THE AHWAHNEE PRINCIPLES

Preamble:

Existing patterns of urban and suburban development seriously impair our quality of life. The symptoms are: more congestion and air pollution resulting from our increased dependence on automobiles, the loss of precious open space, the need for costly improvements to roads and public services, the inequitable distribution of economic resources, and the loss of a sense of community. By drawing upon the best from the past and the present, we can plan communities that will more successfully serve the needs of those who live and work within them. Such planning should adhere to certain fundamental principles.

Community Principles:

1. All planning should be in the form of complete and integrated communities containing housing, shops, work places, schools, parks and civic facilities essential to the daily life of the residents.

2. Community size should be designed so that housing, jobs, daily needs and other activities are within easy walking distance of each other.

3. As many activities as possible should be located within easy walking distance of transit stops.

4. A community should contain a diversity of housing types to enable citizens from a wide range of economic levels and age groups to live within its boundaries.

5. Businesses within the community should provide a range of job types for the community's residents.

6. The location and character of the community should be consistent with a larger transit network.

7. The community should have a center focus that combines commercial, civic, cultural and recreational uses.

8. The community should contain an ample supply of specialized open space in the form of squares, greens and parks whose frequent use is encouraged through placement and design.

9. Public spaces should be designed to encourage the attention and presence of people at all hours of the day and night.

10. Each community or cluster of communities should have a well defined edge, such as agricultural greenbelts or wildlife corridors, permanently protected from development.

11. Streets, pedestrian paths and bike paths should contribute to a system of fully-connected and interesting routes to all destinations. Their design should encourage pedestrian and bicycle use by being small and spatially defined by buildings, trees and lighting; and by discouraging high speed traffic.

12. Wherever possible, the natural terrain, drainage, and vegetation of the community should be preserved with superior examples contained within parks or greenbelts.

13. The community design should help conserve resources and minimize waste.

14. Communities should provide for the efficient use of water through the use of natural drainage, drought tolerant landscaping and recycling.

15. The street orientation, the placement of buildings and the use of shading should contribute to the energy efficiency of the community.

Regional Principles:

1. The regional land use planning structure should be integrated within a larger transportation network built around transit rather than freeways.

2. Regions should be bounded by and provide a continuous system of greenbelt/wildlife corridors to be determined by natural conditions.

3. Regional institutions and services (government, stadiums, museums, etc.) should be located in the urban core.

4. Materials and methods of construction should be specific to the region, exhibiting continuity of history and culture and compatibility with the climate to encourage the development of local character and community identity.

Implementation Strategy:

1. The general plan should be updated to incorporate the above principles.

2. Rather than allowing developer-initiated, piecemeal development, local governments should take charge of the planning process. General plans should designate where new growth, infill or redevelopment will be allowed to occur.

3. Prior to any development, a specific plan should be prepared based on the planning principles. With the adoption of specific plans, complying projects could proceed with minimal delay.

4. Plans should be developed through an open process and participants in the process should be provided visual models of all planning proposals.

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Local Government Commission, 1991

1000 FRIENDS OF OREGON

Making the
Land Use
Transportation
Air Quality
Connection

Market Research

DRAFT

Volume 3A

Prepared by
Market Perspectives
Hébert/Smolkin Associates, Inc.

September 1992

Major funding provided by
The Energy Foundation
The Nathan Cummings Foundation
United States Environmental Protection Agency
Federal Highway Administration

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Tri-County Metropolitan Transportation District of Oregon
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Key Bank of Oregon
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CONTENTS

INTRODUCTION

"Making the Land Use, Transportation, Air Quality Connection" (LUTRAQ) is a national demonstration project to develop methodologies for creating and evaluating alternative land use patterns and design standards that will:

- Reduce dependence on automotive travel;
- Increase mobility for all segments of society;
- Minimize negative environmental impacts, particularly those on air quality;
- Reduce energy consumption; and
- Foster a strong sense of community character.

The LUTRAQ project contains six primary tasks:

Task A. **Analyze Current Model Limitations**
In Task A, the project team will (1) identify the international state-of-the-art of integrated land use/transportation modeling; (2) determine current modeling practices in U.S. metropolitan areas; and (3) evaluate the modeling system in place for the LUTRAQ study area.

Task B. **Analyze the Base Case**
The project team will establish current land use and transportation opportunities and constraints in the study area.

Task C. **Develop the LUTRAQ Alternative Package**
The project team will establish a package of alternatives to freeway construction, containing there primary elements: (1) alterations in area land uses, densities, and development design standards, (2) expansions in transit facilities and services and selected existing collector/arterial systems, and (3) changes in land use an non-land use policies, including those related to transportation demand management.

Task D. **Modify the Models**
The team will improve the modeling system in the study area to assure accurate measurement of the alternative package developed in Task C.

Task E. **Test the Alternatives**
Using the modeling improvements for Task D, the team will analyze a no-action alternative, a freeway alternative, and the LUTRAQ alternative package (developed in Task C) for their effects on congestion, land use, air quality, energy consumption, quality of life, public finances, and user costs.

Task F. **Implement the LUTRAQ Alternative Package**
The team will prepare a set of recommended actions to implement the elements of the alternative developed in Task C.

Work products from the LUTRAQ project include a separate volume devoted to each task, plus a final report and technical appendix.

Volume	Title	Authors
1	Modeling Practices	Cambridge Systematics, Inc. and Hague Consulting Group
2	Existing Conditions	Cambridge Systematics, Inc. and Calthorpe Associates
3	Description of Alternatives	Calthorpe Associates and Cambridge Systematics, Inc.
4	Model Modifications	Cambridge Systematics, Inc.
5	Analysis of Alternatives	Cambridge Systematics, Inc. and Calthorpe Associates
6	Implementation	Cambridge Systematics, Inc. and Calthorpe Associates
7	Final Report	Cambridge Systematics, Inc. and Calthorpe Associates
8	Technical Appendix	Cambridge Systematics, Inc. and Calthorpe Associates

This volume of the LUTRAQ study reports is a market research and feasibility study involving the transit-oriented development (TOD) opportunities in Washington County, OR through the year 2010. The TOD planning concept evaluated for this study was developed by Calthorpe Associates of San Francisco, CA, and is described in detail in Volume 3 of the LUTRAQ reports, titled "Description of Alternatives."

Part I of this volume is an executive summary of the findings, conclusions and recommendations of the feasibility study for both residential and commercial product

applications within the urban, neighborhood and downtown, mixed-use TOD sites proposed for Washington County.

Part II contains the supporting data and background information compiled for analyses to produce the conclusions and recommendations for this volume including anticipated housing demand, business growth potential, most recent housing and commercial absorption trends and other pertinent demographic data.

Part III contains the appendices of statistical graphs, charts and tables of historical data and trends, and forecasts for future population, household and business growth for the Portland metropolitan area and Washington County.

Appendix A — Tables and figure charts involving demographic trends, historical patterns, migration data, and forecasts for future household growth and unit demand for the Portland metropolitan area.

Appendix B — Housing market analyses tables and charts dealing with residential permit trends, existing project profiles for Washington County, and multiple listing services (MSL) sales by price range.

Appendix C — Vacant land inventory summary and projected average densities tables for counties and cities in the Portland metropolitan area.

Appendix D — Tables and figure charts pertaining to commercial, retail and industrial analyses for the Portland metropolitan area.

STATEMENT OF OBJECTIVES

The goal of the research presented in this volume is to determine circumstances under which transit-oriented development would be accepted by the market in Washington County, Oregon through the year 2010, assuming the extension of existing trends. It is not the intent of this research to exhaustively define the upper and lower limits of market acceptability, or to represent positions of 1000 Friends of Oregon or any of its contributors.

To achieve the goal, the research pursued the following objectives:

Market Region Economic Trends

- Analyze the economic growth and new construction activity trends for the Portland Metropolitan Statistical Area (MSA) and Washington County for the past ten years (1981-1990) and provide a forecast for the next twenty years (1991-2010).

- Review the historical new job growth for the Portland MSA and provide projections from government agencies as to the future new employment expansion for the MSA from 1991-2010.

- Provide a summary of new residential permit activity for the past 10 years (1981-1990) and commercial/industrial valuation in terms of construction dollars for the same period.

- Conduct a present value analysis comparing single-family uses and mixed uses in terms of land values in areas being considered for TOD sites.

MSA Future Housing Demands

- Analyze and comment on the population growth projections from governmental agencies such as Metropolitan Service District (Metro) for the MSA and Washington County for 1991-2010.

- Provide a comparison of actual population growth as it occurred from 1986-1990 versus the original governmental forecasts.

- Provide the current housing stock ratios for the MSA and Washington County; and the most recent housing stock ratio trend from new residential permit activity (1981-1990).

- Assess the in-migration trends for the MSA and Washington County for the past three years (1988-1990) as compared to the previous three year period (1985-1987), if data is available from the State of Oregon.

- Provide a demographic analysis of households by (1) age; (2) income and (3) family composition for the MSA and Washington County from 1990 to 2010 based on current 1990 census data and of the probable preferred housing types (e.g., rental attached, rental detached, owner attached and owner detached) associated with the projected demographic changes. This analysis will also assess the potential for future renters and buyers to accept higher density product in or near TODs as opposed to present traditional housing types.

- Against the population forecast by governmental and quasi-governmental agencies for 1991-2010, provide a forecast from Market Perspectives and Hébert/Smolkin for the next twenty (20) years taking into consideration residential permit activity, employment growth and in-migration trends for the past ten years (1981-1990).

- Based upon governmental/quasi-governmental and Market Perspectives' and Hébert/Smolkin's population growth projections, provide an estimate of the new housing demand by product type for 1991-2010 based upon demographic analysis. An assessment will be made as to the likelihood that future renters and buyers (particularly after the year 2000) will accept higher density product in or near TODs as opposed to present traditional housing types.

Competitive Housing Market Analysis

- Assess the general market conditions for new single-family and multi-family activity within the MSA and Washington County.

- Provide a summary of current active projects by major submarket areas within the MSA and Washington County, and include a list of the proposed and approved future competitive projects for Washington County.

- Compare the housing components planned for proposed major projects as it compares to current market acceptance trends.

- Provide summary of current sales and absorption trends of the active competitive projects within MSA and Washington County with emphasis on those projects in the immediate surrounding area of the proposed TODs.

Existing and Future Commercial/Industrial Market Conditions

- Survey all active major commercial/industrial projects within the proposed TOD market areas.

- Review a list of all proposed major commercial/industrial projects within the proposed TOD market areas.

- Assess the active commercial/industrial projects land use component to current market absorption trends.

- Provide an inventory of absorbed space, vacant space to be absorbed, and current leasing rates for existing competitive projects within the proposed TOD market areas.

Recommended Product Applications

- Based upon the results of the demographic analysis and future housing needs for the MSA and Washington County, recommend the residential product applications which are deemed feasible and market-acceptable for the proposed TOD locations including any long-term shifts in housing preferences by consumer segments.

- Recommend the commercial applications for the proposed TODs with the emphasis on those product types which will provide the necessary service to residents but also encourage non-automobile travel. Commercial recommendations will also include the appropriate mix of retail, office and industrial (if any) in terms of square footage. Base leasing levels will be assigned to the recommended applications based upon today's market condition.

- Assess the anticipated buyer and renter profiles for the recommended residential product applications; and the probable end-users for the commercial applications for the next twenty (20) year period.

- Provide an assessment of the impact of possible public financial participation in the TOD sites that could have the effect of buying down land costs and to what extent the number of qualified buyers would be increased by a decrease in retail unit pricing levels and impact on absorption paces.

- Provide development/marketing strategies for the TOD sites to enhance buyer, renter or end-user acceptance.

- Forecast the probable market share capture potential of the proposed TOD sites for the next twenty (20) year period if the recommendations made by Market Perspectives and Hébert/Smolkin Associates are adhered to by Calthorpe Associates and the developers of the TODs.

• DATA SOURCES

Information and data gathered and contained in this study are from the following sources:

- Interviews with residential developers and/or on-site sales or leasing representatives to determine the disposition of the major existing single-family detached and multi-family projects within the Portland metropolitan area and Washington County.
- Building permit and construction activity reports from Metropolitan Portland Real Estate Report; and proposed residential and commercial projects from governmental planning officials for Washington, Multnomah and Clackamas counties and the incorporated cities therein.
- Statistical data from the U.S. Census Bureau, Metropolitan Service District, U.S. Department of Commerce and U.S. Department of Labor.
- Commercial, retail and industrial statistical data from CB Commercial, Portland, OR.
- Apartment rent and vacancy data from the McGregor Milhette Report Fall 1991.
- Sales data from the Multiple Listing Service (MLS) for the Portland metropolitan area involving single-family detached, condominium and townhome units in Washington County for April-December 1991.
- On-site physical survey of existing single-family and multi-family residential sites/projects in the Washington County competitive market area (CMA).
- Findings and data from previous studies conducted in the Portland metropolitan area by Market Perspectives, other research organizations, and governmental agencies.

PART I: EXECUTIVE SUMMARY

Demographic Findings and Conclusions

- We estimate that between 1990 and 2010, there will be about 61,500 additional households in Washington County, of which 70% will be owner-occupied and 30% renter-occupied. Assuming that 10% of these new owner-occupied households are in attached units, then we project that about 63% of the new home demand will be for detached (single-family), owner-occupied units and 37% for attached (multi-family) units. Of the 37% attached demand, 7% would be owner-occupied and 30% renter-occupied.

- As a point of reference, owner-occupied households should be considered as single-family detached and attached product, while renter-occupied households primarily involve multi-family rental product.

- Actual housing permits for Washington County in this 1990-2010 period are estimated at about 74,000 units (about 1.2 times the number of new households to account for replacement, inventory and vacancy). Using the above percentages, we estimate a demand of approximately 47,000 single-family homes and about 27,000 multi-family homes for the study period.

We base these conclusions on a number of demographic findings and projections summarized below:

- From 1980 to 1990, Washington County grew by about 66,000 persons and 28,000 households. This accounted for 53% of the population growth and 50% of household growth for the tri-county region.

- We estimate that 58% of Washington County's population growth from 1980-1990 was due to positive net migration, about 39,000 persons. In contrast, Multnomah County experienced a 12,000 person loss due to net migration during this time. Clackamas County gained about 21,000 persons in the 1980-1990 decade by net migration.

- Washington County had its most dramatic gains in population from 1980-1990 in the 35-44 year-old age group (about 24,000 persons). This group is the prime single-family home buying group. At the same time, the county saw moderate losses in the 15-24 year-old group (about 2,500 persons). This younger group represents a prime age group for future rentals. The age group in between, the 25-34 year-olds, expanded by about 8,000 persons. This group represents both current renters and first-time buyers.

- We conclude from these data that the demand for single-family move-up homes will get stronger in the next decade, while rental housing will get weaker. Demand for first-time homes will be moderate. Rental demand will not appreciably increase until the children of the "Baby Boomers" (the ("Echo Boomers") start setting up households around 2005 or so.

- About 20,000 of the 39,000 net in-migrants to Washington County in the 1980-1990 period were in the 25-39 year-old age group, somewhat typical of migration patterns.

- In 1990, Washington County had about 61% owner-occupied households and 39% renter-occupied households. For the county, the 1990 home ownership rate for the 25-34 age group was about 40%, about 66% for the 35-44 age group and peaked at about 80% for the 55-64 age group. The 1990 owner/renter ratio for Multnomah County was 55%/45% and for Clackamas County 72%/28%.

- Washington County issued about 33,000 housing permits in the 1980-1990 decade, or about 1.17 times the number of households added. Multnomah County issued about 16,000 permits, or about 1.72 times the number of households added. Clackamas issued about 21,000 permits or about 1.10 times the number of households added. The excess number of permits over households represents replacement, inventory and vacancies. Overall, in the decade, the tri-county area issued about 69,000 permits for 56,000 added households, a factor of about 1.23 permits per household.

- Metro has projected a gain of about 77,000 households from 1987 to 2010 for Washington County, or about 44% of the projected tri-county household growth of 176,000.

- Metro has projected about 80,000 housing units for Washington County from 1987 to 2010, of which about 47,000 are projected to be single-family units (58.4%) and 33,000 to be multi-family units. This contrasts somewhat with our own estimates, given above, suggesting that a minimum of about 63% of new housing be single-family and 37%, multi-family. The discrepancy comes from our taking into account the aging of the population and the subsequent consequences for owning or buying a home.

Housing Market Findings and Conclusions

- Based on the land use element of the LUTRAQ alternative, produced by Calthorpe Associates (see Volume 3 of the LURAQ reports, "Description of Alternatives"), we project that transit oriented developments (TODs) have the capacity to absorb up to 1,150 multi-family and 1,400 single-family

units per year, provided those TOD sites are developed and ready for building.

- With appropriate zoning, permit allocations and fiscal incentives, up to 100% of the future annual multi-family demand and about 55% of the single-family unit demand could be absorbed by urban and neighborhood TODs. Larger lot (8,000 ± square feet) single-family homes are expected to be developed outside of TODs.

- It will be imperative that governmental zoning policies be enacted to stimulate and/or restrict certain residential applications to TOD sites to enhance the absorption potential for those sites. Applications such as apartments, attached-for sale units, small-lot single family homes and even standard lot single-family homes must be steered to TOD sites. If not, these units could be developed on the zoned vacant land outside TODs in the county and would provide formidable competition to TOD sites.

- We project the multi-family to single-family ratio for the 1990-2010 period should be about 37%/63% to be consistent with market demands.

- Urban TODs, to be consistent with projected market demand, should consist of about 70% multi-family units and 30% single-family units. About a fourth of the multi-family units should be attached-for-sale units.

- Neighborhood TODs, to be consistent with projected market demand, should consist of about 25% multi-family and 75% single-family units.

- Mixed-use centers should offer high-density residential opportunities to complement office, retail and civic/public uses. Since mixed-use centers focus on traditional downtown areas, and hence will be primarily re-development and rehabilitation areas, we have taken into account that existing homes, retail shops, churches, schools and office space will co-exist with new, re-developed areas. Overall housing density should exceed 15 units per net acre.

We base these conclusions on a number of housing market findings:

- Excluding Clark County in Washington, the existing housing stock ratio for the Portland metropolitan area (i.e., Washington, Multnomah and Clackamas counties) as of the 1990 census was 67.2% for single-family detached units; 2.8% for single-family attached units; and 30% for multi-family units.

- Washington County's existing housing stock ratio as of the 1990 census was 63.8% for single-family detached units; 4% for single-family attached units; and 32% for multi-family units.

- Washington County's existing dwelling units represent 37.9% of the three-county metropolitan area housing stock (118,350 out of 311,938 units). The county's overall vacancy factor for existing units is 4.5% while the factor for the metropolitan area is 7.5%.

- In the past 10 years (1981-1990) - and particularly 1986-1990 - there has been a shift in the new housing stock ratio with multi-family units representing approximately 45% of all the permits issued. For 1986-1990, multi-family permits represented 49.7% of the new residential construction activity.

- This shift in the new housing stock ratio for 1981-1990 can be attributed to the in-migration of young adults seeking new employment in the metropolitan area and the expansion of the 20 to 30 year old age bracket from the existing population base.

- Washington County has accounted for approximately 50% of the new residential construction activity for the metropolitan area from 1986-1990.

- After five years of sustained sales and renting activity from 1986-1990, the Portland metropolitan area is encountering slower single-family home sales and a slightly higher apartment vacancy factor due to the impact of the current recession.

- Twenty-five (25) active single-family detached subdivisions within the greater west Portland new home market including West Union/Washington County and Beaverton/Tigard were surveyed for this study. The projects surveyed have been categorized into different product types and lot segmentation including entry-level, small lots (4,500 square feet); entry-level, standard lots (6,500 to 7,900 square feet); first move-up, standard lots (6,500 to 7,900 square feet); second move-up on standard lots (6,000 to 8,000 square feet); and luxury move-up on large lots (9,000 square feet or larger).

- Entry-level detached product on small lots (4,500 square feet) feature a typical unit with 3 bedrooms/2.5 baths with an average size of 1,500 square feet, and an average price of $102,560 or $65.92 per square foot or larger.

- Subdivisions offering entry-level detached product on standard lots (6,000 to 7,000 square feet) feature a typical unit with 3 bedrooms/2.5 baths with

an average unit size of 1,524 square feet, and an average price of $108,354 or $71.19 per square foot. New homes range from 1,254 to 1,905 square feet with base pricing from $94,950 to $124,950.

- For move-up product on standard lots, the typical unit features 4 bedrooms/2.5 or 3 baths with an average unit size of 2,237 square feet, and an average price of $154,263 or $68.96 per square foot.

- Subdivisions offering second move-up detached product on standard lots feature a typical unit with 4 bedrooms/2.5 baths with an average size of 2,382 square feet, and an average price of $190,167 or $79.80 per square foot.

- Subdivisions offering luxury move-up detached homes on large lots feature a typical unit with 4 bedrooms/2.5 baths with an average unit size of 3,100 square feet, and an average price of $285,000 or $91.94 pr square foot.

- Multiple Listing Service (MLS) data for April-December 1991 indicate that 29% of the single-family sales for the three-county Portland metropolitan area has occurred in Washington County (2,347 sales out of 8,173 units).

- For Washington County single-family sales through MLS for the same period, 34% involved homes priced from $60,000 to $100,000; approximately 33% involved the $100,000 to $140,000 price range; 14% between $140,000 to $180,000 and 19% above 180,000.

- For condominiums and townhomes sold through the MLS, there were 281 in Washington County for April-December 1991 or 43% of the 650 units sold in the metropolitan area. Approximately 33% of the county sales involved the $60,000 to $80,000 range; 15% in the $80,000 to $100,000 range and the remainder above $100,000.

- After five years of "heated" multi-family construction activity in the metropolitan area, new permits are down approximately 75% to 80% for 1991.

- The current vacancy factor for Washington County ranges between 9% to 10% for approximately 38,000 ± apartment units. This vacancy percentage can be attributed to the number of new units that entered the market in 1990 and have not been absorbed to date. The newer complexes (built after 1987) have vacancy factors double or triple that of older projects which have lower monthly rental rates.

- Due to the current lending crisis, it is expected that the present vacancy factors should lower in the coming years since new construction of apartments should be limited.

- As for future competition that the TOD sites would encounter from vacant acreage zoned for residential applications in Washington County, there is approximately 17,800 ± acres under current land plans. This translates into the capacity for 75,000± single-family units and 81,500± multi-family units.

- In assessing the future proposed new housing projects in Washington County to the current absorption trends, it appears the majority of the lots are targeted for move-up single-family homes with average lot sizes ranging between 7,000 to 10,000 square feet. There are only 300 to 350 future units proposed for smaller lots (5,000 to 6,999 square feet) which suggests there may be a shortage of affordable housing for a major portion of the buyer profiles in the market.

Recommended Product Applications and Absorption Potential

- Assuming that urban TOD sites will average 100 acres in size, neighborhood TOD sites average 160 acres and downtown, mixed-use sites average 500 acres, the following product applications and densities are recommended:

Segment and Ave. Lot Dimension	Product Type	Ave. Unit Density/Net Ac.	Percentage of Product Mix
Urban TOD - Multi-Family & Single-Family Attached Product			
Multi-family application	3-story apartments	30/ac.	34.6%
Multi-family application	Garden/upscale apartments	20/ac.	17.3%
Single-family attached (ownership)	Condominiums	15/ac.	10.4%
Single-family attached (ownership)	Townhomes	12/ac.	8.3%
Urban TOD - Single-Family Detached Product			
Single-family detached (ownership)	Small lot carriage units	10/ac.	14.7%
Single-family detached (ownership)	Small lot (zero-lot line)	7/ac.	14.7%

Neighborhood TOD - Multi-Family & Single-Family Attached Product			
Multi-family application	Garden/upscale apartments	20/ac.	25.0%
Neighborhood TOD - Single-Family Detached Product			
Single-family detached (ownership)	Small lot carriage units	10/ac.	20.0%
Single-family detached (ownership)	Small lot (zero-lot line)	7/ac.	20.0%
Single-family detached (ownership)	Standard lot	5/ac.	35.0%

Segment	Product Type	Ave. Unit Density/Net Ac.	Land Area Used	Total Gross Building Area
Mixed-Use Centers (500 Acres, 400 Net Acres)				
Parks/public spaces			20 acres	
Low-density residential	Established home areas	4 to 6 units per acre	100 acres	
Mid-density residential	Small lot and townhomes	10 to 12 units per acre	80 acres	
High-density residential	Condos and rentals	20 to 50+ units per acre	60 acres	
Low-rise office	Three-story or less, multi-tenant	n.a.	25 acres	1,000,000
Mid-to high rise office	Major tenant/ Multi-tenant	n.a.	35 acres	5,000,000
Street-level retail	Miscellaneous retail	n.a.	25 acres	7,500,000
Multi-level retail	Specialty retail	n.a.	15 acres	400,000
Civic/public uses	Government, schools churches, public facilities	n.a.	40 acres	750,000

- Specific product line applications, unit mixed and base pricing or rental rates are outlined in detail in Part II of this study.

- Recommended development/marketing strategies are also detailed in Part II of this study.

- The unit absorption potential outlined below is based on the following assumptions:

  - The population and household growth for Washington County from the date of this study until 2010 will occur as forecasted;

  - The TOD sites are designed with the recommended product mixes and unit densities outlined on the previous pages;

  - Base pricing and rental rates will not exceed the levels noted herein for each product application (and those levels adjusted for inflation and actual market conditions at the time of market entry); and

  - The development/marketing strategies recommended in Part II are enacted or implemented.

Product Type	Average Lot Size	Unit Size Range	Base Price/ Price Range	Annual Unit Absorption
Multi-family apartments	N/A	650± to 1,100± s.f.	$550 to $760 per month	900
Single-family attached condominiums	N/A	950± to 1,350± s.f.	$65,000 to $85,000	140
Single-family attached townhomes	N/A	1,100± to 1,500± s.f.	$75,000 to $95,000	110
Small lot detached (carriage units)	3,200± s.f.	1,100 to 1,400± s.f.	$77,000 to $92,000	490
Small lot detached (zero-lot)	4,500± s.f.	1,300 to 1,750± s.f.	$94,000 to $116,500	490
Standard lot detached	6,000± s.f.	1,550 to 2,400± s.f.	$124,000 to $168,000	420
			TOTAL	**2,550**

Notes: a) Assumes 100% absorption of all multi-family units including attached "for sale" product to total 1,150 units.

b) Assumes 55% absorption of all single-family unit demand for county from 1990-2010.The above unit absorption potential forecast is based upon Market Perspectives and Hébert/Smolkin Associates annual forecast for approximately 2,550 single-family units and 1,150 multi-family units (including 250 "for sale" multi-family units) for Washington County through the year 2010.

- The above unit absorption potential forecast is based upon Market Perspectives' and Hébert/Smolkin Associates' annual forecast for approximately 2,550 single-family units and 1,150 multi-family units for Washington County through the year 2010.

Retail, Commercial and Industrial Findings and Conclusions

Retail in Washington County:

- From 1990 to 2010, it is estimated that about 6.5 million square feet of retail space will be demanded, based on population and household growth projections.
- One additional regional mall (about 1,000,000 square feet ± of Gross Leasable Area or GLA) is projected for this period.
- Five to seven community shopping centers of about 250,000± square feet each of GLA (a total of 1,250,000 to 1,750,000 square feet) are projected for the period, 1990-2010.
- About 21 additional neighborhood shopping centers, at about 80,000 square feet of GLA (a total of 1,680,000 square feet) and anchored by large grocery stores, are projected for this period.
- Another 2,000,000 square feet of miscellaneous retail space is projected.
- Metro has projected about 1,100 jobs per year in retail in Washington County, which would result in about 22,000 new retail jobs in this period.

Commercial:

- We project a demand for about 3.5 million square feet of new office space in Washington County from 1990-2010.

- In 1990, we estimate that Washington County had about 20 people per square foot of office space, or 311,554 persons for about 6.2 million square feet of office space. Overall, the Portland market has about one square foot for every 14.5 persons.

- In 1991, Washington County had about a 28% share of the Portland metro market of about 22 million square feet.

- Current 1991 vacancy rates are between 12% and 13% for the metro area. Washington County is slightly lower at about 11%.

Industrial:

- We estimate that about 840,000 square feet of industrial space will be added in Washington County per year, or about 16.8 million square feet from 1990-2010.

- The Portland area adds between 3 to 4 million square feet of industrial space per year, with Washington County estimated to get about 24% of that space.

Recommendations For Retail, Commercial and Industrial Uses In TODs

- As pointed out in the LUTRAQ report "Volume 3: Description of Alternatives," there is capacity for about 7 million new square feet of retail space within Urban and neighborhood TODs and about 9.8 million square feet in downtown, mixed-use centers. Since our projections show that about 6.4 million new square feet of retail Gross Leasable Area (GLA) will be demanded in the 1990-2010 period, we recommend that virtually all future retail development be guided to TOD sites (or to immediately adjacent sites) using appropriate zoning mechanisms. Most neighborhood TODs and all urban TODs and mixed-use centers should contain at least convenience retail. Future community centers and any regional center would likely be adjacent to a few ideally situated TODs. Since access to retail goods and services is important to quality of life for most dwellers in urbanized areas, TODs will be more successful if retail activities are guided to them.

- In general, we do not recommend any substantial office use and no industrial uses within neighborhood TODs. Small-office users (e.g., service professionals) are appropriate for inclusion within neighborhood TODs and can be mixed with retail use. To the extent possible, industrial sites should be close to neighborhood TODs. At present there appears to be a capacity of about 47 million square feet of building in "low intensity" industrial land according to the above referenced Volume 3 report. We project a demand of about 16.8 million square feet in the 1990-2010 period. Policies that favor development of this use close to transit stops and feeder lines may be needed.

- For urban TODs, especially those that are in highly urbanized downtown areas, high-density office use is appropriate (garage parking is indicated). It should be mixed with high density housing and retail services. We project that about 2.8 million square feet of Class A office space will be demanded in the 1990-2010 period. There appears to be enough building potential within urban TODs and downtown redevelopment areas to accommodate this demand.

PART II: SUPPORTING DATA AND INFORMATION ANALYSES

Demographic Analyses

Growth in population and households in the Portland Metropolitan Statistical Area (MSA) is primarily driven by growth in employment, which in turn determines net migration to the area. Other demographic factors also contribute to growth: Births versus deaths (natural increase), aging of the population, marriage and divorce rate, as well as changes in household composition. Within a twenty-year period, such as 1990-2010, many of these rates can change dramatically, but no more so than rate of employment growth.

In the short term, a national or regional recession followed by strong economic expansion can produce rather dramatic shifts in job growth and corresponding shifts in net migration. In the longer term, shifts in the demographic factors can produce slow, but sizable, changes in population and households. It is no small wonder that any forecast that covers such a 20-year period is liable to be off.

Further complicating the analysis is the relationship between population and households. Average household size has declined for the area from about 2.99 persons per household in 1960 to about 2.48 in 1990. Projections to 2010 suggest an average household size of about 2.30. This declining trend is associated with a faster rate of growth in households than in population.

In this report we rely on The Regional Forecast Population Housing and Employment Forecast to 1995 and 2010, June, 1989, published by the Metropolitan Service District (Metro). Since this document, however, did not have the benefit of the 1990 Census, we have made some adjustments where appropriate.

Growth in Population and Housing, 1980-1990

Washington County led growth in the three-county metro area from 1980 to

	Population				Households			
County	1980	1990	1980-1990 Change	1980-1990 % Change	1980	1990	1980-1990 Change	1980-1990 % Change
Washington	245,860	311,554	65,694	26.7%	90,920	118,997	28,077	30.9%
Clackamas	241,911	278,850	36,939	15.3%	84,697	103,530	18,833	22.2%
Multnomah	562,647	583,887	21,240	3.8%	233,096	242,140	9,044	3.9%
Tri-County	1,050,418	1,174,291	123,873	11.8%	408,713	464,667	55,954	13.7%

Source: U.S. Census, 1980 and 1990.

1990 with 27% growth in population and a 31% growth in households. In the ten-year period, the county gained 65,694 persons and 28,077 households.

Clakamas County grew by 15% in population and 22% in households, while Multnomah County grew at a modest 3.8% and 3.9%, respectively. Washington County's growth represented about 31% of the State's growth for the decade.

Net Migration and Natural Increase, 1980-1990

Not surprisingly, Washington County achieved its population and household growth by leading the area and the State in net migration and with a substantial natural increase (births minus deaths). The Center for Population Research and Census at Portland State University has estimated population as of July 1, 1990 and compared it to the April 1, 1980 Census. They have further analyzed births and deaths during this decade and have estimated net migration for this period. During the decade (plus three months), the State was estimated to have had about 36,217 net in-migrants. Washington County during the same time had more net migration: 38,943 persons. About 58% of the gain in population in the county comes from in-migration .

	Population				Natural	Net	% Growth
County	1-Apr 1980	1-Jul 1990	1980-1990 Change	1980-1990 % Change	Increase 1980-1990	Migration 1980-1990	Due To Migration
Washington	245,860	313,000	67,140	27.3%	28,197	38,943	58.0%
Clackamas	241,911	279,500	37,589	15.5%	16,384	21,205	56.4%
Multnomah	562,647	583,500	20,853	3.7%	32,636	-11,783	-56.5%
Tri-County	489,751	594,490	104,739	21.4%	77,217	48,365	46.2%
The State	2,633,156	2,847,000	213,844	8.1%	177,627	36,217	16.9%

Source: U.S. Census, 1980 and Center for Population Research and Census, 3/6/91

Note Dick Walker was 83%

By contrast, Multnomah County had 11,783 net out-migrants. Many of Multnomah County losses were to Washington and Clackamas counties (as well as Clark County, Washington), typical of the move to suburbs in a metro area. Overall, Multnomah County experienced a population gain due to a natural increase of 32,636 persons.

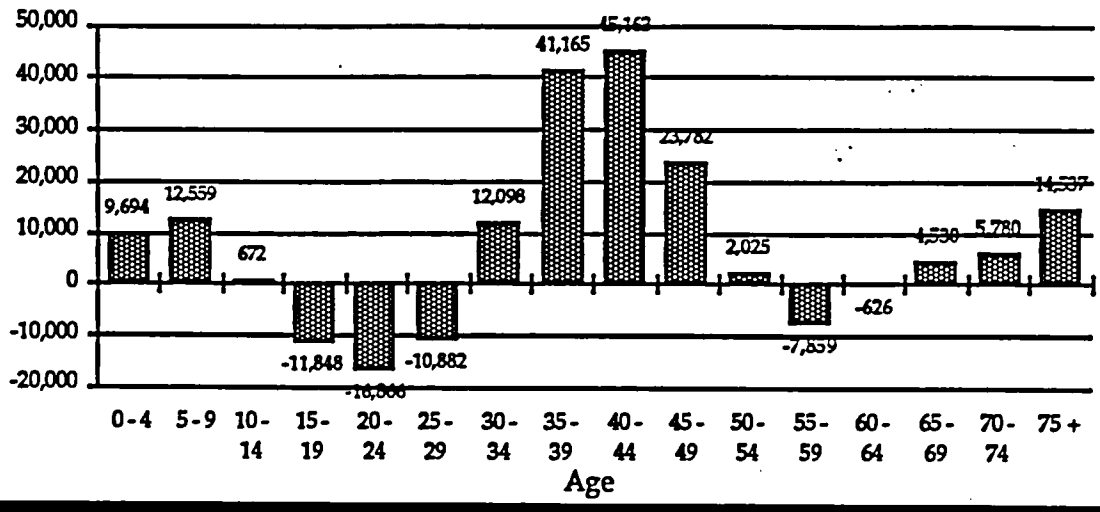
Clackamas County also saw substantial in-migration with 21, 205 persons, the second largest total in the state for the decade, accounting for 56.4% of the 37,589 estimated gain.

Age Distribution and Migration by Age, 1980-1990

As shown in Figure 1, gains or losses in population by age groups were not uniform for the three-county area from 1980 to 1990. The largest gain among age groups was the 40-

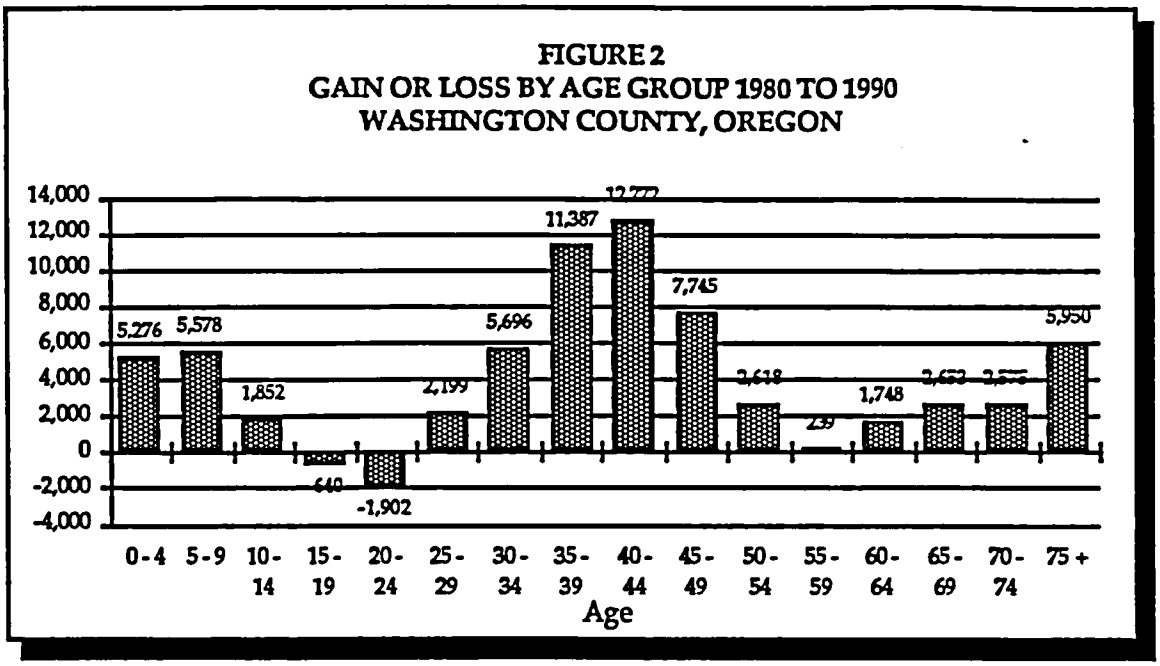
44 year old with about 45,000 gain in the decade, followed by the 34-39 age group at about 41,000 gain. Third was the 45-49 year olds with about a gain of 24,000 persons. These gains are primarily explained by the aging of the baby boomers (the oldest of whom are about 47 years old) and secondly by in-migration patterns.

FIGURE 1
GAIN OR LOSS BY AGE GROUP 1980 TO 1990
THREE-COUNTY AREA, PORTLAND, OREGON



Of considerable interest are the substantial losses from 1980 to 1990 in the 15-19, 20-24 and 25-29 age groups for the three-county area. The 25-29 year-olds declined by almost 17,000 persons, while the 15-19 age group lost almost 12,000 persons in the decade. The 25-29 year-olds declined by about 11,000 persons in 1990 than in 1980. This is a portrait of the "baby bust" generation aging in place. Without strong in-migration to replace these reduced numbers in the next ten years, the prospects for strong growth in the rental housing market in Portland are slim. Demand for multi-family could be boosted somewhat with subsidies for new apartment buildings that lower rents significantly below the prevailing levels to be affordable to moderate and low income households.

Figure 2 shows the gains and losses in population for Washington County for the decade. While the overall patterns are similar to the three-county area, there are some differences. As expected, the greatest gains are in the baby boomer age groups of 35-39, 40-44 and 45-49 years old, with gains of 11,387, 12,772 and 7,745 persons, respectively. In contrast to these strong gains again are the losses of the 15-19 and 20-24 baby bust age groups. Unlike the three-county data, however, the 25-29 age group showed a moderate gain of 2,199 persons from 1980 to 1990. We attribute this to substantial in-migration in this age group to Washington County from Multnomah County and elsewhere because of the availability of apartments and jobs.



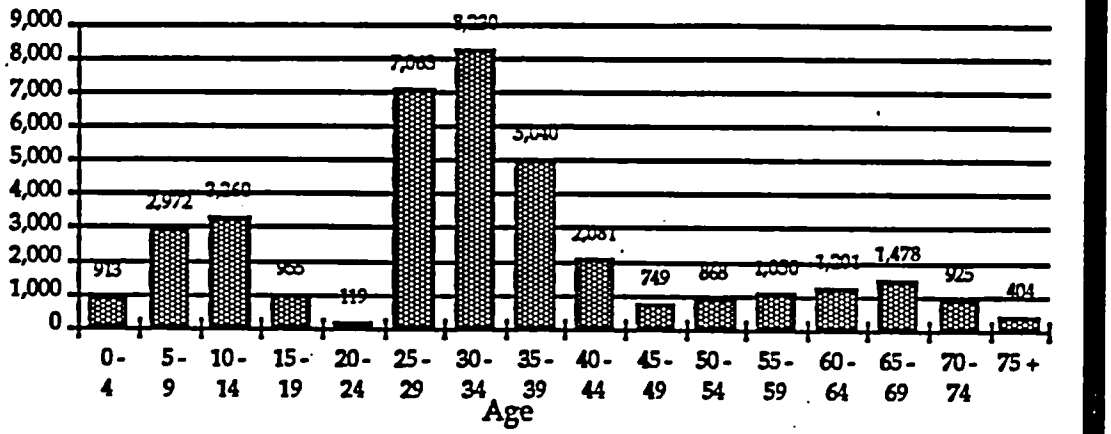
The age profile of a county is important because it determines, to a large extent, the kind of housing that is demanded in the marketplace. The movement of the baby boomers through the age profile (followed by the baby busters) will have a profound effect on housing in the next twenty years. Younger households tend to rent and move a lot, while older households tend to buy homes, but move around less. As the age profile gets older under the influence of the boomers, the demand for single-family move up homes will get stronger, while the demand for rental apartments will get softer, until such a time as the "echo boom" (children of the baby boomers) become old enough to establish households and rent apartments. Starting about the year 2000, these echo boomers will likely contribute to a moderate rise in demand for multi-family housing, though it won't match the demand levels for rental housing that their boomer parents created in the late 70's and 80's. As the leading edge of baby boomers reach 55 years old (starting in about 2000), they will likely become somewhat set and reluctant to move, thereby depressing demand for the luxury move-market. As these boomers reach 65 (about in 2010), there will be a stronger demand for retirement-type housing.

The implications of these increased demands for TOD development, however, are mixed. The increased demand for multi-family housing around 2000 will support TOD development, but retirement housing activity will have little impact since most retirement movers move away from urbanized settings. In the last decade, for example, The Center For Population Research and Census at Portland State University estimates that between 1980 and 1990 there was a small negative net migration of 65 year-old and older (65+) households in the Tri-County area (Washington, Multnomah and Clackamas counties). (By way of contrast, 65+ households accounted for more than 72% of net migration for the entire state in the 1980-1990 period).

The "solution" to the problem of baby busters following the boomers in the age profile is to steal other areas' baby busters, i.e., create the circumstances in which young migrants come to Portland to replace the losses. To a large extent, Washington County has been able to do exactly that as can be seen in Figure 3.

We estimated migration in the county by age group for the 1980-1990 Census period. (This analysis is preliminary in nature and subject to refinement). Using county survival rates and birth rates from 1980 to 1989 and aging in place, we projected what the population would have been without net migration. Comparing these to the actual 1990 Census, we assumed that the difference was due to net migration.

FIGURE 3
PRELIMINARY ESTIMATE OF NET MIGRATION BY AGE GROUP 1980 TO 1990
WASHINGTON COUNTY, OREGON



As can be seen in the figure, the 30-34 and the 25-29 age groups represent the principal in-migrants to Washington County, estimated at 8,230 an 7,063 persons, respectively. Third was the 35-39 age group with an estimated 5,040 net in- migrants in the decade. The lowest total is in the 20-24 year-old group, with a negligible 119 net in-migrants for the decade. The 5-9 and 10-14 age group totals indicate that a number of families with young children also migrated in this period.

Owner/Renter Ratios and Headship Rates, 1990

It is instructive to see the relationship between the age of the householder and whether or not that householder rents or owns a home. Nationally, about 64% of householders own their homes, while about 36% are renters. Washington County has a slightly lower ratio, with 60.8% owners to 39.2% renters, while Clackamas County has a higher ratio of owners (71.7%) to renters (28.3%). Multnomah County has the lowest percent of owners (55.3%) versus renters (44.7%).

County	1990 Census Population	1990 Hhlds By Age of Householder	% of Pop. Heading Hhlds	1990 Owner Hhlds	1990 % Owner Hhlds	1990 Renter Hhlds	1990 % Renter Hhlds
Clackamas							
0 - 14	62,295						
15 - 24	34,522	3,993	11.6%	710	17.8%	3,283	82.2%
25 - 34	42,078	19,108	45.4%	9,572	50.1%	9,536	49.9%
35 - 44	51,292	27,568	53.7%	20,590	74.7%	6,978	25.3%
45 - 54	34,054	19,500	57.3%	16,121	82.7%	3,379	17.3%
55 - 64	22,620	13,147	58.1%	11,212	85.3%	1,935	14.7%
65 - 74	18,671	11,626	62.3%	9,861	84.8%	1,765	15.2%
75 +	13,318	8,588	64.5%	6,141	71.5%	2,447	28.5%
Total	278,850	103,530		74,207	71.7%	29,323	39.5%
Multnomah							
0 - 14	115,717						
15 - 24	77,879	15,913	20.4%	1,381	8.7%	14,532	91.3%
25 - 34	107,592	53,969	50.2%	18,357	34.0%	35,612	66.0%
35 - 44	102,964	59,660	57.9%	34,583	58.0%	25,077	42.0%
45 - 54	56,196	33,651	59.9%	22,368	66.5%	11,283	33.5%
55 - 64	44,146	26,615	60.3%	19,567	73.5%	7,048	26.5%
65 - 74	43,354	28,166	65.0%	21,219	75.3%	6,947	24.7%
75 +	36,039	24,166	67.1%	16,506	68.3%	7,660	31.7%
	583,887	242,140		133,981	55.3%	108,159	44.7%
Washington							
0 - 14	71,278						
15 - 24	40,406	6,675	16.5%	639	9.6%	6,036	90.4%
25 - 34	57,961	28,717	49.5%	11,526	40.1%	17,191	59.9%
35 - 44	56,688	31,941	56.3%	21,006	65.8%	10,935	34.2%
45 - 54	32,585	19,233	59.0%	14,500	75.4%	4,733	24.6%
55 - 64	21,070	12,394	58.8%	9,873	79.7%	2,521	20.3%
65 - 74	17,749	11,184	63.0%	8,876	79.4%	2,308	20.6%
75 +	13,817	8,793	63.6%	5,856	66.6%	2,937	33.4%
	311,554	118,937		72,276	60.8%	46,661	39.2%

Source: 1990 Census

Inspection of the table indicates that younger households are most likely to be renters, while old households are more likely to be owners. Home ownership appears to peak in the 55-74 year-old group, with a slight decline after 75 years of age. The table also shows what percentage of an age group is likely to be a head of household. This headship rate is helpful in determining how many households you are likely to have given a future age distribution.

The main importance of the above table for Washington County projections is the application of the 1990 owner/renter and headship rates by age group to a future

projected age distribution for the county. By applying these rates to a projected population, estimates of future households can be made.

Relationship of Household Growth to Permit Activity

It is instructive to correlate the gain in households to the number of permits issued in the same time period. During the 10-year period of 1981-1990, about

	Households			Total	Ratio of
County	1980	1990	1980-1990 Change	Permits 1981-1990	Permits to Households
Washington	90,920	118,997	28,077	32,730	1.17
Clackamas	84,697	103,530	18,833	20,638	1.10
Multnomah	233,096	242,140	55,954	68,935	1.72
Tri-County	408,713	464,667	55,954	68,935	1.23

Source: Census, 1980 and 1990. Metropolitan Real Estate Report, 1991.

68,985 permits were issued in the tri-county area. According to the census, about 55,954 households were gained in the April, 1980 to April, 1990 period. Permits were issued at about 1.23 times the increase in households, about par for the course. The "extra" permits are accounted for by construction in progress, vacancies and replacement of lost housing stock. In Washington County, this ratio is 1.17 permits for every additional increase in household. In Multnomah County, where the housing stock is older and redevelopment is greater, the ratio is a 1.72 for the decade, a fairly high number. Since much of the housing stock in Washington County is fairly new, planning for about 1.20 times the projected households would be prudent.

Metro Projections and Demand for Housing

The table which follows lays out the essential household projections in The Regional Forecast that Metro published in 1989 and which constitutes the basic population and housing model for the LUTRAQ project. The forecast was done on the basis of projected job growth and on population forecasting conducted by Portland State University's Center
for Population Research and Census in 1987. We have included the 1990 census data for households as a check point. The projections appear to be more or less on target with respect to 1990 data and appear reasonable beyond 1990. Washington County is expected to add 3,337 households per year from 1987 to 2010, a rate that is somewhat higher but consistent with the past history from 1980 to 1990, when 28,007 households were added in Washington County.

The Metro forecast estimated the likely division of multi-family and single-family for the 1987 to 2010 period. Overall for the three counties, the Metro forecast projects a gain of 115,506 single-family and 66,504 multi-family homes in 23 years, a ratio of 63.5% single-

	Households							
County	1980	1987	1990 (1)	1995	2010	Gain 87-95	Gain 87-10	Average Annual Gain 87-10
Washington	90,920	107,466	118,997	135,350	184,213	27,884	76,747	3,337
Clackamas	84,697	94,962	103,530	115,472	148,867	20,510	53,905	2,344
Multnomah	233,096	240,423	242,140	257,351	285,498	16,928	45,075	1,960
Tri-County	408,713	442,851	464,667	508,173	618,578	65,322	175,727	7,640

Source: Table adapted from Table 3 of The Regional Forecast, Metro, 1989.
(1) Source: U.S. Census 1990.

58.4% single-family units and 41.6% multi-family units (46,747 single-family versus 33,253 multi-family homes). The 1990 ratio of existing single-family to multi-family housing in Washington County is about 68% single-family and 32% multi-family by census definitions.

We have inserted the 1990 Census data for single-versus multi-family housing again as a check point on the Metro projection. In the cases of all three counties the 1987 estimate of multi-family units was higher than the 1990 Census figures.

