77,700 in 1995 to $105,167 in 1999, a 35 percent increase. Data was not available for lots below 10,000-sq. ft. in size.*
  - *The price of commercial shopping center land (per acre) increased from $386,410 per acre in 1995 to $414,905 per acre in 1999, a 7 percent increase.*
  - *The price of downtown commercial office building land decreased from $85.50 per square foot in 1995 to $84 per square foot in 1999, a 2 percent decrease.*
  - *The price of suburban high-rise land increased from $12 per square foot in 1995 to $15 per square foot in 1999, a 25 percent increase.*
  - *The price of commercial land for office parks increased from $7 per square foot in 1995 to $9.75 per square foot in 1999, a 39 percent increase.*
  - *The price of industrial land used for industrial parks increased from $54,450-$108,900 in 1995 to $133,000-$190,000 in 1999, a 98 percent increase.*
  - *The price of land for hybrid industrial parks increased from a range of $141,570-$163,350 per acre in 1995 to a range of $255,000-$440,000 per acre in 1999, an increase of 128 percent.*

Data in Table 8.11 shows land prices in different pricing forms. Price for multi family residential land is not available.

Single family lots price increased by 9 percent from 1995 ($77,700 per 10,000 sq. ft. lot) to 1996 ($84,700) and by 7 percent from 1996 to 1997 ($90,600). In 1998 and 1999 the increase in price from previous years was approximately 8 and 7 percent, respectively.

Table 8.11: Typical Vacant Land Prices (Portland PMSA)

(Dollar figures not adjusted for inflation)

	Typical Vacant Land Price	1995	1996	1997	1998	1999
1	Single Family Lots (I)	$77,700	$84,700	$90,600	$97,883	$105,167
2	Commercial Land – Acre (ii) Shopping Center	$386,410	$393,510	$400,610	$407,710	$414,905
3	Commercial –Square Feet (iii) Office Market					
	a) Downtown	$85.50	$83.50	$84.00	$84.00	$84.00
	b) Suburban High-Rise	$12.00	$12.50	$13.25	$14.50	$15.00
	c) Office Park	$7.00	$7.50	$8.25	$9.00	$9.75
4	Industrial – Acre (iv)					
	a) Industrial Parks	$54,450 – 108,900	$60,250 – 120,750	$465,340 – 130,680	$115,000 – 220,000	$133,000 – 190,000
	b) Flex or Hybrid Industrial Parks	$141,570 – 163,350	$146,361 – 224,334	$178,596 – 382,456	$246,000 – 560,000	$255,000 – 440,000

Source: ULI (Urban Land Institute) Market Profiles 2000

Notes from ULI Market Profiles 2000:

(i) An improved lot, approximately 10,000 square feet, located in the suburban fringe area, zoned for single family detached development, served by basic utilities, and subject to no unusual development restrictions or neighborhood conditions; based on median sale prices.

(ii) For a combination of well located suburban land parcel of 40 acres or more zoned and serviced (or capable of being zoned and serviced) for a one to two story regional shopping center, and a seven to 10-acre land parcel located in a new middle-income residential development and zoned and serviced (or capable of being zoned and serviced) for a one to two-story neighborhood shopping center, based on median sales prices.

(iii) For downtown lot, suburban lot for high-rise office building, and well located land suitable for development of a Class A office park; all of these land parcels are based on median sale price per square foot of site area.

(iv) Based on well located land suited for general (light manufacturing, distribution) industrial parks, and well located land suited for hybrid (high-tech manufacturing, R&D, ancillary office uses) industrial parks; based on median sale price per acre of site area.

Commercial land price varies in price according to the market. The price of commercial land suitable for shopping centers or retail increased by 7 percent from 1995 ($386,410 per acre) to 1999 ($414,905 per acre). The price of commercial land suitable for office varies by three sub-market types: downtown office, suburban high-rise office and office park. Land price for downtown office decreased only 2 percent from 1995 ($85.50 per square foot) to 1999 ($84 per square foot). Land for suburban high-rise office increased by 25 percent from 1995 ($12 per square foot) to 1999 ($15 per square foot), whereas office park land price increased by 36 percent from 1995 ($7 per square foot) to 1999 ($9.75 per square foot).

Industrial land price varies by two market types, industrial parks and flex or hybrid industrial parks. The price of industrial parks land increased by approximately 98 percent from 1995 ($54,450 - $108,900 price range) to 1999 ($133,000 - $190,000 price range). Hybrid industrial park land price increased by approximately 128 percent from 1995 ($141,570 - $163,350 price range) to 1996 ($255,000 - $440,000 price range).

Data Limitation

Most experts in the land market agree that accurate land price data will always be derived from the sale of homes and commercial buildings, and not from the vacant land sales.

