NORTHWESTENVIRONMENTWATCH

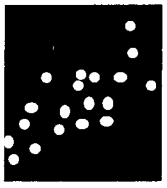
SPRAWL AND SMART GROWTH IN METROPOLITAN PORTLAND:

Comparing Portland, Oregon, with Vancouver, Washington during the 1990s

By Northwest Environment Watch
May 9, 2002

I. EXECUTIVE SUMMARY

Greater Portland sits astride the border between two states, each with its own approach to growth management. During the 1990s, the Oregon side of the metropolitan area safeguarded rural lands and "grew smart," by encouraging compact, efficient communities. But neighboring Vancouver, Washington, and its Clark County environs, sprawled outward in car-dependent tracts. As this analysis of US Census data and satellite imagery details, few places in North America illustrate more clearly the consequences of different planning regimes.



During the 1990s:

- The population of greater Portland—which includes Multnomah, Washington, and Clackamas Counties, Oregon, and Clark County, Washington—grew faster than the population of many Third World megacities, adding 376,000 new residents during the decade for a total of just under 1.8 million. This growth overran roughly 8 acres of farmland and open space each day. It also clogged the region's roads with worsening traffic congestion. But the paths of the Oregon and Washington parts of the metropolis diverged.
- In the Oregon counties, total population increased by 270,000, and the number of people living in compact neighborhoods (defined as 12 or more people per acre) increased by 141,000. These compact neighborhoods foster public transit and encourage shorter car trips by keeping destinations closer together. Compact neighborhoods also consume less open space per resident.
- In Washington's Clark County, population grew by 106,000, and the number of residents in low-density, sprawling areas increased by 78,000. Per capita, Clark County converted about 40 percent more land from rural to suburban population densities than did the Oregon counties. And by the end of the period, Clark County's residential areas had partially or fully paved over 23 percent more land per resident than the Oregon counties.
- If the Oregon counties had grown in the pattern of Clark County, suburban development would have overtaken an extra 14 square miles of farmland and open space—an area roughly twice that of Forest Park.
- The major difference between Clark County's sprawl and Oregon's smart growth was Portland's growth management policies, which protect open space and foster compact communities.

1402 Third Ave., Suite 500 • Seattle, WA 98101-2130 • 206-447-1880 • new@northwestwatch.org • www.northwestwatch.org

II. METHODS AND ANALYSIS

To examine the consequences of differing growth-management regimes, Northwest Environment Watch (NEW) examined population and land-use trends in greater Portland between 1990 and 2000. Researchers at NEW and CommEn Space, with whom NEW contracted for GIS and remote-sensing research, analyzed data from the 1990 and 2000 US Censuses and from satellite images from NASA's Landsat. In this analysis, we define "greater Portland" as Multnomah, Washington, and Clackamas Counties in Oregon, and Clark County, in Washington. All 24 cities that make up Portland Metro—the regional planning body under Oregon law—are included in this region, as are the urban and suburban areas surrounding the Washington State cities of Vancouver, and Camas.

NEW and CommEn Space analyzed data for each census block—typically corresponding to a single city or suburban block—in the four-county region, except for small portions of Clackamas County located in US national forests. We calculated local population densities for each location by determining the population density of the smallest circle containing at least 500 residents—a proxy for a neighborhood.

NEW and CommEn Space also analyzed Landsat satellite images from 1989 and 1999 to determine the extent to which impervious surface covered the Portland-area landscape. We relied on a texture analysis of the Earth's surface from Landsat images to measure impervious surface at two thresholds: partially impervious, where roughly 15 percent or more of the landscape is covered by roads, buildings, and other hard, built surfaces; and fully impervious, where at least 80 percent of the landscape is covered by such surfaces. We spot-checked our conclusions against aerial photographs available at www.mapquest.com and confirmed that our analysis of Landsat images was reliable.

These two data sets—population and built surfaces—provided a variety of ways of measuring growth in greater Portland.

III. RAPID POPULATION GROWTH

During the 1990s, greater Portland's four counties added people at a very rapid rate: about 4 new residents every hour, or more than 100 new residents a day. Overall, the Portland region added 376,000 new residents during the decade, as the region's population swelled from 1.4 to nearly 1.8 million.

This growth translates to an annual growth rate of 2.4 percent during the 1990s—about double the US rate and faster than that of many of Third World megacities. Portland grew faster than Cairo, Egypt; Jakarta, Indonesia; and Rio de Janeiro, Brazil.[1]

Table 1. ***Portland's annual population growth rate rivaled rates of many Third world megacities***

	Annual population growth rate
New Delhi, India	3.0%
Karachi, Pakistan	2.6%
Portland, Oregon	**2.4%**
Jakarta, Indonesia	2.3%
Cairo, Egypt	2.3%
Tehran, Iran	2.3%
Rio de Janeiro, Brazil	1.9%
Bombay, India	1.9%
Beijing, China	1.8%

Sources: Portland population, US Census; international cities, see endnote 1.

The three counties in Oregon—Clackamas, Multnomah, and Washington—accounted for about 70 percent of the Portland area's population growth over the decade. Clark County, Washington accounted for the remainder.

Table 2. ***The four counties that make up greater Portland grew by 27 percent during the 1990s***

	People added 1990 to 2000	1990s growth rate
Clackamas, Ore.	59,440	21%
Multnomah, Ore.	76,394	13%
Washington, Ore.	133,888	43%
Clark, Wash.	106,484	45%
Total, greater Portland	376,206	27%

IV. Compact Communities

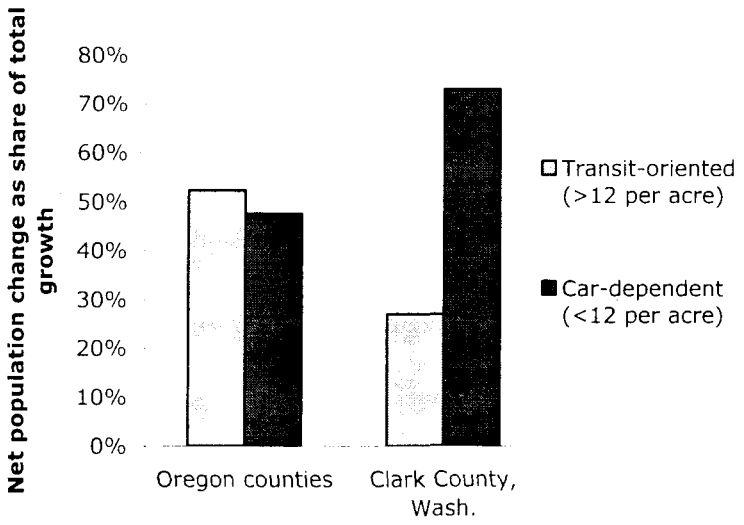
Studies of cities around the world suggest that, compared with less-dense areas, urban zones with population concentrations above 12 people per acre have dramatically higher transit ridership (which in turn makes public transit more cost-effective), lower private vehicle ownership, shorter car trips, and lower gasoline consumption. We refer to these neighborhoods as "compact," "smart growth," or "transit-oriented." In contrast, in neighborhoods with fewer than 12 people per acre a car is needed for virtually every trip. Residents of such neighborhoods must drive to work, stores, and basic services, and those without access to cars are often stranded. We refer to these neighborhoods as "sprawling" or "car-dependent." [2]

Compact neighborhoods also reduce the amount of land affected by impervious surfaces such as roads, rooftops, and parking lots. Impervious surface increases flooding, erosion, and sedimentation in nearby streams. It slows the recharge of underground aquifers, lowers water tables, and raises stream temperatures. These changes diminish water supply, harm water quality, and undermine aquatic ecosystems.[3]

Compact neighborhoods use land more intensively but pave over less of the landscape. Person for person, greater Portland's sprawling neighborhoods contained nearly three times as much land fully or partially covered by impervious surfaces as did compact neighborhoods. [4]

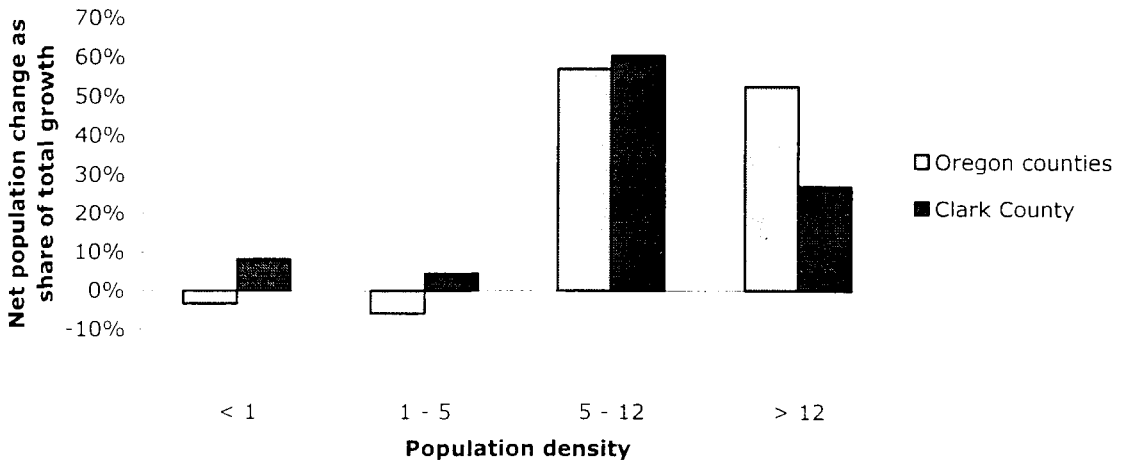
In the three Oregon counties that make up Portland Metro, total population grew by 270,000 in the 1990s, and the number of people living in compact neighborhoods increased by 141,000 (see Figure 1). About half of this growth in transit-oriented neighborhoods occurred as new residents moved in. The remainder was due to threshold effects: the addition of new residents pushed some neighborhoods above the transit-oriented density threshold. By the end of the decade, 28 percent of residents in the three-county region lived in compact neighborhoods, up from 23 percent in 1990.

Figure 1. In the 1990s, Clark County experienced rapid growth in car-dependent sprawl.



Even within the Oregon counties' car-dependent neighborhoods, population concentrations inched upward toward the threshold of 12 people per acre. The number of these counties' residents living at the low end of the density range (1 to 5 people per acre)—densities that are particularly sprawling and car-dependent—declined not only in relative but in absolute terms over the decade. So did the number of people living in exurban sprawl, where population density is below 1 per acre (see Figure 2).

Figure 2. More of the Oregon counties' growth took place in mid- to high-density neighborhoods.



Clark County showed a much different growth pattern. In the 1990s, the number of Clark County residents increased by 106,000, and the number of residents of low-density, sprawling areas increased by 77,000 (see Figure 1). Few Clark County areas rose above the 12-people-per-acre threshold as this growth took place. By 2000, about 13 percent of all Clark County residents lived in compact neighborhoods, compared with 27 percent in the rest of greater Portland. In further contrast to greater Portland's Oregon counties, in Clark

County, low-density developments boomed, adding nearly 5,000 new residents at the low end of the density range (from 1 to 5 people per acre) and 8,700 new residents at exurban densities of less than 1 per acre (see Figure 2). This sprawling growth took a toll on the landscape. Person for person, by 1999, Clark County's residential development fully or partially covered 23 percent more land with impervious surfaces than the Oregon counties' residential neighborhoods.

As seen in the maps that accompany this report, the differences in growth patterns are striking. The Portland metropolitan area south of the Columbia River contains substantial areas at transit-oriented densities (see Figure 3, map). Very few new residents were added in Oregon's rural land (see Figure 4, map). In contrast, a much smaller share of Clark County's population lives at transit-oriented densities, and the county experienced considerable growth in rural areas and sprawling suburbs (see Figure 5, map).