Metro Housing Units Forecast By Type, 1987 to 2010

	Housing Units								
County	1980	1987	1990 (1)	1995	2010	Gain 87-95	Gain 87-10	Ratio of Gain 87-10	Average Annual Gain 87-10
Washington	96,537	113,748	118,350	145,208	193,748	31,460	80,000		3,478
Single	65,093	75,467	80,437	95,202	122,214	19,735	46,747	58.4%	2,032
Multi	31,444	38,281	37,913	50,006	71,534	11,725	33,253	41.6%	1,446
Clackamas	88,920	100,369	97,535	121,152	156,475	20,783	56,106		2,439
Single	72,931	80,939	78,689	94,936	122,999	13,997	42,060	75.0%	1,829
Multi	15,989	19,430	18,846	26,216	33,476	6,786	14,046	25.0%	611
Multnomah	245,998	255,614	248,710	271,510	301,518	15,896	45,904		1,996
Single	159,107	164,534	165,848	174,086	191,233	9,552	26,699	58.2%	1,161
Multi	86,891	91,080	82,862	97,424	110,285	6,344	19,205	41.8%	835
Tri-County	431,455	469,731	464,667	537,870	651,741	68,139	182,010		7,913
Single	297,131	320,940	324,974	364,224	436,446	43,284	115,506	63.5%	5,022
Multi	134,324	148,791	139,621	173,646	215,295	24,855	66,504	36.5%	2,891

Source: Table adapted from Table 4 of The Regional Forecast, Metro, 1989.
(1) Source: U.S. Census 1990.

As a check on the Metro projections for Washington County, we analyzed the demand based on their projected age distribution of population for the county in 2010. Applying 1990 headship rates and owner/renter rates to each age group in the 2010 distribution, we estimated the number of owner and renter households for 2010: 115,550 owner households and 64,931 renter households. Subtracting the 1990 owners and renters from this projected total produced the net new owners and renters from 1990 to 2010: 43,279 owners and 18,270 renters, or about 70% owners and 30% renters. Under the assumption that 90% of new owners buy detached homes and 10% buy attached homes and that 100% of new renters rent attached homes, then the detached/attached split would be about 63% to 37%. Under Metro definitions, detached homes are "single-family" and attached homes are "multi-family" whether for sale or for rent.

ANALYSIS OF FUTURE REQUIRED MIX OF OWNER VS. RENTER HOUSING WASHINGTON COUNTY, 1990-2010

County	2,010 Projected Population (1)	2010 Hhlds By Age of Householder	% of Pop. Heading Hhlds (2)	2,010 Owner Hhlds	1990 % Owner Hhlds (2)	2,010 Renter Hhlds	1990 % Renter Hhlds (2)
Washington							
0 - 14	80,817						
15 - 24	58,688	9,695	16.5%	928	9.6%	8,767	90.4%
25 - 34	65,290	32,348	49.5%	12,983	40.1%	19,365	59.9%
35 - 44	68,851	38,794	56.3%	25,513	65.8%	13,281	34.2%
45 - 54	63,224	37,317	59.0%	28,134	75.4%	9,183	24.6%
55 - 64	56,322	33,130	58.8%	26,391	79.7%	6,739	20.3%
65 - 74	26,826	16,904	63.0%	13,415	79.4%	3,488	20.6%
75 +	19,324	12,298	63.6%	8,190	66.6%	4,108	33.4%
Total	439,342	180,486		115,555	64.0%	64,931	36.0%

(1) Unpublished intermediate calculations from Metropolitan Service District, The Regional Forecast, (June, 1989). (Data used with permission).
(2) Rates for Washington County, 1990 Census.

Analysis of Mix Needed to Get to 64%:

	Owners		Renters
1990 Hhlds	72,276		46,661
2010 Hhlds	115,555		64,931
2010-1990	43,279		18,270
% Own:	70.32%	% Rent:	29.68%

Under the Metro definitions of single-family and multi-family units, we estimate a demand in Washington County for the 1990-2010 period, at about 38,951 single-family units and 22,598 multi-family units, or about 1,948 single-family units and 1,130 multi-family units per year. In comparison, for a slightly longer period, 1987-2010, Metro forecast 46,747 single-family units and 33,253 multi-family units, or 2,032 single-family units and 1,446 multi-family units per year.

We conclude that the current Metro projection may be overestimating the demand for multi-family housing, but that it does not represent an unduly serious problem for LUTRAQ planning, in our opinion.

Because of a variety of demographic reasons and expressed preferences for detached single-family homes, we conclude that every effort will have to be made to channel the potential multi-family housing growth in Washington County toward TODs. There may, however, be sufficient opportunity in single-family housing to fill up the single-family share of the TODS. The real challenge for TODs is to offer market competitive, attached-for-sale housing to would-be single-family buyers.

Housing Market Analyses

Housing Stock Ratio Analysis

In analyzing the current housing stock ratios for the Metropolitan Statistical Area (MSA), Clark County in Washington has been excluded and the focus directed to Multnomah, Clackamas and Washington counties. These ratios have been taken from Summary Tape File 1, Profile 8 of the 1990 U.S. Census:

County	SFD Units	SFA Units	Total SF Vacant	MF Units	MF Units Vacant
Multnomah	160,150	5,698	6,611 (3.9%)	82,862	6,450 (7.7%)
Clackamas	76,191	2,498	3,369 (4.2%)	18,846	1,579 (8.3%)
Washington	75,597	4,840	1,894 (2.3%)	37,913	3,516 (9.2%)
Totals	**311,938**	**13,036**	**11,874 (3.6%)**	**139,621**	**11,545 (8.2%)**

Notes: 1) SFD = Single-family detached
SFA = Single-family attached (townhomes/condos)
MF = Multi-family (2 to 50 or more units)

2) Housing stock data as of March 1990.

As of the date of the 1990 Census findings, Washington County's existing dwelling units represented 37.9% of the three-county metropolitan area housing stock (118,350 out of 311,938 units). Single-family detached units accounted for 63.8%; single-family attached units at 4%; and multi-family units at 32% of the overall-county totals. Washington County's overall vacancy factor for both single-family and multi-family units was 4.5% (5,410 out of 118,350 units). Although Washington County's vacancy factor for multi-family units at 9.2% was the highest for the metropolitan area, a significant portion of that percentage can be attributed to new apartment units with higher rents which came into the market in 1990.

For the three-county metropolitan area, the overall housing stock ratios as of March 1990 (U.S. Census) were: 1) single-family detached units at 311,938 units or 67.2%; 2) single-family attached units at 13,036 units or 2.8%; and 3) multi-family units at 139,621 units or 30.0%.

For the past ten (10) years (1981-1990), there has been a shift in the new housing stock

ratio with multi-family construction surging due to density and housing type mix requirements enacted into state law (Metropolitan Housing Rule, Oregon Administrative Rule 660-07), and an increase in apartment demand generated by new job growth and the in-migration of young adults into the Portland area from in and out-of-state. The most substantial increase in new residential construction in the past decade occurred from 1986 through 1990 as the Portland area emerged from the recession in the early 1980s.

Again, excluding Clark County (Washington), the three-county metropolitan area experienced the issuance of 71,233 new residential permits (single-family and multi-family combined) from 1981-1990. There were 39,220 single-family permits issued (55%) versus 32,013 multi-family permits (45%). Since 1986 alone, there have been 23,189 new single-family permits (50.3%) and 22,833 multi-family permits (49.7%) issued. The greatest single year of activity was 1989 with 5,216 single-family and 8,095 multi-family permits, or 13,311 new units.

During the past decade, Washington County has accounted for 33,733 of the new dwelling permits issued for the three-county metropolitan area (47.3%). New single-family permits in the county represented 46.4% (18,229 units) of the total number of single-family permits issued for the region; Washington County multi-family permits were 48.4% (15,504) of the region's for that product type. During the past five years (1986-1990), Washington County experienced 22,448 new dwelling unit permits issued including 11,323 single-family units (50.4%) and 11,125 multi-family units (49.6%). Washington County has accounted for approximately 48.7% of the three-county metropolitan area new permit activity for 1986-1990 (12,448 out of 46,022 units).

General Market Conditions

After five (5) years of sustained activity, the three-county Portland metropolitan area is encountering slower single-family home sales (both existing and new) due to the impact of the national recession. As evidenced by the drop in new permit activity alone for 1991, sales of new homes are estimated to be off by approximately 20% over 1990 levels. Sales of existing (resale) homes are projected by the Multiple Listing Service (MLS) to be down approximately 15% from last year's pace.

The present market condition should improve significantly as the recession ends and new job growth returns and accelerates in the metropolitan area - particularly Washington County. With this county accounting for approximately 50% of the new residential construction activity for the metropolitan area from 1986-1990 - and considering the commercial/industrial expansion potential of the Sunset Corridor - it is very likely that Washington County could continue to dominate in new household growth provided this market area does not become over-priced and has affordable housing available through the year 2010.

Current Competitive Market Assessment

Because LUTRAQ focuses primarily on conditions in Washington County, the emphasis of the current market assessment - both new single-family and multi-family - was directed towards this county and the incorporated cities therein.

Single-Family Activity

Market Perspectives has surveyed over twenty-five (25) active single-family detached subdivisions within the greater west Portland new home market including West Union/Washington County and Beaverton/Tigard. The projects surveyed have been categorized into different product types and lot segmentations including entry-level, small lots (4,500 square feet); entry-level, standard lots (6,500 to 7,000 square feet); move-up, standard lots (6,500 to 7,900 square feet); second move-up on standard lots (6,000 to 8,000 square feet); and luxury move-up on large lots (9,000 square feet).

Because numerous projects are scattered lot sites involving numerous small building firms, Market Perspectives has selected ten (10) projects which are representative of the typical merchant-built product being offered in the overall competitive market area. Competitive summaries and complete profiles of these selected projects can be found in Appendix B of this study.

West Union/Washington County

Entry-level detached product on small lots (RD 6 & 7 or 4,500 square feet or less) is being offered at Deerfield by Titan Homes in West Union. The typical unit features 3 bedrooms/2.5 baths with an average size of 1,550 square feet, and an average price of $102,560, or $65.92 per square foot. This project has been averaging approximately 5 sales per month since opening the second phase and has 35 units remaining for sale or approximately 7 months of inventory.

There are three (3) active subdivisions offering entry-level detached product on standard lots (RD 4 & 5 or 6,500 to 7,000 square feet) which typifies similar competitive product within the submarket area. A typical unit features 3 bedrooms/2.5 baths with an average unit size of 1,524 square feet, and an average price of $108,354 or $71.19 per square foot. Product ranges from 1,254 to 1,905 square feet with base pricing from $94,950 to $124,950. Because the projects opened for sale in October 1991, valid sales rates have not been established. There are approximately 166 units remaining available at the projects.

For move-up product on standard lots (RD 4 & 5), the product that typifies similar competition within the submarket area is Choban Downs. The typical unit features 4 bedrooms/2.5 or 3 baths with an average unit size of 2,237 square feet, and an average price of $154,263, or $68.96 per square foot. This project has been averaging approximately 3 sales per month since opening and has 51 units remaining available or 19 months of inventory.

Beaverton/Tigard

There are two (2) subdivisions offering first move-up detached product on standard lots (RD 4 & 5) which typifies similar competition within this submarket area. The typical unit features 3 bedrooms/2.5 baths with an average size of 1,732 square feet, and an average price of $135,261, or $78.10 per square foot. These two projects have been averaging approximately 2 sales per month since opening and have 63 units remaining available or approximately 17 months of inventory.

There are three (3) active subdivisions offering second move-up detached product on standard lots (RD 4 & 5) which typifies similar competition within the submarket area. The typical unit features 4 bedrooms/2.5 baths with an average size of 2,382 square feet, and an average price of $190,167, or $79.80 per square foot. These projects have been averaging 1.6 sales per month per project since opening; and have 26 units remaining available or approximately 5 months of inventory.

There is one active project in the submarket offering luxury move-up detached homes on large lots (RD 3 or 8,000 square feet or larger) with the typical unit featuring 4 bedrooms/2.5 baths with an average unit size of 3,100 square feet, and an average price of $285,000, or $91.94 per square foot. This project is averaging 1.5 sales per month since opening; and has 34 units remaining available for sale or 23 months of inventory.

Multi-Family Activity

After four to five years of "heated" multi-family construction activity in the three-county metropolitan area, new permit activity for 1991 through October was off approximately 80%. Permits for only 905 new unit permits had been issued through October compared to 5,349 units in 1990. The biggest decline in permits is in Washington County with 156 units for 1991 compared to 2,371 for 1990, according to the Oregon Housing Agency.

As indicated in the 1990 Census (March 1990), the vacant multi-family units in Washington County totalled 3,516 out of 37,913, or 9.2%. The March 1991 postal vacancy survey in the Metropolitan Portland Real Estate Report (Vol. 73, Autumn 1991) revealed a 10.0% vacancy factor. The size of this vacancy percentage can be attributed to the number of new apartments which entered the market in 1990 and have not been absorbed to date. In fact, the McGregor Millette Report, dated Fall 1991, notes a 15.0% vacancy for selected new apartment complexes (built 1987 or after) in Beaverton and 21.6% for Aloha/Hillsboro. It should be noted that the McGregor Millette Report does not survey all apartment complexes in the metropolitan area, but approximately 60% which is considered a valid sample base for trends. The "sampled" vacancy factors for "older" complexes (built before 1987) in Beaverton and Aloha/Hillsboro are 5.9% and 4.4%, respectively, according to McGregor Millette.

The primary reason for the difference in vacancy factors between newer and older complexes in Washington County is probably related to the higher average rents of the newer apartments and the current over supply of units. The following tables indicate the

differences in rents and vacancies for various unit types between newer and older complexes in Washington County:

Apartments Older than 1987 - Rents

Fall 1991	Studio Units	1 Bd/1 Ba Flat	2 Bd/1 Ba Flat	2 Bd/1.5 Ba Flat	2 Bd/2 Ba Flat	2 Bd/1.5 & 2 Ba-TH	3 Bd/1 Ba Flat	3 Bd/2 Ba Flat	Avg. Sub-Mkt Rent
Tualatin/Wilsonville ($ per Sq. Ft.)	$340 ($0.72)	$405 ($0.64)	$471 ($0.56)	N/A	$571 ($0.59)	$599 ($0.56)	$541 ($0.51)	$563 ($0.54)	$473 ($0.58)
Tigard/King City ($ per Sq. Ft.)	$387 ($0.80)	$425 ($0.63)	$482 ($0.56)	$492 ($0.52)	$584 ($0.58)	$545 ($0.62)	$526 ($0.54)	$765 ($0.67)	$489 ($0.59)
Beaverton ($ per Sq. Ft.)	$342 ($0.75)	$417 ($0.62)	$478 ($0.57)	$526 ($0.56)	$561 ($0.60)	$506 ($0.50)	$526 ($0.55)	$607 ($0.56)	$487 ($0.58)
Aloha/Hillsboro ($ per Sq. Ft.)	N/A	$391 ($0.56)	$463 ($0.54)	$509 ($0.48)	$575 ($0.60)	$468 ($0.52)	$522 ($0.55)	$552 ($0.53)	$468 ($0.54)

Apartments Older than 1987 - Vacancy Factor

Fall 1991	Studio Units	1 Bd/1 Ba Flat	2 Bd/1 Ba Flat	2 Bd/1.5 Ba Flat	2 Bd/2 Ba Flat	2 Bd/1.5 & 2 Ba-TH	3 Bd/1 Ba Flat	3 Bd/2 Ba Flat	Avg. Sub-Mkt Vac.
Tualatin/Wilsonville	2.8%	1.6%	5.7%	N/A	9.5%	5.4%	7.5%	0.0%	3.9%
Tigard/King City	9.1%	4.9%	7.4%	2.6%	5.5%	4.7%	0.0%	0.0%	5.6%
Beaverton	0.0%	4.6%	6.6%	5.9%	7.2%	4.9%	5.6%	3.9%	5.9%
Aloha/Hillsboro	N/A	2.0%	4.1%	6.1%	8.1%	6.5%	3.1%	6.7%	4.4%

Apartments 1987 and Newer - Rents

Fall 1991	1 Bd/1 Ba Flat	1 Bd/1 Ba Loft	2 Bd/1 Ba Flat	2 Bd/2 Ba Flat	2 Bd/2 & 2.5 Ba Flat	3 Bd/2 Ba Flat	3 Bd/2 & 2.5 Ba-TH	Avg. Sub-Mkt Rent
Tualatin/Wilsonville ($ per Sq. Ft.)	$506 ($0.76)	N/A	$514 ($0.63)	$601 ($0.64)	$837 ($0.67)	$767 ($0.68)	$969 ($0.71)	$603 ($0.67)
Tigard/King City ($ per Sq. Ft.)	$470 ($0.69)	N/A	$479 ($0.60)	$602 ($0.65)	N/A	$704 ($0.61)	N/A	$512 ($0.63)
Beaverton ($ per Sq. Ft.)	$510 ($0.77)	$657 ($0.75)	$577 ($0.67)	$660 ($0.68)	$709 ($0.66)	$753 ($0.67)	$982 ($0.74)	$806 ($0.70)
Aloha/Hillsboro ($ per Sq. Ft.)	$514 ($0.75)	N/A	$581 ($0.67)	$703 ($0.70)	$947 ($0.77)	$773 ($0.66)	N/A	$613 ($0.71)

Apartments 1987 and Newer - Vacancy Factor

Fall 1991	1 Bd/1 Ba Flat	1 Bd/1 Ba Loft	2 Bd/1 Ba Flat	2 Bd/2 Ba Flat	2 Bd/2 & 2.5 Ba Flat	3 Bd/2 Ba Flat	3 Bd/2 & 2.5 Ba-TH	Avg. Sub-Mkt Vac.
Tualatin/Wilsonville	5.9%	N/A	4.0%	7.6%	5.0%	8.3%	8.5%	6.6%
Tigard/King City	5.0%	N/A	3.2%	10.1%	N/A	12.2%	N/A	5.4%
Beaverton	9.7%	6.5%	27.8%	17.7%	22.6%	12.6%	13.0%	15.0%
Aloha/Hillsboro	11.6%	N/A	34.2%	27.6%	23.3%	21.3%	N/A	21.6%

Source: McGregor Millette Report; Fall 1991

If the current credit crisis continues through 1992 into 1993, it is expected that financing for multi-family development in the metropolitan area - including Washington County - will greatly limit the building of new apartments until the current vacancy levels drop to

5% or below. In fact, the McGregor Millette Report noted that since its Spring 1991 report that vacancy factors have already started declining - even in Washington County.

Future Proposed Projects

Market Perspectives also inquired at the planning departments of Washington County and the cities of Beaverton and Tigard for approved and "in processing" single-family projects which would represent future competition.

There are seven (7) subdivisions with 162 lots that will be offering merchant-built homes for sale during the first six months of 1992. Six (6) of these subdivisions are located in the Beaverton/Tigard area and the other one is in Washington County near Hillsboro. A breakdown on those projects follows:

Project/Developer	# of Lots	Lot Size	Square Ftg. Range	Price Range	Opening Date
Chancellor Crest by Centex Homes	38	8,000 sq. ft.	1,900-2,400	$150,000-$175,000	1/1/92
Brittany Square by Matrix Dev.	23	5,100 sq. ft.	1,650-1,975	$122,500-$149,000	1/1/92
Walnut Grove by 4D Construction	9	7,500 sq. ft.	1,600-1,800	$120,000-$150,000	1/1/92
Capstone by Pacific West Homes	16	7,750 sq. ft.	1,450-1,900	$115,000-$129,900	1/1/92
Aspen Park by Prima Donna Dev.	39	7,400 sq. ft.	1,900-3,000	$160,000-$210,000	3/1/92
Meadowglade by Olsen Dev.	9	7,000 sq. ft.	1,600-2,000	$130,000-150,000	7/1/92
Baseline Village by Amato & Assoc.	28	6,000 sq. ft.	1,300-1,500	$110,000-$130,000	5/1/92
Total Units/Lots	**162**				

Lot Inventory Summary

First Move-Up	85
Second Move-Up	77
Total Lots	**162**

The following table identifies both approved and "in-processing" subdivisions in the competitive market area including those noted above:

Proposed Approved and "In-Processing" Subdivisions				
Project/Developer	Location	# of Lots # of Acre	Average Lot Size	Comments
BEAVERTON:				
Ghiglietti Acres/Mark Dane[1]	SW Clifford	17 lots; 1.7 & 1.5 acres	5,000-7,000 sq. ft.	Infrastructure completed and lots are being sold to builders
Tula Lane/Nick Vidan[1]	SW Hart Rd. & 158th Avenue	8 lots; 1.3 acres	5,000-7,000 sq. ft.	Formerly called Nick's Acres
Hiteon Meadows[1]	SW Davis Rd. & Citation	58 lots; 23.5 acres	5,000 sq. ft.	Infrastructure to begin in 1 to 2 weeks. Developer selling 40 lots.
Featherwood Park/Jim Pace[1]	SW Wier Rd. near Murray Blvd.	16 lots; 4.4 acres	5,000 sq. ft.	30% infrastructure constructed - selling lots to builders
William Hill/Dick Bancroft[1]	SW 173rd Avenue near Walker Rd.	12 lots; 2.8 acres	7,000 sq. ft.	Project has been tabled for a few months. Will sell lots to builders. Only preliminary approval.
TIGARD				
Burton/Seiyu International[1]	Bull Mtn. Road & 139th Avenue	276 lots; 97 acres	8,000- 32,000 sq. ft.	Infrastructure not completed. Pricing $60,000± per lot. Approved with conditions 10/91.
Rose Meadows/Paul Miller[1]	13735 SW Walnut & 13725 SW Fern	28 lots; 4.97 acres	5,000-12,630 sq. ft.	Received final approval. Developer to complete infrastructure then sell to J. Miller. J. Miller will build homes and sell some lots to other builders.
Darwish/Idriss-Beacon Homes by Peter Kusyk[1]	15400 SW Hall Blvd.	20 lots; 3.72 acres	5,000-8,400 sq. ft.	Infrastructure to be completed 12/15/91. All 20 lots have been sold to 2 builders.
Arlauskas & Stasys/Tom Miller[1]	16420 SW 108th Avenue	23 lots; 5.82 acres	7,500-8,751 sq. ft.	Approved with conditions 6/7/91. No final yet, ran into wetlands problem. Developer to build infrastructure and sell some of the lots to other builders. Plans to build next summer.
Keith & Jean Taylor[1]	14350 SW 97th	9 lots; 2.09 acres		8 lots have been sold to other builders. Infrastructure to start 1/92. No final approval; applied 10/11/91.
MB Development-OTAK, Inc.[2]	East of Benchview Estates Sub., south of present terminus of SW 132nd Ave.	52 lots; 40.03 acres		Application appealed by Neighborhood Plan Organ. #3. Stated plan does not incorporate westward ext. of Gaarde, 1 of 2 options in the new Bull Mtn. transportation study approved by county. City council to vote 11/26/91.
Matrix Development Co.[1]	135th & Walnut	194 lots	6,500-7,500 sq. ft.	New plan is for larger and fewer lots. Ph. I w/64 lots to break ground 2/92. Will sell lots to bldrs. Phase II & III will be built by Matrix Dev. called Castle Hill.
Helm Heights/Joan Hennings[1]	11575 Beef Bend Blvd.	12 lots	9,605-27,422 sq. ft.	2 lots sold. Prices $46,000 to $59,000.
Morning Hill/Dave Alexander[1]	135th & Walnut	42 lots	7,000-9,000 sq. ft.	Lots to be sold. Infrastructure will be completed in 2 wks. Taking reservations.

Proposed Approved and "In-Processing" Subdivisions				
Project/Developer	Location	# of Lots # of Acre	Average Lot Size	Comments
WASHINGTON COUNTY				
Nicholas Acres by Tenly Props.[1]	209th Ave. & Parker, Aloha	70 lots; 8.42 acres	4,000-6,000 sq. ft.	Lots to be put up for sale. Phase II scheduled for spring 1992.
Adams Plat by NTL Properties[2]	Rock Creek Area - NW Rock Creek Blvd. & Wahkeena	21 lots; 14.88 acres	7,000-8,000 sq. ft.	Applied for preliminary plat approval. Infrastructure to start Spring 1992.
Baseline Village by Dave Amato[1]	SW Corner of Baseline & 201st Ave.	41 lots	13 lots will be attached; 28 lots to be 6,000 sq. ft. Infrastructure starting. Adjoins Kevin's Acres.	
Nottingham Heights #3 by GDG Properties[2]	East of intersection off Rigert Rd. & east of SW 184th Avenue	31 lots	7,000-9,000 sq. ft.	Preliminary plat applied for. Infrastructure to begin summer 92. Will sell lots to builders. One lot is 20,000 SF.
Northshore Estates/Heritage Homes[1]	West Union Rd. & West of 185th	18 lots; 8 acres	7,000-9,000 sq. ft.	Lots priced from $33,950-$46,950. Preliminary approval - Infrastructure under construction. Currently taking res. Const. of homes to start in 2 months.
Cedar Mill Woods by H.G.W. Inc.[1]	102nd & Cornell Road	22 lots	7,000-14,000 sq. ft.	Infrastructure to start ASAP.
The Vintage by Jim McGee[2]	Off McDaniel & NW Ridge Road	50 lots; 9.57 acres	6,000 sq. ft.	No final approval yet. Site plan not completed yet. Plan on building their own homes.
Parc Bethany by Central Bethany Development[1]	SW Kaiser Road	182 lots; 45.52 acres	7,500 sq. ft.	Major problems with this site including building schools. Rec'd preliminary plat approval. Grading begun for 42 lots in Phase I to be on market this spring.
Dalton Company[2]		27 lots; 4.8 acres	6,000 sq. ft.	Applied for preliminary plat approval. Unsure if they will build homes or sell lots to builders.
	Total units/lots	1,216		

[1]Approved
[2]In-processing

Source: Governmental planning departments, February 1992

Lot Summary:

Approved	1,062
In-Processing	154
Total Lots	**1,216**

Remaining Vacant Land Assessment

In developing and implementing the TOD concept for Washington County, it is important to consider the vacant land inventory of residentially zoned parcels in the metropolitan area which would represent possible future competition without zoning changes or limitations. Appendix C includes a table which identifies the vacant land summary for Clackamas County and the incorporated cities therein; and the incorporated cities in Multnomah County. There is no estimate of land use inventories currently

available from Multnomah County from its planning department.

According to the community profiles provided in Research Report 91-1 from the Metropolitan Service District (METRO), Washington County and the incorporated cities therein have approximately 11,123 acres designated for remaining single-family development and 6,739 acres for multi-family applications. The following acreage and buildable residential unit summaries are applicable:

Vacant Land (possible future competition)

Area	Single-Family	Multi-Family
Washington Co	7,619	5,229
Beaverton	815	252
Forrest Grove	577	171
Hillsboro	1,111	593
Tigard	501	209
Tualatin	500	285
Total Acres	**11,123**	**6,739**

Buildable Residential Units

Area	Single-Family	Multi-Family
Washington Co	52,416	58,426
Beaverton	6,887	2,180
Forest Grove	3,174	2,722
Hillsboro	7,989	10,773
Tigard	2,674	3,000
Tualatin	2,000	4,400
Total Units	**75,140**	**81,501**

Projected Average Densities for Reported Buildable Acres

Area	Projected Average Densities Per Acre
Washington Co.	8.63 DU
Beaverton	10.09 DU
Forest Grove	7.88 DU
Hillsboro	11.00 DU
Tigard	8.99 DU
Tualatin	8.2 DU
Sherwood	5.16 DU
Cornelius	6.8 DU
Dunham	5.9 DU
Wilsonville	12.8 DU

Notes: 1) Vacant land inventories as of 1990.

2) Beaverton figures above from October 1986 data. February 1990 data for acres of land designated for single-family and multi-family development is available, but the number of units buildable is not.

3) Unit permits issued since 1990 have not been subtracted from above totals.

Recommended Residential Product Applications

The following recommended product applications have been separated into urban TOD and neighborhood TOD sites. Urban TOD sites are assumed to be primarily located at or adjacent to a light rail station and will be developed on a typical 100-acre site with residential applications. Neighborhood TODs are assumed to be located on express bus feeder routes and contain approximately 160 acres.

The urban TODs are recommended to have a higher percentage of multi-family and "for sale" attached product than neighborhood TODs. While product mix percentages are provided for both urban and neighborhood TODs, these recommended levels are guidelines only and may slightly vary from one type of TOD to another due to site size or topography constraints.

Segment and Ave. Lot Dimension	Product Type	Ave. Unit Density/Net Ac.	Percentage of Product Mix
Urban TOD - MF & SFA Product			
Multi-family application	3-story apartments	30/ac.	34.6%
Multi-family application	Garden/upscale apartments	20/ac.	17.3%
Single-family attached (ownership)	Condominiums	15/ac.	10.4%
Single-family attached (ownership)	Townhomes	12/ac.	8.3%
Urban TOD - SFD Product			
Single-family detached (ownership)	Small lot carriage units	10/ac.	14.7%
Single-family detached (ownership)	Small lot (zero-lot line)	7/ac.	14.7%
Neighborhood TOD - MF & SFA Product			
Multi-family application	Garden/upscale apartments	20/ac.	25.0%
Neighborhood TOD - SFD Product			
Single-family detached (ownership)	Small lot carriage units	10/ac.	20.0%
Single-family detached (ownership)	Small lot (zero-lot line)	7/ac.	20.0%
Single-family detached (ownership)	Standard lot	5/ac.	35.0%

Using 100 acres for the residential portions of urban TODs and applying the above percentages for various product types results in approximately 816± multi-family and attached "for sale" units, and 340± small lot single-family detached units, or 1,156± total units. Based upon a net buildable area of 80 acres, the average density is 14.5 units per net acre. There may be some latitude to slightly increase this average density for certain urban TODs. Using the average household sizes for similar product types as identified in the 1990 Census for Washington County (i.e. 2.9 for single-family and 1.9 multi-family) would result in a TOD population of approximately 2,043± persons.

Using 160 acres for a neighborhood TOD with 10 acres allocated for commercial applications and 30 acres for streets, open space, amenities, etc., the net buildable area is

120± acres. Applying the above product type percentages results in approximately 240± multi-family units and 720± single-family detached units, or 960± total units. Based upon a net buildable area of 120 acres, the average density is 8.0 units per acre. Using the average household sizes for similar product types identified in the 1990 Census for Washington County, a neighborhood TOD of this proportion would accommodate a population of approximately 2,544± persons.

For downtown, mixed-use centers, the housing will be a combination of existing homes and much higher density new homes. Assuming that about 140 of the 500 acres is devoted to new homes, townhomes at about 10 to 12 per acre and apartments and condominiums at 20 to 50 per acre are recommended. About 880 townhome units (about 28%) and 1,800 condominium and apartment units (about 57%) are recommended for these large, mixed-use centers. Existing single-family homes (which may be renovated or replaced on site) would number about 500 units under these recommendations, and represent about 16% of the total. The recommended multi-family/single-family split for mixed-use centers is about 84% multi-family and 16% single-family.

Segment	Product	Ave. Unit Density/Net Ac.	Percentage of Product Mix
Mixed-Use Centers (500 Acres, 240 Net Residential Acres)			
Low-density residential	Existing home areas	4 to 6 units per acre	15.7%
Mid-density residential	Small lot and townhomes	10 to 12 units per acre	22.7%
High-density residential	Condos and rentals	20 to 50+ units Avg. 30 per acre	56.6%

Using these recommended percentage mixes, the urban TOD would have 70.5% multi-family and single-family attached units to 29.5% single-family detached units. In the neighborhood TODs, multi-family units would account for 25% of the mix and single-family detached product at 75%.

Specific Product Lines and Base Pricing Levels

The following residential product lines are recommended for both urban or neighborhood TODs. The 1992 base pricing levels reflect today's market condition.

Apartment Product

Plan	Room Configuration	Approx. Sq. Footage	Unit Mix	1992 Rental Rate[1]	Rent Per Square Foot
1	1 bd/1 ba	650±	35%	$550	$.84
2	2 bd/1 ba	850±	15%	$650	$.76
3	2 bd/2 ba	960±	40%	$680	$.71
4	3 bd/2 ba	1,100±	10%	$760	$.69

Note: [1]The above unit mix, room configurations, approximate square footages, and rental rates are suggested base averages based upon 1992 rental trends. Individual unit rental rates may be adjusted for premiums for locations within the project.

Condominiums

Plan	Type & Room Configuration	Approx. Sq. Footage	Unit Mix	1992 Base Pricing[1]	Sq. Foot Value Ratio
1	Single-level (ground level) 2 bd/1 compartment-alized bath	950±	20%	$65,000	$68.42
2	Two-story 2 bd/2 ba (one bd/ba downstairs)	1,100±	25%	$72,500	$65.90
3	Two-story 2 bd/1.5 ba (both bdrms down w/compartmentalized bath)	1,225±	25%	$79,000	$64.48
4	Two-story 2 bd + den alcove/ 2.5 ba	1,350±	30%	$85,000	$62.96

Note: [1]The above unit mix, room configurations, approximate square footages, and rental rates are suggested base averages based upon 1992 rental trends. Individual unit rental rates may be adjusted for premiums for locations within the project.

Townhome Product Line

Plan	Type & Room Configuration	Approx. Sq. Footage	Unit Mix	1992 Base Pricing[1]	Sq. Foot Value Ratio
1	Single-story 2 bd/2 ba nook	1,100±	15%	$75,000	$68.18

Plan	Type & Room Configuration	Approx. Sq. Footage	Unit Mix	1992 Base Pricing[1]	Sq. Foot Value Ratio
2	Single-story 3 bd/2 ba nook	1,250±	20%	$82,500	$66.00
3	Two-story 2 bd plus retreat or den/2 ba nook	1,400±	30%	$90,000	$64.28
4	Two-story 3 bd/3 ba nook	1,500±	35%	$95,000	$63.33

Note: [1]The above prices are applicable for today's market. Individual unit prices may be adjusted for premium locations, i.e. cul-de-sac or views, etc.

"Carriage" Product - (3,000 to 3,500 ± S.F.Lots)

Plan	Type & Room Configuration	Approx. Sq. Footage	Unit Mix	1992 Base Pricing[1]	Sq. Foot Value Ratio
1	Two-story 2 bd/2.5 ba with den alcove	1,100±	25%	$77,000	$70.00
2	Two-story 3 bd/2.5 ba nook	1,250±	40%	$85,000	$68.00
3	Two-story 3 bd/2.5 ba nook	1,400±	35%	$92,000	$65.71

Note: [1]The above base pricing reflect the current levels for 1992. Individual unit prices may be adjusted for additional lot premium locations, i.e. cul-de-sac or views, etc.

Narrow Lot Product Line (45'x100' Lots)

Plan	Type & Room Configuration	Approx. Sq. Footage	Unit Mix	1992 Base Pricing[1]	Sq. Foot Value Ratio
1	Single-story 3 bd/2 ba, nook	1,300±	15%	$94,000	$72.30
2	Two-story 3 bd/2.5 ba, nook	1,450±	20%	$101,500	$70.00
3	Two-story 3 bd/2.5 ba family room/nook	1,600±	35%	$109,000	$68.12
4	Two-story 3 bd/2.5 ba 4th bdrm or retreat opt; family room/nook	1,750±	20%	$116,500	$66.57

Notes: 1) [1]The above base pricing reflects the current levels for 1991.

2) Individual unit prices may be adjusted for additional premiums for locations within the project, i.e., larger lots, etc.

3) It is recommended that three (3) elevation designs be offered with each floor plan recommended above. The elevation variations will provide a more marketable street scene for the product.

Standard Lot Product (60'x100' Lots)

Plan	Type & Room Configuration	Approx. Sq. Footage	Unit Mix	1992 Base Pricing[1]	Sq. Foot Value Ratio
1	One-story 3 bd/2 ba family room	1,550±	20%	$124,000	$80.00
2	One-story 4 bd/2 ba family room	1,750±	25%	$132,000	$75.42
3	Two-story 4 bd/2 ba family room	1,900±	25%	$140,000	$73.68
4	Tri-level 4 bd/2.75 ba family room (one bedroom down)	2,150±	15%	$152,500	$70.93
5	Two-story 5 bd/3 ba family room	2,400±	15%	$168,000	$70.00

Notes: 1) [1]The above base pricing reflects the current levels for 1992.

2) Individual unit prices may be adjusted for additional lot premiums for locations within the project, i.e. cul-de-sac, larger lots, etc.

3) It is recommended that three (3) elevation designs be offered with each floor plan recommended above. The elevation variation will provide a more marketable street scene for the product.

Recommended Development/Marketing Strategies

The following development/marketing strategies are recommended for consideration in the implementation of the various neighborhood and urban TOD sites within Washington County. These recommendations are directed at affecting the timing of TOD development and the rate of market absorption. The overall marketability of TOD development with the product mix as discussed in other portions of this volume are not dependent on the implementation of the following strategies.

- To ensure the development potential of TOD sites, it will be imperative that zoning policies be enacted which will result in acceptable densities and product types for those sites during the next 20 years.

- Because of the inventory of single-family residentially zoned vacant land available within the county and most of the incorporated cities under the LUTRAQ plan, to channel development in the TOD sites as opposed to other parcels it may also be advisable to enact a permit allocation ordinance. Under such a system, the number of single-family lots approved for future construction would be placed on a permit allocation basis for those sites located outside downtown areas and urban or neighborhood TODs. There would be no permit allocations for any residential development within downtown areas or TOD sites provided the application met the appropriate density and product design guidelines.

  It is estimated that the future single-family detached demand for Washington County from 1990-2010 will be approximately 46,900 units. Additionally, it is projected that there will be 5,200 single-family attached (ownership) units also in demand for the same time period. It is further estimated that approximately 55% of the future demand for the next 20 years can be satisfied through urban, neighborhood and downtown, mixed-use centers while 45% of the demand would be met in areas outside of the TOD sites. According to projections from Calthorpe Associates, the residential areas outside of the TODs have a capacity for approximately 34,000 detached units between 1990-2010. With the detached unit demand outside the TODs at approximately 21,000 units for the next 20 years, this excess capacity suggests the need for a permit allocation ordinance.

- Another technique of encouraging development within TOD locations could be the implementation of an impact fee structure which financially rewards builders constructing new residential product in TOD sites as opposed to other parcels which are already residentially zoned. As an example, the impact fee per unit within the TOD site would be $5,000 while a similar unit or lots in another location would have a fee of $20,000.

- A more active intervention in the market by a public (or quasi-public) agency could also assure that TODs attract home builders and apartment developers. Using its bonding and other authority, an agency could, as developer or co-developer, reduce (buy-down) the finished cost of a lot

and offer builders a strong incentive to build in TODs. For example, in the Portland area a typical standard finished lot represents about 35% to 28% of the total retail cost of a home. For a $150,000 home, this would represent about a $40,000 lot. If a similar lot were priced at $30,000 in a TOD, a builder could afford to offer (somewhat smaller) homes for $115,000. By such advantageous pricing, the TOD sites would get a strong response from the building community and serve affordable housing needs at the same time.

- Whatever policy inducement or incentive is finally put in place, the development of the TOD sites must be overwhelmingly favored.

- Careful consideration must be taken in how many TOD sites will be allowed to be developed simultaneously. Allowing too many sites at once may result in a "flood" of multi-family or single-family units into the marketplace which might result in an oversupply condition and poor sales or rental acceptance. This is particularly true for urban TODs which will have higher densities of multi-family and single-family attached product.

- For neighborhood TODs, which have areas with more traditional single-family lots, there may be a greater flexibility in the number of these sites that can be simultaneously developed.

- For urban TODs with higher unit densities, the right incentives or subsidies must be contemplated to induce retail services and businesses into the initial phases of the development. The presence of adequate services enhances the appeal and acceptance potential for renters and single-family attached unit buyers.

- For neighborhood TODs, it will be important to phase the small and standard lot detached product first. To attract anchor tenants and retail outlets, it is necessary to have a sufficient supply of units to justify the investment. The single-family detached product will be in greater demand in the neighborhood TODs - particularly in the more outlying TOD sites - than a multi-family or higher density single-family attached product. This phasing technique will result in the sales and absorption of sufficient units to induce retail services necessary to further enhance the viability of higher density units in later phases.

- Whenever possible, governmental facilities, public buildings, or school sites regional malls and shopping centers should be planned for or immediately adjacent to TOD sites. This strategy will help create transit ridership and promote bicycling and walking.

- It should be obvious that the initial development of TOD sites must occur in the immediate path of growth within Washington County rather than the more outlying rural areas, i.e. Beaverton and Hillsboro as opposed to Forest Grove.

- Based upon the future demand projections, it is apparent that virtually 100% of

the future multi-family unit demand can be accommodated within the TOD sites as currently planned by Calthorpe Associates. Therefore, to maximize the development of the necessary multi-family units for future demand within the county, policies should be enacted which preclude multi-family development outside of TODs.

Annual Absorption Potential

The annual new unit demand for Washington County overall based upon METRO's population and household forecast through 2010 is projected to average approximately 1,400 multi-family units (including "for sale" attached product) and 2,100 single-family detached units. Duet or halfplex product is included in the detached forecast.

Projections from Market Perspectives and Hébert/Smolkin Associates indicate that the probable annual unit demand for Washington County is slightly higher at 3,700 units. The ratio would be approximately 1,150 multi-family units and 2,550 single-family units with about 250 of the multi-family units being attached "for sale" dwellings.

With appropriate zoning requirements and permit allocations, it is believed that up to 100% of the future annual multi-family demand can be absorbed by the urban and neighborhood TODs. Again, with adequate fiscal incentives and zoning guidelines, the TODs have the potential to capture up to 55% of the annual single-family unit demand through to the year 2010. The larger lot single-family homes will be developed and absorbed in areas outside of TODs.

The following annual absorption average is forecasted by product types for the TODs assuming that appropriate zoning policies are enacted and there is a timely development of TOD sites:

Product Type	Average Lot Size	Unit Size Range	Base Price/ Price Range	Annual Unit Absorption
Mutli-family apartments	N/A	650± to 1,100± s.f.	$550 to $760 per month	900
Single-family attached condominiums	N/A	950± to 1,350± s.f.	$65,000 to $85,000	140
Single-family attached townhomes	N/A	1,100± to 1,500± s.f.	$75,000 to $95,000	110
Small lot detached (carriage units)	3,200± s.f.	1,100 to 1,400± s.f.	$77,000 to $92,000	490
Small lot detached (zero-lot)	4,500± s.f.	1,300 to 1,750± s.f.	$94,000 to $116,500	490
Standard lot detached	6,000± s.f.	1,550 to 2,400± s.f.	$124,000 to $168,000	420
			TOTAL	2,550

Notes: a) Assumes 100% absorption of all multi-family units including attached "for sale" product to total 1,150 units.

b) Assumes 55% absorption of all single-family unit demand for county from 1990-2010.

Commercial, Retail and Industrial Demand

Both residential and non-residential construction demand are driven by employment growth, especially over the long term. The Regional Forecast (June, 1989) used an employment-driven population and housing model to project the demand for residential units, but did not use these employment predictions for estimating commercial, retail and industrial demand.

Metro Employment Projections-1987-2010

The basis for any estimation of non-residential demand is employment growth and how that growth is allocated in the Portland Region. From the base year of 1987, when 635,579 jobs for the four-county region were estimated, Metro projects an additional 90,850 jobs through 1995 and 293,811 more by year 2010. Washington County is estimated to have had

Portland Region Employment Forecast, 1987-2010

Employment Forecast	1980	1987	1995	2010	1987-1995	1987-2010	% Growth 1987-2010
Downtown	82,140	89,160	98,843	120,541	9,683	31,381	10.7%
E. Multnomah	219,810	206,173	221,134	258,599	14,961	52,426	17.8%
W. Multnomah	70,960	62,379	65,351	69,124	2,972	6,745	2.3%
E. Clackamas	69,020	74,933	88,182	117,835	13,249	42,902	14.6%
W. Clackamas	10,290	13,798	16,173	19,014	2,375	5,216	1.8%
Washington	107,460	124,685	157,272	231,272	32,587	106,587	36.3%
Clark	59,139	64,451	79,474	113,005	15,023	48,554	16.5%
Region	618,819	635,579	726,429	929,390	90,850	293,811	100.0%

Source: Metro, The Regional Forecast, June 1989, based on Table 1.

about 19.6% of the total jobs in 1987 and is projected to have about 21.7% of the jobs by 1995 and 24.9% of jobs by 2010. Over the 23-year projection period, Washington County is expected to get about 36.3% of the job growth.

Retail and Non-Retail Job Growth, 1990-2010

The Metro projection estimates jobs in two categories: retail versus non-retail. Overall, for the four-county area, about 78,000 additional retail jobs are forecast in the 1987-2010 period, or about 3,400 jobs per year. Of these, Washington County is projected to gain the largest number of retail jobs, 25,469 or about 1,100 per year. Prorated to the 1990-2010 period, this represents about 22,100 additional retail jobs for Washington County.

About 260,000 additional non-retail jobs are projected in the 1987-2010 period for the

four-county area, about 11,300 jobs per year. Washington County is expected to get about 87,900 non-retail jobs in this period, about 3,800 per year. (Non-retail jobs in this analysis include government workers and self-employed people). In the 1990-2010 period this would represent a gain of over 76,400 jobs.

Retail Job Growth, Portland Area 1987-2010

	County				
	Washington	Multnomah	Clackamas	Clark	4-County
Retail Job Growth:					
Year 2010 (1)	48,721	77,488	32,332	25,567	184,108
Year1987 (2)	23,252	55,095	16,395	11,316	106,058
Change 2010-1987	25,469	22,393	15,937	14,251	78,050
Annual Average	1,107	974	693	620	3,393
Total Job Growth:					
Year 2010 (1)	238,056	470,727	143,038	121,968	973,789
Year1987 (2)	124,685	357,712	88,731	64,451	635,579
Change 2010-1987	113,371	113,015	54,307	57,517	338,210
Annual Average	4,929	4,914	2,361	2,501	14,705

(1) Unpublished Data From Metro, "The Regional Forecast" June, 1989
(2) Metro, "The Regional Forecast", June, 1989, Table 1.

Job Sector Growth, 1989-2010, Washington County

Using Metro's projected growth rates by job sector and Washington County's specific job structure, we estimated job sector growth for the county. Using County Business Patterns (1989) as the basis for Washington County's job structure, we applied Metro's projected growth rates by sector to estimate the distribution of jobs by sector for 2010. We then applied these percentages for each sector to Metro's projected Washington County job total of about 238,000 jobs by year 2010 to estimate the number of jobs in each sector. These estimates were rounded to the nearest 100 and the difference between the 1989 and 2010 totals for each sector shows where the growth will likely be.

	SIC Code Range	County Business Patterns (1989)	2,010 Estimate (2)	Gain/Loss 1989-2010	Average Annual
Retail Trade:	52 to 5999	27,791	48,721	20,930	997
Non-Retail:					
Agricultural Services, etc.	07 to 0899	1,075	800	-275	-13
Mining	14 to 1499	199	150	-49	-2
Contruction	15 to 1799	5,839	7,700	1,861	89
Manufacturing	20 to 3999	31,846	36,000	4,154	198
TCPU	40 to 4999	3,819	5,000	1,181	56
Wholesale trade	50 to 5199	10,166	15,000	4,834	230
FIRE	60 to 6999	6,390	11,000	4,610	220
Services	70 to 8999	28,876	52,500	23,624	1,125
Unclassified		1,180	1,400	220	10
Self-employed (1)		14,500	30,500	16,000	762
Government (1)		16,275	29,500	13,225	630
		147,956	238,271	90,315	4,301

(1) Estimate by Hebert/Smolkin Associates, Inc and Market Perspectives.
(2) Retail Trade Estimate By Metro; Other Estimates By H/SA, Inc. and Market Perspectives.

Growth rates vary widely for the type of sector. Agricultural services and mining are declining industries with actual losses over the 21-year period. The sector with the greatest increase is services with an estimated gain of over 22,000 jobs. Second is retail with about 21,000 jobs gained. Self-employment is projected to account for over 16,000 additional jobs. Fourth is government with over 14,000 additional jobs.

Demand For Retail Space

One of the most challenging aspects of TOD planning is to assess the relationship of TOD development to development for retail, office and industrial uses near the TODs.

When thinking about residentially-oriented TODs, either urban TODs around light rail stations or neighborhood TODs within a short ride to the station, it is important to distinguish between demand for retail goods and services created by the resident in the TOD and those uses that are compatible with a TOD environment. It is not necessary that the TOD in which the retail is located provide 100% support for the retail space, since current planning standards call for the retail to front on arterial roads, providing any access from other TODs and standard neighborhoods.

Types of Retail

Shopping centers come in about five basic varieties: strip, neighborhood, specialty, community and regional centers. They are defined by type of anchor stores and by overall Gross Leasable Area (GLA).

Strip centers are simply small, anchorless centers, typically with about 1,000 to 20,000 square feet of GLA and featuring small miscellaneous retail stores. Collectively, they account for a significant portion of retail outlets. Neighborhood centers on 5 to 10 acre sites, are usually anchored by a large grocery store (and sometimes by a drug store) and are designed to serve frequent needs of the neighborhood resident. They are typically about 60,000 to 100,000 square feet of GLA. Specialty centers are anchorless centers that feature small quality shops and restaurants, and are usually found in high income areas. They typically range from about 40,000 to over 100,000 square feet.

Community centers usually involve one or two large anchors such as a home improvement center, department store or large toy store. These are typically about 250,000 square feet of GLA. Finally, regional centers, which are anchored by two or more department stores, are usually enclosed in a mall and typically are 500,000 square feet to over 1 million square feet of GLA.

Small strip, neighborhood and specialty centers are the most likely variety to be included in a TOD. In general, there is a trend toward larger and larger retail outlets for groceries, department stores, home improvement and other anchors. At the same time, restaurants and personal services and similar small retail outlets do not appear to be moving toward larger stores.

Specific Retail Demand

The table below examines the frequency of certain store types by population and households based on County Business Patterns (1989) for Washington County. The top entries in the table indicate store types and provide an estimate of how many people and households it takes to support a typical store in each category.