The explanation for this is as follows:

- Not enough land sales transactions take place in any given year to yield meaningful, interpretable results
- Land sales are strongly affected by many factors such as the existence or nonexistence of infrastructure, size of the parcel being sold, allowable use of the parcel being sold, topography and other physical constraints on the land
- Oftentimes, sales are not arms-length, market transactions but rather a means of deed transfer between family members, business partners, etc.

Tax assessor's vacant land assessed value could not be used for this report since this is the value of the land that remains after a site is developed and which may be considerably different than more useable land. The best way to measure land price is to use the tax assessor's value for developed land in various uses and measure how values change over time. MetroScope, Metro's integrated land use and transportation model, will be able to provide an estimate of the change in price of serviced lots available for residential, commercial and industrial development when completed in 2002.

Business/Trade Volume

Purpose

To measure the contribution that freight activity and retail sales make to the vitality of the regional economy. Also, this section makes a connection between the amount of business and tourist traffic at Portland International Airport and the livability of the region/vibrancy of the region's economy.

Summary

Policy

Metro policies recognize the role that transportation and distribution sectors play in the regional economy. The RTP requires local governments to incorporate freight elements into their adopted Transportation System Plans and to reflect regional freight movement needs in their comprehensive plans. Metro works with the private sector, the Port of Portland, local jurisdictions, Oregon Department of Transportation and other public agencies to maximize the efficiency of the freight system.

Indicators

8.13 Freight tonnage and value of goods inbound, outbound, within and throughout the region, both domestic and international using the following modes: a) Air; b) Marine; c) Rail; d) Truck; and Pipeline.
Data years: 1997. Source: Port of Portland and Metro Commodity Flow Study (2002).

- *The largest mass of freight (64 percent or 166,574,500 tons) travels in, out and within the Portland PMSA by truck, which in 1997 carried more tonnage than the other modes combined.*

8.14 Air passenger volume.
Data years: 1995 to 2000. Source: Port of Portland.

- *From 1995 to 2000, the number of passengers travelling through Portland International Airport (Hillsboro and Troutdale airports included) increased by 13.2 percent. This figure was influenced by a 7.8 percent decrease that occurred between 2000 and 2001 that is attributable to the recession and to the September 11, 2001 terrorist attack.*

8.15 Retail sales per capita.
Data years: 1989 to 1998. Source: Sales and Marketing Management, Survey of Buying Power.

- *Retail sales per capita increased by 67 percent during the 1989 and 1998 period, from approximately $9,000 to $15,000 for the six-county Portland PMSA. During the same period, the volume of sales grew from approximately $10.9 billion in 1989 to $27.5 billion in 1998.*

Survey Results of Local Officials and Planning Commissioners

✓ *Most important issues that should be addressed in the region*: 29 percent said strong regional economy was among the most important issue.

Policy Rationale

Maintaining a relationship between enhanced livability and a strong regional economy is a theme that appears throughout the Future Vision Document, the RUGGOs, the 2040 Growth Concept and the Regional Framework Plan. The Future Vision document addressed the issue of the regional economy

by recommending that the Regional Framework Plan... "address the further diversification of our economy, the creation of family-wage jobs and the development of accessible employment centers throughout the nine-county region... in elements related to transportation, rural lands, urban design, housing and water resources."

The Metro region's economy has historically been closely tied to the transportation and distribution sectors of the economy. One of the goals of the RTP is to ensure that freight mobility continues to contribute to the regional economy, and play an even larger role in the future.

Metro's approach to enhancing freight movement is to work with the private sector, the Port of Portland, local jurisdictions, Oregon Department of Transportation and other public agencies to maximize the efficiency of the freight system and to develop a regional Intermodal Management System (IMS) and a Congestion Management System (CMS). Metro's goal is to be able to monitor the efficiency of freight movement, identify existing mobility problems, maximize all freight modes and intermodal freight activity, and address safety concerns.

The RTP requires local governments to incorporate freight elements into their adopted Transportation System Plans and to reflect regional freight movement needs in their comprehensive plans.

Metro has no policies or goals related to retail sales per capita, or the number of air passengers arriving and departing from Portland International Airport. However, these economic factors aid in the assessment of the vitality of the region's economy.

Data Analysis

Indicator 8.13: Freight tonnage and value of goods inbound, outbound, within and throughout the region, both domestic and international using the following modes: a) Air; b) Marine; c) Rail; d) Truck; and Pipeline.

Data years: 1997. Source: Port of Portland and Metro Commodity Flow Study (2002).