V. Loss of Rural Land and Open Space

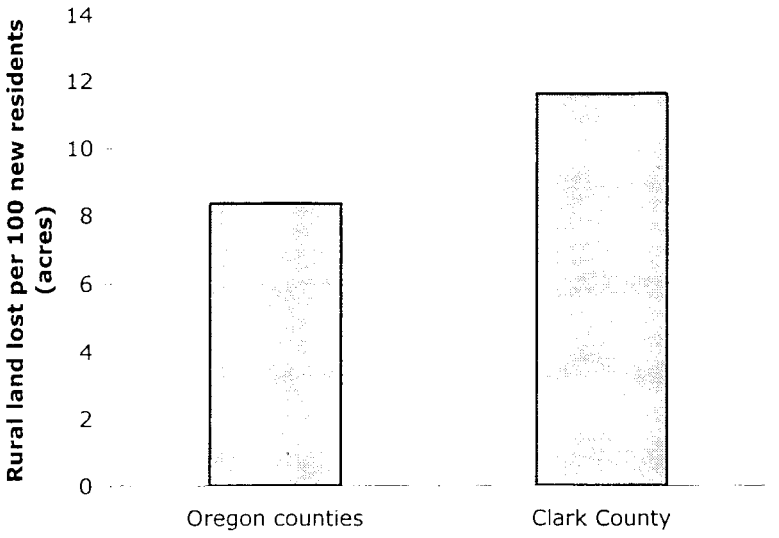
Greater Portland's rapid population growth came at a cost. Over the decade, roughly 35,000 acres of Portland-area farmland, open space, and other rural environs were converted to urban or suburban residential development (see Table 3).[5]

Table 3. ***Greater Portland lost nearly 35,000 acres of rural land to suburban development.***

	Rural land lost (acres)
Three Oregon counties	22,519
Clark County, Wash.	12,342
Total	34,861

But on average, the Oregon counties lost less farmland and open space to development—roughly 40 percent less per capita—than did Clark County. For every 100 new residents in Clark County over the 1990s, 11.6 acres of land changed from rural population densities to suburban or higher population densities (at least one person per acre). In the three Oregon counties, however, only 8.3 acres of rural land were converted to densities above one person per acre for every 100 new residents (see Figure 6).

Figure 6. Clark County lost 40 percent more rural land per new resident than the three Oregon counties.



If the three Oregon counties had experienced the same rate of suburban sprawl as Clark County, an additional 8,700 acres of Oregon rural land—roughly 14 square miles—would have been developed over the decade. Conversely, if Clark County's growth had mimicked that of the three Oregon counties, approximately 3,500 additional acres of land within the county, or 5 square miles, would have remained as open space.

IV. Conclusion

Greater Portland's residents lived through sweeping changes in their cities, towns, and farmlands during the 1990s. Many Portlanders have found the city's rapid changes unsettling, and some have even blamed Portland's growth management laws, including the urban growth boundary, for the changes.

But our analysis suggests that in the three Oregon counties, growth management softened the impact of rapid population increase in the metropolis. Portland Metro's urban growth boundary restrained suburban sprawl, slowed the loss of rural land and open space, and provided better transportation alternatives by channeling development into compact neighborhoods that use land and urban infrastructure more efficiently. And an examination of vehicle travel in urban areas suggests that compactness does not correlate with traffic delays: indeed, more compact development may help slow the growth of congestion (see Appendix).

In contrast, Vancouver, Washington, and the surrounding towns and unincorporated areas of Clark County, grew more like greater Seattle, Washington: in scattered, low-density development that did not form cohesive communities, with larger resulting losses of farmland and open space.[6]

The principal reason for the slower pace of sprawl in Portland was that growth management laws in Oregon jurisdictions encourage compact neighborhoods, and greater Portland has been effective in implementing these policies. Unlike the Oregon counties, Clark County did not have strong or comprehensive growth management policies during the 1990s. Its growth management policies did not begin until well into the decade and remained more localized, fragmented, and weaker throughout the period.

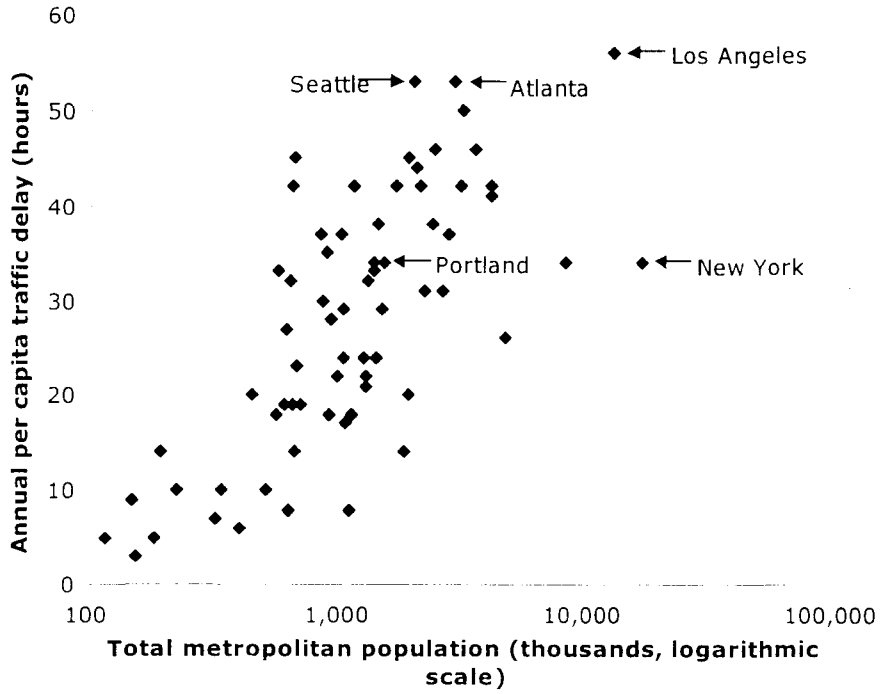
Appendix: Population, Density, and Traffic Delays

For some, traffic congestion and growth are virtually synonymous: burgeoning traffic is the clearest and most visible sign of an increasing population. Over time, traffic congestion has taken a larger and larger a bite out of Portland area residents' time. In 1999 the average Portland area resident spent a total of 34 hours stuck in traffic—nearly a full work week—up from 10 hours in 1987.[7]

Critics of growth management have claimed that compact development has been the driving force behind the region's traffic increases. But a comparison of data from 68 US cities suggests that traffic delays are closely tied to total metropolitan population but only weakly correlated with average metropolitan population density. Residents of cities with larger populations tend to spend more time in traffic regardless of the average residential density of the city.

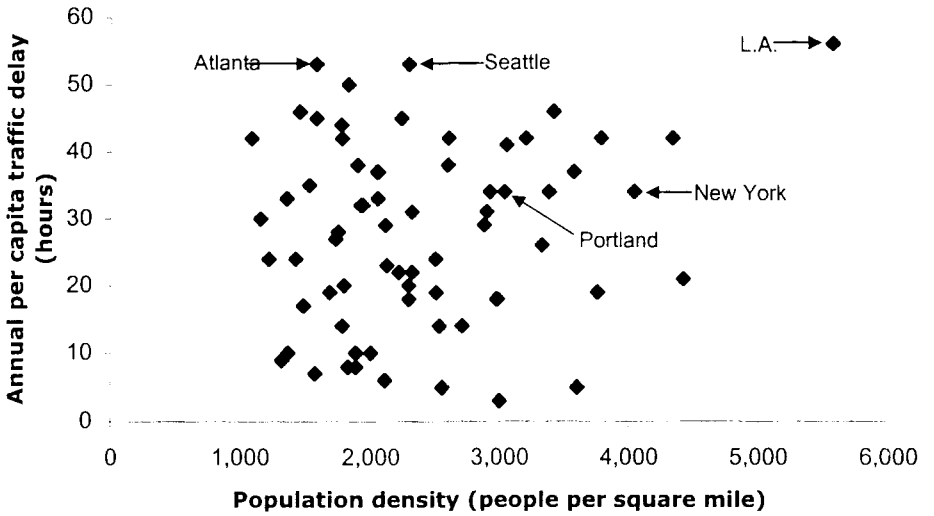
Statistically, total metropolitan population explains about 50 percent of the variation in annual per capita traffic delays (see Figure A1). Other factors, including geography and the amount and configuration of roads and intersections, explain the remaining half.

Figure A1. Traffic delays are closely correlated with total metropolitan population.



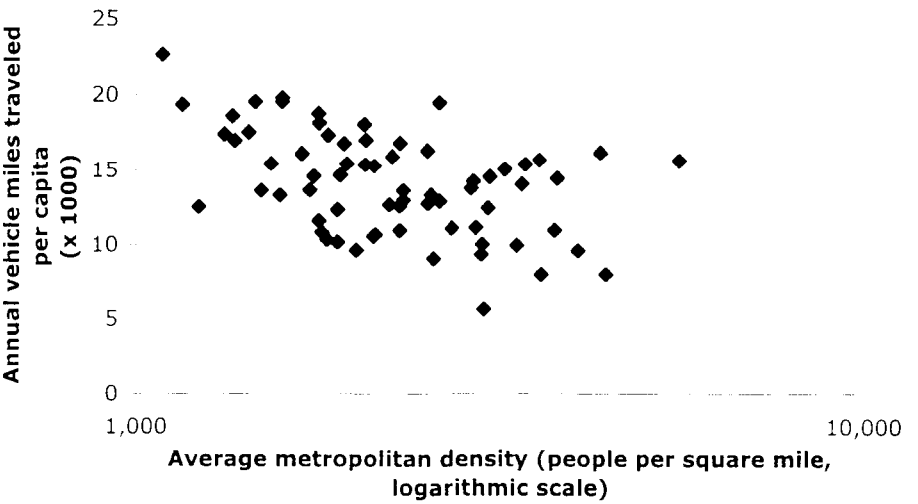
Surprisingly, traffic delays correlate weakly with average metropolitan population density (see Figure A2). In fact, more compact urban designs may slightly *decrease* per capita traffic delays, once the effects of total population are taken into consideration. Local geography and other features of metropolitan transportation infrastructure appear to have a much greater effect on travel delays than does density.

Figure A2. Virtually no correlation exists between average metropolitan density and per capita traffic delay.



One reason that density does not correlate with traffic delays is that compact communities tend to require less driving. Increased average metropolitan density correlates with reduced vehicle miles traveled per capita, though this correlation is not as strong as the relation between total metropolitan population and driving delays (see Figure A3).

Figure A3. Higher metropolitan densities reduce per capita vehicle travel.



About Northwest Environment Watch

Northwest Environment Watch (NEW) is a Seattle-based, nonprofit research and communication center that monitors progress toward an environmentally sound economy and way of life in the Pacific Northwest, a region that includes British Columbia, Washington, Oregon, Idaho, and adjoining parts of Alaska, Montana, and California. NEW has published 13 books since 1993; this analysis was an expansion of research completed for NEW's most recent publication, *This Place on Earth 2002: Measuring What Matters*, the first product of the group's multi-year project to develop an index of true progress for the Northwest.

Authors of the report include the four members of NEW's research team: Alan Durning, executive director; Clark Williams-Derry, research director; Eric de Place, research associate; and Dan Bertolet, research intern. Tim Schaub, CommEn Space, conducted GIS research and analysis. For more information about NEW and NEW publication, please see www.northwestwatch.org.

Sources

1. World city population growth rates derived from *The World Gazetteer*, "Cities and Metropolitan Areas," by country, *www.world-gazetteer.com/home.htm*, April 30, 2002.

2. Density thresholds from Peter W. G. Newman and Jeffrey R. Kenworthy, *Cities and Automobile Dependence* (Brookfield, VT: Gower Technical Press, 1989). These thresholds apply to urban cores and may not hold in smaller towns or isolated dense neighborhoods.

3. Impacts from 1000 Friends of Washington, "Land Use and Water Quality," *www.friends.org/waterq.htm*, viewed Nov. 15, 2001; and US Environmental Protection Agency, Office of Water, "Urbanization and Streams: Studies of Hydrologic Impacts," March 1998, at *www.epa.gov/OWOW/NPS/urbanize/report.html*.

4. The precise acreage of impervious surface in 1990 and 2000 was impossible to determine using available Landsat satellite data. Some residential areas also contained impervious surface related to industrial and commercial development, so not all impervious surface in low-density residential areas can be attributed to residential development.