Washington County Retail Business Patterns-1989

Retail Trade	Number of Establish-ments	1990 Popula-tion	Pop. Per Esta-blishment	1990 House-holds	Hhlds Per Esta-blishment
Total	1,786	311,554	174	118,937	67
Large Grocery Stores (1)	35		8,902		3,398
Large Drug Store (1)	9		34,617		13,215
Large Department Stores (2)	16		19,472		7,434
Large Lumber/Hardware (1)	7		44,508		16,991
Large Furniture/Appliance (1)	14		22,254		8,496
Large Auto Dealers (1)	28		11,127		4,248
Large Toy Store (1)	3		103,851		39,646
Service Stations	87		3,581		1,367
Apparel/Accessories	172		1,811		691
Eating Places	377		826		315
Personal Services (3)	240		1,298		496
Other Retail	1,038		300		115

(1) = More than 20 employees; (2) = More than 50 employees; (3) Beauty, Dry Cleaning ,etc.
Source: County Business Patterns, 1989, U.S. Dept. of Commerce

Grocery Stores. Large grocery stores are defined as any store that employs 20 or more people. In the 1989 survey, 35 such stores existed in Washington County, suggesting on average that about 9,000 people and 3,400 households were needed to support a typical anchor grocery store.

Large Drug Stores. With nine stores meeting the criterion of 20 or more employees, it suggests that 35,000 people and 13,200 households are needed to support a major drug store. Many grocery stores now offer many of the items found in a drug store (sometimes including a pharmacy) resulting in so few stores per household.

Large Department Stores. We defined large as having 50 or more employees and found 16 stores that met this criterion, suggesting a population of 19,500 and household count of 7,400 for support. Discount stores (such as Wal-Mart) require a much larger number of households.

Large Lumber/Hardware. We note that seven stores met the criterion of 20 or more employees indicating that about 44,500 people and 17,000 households are required to

support such stores.

Large Furniture/Appliance. This type of store requires about 22,300 people and 8,500 households for support of a large store.

Large Auto Dealers. Twenty-eight large auto dealerships were found in the survey indicating about 11,100 people and 4,200 households are needed to support such a dealership. Note that auto dealers are now often congregated into an "auto mall".

Large Toy Stores. Only three large toy stores were supported by Washington County, requiring almost 40,000 households each.

Estimation of Retail Space.

Based on the number of households needed to support the specific types of stores given above, the table below provides estimates of retail space needed between 1989 and 2010. Given the projected population and household gains, about 6.45 million square feet of GLA is needed. Up to nine department stores (at 200,000 square feet each) are supportable. If half are freestanding or anchors for community centers, then it appears that demand for one four-anchor regional mall is likely in the next 20 years.

The demand for 21 new grocery stores may be reduced if the trend toward "superstores" continues with store averages moving to 80,000 to 90,000 feet. Nonetheless, there is indication that up to 21 new neighborhood centers will be needed.

Washington County Retail Projection 1989-2010

Retail Trade	Required to Support	Projected Gain 1990-2010	Stores Supportable	Typical Store Size	Total GLA Needed
Total		70,000			
Large Grocery Stores (1)	3,400		21	50,000	1,029,412
Large Drug Store (1)	13,200		5	25,000	132,576
Large Department Stores (2)	7,400		9	200,000	1,891,892
Large Lumber/Hardware (1)	17,000		4	125,000	514,706
Large Furniture/Appliance (1)	8,500		8	125,000	1,029,412
Large Auto Dealers (1)	4,200		17	5 acres	
Large Toy Store (1)	39,600		2	175,000	309,343
Service Stations	1,400		50	1 acres	
Apparel/Accessories	700		100	2,000	200,000
Eating Places	400		175	2,500	437,500
Personal Services (3)	500		140	1,500	210,000
Other Retail	200		350	2,000	700,000
total	96,500		881	708,000	6,454,840

(1) = More than 20 employees; (2) = More than 50 employees; (3) Beauty, Dry Cleaning ,etc.
Source: County Business Patterns, 1989, U.S. Dept. of Commerce

Opportunities for about 5 to 7 new community centers are estimated based on 14 total remaining available anchors, with two each assigned to a center. There will likely be some freestanding units, so the number may be less than seven centers. Opportunities for a larger retail complex exist if the TOD is immediately adjacent to a major shopping center, community-sized or regional. The combination would be particularly effective if the TOD could act as a walking "bridge" from the light rail station to the major center.

Just how this total demand for retail will impact TODs depends on the location and type of TOD. As shown in a previous section, downtown, mixed-use centers will have a significant component of non-residential use with an estimated 1.15 million square feet of retail being typical. (An exception to this would be a mixed-use area such as Washington Square that already has over two-million square feet of retail activity, including the area's largest regional mall). Each mixed-use center will be a unique combination of already-built office, retail and residential uses in which redevelopment will occur. It is difficult to project how much additional retail a given mixed-use center will absorb since each one will be very different.

The urban and neighborhood TODs, however, are more of a blank slate and can be characterized in a much more generic way. Our estimate of total additional retail demand is about 6.4 million square feet of GLA in the 1990-2010 period. We project the need for one regional center, 5 to 7 community centers and about 21 neighborhood centers, plus scattered and small-scale retail. We estimate the regional center at about 1.2 million square feet, the community centers at about 1.5 million square feet total and the neighborhood centers at about 1.7 million square feet totalling about 4.4 million square feet. An additional 2.0 million square feet of smaller-scale and scattered retail is projected for this period.

Urban TODs (those with direct light rail services) should have community-sized centers either incorporated into the TOD or be adjacent to the TOD. A typical two-anchor community center requires about 20 acres of land for buildings and surface parking, but this could be cut to about 15 acres with deck or garage parking and planning for light rail traffic. It would be ideal if the light rail stop could have direct pedestrian access to the center. It should be noted that location criteria for such a center are heavily weighted to sites that benefit from high auto traffic (i.e., a major arterial or highway) and to high visibility and easy access by auto. Since most urban TODs are planned at or near a major arterial, the community center could benefit from this light rail/auto partnership.

The 5 to 7 community centers that are likely to be built in the 1990-2010 period should be steered to the urban TODs if at all possible, provided that the center can front on a major arterial. In addition to a community center, there needs to be provision for some neighborhood retail (i.e., grocery/drug, convenience store, restaurant, dry cleaning, etc.) It is not unusual for a neighborhood center to be located next to a community center, since the locational criteria for a neighborhood center are usually satisfied by a community center. At a minimum, scattered convenience retail should be included in urban TODs.

Neighborhood TODs (those within walking distance or bus connection to light rail) do not necessarily require any substantial retail to be viable. It is likely that most of these TODs will be entered from arteries that will feature clusters of retail among them. Neighborhood shopping and convenience retail could be included within the TOD so that walking to retail is practical for the neighborhood TOD. However, the retail space should be positioned on the high-traffic artery to allow for exposure to a larger market area.

Commercial Office Space

TODs, being primarily residential, do not lend themselves well to a large scale office development (expect in mixed-use centers), but do generate some opportunity for small office space that is oriented to the service industry (insurance, dentist, legal, etc.) A large suburban office building of, say 100,000 square feet, would not be sited in neighborhood TODs, but might make good sense in an urban TOD.

Current Office Conditions. As can be seen in the table below, about 9 millon square feet of Portland area office space is suburban. By 1993 the suburban office market is expected

Portland Office Vacancy and History & Projection, 1986-1993

	Downtown				Suburban			
Year	NRA	Vacant	Absorp-tion	Percent Vacant	NRA	Vacant	Absorp-tion	Percent Vacant
1986	10,872,505	2,022,285		18.60%	7,000,663	1,190,112		17.00%
1987	10,872,505	1,949,537	72,748	17.93%	7,473,019	1,328,235	-138,123	17.77%
1988	11,198,174	1,880,941	68,596	16.80%	8,801,980	1,785,520	-457,285	20.29%
1989	11,225,456	1,641,367	239,574	14.62%	9,396,210	1,767,925	17,595	18.82%
1990	11,288,659	1,722,350	-80,983	15.26%	9,783,475	1,574,358	193,567	16.09%
1991	11,804,438	1,625,184	97,166	13.77%	9,979,096	1,148,760	425,598	11.51%
1992	11,804,438	1,275,184	350,000	10.80%	9,979,096	748,760	400,000	7.50%
1993	11,804,438	925,180	300,000	7.84%	10,174,096	705,760	300,000	6.94%

Source: CB Commercial

to grow by another 1 million. The current metropolitan area has about 1.5 million people and 22 million square feet of office space, or about 14.5 square feet per person. The ratio is higher for downtown and the Highway 217 corridor and lower for residential suburban areas.

Current Lease Rates. Portland suburban office lease rates vary widely depending on location and the quality of the building. At present, suburban lease rates, about $18.00 to $19.00 per square foot per year for the best newer buildings, are at a level not quite sufficient to justify the building of a new mid-rise building. With reduced vacancy projected through 1993 to a level below 7%, lease rates are projected to firm up at that time and make the construction of a new building economical. Until that time, new office construction will likely be limited to tenant build-to-suit or owner tenant buildings.

The range of rents are quite similar throughout suburban areas, ranging from $8 or $9 per square foot per year for older, low rise space, say in Beaverton, to $18 or $19 per square foot for more prestigious multi-story building, say around Washington Square. Current lease rates by sub-area are given in Table D-8 in the Appendices.

The Washington County office space sub-market grew in 1991 by about 113,000 square feet to about 6.2 million square feet. Absorption of space over the four quarters of 1991 has reduced vacancy from 13.4% to 10.6%.

Over the course of twenty years (1990-2010) Washington County is expected to grow by 7,000 persons per year and 4,300 jobs per year. In 1990, Washington County had about 6.1 million square feet of office space and 311,554 persons, a ratio of 19.67 square feet of office space per person. We estimate 1990 jobs for the county at about 148,000 or about 41.22 square feet of office space per job. Finally, we estimate that there were about 2.1 persons per job in 1990 in Washington County.

Washington County Vacancy 1991

	1st Q 1991	2nd Q 1991	3rd Q 1991	4th Q 1991
No. Buildings	153	154	154	154
Net Rentable	6,128,658	6,241,658	6,241,658	6,241,658
Available	823,501	811,914	705,143	661,623
Vacancy Rate	13.44%	13.01%	11.30%	10.60%

Source: CB Commercial

With a forecasted addition of 7,000 persons per year (140,000 over twenty years) and 4,300 jobs per year (86,000) jobs, one would project between 2.8 million and 3.5 million square feet of additional office space required. Using 20 square feet per person, the additional office space required. Using 20 square feet per person, the addition of 140,000 persons projects to 2.8 million, while using 41 square feet per job for 86,000 jobs points to about 3.5 million square feet of office space in the 1990 to 2010 period. The discrepancy arises from an anticipated increase in labor force participation rate, as illustrated by the 140,000 persons and 86,000 jobs, or 1.6 persons per job. A prudent planning basis would be for 3.5 million square feet.

Virtually all of the anticipated 3.5 million square feet of additional leasable area for commercial office use could be accommodated in the downtown, mix-use centers. As stated above, most mixed-use centers would have the capacity for about 6 million square feet of office space either currently or under redevelopment. Since these areas will be important nexuses for bus and light rail transportation, it would be a wise policy to steer much of this office demand to the mixed-use centers.

Not all tenants wish to be in a downtown setting, however. Urban TODs are ideal for

smaller-scale office development targeted to small-space users. Typically these users wish to have retail services such as copying, office supplies and restaurants close-by. Accordingly, it would be appropriate to physically integrate office with retail in a mixed-use development. Small-scale office developments in the 20,000 to 100,000 square-foot range are appropriate for urban TODs.

Office development is not needed, in our opinion, for neighborhood TODs. The primary focus of these TODs is a mix of residential uses. Since plans call for siting the neighborhood TODs along major arterials with bus connection to light rail, there is no substantial need for on-site offices.

Not included in these totals are tenant-owned or one-tenant buildings that serve as company headquarters. Recent trends have been toward multi-acre, campus-like settings with low-profile buildings punctuated with impressive landscaping and ample employee parking. Although attractive and highly sought after by communities, the trend works somewhat against public transit and competes against the denser high-rise model of a headquarter in an urban or downtown TOD setting. Special effort will have to be made to establish direct links to the light rail system, probably with significant support from the companies themselves.

Industrial Absorption 1990-2010

From 1981 to 1991, the Portland area has absorbed about 3 to 4 million square feet of industrial space per year, about 2 feet per person per year. Good data are not available for Washington County separately, but note that Multnomah and Washington counties had the bulk of manufacturing and warehousing establishments in 1989. According to the County Business Patterns, Washington County accounts for about 24% of the total number of establishments in manufacturing and wholesale. If 3.5 million square feet of industrial space is added per year, then about 840,000 square feet per year can be safely attributed to Washington County. Over a 20-year period, this represents about 16.8 million additional industrial square footage added to the county.

Manufacturing and Wholesale Establishments - 1989

County	Manufacturing	Wholesale	Both	% of Total
Washington	690	775	1,465	23.94%
Multonomah	1,283	1,953	3,236	52.88%
Clackamas	530	571	1,101	17.99%
Clark	33	284	317	5.18%
TOTAL	2,536	3,583	6,119	

Source: County Business Patterns, 1989

Competition Amongst Land Uses, 1990-2010

As depicted in the LUTRAQ report Volume 3: "Description of Alternatives," Washington County has sufficient land capacity to satisfy all the major land uses studied in this report: residential, office, retail and industrial uses.

As would be expected, the value of land varies according to its approved uses, with residential applications usually producing lower values and (high-rise) office uses providing higher values. Market conditions, of course, greatly affect the current value of a land use; when demand is strong the value rises and when it's weak, it plummets. In general, residential uses are the most stable of land uses in that demand never comes to a complete halt.

Residential land that permits four units to the acre can be expected to cost in current dollars about $70,000 to $80,000 per acre, or about $1.75 per square foot. This contrasts with a suburban high-rise office site that can fetch $300,000 to $400,000 per acre ($8.00 to $9.00 per square foot). Apartment uses typically cost slightly more per acre than single-family land ($2.00 to $2.50 per square foot). Research park land is usually above industrial land in value ($3.00 to $5.00 per square foot), with retail land at about $4.00 to $6.00 per square foot. Generally speaking, the valuable sites are on small parcels and the least valuable sites run into the 100s of acres.

Present-Value Analysis of Land Uses

While zoning unquestionably affects the value of a particular parcel of land, returns on land holdings in the long term may not be as sensitive to zoning as one might expect. The reason is simple: low value land uses (e.g., residential) tend to use up land more quickly. So if you have a residential parcel, it has a better chance of coming into use than an office site. With a present-value analysis, residential land that can be put into immediate use may be more valuable than an office site that won't be put into use for another ten years.

Relative Opportunities to Sell Land In Different Uses

Land Use	Typical Density or F.A.R.	Projected No. Units or Square Feet	Acres Absorbed 1990-2010	Acres Absorbed Per Year	Annual Opportunity To Sell 20 Ac.	1992 Values Per Sq. Ft. of Land
Single-Family	5/Acre	46,620 Units	9,324	466	23.31	$1.75
Multi-Family For Sale	12/Acre	5,180 Units	432	22	1.08	$2.75
Multi-Family For Rent	20/Acres	22,000 Units	1,110	56	2.78	$2.25
Office	0.5	3.5 Million	160	8	0.40	$8.50
Retail	0.33	6.5 Million	452	23	1.13	$5.00

As can be seen in the above table, single-family land use is expected to absorb 9,324 (net) acres in Washington County in the 1990-2010 period, or about 466 acres per year. In contrast, office use (speculative office space) is expected to absorb only 129 acres (6 per year) in the same period. In other words, the demand for single-family land is over 70 times as great as for office space land. The value of office land, however, is only about 5 times as great as single-family land ($8.50 versus $1.75 per square foot). You would have (hypothetically speaking) 23 chances a year of selling a 20-acre residential parcel, while 20 acres of office land has only one chance every two-and-a-half years of selling.

There can be no definitive answer as to which investment is better based solely on demand, because it also depends on the supply of each land use and on the amount invested in each use. In a market with a tight supply of residential land and an over-supply of office land, it is possible that residential land is more valuable than office land in present-value terms, since the residential land can be immediately sold, but it may be 20 years before the office site sells.

ACKNOWLEDGEMENTS

• About 1000 Friends of Oregon

1000 Friends of Oregon is a non-profit service organization formed in 1975 to protect Oregon's quality of life through the conservation of farm and forest lands, the protection of natural and historic resources, and the promotion of more livable cities. The organization pursues these goals through research, public education, and no-cost citizen legal assistance. 1000 Friends is supported by its membership and tax-deductible contributions.

1000 Friends also provides staff support for the National Growth Management Leadership Project, a coalition of conservation organizations from 21 states working on growth management and land use policy.

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"Making the Land Use, Transportation, Air Quality Connection" has been made possible, in part, by the contributions of time and expertise from the members of the study's three advisory committees.

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The National Technical Advisory Committee directs the general course of research for the project.

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Composed of local political, business, and citizen leaders, the Policy Advisory Committee provides general guidance on the feasibility of policy alternatives.

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Market Perspectives

Market Perspectives is a residential and commercial real estate consulting firm based in Sacramento, CA, and specializes in analyzing competitive markets, product positioning and marketing strategies, and feasibility/absorption studies. The firm's clientele includes such well known developers as Grupe Development, The Sammis Company, Taylor Woodrow Homes, Kaufman & Broad, McDonald's Corporation and Pacific Gas and Electric Company.

Founder and President John Schleimer is the vice president of the Institute of Residential Marketing of the National Association of Home Builders and member of the prestigious California Real Estate Roundtable. During the past three years, Market Perspectives has been involved in providing studies for over 25 major master planned communities throughout the western United States representing almost 150,000 residential units. Schleimer has been a featured speaker at national and regional conferences on researching the market acceptance of "neo-traditional planning concepts" such as transit oriented, pedestrian oriented and traditional neighborhood developments.

Hébert/Smolkin Associates, Inc.

Hébert/Smolkin Associates, Inc. consults with developers, lenders and investors in real estate market analysis throughout the United States. The firm, with offices in Palo Alto, California and New Orleans, Louisiana, specializes in market and economic feasibility studies for both commercial and residential developments.

Founded by John Hébert and William R. Smolkin, Hébert/Smolkin Associates, Inc. has successfully assisted over 700 land developers, builders, lenders and investors in 44 states and Canada. The company is experienced in projects from 10 to 28,000 acres containing every kind of residential development, as well as shopping centers, office buildings, hotels, industrial parks, retirement centers and mixed-use developments.

TRI-MET

TRI-MET Strategic Plan

Pursuing a Shared Vision

DISCUSSION DRAFT TWO

CONTENTS

December 1992

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Dear Friend,

The Portland metropolitan area is facing a critically important decision: How can we accommodate 500,000 more people over the next 20 years without sacrificing our high quality of life?

A number of local jurisdictions and public agencies have been trying to address that question through their long-range plans and strategies. The attached document expresses Tri-Met's view, and suggests one way all of us in the region can join efforts to create the kind of future we want.

This document is the *second* draft of Tri-Met's strategic plan. You may be one of the 5000 individuals who received and reviewed the first draft. Most of the people who commented on the first draft encouraged us to pursue the vision laid out in the plan; they also recommended some changes and additions. This new version reflects the helpful feedback we received from people throughout the region as well as our own employees.

The main focus continues to be on maintaining mobility and livability as the region grows. Specifically, the new draft:

- Has a stronger regional orientation;
- Provides more detail on our suggested vision and how to achieve it;
- Recognizes more fully the essential role our employees will play in achieving the vision and Tri-Met's specific goals;
- Describes in more detail the land use implications of the vision, and Tri-Met's anticipated role in that arena;
- Includes a separate section on regional partnerships to underscore the importance of mutual support and cooperation; and
- Describes the funding that will be needed to support the level of transit service implied by the vision, as well as possible sources of funding.

We have tried to address most of the concerns raised by those who reviewed draft one. If you have comments on this draft, please contact Tri-Met Public Affairs, 4012 SE 17th Avenue, Portland, OR 97202, or call 238-4960. The plan will be presented to the Tri-Met Board of Directors for a public hearing Jan. 27, 1993 at 3:30 p.m. in Room C of the Portland Building, 1120 SW Fifth Avenue, Portland.

While this report is Tri-Met's strategic plan, it is clearly a regional document. We hope it will be refined, shared and "owned" by our partners throughout the metropolitan area.

Circulating this second draft gives us a chance to ask: Is this what you want from Tri-Met? And, if so, are you willing to help pay for it?

Thank you for taking the time to work with us on this document. Your thoughtful comments and suggestions will help us develop a final strategic plan that is supported by the region and reflects the wants and needs of the customers we serve.

Loren Wyss
President of the Board

Tom Walsh
General Manager

Quality of Life

A matter of choice

Today the Portland metropolitan area — from Forest Grove to Troutdale, Vancouver to Estacada — offers a quality of life that is the envy of much of the nation. Vibrant communities, beautiful parks, stable neighborhoods, cultural opportunities, innovative development, model transportation and trend-setting environmental initiatives all contribute to a way of life that is cherished and unique.

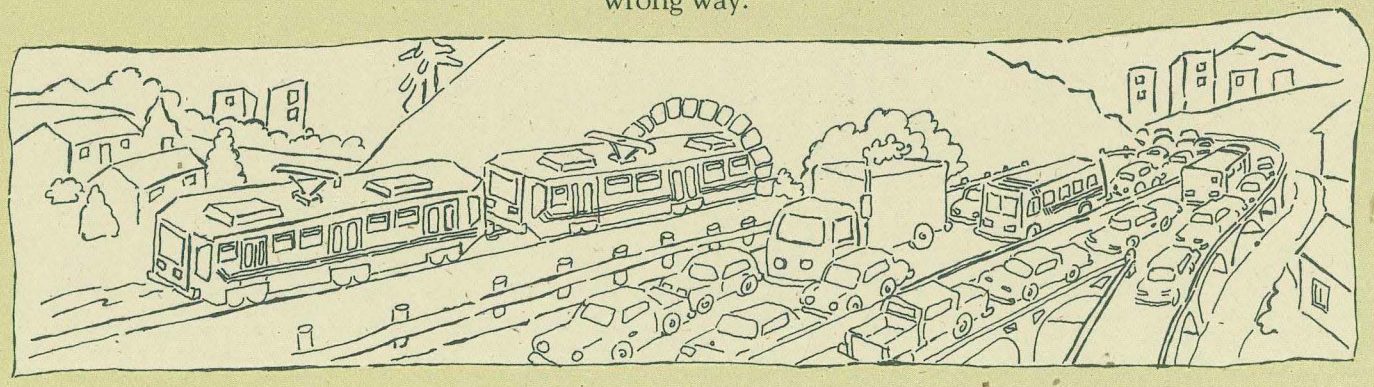
Yet, as the region's population increases, our quality of life is at risk. There is a real danger that rapid growth could diminish much of the progress and good deeds that have shaped this area into the special place it is today.

The people of our region are becoming increasingly concerned. They know that, over the next 20 years, even at historic rates of growth, the region's population is expected to increase by 500,000 — the equivalent of another city the size of Portland. That's faster than the entire state of Oregon grew in the 1980s.

The most common fear is that major and rapid growth could cause our region to lose its livability. Even citizens who welcome the economic benefits of growth worry that it will make our cities and towns less people-friendly.

That's what has happened to other growing metropolitan areas: Livability declined as the population increased. Unbridled growth led to urban sprawl, traffic jams, dirty air and decaying downtowns.

That needn't be the case in our region. *We can build on our past successes in growth management.* Traffic congestion, air pollution, and other urban problems are not an inevitable part of growth — they are the result of growing the wrong way.



The fact is: We have a choice. We can accommodate growth in ways that will allow us to maintain our quality of life even as the population grows. But if we as a region don't make a conscious choice to follow that path, we will inevitably fall prey to the same forces that have ruined the livability of other major American cities.

The first step is to recognize the challenge before us. Then we as a region must rise to meet it.

Current Trends Are Troubling

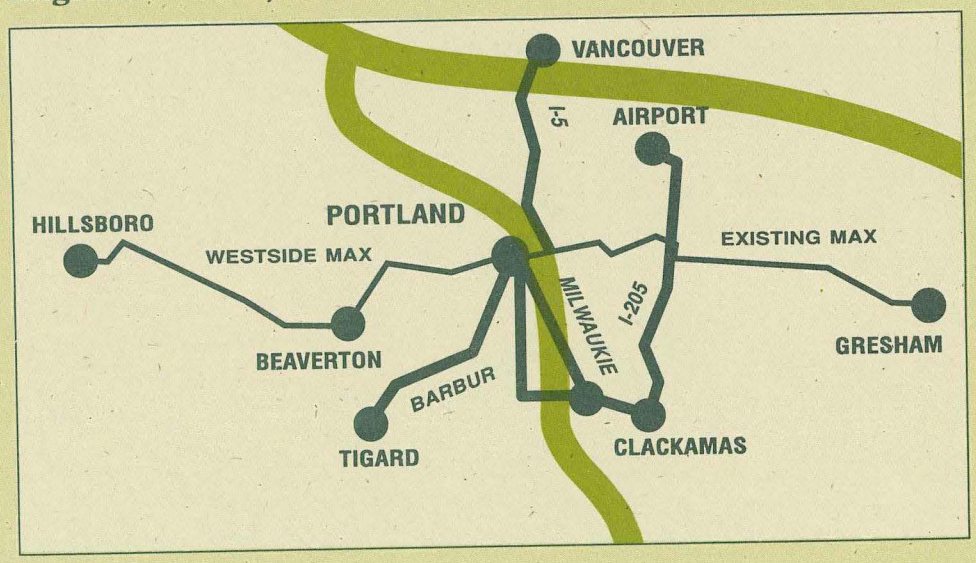
Despite the region's past achievements, some of the current trends are troubling.

Traffic congestion is increasing. A recent survey of residents in Washington and Clackamas counties showed traffic was the **number one** concern. Light rail on the west side will alleviate some of the traffic in Washington County, but it cannot do the job alone. Light rail will mainly just keep congestion from getting *worse*.

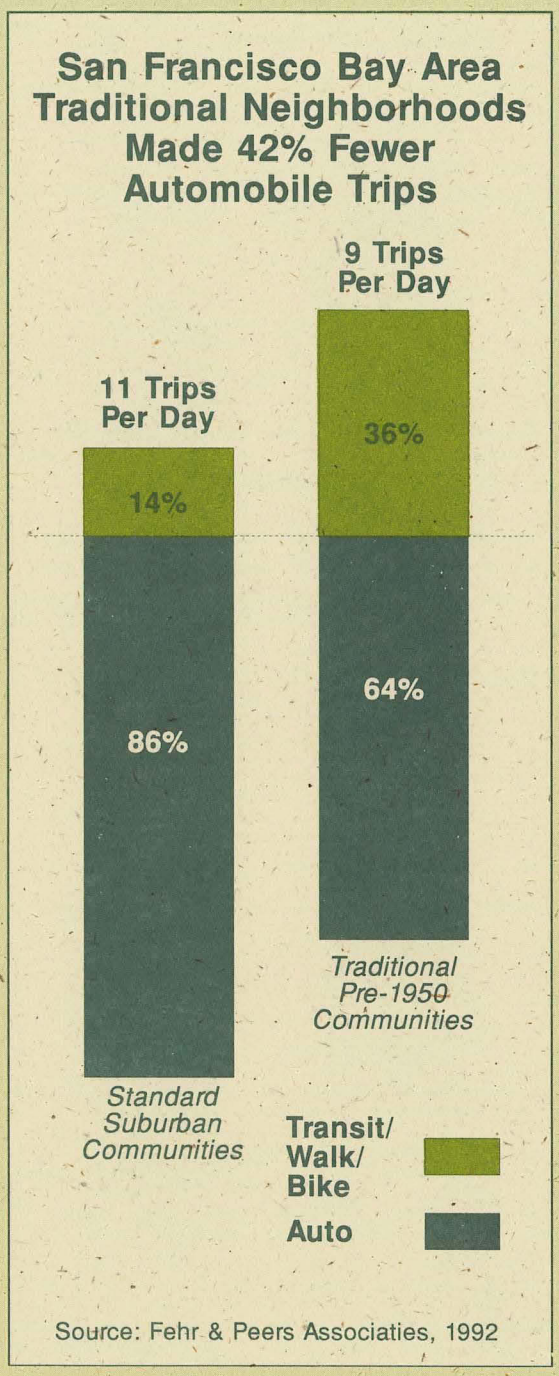
Most disturbing is the fact that even if the region is successful in carrying out its current land use and transportation plans, traffic congestion could still more than *double*.

The fact that our highways are overloaded underscores a second major concern: **lagging investment in public works**

Regional Rail System



Opening the Westside Project in 1998 is the next link in the development of the proposed regional light rail system.



Compact growth can cause a reduction in total trips and an increase in transit use.

— including transportation, wastewater, storm sewers and other utilities. In transportation alone, according to the Oregon Department of Transportation, the region as a whole is $10 billion short of the funding needed to restore and maintain its deteriorating roads.

The question at this point is not *whether* we will fall short in necessary investments like new roads and transit, but by how much. The more carefully we plan for growth, the more efficiently we can provide these public services to our citizens.

Air quality is another source of concern. The number of vehicle miles traveled in our region has been growing by about 6 percent a year. To keep the air clean and safe and meet federal clean air guidelines, we will need to reduce that to only 2 to 4 percent a year — or face tough federal mandates and higher costs to industry to force compliance, which could lead to loss of jobs and slower economic growth.

While the pressure is mounting to reduce vehicular travel in the region, the current pattern of growth will result in more trips and more travel by automobile.

Growing Outward Means More Travel, Less Transit

Our region is currently growing outward rather than inward, through compact development. The pattern that is emerging is one of sprawl within the urban growth boundary (UGB). Growth is generally being contained within the UGB, but, according to a State of Oregon study, it is occurring on average at only 70 percent of planned densities, intensifying the pressure to expand the UGB. If current patterns continue, future growth will mainly occur on the fringes of the UGB — or, if the existing boundary is expanded, onto neighboring farm and forest lands.

Spreading out presents two problems: First, it causes the number of vehicular trips to increase at a rate even faster than the population. In Oregon in the 1980s, the number of vehicle miles traveled increased **eight** times faster than the population.

Second, this land use pattern cannot be served cost-effectively by transit. Buses and light rail are simply not an efficient choice for low-density, dispersed development.

A study of different neighborhoods in the San Francisco area revealed the dramatic difference in the number of automobile trips between people living in low-density standard suburban developments and those in compact

traditional neighborhoods. Residents in pre-1950 traditional neighborhoods made 42 percent fewer trips by car than their suburban counterparts. The San Francisco study found that a doubling of density resulted in a 30 percent drop in the number of vehicle miles traveled.

In our region, current projections show the number of total trips within the suburbs will increase by 72 percent over the next 20 years. Even with a major increase in transit service, the percentage of those trips served by transit will stay at today's level of 1 percent. Unless development in outlying areas becomes more clustered and transit-oriented, the percentage of suburban trips being taken on bus and light rail is not expected to change at all.

Contained growth — moving "in" rather than "out" — can allow a community to fully use transit as a way to maintain mobility while accommodating growth.

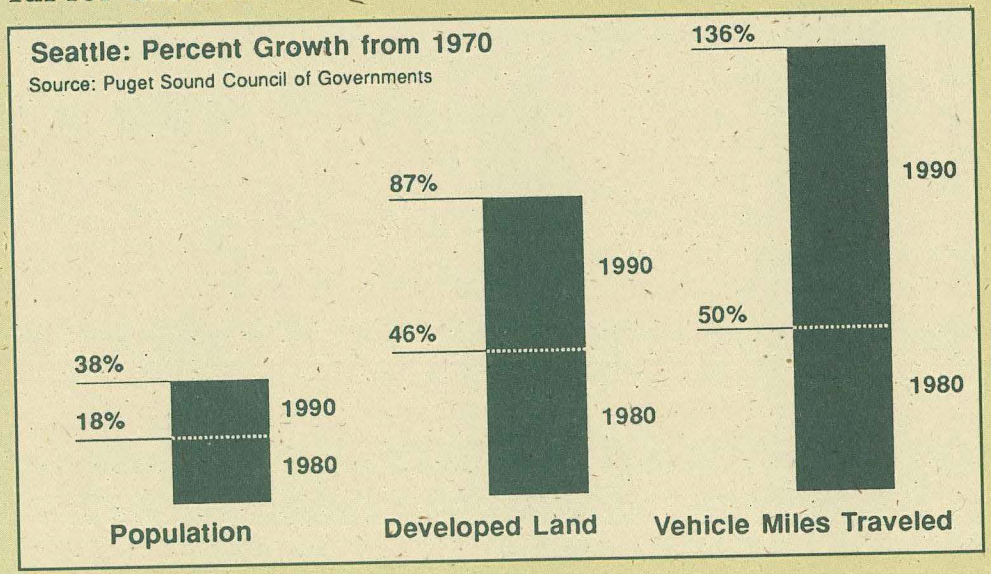
Two West Coast cities — Seattle and Vancouver, B.C. — provide striking examples of how mobility and livability are affected when a community grows outward instead of inward.

Seattle: 'Paradise Lost'

In the early 1980s, Seattle was considered one of the most livable cities in the country. Now, just a decade later, it is listed as the sixth most congested urban area in the United States. In recent times, the Puget Sound area has been referred to as "paradise lost."

What happened to cause such a dramatic decline in one decade? Primarily, rapid, uncontrolled growth. The

Rx for Gridlock



Portland is currently following the same trends that overtook Settle: land consumed at a faster rate than population growth, increased dependence on the automobile, and an explosion in vehicle miles traveled.

Seattle region grew by 500,000 people in the 1980s. However, it had no overall vision or strong planning to guide its growth. As a result, the region slid into a pattern of sprawl. From 1970 to 1990, the population grew by 38 percent — while the amount of land developed increased by 87 percent.

Outward growth led to greater reliance on the automobile. Consequently, vehicle miles traveled went up 136 percent from 1970 to 1990 — almost four times as much as the population. At the same time, the level of funding for transportation dropped in terms of real dollars.

Seattle is now trying to play "catch-up," but the costs are enormous. Once a community has spread out, it is nearly impossible to reverse the trend. The Seattle region has identified the need for more than $20 billion in capital investments and $10 billion in operations and maintenance to improve transportation over the next 30 years. That total of $30 billion would not reduce today's level of congestion, but would only keep it from getting significantly worse.

Seattle did not have the advantage the Portland region has of well-established land use planning. It grew "out" not "in" — and has paid dearly in terms of traffic jams, gridlock and lost livability.

Vancouver: A Better Way To Grow

The Vancouver, British Columbia, area has managed its growth differently. Through careful planning, clustered development and a pervasive commitment to transit, the metropolitan area has become a thriving, growing region that works — a bustling place as renowned for its charm, mobility and livability as its spectacular physical beauty.

The characteristics of the Vancouver area today are similar to what we might expect or hope for in the Portland area by the year 2020.

Vancouver currently has one-third more people than Portland; only one-third higher density; and three times the transit ridership.

In Vancouver, 10 percent of all trips and 17 percent of work trips are taken on transit. In Portland, while over 40 percent of downtown Portland work trips are on transit, only 3 percent of all trips and 7 percent of work trips are taken on transit.

Vancouver's progress can be traced to its citizens' longstanding support for transit and land use planning.

In the 1960s, when many cities were investing in the construction of freeways, the people of Vancouver opposed them. They preferred expanding their bus and trolley service and, eventually, adding the SeaBus cross-harbor ferry system, and the Sky Train advanced light rail system. Today Vancouver is the only city in North America with less than one mile of freeway within its city limits.

Vancouver is Canada's fastest growing city. That growth has brought problems, but Vancouver's population continues to make choices that support compact development and transit use. Under the area's "Livable Region Strategy," growth has been focused in large regional town centers that are linked to Vancouver by Sky Train and buses.

A Matter of Choice

The Portland metropolitan area is at a critical crossroads. We can grow like Seattle, or we can grow like Vancouver. We have a choice.

However, judging by the experience of other cities, we need to act now. We cannot rest on our past successes. If we do, our future will be decided for us. Inertia will lead us into the same fate of undisciplined growth, traffic jams, dirty air and lost livability that has befallen other growing American cities.

Sprawling, congestion-clogged cities like Los Angeles and Seattle are the way they are today not because their people want them that way, but because they missed the chance to make their choice. Seattle had its opportunity in the mid-1970s to plan for growth, and let it slip away.

Now it is our turn. We have already applied some techniques that work. Downtown Portland, like Vancouver, provides an example of growing the right way. The key elements in Portland's success were the downtown plan and an investment in transit. The downtown area has grown from 56,000 jobs in 1975 to 86,000 plus jobs today — an increase of more than 50 percent. At the same time, air quality has improved and traffic congestion has not increased.

The challenge now is to build on our successes. There *is* a way to grow and still keep our livability, and we as a region can achieve it — if we have the collective will to do so.

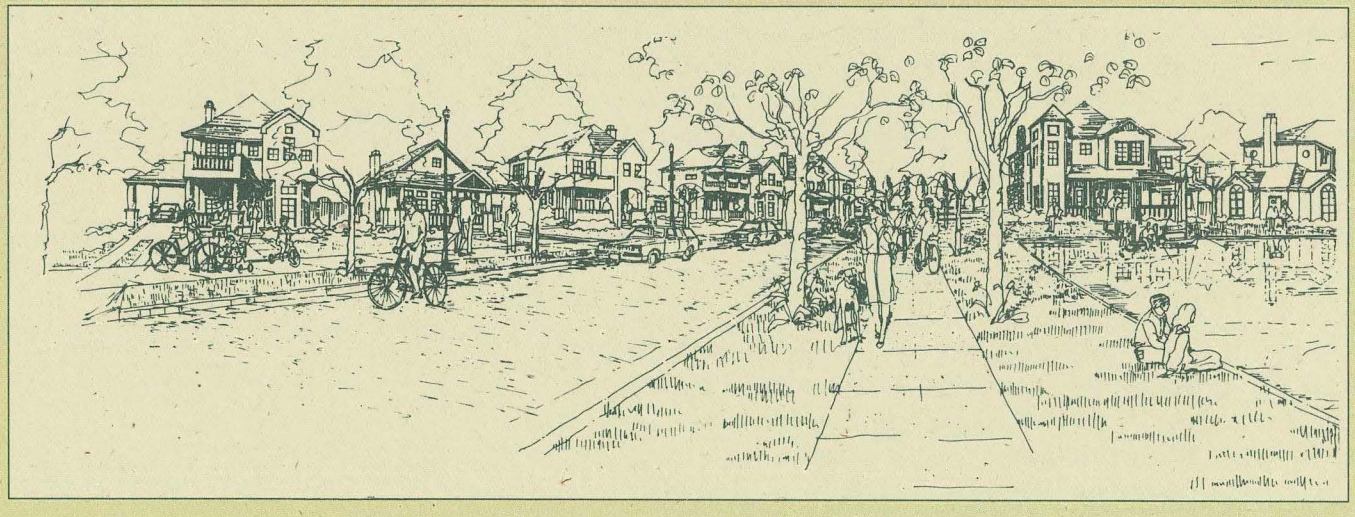
A Vision for Growth and Liability

To decide how to grow, the region must first determine what it wants to look like. What follows is one vision of how the Portland metropolitan area might look 20 years from now:

Our region is a bustling metropolitan area with some 2 million people, set off from surrounding farm and forest lands by a distinct, unchanging urban growth boundary. The air is clean and the landscape a striking balance of attractive, well-planned development and natural beauty.

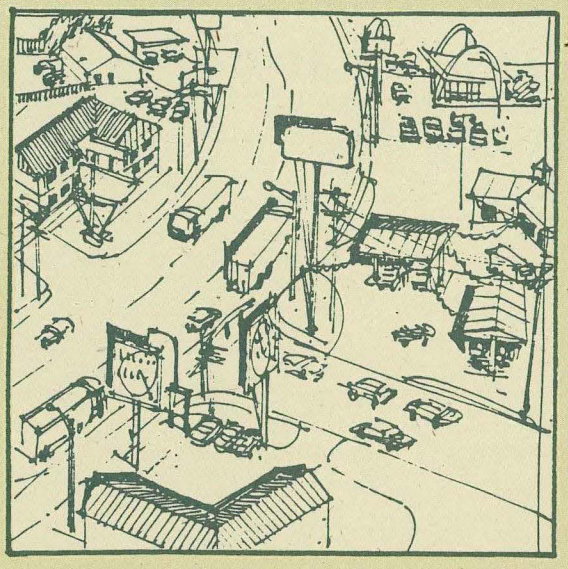
The region has retained its unique charm and livability, despite substantial growth in recent years. People enjoy working, playing and living here. Ample parks and open spaces complement vibrant urban centers. The comfortable pace of life contributes to people caring about and interacting with one another to a degree unheard of in other fast-growing metropolitan areas.

Cars, buses and light rail trains move throughout the region at a steady, continuous pace. The transportation network, including a five-line light rail system (with one more line under construction) and major transit corridors, accommodates travel between and within our cities, and provides the backbone connecting development throughout the region. In all parts of the area, development is located near and around transit stops.

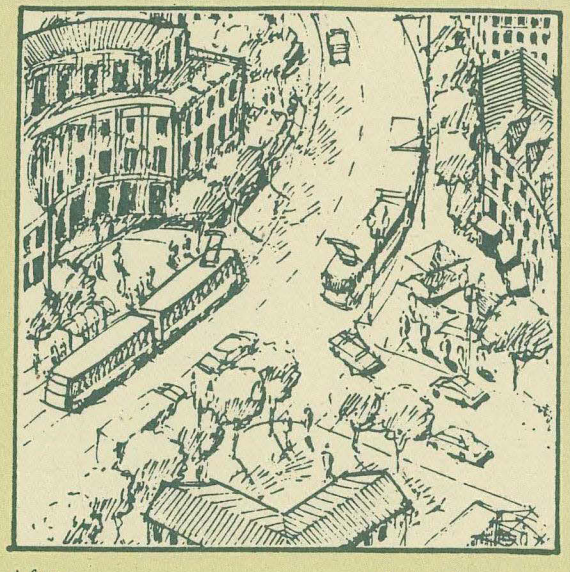


Source: Calthorpe Associates

All of the region's cities have used their land carefully to avoid sprawl. The downtown areas of cities like Beaverton, Hillsboro and Gresham are thriving, people-oriented places, where jobs, shops, services, schools and parks are conveniently located together within walking or biking distance of transit stops and a variety of housing options that surround the downtown core.



Before



After

Richard Potestio, AIA

Portland's central city, redeveloped land and revitalized neighborhoods have strengthened and reinvigorated the city. Much of the new development along Portland's major streets and rail lines consists of 3- or 4-story multi-family units over street level shops. There is good pedestrian access to services and shopping, and good transit access to employment.

In other parts of the region, new communities have been created around major transit stops. At stations such as the Sunset Highway/217 interchange and Clackamas Town Center, the development is self-contained, offering local choices of services and schools within walking distance. The center of many of these "villages" consists of a transit station and central park, surrounded by a main street or square of shops, offices, restaurants, smaller businesses, child care facilities and recreational opportunities. In some locations, multi-family housing is located near the central park. Walking paths and bike paths connect the entire community.

The region's commitment to sensible growth and transit-oriented development has provided practical alternatives to the automobile and the attendant air pollution and traffic jams.

The percentage of total trips taken on transit (including buses, light rail, shuttles and van pools as well as taxis) is as high in our metropolitan area as anywhere else in the country.

Residents find the lifestyle here stimulating and

satisfying. They enjoy the amenities of a major city without the associated sprawl, congestion, crime, crowding and tensions found elsewhere. In our region, livability is still prized, and citizens and jurisdictions work together to protect and enhance it.

As for Tri-Met itself, we envision:

An agency that leads the nation in the quality, integrity and success of its transit system. Tri-Met operates an exceptional regional rail system, complemented by a network of major bus corridors that provide fast, frequent, convenient service to key destinations. The agency also provides personalized service with its neighborhood mini-buses that link residents to the bus corridors and regional rail.

Tri-Met works closely with local jurisdictions, decision-makers and developers to encourage land use and transportation patterns that enhance the region's mobility and livability. The agency's public approval rating is high. Tri-Met is well-funded and well-supported at both the state and local levels, and at the federal level, where Tri-Met is considered a model for the country.

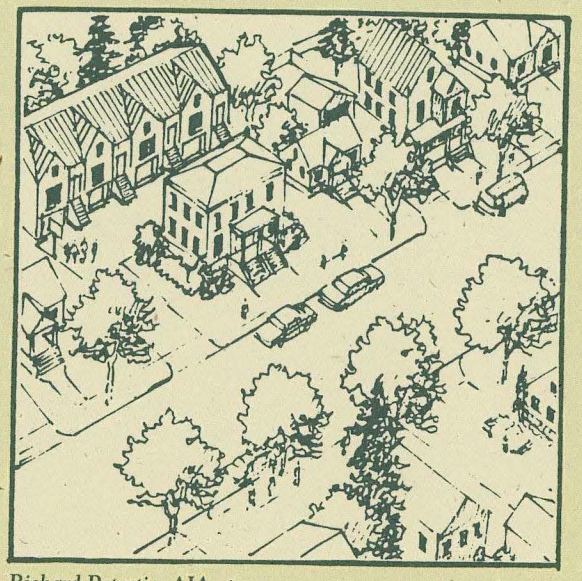
Tri-Met's employees are among the best and brightest in the Northwest. They are actively involved in problem-solving within the agency, and find their ideas for improvement are frequently implemented. Two-way communication is integral to the agency's method of operation. Managers freely and openly share information with each other and with employees, and employees continually contribute ideas for improving customer service.

Each employee understands Tri-Met's mission and goals, the obstacles that must be overcome to achieve them, and what he or she can do to contribute to Tri-Met's success.

Outstanding customer service is a shared passion, and employees routinely ask themselves, "What will this do to help us attract or keep more customers?"

The philosophy at Tri-Met is: "Customers, one at a time." While the agency serves the entire region, it treats its customers as individuals, and strives to satisfy them just that way: one at a time.

Growth and a Sense of Community



Richard Potestio, AIA

The vision suggests ways in which we as a region can enjoy the economic benefits of growth while still preserving our small-town charm and livability. Through well-planned communities, our region can accommodate more residents while still offering a lifestyle that is pleasant and comfortable. Whether in the suburbs, downtown Portland or in a new mixed-use neighborhood, people can live in places where they know their neighbors and local merchants, and can walk to schools, parks, the corner grocery, neighborhood restaurants, the post office, transit stations, shops and other services.

This clustering of development offers other benefits as well: The opportunity for all of us to breathe clean air; get where we want to go quickly and easily; live in the type of housing we want and can afford; minimize our tax dollars for public services; enjoy safer streets and neighborhoods; and take greater advantage of green and open spaces in our communities. Such a pattern would not only enhance our everyday life, it would put this region on the map as one of the only metropolitan areas in the country that has been able to grow while actually *improving* its livability.

While achieving the vision would be a significant accomplishment, it would not require a major departure from some of the things we are doing today. Many of the components for the vision already exist throughout the region. For example, state law already requires that half of all new housing in the metropolitan area be multi-family housing. For the last 10 years, the real estate market has been meeting that goal. However, many of the multiple family housing developments have been located on the fringes of the urban growth boundary, and are difficult to

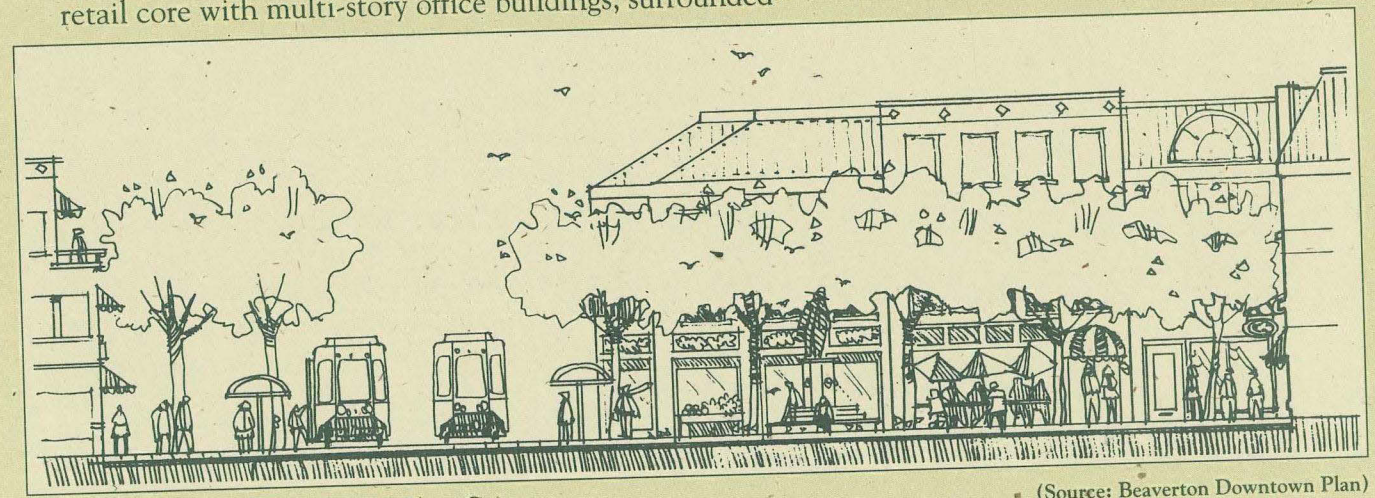
serve by transit. The vision would have us meet those same customer needs, improve on the response by mixing in other uses (such as retail, commercial, and recreational), and locate the new development in a transit corridor. The resulting mixed-use communities will be attractive places to live, work, shop, play, fall in love and raise children. Otherwise, the market will not support them because people won't want to live there.

Whose Vision Is It?