Finding:

- *The largest mass of freight (64 percent or 166,574,500 tons) travels in, out and within the Portland PMSA by truck, which in 1997 carried more tonnage than the other modes combined.*

Table 8.13: Freight tonnage and value of goods by mode, Portland PMSA (1997)

Mode	Tonnage (in 1000s of short tons)	Value of Goods (in millions)	Value Per Ton
Air	313.1	$3,485	$11,131
Marine	39,346.6	$32,642	$830
Rail	26,414.1	$37,194	$1,408
Truck	166,574.5	$278,214	$1,670
Pipeline	28,131.0	$11,201	$398
Total	**260,779.3**	**$362,736**	**$1,391**

Source: Port of Portland and Metro Commodity Flow Study, 2002
Note: Data is for Portland PMSA

Table 8.13 displays the amount and value of domestic and international goods inbound, outbound, and moved within and throughout the Portland PMSA by various modes in 1997. The largest mass of freight travels by truck, which in 1997 carried more than twice the tonnage of any other mode. This emphasizes the importance of regional roadways as a means of transporting goods. The last column of Table 8.13 shows the value per ton of goods travelling by mode. Both nationally and in the PMSA, air

freight accounts for the highest per ton value. Freight travelling by truck has the next highest value per ton.

Figure 8.13(1): Freight Tonnage (1997)

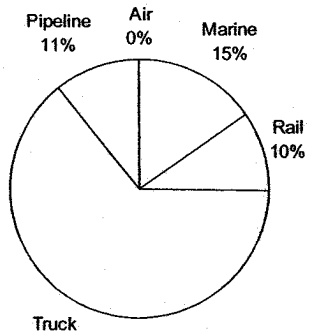
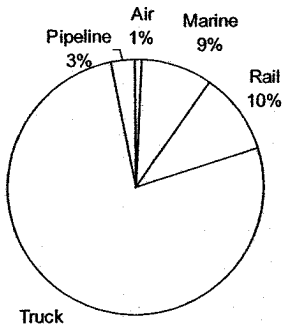


Figure 8.13(2): Freight Value in Tons (1997)



Because freight transportation is a central piece of the economy, it is imperative that all viaducts for freight (air, water, rail, pipeline and roadway) are sufficient in the future. All indications are that freight will continue to be crucial to the economy in the coming years. Regional firms depend on the freight network for their financial well being. The economic health of the freight network is directly related to a robust economy and livability. According to the 2002 Multi-Modal Freight Analysis Framework Study by the Federal Highway Administration, changes in trade relationships affect domestic freight corridors that support world trade. As growth in Pacific Rim trade has occurred over the last 30 years, east-west corridors linking the major West Coast gateways with the rest of the United States have experienced an increase in traffic. Many of these corridors are experiencing increasing congestion as trade transportation competes with domestic traffic in these high-growth regions.

Data Limitation

The freight data should be interpreted with caution since these are estimates. Some volumes, such as air, ocean, and barge cargo volumes are actual counts, but rail and truck are sample survey data. Thus, we need to treat the entire baseline data set as an estimate.

Indicator 8.14: Air passenger volume.
Data years: 1995 to 2000. Source: Port of Portland.

Finding:

- *From 1995 to 2000, the number of passengers travelling through Portland International Airport (Hillsboro and Troutdale airports included) increased by 13.2 percent. This figure was influenced by a 7.8 percent decrease that occurred between 2000 and 2001 that is attributable to the recession and to the September 11, 2001 terrorist attack.*

This indicator attempts to assess general business activity and tourism in the region based on the number of passengers arriving to, and departing from Portland International Airport. The data shows that there was a steady increase in the number of passengers at Portland International Airport from 1995 to 2000. This increase is also a reflection of more people and businesses moving into the region.

From 1995 to 1996, the increase was the largest at 12.2 percent. Smaller increases followed from 1996 to 1997 (1.7 percent) and from 1997 to 1998 (1.6 percent). A larger increase of 5.3 percent occurs in the period from 1998 to 1999. From 1999 to 2000 the rate grew only by 0.4 percent and from 2000 to 2001 there was a 7.8 percent decrease that is attributable to the recession and to the September 11, 2001 terrorist attack.

Table 8.14: Portland International Airport commercial aviation passengers departing and arriving (includes Hillsboro and Troutdale Airports)