5. For this report, "rural areas" are defined as those that have local population densities of less than one person per acre. "Urban and suburban" areas have local population densities of greater than one person per acre. To the extent possible, areas identified through satellite image analysis as commercial or industrial were excluded from estimates of rural land. See "Methods and Analysis."

6. See Northwest Environment Watch, *This Place on Earth 2002: Measuring What Matters* (Seattle: NEW, 2002).

7. All traffic congestion and delay data from Texas Transportation Institute, Texas A & M University, 2001 Urban Mobility Study, at *http://mobility.tamu.edu/ums/*.

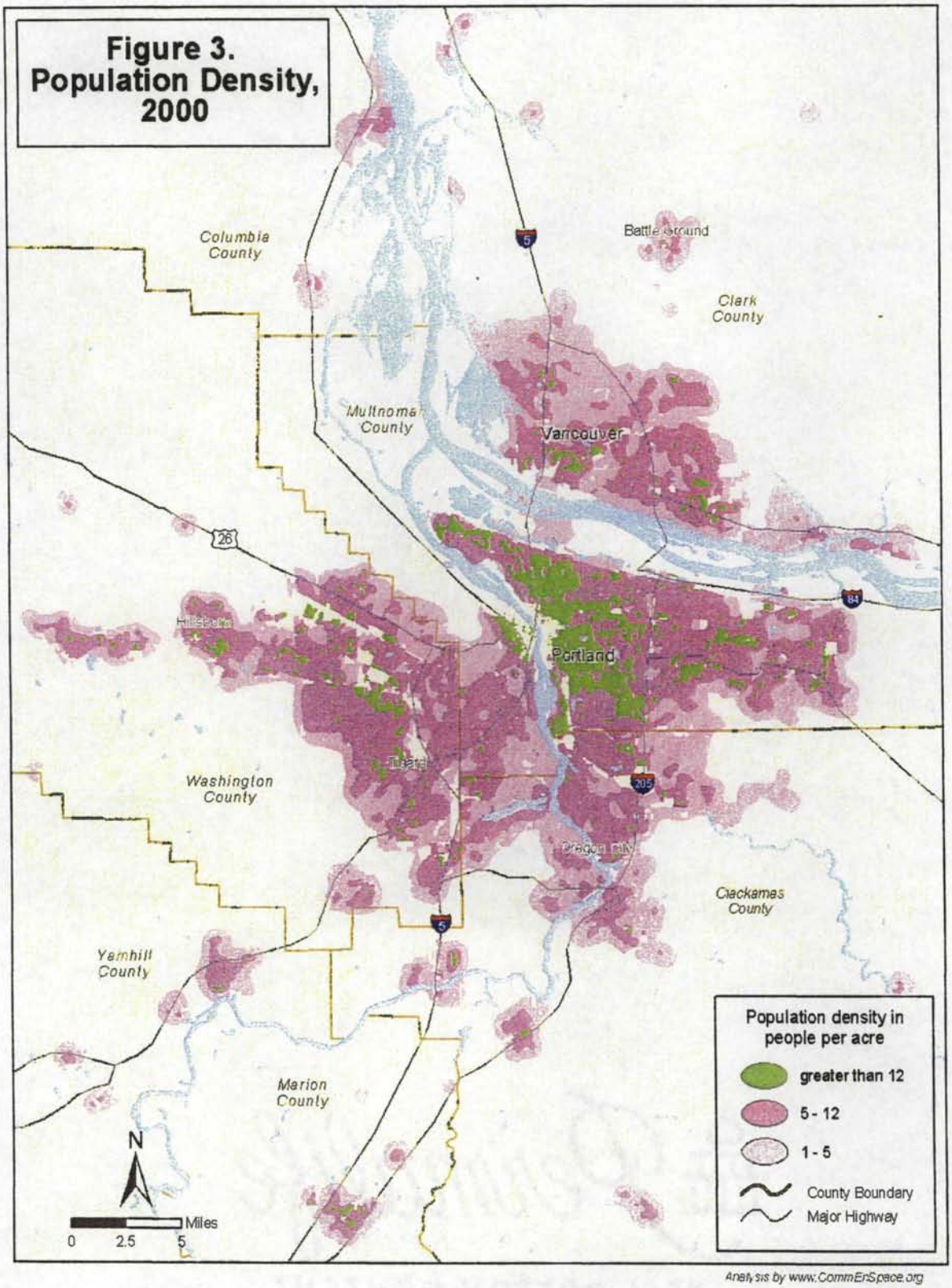


Figure 3.
Population Density,
2000
Columbia County
Battle Ground
Clark County
Multnomah County
Vancouver
26
84
Portland
Washington County
205
Clackamas County
Yamhill County
Marion County
N
Miles
0
2.5
5
Population density in people per acre
greater than 12
5 - 12
1 - 5
County Boundary
Major Highway
Analysis by www.CommEnSpace.org

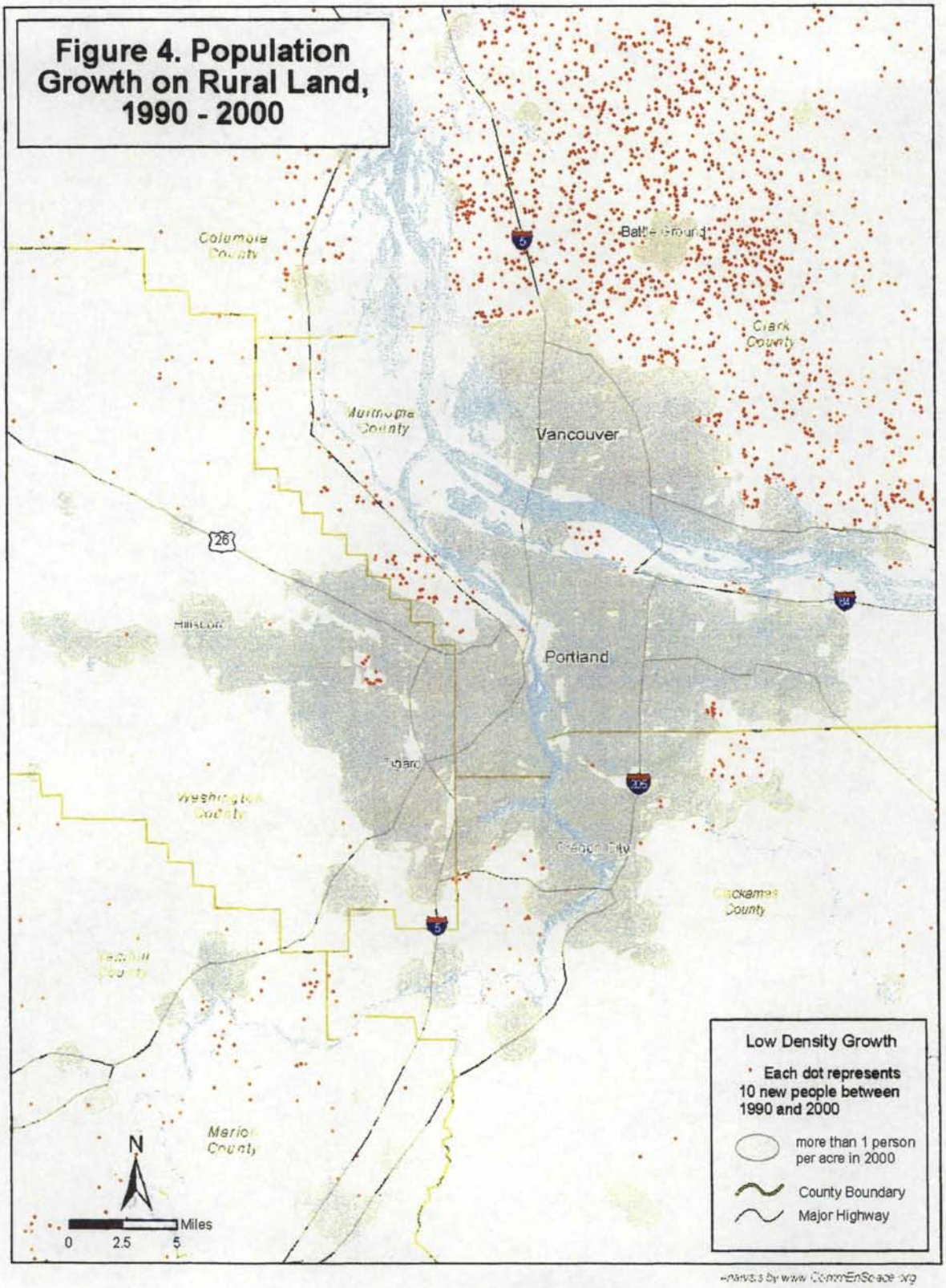


Figure 4. Population Growth on Rural Land, 1990 - 2000
Columbia County
Clark County
Vancouver
Portland
Tigard
Clackamas County
N
Miles
0 2.5 5
Low Density Growth
Each dot represents 10 new people between 1990 and 2000
more than 1 person per acre in 2000
County Boundary
Major Highway

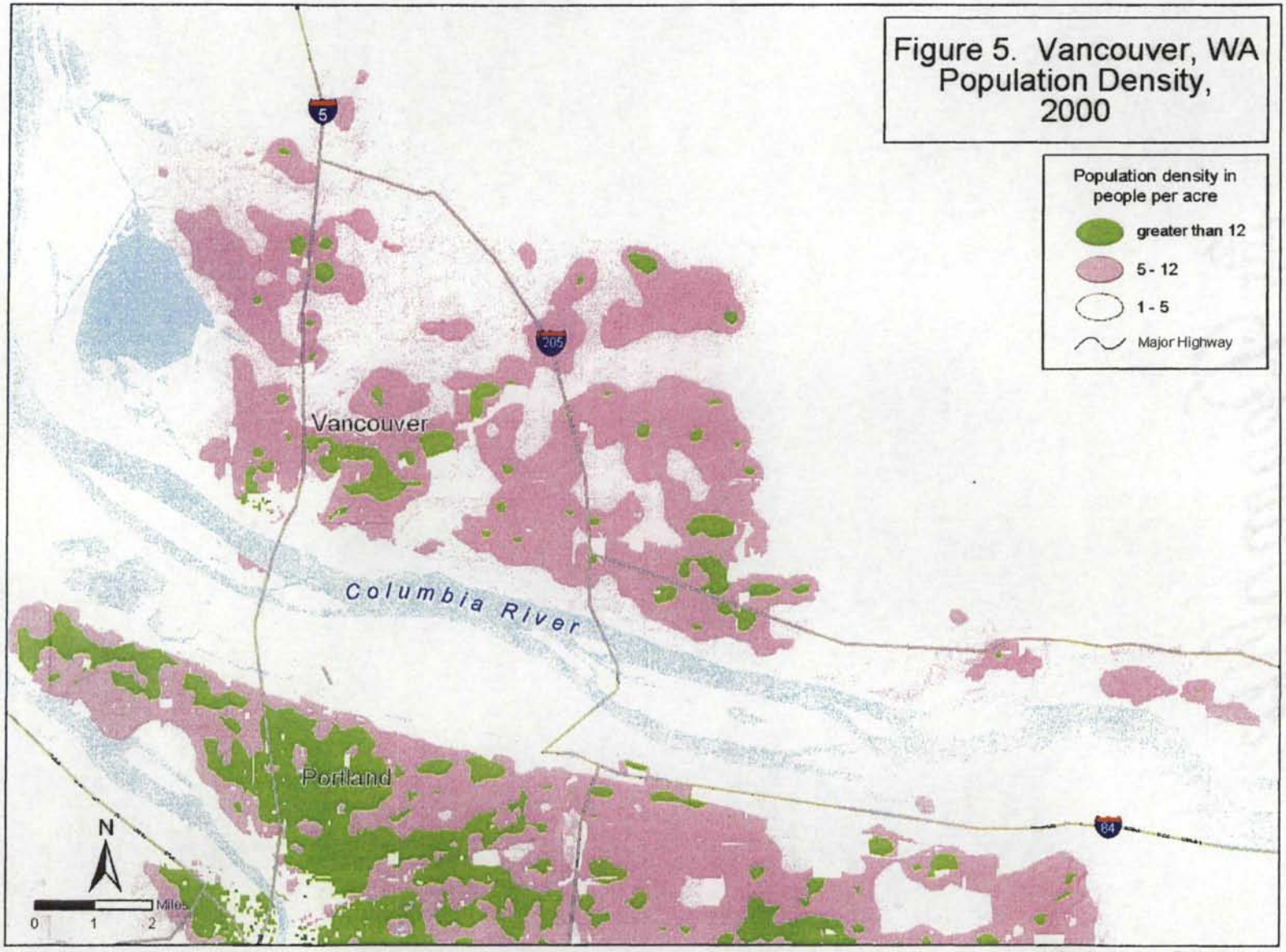


Figure 5. Vancouver, WA
Population Density,
2000
Population density in
people per acre
greater than 12
5 - 12
1 - 5
Major Highway
5
205
84
Vancouver
Columbia River
Portland
N
Miles
0
1
2