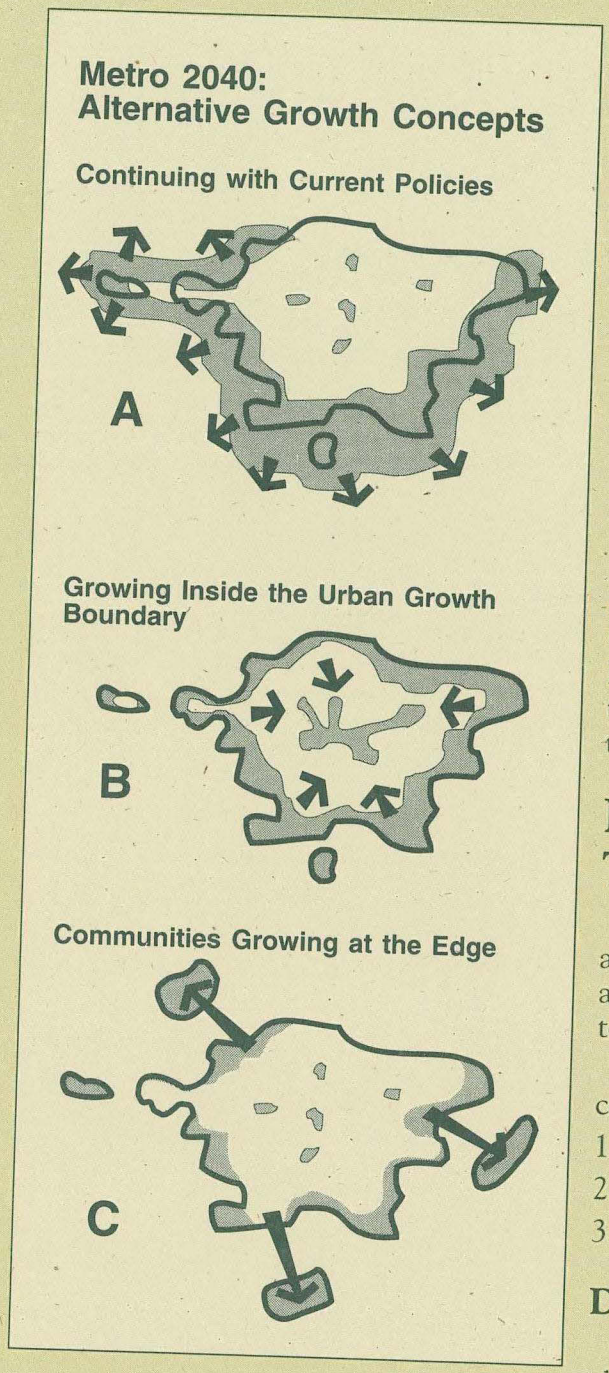
While the vision as stated here has been proposed by Tri-Met, many of the same principles and values have been advanced by others throughout the region. A number of local jurisdictions and state and regional agencies have been developing long-range plans.

The common thread in each of them is a recognized need to change current patterns of growth which, if unchecked, will lead to a serious deterioration in the region's livability.

- The City of Beaverton in its Downtown Development Plan calls for promoting downtown Beaverton "as a public transit and pedestrian-oriented district"; for concentrating new commercial development in a compact area to facilitate pedestrian access; and for increasing the supply of close-in multi-family housing, linked to the downtown core by transit.
- In its vision for the future, the City of Gresham calls for the creation of a downtown mixed-use center organized around light rail that includes a high-density retail core with multi-story office buildings, surrounded



Beaverton Civic Center: Transit Plaza Concept (Source: Beaverton Downtown Plan)



Metro's 2040 process is the forum for developing a consensus on a vision for how the region wants to grow.

by residential and commercial buildings. Gresham's plan also calls for neighborhood community centers and "live-work" communities linked to downtown Gresham via transit, mixed-use development along the light rail corridor, and expanded public transit including a downtown light rail loop, bus service, shuttles and park-and-rides.

- 1000 Friends of Oregon, in its LUTRAQ (Making the Land Use Transportation Air Quality Connection) study, envisions a new land use development pattern that encourages a reduction in the number of auto trips and vehicle miles traveled "by creating opportunities to walk, bike and use transit." LUTRAQ also strongly advocates transit-oriented development and "the maximum use of existing urbanized areas accessible to transit through sensitive infill and redevelopment."

Clearly, there is no shortage of support for carefully-managed growth. But with so many organizations tackling the issue from different perspectives, the question arises: How can we as a region coordinate our efforts and work together to achieve one overall vision for this metropolitan area? The answer lies in one word: *Partnerships.*

Regional Partnerships: Working Together to Shape Our Future

Tri-Met is eager to work with its regional partners to achieve a vision we all agree on. Leaders, organizations and citizens in the metropolitan area will need to work together to pursue the desired changes.

Three areas requiring cooperation are of particular concern to Tri-Met:

1. **Defining the vision,**
2. **Identifying funding for transit expansion,** and
3. **Achieving the desired land use patterns.**

Defining the Vision

While there is some healthy overlap among many of the plans being put forth in the state and region, the metropolitan area as a whole has not yet reached a consensus on its vision for the future. The proper forum for developing that consensus is Metro's Region 2040, an effort now underway to plan for the region's future through the year 2040. The 2040 activities provide a vehicle for the community to discuss alternative ways to grow and address the trade-offs in choosing one approach over another.

Metro has circulated a publication that presents three development patterns to be evaluated in 1993 through the Region 2040 process. One of the concepts offered — Concept B — includes many of the same principles advocated by Tri-Met. Concept B would accommodate growth within today's urban growth boundary by using land more effectively, increasing redevelopment, mainly along major transportation corridors, and encouraging clustered communities with mixed uses and pedestrian amenities.

But before these or any other ideas can be pursued, agencies and jurisdictions in the region must be committed to a common vision.

For its part, Tri-Met will modify its strategic plan to reflect the results of 2040 and expects the rest of the region to do the same with their plans. Tri-Met will need a clear understanding of what the region wants and expects from its transit agency. Then Tri-Met will need the help of its regional partners in meeting those expectations.

The support and involvement of others will be especially important in two key areas: identifying funding for transit and achieving desired land use patterns.

Identifying Funding for Transit

To achieve the level of transit expansion suggested in all of the region's currently adopted plans, or any of the Metro 2040 concepts, Tri-Met will need additional funding.

To move ahead with its own strategic plan, Tri-Met will need assurances from its regional partners that they agree with the proposed level of transit expansion and will help Tri-Met secure the funding to achieve it.

The agency will need $45 million more a year in operating revenue starting in fiscal year 1995 and an additional $30 million a year starting in FY 1998 in order to achieve the strategic plan and increase mobility as the population grows. Those amounts represent a major infusion of additional support — equal to about 70 percent of Tri-Met's operating budget today.

It is unlikely that all of those funds will come from a single source. Rather, it is expected that they will come from a number of sources over time, and will likely involve

placing ballot measures before the voters to secure transit financing measures. Seeking additional funding in increments will help Tri-Met stay attuned to voters' concerns and desires.

Some efforts to increase transit funding are already underway. A number of agencies are working on an overall transportation finance package to help fund both highway and transit needs. The Oregon Transportation Commission, the Governor's Task Force on Vehicle Emissions and Metro's Joint Policy Advisory Committee on Transportation (JPACT) are developing a cooperative state and regional strategy for transportation financing. Transportation '93 — a statewide group of government, business and community interests — is reviewing all of the funding proposals and will act as the final clearinghouse to recommend to the 1993 Oregon Legislature a broad transportation strategy that includes a transit financing proposal.

The current transportation strategy under consideration is based on the Oregon Transportation Plan approved by the Oregon Transportation Commission. That plan, like the new federal Surface Transportation Act, contains first-time-ever provisions for flexibility and balance between highway and transit funding.

Half of the federal transportation money allocated to Oregon can now be used for either highway or transit projects. The investments are interrelated. According to the State, more than $11 billion in road investments can be avoided by shifting land use patterns and expanding transit. For the Portland region, that's a savings of nearly $10,000 for every household.

Looking beyond the 1993 legislative session, possible sources of funding being considered for transit include:

- A **systems development charge** imposed on the construction of new parking spaces to support transit; and
- A **general obligation bond** for light rail and bus capital expansion.

In general, Tri-Met would prefer transportation-related sources of funding for transit than general purpose taxes. The agency will be seeking voter, legislative and jurisdictional support for transit expansion.

Achieving Transit-Oriented Land Use Patterns

We will all need to work together to avoid the pattern of sprawl that has plagued most growing American cities.

Tri-Met has no formal authority in the land use arena, nor does it want any. Nevertheless, the agency's ability to effectively meet the region's transportation needs depends heavily on the pattern of land use here. Transit cannot serve a pattern of low-density development efficiently or economically.

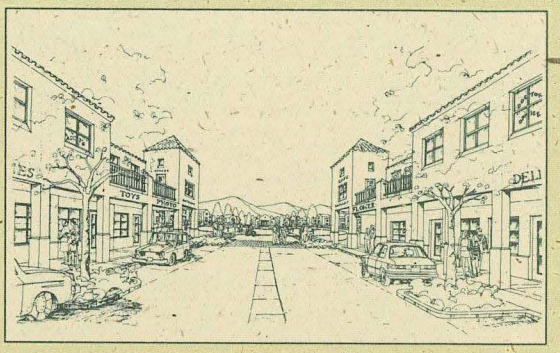
As land use issues are debated, Tri-Met will emphasize that compactly developed areas are given the highest priority for transit service. The lower-density development in outlying areas may have to wait as operating efficiencies permit and may not be serviced by large buses and light rail at all.

Tri-Met will advocate three major public policy initiatives:

1. Containing growth within the existing UGB;
2. Substantially increasing development in transit corridors; and
3. Helping to assure development is designed to be served efficiently by transit.

The agency will generally support the concepts of building "in" rather than "out"; developing self-contained communities; and encouraging pedestrian-friendly urban and suburban centers. These patterns help the region get the best return on its public investment in not only expanded transit service, but all forms of public works, including sewers, schools, parks and roads.

Tri-Met will also work with local jurisdictions to help them comply with the new requirements under the transportation goal of the state's planning regulations. As an example, the metropolitan area must reduce vehicle miles traveled per capita by 20 percent in the next 30 years. Jurisdictions also must change their planning and zoning codes to allow for transit-oriented development and must find ways to achieve a 10 percent reduction in the number of parking spaces per capita over the next 30 years. Tri-Met's mission of improving mobility fits precisely with these state-mandated goals.



Tri-Met will support the concepts of building "in" rather than "out" and developing pedestrian-friendly centers. (Source: Calthorpe Associates)

The Challenge to Tri-Met

The vision not only implies major challenges for the region; it also has significant implications for Tri-Met.

First of all, it suggests that Tri-Met has an overriding purpose beyond the provision of bus and rail service.

Tri-Met's job, as stated in the vision, is to help this region stay livable as it grows by making sure citizens can get where they want to go quickly, easily and safely.

That means Tri-Met's role is not only to provide bus, special needs, carpool and light rail service, but also to help citizens access other alternatives to the single-occupant vehicle such as biking and walking.

Second, the vision implies the need for a dramatic increase in Tri-Met's service to enhance mobility. If the agency's service continues to grow at the recent rate of only 1 to 1½ percent a year, a vision of growth without increased congestion cannot be achieved.

Tri-Met has developed a new strategic plan to rise to these two challenges — broadening the ways in which it contributes to enhanced mobility, and dramatically increasing its service and ridership to keep the region livable.

According to the new strategic plan, Tri-Met's mission is "to assure people increased mobility in our growing, compact urban region." The agency has set six strategic goals to steer its course. A detailed strategy for achieving the goals will come later in Tri-Met's Five Year Transit Development Plan and individual program strategies. The goals can be grouped into three categories: Getting more riders, getting more funding, and achieving mobility-oriented land use.

Getting More Riders

The surest way to reduce traffic congestion as the population grows is for more people to bike, walk, carpool, or use transit. Tri-Met's **ridership goal** calls for an aggressive but achievable leap in the number of customers served: from today's 200,000 riders per day to 690,000 riders by 2005 — a more than three-fold jump.

To achieve the ridership goal, Tri-Met must attract as well as retain more customers. The entire agency will be focused on making transit so convenient, so easy-to-use, so economical and so appealing that customers simply can't resist it.

Particular emphasis will be placed on further improving the reliability of Tri-Met's service, and on assuring that the transit system is safe and secure. Customers should be able to virtually set their watches by the arrival of a Tri-Met vehicle. In addition, they should feel assured when they board a Tri-Met bus or train, that they will travel in safety.

Customer service will be a driving ethic at Tri-Met. Employees will be highly trained and oriented to meeting the needs of customers. Hiring, communications, team building and employee development will all underscore the strongest possible customer orientation.

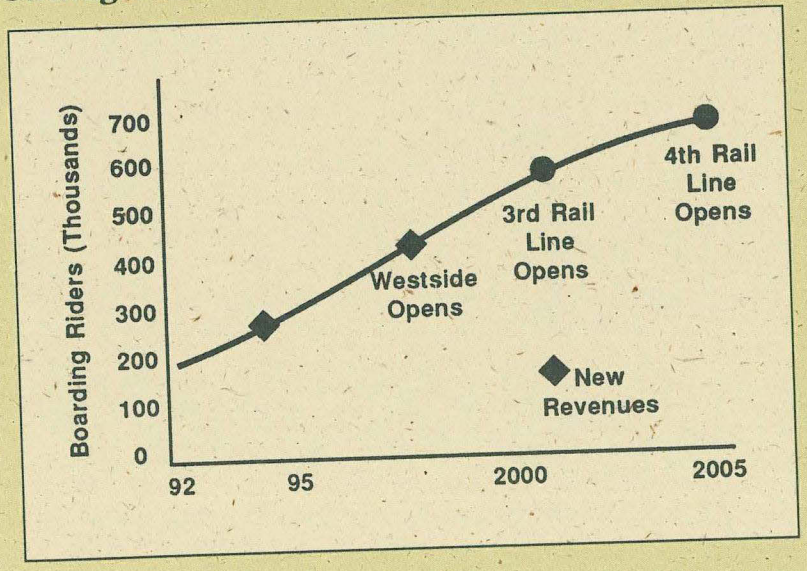
In addition, Tri-Met will initiate a full range of marketing activities to understand and address the needs of its customers. Market research will be used to help the agency find out who its future customers are and how it can serve them with transit.

New Types of Service Planned

Two new types of service are being planned to help Tri-Met reach out to more customers. They are "10-minute corridor service" and "neighborhood mini-bus service."

The 10-minute corridors will provide a network of service from transit center to transit center throughout the region, replicating the attractiveness of regional light rail. The corridors will become the backbone of Tri-Met's bus system. They will consist of major transit routes where service and capital improvements have been made (such as traffic signals that give preference to buses, special bus bypass lanes at intersections, curb extensions at bus stops, etc.) so that a bus can arrive at least every 10 minutes.

Strategic Plan Ridership Curve



Dramatically increased ridership is critical for Tri-Met to achieve its mission of enhanced regional mobility.

Capital improvements to the transit lanes will allow the buses to move faster than nearby automobiles.

The 10-minute corridor service will be easy to use. Customers will not have to use schedules because of the frequency of service.

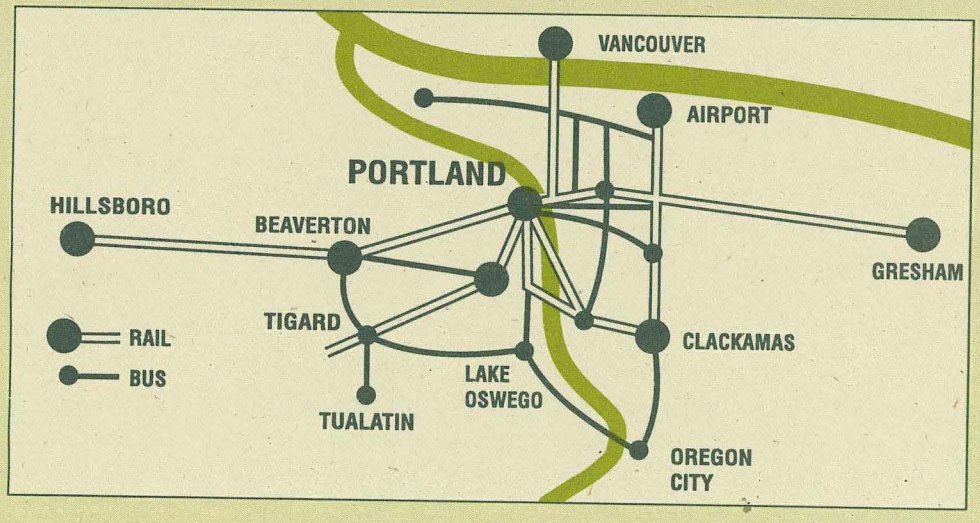
Pilot projects will initially be tested on a few key routes. The first 10-minute corridor could begin operating in fiscal year 1995.

Tri-Met is also proposing to introduce "neighborhood mini-bus service." This service would be an outgrowth of the special needs transportation service Tri-Met provides to disabled people. It will operate in a given neighborhood like a local shuttle service or in low-density areas inappropriate for big buses. These smaller buses — possibly electric — will take passengers to local destinations, 10-minute corridor stops or light rail stations.

To help keep the region mobile, Tri-Met is planning a major *service expansion* over the next 13 years — from some 30,000 weekly hours of bus and rail service today, to almost 87,000 weekly hours of service by FY 2005.

This will include expansion of the regional rail system and increases in traditional bus and mini-bus service to feed into the rail lines and 10-minute corridors. Tri-Met

10-Minute Corridors Concept



A new concept, "10-minute" corridors will provide the backbone of Tri-Met service, creating the bus and rail equivalent of an above ground subway.

will also promote other modes of transportation, such as biking and walking to improve regional mobility.

The accelerated development of a six-line regional rail system will be a top priority. Tri-Met's most important short-term objective will be completing the Westside light rail project on time and within budget. The agency forecasts 20,000 riders on Westside MAX when the line opens in September of 1997. The line will extend to Hillsboro by 1998. A third rail corridor should be ready for final design in 1996 and a fourth in 2000. Bus and mini-bus services will grow at a complementary pace.

Where will Tri-Met place its additional bus service? The agency will continue to make specific service decisions in consultation with local jurisdictions, neighborhoods and community groups, as part of the preparation of Tri-Met's annual service plan. Top priority will be given to providing additional service to those parts of the region that have compact, transit-supportive land use patterns.

Getting the Funding

Tri-Met will not be able to do its part in improving regional mobility unless it can obtain additional funding to serve more riders.

The **fiscal stability** goal focuses Tri-Met on: 1) Obtaining additional funding; and 2) Getting the best return for each dollar spent.

To secure additional funding, Tri-Met will need support throughout the region for a collective vision of compact urban growth served increasingly by transit. It will need to achieve a regional consensus on a finance package, mobility goals, expansion of the transit system and adoption of land use plans that foster mobility.

To get the best return on each dollar spent, Tri-Met will carefully target its own spending toward achieving the vision, and will emphasize efficiency throughout its operations. The most effective way to steadily reduce the cost of each ride is to steadily increase the number of riders. Hence, steady ridership growth will be essential for increasing efficiency. Tri-Met will work with its customers and its regional partners to identify the most valuable service lines and reallocate resources as appropriate.

The fiscal stability goal also calls for Tri-Met to maintain three months of working capital for operations, in order to stay closely attuned to risk, keep capital replacement and operating needs in harmony and assure wise spending and the care and maintenance of funding sources. The agency is well aware of the need to spend wisely: If it

doesn't, it could lose its public support and its base of operations.

Getting the Land Use

Tri-Met's land use goal calls for working with public and private interests to help assure that 75 percent of all new housing and jobs inside the region's urban growth boundary are served by a designated major transit corridor within a 5-minute walk.

More detail on Tri-Met's involvement in the regional approach to land use is provided in the "Partnerships" section of this report.

Tri-Met's People Make the Difference

To provide the level of service called for in its strategic plan, Tri-Met will need a workforce of some 4500 employees by 2005, compared to its 1800 employees today. The agency will need to dramatically increase its recruitment, training and retention activities to attract and retain a top quality workforce.

Employees will need to be trained to not only operate the agency's equipment, but also to be Tri-Met's major source of contact with customers. A dedication to outstanding customer service will be the overriding ethic at Tri-Met. The philosophy of "customers, one at a time" will require that Tri-Met employees be attuned to customer needs and that they be empowered to help the agency find ways to serve customers even better.

To make full use of the skills and talents of its people, Tri-Met will enhance its mechanisms for obtaining and using information from employees to improve service and efficiency. Tri-Met has already begun stepping up its communications activities to listen to employees and help them understand the Strategic Plan and relate their work to it.

In addition, a human resources plan is being prepared to determine how Tri-Met can give its people more opportunities to contribute to achieving the plan. Tri-Met is investigating such possibilities as increased employee training and education, total quality improvement techniques, two-way communication activities and incentive and recognition programs. At the same time, individual departments within Tri-Met are looking at ways to involve employees specifically in generating ideas to improve service and attract more riders.

Tri-Met's mission: To assure people increased mobility in our growing, compact urban region.

Goal 1
Customer Service:

Steadily increase system reliability and decrease the number of customer complaints.

Overall Approach:

Tri-Met will be driven by an ethic of superlative customer service. A strong orientation to customers and to outstanding service will be fostered throughout the agency. The agency's principle will be satisfying customers "one at a time."

Tri-Met will also improve the transit system itself by making it more convenient, reliable, easy-to-understand and appealing to customers. Particular emphasis will be given to system safety and security.

Capital improvements will include creation of 10-minute corridors (where faster, more frequent service will be provided on primary routes), and improvements in and around transit stops, including park-and-ride lots.

Tri-Met will strive to increase customer satisfaction and reduce customer complaints regarding regular and special service. It will improve its ways of listening and responding to customers, and will enhance its system for organizing and responding to customer complaints. Customer, community and Tri-Met employee input will be used to improve service.

Tri-Met will also focus on meeting or exceeding the criteria set forth in Tri-Met's Service Standards for on-time performance in fixed-route bus service. The reliability of the system will be assured by maintaining adequate levels of service and vehicle maintenance. The agency will expand its efforts to help more people learn how to use transit. Continuing emphasis will be placed on providing the kind of high quality service that keeps customers coming back.

Goal 2
Ridership:

Increase transit ridership to 690,000 riders per day by 2005.

Overall Approach:

The goal represents a dramatic increase from the 200,000 daily riders who now use transit. This increase will be accomplished in incremental stages. By the end of fiscal year 1997, Tri-Met plans to achieve an average of 310,000 riders per day.

Bus service will continue to be the mainstay of Tri-Met's transit service, and will be bolstered by two new concepts:

1) "Ten-minute corridors" will be created on two dozen major transit corridors, where Tri-Met will increase bus frequency and speed so that a bus comes by every 10 minutes (creating the bus equivalent of an above-ground subway system). Tri-Met will work with its regional partners to determine the location of the 10-minute corridors, and will begin implementing them by fiscal year 1995. Tri-Met will also work with local jurisdictions to achieve road treatments that give preference to transit.

2) Neighborhood mini-bus service will provide service to customers close to home, offering almost door-to-door pickup and delivery to link customers with light rail and the 10-minute corridors.

Tri-Met will increase the number of hours of bus and light rail service to 50,000 per week from the current level of 30,000 per week -- a 67 percent increase in weekly vehicle hours -- by the end of FY 97.

Tri-Met will use marketing, advertising, customer service, promotions and pricing strategies to boost transit ridership. It will also strive to increase transit ridership by elderly and disabled citizens. Overall, the agency will work to substantially increase system reliability, operating speeds, capacity, frequency, security and convenience. Attracting and retaining more customers will be the primary focus of every Tri-Met employee.

Goal 3
Human Resources:

Attract, train and retain 4,500 employees by 2005 who will provide superior customer service. Refine internal systems for using information from employees to improve service and efficiency.

Overall Approach:

Tri-Met will, first, assure that it has the number and quality of employees it needs, and, second, make sure it is managing them to achieve optimum results. The agency will expand its recruitment, training and retention activities to attract and retain the best employees.

A strong emphasis will be placed on orienting all employees to the strategic goals and, in particular, to customer service. "Customer" can mean an external Tri-Met customer, or someone within Tri-Met who serves external customers.

Management's role is to support employees and help them do their best. Employee training and education will be expanded as needed. Mutual respect, teamwork and open communication will be reinforced as key values throughout Tri-Met. Significant emphasis will be placed on achieving diversity at all levels of the agency.

Specific initiatives will include:

- Develop a human resources plan.
- Revise and improve the classification and compensation system as needed.
- Expand recognition programs.
- Investigate the potential for total quality management at Tri-Met.
- Focus employees on key issues related to customer service improvement. Develop a system or management approach that empowers employees to take the initiative to solve problems.
- Assure that all employees understand the Strategic Plan and their role in helping to achieve it. Help managers assume a stronger role in two-way communication with employees.

Goal 4
Fiscal Stability:

Steadily decrease the cost of each originating ride provided, maintain the equivalent of three months' working capital, and increase the continuing revenue base by $145 million per year by 2005.

Overall Approach:

To achieve this goal, Tri-Met will focus on:

1) Obtaining additional funding; and

2) Getting the best return for each dollar spent.

To obtain additional funding, Tri-Met will need support throughout the region for a shared vision of compact urban growth and a regional rail system. It will be critical to achieve regional consensus on mobility goals, finance packaging, expansion of the transit system and adoption of land use plans that foster mobility.

Tri-Met will seek legislative authority on one or more taxing measures and plans to secure a major new source of funding for operations and routine capital by July of 1994. Voter approval will be sought for a funding mechanism for construction of a third rail corridor in 1999 and for the local share of support for the 20-year rail development plan. It is unlikely that those funds will come from a single source. They are more likely to come from a number of sources over time.

Tri-Met will increase efficiency and get the best return for each dollar spent by increasing ridership and consistently applying established financial controls. Maintaining three months' capital will provide a control mechanism for keeping Tri-Met on track financially.

Goal 5
Service Expansion:

By 2005, expand and diversify service to 1,650 buses and mini-buses and three operating rail corridors, with one rail corridor in construction and one in final design. Double the percentage of carpool, bike and walk trips.

Overall Approach:

Tri-Met will seek to accelerate development of a six-line regional rail system.

Plans call for completing Westside light rail within budget and serving 20,000 daily boarding riders when the line opens in September 1997. The extension to Hillsboro is to be added to the project in 1994, with completion in 1998. The third rail corridor -- to Clackamas County and possibly north to Vancouver -- should be ready for construction in 1999, with completion in 2003. Tri-Met will also work with Clark County's transit agency, C-TRAN, to strengthen the integration of the two systems to better meet bi-state travel needs. The capital cost of system expansion will be $3 to $4 billion.

Tri-Met will expand its bus service to support the 10-minute corridors and existing and future rail lines. The agency will increase its fixed-route bus fleet by 208 coaches (118 to meet service standards; 90 for the 10-minute corridors), to a total of 734 fixed-route buses by the end of FY 97.

To house and service its bus and rail cars, Tri-Met will expand its existing operating and maintenance centers, or add a new one.

Tri-Met will also explore new service possibilities to better meet customer needs. It will work with its regional partners to obtain more funding and staffing for carpooling programs, and increase employer vanpooling. The agency will also work to achieve attractive, transit-supportive pedestrian and biking environments.

Goal 6
Land Use:

Using public and private partnerships, help assure that 75 percent of all new housing and jobs inside the region's Urban Growth Boundary (UGB) are served by a designated transit corridor within a 5-minute walk.

Overall Approach:

Tri-Met is not a land use agency. Rather, it can act as an advocate and catalyst for shaping land use patterns in ways that improve mobility. The agency will work with others to achieve land use plans that can be cost-effectively served by transit. Tri-Met will advocate three major initiatives:

1. Containing growth within the existing urban growth boundary (UGB);
2. Substantially increasing development in transit corridors; and
3. Helping to assure that new development is designed to be served efficiently by transit.

Tri-Met will consider these three factors in deciding where to provide service. Transit service and land use are interrelated. Tri-Met cannot achieve its ridership goals without changes in land use. The agency's service standards and Five Year Plan will be changed to incorporate land use considerations into service expansion decisions.

On a regional level, Tri-Met will be initiating a cooperative process with local jurisdictions to select the "designated transit corridors" called for in the goal. Because the corridors will be limited in number, top priority will be placed on locating them in areas with land use patterns compatible with transit.

Tri-Met will encourage the inclusion of its land use initiatives in the region's land use and transportation plans (Metro's Region 2040 Plan and revised Regional Transportation Plan) and in local comprehensive plans. The agency will also strive to achieve recognition from the development community that transit-oriented development is both achievable and profitable.

Tri-Met Strategic Plan: Business Plan

Year of Expenditure Dollars

	FY93 FORECAST	FY94 FORECAST	FY95 FORECAST	FY96 FORECAST	FY97 FORECAST	FY98 FORECAST	FY99 FORECAST	FY2000 FORECAST	FY2001 FORECAST	FY2002 FORECAST	FY2003 FORECAST	FY2004 FORECAST	FY2005 FORECAST
1. Weekday Ridership	216,000	233,300	256,600	282,300	310,500	347,800	382,500	420,800	462,900	518,400	570,200	627,300	690,000
2. Weekly Bus and Rail Hours	32,163	33,095	36,960	41,286	46,127	52,302	56,126	60,233	64,644	70,382	75,472	80,940	86,814
3. Annual Revenues (000s)													
a. Passenger Revenues	30,464	34,546	39,900	46,085	53,228	62,597	72,298	83,505	96,449	113,424	131,004	151,310	174,763
b. Payroll Tax Revenues	84,214	90,430	96,863	103,157	109,861	117,002	124,608	132,708	141,336	150,528	160,316	171,512	172,713
c. Other Existing Revenues	35,413	57,579	45,684	57,413	33,305	36,606	57,172	44,721	50,643	76,646	62,503	69,776	99,105
d. New Revenues			45,000	48,150	51,521	85,127	91,086	97,462	104,284	111,584	119,395	127,753	136,695
4. Total Revenues (CR and OTO)	150,091	182,555	227,447	254,805	247,915	301,332	345,164	358,396	392,712	452,182	473,218	520,351	583,276
5. Operating Expenditures (CE)	114,415	124,825	144,176	161,141	180,967	209,646	230,430	251,447	274,601	314,635	343,295	374,869	409,664
6. Capital Expenditures (CE and OTO)	32,100	67,541	53,370	109,779	62,450	70,545	101,253	90,237	101,198	138,115	125,913	139,855	184,837
7. Total Expenditures (CE and OTO)	146,515	192,366	197,546	270,920	243,417	280,191	331,683	341,684	375,799	452,750	469,208	514,724	594,501
8. Operating Result	3,576	(9,811)	29,901	(16,115)	4,498	21,141	13,481	16,712	16,913	(568)	4,010	5,627	(11,225)
9. Estimated Beginning Working Capital	57,034	54,610	44,799	74,700	58,585	63,083	84,223	97,704	114,416	131,329	130,761	134,771	140,398
a. Operating Fund	28,604	31,206	36,044	40,285	45,242	52,412	57,608	62,862	68,650	78,659	85,824	93,717	102,416
b. Capital Reserve Fund	28,430	23,404	8,755	34,415	13,343	10,671	26,616	34,843	45,766	52,670	44,938	41,054	37,982
10. Months of Operating Expense	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
11. Fare Recovery Ratio	26.6%	27.7%	27.7%	28.6%	29.4%	29.9%	31.4%	33.2%	35.1%	36.0%	38.2%	40.4%	42.7%

CR=Continuing Revenue
OTO=One Time Only
CE=Continuing Expenditures

Key Points:

Ridership Growth

- The focus of much of Tri-Met's activities will be achieving the **weekly ridership** increases shown in line one—from about 200,000 daily boarding rides today to about 690,000 in FY 2005. A gradual shift in land use as envisioned in the Strategic Plan is necessary to achieve these ridership levels. This growth in fixed-route and mini-bus ridership is considered critical for Tri-Met to achieve its mission of improving mobility as the region grows.

Service Expansion

- Line two, **weekly bus and rail hours**, shows the level of service needed to serve significantly more customers.

New Revenues

- As indicated in line 3d, Tri-Met will need **new revenues** to pay for expanded service. The agency will need $45 million in new revenues starting in FY '95, growing at 7 percent per year. An additional new revenue source of $30 million is anticipated starting in FY '98, also increasing at 7 percent per year. The **total revenues** in line 4 will cover Tri-Met's operating and capital expenses except for the money needed to match federal funding for additional light rail lines.

Fiscal Stability

- The agency's commitment to maintaining three months' of operating working capital as part of its fiscal stability goal is reflected in line 10, which shows steady maintenance of three **months of operating expense**. Tri-Met will maintain this cushion to assure wise and prudent spending.

Operating Efficiences

- The agency will be improving its operating efficiencies, so that its **fare recovery ratio** (line 11) increases from 26 percent today to almost 43 percent in FY 2005. This means that by 2005, about 43 percent of Tri-Met's costs will be covered by passenger fares.

Open Here

D R A F T

Growth and Livable Communities

January 12, 1993

PREFACE

In 1991, after its successful completion of the Human Investment Strategy, the Progress Board turned its attention to livable communities. They invited experts from across the state to speak to them on growth issues. They heard state agency directors, local government officials, legislators, and planners describe their views on growth and livability. The Board distilled this testimony into a discussion paper, "Livable Communities Strategy: Addressing the Impacts of Growth."

At the same time, Gov. Barbara Roberts recognized that a unified state response was essential if the state was to successfully meet the challenges of growth. She formed the Urban Livability Team to develop the state's livable communities agenda. It is composed of agency heads from the Departments of Energy, Transportation, Land Conservation and Development, Economic Development, and Environmental Quality.

This report is a synthesis of the work of both the Oregon Progress Board and the Urban Livability Team.

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INTRODUCTION

This report proposes a strategy to not only maintain, but to enhance, the quality of life in Oregon's communities as they grow in the decades ahead. Section 1 describes why Oregon needs such a strategy. It presents the outlook for population growth and examines the major issues that face growing communities. Section 2 displays the benchmarks we will use to measure our progress toward achieving more livable communities. Section 3 discusses some strategies to achieve those benchmarks.

THE EVOLUTION OF THIS REPORT

The 1989 Legislature created the Oregon Progress Board and charged it to do what no state has done: develop benchmarks that measure how Oregon is doing as a people and a place. The Progress Board is submitting its second round of benchmarks to the 1993 Legislature.

The report contains some 250 benchmarks aimed at the essential components of livability: nurturing families and thriving children; healthy, educated, independent, and publicly-involved citizens; a clean, beautiful, and accessible natural environment; accessible, affordable, safe, and enriching places to live and work; and a prosperous economy that provides a balanced distribution of jobs and income.

Each benchmark sets a standard by which progress can be measured. Taken together, the benchmarks look to a future for Oregon that features exceptional citizens, an outstanding quality of life, and a diverse, robust economy.

Quality of life encompasses a wide range of values ranging from economic and social well-being to environmental quality and sense of community. The plan of action to achieve the benchmarks aimed at enhancing Oregon's quality of life will be addressed in separate reports. This report, the first in the series, focuses on the challenges facing

growing communities. It focuses on the physical features of communities -- air, water, land, transportation systems, housing, and public works. Future reports will address other livability issues such as rural decline, crime, and the sustainability of Oregon's natural ecosystems.

GUIDING PRINCIPLES

This report proposes Oregon embark on a long-run course to keep our state a special place with vital communities, clean air, abundant and fresh water, affordable housing for everyone, quality public services, ample and accessible open spaces, and a transportation system of choices. These principles will guide our strategies to achieve those goals:

1. We recognize the interrelatedness of the environment, the economy, and community. We cannot enjoy a rich and sustained quality of life if any of these components is ignored. An integrated and coordinated approach to problem-solving will be taken.

2. We will take the long view so that we may bequeath to our children and their children a healthy and diverse environment and livable communities.

3. Protecting Oregon's quality of life in an era of change will require the participation of all Oregonians.

4. We will articulate a common vision of where we want to be and fashion a course of action to get there. At the same time, we will seek solutions that preserve the unique character of each Oregon community.

5. Government all too often addresses problems after they have been created. We need to change this approach by focusing our efforts on preventive measures.

6. We will emphasize market-oriented policies that signal the full costs and benefits of individual decisions.

7. We recognize that we don't have all the answers, but the urgent problems caused by growth require that we take action now.

1. WHERE WE ARE TODAY

Oregon's quality of life is widely recognized. First-time visitors and natives alike are struck by the beauty and variety of our natural environment: a beautiful coastline, majestic mountains, dense forests, high deserts, and wilderness lakes and rivers. Recreation opportunities abound. Most Oregonians are within short distances of skiing, hiking, crabbing, fishing, hunting, birdwatching, and other outdoor recreation.

Oregon's cities and towns consistently rank high in national livability comparisons. The National Civic League has awarded the "All-American City" designation to Salem (twice), Milton-Freewater, Cottage Grove, Eugene, Portland, and Grants Pass. The London-based Economist recently touted Portland as one of the few successful major American cities, being both "prosperous" and "beautiful."

The passion Oregonians feel for their natural environment is reflected in state laws that provide the public access to all ocean beaches, protect scenic rivers from development, protect farm, forest, and coastal resources by land-use planning, and reduce roadside litter through the pioneering bottle bill.

We value our quality of life because it is intrinsic to who we are. Today, it is key to our economic prosperity as well. It is a magnet for keeping and attracting businesses and high-wage jobs. To quote Oregon Shines: An Economic Strategy for the Pacific Century:

> "Preserving Oregon's advantage in quality of life must be a critical element of the state's strategy for economic growth. ...Especially for knowledge-intensive industries, where people can make a critical difference in the success of a firm, a region that can boast affordable housing, good transportation, and access to quality urban and outdoor recreation experiences will have a substantial advantage."

Today, Oregon is growing at a fairly fast clip. Growth brings many benefits -- more jobs, more amenities, and a more resilient economy. It also imposes costs. Few, if any, states have undergone rapid growth without spoiling the environment or sacrificing some of the qualities that made those states so enticing to newcomers in the first place.

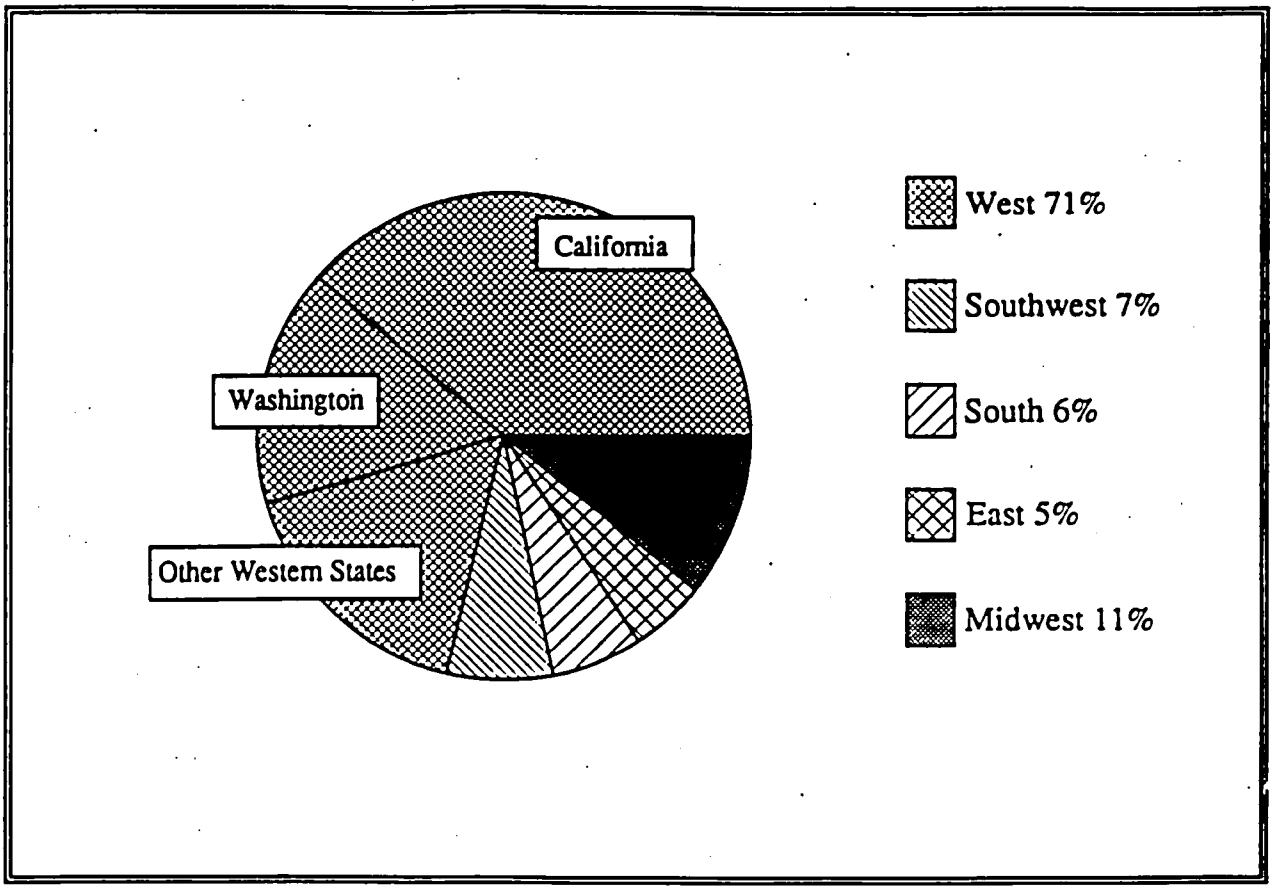
OUTLOOK FOR GROWTH

Just how many people will come to Oregon in the decades ahead is unknown. The Oregon Department of Transportation predicts Oregon will grow by 880,000 people by 2010. If Oregon's economy prospers and our quality of life continues to be viewed as desirable, we could grow a lot more.

Past growth trends

In the boom years of the 1970s, Oregon's population grew at a 2.3 percent yearly rate. Some areas, notably Deschutes and Washington counties, grew much faster -- at 7.4 percent and 4.5 percent, respectively. The strong statewide growth ended with the nationwide recession of the early 1980s. Between 1981 and 1987, in fact, more people moved out of Oregon than moved in. Once the economy recovered and quality of life became more valued, however, Oregon began growing again, at a modest rate at first, and then more rapidly.

A California speaker at a recent Portland City Club meeting told her audience that "every Californian wants to come to Oregon." California is, in fact, Oregon's largest source of newcomers. According to estimates from the Oregon Department of Motor Vehicles, Californians account for about 40 percent of the immigrants each year. Washington is next with 16 percent. All told, two-thirds of the immigrants to Oregon come from the Western states.



Between 1970 and 1990, Oregon grew at an average rate of 1.5 percent a year -- an increase of more than 750,000 people. Two-thirds of the new growth occurred in just six counties:

County	Amount of Growth	Percentage of Oregon growth
Washington	152,000	20
Clackamas	112,000	15
Marion	76,000	10
Lane	67,000	9
Jackson	51,000	7
Deschutes	44,000	6
		67

The impact of growth on a particular community stems in part from the speed at which it grows. At an annual rate of 3.5 percent, for example, population doubles in 20 years. The yearly growth rates of today's fastest-growing cities include:

City	1990-1991 growth rate
Bend	8%
Tualatin	6
Beaverton	6
Hillsboro	4
Ashland	4
Tigard	4
West Linn	4

Future growth

Much of the new growth for Oregon is projected to occur in areas where population is already the most concentrated. As Dean Nohad Toulan of the Portland State University School of Urban and Public Affairs has observed, much of the growth we have experienced in the past has occurred in the I-5 corridor between Portland and Ashland. Should this trend continue, "it will surprise no one since it is a natural extension of what has been happening in the State since 1870."

- Portland metro: Half of the expected growth will occur here. Its population growth for the next two decades is estimated at almost 450,000.

- Mid-Willamette Valley: Benton, Lane, Linn, Marion, Polk, and Yamhill counties are forecast to gain about 200,000 people, or one-quarter of the total state growth, by 2010.

- Deschutes County: The fastest-growing county over the last two decades, it is forecast to add another 36,000 people.

- Southern Oregon: Nine percent of the state's growth is predicted to go to Jackson, Josephine, and Douglas counties -- nearly 80,000 people.

- Eastern Oregon: Eastern Oregon, excluding Deschutes County, is expected to grow by 57,000 residents.

- Coast: The population along the coast is forecast to grow by nearly 50,000 persons, or six percent of statewide growth. This does not count increases in vacation or second homes.

QUALITY OF LIFE AT RISK

The challenge facing Oregon today is this: How can we reap the benefits of growth and, at the same time, keep our valued quality of life?

Oregon remains essentially untrammeled by development, relatively unpolluted, and and its natural areas are readily accessible to Oregonians and visitors alike. Nonetheless, the quality of life benchmarks aim high and achieving them will be an ambitious endeavor under the best of circumstances. The demands of growth will make the venture even more challenging.

The nearly one million newcomers expected to come to Oregon in the next two decades are equivalent to adding eight new cities the size of Salem or Eugene. At present trends, however, much of the development that springs up to accommodate the growth will occur at the edges of our cities. Eventually, an aerial view of Oregon could

show one continuous strip of development between Portland and Ashland and spots of development elsewhere.

Oregonians are particularly aware of the problems sprawling growth has imposed on Los Angeles and, closer to home, Seattle. In a Catch-22, ownership of the car makes sprawl possible, but it is sprawl that makes car ownership a virtual necessity. Clearly, sprawl and auto dependence are costly, not only in terms of the land gobbled up, but also in air pollution, high housing costs, inefficient public works, congestion, social segregation, and loss of community.

We are beginning to see some disturbing signs of uncontrolled growth already. Traffic congestion is occurring with increasing regularity in the Portland, Eugene, Salem, and Medford metropolitan areas, in Bend, and on the coast. Housing prices in the pockets of high growth have risen dramatically. There is growing concern that we are preserving too little park and open space for future Oregonians. Providing public works is becoming both less efficient and more expensive.

Following are more detailed discussions of the growth issues that face Oregon in terms of land use, mobility, air quality, public works, water supply and quality, parks and open spaces, affordable housing, and sense of community.

Land Use

Oregon's nationally-recognized land-use program aims to fend off sprawl and preserve and protect forest and farm lands. Urban growth boundaries define where growth and development should occur. The local land-use plans call for compact, orderly development within those boundaries. To date, Oregon's program has averted both widespread development of farm and forest lands and rampant sprawl.

However, the rapid growth occurring now is sorely testing the plans. Studies of development during 1985-1989 in four fast-growing areas -- Bend, Brookings, Medford, and Portland -- sound an alarm of sprawl:

- Each of these urban areas is growing at a low density. Single-family subdivisions in the Bend area averaged just over 2 homes per acre. Their plans called for an average of 6. New single-family housing in Brookings, Medford, and the Portland metropolitan area was also well below planned densities. Some new developments averaged just one house per acre.

  "We use Los Angeles and its urban spread as an example of what we do not want to be, while conveniently forgetting that most of our suburban development is taking place at densities lower than those encountered in Southern California," according to Dean Toulan.

  Not only are the new housing developments low-density, many are built outside city limits where there are no schools, sewer lines, or good roads. Developers gravitate to areas away from the city center because land is cheaper -- in part because of the lack of urban services. With cheaper land, developers find it more profitable to build low-density development. Sprawling developments like these impose higher costs in terms of streets and water and sewer lines than developments that are closer in and more compact.

- Residential development continues outside the urban growth boundaries. More than half of new single-family housing in the Bend area was built outside its urban growth boundary. For Brookings, it was 37 percent, and for Medford, 24 percent. These homes were built not only on "exception" lands, where profitable farm and forest operations are already precluded, but also on lands zoned for forest and farm use.

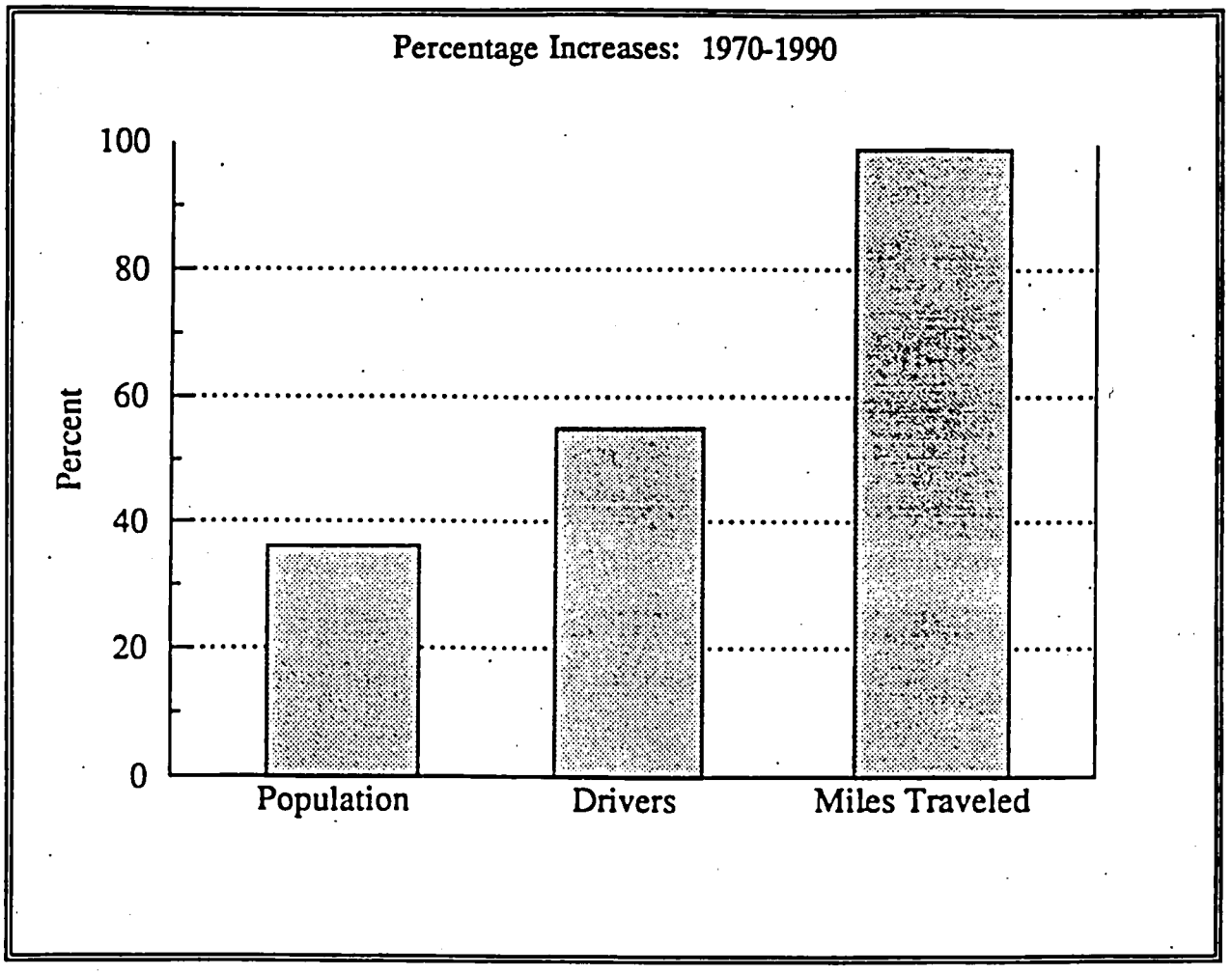
More development outside urban growth boundaries is likely to occur. In the Portland area, the study estimated that with the amount of land outside the boundaries already zoned for residential development, an estimated 11,000 homes could be built there. In the Bend area, the estimate is 12,000 homes.