Month	1995	1996	1997	1998	1999	2000	2001	% Change 1995-2001
JANUARY	748,458	832,939	916,452	852,977	941,952	927,387	948,711	26.8%
FEBRUARY	689,878	836,154	853,302	837,633	904,278	959,802	915,106	32.6%
MARCH	890,250	1,051,989	1,063,051	1,058,602	1,130,936	1,155,597	1,131,100	27.1%
APRIL	814,560	956,461	997,358	997,184	1,078,360	1,072,134	1,031,337	26.6%
MAY	893,157	1,057,903	1,062,162	1,081,685	1,130,552	1,159,711	1,095,323	22.6%
JUNE	1,052,263	1,144,352	1,200,537	1,194,106	1,270,465	1,282,867	1,226,417	16.6%
JULY	1,115,591	1,208,349	1,272,834	1,291,533	1,381,666	1,348,000	1,324,508	18.7%
AUGUST	1,196,462	1,307,651	1,326,504	1,343,413	1,393,171	1,380,117	1,388,959	16.1%
SEPTEMBER	962,329	1,075,117	1,038,115	1,087,965	1,134,135	1,115,434	771,499	-19.8%
OCTOBER	959,477	1,066,427	1,016,887	1,067,887	1,110,750	1,134,340	946,685	-1.3%
NOVEMBER	923,283	960,671	966,856	1,075,803	1,109,576	1,111,122	940,316	1.8%
DECEMBER	973,444	1,092,575	1,096,482	1,130,578	1,135,843	1,143,604	983,715	1.1%
TOTAL	**11,221,147**	**12,590,588**	**12,810,540**	**13,019,366**	**13,721,684**	**13,790,115**	**12,703,676**	**13.2%**

Source: Port of Portland

Indicator 8.15: Retail sales per capita.

Data years: 1989 to 1998. Source: Sales and Marketing Management, Survey of Buying Power.

Finding:

- *Retail sales per capita increased by 67 percent during the 1989 and 1998 period, from approximately $9,000 to $15,000 for the six-county Portland PMSA. During the same period, the volume of sales grew from approximately $10.9 billion in 1989 to $27.5 billion in 1998.*

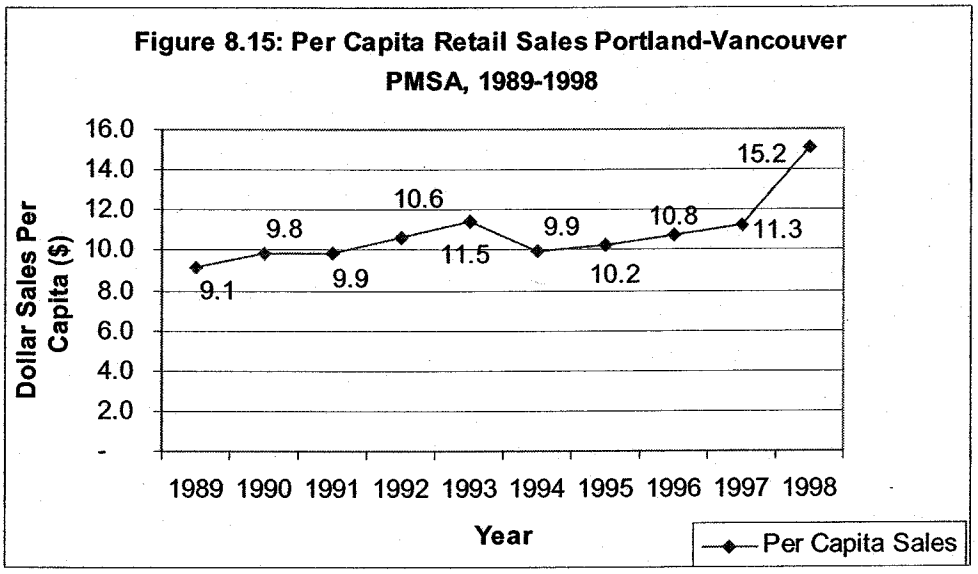
This indicator measures vitality of the retail sector of the regional economy. Table 8.15 shows that during the period from 1989 to 1998, total retail sales in the Portland PMSA increased by 150 percent, from approximately $11 billion in 1989 to $27.5 billion in 1998. During the same period, the population of the Portland-Vancouver metropolitan area increased by 51 percent, and per capita sales increased by 67 percent, from 9.1 in 1989 to 15.2 in 1998, despite a temporary decrease in 1994.

Table 8.15: Historical Retail Sales Portland PMSA

Year	Sales (dollars)	Population	Per Capita Sales
1989	10,964,049	1,202,200	9.1
1990	12,139,866	1,239,842	9.8
1991	12,679,335	1,285,100	9.9
1992	13,914,356	1,308,700	10.6
1993	15,362,788	1,338,900	11.5
1994	16,601,340	1,678,000	9.9
1995	17,434,431	1,710,400	10.2
1996	18,826,688	1,746,800	10.8
1997	20,049,925	1,779,200	11.3
1998	27,503,867	1,815,300	15.2

Source: Sales and Marketing Management, Survey of Buying Power; Metro DRC
Complete data available in Appendix H(6)

Figure 8.15: Per Capita Retail Sales Portland-Vancouver PMSA, 1989-1998



Source: Sales and Marketing Management, Survey of Buying Power; Metro DRC

Glossary

Accessory dwelling units (ADU) – A separate additional living unit, including separate kitchen, sleeping, and bathroom facilities, attached or detached from a primary residential unit, on a single family lot. ADUs are usually subordinate in size, location, and appearance to the primary unit. The most common types of accessory dwelling units are attached units, contained within a single family home, known variously as "mother-in- law apartments," "accessory apartments" or "granny flats."