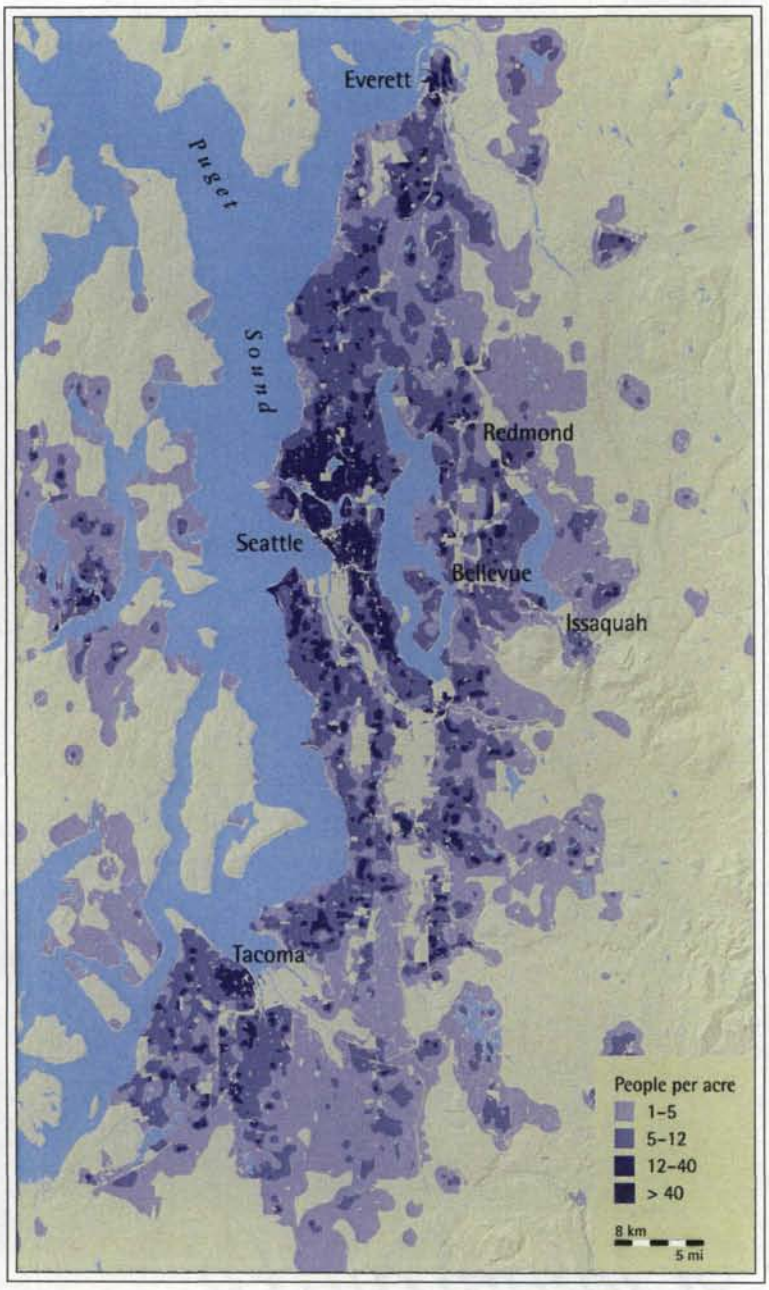


Figure 9. The Puget Sound region's population growth has taken the form of low-density sprawl.
Map by CommEn Space, Seattle; see endnote 30.

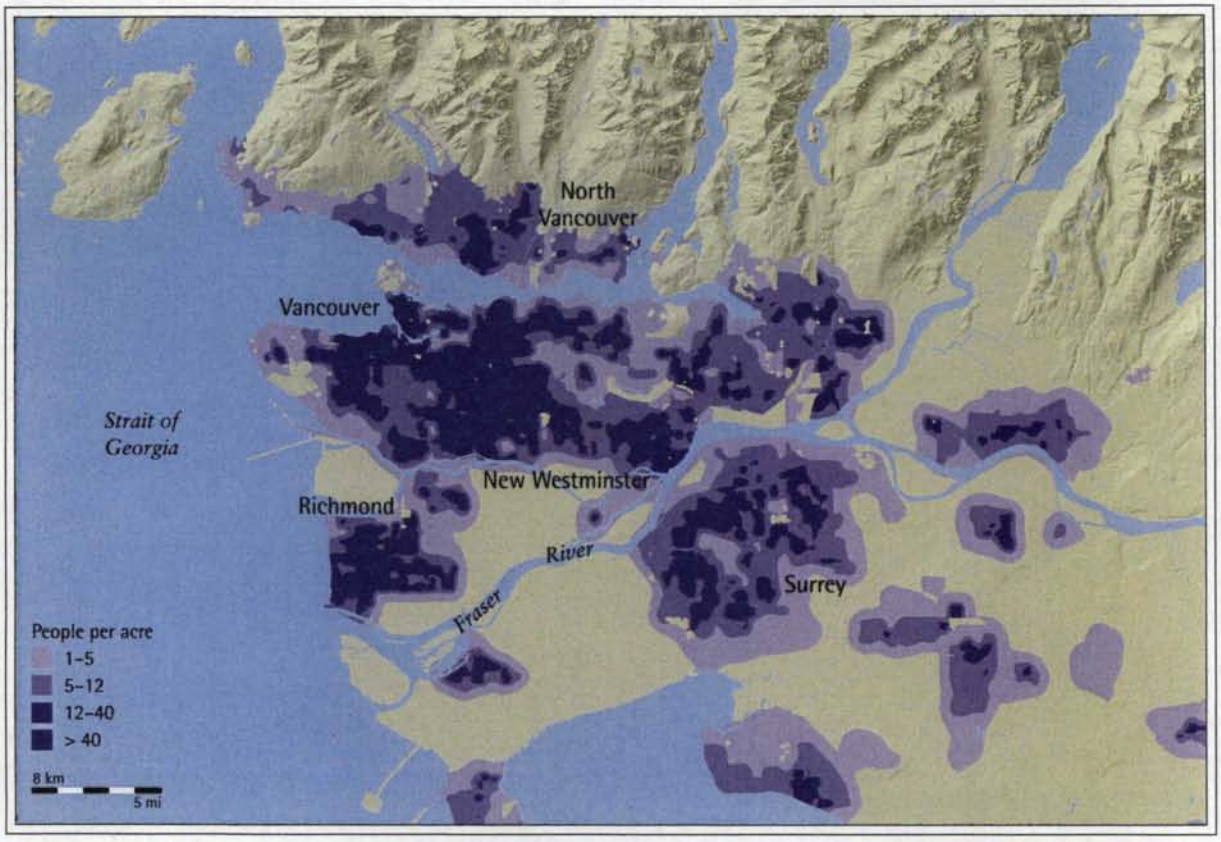


Figure 11. Greater Vancouver, BC, is by far the region's densest major city.
Map by CommEn Space, Seattle; see endnote 30.

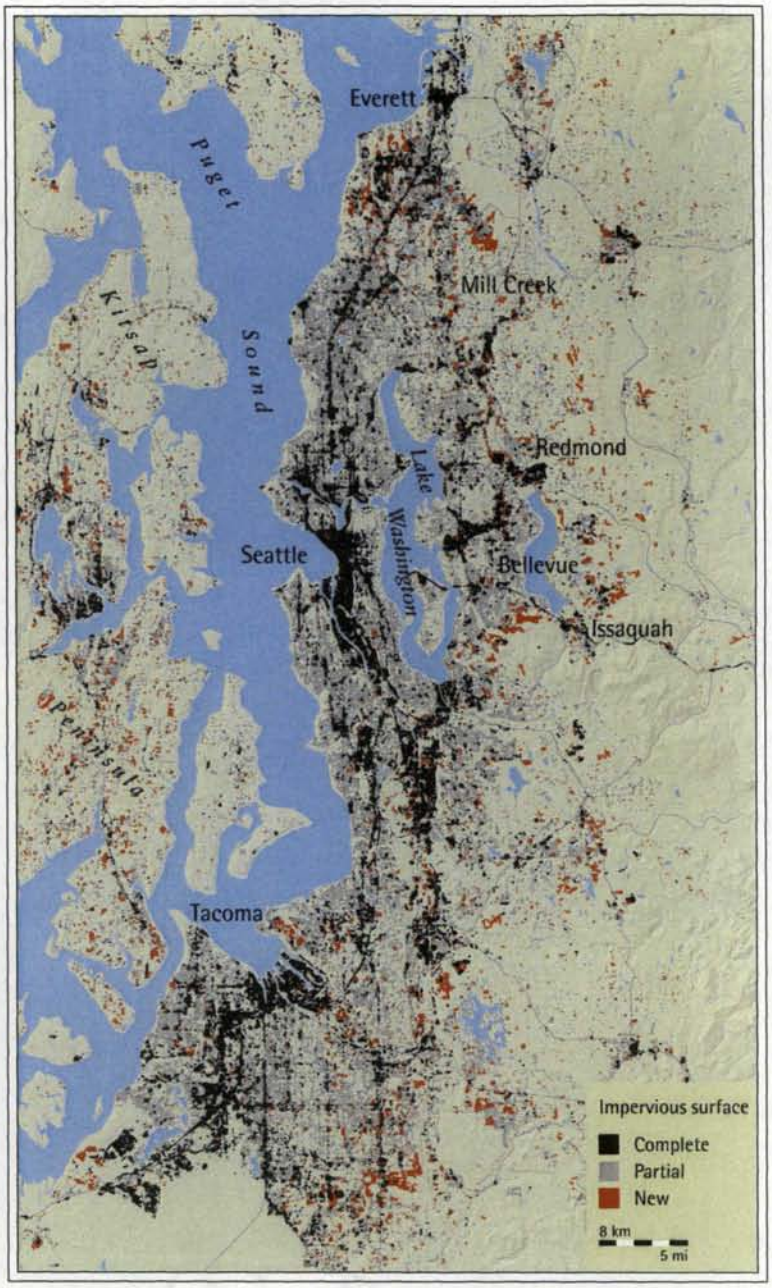


Figure 12. Seattle lost ten acres to development every day from 1988 through 1999. Map by CommEn Space, Seattle; see endnote 33.