- Rural homes on half-acre to five-acre plots with well water and septic tanks are common on the fringe of urban growth boundaries. Should cities need to expand their boundaries to accommodate increased population, annexation of these areas will be difficult. Extending streets, water, and sewer lines into those areas is often too costly. Other times, rural residents oppose annexations. As a result, cities could be forced to leapfrog these areas, adding pressure to develop farm and forest lands.

- Sprawl is eroding urban livability. All four cities experienced declines in key indicators of livability from 1985 to 1989. Traffic volume and congestion increased on all major roadways. With a few exceptions, new park development failed to keep up with population growth. Housing prices and rents increased faster than household incomes.

Mobility

In Oregon, as in other states, auto travel exploded during the past two decades. The increase in per-household driving, coupled with the growth in population, caused a jump in auto travel of 99 percent, or 13 billion miles.



The social costs of ever-increasing auto travel are huge. Oregon's yearly gasoline bill exceeds 1.5 billion dollars. Oregon imports all of its oil, so most of those dollars leave the state. Our economy is vulnerable to the erratic price fluctuations over which we have no control. Autos emit nearly 15 million tons of carbon dioxide a year which add to global warming. Auto exhaust causes smog and carbon monoxide pollution.

Congestion is the most visible consequence of exploding auto travel. More than a million cars crisscross the roads and highways of Oregon cities in the daily work commute. Oregon drivers spend roughly 15 million hours a year stuck in traffic.

Congestion also lowers worker productivity, increases air pollution, and raises the costs of goods and services.

The causes of the growth in travel in the past two decades stem partly from a 36 percent increase in the general population and a 68 percent boom in the work force. But it's how we're configured that makes any increase in population translate into an automatic increase in car travel. Sprawling development and the segregation of homes, work sites, shops, services, and schools make the auto the only practical mode for most trips.

1990 Nationwide Car-Trip Destinations

Type of trip	Percent of Total trips	Percent of total miles traveled
Work-related	27.9	35.6
Shopping	20.2	11.9
School/church	5.3	4.5
Other personal business	25.2	21.4
Social/recreation	21.4	25.6

In the work commute, car- and van-poolers, bikers, walkers, and bus riders have made a dent in relieving congestion, but it is a very small dent. The 1990 U.S. Census reveals for 1990 that 3 percent of Oregonians took public transit to work and 13 percent shared the ride in cars or vans. Overall, little more than one-quarter of the work

commuters got to work in some way other than driving solo. Not only are the percentages small for non-auto travel, they are less than what they were a decade ago.

1990 Work Commute

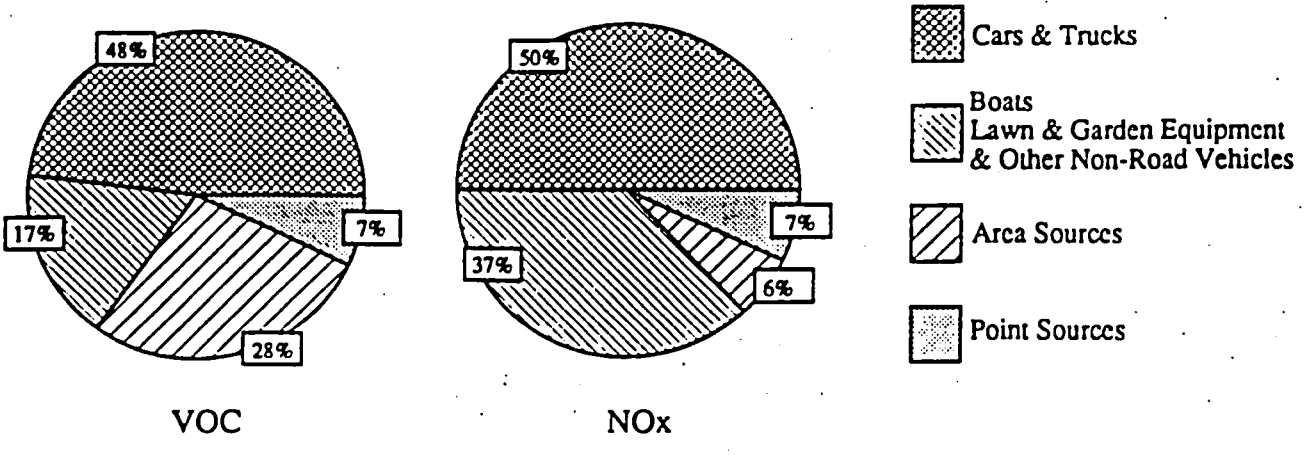
	Drive alone	Carpool	Transit	Other	Average travel time (minutes)
Ashland	67%	11%	1%	21%	14
Beaverton	77	11	5	7	21
Bend	75	13	-	11	13
Brookings	77	13	0	11	11
Cannon Beach	59	4	-	38	9
Corvallis	63	9	2	26	10
Eugene	69	10	4	18	16
Medford	79	11	1	9	17
Portland	65	13	11	11	20
Roseburg	78	12	1	9	15
Salem	73	15	3	10	18
Wilsonville	81	11	1	8	23
Oregon average	73	13	3	11	20

Air Quality

One of the main costs of more and more auto travel is the air pollution it generates. Polluted air threatens public health. It degrades quality of life in terms of odor and reduced visibility. It damages materials, crops, trees, and other vegetation.

To protect human health and welfare, the federal Clean Air Act defines minimum standards for air quality. The Portland metro area currently violates the standards for carbon monoxide and ground-level ozone; Medford, Grants Pass, and Klamath Falls violate the standard for carbon monoxide. Auto exhaust is a major source of both carbon monoxide and ozone. Other sources such as paints and solvents and non-road vehicles, including boats and lawn mowers, are also major polluters.

Ozone-Causing Emissions in the Portland Area: 1990



Ozone forms when oxygen and nitrogen (NOx) and volatile organic compounds (VOC) react in the presence of sunlight.

In the early 1970s, Portland violated the carbon monoxide standard almost one out of every three days. Smog was even worse, with levels often exceeding the standard by as much as 100 percent. In 1978, the Environmental Protection Agency identified Medford as having the worst carbon monoxide emissions in the nation. It violated the standard one out of every two days.

Since then, there have been dramatic declines in auto emissions due to more efficient cars, motor vehicle inspection and maintenance programs, traffic improvements, limits on on the availability of parking, efficient bus service, and MAX, the light rail in Portland. Large gas stations are now required to install vapor recovery systems. Cleaner burning oxygenated fuels are now being sold.

As a result, DEQ is confident the state will meet the ozone and carbon monoxide standards by the 1993/1995 deadlines set by the Clean Air Act. Success, however, may be short-lived for Portland. The influx of new drivers and continuation of the trend toward more driving per driver could easily outstrip the technological improvements.

Failure to meet standards not only jeopardizes health, but also the state's economic well-being. EPA could withhold federal money for streets and roads and impose measures to improve the air quality. Their restrictions could limit industrial growth.

Public Works

Streets, roads, water and sewer systems, waste disposal facilities, parks, libraries, schools, jails, and other public works form the backbone of a community. With the influx of people over the next 20 years, Oregon communities will need to build new streets, parks, and schools and expand water and sewer systems to serve them. At the same time communities must meet the demands of growth, they face a huge backlog of projects: substandard streets and roads in need of repair and replacement; crowded

parks, schools, and roads in need of expansion; and aging water, sewer, and stormwater systems in need of maintenance. All told, the bill to restore, maintain, and expand city and county roads, water systems, sewer systems, parks, and schools runs into the tens of billions of dollars.

On top of these costs, Oregon communities must upgrade and improve their drinking water, sewer, and storm systems to meet new pollution standards. Monitoring and reducing pollutants in drinking water could cost more than $1 billion over the next 10 years. Upgrading sewer and stormwater systems could cost more than $2 billion over the next 20 years. Portland alone needs $1 billion to improve its current sewer and stormwater systems. For some smaller communities, the investments they must make could quadruple rates to consumers.

Sprawling development is the most expensive form of development. Roads, water, and sewer lines need to extend long distances in every direction. While new capacity is built to serve the new developments, capacity in other areas remains underused.

Water Supply

Oregon is blessed with abundant water resources, boasting over 6,000 lakes and reservoirs and a network of 112,000 miles of rivers and streams. Although the total amount is not known, groundwater is a major source of water supply for households, industries, and farms.

Despite our natural abundance, however, summer water shortages often plague Oregon farmers, ranchers, industries, and cities. Most rivers are already allocated beyond their capacity during parts of the year and during droughts. Measures to protect

the endangered salmon and other species will most likely reduce the water available for out-of-stream uses -- irrigation, city water, and industrial processing. In some developing areas, groundwater withdrawals are restricted to ensure sustainability.

Many of Oregon's fast-growing communities will soon need to develop new supplies to meet burgeoning summertime demand. Portland's peak day water needs are expected to reach one billion gallons in 2050, more than twice the water available today. A Washington County water management committee predicted that peak water demand could exceed the capacity of its water supply systems as early as 1995. Ashland recently developed a new water resource plan to prevent shortages predicted to occur in the late 1990s. Conservation was chosen as the cornerstone of its plan because it can provide sufficient water for Ashland's residents at one-tenth the cost of developing new supplies.

The growing population will increasingly compete for limited water supplies with fish and wildlife, agriculture, hydro power production, and industry. State agencies are seeking to protect stream and river flows to reduce pollution, enhance fisheries, and provide for adequate recreation and navigation. The Water Resources Department is imposing limits on new withdrawals of many streams to prevent overuse. Ultimately, the water availability may limit growth in otherwise fast-growing areas.

Water Quality

Clean rivers, lakes, and underground reservoirs are essential to providing water that is safe for drinking, recreation, and fish and wildlife. We have made great strides in cleaning up our waterways -- notably the Willamette, once one of the nation's dirtiest rivers. But some Oregon waterways do not meet clean water standards.

Rivers and Lakes. Industrial, agricultural, and municipal wastes all contribute to the pollution of the 1,100 miles of Oregon rivers that fail to meet clean water standards. Sources of urban wastes include wastewater treatment plants, urban run-off, and combined sewer and storm systems. Wastewater treatment plants do not remove all the pollutants from household and industrial sewage. Consequently, the water it discharges into nearby waterways is to some degree polluted.

Urban run-off occurs as rainwater washes over streets and other areas and collects toxic metals, bacteria, organic compounds, debris, and dirt. This polluted water flows into storm sewers and ditches which then goes directly into waterways. Sewer systems in Portland and a few towns collect storm water as well as wastewater. Heavy rains cause overflows and some raw sewage is discharged directly to nearby rivers.

Today, many Oregon communities are required to reduce the pollution discharged into waterways to meet clean water standards. The changes they must make to their sewer and stormwater systems will be expensive. In Washington County, for example, DEQ limits phosphorus discharge into the Tualatin River. To meet DEQ standards, the Unified Sewerage Agency, which serves the county, must change its treatment process at a cost of $100 million to $200 million. Many other communities, including Ashland, Myrtle Point, and Coquille, also must upgrade their wastewater treatment facilities to comply with standards. McMinnville has already begun plans to modify its treatment plant. If the measures communities take are not sufficient, they will likely have to control new development.

Groundwater. Underground aquifers store groundwater. Through a systems of wells and piping, groundwater is taken up to provide water for drinking, crop irrigation and industrial uses. Today, more than one million Oregonians rely on groundwater as their primary source of water. Groundwater also serves as back-up supply to another million Oregonians.

Pollutants from the earth can filter down through the soil to contaminate groundwater. Sources of groundwater pollution number in the hundreds. In particular, landfills, chemical spills, fertilizers, septic tanks, and leaking fuel from underground storage tanks pose significant pollution threats. Although we do not know the quality of all of our groundwater, there are many documented cases of contamination throughout the state. Milwaukie, for example, found it necessary to clean up chemicals in its water supply, at a cost of $1.5 million.

Affordable Housing

Every Oregonian deserves a decent, safe, and affordable place to live. Today, many low-income households pay a large portion of their income on housing-related costs, leaving too little money for food, child care, health services, and other necessities. Some of these households then become trapped in lasting poverty.

An affordability rule-of-thumb says the proportion of a household's income spent on rent or mortgage payments should be less than 30 percent. In 1990, nearly 250,000 households with incomes below the median spent 30 percent or more for housing.

Energy costs also make up a significant portion of housing-related expenses for the low-income. For some households, particularly those whose homes are unweatherized, energy bills add another 20 to 30 percent to their housing budget. For households who live long distances from work, transportation costs are another burden.

The problems of the homeless are even more severe. The state Housing and Community services Department estimates more than 30,000 people are homeless, and the number is growing, particularly homeless families. A listing of the kinds of people

who are homeless illustrates the needs of the homeless do not center exclusively on shelters, but on the provision of a wide range of social services.

- abandoned or runaway youth
- mentally ill
- mentally retarded
- developmentally disabled
- domestic violence victims
- sexual abuse victims
- veterans
- elderly
- alcohol and drug abusers
- people with AIDS
- families where the head of household is unemployed or under-employed

Adequacy of the housing supply is reflected in the percentage of housing units for rent and for sale. Vacancy rates for 1990 reveal the tightness of the Oregon housing market. The statewide averages were 1.4 percent for houses for sale and 5.3 percent for housing for rent. Normal vacancy rates for housing for sale range between 1.5 and 2 percent; for housing for rent, between 6 and 8 percent.

Housing prices are escalating in the most rapidly growing parts of Oregon. In Clackamas county, for example, housing prices rose 10 percent between 1991 and 1992. Between 1985 and 1989 house prices in Brookings increased twice as fast as personal income.

Open Spaces

Oregon's topography forms a rich mosaic of forests and farmlands, range lands, mountains, brush steppes, deserts, wetlands, bogs, marshes, estuaries, waterways, beaches, and dunes. These areas are habitat for thousands of species of fish and wildlife. This spectacular variety also provides a wealth of recreational opportunities. It's no

wonder that tourism has become Oregon's third largest industry. From luxury resorts to wilderness adventures, windsurfing to white water rafting, rock climbing to hang gliding, Oregon's attractions draw millions of visitors each year.

Oregon's 225 state parks consistently rank among the nation's top 10 in attendance. Our 13 national forests include miles of coastline, sand dunes, mountain lakes, glacier-clad volcanoes, whitewater rivers, high desert as well as the vast coastal and interior forests. Other national lands include the Columbia Gorge National Scenic Area, Hells Canyon, and the Oregon Dunes as well as four national parks, Crater Lake among them.

Within the urban landscape, Oregon has kept some of the natural world. Downtowns and residential neighborhoods are liberally dotted with trees and other greenery. Parks of all kinds, playgrounds, and sitting areas offer residents retreats from city activity as well as havens for wildlife.

Sense of Community

A city that is lively, safe, and attractive is one where its residents feel strong ties to it. They are aware of city-wide issues, voice their concerns in community forums, and work to make their city a better place.

Community spirit stems in part from a network of vibrant neighborhoods. A vibrant neighborhood is readily identifiable by its particular set of landmarks -- whether they be architectural, historical, social or scenic. Its unique character evolves over time as new and old residents stamp it with their individuality. Most importantly, it's a place where people interact face to face and take care of each other in the small but significant ways that connect people. Residents may also express their commitment more formally by joining their neighborhood association, volunteering at local schools, participating in crime watch and block home programs, and helping in neighborhood clean-ups.

A city's public spaces also strengthen community spirit. They serve as a kind of living room where people from throughout the community may gather. They are the sites of parades and celebrations, festivals of one kind or another, craft fairs, and political rallies. These social centers give people the opportunity to meet one another as well as to participate in and support community-wide events.

The sense of community tied to the city has become more fragile, due in part to development patterns that separate homes from people's daily activities: working, shopping, going to the doctor or dentist, visiting friends or relatives, eating out, or going to the library. Not only does this segregation require people spend a sizable chunk of their time driving from place to place, it also hinders people from meeting each other in spontaneous, casual settings.

As we design new communities and revitalize old ones to meet Oregon's benchmarks, we can look to the popularity of those compact, mixed-use neighborhoods in Portland, Eugene, Ashland and other Oregon cities where residents can walk to do their shopping, run other errands, or visit with each other; where bustling activity is the norm; and where community spirit runs high. Neighborhoods like these where residents are involved make a city livable.

2. WHERE WE WANT TO BE: THE BENCHMARKS

The benchmarks in this section describe the quality of life we want for Oregon's growing communities by 2010. They are the second round of benchmarks which are being submitted to the 1993 legislature. The outstanding quality of life we want to keep and enhance includes these features:

A clean, healthy environment. It is essential to our health and welfare that Oregon is a place where the air is clean and the water is fresh and plentiful. We aim to meet the standards set by the federal Clean Air and the Clean Water Acts and to avoid sanctions that could limit economic opportunity.

A transportation system of choices. The car will be the mainstay of individual mobility for decades to come, but we cannot meet our goals if it is the only viable option for most personal travel. We want to design our communities and transportation systems so that more people find it convenient, safe, and comfortable to get where they need to go by foot, bike, bus, rail, or train.

Quality services. We want well-maintained roads, bridges, water and sewer systems, parks, and other public facilities to serve Oregonians both now and in the future. We also want to become more efficient in both the delivery and use of services.

Affordable housing. We want to make sure every Oregonian has a place to live. In addition to providing a mix of available housing at all price levels, we must ensure that education and training opportunities are available to everyone so people can afford to rent or buy the kind of homes they want.

Open spaces. We want to continue the legacy begun by our forebears: cityscapes that include a generous sprinkling of natural areas, parks, and other open spaces. We want

to protect farm and forest lands and natural areas surrounding our cities. We want ample and diverse recreational opportunities in and near population centers.

Vital communities. We want communities that feature attractive and lively downtowns, dynamic neighborhoods, and involved citizens.

Clean Beautiful Natural Environment

Air	1970	1980	1990	1992	1995	2000	2010
1. Percentage of Oregonians living where the air meets government ambient air quality standards	33%	30%	89%	50%	100%	100%	100%
2. Carbon dioxide emissions (million metric tons) as a percentage of 1990 emissions			100%	102%	100%	100%	100%

Water	1970	1980	1990	1992	1995	2000	2010
3. Miles of assessed Oregon rivers and streams not meeting government state and federal in-stream water quality standards			1,100	1,100	723	75	0
4. Groundwater:							
a. Total amount							
b. Percentage that is contaminated							
5. Percentage of key rivers and rivers with in-stream water rights meeting in-stream flow needs							
a. Less than 9 months out of the year				35%	30%	26%	21%
b. 9 to 11 months out of the year				25%	28%	33%	36%
c. 12 months out of the year				35%	35%	35%	36%

Land	1970	1980	1990	1992	1995	2000	2010
6. Percentage of Oregon agricultural land in 1970 still preserved for agricultural use	100%	100%	96%	95%	95%	94%	94%
7. Percentage of rangelands which are in good or excellent condition				22%	23%	27%	35%

8. Percentage of land with allowable soil loss erosion rates							
a. Cropland		54%		72%	72%	75%	80%
b. Pasture land		92%		95%	95%	95%	96%
c. Forest land		87%		90%	90%	91%	92%
9. Forest land:							
a. Percentage of Oregon forest land in 1970 still preserved for forest use	100%	97%	92%	92%	91%	91%	90%
b. Percentage of Eastern Oregon forests that are healthy (all ownerships)							
10. Percentage of Oregon wetlands in 1990 still preserved as wetlands			100%	100%	100%	100%	100%
11. Percentage of identified Oregon hazardous waste sites that are cleaned up or being cleaned up			57%	62%	73%	87%	100%
12. Percentage of high-level radioactive nuclear waste cleaned up at the Hanford Nuclear Reservation				0%	0%	0%	40%
13. Pounds of Oregon municipal solid waste landfilled or incinerated per capita per year				1,826	1,800	1,400	1,050

Plants, Fish, and Wildlife	**1970**	**1980**	**1990**	**1992**	**1995**	**2000**	**2010**
14. Percentage of native fish and wildlife that are:							
a. Threatened, endangered, or sensitive				23%	25%	27%	28%
b. Uncertain status				66%	63%	60%	54%
c. Healthy				11%	12%	13%	18%
15. Percentage of native plant species that are:							
a. Threatened, endangered, or sensitive				10%			
b. Uncertain status				7%			
c. Healthy				83%			
16. Percentage of key sub-basins in which wild salmon and steelhead populations are increasing or at target levels	13%	13%	25%		38%	88%	100%

Outdoor Recreation	1970	1980	1990	1992	1995	2000	2010
17. Acres of primitive and wilderness public land in Oregon (millions)	15.7	16.1	17.1	17.1			
18. Acres of multi-purpose public land available for recreation in Oregon (millions)	25.8	25.4	24.4	24.4	24.8	24.8	24.8
19. Acres of Oregon parks and protected recreation land per 1,000 Oregonians			157		160	160	160

Developed Environment Which Is Convenient, Affordable, Accessible, and Environmentally Sensitive

Community Design	1970	1980	1990	1992	1995	2000	2010
20. Percentage of new developments where occupants are within mile of a mix of stores and services, transit, parks, and open spaces							
21. Percentage of existing developments where occupants are within mile of a mix of stores and services, transit, parks, and open spaces							
22. Percentage of development in Oregon per year occurring within urban growth boundaries				89%			
23. Residences per acre within urban growth boundaries							
24. Number of Oregonians (in thousands) with drinking water that does not meet health standards		250	160	75	45	0	0
25. Number of Oregonians (in thousands) with sewage disposal that does not meet government standards			200	143	134	67	0
26. Percentage of total land within the Portland metropolitan area which is open space				20%			
27. Percentage of total land within the Portland metropolitan area preserved as open space				3%			
28. Acres of community parks, designated recreation areas and designated open space per 1,000 Oregonians living in communities			16		18	20	20

Transportation	1970	1980	1990	1992	1995	2000	2010
29. Percentage of Oregonians who commute (one-way) within 30 minutes between where they live and where they work			88%	88%	88%	88%	88%
30. Percentage of miles of limited access highways in Oregon metropolitan areas that are not heavily congested during peak hours		93%	65%	66%	60%	60%	60%
31. Access to alternative transportation modes:							
a. Transit hours per capita per year in Oregon metropolitan areas	0.4	1.3	1.0	1.2	1.3	1.5	1.7
b. Percentage of streets in urban areas that have adequate pedestrian and bicycle facilities							
32. Percentage of Oregonians who commute to and from work during peak hours by means other than a single occupancy vehicle				29%	29%	33%	38%
33. Vehicle miles travelled per capita in Oregon metropolitan areas (per year)			7,764	7,957	8,256	8,778	7,848

Housing	1970	1980	1990	1992	1995	2000	2010
34. Percentage of Oregon households that can afford the median-priced Oregon home for sale			47%		50%	50%	50%
35. Home Renters: Percentage of Oregon households below median income spending less than 30 percent of their household income on housing (including utilities)							
a. Overall			41%		60%	68%	75%
b. African-Americans							
c. American Indians							
d. Asians							
e. Hispanics							
f. Whites							

36. Home Owners: Percentage of Oregon households below median income spending less than 30 percent of their household income on housing (including utilities)							
a. Overall			49%		73%	84%	92%
b. African-Americans							
c. American Indians							
d. Asians							
e. Hispanics							
f. Whites							
37. Number of Oregonians who were homeless at some time in the last year			30,000	53,000	20,000	10,000	5,000
38. Percentage of families with children with affordable housing							
39. Energy use per dollar of household income (BTU per dollar)			5,298		5,000	4,500	3,500

Access to Facilities	**1970**	**1980**	**1990**	**1992**	**1995**	**2000**	**2010**
40. Percentage of public buildings and facilities accessible to Oregonians with physical disabilities							

Access Between Communities	**1970**	**1980**	**1990**	**1992**	**1995**	**2000**	**2010**
41. Percentage of Access Oregon Highways built to handle traffic at a steady 55 mile-per-hour rate			42%	54%	56%	66%	90%
42. Percentage of Oregonians living in communities with daily scheduled inter-city passenger bus, van, or rail service			92%				
43. Percentage of Oregonians living within 50 miles of an airport with daily scheduled air passenger service			90%		90%	92%	95%

Emergency Preparedness	1970	1980	1990	1992	1995	2000	2010
44. Property damage per year in Oregon due to wildfires (millions of 1989 dollars; 5-year rolling average)	$5.23	$2.84	$14.25	$13.90	$10.0	$7.0	$2.5
45. Structure fire damage per year in Oregon (millions of 1989 dollars; 5-year rolling average)		$89.42	$82.44	$72.52			
46. Percentage of counties with emergency management programs incorporated into the basic government structure				53%	75%	100%	100%
47. Percentage of counties with the capability to respond to a disaster, effectively coordinate multi-jurisdictional resources, and assist communities to recover fully from the effects							

Communities That Are Safe, Enriching, and Participative, With Access to Essential Services

Public Safety	1970	1980	1990	1992	1995	2000	2010
48. Index crimes rate per 1,000: Willful murder, aggravated assault, burglary, larceny, motor vehicle theft, arson							
a. Overall		64.1	63.1	57.8	44	28	22
b. Urban areas		70.7	70.1	64.3	49	32	24
c. Rural areas		52.1	48.2	44.1	34	22	17
49. Other crimes punishable by statute rate per 1,000 (e.g., negligent homicide, kidnapping, simple assault, forgery, fraud, vandalism, weapon laws, drug and liquor laws, prostitution)							
a. Overall		69.6	80.4	80.5	56	36	28
b. Drug crimes		3.5	5.8	4	4	2.6	2
50. Juvenile arrests per 1,000 juvenile Oregonians per year		32	38	49	35	20	10
51. Average rate of reincarceration of paroled offenders within three years of initial release				41%	35%	20%	15%
52. Rate of arrestees who have one or more drugs in their system at time of arrest				30%-60%			
53. Percentage of parole revocations involving substance abuse problems				67%			
54. Number of communities involved in a community-based strategic plan for law enforcement							

Justice	1970	1980	1990	1992	1995	2000	2010
55. Time the judicial system takes to resolve cases							
a. Civil cases disposed of in 18 months				95.8%	98%	98%	98%
b. Domestic relations cases disposed of in 9 months				95.2%	98%	98%	98%
c. Felony cases disposed of in 6 months				86.6%	98%	98%	98%
56. Felony arrest rate per 100,000 community adult population							
a. African-Americans			9.1	6.9			
b. American Indians			1.4	1.5			
c. Asians			0.5	0.4			
d. Hispanics			1.8	2.1			
e. Whites			0.8	0.9			
57. Felony conviction rate per 100,000 community adult population							
a. African-Americans			8.3	7.8			
b. American Indians			1.4	1.3			
c. Asians			0.2	0.7			
d. Hispanics			1.0	1.1			
e. Whites			0.9	0.9			
58. Victimization rates: Homicides (rate per 100,000 community population)		4.3	5.1	4.7			
a. African-Americans		32.0	29.9	35.2			
b. American Indians		17.7	9.6	7.7			
c. Asians		4.9	4.4	4.7			
d. Hispanics		2.1	9.4	9.0			
e. Whites		3.7	4.3	3.8			

59. Victimization rates: Hate crimes (rate per 100,000 population)							
a. African-Americans			361.1	317.0			
b. American Indians			9.6	43.2			
c. Asians			23.7	35.5			
d. Hispanics			45.2	66.9			
e. Whites			5.9	14.1			

Access to Cultural Enrichment	**1970**	**1980**	**1990**	**1992**	**1995**	**2000**	**2010**
60. Number of arts events attended per capita in Oregon per year		1.4	1.7	3.1	2.0	3.0	5.0
61. Rank in per capita arts funding							
a. State funding (out of 56 states and territories)	38th	46th	41st	39th	35th	30th	25th
b. Private funding							
62. Percentage of counties with significant cultural exchange opportunities							
63. Percentage of Oregonians served by a public library which meets minimum service criteria		73%	86%	83%	88%	95%	100%

Sense of Community	**1970**	**1980**	**1990**	**1992**	**1995**	**2000**	**2010**
64. Percentage of eligible Oregonians registered to vote	80%	79%	70%	78%	80%	90%	100%
65. Percentage of eligible Oregonians who vote	62%	61%	58%	62%	65%	75%	85%
66. Oregon's rank among states in percentage of adults who vote		15th	14th		10th	5th	1st
67. Percentage of Oregonians who volunteer at least 50 hours of their time per year to civic, community, or nonprofit activities							
a. All Oregonians				30%	60%	80%	100%
b. Age 18 and under							100%
c. Age 65 and over				31%			100%
d. African-Americans				36%			100%
e. American Indians				32%			100%
f. Asians				29%			100%
g. Hispanics				24%			100%
h. Whites				34%			100%

68. Percentage of Oregonians who understand the Oregon governmental system							
69. Percentage of Oregonians with a positive view of the state				69%			

Access to Health Care	1970	1980	1990	1992	1995	2000	2010
70. Percentage of Oregonians with economic access to health care							
a. All Oregonians			84%	85%	99%	100%	100%
b. Children (0-17)			79%	85%	99%	100%	100%
c. African-Americans				84%	99%	100%	100%
d. American Indians				74%	99%	100%	100%
e. Asians				81%	99%	100%	100%
f. Hispanics				67%	99%	100%	100%
g. Whites				86%	99%	100%	100%
71. Percentage of Oregonians with geographic access to health care			94%	94%	96%	98%	99%
72. Percentage of families with a member with a disability who receive in-home support				7%	20%	75%	100%
73. Percentage of injured workers who receive adequate compensation							
74. Percentage of Oregonians with access to public or private treatment for mental or emotional problems							
a. Adults							
b. Children							
75. Percentage of seniors seeking nursing homes who access them							
76. Percentage of people seeking drug and alcohol treatment receive it			90.0%	89.5%	100%	100%	100%
77. Percentage of offenders needing drug and alcohol treatment who receive it				43%	100%	100%	100%

Access to Child Care	1970	1980	1990	1992	1995	2000	2010
78. Percentage of child care facilities which meet established basic standards			20%		90%	100%	100%
79. Accredited child care facilities as a percent of regulated child care facilities				5.8%	12%	24%	50%
80. Number of identified child care slots available for every 100 children under age 13			13	15	16	20	25
81. Percentage of families for whom child care is affordable				69%			

Customer Satisfaction: Percentage of Oregonians who think Oregon is doing a good job at:	1970	1980	1990	1992	1995	2000	2010
82. Protecting natural resource lands				56%			
83. Maintaining clean air and water				65%			
84. Maintaining highways, roads, and bridges				59%			
85. Providing parks and open spaces				86%			
86. Developing mass transit				51%			
87. Developing clean and attractive cities				65%			
88. Providing easy access to work, shops, parks and recreation				67%			
89. Providing economic access to health care				18%			
90. Controlling crime				40%			
91. Making available cultural and entertainment opportunities				69%			

3. HOW TO GET WHERE WE WANT TO GO

The idea of Oregon Benchmarks began with the premise that Oregon will have the best chance of keeping its quality of life if Oregonians agree clearly on where we want to go. On that score, the benchmarks have been remarkably successful.

The second premise was that once the goals were agreed on, Oregonians would join together in achieving them. With a forecast of continuing population growth, that will be no simple matter. Despite the great strides Oregon has made in protecting its quality of life, we cannot meet some of the benchmarks on the course we are on today.

We don't need to lower our sights. But if we want to achieve the benchmarks, all of us -- individuals, businesses, and governments -- will need to chart a new course that recognizes the links between individual actions and environmental and social well-being. That effort should include:

- **Education/communication.** The forecast of nearly a million more people by 2010 won't occur all at once. Unfortunately, the impacts of unmanaged growth are usually not felt until the numbers become very large. Then we notice what we've lost -- a once-scenic hillside that's become a housing development, a favorite fishing hole that's become crowded, a 20-minute drive to work that's become a 40-minute commute.

  If the public is to support a new course, it needs to be informed of the population growth that is occurring now, how that growth is being accommodated, what the forecasts are for growth, and what the options are for managing growth. Once conditions and consequences are understood, tradeoffs can be articulated. On the benchmarks themselves, there will be little debate. The means to achieve them, however, will require considerably more airing before any agreement is reached.

The means to achieve them, however, will require considerably more airing before any agreement is reached.

- **Local benchmarks.** The benchmarks serve as the blueprint for the state as a whole. If a city or county or region also assesses where it is today with respect to relevant benchmarks, the benchmarks will become a more meaningful and powerful tool. It will give local governments measurable outcomes to which they hold themselve accountable.

  Crafting specific actions for achieving some of the benchmarks may also benefit from a local perspective. The problems Portland faces in terms of traffic congestion are not the problems of Bend. The water distribution issues of Medford and Southern Oregon do not plague Salem and Marion County.

- **Collaboration.** Achieving some benchmarks calls for a collaborative approach among all levels of government with generous input from citizens. Creating less sprawling developments, for example, will require demand for compact housing by the home-buying public, support from builders and bankers, zoning overhauls by local governments, and financial incentives from the state. Otherwise, developments will continue to be built the way they are.

UMBRELLA STRATEGIES

Seven umbrella strategies have been formulated to meet the benchmarks at risk from unmanaged growth:

1. **Create a pattern of urban development that is compact, fosters a sense of community, and offers a range of mobility choices.**

Oregon has been growing in typical suburban fashion -- houses spread out over acres of subdivisions and separated from stores and shops, services, and work sites. The only practical way to get from one place to another is by car. Distances are usually too great for walking or biking, and developments are too sparsely populated to support mass transit.

Sprawling development not only eats up land, but it brings the twin ills of too much driving -- congestion and poor air quality. It makes providing public services inefficient and more expensive. It diminishes community spirit because it isolates people from each other. It blurs the distinctive character of individual communities.

An influx of 880,000 new people will require roughly 300,000 more houses. This amount is equivalent to adding a group of cities with populations the size of Eugene, Salem, Gresham, Beaverton, Medford, Corvallis, Springfield, Hillsboro, Albany, Lake Oswego, Tigard, Keizer, Bend, Milwaukie, McMinnville, Klamath Falls, Roseburg, Grants Pass, West Linn, Ashland, Oregon City, Tualatin, Pendleton, Coos Bay, and Forest Grove -- Oregon's 25 largest cities after Portland.

How we accommodate this growth is the key to Oregon's future quality of life. Preserving Oregon's magnificent landscape while providing places for people to live that are inviting, that reduce the need for driving, and that preserve open spaces suggests not only a less sprawling pattern of development but also one with these characteristics:

1. Mixed uses/mixed housing: The heart of the community is a mix of stores, restaurants, theaters, civic services, offices, and the like, surrounded by a mix of housing.

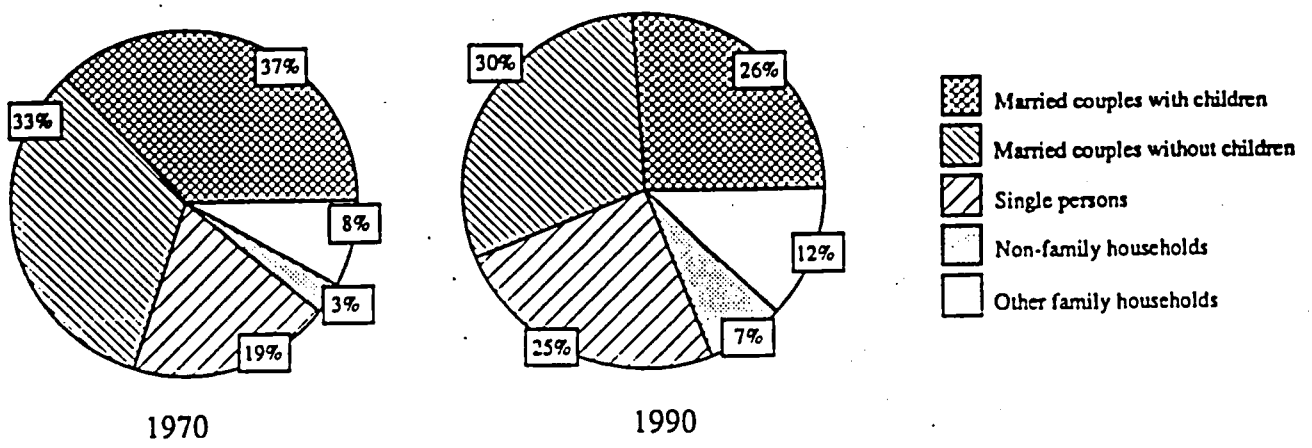
2. Transportation choices: A pedestrian-friendly layout and design allows people to get to where they want to go by foot, bike, and transit, as well as by car.

3. Sense of community: While community spirit does not spring from architectural plans, development designs that weave together housing, stores, and work sites with parks, open areas, and public spaces provide opportunities for residents to interact with one another and develop ties to their neighborhood and community.

As science writer James Gleick puts it, "An urban planner learns that the best cities grow dynamically, not neatly, into complex, jagged, interwoven networks with different kinds of housing and different kinds of economic uses all jumbled together." For decades though, that kind of mixed development has been largely restricted by zoning laws.

The changing character of Oregon's households may also signal a preference for this kind of development. Census numbers point to smaller households, fewer households with a single wage earner, more mothers working outside the home, and increasing numbers of elderly. A greater variety of housing closer to jobs and other daily activities may better suit households who have little need or desire for large houses on large lots and less time or ability to drive from place to place.

How Oregon Is Changing: Percentage of Households by Type



Source: U.S. Census

2. **Implement pricing strategies that reflect environmental and social costs.**

Some of the problems we face today stem from the fact that, individually, we don't bear the full costs of the decisions we make or the actions we take.

Air pollution from auto exhaust is one example. As a society, we pay the costs of auto pollution in diminished health, higher health care costs, smoggy vistas, property damage, and potential global climate change. At another level, we also pay the costs of controlling pollution through mandatory auto inspection and maintenance programs, technological fixes, and other government regulation. As individuals, however, we don't pay directly for the consequences of driving cars that pollute. Because those costs are hidden, travel by car is viewed as cheaper than it really is, and people drive more than they would otherwise.

If drivers paid directly for the air pollution their cars emitted, a wider spectrum of travel modes would become attractive. Some people would find it more cost-effective to carpool, ride the bus, or make fewer trips. In the long run, more people might prefer to live nearer work. They might also tune their cars more often, and when they buy new cars, they may choose to buy those that are cleaner-burning and fuel-efficient. These personal responses would reduce pollution.

Similarly, the costs of congestion -- delay and the building of more lanes to serve peak-hour traffic -- are not borne by rush-hour drivers. If they paid the costs of driving on congested roads, they might avoid those times or drive on less-crowded roads, make fewer trips, travel by bus, or carpool. These options would not only reduce congestion and defer expensive road expansions, but also help reduce air pollution.

Likewise, water rates could be designed to reflect the full costs of acquiring new water supplies and water storage and distribution systems. At the same time, households and businesses who used more water would pay more and those who used less water would pay less. Such a pricing strategy would encourage consumers to conserve by either using less water or by installing water-saving measures.

Had Portland and other cities been pricing water based on use, the impact of the summer drought might have been far less severe. Even if shortages had not been averted, cities could have raised the price of water beyond some base amount instead of imposing penalties for lawn watering and the like. In that way, households and businesses could have chosen their own actions to cut their water use.

To solve these and other problems, such as water pollution and solid waste, charging people directly may be the most efficient and effective tool. The revenues raised by those fees could go toward programs that lessen their impact. Air pollution fees

could go toward transit, bikeways, and other less-polluting travel options. Congestion fees could go toward road maintenance and improvements. Or, revenues could be used to reduce or eliminate some other tax. In addition, some portion might be rebated to low-income persons and others who may not have other alternatives.

3. **Concentrate growth within urban growth boundaries.**

On our present course, many new housing tracts will continue to spring up outside urban growth boundaries. Such growth at the city fringe adds to traffic woes, increases pressure to develop farm and forest land and open spaces, and raises the cost of providing public services. At the same time, the configuration of such growth chokes off the possibility for orderly, compact developments should cities need to expand in the future.

NEW JERSEY GROWTH STUDY

New Jersey recently studied the impacts of a population increase of 520,000 people. The study compared two patterns of development. One pattern was the continuation of sprawl; the other featured higher-density housing near shops and work, more multi-family housing, and more development within cities.

Among the study's findings:

- The compact pattern would use 175,000 (or 60 percent) fewer acres than the sprawl pattern.
- The compact pattern would result in the development of 42,000 (or 40 percent) fewer acres of agricultural lands and 30,000 (or 80 percent) fewer acres of critical environmental lands than the sprawl pattern.
- Public service capital costs would be $1.4 billion less under the compact pattern. More specifically, the compact pattern would require $699 million less for additional roads, $478 million less for sewers, $85 million less for water systems, and $178 million less for new schools and equipment. The compact pattern would also save $380 million a year in operation and maintenance costs.
- The compact pattern would generate 40 percent less water pollution than the sprawl pattern.

4. **Preserve and expand open spaces, park lands, and natural areas.**

Demand for recreational opportunities has been growing rapidly. In the Three Sisters Wilderness Area, for example, use has doubled in the past 10 years. In 1991-92, the tally of state park visits was 43 million, double the number two decades earlier. State park popularity has reached a point where visitors must make reservations months in advance.

Within urban areas, much of what people believe are permanent vistas of green space is privately owned. As population grows and more land is developed, these open spaces could disappear. In the Portland metropolitan area, for example, more than 90 percent of the natural areas, whether open fields or forested hillsides, are zoned for development.

Three measures on open spaces were on the November general election ballots. Voters rejected two statewide measures for state parks. Measure 1 would have authorized the state to issue up to $250 million in general obligation bonds for expanding and maintaining state parks. Measure 2 would have allowed future gasoline taxes to fund state parks. Portland area voters turned down a bond measure to buy roughly 7,000 acres of land for parks, open space, and wildlife habitat.

Funding is clearly an issue. But the state, more than ever, also needs a vision of what we want for future generations. Looking ahead 20 years and more, what lands should we set aside for future parks, open spaces, and natural areas? How much? Where? Developing a single vision will require an unprecedented level of communication and coordination among federal, state, and local landowners and the public. Once a vision is clear, we can begin to develop an integrated plan to identify potential sites and how they may be acquired, developed, and maintained.

5. **Expand the travel options available to meet Oregonians' mobility needs.**

While the car is likely to remain the predominant mode of travel, the costs it imposes can no longer be ignored. Meeting the benchmarks on air quality and congestion requires we reduce the amount of driving and increase the use of other travel modes.

Creating mixed-use, pedestrian-friendly developments should reduce the number of trips people make by car and also make other travel modes more attractive. At the same time, Oregon needs to improve transit services and increase support for mass transit, biking, ridesharing, vanpools, and working at home. Today, however, comparatively few state dollars go to these alternatives. The Oregon Constitution mandates most transportation money go to highway-related projects.

More funds, however, will be available from the federal government for non-auto travel modes. In the past, federal highway funds had been earmarked for either construction or improvement of highways. But the most recent federal spending authorization, the Intermodal Surface Transportation Efficiency Act, dubbed ISTEA, recognizes the need for transportation alternatives to cut energy use, manage congestion, and reduce air pollution. Accordingly, local governments will have more leeway in choosing how to use ISTEA funds.

OREGON'S TRANSPORTATION RULE UNDER STATEWIDE PLANNING GOAL 12

Recognizing the inherent link between transportation and land use, the Land Conservation and Development Commission and the Department of Transportation developed a transportation planning rule in 1991. Aimed at reducing auto travel, it calls on communities to promote walking, biking, and transit in their transportation plans. It requires Portland, Eugene, Salem, and Medford to reduce the number of miles traveled per capita by car by 20 percent during the next 30 years. It requires the Portland metropolitan area to consider changes to its land use plan to reduce travel demand. For cities with populations greater than 25,000, the rule requires they make new housing developments less auto-dependent.

6. **Make housing more affordable.**

Population growth, a sprawling pattern of development, and zoning restrictions will make achieving the housing affordability benchmarks more difficult. With growth ncomes increased demand for housing, which pushes up land costs, which in turn drive up the cost of housing. Sprawling development reduces the long-run supply of land for housing, which also increases land costs. Zoning that excludes manufactured homes, smaller homes on smaller lots, and multi-family homes limits the supply of lower-cost housing and contributes to the shortage.

The rise in housing costs can be held down by more flexible development designs that accommodate smaller lots, smaller units, and a broader mix of housing types, including multi-family and manufactured homes. In addition, housing clustered around a center core with a mix of houses, stores, services, and schools where walking, biking, and transit are practical choices will reduce travel costs.

In 1990, Congress passed the The National Affordable Housing Act requiring cities or counties receiving federal funds for housing to prepare comprehensive housing affordability strategies. These strategies identify, in detail, city or county housing needs and propose one-and five-year plans for meeting those needs. Individual strategies have been written for Clackamas and Washington counties, Portland, Gresham, Eugene, Salem, and Medford.

In 1992, under the Housing Act, the federal HOME Investment Partnerships Program, allocated $1.5 billion to develop affordable housing for low- and very low-income households. Oregon's share is $15 million, which will spent according to the priorities set forth in the comprehensive plans. The recipients are:

▪ State of Oregon, for rural areas	$6,776,000
▪ Portland/Multnomah County/Gresham	4,297,000
▪ Washington County	1,026,000
▪ Eugene/Springfield	860,000
▪ Salem	750,000

THE METROPOLITAN HOUSING RULE

In 1981, the Land Conservation and Development Commission established the Metropolitan Housing Rule to promote adequate and affordable housing in the Portland metropolitan area. It required regional governments to redraw their plans to achieve a housing mix with at least half the homes multi-family or attached single-family units. It also set minimum housing densities. A study by the Metropolitan Homebuilders Association and 1000 Friends of Oregon in 1991 concluded the rule significantly increased affordable housing in the Portland metropolitan area.

7. **Reform the funding of public works.**

With inadequate funding, the quality of public works that sustain our communities has declined. Today, we have deteriorating roads and buildings, crowded schools and parks, reduced library hours, traffic jams, and overburdened water and sewer systems.

Recent studies of Oregon's public works point to a long list of problems. Among them: tax and fee structures that do not generate enough revenue to pay the full costs of new development; limited local government revenues that tend to go for higher priority services such as police and fire protection; gasoline taxes too low to cover road maintenance and expansion; increasingly stringent environmental standards for water, sewer, and storm systems; inequitable cost distribution between local governments; inefficient pricing practices that encourage waste; and fragmented service provision that cannot achieve economies of scale. Without change, public facilities will deteriorate further. For the short run, Oregon needs to develop tax and fee structures that fund improvements, upgrades,

and expansions to public works in a timely fashion. At the same time, public works dollars can be spent more efficiently. Measures that conserve water and reduce travel, for example, will save money by deferring expensive expansions. For the longer run, more compact developments will enable Oregon to provide public works, particularly streets, sewers, and water lines, more efficiently.

LOCAL GOVERNMENT INFRASTRUCTURE FUNDING

Forecasts of the money needed to pay for high-quality roads, water systems, sewer systems, storm drainage systems, parks, school buildings, police and fire stations, libraries, transit systems and other public facilities far outstrip projected revenues. A 1990 study, Oregon Local Government Infrastructure Funding, estimated more than a $500 million a year shortfall in available revenues. The study's recommendations to increase public works funding include:

- Expand the use of mechanisms to charge users directly.
- Increase state financial aid to local communities.
- Expand state assistance to improve local government's ability to borrow from private lenders.
- Remove the legal barriers that limit local public works funding.

THE STATE RESPONSE: KEY LEGISLATIVE AND BUDGET ACTIONS

State agencies have proposed several new initiatives to advance the livable communities agenda. Highlights of the major initiatives are described below.

Local governments and state agencies continue to work to improve air quality, clean up our waterways, provide affordable housing, maintain parks, and meet other benchmarks on quality of life. The proposals build on these efforts and reflect an unprecedented degree of coordination across traditional agency lines to achieve the benchmarks.

The proposals also reflect the realities of Ballot Measure 5 budget cuts. There is no money, for example, for new state parks. For the most part, funding for these proposals will come from federal dollars, lottery money, and increases in some fees.

Transportation

The New Oregon Trail, Oregon's new transportation plan developed by the Oregon Transportation Commission and the Department of Transportation, is a bold, new blueprint for meeting Oregon's mobility needs. The Commission is submitting a comprehensive legislative and budget package to the 1993 Legislature to implement the plan. Some of the major elements include:

- Improving city bus services by adding more buses and expanding routes and operating hours.
- Speeding up the construction of the Westside light rail and beginning the design, engineering, and environmental analysis for a light rail extension from Portland to Clackamas County.
- Upgrading the tracks and signals in preparation for a high-speed passenger rail system from Portland to Eugene.
- Creating more bike and walk paths by increasing gasoline and highway taxes and fees.
- Expanding programs to encourage carpooling, vanpooling, working at home, and other alternatives to single-occupant car travel.
- Authorizing the levy of tolls or congestion fees on two pilot roadways where drivers pay for using a congested roadway during peak hours.

Air Quality

In spite of great strides in the technologies to reduce pollutants, Portland's air quality may not withstand increases in travel demand. The 1991 legislature called for the creation of a Task Force on Motor Vehicle Emissions Reductions to study ways to reduce emissions in the Portland-Vancouver area. The Task Force has proposed actions to the 1993 legislature that include:

- Strengthening the vehicle emission inspection and maintenance programs in the Portland metropolitan area.
- Setting emission standards for new gasoline-powered lawn and garden equipment, paints, solvents, architectural coatings, and other non-vehicle sources of air pollution.
- Charging drivers a "smog fee" for the amount of pollutants emitted from their cars. Amend the state constitution to allow the revenues generated from these fees to go toward faciliting and promoting other travel modes -- transit, car- and van-pools, biking, and walking.
- Requiring Portland metropolitan firms with 50 or more employees to establish programs that encourage employees to commute to work by means other than driving alone.
- Providing funds to developers to build new housing developments that facilitate and promote walking, biking, and transit.

Land Use

The Land Conservation and Development Commission is submitting a major budget and legislative proposal to the 1993 Legislature aimed at fending off sprawl. The proposal includes:

- Amending local transportation plans to facilitate and promote biking, walking, and travel by carpool, bus, and light rail.
- Providing financial incentives and technical help to local governments to update their land-use plans and revamp their zoning ordinances to encourage mixed-use and pedestrian-friendly developments.
- Providing financial incentives to developers to design mixed-use and pedestrian-friendly developments.
- Establishing a streamlined method for cities and special districts to annex lands to make the long-run provision of urban services more efficient.
- Requiring cooperative agreements among cities, counties, and special districts to ensure planning is coordinated, integrated, and consistent.
- Providing financial incentives to local governments to attract more people into underused urban areas; to require all housing developments be built with all necessary public services, including parks; and to promote higher densities.
- Identifying lands which are suitable for industrial development and planning for necessary infrastructure.