Benchmark – A specific standard or target that is established in order to measure performance.

Balanced cut and fill – A policy contained within Title 3 which is intended to prevent any net increase in fill within the floodplain.

Brownfields – Abandoned or underutilized properties where expansion of redevelopment is complicated by either real or perceived environmental contamination.

Buildable land – Vacant land identified through the Metro Data Resource Center's vacant land inventory after subtracting land in Title 3 areas.

Capture rate – A measure of the proportion change or difference in demographic categories such as employment, households or population for a specific geography.

Central City – The downtown and adjacent portions of the City of Portland.

Comprehensive plan (local) – The all inclusive, generalized, coordinated land use map and policy statement of cities and counties defined in ORS 197.015(5).

Consumed land – Buildable land that has converted to development.

Corridors – While some corridors may be continuous, narrow bands of higher intensity development along arterial roads, others may be more "nodal," that is, a series of smaller centers at major intersections or other locations along the arterial that have high-quality pedestrian environments, good connections to adjacent neighborhoods and good transit service.

Design type – The conceptual areas described in the Metro 2040 Growth Concept text and map in Metro's RUGGOs including central city, regional centers, town centers, station communities, corridors, main streets, inner and outer neighborhoods, industrial areas and employment areas.

Developed land (DRC definition) – Land that supports structures and/or improvements and/or is dedicated to a particular land use. These determinations are made based on the analysis of aerial photography and all developed land is removed from the regional vacant land inventory.

Employment areas – Areas of mixed employment that include various types of manufacturing, distribution and warehousing uses, commercial and retail development as well as some residential development. Retail uses should primarily serve the needs of the people working or living in the immediate employment area. Exceptions to this general policy can be made only for certain areas indicated in a functional plan.

Environmentally sensitive lands – Lands that retain natural features important for water quality, stormwater and flood management, or lands that provide natural habitat for fish and wildlife or a scenic

value. (Land inventories conducted for Metro's Title 3 and Goal 5 programs or calculations of the region's park land include some of, but not all of the land in the region meeting this definition.)

Exception land – An "exception" is taken for land when either commitments for use, current uses or other reasons make it impossible to meet the requirements of one or a number of the statewide planning goals. Hence, lands "excepted" from statewide planning goals 3 (Agricultural Lands) and 4 (Forest Lands) have been determined to be unable to comply with the strict resource protection requirements of those goals and are thereby able to be used for other than rural resource production purposes. Lands not excepted from statewide planning goals 3 and 4 are to be used for agricultural or forest product purposes, and other, adjacent uses must support their continued resource productivity.

Exclusive farm use – Land zoned primarily for farming and restricting many uses that are incompatible with farming, such as rural housing. Some portions of rural reserves also may be zoned as exclusive farm use.

Fair share – A proportionate amount by local jurisdiction; used in the context of affordable housing in this document. "Fair share" means that each city and county in the region agrees to work with Metro to establish local and regional policies to accommodate affordable housing.

Family wage job – A permanent job with an annual income greater than or equal to the average annual covered wage in the region. The most current average annual covered wage information from the Oregon Employment Division shall be used to determine the family wage job rate for the region or for counties within the region.

Floodplain – The area immediately adjacent to the stream or river channel that becomes inundated with overbank flows during large storm events. The Title 3 Floodplain is considered to be those areas mapped as floodplain, a combination of the FEMA 100-year floodplain and the areas known to have flooded in the Flood of 1996.

Floor area ratio (FAR) – The ratio of building floor area in relation to the amount of site area. FAR's are used to measure to what extent a building covers a site.

Freight mobility – The efficient movement of goods from point of origin to destination.

Functional plan – A limited-purpose, multi-jurisdictional plan for an area or activity having significant district-wide impact upon the orderly and responsible development of the metropolitan area. Serves as a guideline for local comprehensive plans consistent with ORS 268.390.

Geographic information system (GIS) – A computer based system that enters, stores, manages, analyzes, and presents spatial (and associated non-spatial) data, combining databases and graphics operations to make a variety of products, from lists to maps.

Greenspaces – Natural areas, open space, trails and greenways that function for both wildlife and people.

Greenways – Generally linear vegetated corridors associated with rivers and streams that are shared by both humans and wildlife.

Gross acre – Land without any net reductions.

Gross vacant buildable acre – Measure of buildable land before reductions to net acre.

Growth concept – A concept for the long-term growth management of our region stating the preferred form of the regional growth and development, including where and how much the UGB should be expanded, what densities should characterize different areas, and which areas should be protected as open space.

High-capacity transit – Transit routes that may be either a road designated for frequent bus service or for a light-rail line.