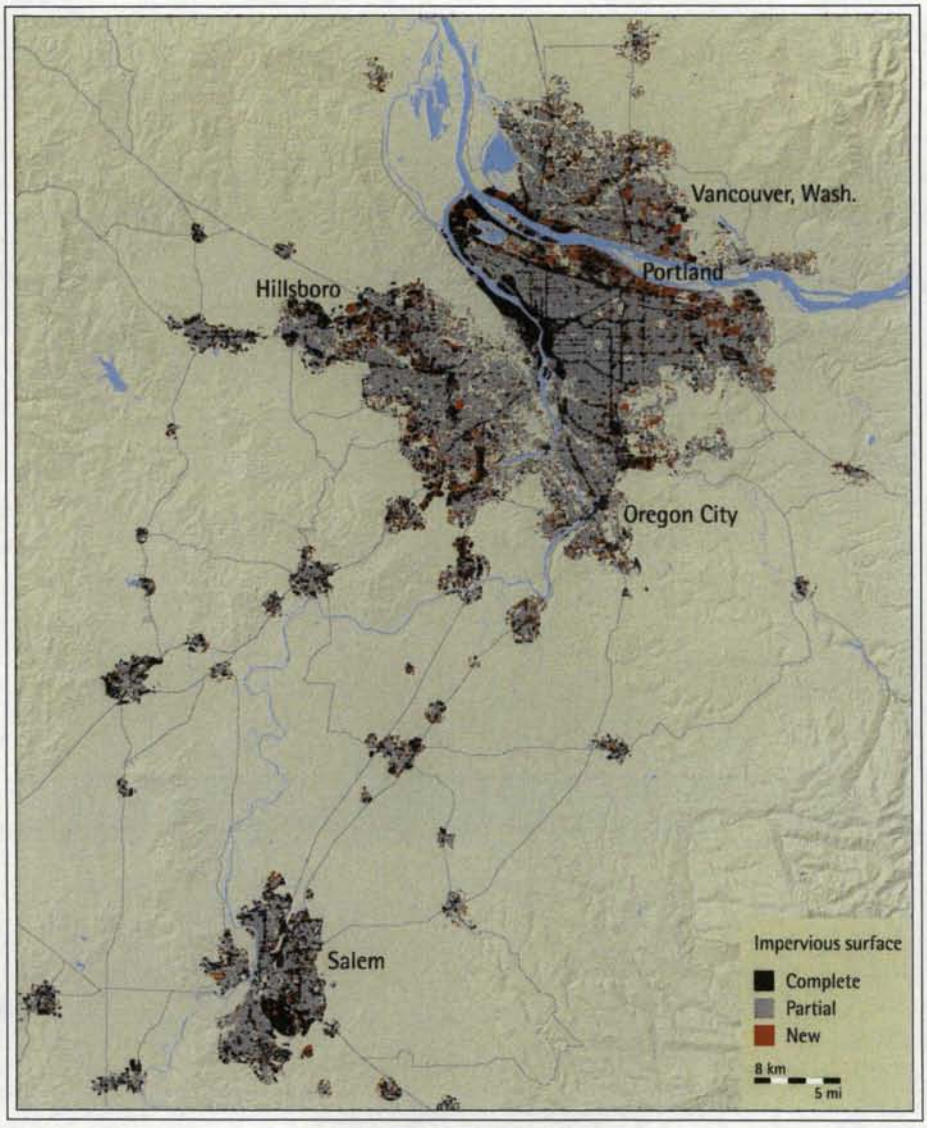


Figure 13. From 1989 to 1999, new pavement in Portland came from redevelopment within existing urban areas, yielding a more compact footprint than Seattle's. Map by CommEn Space, Seattle; see endnote 33.

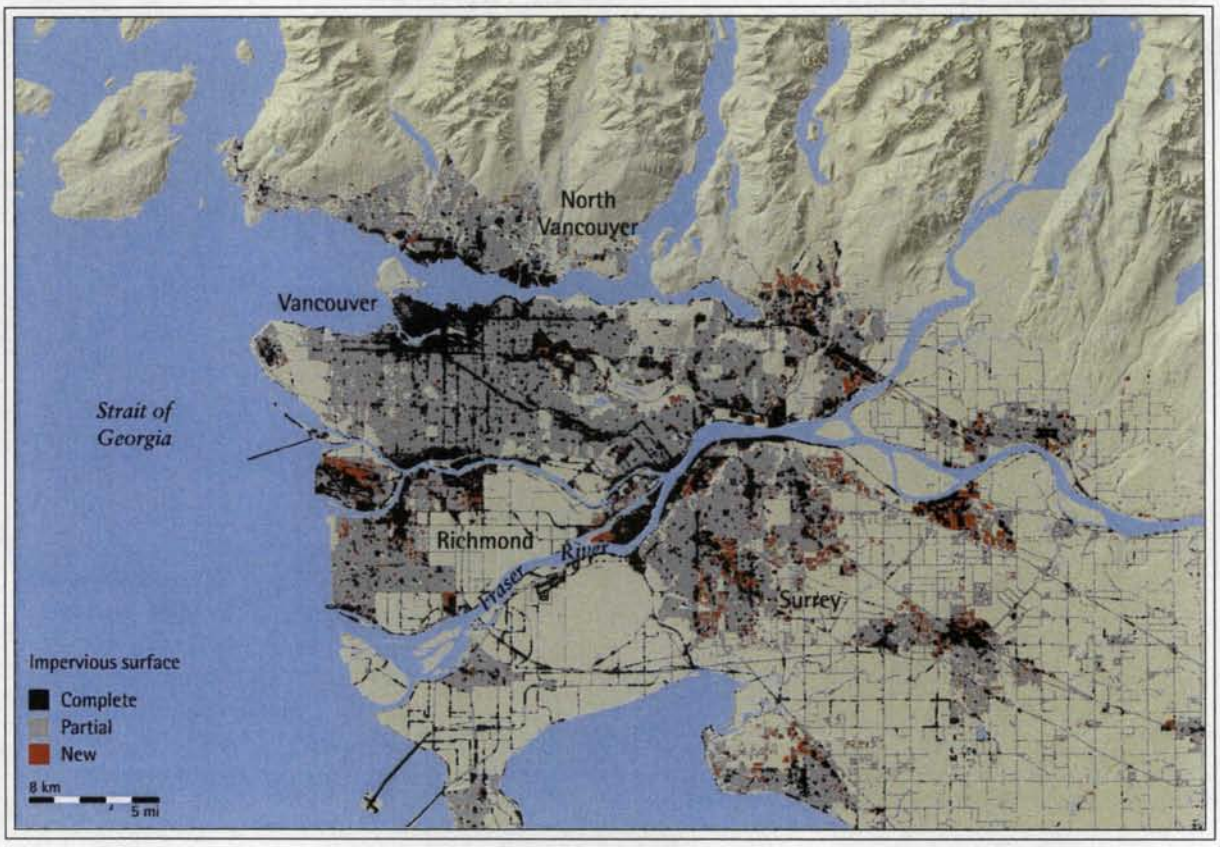


Figure 14. From 1987 through 1999, Vancouver's development preserved open space while encouraging dense, compact communities. Map by CommEn Space, Seattle; see endnote 33.

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF ADOPTING THE POST-ACKNOWLEDGEMENT AMENDMENTS TO THE 2000 REGIONAL TRANSPORTATION PLAN (RTP).	)))	ORDINANCE NO. 02-946A Introduced by Councilor Rex Burkholder

WHEREAS, the 2000 Regional Transportation Plan (RTP) was adopted on August 10, 2000, with the intent to adopt subsequent amendments from specific outstanding studies and changes required as part of the Land Conservation and Development Commission (LCDC) adoption process in a timely manner; and

WHEREAS, the specific outstanding studies, including the Tri-County Elderly and Disabled Plan, Corridor Initiatives Project and Green Streets Project, were completed in 2001; and

WHEREAS, the LCDC acknowledged the RTP in June 2001, ordering specific changes to the plan; and

WHEREAS, these amendments are reflected in the plan text and map changes shown in Exhibits to this ordinance; ~~now therefore~~and

WHEREAS, these amendments affect portions of Chapter 1 of the RTP, which also serves as the transportation element contained in Chapter 2 of the Regional Framework Plan; now therefore,

THE METRO COUNCIL ORDAINS AS FOLLOWS:

1. Adopts the technical amendments ordered by LCDC, as shown in Exhibit 'A';
2. Adopts the Elderly and Disabled policies shown in Exhibit 'B';
3. Adopts the Corridor Initiatives priorities shown in Exhibit 'C'; and
4. Adopts the Green Streets policies and implementation measures shown in Exhibit 'D'.
5. Adopts changes to Chapter 1 shown in Exhibits 'B' and 'D' as corresponding amendments to Chapter 2 of the Regional Framework Plan.

ADOPTED by the Metro Council this _____ day of _____, 2002.

_____
Carl Hosticka, Presiding Officer

Attest:

_____
Christina Billington, Recording Secretary

Approved as to Form:

_____
Daniel B. Cooper, General Counsel

RTP POST-ACKNOWLEDGEMENT AMENDMENTS

Exhibit 'A'

RTP Technical Text Amendments - Part 1

Chapter 6 – Implementation

6.2.4 Compliance with State Requirements

Compliance with Statewide Planning Goals

Together, the RTP and city and county TSPs that implement the RTP will constitute the land use decision about need, mode, and function and general location of planned transportation facilities and improvements shown in the RTP. As the regional transportation system plan, the RTP constitutes the land use decision about need, mode and function of planned transportation facilities and improvements. The RTP also identifies the general location of planned transportation facilities and improvements.

The land use decision specifying the general location of planned regional transportation facilities and improvements will be made by cities and counties as they develop and adopt local TSPs that implement the RTP. While the specific alignment of a project may be incorporated into a TSP, such decisions are subject to the project development requirements in Section 6.7, and must include findings of consistency with applicable statewide planning goals, as described below.

In preparing and adopting local TSPs, cities and counties will prepare findings showing how specific alignment of planned regional facilities or general location or specific alignment of local facilities is consistent with provisions of the RTP, acknowledged comprehensive plans and applicable statewide planning goals, if any. If the actual alignment or configuration of a planned facility proposed by a city or county is inconsistent with the general location of a facility in the RTP, the process described in Section 6.4 to resolve such issues shall be used prior to a final land use decision by a city or county.

This section describes how cities and counties will address consistency with applicable local comprehensive plans and statewide planning goals.

General Location of Planned Transportation Facilities

Maps included in the RTP illustrate the general location of planned transportation facilities and improvements. For the purposes of this plan, the general location of transportation facilities and improvements is the location shown on maps adopted as part of this plan and as described in this section. Where more than one map in the RTP shows the location of a planned facility, the most detailed map

included in the plan shall be the identified general location of that facility.

Except as otherwise described in the plan, the general location of planned transportation and facilities is as follows:

For new facilities, the general location includes a corridor within 200 feet of the location depicted on the maps included within the RTP. For interchanges, the general location corresponds to the general location of the crossing roadways. The general location of connecting ramps is not specified. For existing facilities that are planned for improvement the general location includes a corridor within fifty feet of the existing right-of-way. For realignments of existing facilities the general location includes a corridor within 200 feet of the segment to be realigned, measured from the existing right-of-way or as depicted on the plan map.

Local transportation system plans and project development are consistent with the RTP if a planned facility or improvement is sited within the general location shown on the RTP maps and described above in this section. Cities and counties may refine or revise the general location of planned facilities as they prepare local transportation system plans to implement the RTP. Such revisions may be appropriate to lessen project impacts, or to comply with applicable requirements in local plans or statewide planning goals. A decision to authorize a planned facility or improvement outside of the general location shown and described in the RTP requires an amendment to the RTP to revise the proposed general location of the improvement.

Transportation Facilities and Improvements authorized by existing acknowledged comprehensive plans

New decisions are required to authorize transportation facilities and improvements included in the RTP that are not authorized by the relevant jurisdiction's acknowledged comprehensive plan on August 10, 2000. Many of the facilities and improvements included in the RTP are currently authorized by the existing, acknowledged comprehensive plans. Additional findings demonstrating consistency with an acknowledged plan or the statewide planning goals are required only if the facility or improvement is not currently allowed by the jurisdiction's existing acknowledged comprehensive plan. Additional findings would be required if a local government changes the function, mode or general location of a facility from what is currently provided for in the acknowledged comprehensive plan.

Applicability of Statewide Planning Goals to decisions about General Location

Several statewide planning goals include "site specific" requirements that can affect decisions about the general location of planned transportation facilities. These include:

Goal 5 Open Spaces, Scenic, Historic and Natural Resources

Goal 7 Natural Hazards and Disasters

Goal 9 Economic Development , as it relates to protection of sites for specific uses (i.e. such as sites for large industrial uses)

Goal 10 Housing, as it relates to maintaining a sufficient inventory of buildable lands to meet specific housing needs (such as the need for multi-family housing)

Goal 15 Willamette River Greenway

Generally, compliance with the goals is achieved by demonstrating compliance with an acknowledged comprehensive plan. If City and county plans have been acknowledged to comply with the Goals and related rules, a planned improvement consistent with that plan is presumed to comply with the related goal requirement. Cities and counties may adopt the general location for needed transportation improvements, and defer findings of consistency with statewide planning goals to the project development phase. However, specific alignment decisions included in a local TSP must also include findings of consistency with applicable statewide planning goals.