Water Quality and Supply

Several agencies charged with water responsibilities are proposing the following:

- Funnel an extra $20.3 million in lottery funds to local communities to upgrade water and sewer systems so they can comply with clean water standards.
- Reform the state's Water Pollution Control Revolving Fund to increase the revenues the state can lend to communities to upgrade their sewage treatment plants.

- Require local governments to regulate sources of contamination of groundwater used for drinking water through programs funded from a surcharge on water use.
- Require municipal water suppliers to evaluate the efficiency of their water systems and include conservation proposals in water supply management plans.

WORKING TOGETHER TO CHART A NEW COURSE

Achieving the benchmarks for livable communities will require concerted action statewide by state and local governments, as well as by the private and non-profit sectors and individuals. No one institution or level of government can achieve our quality of life goals alone. We must work together.

In the last section, we addressed some of the steps that the state is taking to achieve the benchmarks for livable communities. At the same time, communities across the state are creating their own visisons or plans for the future. Among them are Stayton, Bend, Ashland, Cannon Beach, Salem, Gresham, the Portland metropolitan area, and Corvallis.

Now it is time to bring together a broad-based network of community leaders statewide to develop a shared understanding of the challenges facing Oregon as a whole and what needs to be done to meet our benchmarks. With a common vision, we will be better prepared at all levels to move forward in concert. To address this need, we recommend creating regional groups to address livability issues. They should include representatives from local governments, the private sector, and interested citizens who would review trends facing the region, and develop a strategy and action plans to achieve livability benchmarks.

State agencies would be partners in these regional panels -- providing their perspectives on problems and needed strategies, helping explore ways to meet statewide and local needs, and providing technical resources when possible to help work through the process. Since issues may vary from region to region, state agency representation will also vary.

To help the regional committees focus, we recommend that the relevant benchmarks for quality of life be developed by region and county. This will permit each area to understand where it currently stands on quality of life, establish measurable goals, and monitor progress.

With benchmarks as a framework, the regional groups may also wish to target the benchmarks according to local needs and priorities. They could then develop strategies to address quality of life benchmarks.

The strategies presented in this report are a major step forward in addressing root causes that threaten Oregon's livability. What we need now are regional efforts to help tailor strategies and specific action plans to local needs. In this way, the benchmarks can become a tool for new state and local partnerships to help protect Oregon's livability. It could be a daunting effort to launch this effort all at once. It may prove more fruitful to start with one or two regions and learn as we go.

WHAT NEXT?

Planning in Oregon: The Next 20 Years
Address to the Annual Conference of the Oregon Chapter of the American Planning Association
Ashland, Oregon
March 4, 1993

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Thank you for the opportunity to address this gathering today. When John Fregonese called to see if I would accept this challenge back in June or July, I had no idea that he would have my job by the time I got here! Fortunately, he does. And fortunately for me, I'm doing something that I've always been interested in, attempting to bridge the worlds of academia and community action.

But that's a different story, perhaps one that I'll have more to tell about next year. Today I've been asked to address the truly grand topic of the next 20 years for the Oregon Planning Program. This is a topic that deserves discussion by all of us, and at length. However, today you'll get my version and hopefully it will be the beginning and not the end of an ongoing dialogue among Oregon's planners.

For those of you who don't know me, and perhaps for some of you that do, you should know two things about me. First, I love Goal 14. Second, what I have to say comes from the perspective of being a supporter of and believer in the Oregon Planning Program, and the planners and communities that make it work. In fact, as I began to think about what I was going to say today, I couldn't help but think about the planners, the people, that I have had the privilege to work with. Be they from Washington County,

Portland, 25 other jurisdictions in the Portland metropolitan area, or dozens of others statewide, the commitment of people working in our Oregon planning community is simply incredible.

Planning, from my point of view, is a noble calling, though I doubt that this is widely known. Noble because it is the job of the planner to bring to the table the interests of the community, individuals, the natural environment, and the next generation, all in an effort to define, for that moment, the public interest. Tax reform is tough, but the responsibility of our profession to the public interest is a daily exercise in navigation for which no channel markers remain in place for long.

Keep in mind, therefore, that what I have to say comes from the perspective of one that believes deeply in the job that all of us in this room have set out to do. With that said, I've got to be blunt and say that I'm pretty concerned about what lies ahead for the next 20 years of the Oregon Planning Program. There are several reasons for this, most of which come from my own experience in the last several years.

First, I've heard serious grumbling and misgivings from those who have long supported Oregon's program. Some of them have gone so far as to suggest that long term planning was producing only one thing...more regulation. As long as times were bad, long term planning was put on hold. With better times in the state, the perception is that our most recent explosion of long term planning at the local and statewide levels has resulted in a rising tide of new regulatory initiatives. The affect has been to make planners and plans known more for what they can stop than what they can accomplish. For those of us committed to long-term planning, who regard the historic coalition of

support for the Oregon program as both characteristic and vital, this must be viewed as about as close as we come to a planning emergency.

Second, support for the Oregon program is becoming harder to find in the Oregon Legislature, and to some degree among Oregon planners. Much has been made of the fate of the budget for the Department of Land Conservation and Development. Ironically, people come from all over the world to visit Oregon planning offices and Oregon planners, to learn from us because what we've accomplished and what we're doing is truly world class. Consider that every square inch of this state is described in a comprehensive plan, all of those plans have been prepared according to the same goals, all divide the world into urban and rural, and all describe the impact of future growth on important resource land. Furthermore, the findings of those plans are the law of the land.

This is a tremendous achievement, unrivaled in North America, studied and replicated, to some degree, by others from throughout the nation and the world. Yet it is cause for some concern when here in Oregon we seem to flirt so casually with the notion of doing the program in. Perhaps this is healthy, an institutional cynicism that keeps our egos in check. Yet, the degree to which even we as planners are willing to describe the world as "them and us" these days gives me the uneasy feeling that the kind of criticism levelled at the program from the state and from ourselves is not wholly constructive.

Third, we've become adept at regulation, professionals in fact. However, the mood of the community has shifted. The concerns raised about change in our state, due

either to growth or decline, are not ones that, in many instances, are directly addressed by regulation. For example, fast growing communities face challenges ranging from disappearing open space, and disappearing identity, to rapid increases in housing costs and traffic congestion. New and old residents bring both new and long-simmering community concerns to the table in the midst of rapid change. But you can't exact a park system into existence, demand that family wage jobs be created, or require a sense of neighborliness. These kinds of things, issues associated with quality of life, are addressed principally through collective action, not regulation. Plans should be guides to collective action, but more and more frequently I'm finding communities rising up to demand more from planning and regulatory processes, and when they don't get satisfaction from plans and planners, they become both anti-plan and anti-planning. Regulation, and it's no surprise, is a poor substitute for collective action. This is not to say that it is unimportant, but to acknowledge that it can't be counted on to do all things. The framers of Senate Bill 100 understood this. Their approach was to define the interest of the state, the collective ends, and leave the response to that state interest, the selection of means, up to every jurisdiction. This is a concept worth revisiting.

When communities reach a point where planning can help, and their response is to turn away from the products of the Oregon program, then we all need to be concerned. If planning doesn't express our love of this place and the things that we want to accomplish, then all that's left is a lightning rod for our fears.

Finally, the Oregon program is being asked to take on challenges that we simply didn't imagine 20 years ago. We have become a haven for retirees on fixed incomes. Just as an aside, I find it pretty amazing that this migration of retirees started in earnest

before Ballot Measure 5 was passed, back when we were relegated to a lowly existence as some kind of tax "hell." If property taxes were so out of whack, why were so many on fixed incomes moving here?

We've also seen a major shift in our forest products industry, and equally amazing shifts in agriculture as new, high value crops become increasingly important to Oregon's agricultural income. In 20 years we've witnessed the rise and fall of major employers, and the location of new jobs in large numbers in suburban locations. We started out 20 years ago at the beginning of the golden age for malls, and today it appears that major regional malls, as we have known them, are a thing of the past. Twenty years ago we had bus and train service statewide, and today we are trying to lay the groundwork to bring those services back again. On a more colloquial note, we've gone from My-Te-Fine to President's Choice, and who could have predicted that!

Quite clearly, we must be concerned about the fact that the issues we are trying to address today are not identical to the ones that challenged the framers of Senate Bill 100. Citizens recognize this to be the case. We need to as well. And we must be concerned, as stewards on a daily basis of Oregon's planning legacy, that the Oregon Program is being taken to task for issues that it didn't expect to encounter when it was conceived.

Any view of the next 20 years will have to contend with these concerns, and more. How to get started? First, lets start with some history. The Oregon Program was designed to do a couple of things. It was proposed in reaction to real concern about the affects of sprawl in the Willamette Valley. Remember that in 1970, Beaverton had

18,577 residents, and in 1990 had grown to 53,310. Similarly, Gresham had 10,030 in 1970, and in 1990, as our fourth largest city, it had 68,235. Hillsboro had 14,675 residents in 1970, and 37, 520 in 1990. Salem had 68, 725 in 1970, and 107,786 in 1990. Bend had 13,710 in 1970, and 20,469 residents in 1990. Ashland had 12,342 in 1970, and 16,234 in 1990. And so on. It still amazes me that the framers of Senate Bill 100 both experienced and foresaw the challenges of misdirected urban/suburban growth even at a time when our small valley towns were in fact small valley towns.

In fact, as many have commented before, the program was aimed directly at resource land preservation, especially agricultural resource land, with the containment of urban development in urban growth boundaries, citizen participation, and certainty as major elements. There was consensus, leadership both in and out of government, and at the highest levels, and even a fight between gubernatorial candidates over credit for the idea of a Willamette River Greenway.

Today, I suspect that much of the concern over planning evident in the state comes from our insistence on building on that 20-year-old legacy as if it were ours alone. Too many contemporary planning documents refer to the challenges of today as if they were merely steps towards fulfilling the promise of Senate Bill 100, realizing the vision of that earlier era, or finishing a job not done. However, we need to recognize that the evolution of the planning "mandate" in the state is not linear. That is, the consensus that launched the program in the early 1970's is not necessarily here for the challenges of the 1990's.

We've done a world class job in Oregon of protecting resource land, establishing urban growth boundaries to contain urban development, proving that good planning is good for business and a tool for providing certainty, and giving citizens a place in the process and the use of a comprehensive plan as a tool for accountability. Senate Bill 100 has succeeded, and our success, given the reach of the planning mandate of that time, is not incomplete. It's time to declare victory on behalf of Tom McCall, LB Day, and others, have a picnic, put up a monument, add their history to the pageant at Champoeg, and move on to finding our own champions and mandate for the issues of today.

Please do not misunderstand: when I say that we ought to declare victory and move on, I do not mean that we should end our current commitment to Senate Bill 100. Rather, I am suggesting that it is time to consolidate our gains, and understand their limitations. Perhaps it's time to realize that the legacy of Senate Bill 100 is not the goals or comprehensive plans, but the notion that Oregon is a state willing to demand that those here today take some fundamental responsibility for the needs of the next inhabitants of this territory.

In any event, it's time to recognize that to put the growth management issues of 1992 in the same frame as the agricultural land preservation issues of 1972 is to invite disaster. If we treat the development of planning in Oregon over the next 20 years as simply a fine-tuning and blank-filling exercise for the outline handed to the state 20 years ago, we limit our view, put our considerable accomplishments at risk, and ignore, at our peril, the kinds of concerns that I noted at the beginning.

So step one, lets celebrate and move on. Step two, where to? We need to define, for our profession and for the state, the planning mandate for the next 20 years. Let me be the first to say that I'm not sure what it is. However, there are some good indications for where we might find it. Consider, for example, the things that Oregon has to offer, the things that continue to draw people to our state. Some have suggested that it is livability. Others point to Oregon's exquisite natural beauty and relatively high degree of environmental quality. To some it's our commitment, as a state to maintaining environmental quality.

Yet, in another sense, it's the promise of abundance that distinguishes Oregon and much of the west. Abundant land, abundant opportunity for those that work hard, and an abundance of riches that flow from our oceans, fields, rivers, orchards, and gardens. In essence, Oregon offers a sense of identity that couples the natural and the built into an intriguing and alluring form of community. In the past few years, I've noticed that this idea is something emerging both in the metropolitan area and statewide. This approach to community, particularly with respect to community identity, may be the kind of issue that might emerge as a theme for the next 20 years.

For example, in the fastest growing parts of the metropolitan area, one of the concerns of cities is the degree to which recognizable boundaries can be maintained between communities. Not signs pointing out when you've left one jurisdiction and entered another, but trees, hills, floodplains, and distinctive historic and cultural patterns of land use preserved for all time. Similarly, small cities outside the metropolitan area urban growth boundary are asking the same question. News reports suggest that housing prices are booming in La Grande. Why? Apparently because all the people

that moved to Bend 20 years ago are now looking to La Grande as being the kind of place they thought they used to inhabit.

However, it's not just growing communities that share these concerns. It's interesting to see the language associated with the closure of a mill in a small town... "like ripping the heart out of the community" is becoming a familiar refrain. At root, everyone wants to be a regular, whether at the corner market, city hall, or in this combination of things we see in Oregon. In fact, planning oriented to strengthening and enhancing a sense of community might just be the way that our profession finally, fully serves that elusive but seductive concept, "sense of place." Oregon as a "place of places" may just be the unifying theme we need to find.

If some sort of notion of community is, as I suspect it might be, the core for a new statewide planning mandate for the next 20 years, I'd like to see it frame choices for the communities it serves according to five key principles. They are, in no particular order:

1) Coordination - We need to define coordination in this state to mean holding decisionmakers accountable for the true scope of the impacts of their land use decisions, both in time and in space. It's time to recognize that no community truly controls the flows of people, materials, and capital that wash across it. The flip side of this is that the impacts of local decisions are often not contained by the boundaries of the jurisdiction making them. The challenge isn't bigger jurisdictions, it's better coordination. Not coordinating chit-chat, but accountability for the effects of decisions.

2) Foresight - We need to consciously consider the effects of our choices today on the range of choices available to subsequent generations. This is a question of both intergenerational equity, and intergenerational ethics. Too many times we lament the challenges of keeping downtowns vital as we approve new commercial complexes at the edge of town. Our planning program needs to more systematically account for the affects of our choices today on options tomorrow. Tom McCall's call for the preservation of agricultural land was rooted in a land ethic with an eye on the future. To that notion of land ethic it's time we added the notion of a cultural, social, and physical intergenerational ethic.

3) Resilience - We need to seek the creation of environments and settlement patterns capable of accommodating future and therefore largely unknown needs. When we do make a choice, we need to follow through to see that the outcome of the choice is adaptable. We need to look beyond the landscaping to the entire settlement pattern. To some extent, new attention to the concept of mixed use and to re-examining our uses of zoning are moving us in that direction.

4) Least Cost - We need to select courses of action having the least environmental and economic consequences. Our goal should be to develop new means for describing the social, environmental, economic, and cultural costs of our plans and developments. The "least cost" concept is getting a thorough review in the world of energy planning. It's not too early to apply it to public facility planning as well.

5) Security - Finally, we need to fundamentally recognize and come to grips with, in the context of the planning program, household concerns for stability, predictability, and safety as prerequisites for embracing new patterns. I want to come back to this in a minute.

I propose these concepts for several reasons. First, they are, by nature, integrating. Our challenge in the next 20 years will not be to better explain the parts, but to better explain, for communities and decisionmakers, how the parts inter-relate. The notion of community is one of summation. These concepts lead to the framing of choices in the context of the whole. Second, they appropriately bring into the planning equation all of the facets of our noble enterprise: a portrayal of the public interest made up of the needs of the community, the desires of individuals, the requirements for a healthy environment, and the soft footfall of generations to come. Third, they are not about growth or about decline, about closing the borders or unfettered expansion. Rather, they speak to the fact that be it during growth or decline, we'll always be experiencing change. Above all, planning in Oregon in the next 20 years needs to be about change...catchy slogan, yes?...while holding true to some basic, critical precepts about what the net effect ought to be.

I'd like to return for a moment to the last concept, security. It just might be the most important, at least in the short run. For example, Ladd's Addition in Southeast Portland is often cited as a model for pedestrian friendly and transit supportive development. It was a subdivision. It has a mix of uses. It has a mix of housing types. It has alleys. In its physical form it offers resilience, foresight, and, arguably, elements of a least cost settlement pattern. However, when it was created it included deed

restrictions that limited ownership to whites and required people of color to enter through rear doors only. It was a product of its time, and the deed restrictions offered prospective buyers, in a very narrow and unsupportable sense, security.

Today, deed restrictions like the ones in Ladd's Addition, typical in Portland by the way for subdivisions into the 20's, are clearly and thankfully unconstitutional. However, perhaps in response, you can now find new subdivisions that have no mix of uses, no mix of housing types, no alleys. In their present physical form they offer no resilience, seem to reflect limited foresight, and are criticized for inflicting unaccounted for environmental and economic costs on the wider community. However, just as in Ladd's Addition, they offer predictability, stability, security.

The point is that this need for security, as defined here, is a big issue for plans and planners, but one that we've only addressed obliquely at best. In some respects, the last 60 years of planning has waltzed around this issue, at times in the courts, but has failed to deal with it directly, even when the settlement pattern it has contributed to is now perceived as a fundamental challenge. Until we deal directly with what seems to be a fundamental human fear of people different than one's own, we'll only be advancing the state of our art on the margins.

These five principles then, coordination, foresight, resilience, least cost, and security, should frame our search for the mandate for the next 20 years of the Oregon program. We need to talk and argue about these principles. We need to try some things and fail. We need to replace some of these principles with better ones. In any event, we need to capture the attention, imagination, and concern for Oregon of

Oregonians to develop not the next step in the Oregon Planning Program, or to re-energize the Oregon Planning Program, but to define that new mandate that gives form and meaning to planning in our state for the next 20 years.

Step three, we need to identify new champions. We need to find the Tom McCalls and Bob Straubs and L.B. Days of our time. We need to find urban Hector MacPhersons that can form effective partnerships with their rural counterparts. In essence, we need to find those spokespersons for the love of this land who see addressing its physical and cultural needs as their obligation as stewards. Some of them are among us, on planning commissions, visioning committees, in Chambers of Commerce or active in neighborhood associations. Some may even be holding elected office. But like moths to the light, we need to provide a beacon for them to be drawn to.

And that brings us to planners. What can we do? What is our role in shining that light, in developing that new mandate? To answer that, I want to first read to you an oft-repeated quote taken from a speech by Lewis Mumford to the City Club of Portland In 1938. He said:

> "I have seen a lot of scenery in my life, but I have seen nothing so tempting as a home for man than this Oregon Country...You have a basis here for civilization on its highest scale, and I am going to ask you a question which you may not like. Are you good enough to have this country in your possession? Have you got enough intelligence, imagination, and cooperation among you to make the best use of these opportunities?"

It's now 55 years after Mumford spoke, 20 years after Senate Bill 100. Lets say Mumford has come back...to your office. Kind of like Marly's Ghost, chains clanking. How would you answer the question? How would we, as a profession, answer the question? The bad news is that everyone but planners are taking a stab at responding. The good news is that there is time to use this central question as a springboard to examining the principles that I've put forth for the Oregon planning mandate of the next 20 years and for the identification of our new champions.

Incidentally, when Mumford spoke, he wasn't speaking to an audience of planners. We could, as a profession, ignore this kind of question. After all, so the story goes, we don't make policy, we implement it. But not so fast! This is too much fun let go of. As a community of planners, we can make a real contribution to the shape of the next 20 years by taking up Mumford's challenge. In fact, at the celebration marking the success of Senate Bill 100, lets announce a contest for the best answer to Mumford, the Oregon APA Mumford Challenge! Tee-shirts, baseball caps, the works. First prize, a week of fishing in Oregon. Second prize, a week of fishing in Philadelphia. Third prize, you don't want to know.

If we can answer Mumford's question in terms of the work we're engaged in, and in terms of the challenges that this state faces, then I am confident that we'll find our champions, and maintain a focus on the principles that I've outlined here. Growth and decline, change, is always going to be a part of this great state. In many respects, its the very changes wrought by the uplifting of mountains, the relentless pulse of tides, the run of rivers, and the roar of volcanoes that presented Mumford with the inspiration for

his challenge to the City Club in 1938. To answer Mumford will require us to be clear about our respect for the past, intentions for the present, and obligations to the future.

Finally, one more task for planners. For this I am indebted to Arnold Cogan, long a proponent for an office of state planning. As planners we need to become advocates for collaborative approaches to achieving the aims of our planning program. Why, for example, is the secondary lands issue strictly viewed as a land use planning issue? It's not. It's a transportation issue, an agricultural and forest land policy issue, an economic development issue, and a public finance issue. It's a local issue, a regional issue, and a state issue. Yet, we've presented it strictly as a land use issue, and sought recourse only through the goals. I suspect that few of the issues filling our planning "plate" today are best served only in terms of land use principles as described by the goals, alone.

It's time to recognize that the next 20 years of planning in Oregon needs to be recognized as not simply a question of land use, but a way of organizing our thinking about a range of pressing issues. Particularly if this notion of community has any currency, we cannot expect the land use program to carry the full weight of the hopes and dreams for the state.

Rather, our future lies in figuring out how the planning mandate for the next 20 years takes root in all of the activities of our cities, counties, regions, state agencies, and business and civic sector organizations, including, of course, colleges and universities! Planners need to become better at facilitating the creation of collaborative approaches to achieving a planning agenda for Oregon. We no longer have the luxury of working in

splendid isolation. Our focus needs to be on getting things done. We need to turn our talents to redefining the strategies used to do so.

In conclusion, I hope you can forgive me for not speculating more on the nature of the 20th year. Rather, I've talked a lot about the work that I think we need to engage in today to even have a hope of a 2013 retrospective on the 20 years of planning in Oregon leading to that date. The statewide planning program must be recognizable as the vehicle for achieving what we, as a state, want, a vehicle for our collective hopes and affections, not for our individual fears. I am confident that we will find strength and innovation in what we can do collectively. We are not shepherds of an equilibrium, but stewards of a point of view. It's our task, our responsibility to make that point of view mean something for this state in the years yet to come.

Thank you.

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SUSTAINABLE DEVELOPMENT:
Lessons From Abroad - Applications to the State and Regional Level

May 1993

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EXECUTIVE SUMMARY

Interest in and applications for sustainable development practices have steadily increased over the last decade. Although the concepts behind sustainable development are not new, many current approaches tend to reflect the recent changes in local, national and global systems. This paper will explore the concepts and principles of sustainable development as it is being used in industrialized countries; give examples of other countries' sustainability processes and policies, and reflect on their lessons to state-level application in the US. and Oregon.

DEFINITIONS AND TRANSITIONS

Sustainable development offers an alternative to traditional decision-making policies and values. It recognizes that the natural systems of our environment are not only critical to our basic economic needs, but also to the quality of life we have come to know. Sustainable policies attempt to integrate social equity and a fair distribution of costs and benefits into an equation that has been traditionally dominated by short-term economic gains. This requires that we see that the basic needs of education, health care, proper shelter, a clean environment, and employment opportunities are accessible by all citizens.

Sustainable development is a progressive transformation of the economy and the social structure. It is the restructuring of values and goals that define our view of and relationship with the Earth. Sustainable development is not an environmental program or an economic growth strategy; it is a process that integrates issues to maximize the efficiency of natural and man-made capital and human resources. As Colin F.W. Isaac, Executive Director of Pollution Probe Foundation, states, "It is sustainable development, not sustainable economic development or sustainable economic growth. We are trying to sustain the Earth and the system that supports us, not economics. Development is not another term for pointless growth."

Sustainable development has sometimes been criticized for appearing to mean anything to anybody: indeed, the term is said to have so many definitions, it has no meaning at all. This criticism is only partially valid. There are numerous interpretations of sustainable development; yet, every major concept that encompasses human ideals, such as liberty, democracy, and self-fulfillment, is subject to diverse interpretation. These interpretations do not undermine its importance or usefulness. Sustainable development is no different, its broad definition and interpretation is reflective of its extensive scope.

Sustainable development or sustainability is a term that is constantly evolving in definition and application. Because both natural and human systems of development are dynamic, the term itself should not be subject to static interpretation. Current literature seeks to define

sustainable development as a paradigm that has distinct meaning, yet possesses flexibility to allow its application to the broad base of sectors that it encompasses.

the most commonly used definition of sustainable development:

Sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. The World Commission on Environment and Development

Other commonly used definitions of sustainable development include:

Inherent in sustainability is the responsibility of each generation to ensure that the next one receives undiminished natural and economic capital - an intergenerational equity. Lester Brown, et. al. World Watch Institute.

Sustainable Development is positive socioeconomic change that does not undermine the ecological and social systems upon which communities and society are dependent. Its successful implementation requires integrated policy, planning, and social learning processes; its political viability depends on the full support of people it affects through their governments, their social institutions and private activities. Dr. William E. Rees, University of British Columbia.

The economy and its participants exist within the environment, not outside it; we cannot expect to maintain economic prosperity unless we protect the environment and our resource base, the building blocks of development... At the core of the concept of sustainable development is the requirement that current practices should not diminish the possibilities of maintaining or improving living standards in the future... Canadian National Task Force on the Environment an d Economy. September, 1987.

The sustainable society is one that lives within the self-perpetuating limits of its environment. That society is not a "no growth" society .... It is, rather, a society that recognizes the limits of growth and looks for alternative ways of growing. James Coomer, Quest for a Sustainable Society. Oxford: Pergammon Press, 1979.

Sustainable development is the integration of environmental, economic, and social issues into comprehensive policies. Sustainability has achieved recent attention due to the recognition that our natural systems are critical to our economic vitality and quality of life and that this relationship is advancing in complexity as local economies and environmental problems are increasingly global in scale. The results of this expanding scale and the related environmental, economic, and social problems have made governments, corporations, and social organizations rethink their planning, policies, and actions. It has also raised many questions about how we value, measure, and manage our human, natural, and financial assets.

Sustainable development is said to differ from current economic development concepts by three major factors:

1) it links the "3 E's" - economy, environment, and equity- into comprehensive decision-making processes;

2) it recognizes limitations to natural resources and the carrying capacity of ecosystems to absorb the stresses of human activities, and

3) its contains a long-term time reference: what is referred to as intergenerational.

In a broad sense, sustainable development is achieved by valuing the environment, expanding time horizons, and incorporating equity.

Sustainable development identifies limitations; therefore, it can have significant implications for current extraction and consumption levels. To some, the idea of modifying activities to reduce consumption means a reduction in their standard of living. This however, is not necessarily true. The Rocky Mountain Institute and World Watch Institute cite significant reductions in material and energy consumption through technology and efficiency measures that are currently available. Efficient appliances, heating and cooling systems, and transportation methods would not only reduce energy consumption, but also save people money and maintain or improve their quality of life.

SUBTLE BUT DISTINCT

Quality of Life v. Standard of Living: Sustainable development literature often refers to measuring human progress in terms of quality of life. Traditional economic measures tend to compare standard of living indexes. There is a difference between these two terms that some consider to be the fundamental difference between economic development and sustainable development. Standard of living is a quantitative term that measures "how much." Quality of life is a qualitative term that measures "how well." Quality of life is often reflective of human welfare conditions, whereas someone's standard of living reflects the capacity to utilize material goods and services. Therefore, measuring the quality of life, rather than the standard of living, can be considered a better indicator of development that is sustainable.

Development v. Growth: The second subtle distinction between economic development and sustainable development is the definition and use of the terms "growth" and "development." Growth is also a quantitative term: it literally means to expand the physical boundaries, or in economic terms, the production and consumption of more goods and services. We have associated economic growth with progress, so now we feel that an economy that does not "grow" is not a good or healthy economy. Many are starting to question this ideology, especially those who purport sustainable development. Increasingly, development is being viewed as a more effective indicator of progress because it is a quality measure that indicates improved opportunities for human well-being. The ability to improve without physical expansion makes the difference between growth and development one of "quantity v. quality." The World Commission on Environment and Development states that we must

redefine measures of growth and development to reflect the long-term sustainability of our systems.

PRINCIPLES OF SUSTAINABLE DEVELOPMENT: THE THREE E'S

Sustainable development not only links environmental, economic and social equity concerns, it also challenges the traditional methods of measuring economic and ecological systems. What is and is not sustainable will depend on the number of people, the demands they make on the planetary system, the system's physical and biological processes, and the investment society is able and willing to make to overcome constraints in the system (Orlans: Ecological Concepts of Sustainability, 1990).

Economics

Sustainable economics differs from conventional economics in that it takes a wider and longer view in terms of space, time, and parts of the system to be studied (Costanza, Daly and Bartholomew, 1992). Sustainable development believes that the human economy has passed from an era in which manmade capital was the limiting factor in economic growth to an era in which remaining natural capital is the limiting factor. The goal of economics in a sustainable society should be one of non-declining wealth in natural and man-made capital, the ability of systems to maintain their structure and adapt to changes from external stresses, and a diversity of capital that will support development over long periods without producing negative feedback.

Today we recognize that the economy is linked to environmental constraints such as the availability of natural resources or the ability of the environment to absorb waste without degradation in quality. Now the question becomes one of scale, not allocation - how big can the human economic subsystem be relative to the total system? Sustainable economics requires qualitative improvements without quantitative increases beyond natural limitations. Once we have exceeded the optimum scale then further growth makes us poorer, not richer. This challenges conventional economic models that are closed systems with no external environment to constrain them and few limits to growth.

Sustainable (ecological) economics views the economic system as one that:

- Considers the boundaries of the human economic system as an open subset of a larger natural system;
- Views the main constraint of the human economy as the carrying capacity of the natural systems it draws from. Therefore, inputs rates of natural resources should not exceed regeneration rates, and outputs (wastes) should be within the assimilative capacity of the environment without unacceptable degradation of its future capacity.
- Sees natural and man-made capital as complements to each other and not as perfect substitutes - where the shortage of one severely limits the productivity of the other.

- Incorporates 'externalities' (environmental and social costs) into market prices to reflect the full costs of goods and services;
- Focuses on *quality* v. *quantity* including: development and improvements of systems rather than the growth of systems; the efficiency of resource use instead of maximizing throughput quantity; and quality of life measures that reflect improvements in opportunities and well-being, rather than standard of living indexes (like the GNP) that reward consumption and fail to reflect losses in natural capital.

David Pearce, in his book *Blueprint for a Green Economy*, illustrates the importance of valuing the environment in our economic thinking by the treatment of "free" environmental resources. He says, "by treating the ozone layer as a resource with a zero price there never was any incentive to protect it; its value to human populations and to the environment in general did not show in a balance sheet. The important principle is that resources and environments serve economic functions and have positive economic value. To treat them as if they had zero value is seriously to risk overusing the resource. An 'economic function' in this context is any service that contributes to the human well-being or 'development.' This simple logic underlines the importance of valuing the environment correctly and integrating those values into economic policy."

Pearce recommends that economics can incorporate environmental values by modifying the way we think about capital investment, loan criteria and the pricing of goods and services. He recommends that accounting and project appraisal methods include: full costing of the environment; a fair distribution of gains and losses between present and future generations; a reconsideration of discount rates and relative weights given to short-term investments; sustainability criteria in cost-benefit analysis; and the application of user or polluter pays principles. Technological progress should concentrate on improving efficiency rather than throughput quantity. The question is no longer how much we grow, it is how we grow.

The Environment

Sustainability cannot be achieved without careful conservation of biological resources, most of which are renewable. Sustainable development looks at the stresses and capacities of natural resources and ecosystems. The use of ecological concepts as an integral factor in decisions differentiates sustainable development from traditional development models. Until only recently, natural resources were considered abundant, if not limitless: however, we now recognize finite resource constraints and the need for ecosystem information and an understanding of their relationship to human activities.

Carrying capacity is a critical factor to sustaining long-term development. Carrying capacity is the ability of the ecosystem to absorb the stresses (extraction of resources and assimilation of waste) from activities of humans and other species. It is related to regeneration rates, assimilation rates and the balance and total population of species within a system. When

carrying capacities are exceeded environmental degradation occurs and impacts on the health of species within the system, including humans. Carrying capacity is not a static condition: a change in any of these parameters will also change the carrying capacity. Therefore, accurate and up-to-date information is required to successfully analyze carrying capacities.

"*All life on Earth is a part of one great, interdependent system. It interacts with, and depends on, the non-living components of the planet: atmosphere, oceans, freshwaters, rocks and soils. Humanity depends on this community of life - this biosphere - of which we are an integral part.*" (Global Biodiversity Strategy) Biological diversity is another crucial element of sustainable development. It is crucial to human well-being for food, medicines, and building materials as well as spiritual, aesthetic, and ethical reasons. It is more than just endangered species and spaces - it maintains the life support systems for all species. Economic diversity is said to create a more stable income base for communities. Therefore, biological diversity can be said to create a more stable support base.

Social Equity

Sustainable development must assure that the cost and benefits are equitable in their distribution. It has been found that if people do not have the opportunity to control and meet their basic needs, then they are forced to degrade their environment and forsake future development for immediate survival. Social equity can be related to sustainable development by viewing both ends of the economic scale: poverty causes unsustainable behavior -- forcing people to forsake future development for immediate survival; and over-consumption in industrialized countries, especially the United States, causes unsustainable resource use of energy and materials at rates higher than their regeneration, and at a scale that is impossible to expand on a global level. We constantly increase our traditional measures of progress without asking if they are valid to today's environment. Sustainable development should and must address both poverty and consumption patterns.

Sustainable development must consider not only the capacity for development of the current generation, it must also consider future generations. The distribution of resources is an important issue as the Earth's human population nears it capacity for sustained development. Not everyone can live within the current standards and their resulting consumption rates of the Western World - we simply do not have the energy, resources or assimilation capacity to do so. However, industrialized countries can significantly decrease their energy and resource use given the current efficient technology, manufacturing process changes, and innovative urban planning. This will allow capacity for future generations without increasing the rate of resource extraction and waste production. Some countries, especially Western Europe and Canada are beginning to actively pursue these avenues in hopes of maintaining a more secure future.

Both equitable distribution of resources and citizen participation in decision making can help ensure that future generations will be left with an undiminished natural and capital wealth base. The principle of intergenerational equity forces long-term horizons to be considered in today's decisions.

APPLICATIONS OF SUSTAINABLE DEVELOPMENT

Sustainable development is not a single policy or plan that is incorporated into one department or function. It is a framework for decision-making to be used across all sectors and at all levels. It is not a strategy that can be incorporated into ten easy steps - it is a vision - a set of principles - for policies, relations, and behaviors that takes time and requires institutional changes. Sustainable principles can be translated into strategies that extend their application to environmental, economic and social policies. These principles are best shown in the examples of international and national sustainable development programs listed in the body of this report, however, they can be summarized by the following:

Principles for Sustainable Development

Economic:

- Integrate the environment and the economy in all levels of decision-making. Utilize economic appraisals that fully value the cost of goods and services (including environmental and social impacts).
- Revise how we measure and value growth to be equitable, long-term, and reflect quality of life elements.
- Incorporate economic incentives that encourage the conservation of resources; reflect the total cost of goods; and shifts the burden of taxes and fees from the public to the user.
- Reorient technology to better manage risks and efficiently utilize materials and energy.

Environmental

- Conserve and enhance the natural resource base (air, water, soils, biological diversity)
- Enhance interdisciplinary science and education - improve our understanding of and information available on natural systems and their interrelationships.
- Adjust the use of natural resources and the capacity of environmental systems to reflect carrying capacity.

Social

- Ensure a sustainable level of population and access to education, health care, and family planning services.
- Improve governance through cohesive efforts that link agencies and departments, and central government with local government; incorporate project appraisal techniques that include environmental and social costs and benefits; and involve citizens in decision-making.
- Promote values and ethics that reflect sustainable development - the interdependence of the environment and the economy, the importance of fairness and equity for long-term prosperity, and the need for cooperation and community.

The applications of sustainable development are almost as broad as its definitions. Economists, social scientists, ecologists, and public administrators all have the capability of incorporating sustainable criteria into their performance. Likewise, sectors such as agriculture, solid waste management, energy, economic and community development, social services, and environmental protection agencies may incorporate sustainable development into their operations to improve efficiency and sustain long-term quality.

Changes to economic, environmental and social policies will be necessary to achieve sound development at global, national and local levels. Sustainable economics will require us to view the human economy as a subset of the entire economy (natural and manmade), and modify prices and incentives to reflect this relationship. Ecological concepts of living within carrying capacity and the preservation of biological diversity will be fundamental to understanding the limits of our future development potential. Finally, fair and equitable distribution of costs and benefits, along with the empowerment and participation of citizen in decision making will ensure a more just future.

International Commitment to Sustainable Development

In 1972, the Stockholm Conference on the Human Environment recognized the alarming rate of environmental destruction and the need for action. As a result the United Nation's Environment Protection commission (UNEP) was formed. For the next decade, the world experienced a series of international and national activities focused on environmental protection and resource management. In 1983, the United Nations established the World Commission on Environment and Development chaired by Gro Harlem Brundtland of Norway. This commission set forth to gain an understanding of the growing impact of human activities on the natural resource base, and to develop a strategy for actions that address these issues. Their final report, *Our Common Future*, has provided the foundation for much of the subsequent world-wide activity that links the environment with economics.

Since the release of *Our Common Future*, many countries have responded to the Commission by establishing national sustainable development plans, formal responses to the recommendations of the Commission, or comprehensive environmental policies. Countries responding to the request were not only industrialized nations such as Norway, Sweden, Canada, United Kingdom, the Netherlands, Australia, and Finland, but also developing countries in Latin America, Asia, and Africa.

The United States was one of the few industrialized countries not to respond to the Commission or to the concept of sustainable development. Despite the lack of federal support, states and local regions began to embrace sustainability. Cities like Seattle, Washington; Roanoke, Virginia; and San Jose, California have developed sustainable strategies using a broad-stakeholder approach and are currently implementing environmentally sound development plans. States such as Missouri, North Carolina, and

New Mexico are surprising the traditional "progressive" states by establishing state-level sustainability strategies. In May of 1993, Kentucky will be hosting a national conference *From Rio to the Capitols: State Strategies for Sustainable Development.* The uprising of activity indicates that sustainability has finally found its way to the United States.

To understand how other countries have embraced sustainable development and find successful applications to the states, it is important to look at their process for developing sustainability strategies and the structure of their recommended policies. The Netherlands has developed a comprehensive national environmental plan that utilizes the principles of sustainable development as its overarching framework. Because the Netherlands relies on its European neighbors for close cooperation, it has direct application for states who are closely tied to their regional economies. The resulting policies and goals are thoroughly planned, and the coordination and cohesiveness between government agencies and private and public organizations merit a close evaluation of this plan for its policy structure.

DUTCH HIGHLIGHTS

The Dutch have broken new ground in developing a comprehensive plan that integrates environmental protection with economic development. Unlike most environmental policies such as the US Clean Air Act or RCRA, the NEPP addresses all media within one framework. Cross-referencing of causes and effects are a strong point of this plan. In addition to identifying the environmental problems (effects), and target groups (sources), the NEPP goes a step further and relates each to five levels (from local to global) at which specific measures can be implemented.

The NEPP is dynamic rather than static. It recognizes that recommending the use of specific technologies for specific applications will soon be outdated. Instead, the plan relies on measuring output rather than monitoring inputs. This distinction is critical for the transformation of environmental policies into sustainable development plans.

Overall, the NEPP can be considered a strategic plan rather than a set of regulatory policies. It seeks to promote innovation and flexibility while advancing the principles of sustainable development. It reaches to the retail level and consumers as well as producers. The plan sees cooperation and collaboration as perhaps the greatest tool to achieving environmental quality and sustainable development. Two elements stand out as the most critical components of this plan: the inclusion of long-term planning and the recognition of intergenerational equity; and the integration of economic and environmental considerations in all ministries and policy fields.

Canada has developed a multi-stakeholder and consensus decision-making process which is proving to be beneficial to sustainability. Although the national government was instrumental in initiating sustainable development and the resulting Green Plan and Round

Tables, it now shares its responsibilities with the provinces and local regions. Now the process is most active at the provincial level which also makes lessons transferable to the states. Therefore, Canada will be analyzed for its decision-making processes and the Netherlands will be analyzed for its policy structure. Combining the two models should provide valuable information.

IMPLEMENTING SUSTAINABLE DEVELOPMENT

If we are to achieve sustainable development, we must utilize resources more effectively and efficiently. Sustainable development is a means of managing our resources so that our future is not at risk. It does not mean that we should stop using resources, it means we must think more carefully about the long-term impact of our decisions. Gro Harlem Brundtland, the former Prime Minister of Norway summarized our current crossroads by saying: "*We are living in an historic transitional period in which awareness of the conflict between human activities and environmental constraint is literally exploding. Never before in our history have we had so much knowledge, technology, and resources. Never before have we had so much great capacities. The time and the opportunity has come to break out of the negative trends of the past.*"

Sustainable development is becoming the new paradigm in how we plan for future growth that is responsive to economic, environmental and social needs. Sustainability dispels the myth of "jobs versus the environment." It recognizes that the environment and the economy are connected, that both must be healthy and support one another. In countries of Eastern and Central Europe the air, water, soil, and vegetation is so poisoned that human health problems are widespread and the economy is extremely volatile. For centuries the world's population was small enough to "move-on" when resources in one area were depleted. Now our population has grown - by a factor of four during this century alone. There is no longer a frontier left to conquer. We are now learning that practices of the past do not fit the needs of the future.

Development and the environment are not conflicting terms. Problems arise when we fail to manage the linkage in a sustainable way. The need to integrate equitable development policies with environmental protection is obvious. Since the 1950's, the industrialized nations have experienced tremendous advancements in the production of goods and increases in the consumption of resources. We have increased productivity by replacing labor with even more capital and energy, increasing the resource consumption per capita to an unsustainable level.

We are presently utilizing resources at a rate faster than they can renew themselves. The Earth does not have the natural capital to extend the current "Western" resource-intensive operations to today's population, let alone meet the needs for the future's population. The United States with less than 5 percent of the world's population, uses more than 25 percent of

the world's fossil fuels. Although we possess the technology and the ability to reduce our consumption patterns between 50 - 75 percent, barriers like conflicting policies, fragmented programs, and disjointed decision-making prevents us from integrating resources and optimizing output. We must learn to do more with less by utilizing efficient technologies and encouraging conservation and preservation of our natural systems.

To implement sustainable development, especially in the United States, several actions are imperative to its success. These are:

- Technologies for sustainable development
- Economics for sustainable development - "getting the prices right"
- Governance for sustainable development
- Private sector actions for sustainable development
- Energy for sustainable development
- Habitats for sustainable development

Technology

Design for the environment should be considered in the same light as cost, safety, and health. However, current pricing does not reflect most environmental and social costs, making environmentally-benign technologies less competitive. Our current institutional systems provide little impetus for new investment and regulations, and are often based on dictating technology instead of desired results. These barriers must be overcome and new technologies developed that:

- Focus on pollution prevention
- Minimize the volume of materials and the energy used to produce each unit of output;
- Ensure processes/products have minimum impact on the environment and human health;
- Promote, through tax and other policy incentives, "green" research and development, especially those that can be exported to world markets.

Economics

Current market systems often do not produce sustainable increases in the standard of living or the quality of life. They seldom reflect the full costs of goods and services, only capturing the private, not social, costs. Conventional economics discount the future to the point where the basic needs of the next generations are rarely included in decisions. However, just as the market contributes to the unsustainable activities of human economies, it is also an avenue that can be tapped for cost-effective ways to achieve more sustainable results. Recently, international economists have been evaluating the market for its potential use in promoting sustainability.

Market incentives command timely responses from individuals and corporations; they greatly reduce the amount of government intervention needed; and they encourage innovation at the beginning of processes where results are more cost-effective and timely. The key to having the market work in a sustainable society will mean "getting the price right" through mechanisms that:

- Include environmental and social costs in addition to private or production cost to obtain the full cost of goods and services.
- Eliminate price-distorting subsidies to "level the playing field" for less damaging goods and services.
- Revising the way we measure our economic growth to reflect natural as well as man-made capital assets.
- Tax environmentally-harmful activities to equal the loss of environmental quality and clean-up costs. Most national commissions suggest a US gas tax of $.10 - .20 per year for five years, and a progressive carbon tax starting at $6/ton until it reaches $30/ton. (In terms of real dollars, a $1.00 increase in the current gas tax would mean Americans would be paying the same for gas as they did for premium gas in 1981 - still one-half to two-thirds the taxes of Western European countries)

Once the prices are right, systems like tradable permits can be effective in promoting cost-effective results. According to the National Commission on the Environment, the emission trading mechanism for SO2 in the Clean Air Act Amendments of 1990 is expected to save society between $8.9 and $12.9 billion dollars over eighteen years, as compared to the costs of the same amount of command-and-control regulations. Market forces alone will still not be adequate. There are some activities that can not be easily valued to reflect full costs, and will need to rely on a combination of government intervention such as regulations, along with market incentives.

Governance

As the world's single largest economy, the largest user of natural resources, the largest producer and consumer of energy, and the largest producer of carbon dioxide pollution, the United States has a special responsibility to exercise world leadership... The complexity and scope of current environmental challenges demand the ingenuity, expertise, and technology for which the United States is famous. National Commission on the Environment

Leaders at all levels must be committed to long-term environmental protection and to the international leadership and cooperation in addressing the world's economic and environmental problems. Environmental goals must be considered along side economic goals in all policies. The focus on environmental protection and sustainable development should be focused on:

- Prevention rather than mitigation approaches after the pollution has caused damaged.
- A comprehensive environmental and development strategy that acts as a basis for agencies to incorporate sustainable principles in to their policies and planning. (the Dutch NEPP is one such example).
- Assessable and easy-to-understand information about environmental issues and their relationship to economic development and human health and well-being.

Energy

The US uses more energy than any other country. Over 90 percent of that energy comes from fossil fuels and causes severe environmental and health impacts. Energy production and consumption is the main cause of ozone depletion, global warming, local air pollution, and water degradation in oceans and seas. Scientists now agree that global warming is occurring, only the magnitude and timing still is in question. A reduction of CO2 by at least 20% is recommended to halt the present trend. This reduction can be achieved by use of current technology, with increases in the use and development of renewable sources assuring even larger reduction and margins of safety.

A relatively cost-effective "no-regrets" policy exists that more beneficial than business as usual and should be implemented even if the outcome of global warming predictions are minimal. In addition, an "insurance policy" for more aggressive measure will protect us against the anticipated negative effects of continued fossil fuel use. These measure are:

- Greater energy efficiency standards for industry, buildings, and autos. Almost all efficiency measures have shown to have short pay-back periods with reductions in energy use ranging from 20-60 percent. This will significantly reduce demand and buy time for the development of effective alternatives.
- Greater use of natural gas whose emissions are 30-90% lower than coal depending on the pollutant..
- Coordination of a comprehensive energy policy with other policy arenas including land-use, transportation, agriculture, and industry.
- Full cost energy prices to ensure comparable assessments between source alternatives.
- Greater use of renewable energy sources such as solar, wind, and geothermal.
- Greater investments in the research and development of alternatives that can meet the load requirements of current technology (hydrogen gas from electrolysis).

Private Sector

Corporations in manufacturing and commercial businesses, along with the agricultural sector have their part to play in implementing sustainable development. Today, many corporations have found that pollution prevention not only results in decreases of harmful emissions, but saves money and reduces liability. Such actions can be further extended by incorporating sustainable development criteria to balance short-term gains with long-term security. Corporate coalitions like the International Chamber of Commerce and the US Global Environmental Management Initiative (GEMI) has developed sustainable development policy measures.

Manufacturing/Commercial

- Consider long-term environmental management as a basic component in strategic decision-making.
- Undertake periodical environmental audits.
- Include in annual statements and balance sheets the accounting of resource use and the environmental impacts.
- Practice pollution prevention measure.

Agriculture:

- Remove subsidies to private landowners that promote excessive use of resources or energy. These negative rewards often make environmentally-sound practices less competitive, even though their full costs are less.
- Eliminate below-cost fees for uses of public lands
- Increase education and availability for low impact practices, including integrated pest management (IPM), reduction of chemical fertilizer, soil conservation practices, etc.

Habitat

Over 90% of the original forests and wetlands in the United States have been removed, and over 500 known species of plant and animals have become extinct since the settlement by Europeans. The need to protect habitats and their biodiversity goes beyond the "jobs versus the environment." These habitats are important sources of genetic stock for medicines and crops, and provide needed functions for prey-predator balances and the assimilation of waste. Yet, as these habitats decrease in size, their capacities to support human activities are severely reduced, often at nonlinear rates.

Land use is the most critical policy area for habitat management. Demands for "virgin" land are usually a results of an increasing population that pushes rural land uses further into pristine lands and increases the need for materials and resources. These demands can be minimized by land use planning that incorporates sustainable criteria (see Sustainable Communities) such as:

- Increased appropriations for habitat conservation plans that protect native biodiversity and important ecosystems.
- Urban planning for higher density, more public transit, more efficient buildings and commercial processes, greater recycling of materials and wastes, and greater public awareness are all policies that can assist in preserving the remaining habitats.
- Balanced uses of lands aimed at promoting environmental quality while providing economic livelihoods.
- Management of public land that are consistent with sustainability.

SUMMARY

The objective of this report is to reveal the growing worldwide support for sustainable development and the potential benefits and costs of a more sustainable society. Although sustainability is not limited to industrialized counties, this report will focus on activities that would have the most direct application to the United States and the Pacific Northwest. It will scan developed nations to understand their sustainable development programs, and look at activities in the US to evaluate trends here at home. The report looks at sustainability as a comprehensive set of guidelines to be used in planning and policy processes across a variety of sectors and jurisdictions. Sustainability is not a concrete set of regulations, or is it limited to environmental sectors. It is much like strategic planning, community development programs, and visioning processes that reaches across traditional lines to form new partnerships.

Sustainable development holds great potential at a state level. Its benefits seem to reflect the unique role that states have in the American political system. Consistent with their increase in responsibility, the states must now learn to balance more issues with less resources - a goal common to sustainable development. By utilizing sustainable criteria states can:

- attempt to balance short and long-terms goals.
- seek to involve all stakeholders in the decision-making process to ensure fair and equitable distribution of costs and benefits.
- integrate the necessity of a healthy environment with a viable economy by understanding natural capital constraints as well as fiscal limitations.

Sustainable Development is not a panacea for environmental and economic problems. It requires changes in the way we do business, the values we place on our activities, and the way we view our relationship with the natural environment. The theory behind the process of sustainable development is that by integrating issues in the initial phases, the conflicts and costs that often arise when one or more issues are ignored, are diminished and the efficiency of resources is optimized.