Household hazardous waste – Products used in the yard and home that are hazardous to people, fish and wildlife if misused or disposed of incorrectly. These products include but are not limited to paints and stains, pool and spa chemicals, pesticides and poisons, automotive products, and batteries.

Housing affordability – The availability of housing such that no more than 30 percent (an index derived from federal, state and local housing agencies) of the monthly income of the household need be spent on shelter.

Indicators – Typically numerical measures used to track changes in the status of trends of physical, social or economic systems.

Industrial areas – An area set aside for industrial activities. Supporting commercial and related uses may be allowed, provided they are intended to serve the primary industrial users. Residential development are not considered a supporting use, nor shall retail users whose market area is substantially larger than the industrial area be considered supporting uses.

Infill – Development on a parcel without a pre-existing structure where Metro considers the parcel developed in the fiscal year (or years) prior to the fiscal year for which the building permit issued.

Infrastructure – Roads, water systems, sewage systems, systems for storm drainage, telecommunications and energy transmission and distribution systems, bridges, transportation facilities, parks, schools and public facilities.

Inner neighborhoods – Areas in Portland and older cities that are primarily residential, close to employment and shopping areas, and have slightly smaller lot sizes and higher population densities than in outer neighborhoods.

Intermodal – The connection of one type of transportation mode with another.

Intermodal facility – A transportation element that accommodates and interconnects different modes of transportation and serves the statewide, interstate and international movement of people and goods.

Jobs/housing balance – The relationship between the number, type, mix and wages of existing and anticipated jobs balanced with housing costs and availability so that non-auto trips are optimized in every part of the region.

Jurisdiction – A governmental entity such as a city or county.

Main streets – Neighborhood shopping areas along a main street or at an intersection, sometimes having a unique character that draws people from outside the area. Northwest 23rd Avenue and Southeast Hawthorne Boulevard are current examples of main streets.

Metro Code – The Metro Code is the body of laws enacted by the Metro Council, under the authority of the Metro Charter. The Code is divided into Titles, each corresponding to an area of Metro's

jurisdiction under the Charter (Planning, Solid Waste, etc.). Each Title is further divided into chapters and sections.

Metro region (Metro boundary) – The jurisdictional boundary of Metro, the elected regional government of the metropolitan area.

Metropolitan housing rule – A rule (OAR 660, Division 7) adopted by the Land Conservation and Development Commission to assure opportunity for the provision of adequate numbers of needed housing units and the efficient use of land within the Metro UGB. This rule establishes minimum overall net residential densities for all cities and counties within the UGB, and specifies that 50 percent of the land set aside for new residential development be zoned for multi-family housing.

Mixed use – Usually refers to the mixing of residential uses with offices or retail uses. Mixed use can be within an area or within a single building.

Mixed use development – Areas of a mix of at least two of the following land uses and includes multiple tenants or ownerships: residential, retail and office. This definition excludes large, single-use land uses such as colleges, hospitals, and business campuses. Minor incidental land uses that are accessory to the primary land use should not result in a development being designated as "mixed use development."

Metropolitan Transportation Improvement Program (MTIP) – A staged, multiyear, intermodal program of transportation projects which is consistent with the metropolitan transportation plan.

Native vegetation – Any vegetation native to the Portland Metropolitan area or listed on the Metro Native Plant List as adopted by Metro Council resolution.

Natural areas – A landscape unit composed of plant and animal communities, water bodies, soil and rock; largely devoid of human-made structures; maintained and managed in such a way as to promote or enhance populations of wildlife.

Neighborhood centers – Retail and service development that surrounds major MAX stations and other major intersections, extending out for one-quarter to one-half mile.

Neighboring cities – Cities such as Sandy, Canby and Newberg that are outside Metro's jurisdiction but will be affected by growth policies adopted by the Metro Council or other jurisdictions, such as North Plains, Estacada or Scappoose, which may be affected by Metro actions.

Net acre – An area measuring 43,560 square feet which excludes: any developed road right-of-way through or on the edge of the land; and Title 3 areas, including any open water areas, floodplains, natural resource areas protected under statewide planning Goal 5 in the comprehensive plans of cities and counties in the region, slopes in excess of 25 percent and wetlands requiring a federal fill and removal permit under Section 404 of the Clean Water Act. These excluded areas do not include lands for which the local zoning code provides a density bonus or other mechanism which allows the transfer of the allowable density or use to another area or to development elsewhere on the same site; and all publicly-owned land designated for park and open spaces use.

Net developed acre – 43,560 square feet of land after excluding present and future rights-of-way, school lands and other public uses.

Open space – Developed parks with active recreational facilities such as ball fields, tennis courts, playgrounds, community gardens, golf courses, cemeteries, vacant lands with the potential of becoming a park or natural area.