In some situations, the Statewide Planning Goals and related rules may apply in addition to the acknowledged plan. This would occur, for example, if the jurisdiction is in periodic review, or an adopted statewide rule requirement otherwise requires direct application of the goal. Cities and counties will assess whether there are applicable goal requirements, and adopt findings to comply with applicable goals, as they prepare local transportation system plans to implement the regional transportation plan.

If in preparing a local TSP, a city or county determines that the identified general location of a transportation facility or improvement is inconsistent with an applicable provision of its comprehensive plan or an applicable statewide planning goal requirement, it shall:

- propose a revision to the general location of the planned facility or improvement to accomplish compliance with the applicable plan or goal requirement. If the revised general location is outside the general location specified in the RTP, this would require an amendment to the RTP; or

- propose a revision to the comprehensive plan to authorize the planned improvement within the general location specified in the RTP. This may require additional goal findings, for example, if a goal-protected site is affected.

Effect of an Approved Local TSP on Subsequent Land Use Decisions

Once a local TSP is adopted and determined to comply with the RTP and applicable local plans and statewide planning goals, the actual alignment of the planned transportation facility or improvement is

determined through the project development process. Subsequent actions to provide or construct a facility or improvement that are consistent with the local TSP may rely upon and need not reconsider the general location of the planned facility.

Additional land use approvals may be needed to authorize construction of a planned transportation improvement within the general location specified in an adopted local transportation system plan. This would occur if the local comprehensive plan and land use regulations require some additional review to authorize the improvement, such as a conditional use permits. Generally, the scope of review of such approvals should be limited to address siting, design or alignment of the planned improvement within the general location specified in the local TSP.

6.3 Demonstration of Compliance with Regional Requirements

In November 1992, the voters approved Metro's Charter. The Charter established regional planning as Metro's primary mission and required the agency to adopt a Regional Framework Plan (RFP). The plan was subsequently adopted in 1997, and now serves as the document that merges all of Metro's adopted land-use planning policies and requirements. Chapter 2 of the Regional Framework Plan describes the different 2040 Growth Concept land-use components, called "2040 Design Types," and their associated transportation policies. The Regional Framework Plan directs Metro to implement these 2040 Design Types through the RTP and Metropolitan Transportation Improvement Program (MTIP). These requirements are addressed as follows:

- Chapter 1 of the updated RTP has been revised to be completely consistent with applicable framework plan policies, and the policies contained in Chapter 1 of this plan incorporate all of the policies and system maps included in Chapter 2 of the framework plan. These policies served as a starting point for evaluating all of the system improvements proposed in this plan, and the findings in Chapter 3 and 5 of the RTP demonstrate how the blend of proposed transportation projects and programs is consistent with the Regional Framework Plan and 2040 Growth Concept.

- The MTIP process has also been amended for consistency with the Regional Framework Plan. During the Priorities 2000 MTIP allocation process, project selection criteria were based on 2040 Growth Concept principles, and funding categories and criteria were revised to ensure that improvements critical to implementing the 2040 Growth Concept were adequately funded.

Prior to completion of this updated RTP, several transportation planning requirements were included in the *Urban Growth Management Functional Plan* (UGMFP), which was enacted to address rapid growth issues in the region while the Regional Framework Plan and other long-range plans were under development. This 2000 RTP now replaces and expands the performance standards required for all city and county comprehensive plans in the region contained in Title 6 of the UGMFP. *See Sections 6.4.4 through 6.4.7, 6.6, 6.6.3 and 6.7.3.* In addition, parking policies contained in this plan were developed to complement Title 2 of the UGMFP, which regulates off-street parking in the region. *See Section 1.3.6, Policy 19.1.* Therefore, this RTP serves as a discrete functional plan that is both consistent with, and fully complementary of the UGMFP.

To ensure consistency between the 2000 RTP and local transportation system plans (TSPs), Metro shall develop a process for tracking local TSP project and functional classification refinements that are consistent with the RTP, and require a future amendment to be incorporated into the RTP. Such changes should be categorized according to degrees of significance and impact, with major changes subject to policy-level review and minor changes tracked administratively. This process should build on the established process of formal comment on local plan amendments relevant to the RTP.

6.4 Local Implementation of the RTP

6.4.1 Local Consistency with the RTP

The comprehensive plans adopted by the cities and counties within the Metro region are the mechanisms by which local jurisdictions plan for transportation facilities. These local plans identify future development patterns that must be served by the transportation system. Local comprehensive plans also define the shape of the future transportation system and identify needed investments. All local plans must demonstrate consistency with the RTP as part of their normal process of completing their plan or during the next periodic review. Metro will continue to work in partnership with local jurisdictions to ensure plan consistency.

The 2000 RTP is Metro's regional functional plan for transportation. Functional plans by state law include "recommendations" and "requirements." The listed RTP elements below are all functional plan requirements. Where "consistency" is required with RTP elements, those elements must be included in local plans in a manner that substantially complies with that RTP element. Where "compliance" is required with

RTP elements, the requirements in those elements must be included in local plans as they appear in the RTP.

For inconsistencies, ~~local governments~~cities and counties, special districts or Metro may initiate the dispute resolution process detailed in this chapter prior to action by Metro to require an amendment to a local comprehensive plan, transit service plan or other facilities plan. Specific elements in the 2000 RTP that require city, county and special district compliance or consistency are as follows:

Chapter 1 *Consistency with policies, objectives, motor vehicle level-of-service measure and modal targets, system maps and functional classifications including the following elements of Section 1.3:*

- *regional transportation policies 1 through 20 and objectives under those policies*
- *all system maps (Figures 1.1 through 1.19, including the street design, motor vehicle, public transportation, bicycle, pedestrian and freight systems)*
- *motor vehicle performance measures (Table 1.2), or alternative performance measures as provided for in Section 6.4.7(1)*
- *regional non-SOV modal targets (Table 1.3)*

Chapter 2 *Consistency with the 2020 population and employment forecast contained in Section 2.1 and 2.3, or alternative forecast as provided for in Section 6.4.9 of this chapter, but only for the purpose of TSP development and analysis.*

Chapter 6 *Compliance with the following elements of the RTP implementation strategy:*

- *Local implementation requirements contained in Section 6.4*
- *Project development and refinement planning requirements and guidelines contained in Section 6.7*

For the purpose of local planning, all remaining provisions in the RTP are recommendations unless clearly designated in this section as a requirement of local government comprehensive plans. All local comprehensive plans and future amendments to local plans are required by state law to be consistent with the adopted RTP. For the purpose of

transit service planning, or improvements to regional transportation facilities by any special district, all of the provisions in the RTP are recommendations unless clearly designated as a requirement. Transit system plans are required by federal law to be consistent with adopted RTP policies and guidelines. Special district facility plans that affect regional facilities, such as port or passenger rail improvements, are also required to be consistent with the RTP.

The state Transportation Planning Rule (TPR) requires most cities and counties in the Metro region to adopt local Transportation System Plans (TSPs) in their comprehensive plans. These local TSPs are required by the TPR to be consistent with the RTP policies, projects and performance measures identified in this section.

~~Upon adoption by ordinance, local TSPs shall be reviewed for consistency with these elements of the RTP. A finding of consistency and compliance for local TSPs that are found to be consistent with applicable elements of the RTP will be forwarded to the state Department of Land Conservation and Development (DLCD) for consideration as part of state review of local plan amendments. A finding of non-compliance for local TSPs that are found to be inconsistent with the RTP will be forwarded to DLCD if conflicting elements in local plans or the RTP cannot be resolved between Metro and the local jurisdiction. Tentative findings of consistency and compliance shall be provided to local jurisdictions as part of the public record during the local adoption process to allow local officials to consider these findings prior to adoption of a local TSP.~~

6.4.2 Local TSP Development

Local TSPs must identify transportation needs for a 20-year planning period, including needs for regional travel within the local jurisdiction, as identified in the RTP. Needs are generally identified either through a periodic review of a local TSP or a specific comprehensive plan amendment. Local TSPs that include planning for potential urban areas located outside the urban growth boundary shall also include project staging that links the development of urban infrastructure in these areas to future expansion of the urban growth boundary. In these areas, local plans shall also prohibit the construction of urban transportation improvements until the urban growth boundary has been expanded and urban land use designations have been adopted in local comprehensive plans.

Once a transportation need has been established, an appropriate transportation strategy or solution is identified through a two-phased process. The first phase is system-level planning, where a number of transportation alternatives are considered over a large geographic area

such as a corridor or local planning area, or through a local or regional Transportation System Plan (TSP). The purpose of the system-level planning step is to:

- consider alternative modes, corridors, and strategies to address identified needs

- determine a recommended set of transportation projects, actions, or strategies and the appropriate modes and corridors to address identified needs in the system-level study area

The second phase is project-level planning (also referred to as project development), and is described separately in this chapter in Section 6.7.

Local TSP development is multi-modal in nature, resulting in blended transportation strategies that combine the best transportation improvements that address a need, and are consistent with overall local comprehensive plan objectives.

6.4.3 Process for Metro Review of Local Plan Amendments, Facility and Service Plans

Metro will review local plans and plan amendments, and facility plans that affect regional facilities for consistency with the RTP. Prior to adoption by ordinance, local TSPs shall be reviewed for consistency with these elements of the RTP. Metro will submit formal comment as part off the adoption process for local TSPs to identify areas where inconsistencies with the RTP exist, and suggest remedies.

Upon adoption of a local TSP, Metro will complete a final consistency review, and a finding of consistency with applicable elements of the RTP will be forwarded to the state Department of Land Conservation and Development (DLCD) for consideration as part of state review of local plan amendments or local periodic review. A finding of non-compliance for local TSPs that are found to be inconsistent with the RTP will be forwarded to DLCD if conflicting elements in local plans or the RTP cannot be resolved between Metro and the local jurisdiction.

The following procedures are required for local plan amendments:

1. When a local jurisdiction or special district is considering plan amendments or facility plans which are subject to RTP local plan compliance requirements, the jurisdiction shall forward the proposed amendments or plans to Metro prior to public hearings on the amendment.

2. Within four weeks of receipt of notice, the Transportation Director shall notify the local jurisdiction through formal written comment whether the proposed amendment is consistent with RTP requirements, and what, if any, modifications would be required to achieve consistency. The Director's finding may be appealed by both the local jurisdiction or the owner of an affected facility, first to JPACT and then to the Metro Council.

3. A jurisdiction shall notify Metro of its final action on a proposed plan amendment.

4. Following adoption of a local plan, Metro shall forward a finding of consistency to DLCD, or identify inconsistencies that were not remedied as part of the local adoption process.

6.4.4 Transportation Systems Analysis Required for Local Plan Amendments

This section applies to city and county comprehensive plan amendments or to any local studies that would recommend or require an amendment to the Regional Transportation Plan to add significant single occupancy vehicle (SOV) capacity to the regional motor vehicle system, as defined by Figure 1.12. This section does not apply to projects in local TSPs that are included in the 2000 RTP. For the purpose of this section, significant SOV capacity is defined as any increase in general vehicle capacity designed to serve 700 or more additional vehicle trips in one direction in one hour over a length of more than one mile. This section does not apply to plans that incorporate the policies and projects contained in the RTP.