World Commission on Environment and Development

Sustainable development became a world-wide concept as a result of the World Commission on Environment and Development formed by the United Nations in 1983. Their mandate was to understand the required changes for equitable and environmentally-sound development. The results of their findings, *Our Common Future*, was published in 1987 and has perhaps become the most widely followed set of principles and recommendations for sustainable development. Countries responding to the request of *Our Common Future* were not only industrialized nations such as Norway, Sweden, Canada, United Kingdom, the Netherlands, Australia, and Finland, but developing countries of Latin America, Asia, and Africa. The United States was one of the few industrialized countries not to respond to the Commission or to the concept of sustainable development.

In December 1983, the United Nations established an independent commission to address "a global agenda for change." The commission was chaired by Gro Harlem Brundtland of Norway, and is often referred to as the Brundtland Commission. Through a series of deliberations in five continents, the commission heard testimony of people from all walks of life. The Commission's agenda consisted of four issues:

- long-term environmental strategies for sustainable development by the year 2000,
- ways that greater cooperation for environmental concerns could be established among countries,
- ways and means by which the interrelationship of the environment, social and cultural resources, and economic development could be achieved, and
- methods to help define shared perceptions of long-term environmental issues and appropriate efforts to successfully deal with them.

The central theme that emerged from this effort was that the current trend of development was leaving increasing numbers of people poor, while degrading the environment. Realizing that the population is expected to double within the next century, the question of whether or not the environment could handle this growth with the existing pattern was unclear. As the commission states, "We came to see that a new development path was required, one that sustained human progress not just in a few places for a few years, but for the entire planet into the distant future. Thus 'sustainable development' becomes a goal not just for 'developing' nations, but for industrial ones as well."

HIGHLIGHTS OF THE BRUNDTLAND COMMISSION

In order to accomplish a task as large as the Brundtland Commission's, a strategy framework was put in place. The Commission was established as an independent body to allow it to address any issue it found relevant; solicit advice; and formulate recommendations free from political bias. The Commission itself set the standard for the process it so frequently and feverishly recommended - it was broad-based with members from developing and developed countries; people with economic, environmental, and social equity interests; and people from government, private, and non-government organizations.

The Commission used an approach to its analysis that was open, participatory and visible in order to receive the broadest range of views and advice. It held meetings around the world and received first hand accounts of issues in each region from government representatives, scientists, research staff, industrialists, non-government organizations, and the general public. Special advisory boards consisting of field experts were appointed to assist key areas in enhancing their information base. During its course of work, the Commission also engaged experts from research institutions, academic centers and private enterprises. These studies and reports provided invaluable data for final recommendations.

The final recommendations were compiled in the report, *Our Common Future.* The recommendations included policy alternatives as well as institutional and organizational structures that would manage these changes. It looked at issues from a local to a global perspective and tied together the underlying themes throughout the world. The recommendations suggested the actions required, the responsible and impacted parties, the expected benefits or consequences, and the timing to meet each expectation. *Our Common Future* has become the most widely used document to set direction for sustainable initiatives world-wide. Recommendations from the report include:

Perspectives on Population: Understanding demographic trends to manage not just the increase in population but the distribution of that increase and its impacts on the environment and development, as well as the link to education and health.

Energy Choices: Sustainable energy choices must include efficiency and conservation measures that minimize waste of primary resources; recognizing the problems of risks to safety and public health inherent in energy sources; and protecting environmental systems from local to global levels.

Industry: Producing More with Less: The entire cycle of raw materials - extraction, transformation into products, energy consumption, waste generation, and the use and disposal by consumers - must be designed for better efficiency and take into account environmental and social costs. Technology transfer to less developed nations must occur if they are to develop sustainably.

Food Security, Agriculture and Forestry: Providing food to a growing population must take into consideration the environmental stresses it puts on land, water, and surrounding ecosystems. Minimal use of chemicals and sound irrigation practices must be incorporated into agricultural practices to prevent further degradation in soil and water. Trade barriers and unfair subsidies must be removed and equitable land reforms put in place.

The Urban Challenge: As the population migrates towards larger urban centers, new policies on land use, transportation, and infrastructure will need to occur. Strengthening local authority, self-reliance and citizen involvement will help to assure better housing and services for the poor.

Species and Ecosystems: Biological diversity of flora and fauna play a critical role in human survival - providing shelter, clothing, medicine, and beneficial functions such as waste assimilation. Priority should be put on inventorying, assessing, and protecting the planet's biological diversity through prevention measures.

Managing the Commons: The global commons - oceans, atmosphere, and Antarctica will require international cooperation as well as strong national policies to control the impacts from land activities. Emissions and waste reductions will need to realized to maintain the needed ecological functions that provide both direct and indirect human benefits.

Peace, Security, Development and the Environment: A number of factors affect the connection between environmental stress, poverty, and security such as inadequate development policies, adverse trends in international economy, inequities in multi-racial and multi-ethnic societies and pressures of population growth.

Institutional and Legal Change: Six priority areas summarize the many institutional and legal changes recommended by the Commission. 1) All agencies should ensure that their programs encourage and support sustainable development. 2) Governments should reinforce the roles of environmental and resource management agencies. 3) Institutions should cooperatively assess global risks. 4) Decisions should depend on a widespread support and involvement of an informed public, industry, NGOs, and the scientific community. 5) The rights of both the present and future generations and their health and well-being should be legally protected. 6) Investment in our future in critical - long-term planning and incorporation of social and environmental costs should be a part of all investment criteria.

The WCED views sustainable development as "promoting harmony among human beings and between humanity and nature." Sustainability will require fundamental changes in

institutional structures and policies that have not occurred. In summary, the Commission views the pursuit of sustainable development as requiring:

- a political system that secures effective citizen participation in decision-making;
- an economic system that is able to generate surpluses and technical knowledge on a self-reliant and sustained basis;
- a social system that provides for solutions for the tensions arising from disharmonious development;
- a production system that respects the obligation to preserve the ecological base for future development;
- a technical system that can search continuously for new solutions;
- an international system that fosters sustainable patterns of trade and finance; and
- an administrative system that is flexible and has the capacity for self-correction.

The Brundtland Commission's promoting of sustainable development has lead to international and national action. International treaties and national environmental and development plans are adopting the language and principles of sustainability. Recently, sustainable development received worldwide support at the United Nations Conference on Environment and Development in Rio de Janeiro where treaties and the resulting Agenda 21 agreement all spoke about the need for sustainable development in order to maintain and enhance the quality of life globally as well as within individual nations.

AGENDA 21: THE ROAD FROM RIO

Since the United Nations convened the Stockholm Conference on Human Environment in 1972, Member nations have stressed that economic and environmental degradation are related and must be viewed comprehensively. The urgency of environmental and development issues prompted a resolution of the United Nations General Assembly to convene an UN Conference on Environment and Development in Rio de Janeiro, Brazil, in June of 1992. The Conference was aimed at elaborating strategies and programs to reverse the significant negative environmental trends and to promote development that is environmentally sound and sustainable for all countries.

The primary outcome of the conference was *Agenda 21* - a product of lengthy negotiations among governments, relevant UN agencies, non-governmental organizations, and expert consultants. It builds on the concepts brought to light by the World Commission on Environment and Development in 1987. Agenda 21 is the basis for a "new global partnership for sustainable development and environmental protection in an increasingly interdependent world." In the 800 pages of Agenda 21 it details strategies and policies for the management of all major resources, the planning of human settlements, the promoting of human resource development, and the changes required for trade and economic measures.

Agenda 21 calls for vigorous international cooperation to face the challenges of our environment and economies that have resulted from misguided policies and for the global community to integrate development and the environment by fundamentally reforming economic behavior based on new and increasing knowledge of the effects on the environment. New partnerships are to go beyond "foreign aid" - they are to be founded on common interests and mutual needs between developing and developed countries. It summons the countries whose actions harm the environment the most to bear primary responsibility for correcting the damage.

Agenda 21 confronts the challenge of the environment and development by addressing economic, social, trade and environmental policies of individual countries and international relations. For economic policies it discusses domestic economic policies and international trade. The Agenda seeks to make trade and the environment mutually supportive. It believes that the international economy can promote sustainability through trade liberalization that allows developing countries to deal with international debt by making trade "open, equitable, secure, non-discriminatory and predictable." It calls for all countries to diversify its own markets in order to reduce dependence on commodity exports. It calls for countries to stimulate savings and reduce fiscal deficits and to develop macroeconomics policies and structures that promote efficiency in the allocation of resources.

By focusing on unsustainable patterns of production and consumption, both poverty and over-consumptive lifestyles can be addressed. The gap between countries who over produce and overconsume resources and countries whose people cannot obtain basic needs is widening. This inequitable distribution of income and resources results in stresses on the environment and global security. The Agenda calls for government and industry to promote more positive attitudes towards sustainable consumption through public education and awareness campaigns and through full cost pricing that incorporates environmental and social costs.

The environment is not only linked to economic problems, but to social issues as well. Human health is the most evident of these social issues. Improper sanitation and contaminated food cause the majority of deaths for developing nations. Developed nations experience health problems, including child defects, stemming from environmental pollution and exposure to toxics. Promoting adequate shelter, proper nutritional diet and basic health care are the foundation to a stable workforce. Promoting human resource development and capacity-building can help strengthen a country's capacity for sustainable economic growth.

Agenda 21 consists of seven basic themes and a series of means by which these themes can materialize. The themes outline reforms needed for a more sustainable course.

Theme	Priority Actions
Revitalizing growth with sustainability	Requires more effective use of resources; greater accountability for economic and environmental impacts; a balance between regulatory measures and economic incentives; market prices that reflect the full cost; trade policies that eliminate unfair pricing and the overproduction of subsidized goods.
Sustainable Living: A Just World	A dual approach that combats poverty and addresses the polluting and wasteful lifestyle of rich nations. Ensures that the overall level of consumption and production are compatible with life-support systems (carrying capacity) at international, national, local levels.
Global and Regional Resources: A Shared World	Designing development strategies that minimizes the impact on the atmosphere, oceans and living marine systems so that risk to human and environmental health is negligible. Control of ozone depletion, climate change, acid rain, and water contamination through a comprehensive and coordinated set of international treaties and frameworks.

Managing Human Settlements: A Habitable World	Managing demographic trends to properly plan for current and future settlements. Ensuring that the rapid growth of urban centers support basic needs of drinking water, sanitation, affordable housing and transportation. Promote: sustainable land-use planning, sustainable energy and transport systems, human resource development and capacity building, sustainable water supplies; environmentally sound management of solid wastes.
Efficient Resource Use: A Fertile World	Changing consumption patterns to more efficient and responsible levels - sustainable management of renewable resources; environmentally sound management of biotechnology; natural systems and their carrying and absorptive capacity to be valued as an economic asset; forestry practices that recognize the soil, biodiversity and gas absorption benefits as well as timber production; sustainable farm production and farming systems; protection of biological diversity; management of fragile ecosystems that combats desertification, and energy production that respects the atmosphere, human health and the environment.
Managing Chemicals and Wastes: A Clean World	Environmentally sound management of: 1) toxic chemicals, including the prevention of illegal international traffic in toxic and dangerous products; 2) hazardous waste, and 3) radioactive waste. Focuses on prevention and recycling efforts to minimize the amount produced and the amount handled.
People's Participation and Responsibility: A People's World	Promoting education. public awareness, and training and global action for equitable development for women. Strengthening the roles of major groups in decision-making - recognizing and strengthening the role of indigenous people and their communities; strengthening the partnerships with non-governmental organizations; strengthening the role of farmers, workers/trade unions, business and industry, and the scientific and technological community. involving local authorities;

To implement changes needed for sustainable development, the Agenda articulates essential *means* by which financial and institutional reforms can take place. These means consist of:

- Information for decision-making;
- National mechanisms and international cooperation for capacity-building;
- Science for sustainable development;
- Transfer of environmentally sound technology, cooperation and capacity-building;
- International legal instruments and mechanisms;
- International institutional arrangements; and
- Financial resources and mechanisms;

The Dutch National Environmental Policy Plan (NEPP)

The Netherlands has used a highly structured planning process to develop a National Environmental Policy Plan (NEPP). This "green" plan is much more than a series of environmental regulations -- it is a comprehensive strategy for sustainable development that explores the economic and social concerns of maintaining a healthy environment. The NEPP is geared not only to look at specific pollution sources, but also to their relationship to relevant ecological, social and economic systems.

The NEPP was a collaborative effort of the Ministries of Economic Affairs; Agriculture and Fisheries; Transportation and Public Works; and Housing, Physical Planning and Environment. Many of the principles used in the NEPP incorporate the values of sustainable development and were patterned after the UN World Commission of Environment and Development's *Our Common Future*, and the Dutch Institute for Public Health and Environmental Protection's *Concern for Tomorrow*. The NEPP has been a model for other countries' Green Plans including Belgium, Britain, France, and the European Community.

The NEPP transcends traditional environmental plans by expanding environmental protection to include sustainable development concepts. This change in direction over previous environmental policies resulted from new information that revealed environmental problems occurring at an increasingly higher level, sharing common causes, and with greater possibilities of significant impact on economic and social systems. This realization leads the plan to look at targeted goals in terms of the environment's carrying capacity and ability to absorb waste and other stresses.

THE BASIC STRUCTURE OF THE NEPP

The Dutch plan is a multi-media (air, water, and soil) strategy that addresses environmental quality by identifying *themes*. Each theme is related to the major sources of its environmental degradation referred to as *target groups*. The NEPP recommends that target groups be consulted during all phases of decision-making to help set goals, develop implementation plans, and promote research and education. Finally, the environmental goals for each theme and the resulting actions required by the target groups are evaluated in various levels from a local to a global scale.

The NEPP gives preference to source-oriented measures over effect-oriented measures based on the assumption that prevention is better than cure, and that one source is often the cause of multiple effects. The Plan distinguishes three types of source-oriented measures as structure-oriented (changes in the production or consumption process); emission-oriented (additional measures are taken to reduce pollution emissions, however, there is no change in

the process); and volume-oriented measures (fewer raw materials are used and less products made, yet the production process does not change).

NEPP Themes

- *Climate Change*: Minimizes the destruction of the ozone layer and the greenhouse effect by the reduction of carbon dioxide emissions and energy consumption and a complete halt to the production of CFCs.
- *Acidification:* Protecting forests and natural areas by controlling the emissions of sulphur dioxide, nitrogen oxides, ammonia and volatile organic compounds (VOC's) through structural and emission-oriented measures, energy conservation and measures to influence the use of autos.
- *Eutrophication:* Balances the input and output of phosphates and nitrogen in soil and water to assure healthy water ecosystems, fish, as well as their related economic value. Most measures focus on agriculture and the various forms of the livestock industry.
- *Diffusion:* Aims to reduce risks of environmentally hazardous substances, including pesticides, heavy metals and radioactive materials. Measures call for the assessment of risks and the reduction of volumes (up to 50-70% for certain toxic substances).
- *Disposal of Waste:* Reduction of waste (prevention and recycling); processing unavoidable waste in an environmentally responsible way; and improving the collection, processing and/or storing of non-processed waste by reducing leaks and improving collection of hazardous substances.
- *Disturbance:* The attainment and maintenance of residential and living quality for environmental factors such as odor, noise, vibration, external safety and local air pollution. It includes revisions of local land use plans, traffic and transportation policies.
- *Dehydration:* Seeks to balance water consumption with the carrying capacity of its sources. The policy is aimed at optimizing the use of groundwater by stimulating conservation; developing instruments to control dehydration; and adopting measures to prevent the most serious damages.
- *Squandering:* Squandering elaborates the management of environmental resources in a sustainable manner. It develops sustainable development instruments by "measuring, knowing, and rewarding" behavior for both producers and consumers. Work should lead to the closure of product cycles, efficient use of energy and improved quality in products and production processes.

NEPP Target Groups.

- *Agriculture* - reduction of pesticides, fertilizer use, and ammonia emissions;
- *Traffic and Transportation* - promotion of economic, clean vehicles with recyclable parts, and the promotion of urban and land use planning of residential, industrial and commercial areas to minimize traffic and auto use;

- *Electrical and Gas Companies* - reduction of S02 and NOx emissions; increases in energy conservation measures; and reduction of industrial waste.
- *Building Trade* - reduction of energy use by 25%, the use of environmentally friendly building products, and the promotion of greater insulation standards;
- *Consumers* - extensive recycling by 2000, energy conservation at 1985 levels, collaboration of consumer organizations for extensive public information campaigns;
- *Environmental Trade* - aimed at companies that process wastes, manage and purify water, etc. to maintain and enhance environmental quality;
- *Research and Educational Institutions* - coordination of programs for intensified environmental policies and the promotion of sustainable development; and
- *Environmental and Societal Organizations* - dissemination of information, collaboration and internalization within target groups, labor unions, and employers organizations.

NEPP Target Levels

- *Local Level*: Recognizes that environmental quality is increasingly a competitive advantage for living decisions and looks towards sharp reductions in local pollution and health risks. Strategies include sustainability criteria for urban planning, outdoor recreation, siting of firms, transportation modes, and soil quality.
- *Regional Level*: landscapes and processes. Looks at the themes of eutrophication, waste management and air quality and focuses on agricultural practices, transportation and urban development to reduce various emissions by 80-90% and the volume of waste by 70%. Objectives include improved ground water quality, maintenance of vital ecosystems, and the maintenance of soil quality and erosion.
- *Fluvial Level:* river basins and coastal seas. Focuses on the themes of eutrophication and dehydration. Seeks the assurance that ecosystems are not harmed by decreasing water quality; the preservation of drinking water and the promotion of sustainable commercial fishing and oyster farming. Strategies include reducing emissions of eutrophying and poorly degradable substances by 90% without costly end-of-pipe measures.
- *Continental Level:* continents and oceans. This level looks mainly at acidifying substances, hydrocarbons, and diffusion of toxics and heavy metals which effect air, soil and water quality of large regions. Emission reductions of these substances is targeted for 80-90% through sustainable forms of agriculture, forest recovery, and the preservation of critical terrestrial, marine, and freshwater ecosystems.
- *Global Level*: higher air and energy flows. The focus of this level is on climate change and ozone protection. C02 emissions must be reduced to the level of the capacity of the oceans and biosphere. Elimination of ozone-harming substances and reduction of deforestation world-wide. Objectives for the global level include: negligible risks to health of humans, plants and animal; a stand-still in the degradation of agricultural lands and natural resources; and control of substances which influence climate change.

The NEPP recognizes that to address sustainable development, underlying causes must also be addressed. The NEPP sees the growing population and increase in consumption patterns along with the diminishing resource base as major factors in the decreasing capacity of the environment to absorb stresses and adjust to changes. To speak to these concerns, the Dutch plan includes both basic environmental management principles and sustainable development characteristics.

Environmental Management Principles

- the standstill principle (environmental quality may not regress)
- the principle of prevention at the source rather than the effect side;
- the principle that "the polluter pays";
- the principle that the best applicable technology must be used;
- the principle that unnecessary pollution must be prevented;
- the principle of isolation, management and control of waste disposal;
- the principle of broader measures aimed at controlling the problems at the source based on standardized measurements and the principle of internalization.

Sustainable Development Characteristics

- keep exploitation of renewable resources within the limits allowed by their reproduction capacity;
- frugal energy consumption with, as much as possible, the use of sustainable and renewable energy sources
- the manufacturing of high quality products with innovative processes using waste prevention and processing;
- include concerns of citizens as consumers and employees;
- extend product life cycles insofar as this does not lead to waste problems, and close the reuse chain as much as possible;
- promotion of sustainable and clean technological development;
- the use of various instruments including financial incentives, regulations, and covenants; and
- cooperation of international, national, regional and local governments.

The NEPP believes that feedback mechanisms are needed, providing goal-oriented quality improvement at the source to prevent and reduce environmental damage and increase the efficiency of material and energy use. Feedback through risk management is recommended because it measures: the effects on health for humans, plant and animal populations; the effects in terms of monetary terms such as the loss of environmental function; the effects in terms of well-being and non-monetary terms including the decline in diversity and quality. The identification and understanding of all of these effects are necessary for sustainable

development. The NEPP cites three mechanisms to be incorporated throughout the plan. These include:

- integrated life cycle management aimed at closing substance cycles and keeping residual emissions and waste flows within acceptable limits.
- energy extensification aimed at reducing total energy consumption by increasing efficiency, utilizing renewable resources and decreasing energy needs;
- quality improvement in products, manufacturing processes, and waste flows to increase value added by reducing material use, extending life cycles, and utilizing reuse and recycling components.

DECISION-MAKING STRATEGIES

The long-term objectives of the NEPP depend on a viable economic base and adequate instruments. Cooperation of other countries, the extent to which private citizens are prepared to change their behavior, and the direction of technology developments will have a significant impact on the NEPP's sustainable development progress. Improved data collection on carrying capacity, health impacts, energy balances, and the relationship between economics and the environment will be critical for such transitions. The NEPP uses a combination of management tools, technical developments, energy conservation practices, target group involvement and multi-level cooperation as instruments for decision-making

Management Tools address enforceability, internal integration and cost-effectiveness through the elaboration of the polluter pays principle; financial incentives and producer's liabilities; product and public information; promotion of collaboration with target groups; and comparative environmental "yardsticks" to measure raw material and energy use, production emissions, toxicity and reuse potential;

Technology Development looks at ways to promote cleaner and more efficient technologies that improve quality and reduce energy input by using progressive standards for products and processes; new innovative research programs for environmental technology; and encouraging research institutions to include sustainable development as a main element in their strategies.

Energy Conservation is a critical factor to the NEPP's transition towards sustainable development. The plan recognizes that energy use impacts the quality of almost every resource base and recommends frugal use of non-renewable energy sources and rapid development and improvement of renewable sources, and extensive energy conservation.

Cooperation is defined by plans to be carried out in each ministry and policy field. The NEPP specifically addresses cooperation at a central government level, between different levels of government, with target groups, and internationally.

Policy Instruments include regulations and agreements ("legal" instruments including standards, permits, liability, and voluntary covenants); financial instruments (such as regulatory levies and levies with special or dedicated destination, subsidies and credits); and information and education on products, processes, and target group activities.

Specific attention is paid to the use of financial incentives to encourage people to act more sustainably. Financial rewards, subsidies, cash deposit systems (such as bottle deposits), and regulatory levies (fees) are among the most common incentives covered in the NEPP. The NEPP projected that the optimum levy was one placed as directly as possible on the polluter themselves. The recommended structure of these levies showed the majority of costs falling on the users or polluters.

- "Polluter Pays Principle" - individuals and sectors 75%
- General funding levies & budget funds 25%

THE ECONOMIC ANALYSIS

The plan was analyzed according to three scenarios. Economic impacts were calculated in terms of the GDP, real wages, consumption, employment, interest rates, budget deficit, balance of payment and collective tax burden. The analysis of the options also identified uncertainties of the economic calculations due to technology development, future wages and government financing, the business climate, energy and raw material prices, world trade and exchange rates, consumer behavior, and financing for environmental measures. In order to maintain widespread credibility, a very conservative approach was taken in terms of the uncertainties. For instance, energy prices were slightly decreased, technology innovation was fairly constant, and consumer behavior was relatively unchanged.

Scenario I: Based on a set of measures which corresponds with the continuation of present environmental policies.

Scenario II: Proposes a set of measures in which existing processes and products are made cleaner, using known technology. The basic principle is the maximum control of emissions.

Scenario III: Proposed a set of measures applying a mix of emission-oriented and structural source-oriented measures. The structural changes relate to both technology and consumer behavior.

Despite the very conservative approach, all three scenarios were considered acceptable in terms of their economic and social costs. As a percentage of GNP, the cost of each option was 2%, 3%, and 4% respectfully. However, when likely future events were considered, such as energy prices increases and technology enhancements, the cost of scenario III was

greatly reduced to be comparable to that of the other options. Likewise, when additional externalities associated with Scenario I's "business as usual" approaches were estimated (liability for soil and water pollution; falling production due to poor quality of water, air and soil; water purification costs; and increase in land values) there was little cost difference between each option, yet large differences in the benefits resulting from each. The NEPP believes that what might initially be a handicap will soon turn into a competitive advantage as national economies compete in global environmental and market systems.

Each option was reviewed by national and regional groups representing economic, social and environmental organizations from government and the private sectors. Almost every organization agreed with the choice of Scenario III as the direction for the NEPP and the economic effects, in both micro and macro terms, were fully acceptable. The support for Scenario III was summarized by a statement from a coalition of the five major cities: "waiting longer before choosing means, that in the future, extra efforts (and costs) will be required to attain a situation of sustainable development."

Scenario III: Dutch NEPP Strategies Towards Sustainable Development

- sweeping energy conservation in homes and business;
- expanding share of cogeneration;
- maximum use of renewable energy sources;
- reduce use of coal and oil;
- more efficient generation of electricity;
- sweeping changes from private car use to public transportation;
- expanding the share of rail and water transportation of goods;
- more efficient use of minerals in agriculture and reductions in the use of fertilizer;
- integrated crop protection measures and the reductions in the use of pesticides;
- reduction in waste flows and recovery of raw materials from waste;
- large-scale application of process integrated clean technologies and increased efficiencies of production processes;
- introduction of cleaner, more economical products, and increased quality of products by raising the added value per unit of raw material; and
- replacement of heavy metals, PVC, asbestos and other such raw materials with less damaging alternatives.

The Canadian Experience

Canada was extensively involved in the UN World Commission on Environment and Development (Brundtland Commission) during the mid 1980s. National studies in parallel with major representation across the varying boards of the UN Commission helped to update and popularize the use of long-term national conservation strategies prevalent throughout Europe in the early 1980s. Canada's comprehensive *Conservation Strategy* was adopted in 1987 in the report of the National Task Force (NTF) on the Environment and Economy. According to an analysis by Michael Howlett of British Columbia, two major changes occurred due to the NTF report. First each jurisdiction in Canada- federal, provincial, and territorial - was to develop its own Conservation Strategy. Secondly, private and public sectors were asked to work together to develop their Conservation Strategy through a new mechanism, the *Round Table.*

ROUND TABLES: THEIR SIMILARITIES AND DIFFERENCES:

Round tables were established as independent bodies, free from political constraints, to "foster and promote environmentally sound economic development" by removing barriers and improving existing processes. A round table approach allows all major stakeholders to have a voice in planning and policy processes, frequently using a consensus-based technique to minimize conflict often associated with divergent interests. As stated in the NTF Report:

> *"The desire for participation extends beyond specific projects. It includes an interest in the planning and policy making that affect the country's environmental and economic future. Many sectors of Canadian society, embodying different interests, want a meaningful role in these fundamental processes. We recommend a new process of consultation which will involve senior decision makers from these diverse groups... The process should be designed to work toward consensus and to exert influence on policy and decision makers at the highest level of government, industry, and non-government organizations. Of all our recommendations, we consider Round Tables to be among the most important. Their implementation and success are fundamental to the achievement of environmentally sound economic development."* (taken from Michael Howlett's article: "The Round Table Experience: Representation and Legitimacy in Canadian Environmental Policy-making")

There are 13 round tables in Canada, including the National Round Table. Each round table has flexibility in choosing their membership and determining the extent of their operating mandate. The compositions of the round tables vary from 11 members in Quebec, to 32 members in British Columbia, and may include representation from government, industry, environmental groups, labor & farmers, academics, native people, private consultants, and citizens at large (Table C-1). The structure of the round table was decided in many cases by the senior officials or responsible ministers that, for many round tables, resulted in a traditional representation primarily from government and industry (although several round tables, such as British Columbia, Saskatchewan, and Prince Edward Island achieved a better balance of representation).

Table C-1: Round Table Composition

Representation	Nat	NS	NB	PEI	QUE	ONT	MAN	SASK	BC	YUK	*Ave %*
Government	6	7	6	5	4	7	11	3	6	3	*28.8*
Industry	5	3	4	2	2	5	4	3	7	3	*19.1*
Environmental	3	3	2	2	4	3	0	2	8	2	*14.6*
Labor & Farmers	2	2	1	3	0	2	1	0	4	2	*8.5*
Natives	0	0	0	3	0	0	1	1	2	2	*4.5*
Academics	2	1	2	3	1	1	1	4	2	0	*8.5*
Priv. Consultants	4	4	0	3	0	1	1	2	1	0	*8.0*
Publ. Inst. & Citizens	3	0	1	2	0	2	2	2	2	2	*8.0*
TOTAL	25	20	16	23	11	21	21	17	32	14	

** Composition is a snapshot of Round Tables during their initial stages in 1990.*

The selection criteria and the scope of the mandate were critical differences between round tables. Two methods were used to determine the round tables' memberships: an open selection with public nominations, and a closed selection with no public involvement. With the exception of New Brunswick, those round tables most balanced in membership were also those that used an open selection criteria. Closed selections tended to have a smaller membership and were more heavily weighted with representation from government and industry, with the exception of Saskatchewan. The major division for mandates was between those whose primary responsibility was to recommend a conservation strategy for the environment and the economy, and those who were also responsible for its implementation. Some round tables, mostly those with open membership, were also given a mandate to improve the decision making process and develop techniques for dispute resolution and consensus building.

Table C-2: Structure and Mandates

		Initial Mandates				
Round Table	Membership Structure	Develop Conserv. Strategy	Formulate/ Implement Cons. Strat.	Improve Decision-making	Aid Dispute Resolution Processes	Public Education
National	Open	No	Impl.	Yes	Yes	Yes
Nova Scotia	Open	Yes	Both	Yes	Yes	Yes
New Brunswick	Open	Yes	Both	Yes	Yes	Yes
Prince Edward Island	Open	No	Impl.	No	No	Yes
Quebec	Closed	Yes	Form.	Yes	No	Yes
Ontario	Closed	Yes	Form.	No	No	Yes
Manitoba	Closed	Yes	Form	Yes	No	Yes
Saskatchewan	Closed	Yes	Form.	Yes	No	Yes
Alberta	Closed	Yes	Form	Yes	No	Yes
British Columbia	Open	Yes	Both	Yes	Yes	Yes
Yukon	Open	No	Impl.	Yes	No	Yes

The most common similarities between round tables are their call for broad-based public participation and the use of consensus decision-making, and the establishment of sustainable processes at a local level. Other similarities are found in the principles used as a framework for recommendations, calling for better efficiency, wise use of resources, concern for future generations and limiting activities based on carrying capacity.

Differences between round tables are distinct. Some round tables took a very conservative, economic approach to their recommendations, often contradicting their principles for sustainability. Others concentrated on process changes rather than specific regulatory recommendations as the best means of achieving results. While several round tables stopped at general recommendations and guidelines, others expanded their recommendations to include specific actions with targeted goals.

Round tables vary from province to province in size, structure and mandate. These differences affect the recommendations of the *Conservation Strategies*, the public acceptance of these recommendations, and the legitimacy of the round table as a viable institutional structure for policy. There was a greater likelihood of successfully legitimizing the policy process if the round tables were empowered to make changes. Closed round tables (or those with a heavy composition of government and industry) have felt resistance from unrepresented groups; posing problems for several of these round tables including questions as to their continuation under their present structure. However, open round tables have seemed to receive more public acceptance for their recommendations and have shown progress towards implementation.

BRITISH COLUMBIA

In evaluating the sustainable development strategies and processes used by Canada, the Province of British Columbia seems to provide some valuable lessons for the states. British Columbia's Round Table focuses on developing a process that can allow sustainable development to be implemented within various sectors and levels of British Columbia. The Round Table is the largest of the provincial-level forums and consists of broad-based representation: one that does not have Ministers or high level government officials and contains a wide variety of citizen, academic, environmental, labor, and native groups.

The BC Round Table was formed in early 1990 with an extensive mandate to develop a strategy for a sustainable British Columbia; to propose better ways of resolving conflicts over environmental and economic issues; and to increase the public's understanding of sustainable development. In the first two years of its existence, the Round Table published 20 papers, convened 8 workshops and held 26 public forums. It responded to the public's written and oral inputs from the forums and workshops to develop a framework consisting of a vision of sustainability; principles representing fundamental values respecting sustainability; and a set of criteria, tools, and decision making reforms for implementing the principles.

BC recently assessed the "state of sustainability" in British Columbia and developed a framework for strategies. Although as yet no methodology exists to address the integration of environment, social and economic indicators into a comprehensive assessment of sustainability, measures of the individual systems were made to begin to understand the challenges of developing comprehensive measures. The results showed that although British Columbia fared well in its standard of living, this level was reached by trends that are unsustainable and in need of reform.

British Columbia's Principles for Sustainability

- Limit our impact on the living world to stay within its carrying capacity;
- Preserve and protect the environment (life support systems, biodiversity and renewable resources);
- Hold to a minimum the depletion of non-renewable resources;
- Promote long-term economic development that increases the benefits from a given stock of resources without drawing down on the stocks of environmental assets (living off the interest of natural resources);
- Meet basic needs and aim for fair distribution of the benefits and the costs of resource use and environmental protection;
- Provide a system of decision-making and governance that is designed to address sustainability - one more proactive, participatory and long-term); and
- Promote values that support sustainability through information and education.

The Round Table looked 50 years into the future (two generations) to develop their vision of a sustainable British Columbia, considering both individual and collective decisions about the environment, the economy and social well-being. This vision included a new style of 'doing business' including:

- a new order of urban design that reduces the need for energy-intensive transportation, integrates green space, and enhances the sense of community.
- forestry and agricultural practices that protect soil, water and nutrient cycles.
- land-use planning that preserves prime agricultural and forest lands, protects wilderness areas and wildlife habitat, while providing capacity for development.
- a dynamic economy focused on qualitative -rather than quantitative - growth, and in which the full value of environmental assets and the impacts of human activities are considered.
- a harmony with First Nations people that respects aboriginal rights and self-determination.
- public participation in decision-making with local and individual empowerment.
- a social support structure that addresses hunger, sickness and the lack of opportunities for education.

- health measured in degrees of wellness and a standard of living measured by the quality of life rather than the level of consumption.

The BC Round Table proposes preliminary criteria and tools to balance values and agree on acceptable trade-offs. The criteria include: 1) understanding the scope of environmental, economic and social costs to avoid decisions that have widespread impacts and long-term costs; 2) identify potential decisions that would result in irreversible losses; and 3) recognize the urgency of on-going changes and set strategic priorities. The tools look at the determination of information needed to apply the principles to particular issues. They include:

- indicators to measure progress toward sustainability in the environment, economy and social well-being;
- limits of tolerance and sustainable use;
- inventories, projections, and observations to understand the impacts of decisions on natural, social and economic systems;
- identifying and dealing with unknowns and uncertainties;
- valuing full costs of a decision or action;
- setting interim targets of sustainability to measure against; and
- identifying the shares of costs and benefits from a decision or action.

Using these tools and criteria to implement the principles of sustainable development will require reforms in the current decision-making process in British Columbia. These reforms must promote fairness and equity by promoting a consensus-based regional decision-making process. Improved education and communications as well as improved data collection and management will be instrumental in building a more informed citizen base for participatory decision-making. Decision-making forums should incorporate strategic planning and management and expand the use of economic instruments and market mechanisms to ensure that sustainable plans meet both long and short-term goals.

The BC Round Table provided a wide spectrum of recommendations in its recent document *Towards a Strategy for Sustainability*. These recommendations ranged from institutional changes to regulatory policies and address provincial, regional and local levels of decision-making. The Strategy towards Sustainability addresses the framework and overall objectives of the recommendations. Specific actions associated with each recommendation are outlined in individual working papers that relate to each recommendation. These working papers include the sectors of *forestry, agriculture, water, fisheries, wildlife, mining, tourism, energy, parks and protected areas, biodiversity, communities, waste management, air quality,* and *land use*, as well as process and institutional reform including *consensus decision-making*.

British Columbia's Round Table General Recommendations:

"Principles of sustainability" be applied in decision-making by all levels of government and by the private sector (including business and industry and non-governmental organizations)

Participatory and consensus-based decision-making processes be included as an integral part of planning and management of the economic, environment and social systems in British Columbia.

The Government of British Columbia encourage the establishment of local round tables as a means of involving the public in achieving sustainability.

The Government of British Columbia review the balance of decision-making responsibilities among provincial, regional, and local bodies and seek to enhance local and regional decision-making mandates where appropriate.

The Government of British Columbia establish the Sustainable Development Foundation to coordinate research and analysis on sustainability issues.

The Government of British Columbia adopt the principles of full-cost accounting and user-pay in the assessment and approval of uses of land, water, air and resources.

That educators in both formal and informal settings make every effort to integrate economic and social issues with environmental education, in order to promote a better understanding of sustainability.

That integrated land and water planning be implemented as a major component of a comprehensive land and water strategy.

In response to issues raised by the public and identified through preliminary assessment, *the Round Table recommends that action be taken in the following area of environmental and natural resource management: Forestry Resources Inventory; Protected Areas; Air Quality Management in the Lower Fraser Valley; Global Warming Strategy; Water Exports; Groundwater Regulations; Pollution Control Objectives; and Monitoring and Enforcement.*

That a public process be established for determining priorities for action among the range of issues that pose a threat to environmental sustainability in British Columbia.

That the Government of British Columbia focus its attention on the development of a long-term strategy for a sustainable economy for the province that recognizes the need to integrate social and environmental values.

That the state of sustainability in British Columbia be regularly addressed. These should include social indicators, sustainability indicators, management status, and environmental and resource accounting.

SASKATCHEWAN

In March 1989 the Saskatchewan Round Table on Environment and Economy was formed. Although the membership selection was closed, there was a good balance of representation from the various stakeholders. For three years the Round Table and its subcommittees sought input from 800 people through advisory groups, youth and stakeholder conferences, public meeting and personal contacts. Their resulting Conservation Strategy (a plan for sustainability) and sector documents outline the province's strategy for a sustainable future. Saskatchewan is a rural-oriented region with over 50% of its jobs relating to agriculture, with energy, mining, and forestry as other significant contributors. This land-based economy emphasizes a different focus from other, more service and manufacturing oriented, regions.

Saskatchewan identifies the principles of sustainable development as the framework upon which all policies and activities should be based. These principles are applied to the recommendations within the various sectors contained in the Conservation Strategy. These principles are:

- *Environmental/Economic Reality*: The recognition that economic activities are limited by natural (physical, biological and chemical) characteristics and economic development will, therefore, rely on the protection and enhancement of these natural systems.
- *Environmental /Economic Integration*: The realization that the environment can no longer be treated as a free commodity and that integration of the environment and economy must be capture in planning and policies.
- *Adaptability*: Biological Diversity ensures flexibility and resilience in a healthy environment.
- *Renewability* - Living off the "interest" of our natural resources, not the capital.
- *Efficiency*: Giving a priority to prevention and conservation.
- *Stewardship*: the consideration for the needs of future generations
- *Sufficiency*: Emphasizing the 'quality of life' rather than the consumption of resources.
- *Accountability*: Promoting individual and community participation in decision-making and new education, communication and social initiatives.

The promotion of these principles are incorporated into the recommendations and actions of the Conservation Strategy. the objectives of this strategy is to: protect the primary resources (air, water, and soil); preserve biological diversity; use renewable resources sustainably; use non-renewable resources wisely; maximize energy efficiency; minimize waste; and ensure

social sustainability. Unlike the recommendations from New Brunswick and Prince Edward's Island, Saskatchewan promoted a more proactive approach utilizing public involvement and decentralized control in decision-making. Although the quality of the environment is relatively good in the province, they Round Table sought to "prevent complacency."

The Conservation Strategy was divided into sectors - each providing background to problems, results of public input and recommendations that included a more general strategy to be adopted as a framework and specific actions to meet the strategy's objectives. These sectors were:

- *Primary Resources*: air quality and atmospheric concerns; water quality, conservation, and allocation; soil maintenance and fertility
- *Biological Diversity:* genetic, species, and ecosystem level
- *Renewable Resources:* agriculture; forestry; flora & fauna; and tourism
- *Non-renewable Resources:* oil, gas, coal, minerals
- *Energy:* conservation; pricing; transportation; planning; and alternative sources
- *Waste Minimization:* hazardous and toxic; solid: industry by-products reprocessing
- *Sustainable Society:* open, accessible political process; incorporation of environmental concerns into economic planning; social and cultural diversity; and focus on 'quality of life' with less consumption.

Saskatchewan, like British Columbia, Manitoba, and Ontario, extended their strategies to include research and recommendations on tools and instruments for implementation. They recognized the need to identify barriers to these general, and sometimes grandiose, visions of sustainable development and develop tools to remove or minimize these constraints. These tools include planning strategies, information needs, business opportunities, and economic incentives.

Information management was identified as key to several tools: monitoring natural and man-made systems; enforcing compliance; and promoting environmental assessments that were fair, reliable and comprehensive. Research in the areas of soil degradation, water management, global warming effects on terrestrial systems, and competing land uses were required to make better policy decisions. Consensus building and education were considered throughout the recommendations as the most appropriate decision-making tool. Saskatchewan Round Table promoted extensive public participation as a way to achieve acceptance and ownership for sustainable policies. The inclusion of stakeholders help government agencies to develop and adopt plans that better included more public interests. The need for such participation could best be achieved through a wide-spread education program that formally and informally raised awareness for sustainable development.

Regulations and economic incentives were discussed as another means to alter behavior patterns. current regulations need to be reviewed as revised to reduce conflicts and ease integration of comprehensive plans. Stakeholder involvement in the development of new regulations was recommended as well as directing cost burdens to the polluter or consumer (polluter pays principle). Economic tools such as tradable permits, fees and levies for unsustainable activities and subsidies for sustainable ones were viewed as cost-effective ways to promote long-term objectives. International standards and environmental/natural resource accounting systems would establish mechanisms to assess development activities.

AN EXAMINATION OF CANADIAN PROGRESS TOWARDS SUSTAINABILITY

In February 1993, the Canadian Council of Ministers of the Environment (CCME) held an evaluative workshop to critically analyze the progress made over the past three to four years towards sustainable development and the effectiveness of consensus-based decision-making as a tool for sustainable policies. The three day event outlined the successes and the barriers experienced and made recommendations for future direction. The participants were a mix of government, industry, academics and environmentalists. Although agreement was reached on all issues, the majority of participants felt that progress had been made and that the harder institutional changes still lay ahead.

The consensus at the workshop indicated that the process of moving towards a more sustainable society could be broken into three phases:

1. The introduction phase where the stakeholders and the general public become aware of the concepts of sustainable development and begins to recognize and move towards more sustainable behavior. Most viewed this period as lasting about three yeats.
2. The transition phase where institutional and policy changes take place and implementation of recommendations from phase one begins. The period is dynamic and sometimes turbulent as people begin to internalize the trade-offs needed to implement sustainability. Participants saw this period being approximately 10 years in length.
3. The monitoring and updating phase where the majority of critical sustainable development concepts have been incorporated into institutional structures and the "learning curve and trade-offs" have been reconciled.

The results of the workshop indicated that significant advancements had been made in the introduction phase. The second phase has begun to show results as well. Industries have begun to adopt corporate goals that internalized sustainable principles, such as the use of full-cost accounting, pollution prevention, process and product changes, and energy conservation measures. Consumers have begun to change their behavior and were demanding "greener" products and applying more sustainable practices. Disputes over development alternatives like logging practices and facilities siting were using more consensus-based and alternative dispute resolution processes to reach more widely accepted agreements. Limited progress

had been made in government, mostly in the ministries with environmental and natural resource responsibilities, where ownership of sustainability for the public sector seemed to lie.

The most common barriers described during the CCME workshop was the lack of cooperation within government institutions - both between jurisdictions and within jurisdictions. Sustainable development was being championed by the Ministers of the Environment, and while they had worked well with stakeholders outside government, their abilities to involve other agencies has been severely constrained. Economic Development Agencies and the Treasury Boards have taken an almost negative attitude towards sustainable development and their lack of participation at the workshop was viewed as typical of the relationships. Agency structures were also inhibiting progress towards sustainability since their organization promoted internal competition. This prohibited efficient coordination of overlapping policies and effective cooperation between local and provincial level governments.

Main recommendations

- Greater cooperation between government agencies and the coordination of policies in a more comprehensive framework.
- Greater involvement of stakeholders in the initial phases of policy assessment and planning. Although the provincial governments consulted stakeholder groups it was often after initial assessments were completed and the directions had been narrowed to several alternatives.
- More flexible financial mechanisms within government for use as incentives and revenues. Today, there are very few "dedicated" fees or levies, most sources of "green" revenues go into a central fund. Changing this structure towards a 'user pays' system was thought to be a critical tool for sustainable projects.
- Since the Ministers of Environment champion sustainable development in the Canadian government, it is viewed by other agencies as an 'environmental' concept. It was recommended that this mold be broken and that multi-agency ownership be developed to promote the linkage of environmental, economic and social policies.

In comparing the capabilities of the Canadian political and economical structure with that of the United States, it seems that the US has many of the mechanisms needed in place for phase II in place - dedicated fees, public participation in government, etc.- however, we have yet to grasp the general concepts of sustainability as outlined in phase I. Conceptually, Canada is indeed further down the road in terms of gaining an acceptance for sustainability and developing the framework for implementation. They are however, behind in their structural capacity to implement their recommendations, requiring more dramatic changes in institutional structures than will be needed in the United States. If we take the time to study their well-developed process for sustainable development, we should realize their benefits in a more timely manner.

A Brief Look at Other Nations

United Kingdom

In 1987 Margaret Thatcher appeared to have undergone a transformation from "Iron Lady to Green Goddess" (Starke 1990). Not only did she host the WCED's launching of Our Common Future, she also chartered an official response to the report. The United Kingdom was one of the first countries to offer an official position on sustainable development. In July 1988, it published *Our Common Future: A Perspective by the United Kingdom.* In September 1989 the Thatcher government released *Sustaining Our Common Future: A Progress Report by the United Kingdom on Implementing Sustainable Development.* And in December of the same year, Britain introduced an Environmental Protection Bill that took an integrated approach to air, water and land pollution as well as waste disposal.

The U.K.'s 1988 response stated that sustainable development is a "tried and tested" concept to meet modern conditions to manage and reconcile two vital elements that have been regarded as incompatible - economic growth and the conservation of natural resources. Institutional framework is an important factor if environmental considerations are taken into account in policies of government and decision-makers.

Overall, the United Kingdom took a conservative stand in response to Our Common Future. Those areas that were easier to control or had little or no effect on competitiveness were readily accepted. However, recommendations for "fair access," especially for developing nations were taken with much caution and quite often with exceptions. They were willing to address efficiency but not consumption, and limited financial incentives to areas that did not impact major economic industries. The Thatcher government seems to view sustainable development not as a value or principle, but as a way to address specific problems when there is a conflict between the environment and economic growth

Highlights from *Our Common Future: A Perspective by the United Kingdom*, July, 1988

General Comments about WCED's Report and Sustainable Development

Sustainable Development was divided into 4 broad categories:
- toxic waste, nuclear safety, and agriculture over-production
- "the commons" - oceans, air, and ozone;
- relations with other countries: trade, lending, etc.;
- enhanced multilateral institutions to promote sustainable development.

Linkages required for successful implementation:
- *sectorially*: between environment, energy, agriculture, transportation, etc.
- *spatially*: between countries

- *temporally*: between generations

Areas of Full Support with WCED

- Supports the need for growth and agrees with WCED's repudiation of zero growth theory.
- Supports the major findings and recommendations of the WCED as they relate to the protection of the ozone, oceans, and climate change, including the elimination of CFCs.
- Supports the need for better technology and processes to minimize waste, toxic emissions, and the use of energy.
- Fully supports the protection of marine environments and the continuation and enhancement of international treaties.
- Supports international family planning, child and maternal health programs, and improved status of women in developing countries.
- Supports the use of market mechanisms and financial incentives to regulate behavior.
- Welcomes the removal of energy subsidies and the increase use of market mechanisms to control energy use.
- Agriculture should not promote overproduction to raise temporary surpluses supported by guarantees.
- Supports increased research and mapping of sensitive areas and terrestrial effects of acid deposition and other pollution.

Areas of Concern or Disagreement with WCED

- Although there is agreement that environmental problems and regional economic issues are linked to the international economy, trade and debt, the UK. did not agree with the WCED findings that industrialized countries' policies often impede the economic conditions of developing nations.
- Does not agree that pricing should be set to reflect fair access, rather it should left to the producing countries to determine prices.
- Supports resources and assistance for developing countries, yet sees a need for higher quality in policy and institutional reform.
- Does not support the extent of technology transfer recommended by WCED and thinks the host country should maintain most rights.
- Protection of biodiversity and habitat should be limited to "important ecosystems and wildlife."
- Believes that renewable energy sources will not be a key source for the next century and has a long way to go. Rather, the UK still sees heavy reliance on fossil fuels and looks mainly at hydropower as the renewable option.
- Agrees with the reduction of hazardous and toxic wastes, yet has reservations about WCED's recommendation for tighter control and bans on transfrontier shipments, especially to developing countries. The UK believes that developing countries should decide if they will receive shipments of wastes given they have "adequate information."
- Supports polluter pays principle, except where there is a high burden on the industry.
- Does not agree with the WCED that an Universal Declaration and Convention on Environmental Protection and Sustainable Development is needed. Believes nations should develop their own policies and focus on their own problems.

NORWAY

In 1988, Norway published *Environment and Development: Norwegian Policy Regarding Global Sustainable Development* as an initial response to WCED. Norway enhanced its cooperative reputation by coordinating policies of multiple ministries and incorporating the cross-cutting nature of sustainable development issues into this first report. In April 1989, a more complete report was presenting to the Parliament as a White Paper. This paper, *Environment and Development: Norway's Follow-up of the Report of the World Commission on Environment and Development* contained many specific goals. Much like the Dutch NEPP, although not as complete, the document recommended national and international policy initiatives for a sustainable Norway.

Highlights of Norway's Sustainable Development Policies:

- A commitment to work towards the establishment of an international climate fund within the UN.
- A stabilization of carbon dioxide emissions by the year 2000, and significant reductions in NOx emissions and CFCs. (although Norway contribute only a very small percent of C02, this was the first government commitment to slow global warming, with the hopes that it would provide an impetuous for other countries.
- A leveling off of total energy consumption, in part through pricing and taxation polices to reflect the environmental costs and to move towards less polluting forms of energy.
- A progressive reduction in CFC emissions with an eventual ban on manufacturing or importing of products containing CFCs after 1995
- Reducing sulphur dioxide emission by 50% of their 1980 levels, and NOx emissions by 30% of their 1986 levels.
- A 50% reduction in nutrient salts to vulnerable marine areas in accord with 1987 agreement of the North Sea states, and an even further reduction of toxic discharges by about 70%.
- A reduction in pollution from hazardous waste by the year 2000 so they pose no danger to human health or the environment. The establishment of a central treatment plant and 200 delivery sites for hazardous waste. A ban on exporting hazardous waste to developing countries.
- A call for more inclusion of environmental issues in the work of the World Bank.
- A proposal to establish within the UN an "ecological security council" as an example of increased international cooperation on global environmental issues.
- A status report to be delivered to the Storting (Parliament) in 1990 on Norway's progress on the WCED's recommendations.