Oregon Statewide Planning Goals – The 19 goals that provide a foundation for the state's land use planning program. The 19 goals can be grouped into four broad categories: land use, resource management, economic development, and citizen involvement. Locally adopted comprehensive plans and regional transportation plans must be consistent with the statewide planning goals.

Originating trips (and transit boarding) – Represents people trips. A trip starting on a bus and transferring to another bus or to a MAX is counted as one originating trip and/or two boarding. (See Transit Boarding)

Outer neighborhoods – Areas in the outlying cities that are primarily residential, farther from employment and shopping areas, and have larger lot sizes and lower population densities than inner neighborhoods.

Pedestrian scale – An urban development pattern where walking is a safe, convenient and interesting travel mode. It is an area where walking is at least as attractive as any other mode to all destinations within the area. The following elements are not cited as requirements, but illustrate examples of pedestrian scale: continuous, smooth and wide walking surfaces; easily visible from streets and buildings and safe for walking; minimal points where high-speed automobile traffic and pedestrians mix; frequent crossings; storefronts, trees, bollards, on-street parking, awnings, outdoor seating, signs, doorways and lighting designed to serve those on foot; well integrated into the transit system and having uses that cater to people on foot.

Persons per acre – Term expressing the intensity of building development by combining residents per net acre and employees per net acre.

Portland Primary Metropolitan Statistical Area (PMSA) – Includes Multnomah, Clackamas, Washington, Columbia and Yamhill Counties in Oregon and Clark County in Washington. Note: The US Census defined the 1990 Portland PMSA as Clackamas, Clark, Multnomah, Washington and Yamhill Counties, and defined the 2000 Portland PMSA as Clackamas, Clark, Columbia, Multnomah, Washington and Yamhill Counties.

Portland Standard Metropolitan Statistical Area (SMSA) – Includes Multnomah, Clackamas and Washington Counties in Oregon and Clark County in Washington.

Redevelopment – Development on a parcel of land where a structure or the identifiable remains of a structure were visible on the parcel in the fiscal year prior to the issuance of the building permit.

Refill – Redevelopment and infill development.

Refill rate – The rate at which redevelopment and infill occur.

Regional Framework Plan – Required of Metro under the Metro charter, the Regional Framework Plan must address nine specific growth management and land use planning issues (including transportation), with the consultation and advice of MPAC. To encourage regional uniformity, the plan shall also contain model terminology, standards and procedures for local land use decision making that may be adopted by local governments.

Trail – Multi modal/recreational (e.g., hiking, biking, pedestrian, equestrian) alignment generally used by people.

Transit Boarding (and originating trips) – A trip starting on a bus and transferring to another bus or to a MAX is counted as one originating trip and/or two boarding. (See Originating trips)

Regional centers – Areas of mixed residential and commercial use that serve hundreds of thousands of people and are easily accessible by different types of transit. Examples include traditional centers such as downtown Gresham and new centers such as Clackamas Town Center.

Rezoning – An action taken by a city or county governing body to change the type of zoning on one or more pieces of land; a rezoning, as from R-1, "single family residential," to R-2, "medium-density . residential."

Riparian areas – The land and vegetation adjacent to waterbodies such as streams, rivers, wetlands, and lakes that are influenced by perennial or intermittent water and hydric soils.

Regional Land Information System (RLIS) – Metro's geographic information system, known as the RLIS. RLIS makes possible the integration of information about land ownership, demographic and forecast data and environmental systems such as soils and wetlands. RLIS provides information and analytical capabilities to Metro programs, as well as to regional partners in the public and private sector.

Regional Urban Growth Goals and Objectives (RUGGOs) – An urban growth policy framework that represents the starting point for the agency's long-range regional planning program.

RTP priority system – The most critical transportation improvements needed to adequately serve travel needs in the Portland metropolitan region during the next 20 years.

Rural reserves – Areas that are a combination of public and private lands outside the UGB, used primarily for farms and forestry. They are protected from development by very low-density zoning and serve as buffers between urban areas.

Station communities – An area generally within ¼- to ½-mile radius of light-rail stations or other high-capacity transit that is planned as a multi modal community of mixed uses and substantial pedestrian accessibility improvements.

Stream route database – The Metro Data Resource Center's most current data regarding the location of streams and rivers in the Metro region.

Town centers – Areas of mixed residential and commercial use that serve tens of thousands of people. Examples include the downtowns of Forest Grove and Lake Oswego.

Transportation Planning Rule (TPR) – The implementing rule of statewide land use planning goal (#12) dealing with transportation, as adopted by the state Land Conservation and Development Commission (LCDC). Among its many provisions, the rule includes requirements to preserve rural lands, reduce VMT, reduce parking spaces and to improve alternative transportation systems.

Transportation System Plan (TSP) – A plan for one or more transportation facilities that are planned, developed, operated and maintained in a coordinated manner to supply continuity of movement between modes, and within and between geographic and jurisdictional areas.