Consistent with Federal Congestion Management System requirements (23 CFR Part 500) and TPR system planning requirements (660-12), the following actions shall be considered when local transportation system plans (TSPs), multi-modal corridor and sub-area studies, mode specific plans or special studies (including land-use actions) are developed:

1. Transportation demand strategies that further refine or implement a regional strategy identified in the RTP

2. Transportation system management strategies, including intelligent Transportation Systems (ITS), that refine or implement a regional strategy identified in the RTP

3. Sub-area or local transit, bicycle and pedestrian system improvements to improve mode split

4. The effect of a comprehensive plan change on mode split targets and actions to ensure the overall mode split target for the local TSP is being achieved

5. Improvements to parallel arterials, collectors, or local streets, consistent with connectivity standards contained in Section 6.4.5, as appropriate, to address the transportation need and to keep through trips on arterial streets and provide local trips with alternative routes

6. Traffic calming techniques or changes to the motor vehicle functional classification, to maintain appropriate motor vehicle functional classification

7. If upon a demonstration that the above considerations do not adequately and cost-effectively address the problem, a significant capacity improvement may be included in the comprehensive plan

Upon a demonstration that the above considerations do not adequately and cost-effectively address the problem and where accessibility is significantly hindered, Metro and the affected city or county shall consider:

1. Amendments to the boundaries of a 2040 Growth Concept design type

2. Amendments or exceptions to land-use functional plan requirements

3. Amendments to the 2040 Growth Concept

4. Designation of an Area of Special Concern, consistent with Section 6.7.7.

Demonstration of compliance will be included in the required congestion management system compliance report submitted to Metro by cities and counties as part of system-level planning and through findings consistent with the TPR in the case of amendments to applicable plans.

6.4.6 Alternative Mode Analysis

Improvement in non-SOV mode share will be used as the key regional measure for assessing transportation system improvements in the central city, regional centers, town centers and station communities. For other 2040 Growth Concept design types, non-SOV mode share will be used as an important factor in assessing transportation system improvements. These modal targets will also be used to demonstrate compliance with per

capita travel reductions required by the state TPR. This section requires that cities and counties establish non-SOV regional modal targets for all 2040 design types that will be used to guide transportation system improvements, in accordance with Table 1.3 in Chapter 1 of this plan:

1. Each jurisdiction shall establish an alternative mode share target (defined as non-single occupancy vehicle person-trips as a percentage of all person-trips for all modes of transportation) in local TSPs for trips into, out of and within all 2040 Growth Concept land-use design types within its boundaries. The alternative mode share target shall be no less than the regional modal targets for these 2040 Growth Concept land-use design types to be established in Table 1.3 in Chapter 1 of this plan.

2. Cities and counties, working with Tri-Met and other regional agencies, shall identify actions in local TSPs that will result in progress toward achieving the non-SOV modal targets. These actions should initially be based on RTP modeling assumptions, analysis and conclusions, and include consideration of the maximum parking ratios adopted as part of Title 2, section 3.07.220 of the *Urban Growth Management Functional Plan;* regional street design considerations in Section 6.7.3, Title 6, transportation demand management strategies and transit's role in serving the area. Local benchmarks for evaluating progress toward achieving modal targets may be based on future RTP updates and analysis, if local jurisdictions are unable to generate this information as part of TSP development.

3. Metro shall evaluate local progress toward achieving the non-SOV modal targets during the 20-year plan period of a local TSP using the Appendix 1.8 "TAZ Assumptions for Parking Transit and Connectivity Factors" chart as minimum performance requirements for local actions proposed to meet the non-SOV requirements.

6.4.8 Future RTP Refinements Identified through Local TSPs

The 2000 RTP represents the most extensive update to the plan since it was first adopted in 1982. It is the first RTP to reflect the 2040 Growth Concept, Regional Framework Plan and state Transportation Planning Rule. In the process of addressing these various planning mandates, the plan's policies and projects are dramatically different than the previous RTP. This update also represents the first time that the plan has considered growth in urban reserves located outside the urban growth boundary but expected to urbanize during the 20-year plan

period. As a result, many of the proposed transportation solutions are conceptual in nature, and must be further refined.

In many cases, these proposed transportation solutions were initiated by local jurisdictions and special agencies through the collaborative process that Metro used to develop the updated RTP. However, the scope of the changes to the RTP will require most ~~local governments~~cities and counties and special agencies to make substantial changes to comprehensive, facility and service plans, as they bring local plans into compliance with the regional plan. In the process of making such changes, local jurisdictions and special agencies will further refine many of the solutions included in this plan.

Such refinements will be reviewed by Metro and, based on a finding of consistency with RTP policies, specifically proposed for inclusion in future updates to the RTP. Section 6.3 requires Metro to develop a process for to ensure consistency between the 2000 RTP and local TSPs by developing a process for tracking local project and functional classification refinements that are consistent with the RTP, but require a future amendment to be incorporated into the RTP. This process will occur concurrently with overall review of local plan amendments, facility plans and service plans, and is subject to the same appeal and dispute resolution process. While such proposed amendments to the RTP ~~are~~ may not be effective until a formal amendment has been adopted, the purpose of endorsing such proposed changes is to allow ~~local governments~~cities and counties to retain the proposed transportation solutions in local plans, with a finding of consistency with the RTP, and to provide a mechanism for timely refinements to local and regional transportation plans.

6.7 Project Development and Refinement Planning

6.7.1 Role of RTP and the Decision to Proceed with Project Development

After a project has been incorporated in the RTP, it is the responsibility of the local sponsoring jurisdiction to determine the details of the project (design, operations, etc.) and reach a decision on whether to build the improvement based upon detailed environmental impact analysis and findings demonstrating consistency with applicable comprehensive plans and the RTP. If this process results in a decision not to build the project, the RTP will be amended to delete the recommended improvement and an alternative must be identified to address the original transportation need.

6.7.2 New Solutions Re-submitted to RTP if No-Build Option is Selected

When a "no-build" alternative is selected at the conclusion of a project development process, a new transportation solution must be developed to meet the original need identified in the RTP, or a finding that the need has changed or been addressed by other system improvements. In these cases, the new solution or findings will be submitted as an amendment to the RTP, and would also be evaluated at the project development level.

6.7.3 Project Development Requirements

Transportation improvements where need, mode, ~~corridor and~~ function and general location have already been identified in the RTP and local plans for a specific alignment must be evaluated on a detailed, project development level. This evaluation is generally completed at the local jurisdiction level, or jointly by affected or sponsoring agencies, in coordination with Metro. The purpose of project development planning is to consider project design details and select a project alignment, as necessary, after evaluating engineering and design alternatives ~~and~~, potential environmental impacts and consistency with applicable comprehensive plans and the RTP. The project need, mode, ~~corridor, and~~ function and general location do not need to be addressed at the project level, since these findings have been previously established by the RTP.

The TPR and Metro's Interim 1996 Congestion Management System (CMS) document require that measures to improve operational efficiency be addressed at the project level, though system-wide considerations are addressed by the RTP. Therefore, demonstration of compliance for projects not included in the RTP shall be documented in a required Congestion Management System report that is part of the project-level planning and development (Appendix D of the Interim CMS document). In addition, th~~is section~~e CMS requires that street design guidelines be considered as part of the project-level planning process. This ~~section~~ CMS requirement does not apply to locally funded projects on local facilities. Unless otherwise stipulated in the MTIP process, these provisions are simply guidelines for locally funded projects.

Therefore, in addition to system-level congestion management requirements described in Section 6.6.3 in this chapter, cities, counties, Tri-Met, ODOT, and the Port of Portland shall consider the following project-level operational and design considerations during transportation project analysis as part of completing the CMS report:

1. Transportation system management (e.g., access management, signal inter-ties, lane channelization, etc.) to address or preserve existing street capacity.

2. Street design policies, classifications and design principles ~~are~~ contained in Chapter 1 of this plan. See Section 1.3.5, Policy 11.0, Figure 1.4. Implementing guidelines are contained in *Creating Livable Streets: Street Design Guidelines for 2040* (1997) or other similar resources consistent with regional street design policies.

RTP POST-ACKNOWLEDGEMENT AMENDMENTS

Exhibit 'A'

RTP Glossary Additions and Amendments - Part 2

Glossary of Transportation Definitions

Access management - Measures regulating access to streets, roads and highways from public roads and private driveways. Measures may include but are not limited to restrictions on the siting of interchanges, restrictions on the type and amount of access to roadways, and use of physical controls, such as signals and channelization including raised medians, to reduce impacts of approach road traffic on the main facility.
~~The principles, laws and techniques used to control access off and onto streets, roads and highways from roads and driveways. One of the primary purposes of controlling access is to reduce conflicts between motor vehicles, pedestrians and bicyclists. Examples of access management include limiting or consolidating driveways, selectively prohibiting left-turn movements at and between intersections and using physical controls such as signals and raised medians.~~

Accessway - A walkway that provides pedestrian and or bicycle passage either between streets or from a street to a building or other destination such as a school, park, or transit stop. Accessways generally include a walkway and additional land on either side of the walkway, often in the form of an easement or right-of-way, to provide clearance and separation between the walkway and adjacent uses. Accessways through parking lots are generally physically separated from adjacent vehicle parking or parallel vehicle traffic by curbs or similar devices and include landscaping, trees and lighting. Where accessways cross driveways, they are generally raised, paved or marked in a manner which provides convenient access for pedestrians.

Affected local government - A city, county or metropolitan service district that is directly impacted by a proposed transportation facility or improvement.

At or near a major transit stop - "At" means a parcel or ownership which is adjacent to or includes a major transit stop generally including portions of such parcels or ownerships that are within 200 feet of a transit stop. "Near" generally means a parcel or ownership that is within 300 feet of a major transit stop. The term "generally" is intended to allow local governments through their plans and ordinances to adopt more specific definitions of these terms considering local needs and circumstances consistent with the overall objective and requirement to provide convenient pedestrian access to transit.

Local street standards - Include but are not limited to standards for right-of-way, pavement width, travel lanes, parking lanes, curb turning radius, and accessways.

Local transportation needs - Needs for movement of people and goods within communities and portions of counties and the need to provide access to local destinations.

Major - In general, those facilities or developments which, considering the size of the urban or rural area and the range of size, capacity or service level of similar facilities or developments in the area, are either larger than average, serve more than neighborhood needs or have significant land use or traffic impacts on more than the immediate neighborhood:

(a) "Major" as it modifies transit corridors, stops, transfer stations and new transportation facilities means those facilities which are most important to the functioning of the system or which provide a high level, volume or frequency of service;

(b) "Major" as it modifies industrial, institutional and retail development means such developments, which are larger than average, serve more than neighborhood needs or which have traffic impacts on more than the immediate neighborhood;

(c) Application of the term "major" will vary from area to area depending upon the scale of transportation improvements, transit facilities and development which occur in the area. A facility considered to be major in a smaller or less densely developed area may, because of the relative significance and impact of the facility or development, not be considered a major facility in a larger or more densely developed area with larger or more intense development or facilities.

Major transit stop - Major bus stops, transit centers and light-rail stations on the regional transit network as defined in Figure 1.16:, including:

(a) Existing and planned light rail stations and transit transfer stations, except for temporary facilities;

(b) Other planned stops designated as major transit stops in a transportation system plan and existing stops which:

(A) Have or are planned for an above average frequency of scheduled, fixed-route service when compared to region wide service. In urban areas of 1,000,000 or more population major transit stops are generally located along routes that have or are planned for 20 minute service during the peak hour; and

(B) Are located in a transit oriented development or within 1/4 mile of an area planned and zoned for:
(i) Medium or high density residential development; or
(ii) Intensive commercial or institutional uses within 1/4 mile of subsection (i); or
(iii) Uses likely to generate a relatively high level of transit ridership.

Metropolitan Planning Organization (MPO) -- An organization located within the State of Oregon and designated by the Governor to coordinate transportation planning in an urbanized area of the state including such designations made subsequent to the adoption of this rule. The Longview-Kelso-Rainier MPO is not considered an MPO for the purposes of this rule. ~~An individual agency designated by the state governor in each federally recognized urbanized area to coordinate transportation planning for that metropolitan region.~~ Metro is that agency for Clackamas, Washington and Multnomah Counties; for Clark County, Wash., that agency is the Southwest Washington Regional Transportation Council (SWRTC, formally the Intergovernmental Resource Center).

Metropolitan area - The local governments that are responsible for adopting local or regional transportation system plans within a metropolitan planning organization (MPO) boundary. This includes cities, counties, and, in the Portland Metropolitan area, Metro.

ODOT - Oregon Department of Transportation.