AUSTRALIA

Prime Minister Bob Hawke announced Australia's *Our Country, Our Future* in July 1989. It was Australia's most significant statement on the environment, and establishes the Commission for the Future which tries to raise awareness of long-term issues in Australia. The Commission's action guide for the Earth was widely distributed and reached over two million Australians over the radio.

The government fully acknowledged its need for sustainable development in a speech Prime Minister Hawke gave upon release of *Our Country, Our Future*. He readily admitted the degradation of nearly two-thirds of Australian land, a reduction of forest cover of over one half since European settlement, and the worst record for mammal extinction. The trend, he says, can no longer continue, and Australia must play an active role at a national and international level.

Specific steps outlined in *Our Country, Our Future*:

- The Ozone Protection Act of 1989 which bans polystyrene packaging, insulation material and all aerosols containing CFCs after 1989; with the phase out of halon use by 1994.
- The establishment of an Environmental Resources Information Network to collect and supplement information on endangered species, vegetation types and heritage sites.
- The establishment of a Resource Assessment Commission as an independent body to deal with complex and contentious resource issues. It will assess forests and timber resources followed by coastal-zone resources.
- The adoption of new guidelines to improve integration of environmental protection and resource management into Australia's development assistance program.
- A National Soil Conservation Strategy and a Ministerial Task Force on Soil Conservation with members from both public and private sectors.
- A declaration of 1990 as the Year of Landcare - with more than Aus$320 million in government funds for soil conservation, tree planting, and vegetation conservation programs.
- A pledge to have one billion trees planted by 2000 involving school, communities, and corporations.
- The appointment of the country's first Ambassador for the Environment, to advise the government and represent it in international negotiations on climate change, overfishing, biological diversity, forestry management and Antarctica.

Sweden issued a response to *Our Common Future*, then enacted a comprehensive "Environmental Policy for the 1990's" in 1988. An Environmental Advisory Council within the Prime Minister's office is comprised of scientists and outside environmental groups as well as representatives from government.

A Finnish Commission on Environment and Development reported to their government in 1989 on a full range of sustainable development issues.

Denmark published an action for environment and development plan in December of 1988. This plan included recommendations on a general education campaign on many of the issues raised in the WCED report. In mid 1989 the Danish Campaign for Our Common Future was launched. Two themes, 'Our Common Air' and 'Our Common Consumption' were highlighted in 1990 with a total of $3.25 million appropriated to support local and national activities (a large sum of money considering the total economy). The campaign forges new partnerships among diverse groups and facilitates dialogue on needed changes. Nine local offices will assist in these efforts.

In Japan, the Ministry of the Environment published a *White Paper on the Environment in Japan, 1988*. The importance of educating consumers was noted. To oversee government programs, a Cabinet-level Conference of Ministers for Global Environmental Conservation was set up in May 1989. The direction of Japan was noted in the White Paper: "It is necessary to conduct environmental education putting the Earth at the center and to explain in plain language the relationship of human beings with the global environment and the necessity of sustainable development."

New Zealand enacted its Resource Management Act in 1991 to promote "sustainable management" of natural and man-made resources. Defining sustainable management in the same terms as WCED defines sustainable development, the plan focuses on national and regional development that "sustains the potential of natural and physical resources; safeguards life-supporting capacity of air, water, soil, and ecosystems; and avoids, remedies or mitigates any adverse effects of activities on the environment." The Act establishes a strategic planning framework for policies and plans to promote sustainable management by setting clear roles for government, industry and the wider community.

Other countries with comprehensive environmental bills and responses to the WCED report include France, Germany, and many developing countries including Brazil, the Kingdom of Lesotho, and Thailand.

Sustainability Efforts in the United States

There is an increasing realization today that our economy is one of world-wide interdependence, and that our environment has become global and interconnected. Moreover, state policymakers are faced with the ever-increasing problem of providing a healthy environment while ensuring a viable economy to all of their citizens. The reduction of federal support over the past several decades has made this situation even more challenging for state leaders. While the reduction in aid has increased the states' responsibilities, it has also provided an impetus for states to develop innovative policies that meet future requirements. A recent trend has developed for policies that seek to secure the economic and environmental future of a region by linking these issues into a comprehensive framework.

Now engaged in a balancing act that is greater than ever before, states are trying to link the economy and social services with the environment. Some states have taken this new-found responsibility and formulated innovative policies. Whether out of a defense for economic and environmental preservation, or out of a futuristic vision of long-term benefits, several states have introduced and passed laws that consider the environment as a critical link to economic and social health.

Sustainable development holds great potential at a state level. Its benefits seem to reflect the unique role that states have in the American political system. Consistent with their increase in responsibility, the states must now learn to balance more issues with fewer resources - a goal common to sustainable development. Using sustainable criteria as a framework for policies and decision-making, states can better balance short and long-term goals of a healthy environment and a viable economy, and involve multiple stakeholders in the decision-making process to ensure equitable distribution of costs and benefits.

KENTUCKY

Following the Rio Earth Summit in June 1992, Kentucky began to look at what the outcomes (particularly Agenda 21) of the summit meant to Kentucky and the local regions within its boundaries. Lead by Governor Brereton Jones and Dr. Lilialyce Akers, Kentucky soon realized that they were not alone in their search for answers to the many questions raised in Rio; other states were also grasping with to make the connection. Originally planned as a state or regional conference, this effort has evolved into a broad-based conference with a national scope. Now Kentucky will host *From Rio to the Capitols: State Strategies for Sustainable Development* in May 1993.

It became clear, as Kentucky pulled together a national steering committee, that the United States needed a better understanding of its role in promoting sustainable development and

MINNESOTA

In 1993, Minnesota launched what may be the most ambitious sustainable development plan in the U.S. with the formation of the Minnesota Sustainable Development Initiative. Funded by the State Government and under the direction of the state's Environmental Quality Board (EQB), the Initiative seeks to change the fundamental nature of economic development and environmental protection in the state by developing new policies that better integrate the two. The structure for the Initiative consists of seven teams: agriculture, energy, forestry, manufacturing, minerals, recreation, and settlement. Each team is lead by two co-chairs - an environmental and an economic representative - to create a balanced perspective. Guidelines and ground rules have been established to govern each team's work and relevant state agencies have provided teams with needed background material.

Three plenary sessions will be held for teams to meet in the first year (June, October, November) to discuss overlapping issues. An integrated set of recommendations will be drafted by November. The EQB is planning a major conference for February 1994, titled *The Minnesota Congress on Sustainable Development.* The adoption of a Minnesota Strategic Plan for the Environment and a revision of the Economic Blueprint for Minnesota will follow.

MISSOURI

Partnership for Economic Growth and Environment (PEGE) project. PEGE is an annual gathering of all concerned parties in an innovative and informal format. The cooperative structure of the meetings, and the constructive dialogues allow the participants to form broad agreements. Then policy recommendations are shaped and specific legislative proposals are developed for participants to work on during the next legislative session.

PEGE has resulted in specific achievements, including new policies on solid waste and atmospheric protection. In 1991, the participants shaped new legislative recommendations on climate change and ozone depletion. The biggest success has come from the ability of the diverse participants to set aside conventional points-of-view and reach agreement on several issues each year. The PEGE program is continually expanding and promoting its consensus-building dialogues. The long term goal is to foster the PEGE process throughout Missouri to achieve sustainable public policies.

NEW MEXICO

In September 1992, New Mexico's Department of Environment and the Governor's Office sponsored the conference *Toward a Sustainable Environment.* The three day conference convened over 900 people from government, business, environmental groups, policy and law

institutes, and public health organizations to explore the concepts and develop recommendations for sustainable development in New Mexico. New Mexico's reliance on natural resources for extraction and tourism is a significant part of their economy and, therefore, a long-term anticipatory framework to integrate economic viability with resource conservation was viewed as an important focus for the Governor and his new Department of Environment.

The conference first built a general knowledge of sustainability through keynote speakers and a plenary panel discussion, then six sector workshops sessions were conducted for over 10 areas including water, air, energy, economics, tribal programs, border issues, mining and waste. At the end of these sessions, policy forums developed recommendations for the legislature. These recommendations have been submitted to the 1993 legislature, currently in session.

The *Report to the 41st Legislature* is a summary of policy recommendation from the September conference. These recommendations cover: 1) planning for a sustainable society; 2) environmental economics; 3) land use and natural resources; and 4) Federal, State and Tribal programs.

Planning for a Sustainable Society:

- Education recommendations aimed at modifying behavior and attitudes needed for sustainability including education in natural and social sciences.
- The development of community-based decision-making and municipal planning that utilized sustainable principles with the role of the state to provide resources to help implement plans.
- The development of infrastructure plans that promote more sustainable water management and transportation systems.

Land Use and Natural Resources:

- Management of water resources by watershed, not just water quality;
- Reassess the role of fish and wildlife to include non-game species;
- Discontinue low-cost timber sales by assigning economic values to environmental issues in timber cutting.
- Encourage individuals and agencies to retain the services of a qualified ecological designer, site planner or landscape architect to assure a site's environmental appropriateness.

Environmental Economics:

- Invest in research of process technology and training for recycling.
- Develop tax incentives for environmentally conscious products and construction;
- Create and enforce a pollution tax on companies, products, and possibly automobiles that add to the pollution of the environment.
- Teach communities land use planning that encourages more sustainable development.

- Implement early citizen participation in planning and policy decision-making stages. Local communities should be informed of all environmental efforts including long-term risks.
- Respect Tribal jurisdictions
- The State should provide practical technical assistance to help communities comply with regulations.

NEW YORK:

Recently Columbia University developed a Sustainable Development Initiative for the state of New York and the Tri-State Area. Sponsored by the Columbia Business School, Law School, and School of Public Health, The State University of New York and Sigma Xi, this initiative consists of two elements: a Global and Regional Environmental Research Center and The Round Table on the Environment and Economy. The Research Center will "conduct and coordinate multidisciplinary research and formulate policy studies on the integration of environmental, energy, natural resources and global competitiveness considerations into economic policies." The Round Table will build consensus among various sectors of society for the development of effective and efficient long-term economic and environmental programs that promote the goals of sustainable development. The Columbia University initiative seeks to achieve seven goals:

1. To foster innovation of market-based incentives;
2. To spur research in the developing disciplines of ecological economics to take into account both the positive and negative elements of development;
3. To advance environmentally sustainable technology and renewable energy sources to promote U.S. competitiveness;
4. To integrate environmental, energy, and natural resource considerations into economic policy;
5. To understand and anticipate the effect of global degradation and environmental deterioration on human health;
6. To understand sustainable uses of energy, soil, water, minerals, and other resources; and,
7. To understand the political and social ramifications of the sustainable development debate.

The Round Table on the Environment and Economy, modeled after the Canadian National and Provincial Round Tables, will cover New York State and the Tri-State area. It will provide a nonpartisan forum to help build a regional consensus on sustainable development goals and priorities and the practical strategies to attain them. It will also advise governments on sustainable policies and promote the advancement of sustainable technology to help business competitiveness. The Round Table will hold its first meeting on March 26, 1993.

NORTH CAROLINA

In 1991, the University of North Carolina's Environmental Resource Program (ERP) in the school of Public Health initiated a Sustainable North Carolina Project. In 1993, the ERP received funding and launched a five year initiative to develop a vision for sustainable development in North Carolina with a "bottom up-top down" effort of regional and state-level activities. The ERP established a twenty-five person advisory committee to help establish the initial structure and vision of the program. The advisory committee, similar to a Round Table, contains state and local leaders from government, business, academia and environmental and civic organizations.

The goal of this project is recommend actions and policies for government, business and non-profit sectors. It also includes a crucial framework for education to ensure that the concepts of sustainable development are applied at all levels in our society. Using the definition of sustainable development from *Our Common Future*, the North Carolina Initiative views sustainability in their state as: "the linkage of economics, the environment and social equity in policies that meet the needs of the present generation without compromising the ability of future generations to meet their own needs." It recognizes that the natural systems of our environment are critical to our economic base and quality of life. The project goals include:

- 8-12 regional meetings to develop a consensus on sustainable development principles appropriate for North Carolina;
- Initiation of a communications program to include a newsletter, educational materials, surveys and interviews; presentations at major state-wide meetings; and individual meetings with state leaders.
- A state-wide "Common Ground Conference" during which statewide leaders of economic, environmental and social policy constituents will meet to develop ideas for public and private policies.
- Work with the General Assembly, private and non-profit organizations on policy changes;
- Develop resource and educational materials, including a teacher training program;
- Establish a permanent oversight body to guide and monitor progress towards sustainability in North Carolina and extend outreach to include the Southeast region.

Regional meetings and the communications campaign have already begun. The response and support by state and local leaders has been positive, sensing the need for better cooperation between institutions and the setting of a common long-term vision. Like efforts in New York, the university system seems to be viewed as a neutral player that can convene multiple stakeholders and provide relevant information for sustainable development.

WASHINGTON

In 1988, the state of Washington launched its Environment 2010 project to develop a clear and comprehensive environmental strategy that would systematically identify and assess environmental and natural resource management issues, anticipate emerging ones, and set priorities among them. The 2010 project aimed to coordinate the many autonomous agencies and jurisdictions and provide mechanisms for anticipating and resolving conflicts for all vested interests - especially citizens. A steering committee of thirteen agency directors and representatives from two federal agencies directed a four-step approach:

Analysis: This stage included an evaluation of the current condition of the state's environmental resources; the trends affecting them; a comparative risk on human, ecological and economic health; an assessment of the potential to manage the risks and threats; and a preliminary list of priorities.

Vision: The crafting of a common vision for the state's future would serve as a starting point for a broader discussion on comprehensive goals. The Vision of Washington in 2010 states that citizens will be aware of the environment's importance, that a state-of-the-art system for collecting and disseminating data will be in place; that the connection between the environment and the economy will heighten responsibility and stewardship; and that these goals will be accomplished through cooperation and creative leadership.

Outreach: A series of public meeting were held to educate citizens and promote their responsibilities as individuals, and to develop a set of values and priorities based on the preliminary analysis. A group of citizens - educators, business people, farmers, legislators, environmental advocates, and others - categorized 23 environmental threats based on their ecological, human, and economic risks and the potential to manage the trends associated with each issue. The 23 issues were then classified into five priority levels. Each priority level would be managed as a group since there was no rankings within levels.

Action: An Environmental Action Agenda was developed following the initial three phases. The Agenda is a comprehensive long-range plan that focuses on twelve challenges representing the major discrepancies between the vision for the state and where the environment is and appears to be heading. These twelve challenges are:

- Raising environmental awareness and responsibility;
- Curbing consumption;
- Fostering consensus and cooperation;
- Improving air quality;
- Improving water quality;
- Protecting the land;
- Preserving wetlands;
- Protecting fish and wildlife;

- Improving waste management;
- Confronting problems with pesticides;
- Facing the specter of global warming; and
- Building knowledge about the environment.

Seventy-five recommendations for government, business, and communities were developed for each challenge through a combination of public input from citizens attending the Environment 2010 Summit in November of 1989 and public meetings around the state, and refinement by the Action Strategy Analysis Committee (a forum of policy analysts and program managers from a wide variety of state and federal agencies). The Agenda has received commitment from twenty-one state and federal agencies, some of which are beginning to incorporate the results of 2010 into their planning and budget processes. Although the plan is comprehensive, it will focus its implementation by priority levels.

SUSTAINABLE COMMUNITIES

It is in the community context that the connection between the economy, the environment, and social well-being is most apparent. Changes in the job base, natural resource supply, or social services have the greatest impact at the local level. For this reason, sustainable development is often most active at the grassroots level. Sustainable communities are based on economic development occurring within the limits of the environment's carrying capacity and with fair distribution of costs and benefits to its citizens. It seeks a balance between community growth, jobs, supply of resources, and consumption patterns to assure a good quality of life for future generations as well as the current one.

When sustainable communities are discussed, they are often in terms of a groups of municipalities in the same geographical area, or a group of people, that share a sense of place and experience similar problems. When the principles of sustainable development are applied to communities reoccurring themes emerge:

- growth management (also includes communities with declining populations);
- quality of life;
- equity;
- public involvement and interest;
- integration and coordination; and
- financing or "covering the costs."

Land use plays an important part in balancing environmental needs with economic development. Curbing urban sprawl through sustainable planning will include transportation planning that minimizes the use of personal vehicles and maximizes public transit; creating urban villages where housing, shopping and clean businesses are mixed to reduce the need to commute; and green spaces and other livable features that are incorporated in development. Sustainable infrastructure promotes the reduction of waste generation and conservation of water and energy in order to maximize the cost-effectiveness of disposal and treatment facilities.

Sustainable communities also require a viable economy that should be based on a broad and long-term vision that forges new partnerships and ensures that education and training is available to improve the community's resilience to economic fluctuations. These partnerships can be public-private partnerships, or as many communities are finding, the coordination of neighboring towns to optimize and most efficiently provide public services.

Building this vision will require an evaluation of current operations against sustainable criteria to identify areas that do not meet the long-term goal of the community. To accomplish this, the entire community (from big business to households) must be considered as active

contributors to the economic base. Assessment of human and natural capital, along with economic and employment structures are needed for proactive plans that identify the strengths and weaknesses of a community. Then economic restructuring strategies can be developed that will improve the effectiveness and future flexibility of a community's economy.

LOCAL GOVERNANCE

Today's local governments are experiencing a lack of accountability and trust and the inability to effectively coordinate programs. These leads to limited options and a sense of dependence on central government bodies instead of self-reliance. Communities that are successfully implementing long-term sustainable planning are doing so by expanding the exercise beyond the city/county planners and managers to include participation from the business, civic, and environmental communities. Identifying an effective and sustainable economic plan will mean:

- examining and redefining state and local relations and responsibilities;
- balancing a region's self-reliance goals with accountability to broader state and federal interests; and
- coordinating programs within governance sectors and integrating them with environmental, economic and social needs.

Incorporating sustainability into local governance should be mutually acceptable to all levels of government and be determined by a community's willingness and capacity (range of resources available) to take on the responsibilities as well as the benefits. Decentralized authority for sustainability will only work if the local plans are part of a larger common framework. Otherwise, the potential for competing interests between communities will arise and what may benefit one region may have a negative impact on another. Conversely, a central framework should not be so restrictive that it inhibits flexibility and innovation required to meet local concerns. This balance can be achieved through systematic planning that identifies social, environmental and economic goals common to community and state levels.

Multi-stakeholder committees are often used to develop the visions and plans necessary for incorporating long-term sustainable criteria. The involvement of community members in decision-making and the coordination of activities among government, business, sectoral interests and individuals are resulting in more effective use of local resources. Many committees make decisions based on consensus, thus allowing all voices to be heard and all opinions to be considered. Public meetings are often used to gain additional public input and support.

SUSTAINABLE ECONOMIC DEVELOPMENT

Traditional community development usually focuses on economic growth as its goal. Today we recognize that economic and community development is more than just the numbers of jobs. It has been demonstrated that a sound human and natural resource base is the key to future security. This means that social programs like job training and accessible health care, and environmental quality are not at conflict with development but in fact are needed to ensure a diverse and resilient economic base. Within this context, approaches to development would include:

- promoting economic systems that focus on quality and stability, and that are dynamic and flexible, rather than systems that emphasize linear growth;
- acknowledging our economic system as one of several interacting systems that affects and is affected by social, environmental and governance systems;
- redefining patterns and types of growth according to each resource limitation or opportunity;
- minimizing environmental impacts and use of non-renewable resources, and promoting efficient long-term use of renewable resources;
- addressing human needs and distribution of costs and benefits fairly and directly; and
- increasing responsibility for economic decisions that affect the common good.

(taken from British Columbia's *Strategic Directions for Community Sustainability*)

Financing community sustainability requires analyzing the costs of 'business as usual' and its resulting economic, environmental, and social costs to the costs of a sustainable path. Often the external costs of conventional economic activities (environmental clean-up and health impacts) are deferred to a later time and paid for by a broad base of taxpayers, not just the producer or consumer. While this keeps product prices artificially low in the short-term, it usually ends up costing more in terms of long-range taxes and public services. The choice for many communities is user pay now or the public pay later (usually in the form of higher taxes).

Using instruments like the polluter pays principle encourages reduction in the consumption of a product or use of a service, while reducing the load on many costly government-provided services (solid waste disposal, water treatment, etc.). In cities where trash collection is based on a per can fee, the amount of solid waste has been reduced and the percent of waste recycled has increased. Among tools for achieving community sustainability are:

- Indicators: measures that respond to the change in the environment, economy, or social systems and interim targets or milestones to monitor progress.

- Limits of tolerance or sustainable standards that reflect the limitation of the resource base;
- Impact assessments, inventories, and projections of effects of decisions on natural, economic and social systems;
- Adaptive management: identifying and dealing with unknowns and uncertainties;
- Full cost accounting and cost/benefit identification of who benefits and who bears the costs;

SUSTAINABLE SOCIAL SYSTEMS

Trends in communities have a significant impact on a region's demands and values. A growing population base with a higher percentage of aging population, changes in household and family structures, and a move to more multi-cultural communities are changing the demand for resources and services. These trends should be analyzed for current and future changes.

Sustainable social systems have a strong sense of "community" and shared vision. These communities strive to achieve self-reliance and the means of determining their own future in a way that is compatible with regional, national and global interests. Physical and mental needs are met and a comfortable standard of living is shared through affordable housing, preventative medical services, provision of basic income opportunities (including re-training and personal improvements), reliable child and youth care programs, and services that assist the elderly and disabled to lead independent lives.

Education is an important part of sustainability. Not only do we need to inform the public about the benefits and costs of sustainable development, but we need to ensure that education programs provide the knowledge base, technical skills and decision-making capabilities to support a sustainable society. Principles of sustainable development should be incorporated into all levels of public education and in all subjects, not just science or ecology. Business schools and engineering curriculum should include environmental and social considerations. Economics should expand to teach not only conventional models, but alternatives that are being used around the world.

To achieve a sustainable society, communities must advance social equity for individuals and families that eliminate racial and gender gaps. These include equities in income, access to health care, housing, and public services, and respect for cultural differences. Recognizing the importance of informal economies, integrating social planning into urban development, and promoting cooperation and partnerships within the community will help to promote a more equitable social system.

A sustainable community strives to maximize local production for local consumption. Patronage of local business is a commonly held attitude. The formal economy is augmented

by a flourishing informal economy. The majority of funds generated from a broadening tax base is retained within the community to provide community services based on priorities determined by the community. The community takes greater responsibility for the stewardship of natural resources- timber, mineral, and agricultural lands by assuring conservation and minimum environmental impact.

There are numerous sustainable development initiatives at the local level throughout the US. Urban areas tend to focus on growth management and land use issues, including transportation, mixed zoning and waste, while rural areas concentrate on economic diversity, and sustainable resource use. Most community efforts focus around one or two sectors (air quality, transportation, energy, water, waste management, natural resource management, or economic development. *Towards Sustainable Communities*, a book written by the Canadian National Round Table on Environment and Economy provides excellent examples of community activities by sector as well as suggestions for leadership and administration (see references for details).

WILLAPA BAY, WASHINGTON

The Willapa Project encompasses the 680,000 acre watershed of Willapa Bay in southwest Washington (about the size of Rhode Island). The area is considered one of the most productive ecosystems in the continental US and provides the 19,000 local residents with a livelihood derived from fishing, farming, oystering, forestry, and tourism. The Willapa project is aimed at being a practical example of how a community can maintain a high standard of ecological integrity and a viable economic base.

Economic pressures are encouraging heavy use of natural resources resulting in serious ecosystem stresses including significant reduction in certain species of fish and oysters, and imbalances of flora that is choking out beneficial and productive species. Local citizens formed the Willapa Alliance due to their concern about the future vitality of their economy and environment. The Alliance received assistance from Ecotrust and the Nature Conservancy to "engage in a comprehensive long range effort to gain understanding of the local ecosystem through research and education and to use this understanding to maintain and restore its vitality." An important part of their strategy is sustainable development - for the Willapa area it means development that encourages economic activity which supports conservation goals.

To encourage local business that is sustainable, the Willapa Business Development Program was established by Ecotrust and Shorebank Corporation to assist business who conserves and restores the environment in addition to creating economic opportunities for local residents and real improvements in the quality of life. The Program assists in both bank and "non-bank" development finance, management and technical assistance and market development. The ultimate goal is to establish a permanent institution that supports

sustainable development in Willapa Bay and which serves as an example for other communities.

The Business Development Program has three elements: 1) a revolving loan fund for start-ups and newly expanding firms that provides micro enterprise credit for in-home business, short-term working capital for upfront costs, and market credits for product development and market testing; 2) Commercial bank financing through Shorebank Corporation's South Shore Bank affiliate that are based on establishing relationships with local banks; and 3) Management Assistance and Market Development to assist start-up firms obtain the needed technical assistance for market access and sound business management. An exploratory phase from August 1992 to February 1993 will help the Program learn about the local community and its economy, identify promising businesses and begin making loans. This phase will also help in the design of technical assistance programs.

The Program attempts to overcome the failures of most current development that is often inequitable to the community or degrades the resource base. It will use five principles to select businesses:

- Respect and care for the community of life;
- Improve the quality of human life;
- Conserve environmental integrity and diversity;
- Minimize the depletion of non-renewable resources; and
- Keep within the ecosystem's carrying capacity.

Sustainable development holds great potential at the state level. Its benefits seem to reflect the unique role that states have in the American political system. Consistent with their increase in responsibility, the states must now learn to balance more issues with fewer resources - a goal common to sustainable development. Using sustainable criteria as a framework for policies and decision-making states can better balance short and long-term goals of a healthy environment and a viable economy, and involve multiple stakeholders in the decision-making process to ensure equitable distribution of costs and benefits.

Establishing sustainable development in the United States will not be an easy task. The intergovernmental relations between federal, state and local level will need to be evaluated in order to determine specific responsibilities in the decision-making process. The interaction of governmental structures with private and non-governmental organizations will play a critical role in the integration of sustainable policies.

Developing Sustainable Policies

Sustainable development must be sought through changes in institutional patterns and individual behavior. The fundamental changes required are systemic in nature. They link together issues once managed in isolation. Separate policies and institutions can no longer effectively cope with matters that have become interwoven. Not only will new policies need to implemented, but ineffective and outdated policies must be removed or modified.

Sustainable policies use a set of criteria that combines good policy practices with criteria unique to sustainable development. Sustainable policies outlined in most national plans contain similar policy-making criteria. These policies tend to reflect the complexity of today's environmental and development problems by proposing multi-media approaches to mitigation and comprehensive planning for development. Among the common criteria used to guide policy formation are:

- the inclusion of all impacted stakeholders in the decision-making process;
- the inclusion of environmental and social costs and benefits in economic analysis;
- the valuing and inclusion of non-economic benefits into measures of progress;
- the evaluation of the distribution of costs and benefits to affected populations;
- the analysis of both short and long-term impacts of decisions (inter and intra-generational); and
- the evaluation of resource limitations (carrying capacity) for each time increment, and the development of standards to reflect such constraints.

Because sustainable development is a framework of guiding principles, it reaches across all policy areas. Various nations and organizations have recognized this linkage and included a wide spectrum of sectors in their comprehensive sustainability plans. The following summary represents the findings common to over multiple organizations and governments with sustainable development strategies.

Policy Areas Common to Sustainable Development

Brundtland Commission	World Resources Institute	Global Tomorrow Coalition	Canadian Government
Population	Population & Health	Population Growth	Population
Agriculture/Food	Agriculture	Agriculture/Food	Agriculture
Species/Ecosystems	Wildlife & Habitat	Biodiversity	Biodiversity
Energy	Energy	Energy	Energy
Poverty/Economy	Human Settlements	Development & Environment	Economic Development
Water Supply	Freshwater	Freshwater	Water & Land
Waste	Global Systems	Hazardous Substances & Solid Waste	Waste
Air/Atmosphere	Atmosphere	Air/Atmosphere	Air/Atmosphere
The Commons	Oceans/Coasts	Oceans/Coasts	Tourism & Outdoor Recreation
Natural Resources & Forestry	Forests and Rangelands	Forests	Forests & Mining
Urban Growth			Urban Development

The process used to develop sustainable policies requires time and commitment. It does not happen overnight and will demand patience that is often absent from our current political and public expectations. Understanding the issues and building trust among diverse groups is a prerequisite before attempting to analyze data or develop solutions. On a state level, it means there must be a commitment from leaders to initiate sustainable development as a guiding platform for policy. Finally, key indicators must be reassessed to include non-economic measures, and to reflect the principles of sustainable development.

Establishing an Effective Process

States, like other nations evaluated in this report, are faced with unsustainable activities that affect the livelihood of its citizens, such as pollution of the environment, overexploitation of resources, an unbalanced budget, and inter-city deterioration. The sustainable development

process aims to take these threats and modify them into cooperative policies by assessing the state's resources, understanding limitations, and creating innovative and interwoven policies that lead to more self-reliant and balanced regions. Sustainability entails integrating policies of historically fragmented agencies or adjusting regulatory standards to consider natural resource limitations as well as economic constraints. It also includes dimensions of cooperation between states.

Sustainable development strategies require changing attitudes, expanding perspectives, removing institutional barriers, and using collaborative decision-making mechanisms. A management process for sustainable development for states could be outlined by understanding other successful models and evaluating their commonalties. In evaluating European and Canadian models, there were two apparent differences between their processes and conventional state-level decision making:

1. Sustainable plans contain a comprehensive framework that included multi-media and multi-agency strategies. Whereas, states typically manage development and natural resources in separate departments and policies are not coordinated or developed as part of a larger, long-term cohesive state plan.
2. Sustainable plans require a considerable amount of time at the beginning of the process: developing and reaching consensus on the mandate of the committee, the goals being pursued, the identification of issues, and the collection of consistent and unbiased data. Typically, U.S. systems spend little time on the initial steps. Pressured with expectations of immediate results, United States policy-makers have a tendency to be impatient; attempting to formulate solutions before all parties are in agreement with the issues.

Many countries, especially those in Western Europe, have developed and implemented policies and practices that are built on the foundation of sustainable development. These models in Western Europe, Canada, and locally in the US were compared to identify structural processes used to initiate action and develop policies. Many used the model outlined by the Brundtland Commission. Thus, despite variations in the political structure of these countries, the process used to develop their sustainable programs contain many similarities. These similarities can have direct application to states. They are:

I *Formation of a Multi-Stakeholder Committee and the Agreement of its Mandate.*
Multi-stakeholder committees should represent a region's population, containing people from government, industry, environmental and civic groups, academics, laborers, farmers, etc. The mandate and responsibilities of the committee should be clearly understood and agreed to by the members and their constituents.

II *Building Trust and Providing Training for Dispute-Resolution and Consensus Decision-Making.*

Canadian and European models suggest that a critical point in their sustainable development process was allowing time for members of multi-stakeholder committees to build trust. Preconceived opinions often exist and must be dispelled by allowing time for interaction. Providing training on dispute resolution and consensus decision-making techniques can assist committees in reaching agreement that all parties are willing to accept. Because such techniques require mutual consent, the process can take longer to reach a decision. However, the decision is more likely to be implemented with fewer setbacks.

III *Development of Sustainable Principles.*

These principles should be the guidelines for all policies and programs. Typically, these principles reflect the common goals articulated by the multi-stakeholder group; are general enough to be adopted by various sectors, yet concise enough to be measured against; and link the environment, economics, and social equity into a comprehensive framework. By focusing on the long-term goals of sustainable development, the commonalty among stakeholders appeared to be more frequent than the differences.

IV *Data Collection & Analysis of Facts.*

Knowing aggregate production and consumption is not enough; we must also understand the size and nature of our resource base, its integrity and health, and the waste generated by human activities. Social issues and environmental constraints must be assessed in order to establish the critical factors that are limitations for economic development.

This knowledge base should contain data on demographic, socioeconomic, and biophysical characteristics. The demographics and economic information help to determine the demand that is placed on the physical environment. The physical characteristics of the environment determine the ability to supply the products and services demanded. We should also understand changes in environmental stresses by locating where they occur geographically. Spatial models can allow for analysis of different demand scenarios in order to assist with prioritizing problems and solutions, especially when integrating physical limitations with human conditions such as infrastructure, economic development plans and land use planning. Along with the spatial dimension, there are three other dimensions that affect the evaluation and decision-making process:

sectoral: including the impacts and concerns of other sectors,
time: extending the planning horizon further into the future, and
temporal: the rate of change and the rapidity of impacts.

V *Prioritizing Issue Areas.*

Even committees with multiple representation have limited time and resources to pursue their goals. Therefore, it is important to identify critical issues and develop priorities to manage them. Economic sustainability means that production rates are within sustainable means, that full-cost accounting is practiced in order to encourage sustainable behaviors, and that economic enterprises are diverse and able to function within the standards of sustainable development. Operations that exceed the limitations or carrying capacity of the environment are not considered sustainable and should be addressed as a priority issue.

VI *Development and Implementations of Solutions.*

An effective solution for sustainable development should be based on understanding the causes and impacts of a problem at all levels. It will require new perspectives, broader approaches, and involve non-traditional partnerships across disciplines and between sectors. In developing alternatives, many sustainable plans framed their assessment by questions such as:

- Does the policy attempt to link and balance issues of economics, equity and the environment?
- Does the policy encourage inter-agency and private sector cooperation and public participation?
- Are the full impacts of this policy understood and accounted for?
- What is the proper balance among development, preservation, and conservation of resources?
- What are the consequences on lifestyle and capital investments for changes in social and environmental values?
- What is the best way to solicit community participation in planning and management of their resources?
- What kinds of development should be encouraged; how and where?
- Does the policy promote fair and equitable distribution?

VII *Monitoring Progress.*

Sustainable development is a dynamic process that is open to change. It is critical to develop indicators that capture trends in ways that policy-makers and the general public can easily understand. Priorities can change as some elements are more rapidly converted to sustainable practices than others, or new stresses such as increases in population or pollution can change the relative ranking of strategies and action plans. It is important that action plans include indicators that continually evaluate the progress of policies.

One way to monitor the progress of sustainable development is by the use of sustainable indicators, or measures of the various sustainable elements. For example, Zero Population Growth in Washington D.C. has carried out a series of Urban Stress

Tests for the past several years. They monitor 11 interrelated criteria in all cities over 150,000 (192 in total). These criteria include population change, crowding, education, community economics, individual economics, births, violent crimes, air quality, water quality, hazardous waste, and sewage. Each of these measures is rated and then totaled and averaged for an overall city rating.

Herman Daly and John Cobbs use another type of sustainable index, detailed in their book, For The Common Good. This measure, called the "Index of Sustainable Economic Welfare" (ISEW), is an expansion of the commonly used GNP to include measures such as distributional inequity, informal economy measures, expenditure on health and education, costs of commuting, cost of urbanization, costs of various forms of pollution, the loss of farmlands and wetlands, and the depletion of non-renewable resources.

Barriers to Sustainable Development

Implementing sustainable development at any level will require overcoming various barriers that exist in the current structure. These barriers limit efficiency and cause unproductive use of natural and man-made capital. Four classifications of barriers can be summarized by:

Research and methods:

Insufficient guidelines for environmental and social impacts used to screen projects.
The lack of a clearly defined methodology and limited empirical data to integrate the environment and economics.
The bias in economic analysis that favors short-term benefits and discounts long-term costs and externalities to the point where they have little value.

Institutional Constraints

The segregation of sectors into autonomous departments with little coordination.
The jurisdictional conflict between levels of government and geographic areas.
The lack of cohesive objectives between agencies and organizations.

Bureaucratic Process

Budgetary constraints.
Inadequate access to information either due to the lack of data or the competitive power struggles to conserve the status quo.
The lack of resources and inadequate enforcement and accountability.
The lack of incentives.

Attitudes and Values

Societal will and the choice between short-term growth and long-term development.
The unwillingness to change.

A Process and Policy Summary

The purpose of any management or strategic process is to anticipate changing conditions, to apply organizational resources most effectively, and to understand the strengths and weakness of its structure to utilize them for maximum effectiveness. Likewise, the process used to develop sustainable development programs and policies recognizes and anticipates changes in the environment and economy, and adapts resources according to their limiting factors, and maintains a balance by understanding the strengths and shortcomings of these elements. Thinking strategically often coincides with thinking sustainably. By encouraging collaboration between stakeholders, sustainability can be promoted by:

- Understanding the broad relationships between the historically separate policy areas such as transportation, land-use planning, commerce, education, and natural resource protection,
- Anticipating how policy decisions in one area directly or indirectly influence other policies,
- Asking what kind of information is needed to assist in the development of a particular sustainable development strategy,
- Considering the broad set of stakeholders, including public, private, and non-profit organizations,
- Considering a framework of sustainable strategies that are continually updated and refined, and
- Considering unintended outcomes or secondary consequences of strategies chosen.

In summary, once the organizational mechanisms are in place, the basic principles that direct the planning process must be understood by all of those involved. The decision-making process must include all stakeholders and time should be allowed to develop trust and mutual respect between diverse members. To mitigate conflict, agreement by consensus must be reached on the principles of sustainable development before action plans are developed. Innovation of policies should focus on long-term investments for the future as well as short-term improvements for current problems. Finally, recommendations should encourage self-reliance and cooperation.

LESSONS FOR THE STATES

How can the processes of Canada, the Netherlands, and activities in the U.S. be applied to States? In evaluating these activities, several factors seem to be common throughout their plans. These factors concentrate on the process and structure by which sustainability is developed and implemented, rather than specific policies of individual sectors that vary with economies, geography and resource bases. The principles of sustainability seem to be consistent throughout every plan; the words may be slightly different but the meaning is the same. These principles stress the importance of changing the way we measure and account for environmental and social factors by new methods of cooperation between stakeholders, economic valuation, technology development, and incentives to promote sustainability. These common factors include:

- how to integrate the environment and the economy by use of a sustainable framework
- how to effectively structure national, state and local relationships (central and regional responsibilities)
- how to maintain cooperation between jurisdiction and between sectors
- how to promote sustainable projects and behavior through the use of incentives
- how to establish a decision-making process that incorporates divergent interests.

Integrate the environment and the economy at all levels of decision-making

In order for sustainable development to be embraced at multiple levels, it needs to be internally consistent, yet acceptable to the various stakeholders. Using a framework approach would provide sustainable development strategies and plans a consistent vision and set of principles, similar to strategic planning, by which more regionalized policies could be developed. Sustainable development plans should not be command and control type regulations that dictate technology and targets, of which many are constantly changing as new information is developed. They should be principles that guide decision-making in various sectors and at various levels. The use of more flexible criteria at higher levels of planning is proving to have not only cost advantages, but seems to have meet less resistance from regional authorities and users and provide more timely results.

Although the process for developing sustainable development plans is similar to strategic planning, it applies limitations or constraints on the goals of strategic planning by introducing sustainable criteria. These criteria, such as limiting activities within the carrying capacity of a resource base, allows long-term horizons to be integrated in shorter-term decision cycles while promoting greater accountability. Since many of our decisions have a lag time or latency period before resultsare seen, it is becoming apparent that many impacts are not felt

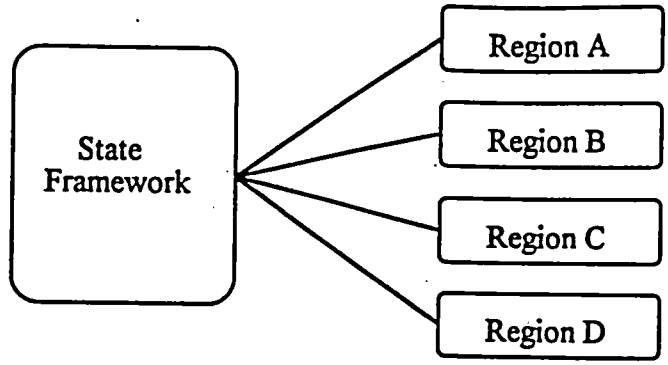
by those making the decisions, but rather are left to future decision-makers to correct them. This reactive mode has been costly and relatively ineffective as the marginal utility of future action becomes more prohibitive. Sustainable development planning is anticipatory - capitalizing on prevention being less costly than the cure. Therefore, the results of using sustainable criteria up front in planning usually require little changes in the inputs for decisions, but can have significant impact on the outputs.

Develop the sustainable framework at a central level, but allow specific planning at regional levels.

Many countries that have adopted sustainable development initiatives have also recognized the need for clear roles and responsibilities for national, sub-national (state or provincial), and local stakeholders. Because sustainable development encompasses the limitations placed on economies by natural systems, optimum solutions will vary as the geography varies. For large countries with diverse ecological systems, like the US and Canada, this means state and local programs will play a larger role.

In the countries studied, there seems to be a similar pattern with the transition of responsibility from the central to regional governments, regardless if it is a national to regional shift or regional to local shift. Initially, the central body (state or national) takes the first step by introducing an initiative for sustainable development; a comprehensive plan like the Dutch NEPP, or the Canadian Conservation Strategy. The central body promotes the concepts by backing round table forums, consulting with target groups, etc., to build interest from the various stakeholders. They provide a framework which usually consists of sustainable principles, decision-making and planning techniques, planning formats, and economic instruments or tools. This framework is then embraced by the regional or local levels to develop strategies that meet their specific needs while containing a consistent set of principles. Once the regional levels have begun to operate on their own, the central body becomes more of a support mechanism, assisting them with research, acting as a coordinating unit for regional programs, etc. to assure overall goals are met.

To states, this could result in a multi-stakeholder round table that would determine a set of sustainable principles that embrace the state's needs while being consistent with the principles being used globally. These principles could then be used as framework for assessing plans and programs, such as benchmarks at the regional or local level, land-use planning or growth management. An assessment of sustainable criteria against current decision-making processes or project appraisals would identify gaps in existing policies and instruments as well as identify those that promote or discourage sustainable behavior. The round table could then use this assessment to recommend a set of sustainable policy instruments to be used in regional and local plans.



State-level Provides:

- A flexible planning framework that incorporates sustainable principles
- Technical assistance and tools to assist local regions in developing a sustainable strategic plan
- Financial incentives to promote sustainable initiative at the local level

Local-level Provides:

- long-term community plans that balance local and state interests.
- Mechanisms for public-private partnerships and intergovernmental cooperation.
- Measures (benchmarks) to monitor progress.

Ensure environmental, economic, and social integration through strategies and plans that are coordinated between agencies and sectors and between jurisdictional and governmental levels

Successful sustainable development strategies have been based on planning by regions instead of sectors. This means that instead of addressing problems by sector - agriculture, transportation, water, quality, air quality, community development - the Dutch and Canadians addressed them by region. These regions were broken into various levels, from local to continental or global, and were based as much on natural boundaries as political jurisdictions. This bio-regional approach allowed better coordination of existing policies and more effective planning of new alternatives based on desired outputs for communities and regions. This approach adopts a "customer" driven process that is accountable for outcomes for a given region. It does not dramatically alter the organizational structures of government. However, it tends to align departments within agencies by regions instead of specialties.

There are projects, like the Fraser River Basin in British Columbia, that are using a bio-regional approach for development planning. These models are designated by watershed regions and then by application (drinking water quality, fish habitat, agricultural use, etc.). This allows existing agencies to have the same overall responsibilities, but coordination within the agency is by region, not application or sector. By using this approach, the entire

ecosystem is managed as a whole and the relationships between applications (the cause and effects) are better understood. Preliminary results of such plans are indicating that this method is more effective and efficient in achieving the desired goals.

Incorporate economic incentives and instruments that promote sustainable planning and behavior

Increasingly, the state of the environment will impact future economic development. Environmental and social costs will be essential elements of economic calculations in order to provide better information for market economies and their competition. To include these costs will require a blend of economic instruments and incentives including existing tools and new approaches.

Command and Control Regulations: there are two types of regulation - controls (quantity limitations) or standards (quality directives). Controls include *bans, emission controls, input controls* (CFCs), *consumption controls* (rationing of chemicals or resources), *price controls* and *rate-or-return limitations.* Standards include*: technology standards, licensing and certification,* and *impact regulations.*

Economic and Market-based instruments: Economic instruments leave people more discretion to respond in ways that they judge to be for their greatest benefit. They are more likely to encourage innovation and quality improvement that often exceed standards. These instruments include: *polluter pays (user) charges* on inputs, outputs, or products; *tradable permits*; *liability insurance or fees*; *subsidies* in the form of grants, soft loans, or tax allowances; *deposit-refund systems*; and *financial enforcement* incentives like performance bonds and non-compliance fees.

Project Appraisal and Environmental Accounting: There is a need for investment vehicles that allow projects to be selected and funded that are consistent with environmental concerns. The incorporation of *full-cost or environmental accounting* allows environmental costs to be included in evaluative methods that determine optimum costs and benefits. *Project appraisal* methods that better value future costs and benefits often include a revision of *discount rates*, the *value of "free" environmental goods and services,* and indicators that reflect the *use or loss of natural capital.*

Information Incentives: Right-to-know laws, labeling, and other public information is showing significant impact upon manufacturing and consumer behavior. This information can be disseminated through *advertising*; *affirmative disclosure*; *public education campaigns*; and *public recognition and awards.*

Ensure that decision-making processes at both the central and regional level involve a multi-stakeholder approach.

Sustainable development is being implemented by including various players in the decision-making process. This "multi-stakeholder" format is key to obtaining the needed buy-in, reducing the conflict and litigation potential, and developing implementation plans that can be achieved on a wide-spread basis. Not only have these multi-stakeholder forums consisted of government, academic, business, environmental, and social organizations, they are also integrated between departments or agencies within each group. For instance, government strategies for sustainability in the Netherlands are a cooperative venture from multiple departments (department of economic development, environment, energy, agriculture, natural resources, etc.) that includes consultations from the various "outside" stakeholders (business, environmental groups, researchers, etc.). This format can be used at any level of planning whether it is a comprehensive framework or resulting policies within the framework (land use planning, water quality, etc.)

Each stakeholder has a unique and interrelated role in the promotion and implementation of sustainable development. The use of consensus-based decision-making has shown many practical benefits for sustainability. It allows each stakeholder to have an equal voice in the process, reducing the conflicts due to unequal representation. Consensus attempts to reach mutually acceptable solutions, win-win situations instead of an arbitration method that produces winners and losers. Consensus usually takes longer to reach decisions, yet the implementation time is usually much shorter making the total decision time less. It can, however, result in an impasse for which traditional solutions of arbitration or litigation may be needed. The key to successful consensus seems to be the inclusion of all impacted parties who make decisions guided by common principles and based upon mutually agreed to sources of data.

CONCLUSION

Development and the environment are not conflicting terms. Indeed, many problems arise when we fail to manage the linkage in a sustainable way. Economic growth cannot be sustained if it continues to undermine the healthy functioning of the Earth's natural systems or to exhaust natural resources. By the same token, only healthy economies can generate the resources necessary for investment in environmental protection. The recognition of the critical link of the economy to the environment and social well-being is the cornerstone to sustainable development. Until institutions realize this connection, actions to improve environmental quality or increase economic potential will be less than optimum.

The world is beginning to accept this link with increasing commitment. Western European nations, Canada, and many Third World countries are formulating comprehensive sustainable development plans that reach across a broad spectrum of sectors and jurisdictions. The United States must join these nations and exert the kind of leadership it so often has on other issues that affect global and national security. We should take a leadership role in the research and development of environmentally sound technologies and energy production methods to use as a model within our own country and for export to the global market.

Summary of Sustainability Principles

- The linkage of environmental, social and economic issues in the decision-making process.
- The strengthening of cooperation by ensuring participation of all stakeholders in every step of the decision-making process.
- Assurance of fair and equal distribution of the costs and benefits involved in decisions.
- Assurance that activities do not exceed the natural limitations or carrying capacity of the resources involved.
- The promotion of technologies and behaviors that conserve and efficiently use energy and natural resources.
- The maintenance and promotion of biodiversity and cultural diversity.
- The promotion of a sustainable population level.
- The redefinition of measurements and values to be consistent with sustainability.

Sustainable development will rely on changes in technology, economics and behavior. New technologies must consider environmental and social impacts in initial design phases to prevent environmental degradation from taking place and the need for costly end-of-pipe

mitigation. Behavior, especially through increasing education and public awareness will have a major effect on the type and rate of technological change. When people are made aware of the impacts of their actions, the behavior changes over time - as indicated by examples of recycling, seat belt use and reduction in smoking. Still, major efforts are needed for both technology and education to ensure that the link between the economy and the environment is better understood and acted upon.

Conventional economics - the way we measure progress and make decisions about investments and resource use - are no longer adequate. Economics must begin to incorporate sustainability principles. Time horizons must be expanded to give more preference and rights to future generations; environmental and social costs must be internalized in project appraisals to reflect the full costs of goods and services; and how we measures "progress" must be changed to account for the loss or depreciation of natural capital as well as man-made capital. Measures like the GDP and leading economic indicators should revise targets to reflect sustainable levels of growth, not maximum consumption potential.

Institutions will need to reform their structures to reflect more integrated and cooperative decision-making processes. Policies and programs can no longer be managed in isolation without respect for their impact on other sectors. Jurisdictions between borders and between levels of government must work together on regional problems that span across boundaries. The Brundtland Commission repeatedly stated the importance of integrating ecological, economic, and equity issues in all levels of decision-making. Yet linking these elements will require change; change that is not always welcomed in long-standing institutions. To make these changes the Brundtland Commission proposed the following priorities to make these shifts in policies more realistic and achievable:

1) the incorporation of sustainable development criteria into all policy sectors, not just environmental protection,
2) the accountability of organizations that develop policies to be responsible for their consequences,
3) the provision of adequate funding and revenue for monitoring and research of economic, ecological and social risks,
4) increased participation of scientific and non-governmental organizations in the decision-making process, and
5) the means to resolve disputes.

Sustainable development does not mean we should stop using resources, just as it does not mean we should develop every acre. It does mean that we should think about the long-term and distributional affects of our decisions and attempt to efficiently and wisely use our natural resources and environmental systems that are the foundations of our economic future. Never before has the human influence on natural systems been so large, and never before

have the risks associated with these actions been so great. We truly are at a crossroads. The decisions we make now will have a significant impact on the environmental and economic health of the current and future generations. Sustainable development is one alternative to long-term strategic planning that attempts to make the economic-environmental connection in an equitable manner.