Tree canopy – Areas of forested land cover as interpreted from aerial photos by the Metro DRC. The minimum mapping unit used by the DRC was a polygon one acre. For forest landcover types, technical staff were trained to identify relatively dense groupings of trees (>60 percent coverage) as forested patches. Cross analysis with satellite canopy data shows that 76 percent of the patches delineated are predominately closed forest canopy (76 percent to 100 percent total coverage). The remaining 24 percent are predominately open forest (51 percent to 75 percent total coverage).

Urban form – The net result of efforts to preserve environmental quality, coordinate the development of jobs, housing, and public services and facilities, and interrelate the benefits and consequences of growth in one part of the region with the benefits and consequences of growth in another. Urban form, therefore, describes an overall framework within which regional urban growth management can occur. Clearly stating objectives for urban form and pursuing them comprehensively provides the focal strategy for rising to the challenges posed by the growth trends present in the region today.

Urban growth boundary (UGB) – A boundary that identifies urban and urbanizable lands needed during the 20-year planning period to be planned and serviced to support urban development densities, and that separates urban and urbanizable lands from rural land.

Urban unincorporated areas – Areas inside of the Metro UGB that are outside of a city boundary.

Vacant land – Land identified in the Metro or local government inventory as undeveloped land.

Wetlands – Ecosystems that may occur adjacent to stream channels and within the floodplain that depend on frequent and recurrent shallow inundation or saturation at, or near the soil surface.

Zoning – A demarcation of a city or county by ordinance into zones and the establishment of regulations to govern the use of the land (commercial, industrial, residential, type of residential, etc.) and the location, bulk, height, shape, use and coverage of structures within each zone.

Appendix

Performance Measures Complete Report

Contents:

STAFF REPORT

IN CONSIDERATION OF RESOLUTION NO. 03-3262 FOR THE PURPOSE OF DIRECTING THE CHIEF OPERATING OFFICER TO SUBMIT THE PERFORMANCE MEASURES REPORT TO THE OREGON DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT

Date: February 13, 2003 Presented by: Andy Cotugno and Gerry Uba

BACKGROUND

Oregon State Law (ORS 197.301) established nine subjects for performance measures for Metro to compile and report to the Department of Land Conservation and Development at least every two years. Title 9 of the Functional Plan adopted by the Council in 1996 also established eight subjects for performance measures for monitoring the implementation and outcome of the plan.

In order to adequately evaluate the 2040 Growth Concept which the Functional Plan is intended to implement, Metro staff has worked with various Metro committees to develop additional measures. These committees include Metro Technical Advisory Committee (MTAC), the Transportation Policy Alternatives Committee (TPAC), Greenspaces Technical Advisory Committee, Water Resources Policy Advisory Committee, Metro Committee for Citizen Involvement, and the Affordable Housing Technical Advisory Committee. Over 140 performance indicators were initially identified. Data difficulty and limited resources reduced the number of indicators measured to 80.

Between the spring of 2001 and the fall of 2002, staff collected and analyzed data for the indicators. The analysis included results of a survey of local elected officials and planning commissioners. The analysis referenced targets stated in the Regional Framework Plan and other regional plans while efforts were made to avoid editorial commentary and suggestions of which policies may need revisiting.

Extensive review of the Performance Measures Complete Results report by various Metro and non-Metro staff resulted in the final copy. The process of the adoption of the performance measures report by the Metro Council includes additional review by Metro Policy Advisory Committee (MPAC), Joint Policy Advisory Committee on Transportation (JPACT), MTAC and TPAC, and Metro Council deliberation of the MPAC, JPACT, MTAC and TPAC recommendations.

ANALYSIS/INFORMATION

Known Opposition
Staff is not aware of any opposition to the proposed legislation.

Legal Antecedents
Oregon State Law (ORS 197.301) and Metro Code 3.07.910 et. seq. Both legislation established subjects for performance measures for Metro to compile and report to the Department of Land Conservation and Development.

Anticipated Effects

Resolution No. 03-3262 would direct the Chief Operating Officer to submit the Performance Measures Report, with the performance measures adopted by the Council in Ordinance No. 03-991, to the Oregon Department of Land Conservation and Development, in compliance with ORS 197.301(1).

Resolution No. 03-3262 would also direct the Chief Operating Officer to prepare the following for Council consideration: a) amendments to the Regional Framework Plan to incorporate the 2040 Fundamentals in the Performance Measures Report; b) prioritized list of performance indicators; and c) a set of benchmarks or targets against which changes through performance measures are evaluated.

Budget Impacts
None

RECOMMENDED ACTION:

Staff recommends the adoption of Resolution No. 03-3262 to direct the Chief Operating Officer to submit the Performance Measures report to the Oregon Department of Land Conservation and Development in compliance to ORS 197.301.