Parking spaces - On and off street spaces designated for automobile parking in areas planned for industrial, commercial, institutional or public uses. The following are not considered parking spaces for the purposes of OAR 660-012-0045(5)(c): park and ride lots, handicapped parking, and parking spaces for carpools and vanpools.

Pedestrian connection - A continuous, unobstructed, reasonably direct route between two points that is intended and suitable for pedestrian use. Pedestrian connections include but are not limited to sidewalks, walkways, accessways, stairways and pedestrian bridges. On developed parcels, pedestrian connections are generally hard surfaced. In parks and natural areas, pedestrian connections may be soft-surfaced pathways. On undeveloped parcels and parcels intended for redevelopment, pedestrian connections may also include rights of way or easements for future pedestrian improvements.

Pedestrian district - A comprehensive plan designation or implementing land use regulations, such as an overlay zone, that establish requirements to provide a safe and convenient pedestrian environment in an area planned for a mix of uses likely to support a relatively high level of pedestrian activity. Such areas include but are not limited to:

(a) Lands planned for a mix of commercial or institutional uses near lands planned for medium to high density housing; or

(b) Areas with a concentration of employment and retail activity; and

(c) Which have or could develop a network of streets and accessways which provide convenient pedestrian circulations.

Pedestrian districts are areas of high or potentially high pedestrian activity where the region places priority on creating a walkable environment. Specifically, the central city, regional and town centers, and light-rail station communities are areas planned for the levels of

compact, mixed-use development served by transit that will generate substantial walking and these areas are defined as pedestrian districts. Pedestrian districts should be designed to reflect an urban development and design pattern where walking is a safe, convenient and interesting travel mode. These areas will be characterized by buildings oriented to the street and by boulevard type street design features, such as wide sidewalks with buffering from traffic, marked street crossings at all intersections with special crossing amenities at some locations, pedestrian-scale lighting, benches, bus shelters, awnings and street trees. All streets in pedestrian districts are important pedestrian connections.

Pedestrian plaza - A small semi-enclosed area usually adjoining a sidewalk or a transit stop which provides a place for pedestrians to sit, stand or rest. They are usually paved with concrete, pavers, bricks or similar material and include seating, pedestrian scale lighting and similar pedestrian improvements. Low walls or planters and landscaping are usually provided to create a semi-enclosed space and to buffer and separate the plaza from adjoining parking lots and vehicle maneuvering areas. Plazas are generally located at a transit stop, building entrance or an intersection and connect directly to adjacent sidewalks, walkways, transit stops and buildings entrance or an intersection and connect directly to adjacent sidewalks, walkways, transit stops and building. A plaza including 150-250 square feet would be considered "small." "Pedestrian scale" means site and building design elements that are dimensionally less than those intended to accommodate automobile traffic, flow and buffering. Examples include ornamental lighting of limited height; bricks, pavers or other modules of paving with small dimensions; a variety of planting and landscaping materials; arcades or awnings that reduce the height of walls; and signage and signpost details that can only be perceived from a short distance.

Planning period - The twenty-year period beginning with the date of adoption of a TSP to meet the requirements of the Transportation Planning Rule.

Preliminary design - An engineering design which specifies in detail the location and alignment of a planned transportation facility or improvement.

Reasonably direct - Either a route that does not deviate unnecessarily from a straight line or a route that does not involve a significant amount of out-of-direction travel for likely users.

Refinement plan - An amendment to the transportation system plan, which resolves, at a systems level, determinations on function, mode or general location which were deferred during transportation system planning because detailed information needed to make those determinations could not reasonably be obtained during that process.

Regional transportation needs - Needs for movement of people and goods between and through communities and accessibility to regional destinations within a metropolitan area, county or associated group of counties.

Roads - Streets, roads and highways.

Rural community - Areas defined as resort communities and rural communities in accordance with OAR 660-022-0010(6) and (7). For the purposes of the TPR, the area need only meet the definitions contained in the Unincorporated Communities Rule although the area may not have been designated as an unincorporated community in accordance with OAR 660-022-0020.

State transportation needs - Needs for movement of people and goods between and through regions of the state and between the state and other states.

Transit-oriented development - A mix of residential, retail and office uses and a supporting network of roads, bicycle and pedestrian ways focused on a major transit stop designed to support a high level of transit use. The ~~K~~key features include: ~~a mixed-use center and high residential density.~~

(a) A mixed use center at the transit stop, oriented principally to transit riders and pedestrian and bicycle travel from the surrounding area;

(b) High density of residential development proximate to the transit stop sufficient to support transit operation and neighborhood commercial uses within the TOD;

(c) A network of roads, and bicycle and pedestrian paths to support high levels of pedestrian access within the TOD and high levels of transit use.

Transportation Control Measures (TCMs) - A measure that is for the purpose of reducing emissions or concentrations of air pollutants from transportation sources by reducing vehicle use or changing traffic flow or congestion conditions.

Transportation demand management (TDM) --Actions which are designed to change travel behavior in order to improve performance of transportation facilities and to reduce need for additional road capacity. Methods may include but are not limited to the use of alternative modes, ride-sharing and vanpool programs, and trip-reduction ordinances. ~~Actions, such as ridesharing and vanpool programs, the use of alternative modes, and trip-reduction ordinances, which are designed to change travel behavior in order to improve performance of transportation facilities and to reduce need for additional road capacity.~~

Transportation facilities - Any physical facility that moves or assist in the movement of people or goods including facilities identified in OAR 660-012-0020 but excluding electricity, sewage and water systems.

Transportation needs - Estimates of the movement of people and goods consistent with acknowledged comprehensive plan and the requirements of this rule. Needs are typically based on projections of future travel demand resulting from a continuation of current trends as modified by

policy objectives, including those expressed in Goal 12 and the TPR, especially those for avoiding principal reliance on any one mode of transportation. See separate definitions for local transportation needs, regional transportation needs and state transportation needs.

Transportation project development - Implementing the transportation system plan (TSP) by determining the precise location, alignment, and preliminary design of improvements included in the TSP based on site-specific engineering and environmental studies.

Transportation service - A service for moving people and goods, such as intercity bus service and passenger rail service.

Transportation system management (TSM) - Strategies and techniques for increasing the efficiency, safety, capacity or level of service of a transportation facility without ~~major new capital improvements~~increasing its size. Examples include, but are not limited to, ~~This may include~~ traffic signal improvements, traffic control devices including installing medians and parking removal, ~~intersection~~ channelization, access management, re-striping of HOV lanes, ramp metering, incident response, targeted traffic enforcement and programs that smooth transit operations.

Urban area - Lands within an urban growth boundary, two or more contiguous urban growth boundaries, and urban unincorporated communities as defined by OAR 660-022-0010(9). In the case of the Portland metropolitan region, ~~T~~those areas located within the Metro urban growth boundary (UGB).

Urban fringe - Areas outside the urban growth boundary that are:

(a) within 5 miles of the urban growth boundary of an MPO area; and

(b) within 2 miles of the urban growth boundary of an urban area containing a population greater than 25,000.

Vehicle miles of travel (VMT) - Automobile vehicle miles of travel. Automobiles, for purposes of this definition, include automobiles, light trucks, and other similar vehicles used for movement of people. The definition does not include buses, heavy trucks and trips that involve commercial movement of goods. VMT includes trips with an origin and a destination within the MPO boundary and excludes pass through trips (i.e., trips with a beginning and end point outside of the MPO) and external trips (i.e., trips with a beginning or end point outside of the MPO boundary). VMT is estimated prospectively through the use of metropolitan area transportation models.

Walkway - A hard-surfaced transportation facility ~~built~~ intended and suitable for use by pedestrians, including persons using wheelchairs. Walkways include sidewalks, surfaced portions of accessways, paths and paved shoulders.

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Appendix 1.8
Transportation Analysis Zone Assumptions
and Non-SOV Modal Performance

2040 Grouping	2040 Group Characteristics	2020 Intersection Density *(connections per mile)*			2020 ParkingFactors *(indexed to CBD in '94 dollars)*			2020 Transit Pass Factor *(% of Full Fare)*			2020 Fareless Areas *(for internal trips)*			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping*		
		P	~~SPT~~	FC	P	~~SPT~~	FC	P	~~SPT~~	FC	P	~~SPT~~	FC	1994	2020 Preferred System	2020 Priority System
Central City 1 Downtown Business District	Highest planned employment and housing density in the region, with highest level of access by all modes. LRT exists and current land uses reflect planned mix and densities.	20	20	20	6.08	6.08	6.08	60%	60%	60%	X	X	X	48%	67%	67%
Central City 2 Lloyd District	Highest planned employment and housing density in the region, with highest level of access by all modes. LRT exists and current land uses reflect planned mix and densities.	20	20	20	3.94	3.94	3.94	60%	60%	60%	X	X	X	34%	46%	46%
Central City 3 Central Eastside Industrial District	Planned high employment and housing density, with highest level of access by all modes. LRT exists ~~and~~ c Current land uses do not reflect planned ~~mix and~~ densities.	20	20	20	2.96	2.96	2.96	65%	65%	65%	X	X		32%	43%	42%

(P) 2020 Preferred System
(~~SPT~~) 2020 Priority System
(FC) 2020 Financially Constrained System

2040 Grouping	Group Characteristics	Intersection Density			Parking Factors			Transit Pass Factor			Fareless Areas			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping)*		
		P	SPT	FC	P	SPT	FC	P	SPT	FC	P	SPT	FC	1994	2020 Preferred System	2020 Priority System
Central City 4 River District and Northwest	Planned high employment and housing density, with highest level of access by all modes. LRT exists and current land uses approach planned mix and densities.	20	20	20	3.94	3.94	3.94	65%	65%	65%	X	X		37%	57%	57%
Central City 5 North Macadam District	Planned high employment and housing density, with highest level of access by all modes. LRT exists and current land uses do not reflect planned mix and densities.	18	18	18	3.04	3.04	3.04	65%	65%	65%	X	X		22%	42%	42%
Regional Centers - Tier 1 Gresham Gateway Beaverton Hillsboro	Planned high employment and housing density, with highest level of access by all modes. LRT exists and current land uses approach planned mix and densities.	>16	>16	>14	1.60	1.20	0.80	70%	75%	80%	X	X	X	32%	40%	39%
Regional Centers - Tier 2 Washington Square Milwaukie Clackamas Oregon City	Planned high employment and housing density, with highest level of access by all modes; planned LRT. Current land uses do not reflect planned mix and densities.	>12	>12	>10	1.22	0.92	0.60	85%	90%	95%	X	X		31%	34%	34%
Station Communities Tier 1 Banfield Corridor Westside Corridor	High housing density mixed with commercial services; highest level of access for transit, bike and walk; existing LRT.	>16	>14	>12	1.60	1.20	0.80	70%	75%	80%				35%	42%	41%

(P) 2020 Preferred System
(SPT) 2020 Priority System
(FC) 2020 Financially Constrained System

2040 Grouping	Group Characteristics	Intersection Density			Parking Factors			Transit Pass Factor			Fareless Areas			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping)*		
		P	SPT	FC	P	SPT	FC	P	SPT	FC	P	SPT	FC	1994	2020 Preferred System	2020 Priority System
Station Communities Tier 2 South/North Corridor	Planned high housing density mixed with commercial services, with high level of transit, bike and walk; planned LRT. Current land uses do not reflect planned mix and densities.	>12	>12	>10	1.22	0.92	0.60	85%	90%	95%				36%	42%	42%
Town Centers - Tier 1 St. Johns Hollywood Lents Rockwood Lake Oswego Tualatin Forest Grove	Moderate housing and employment density planned, with high level of access by all modes. Currently has good mix of uses, well connected street system and good transit.	>16	>16	>16	0.90	0.68	0.45	75%	80%	85%				35%	40%	40%
Town Centers - Tier 2 West Portland Raleigh Hills Hillsdale Gladstone West Linn Sherwood Sunset Wilsonville Cornelius Orenco	Moderate housing and employment density planned, with high level of access by all modes. Currently has some mix of uses, moderately connected street system and some transit. Existing topography or physical barriers may limit bike and pedestrian travel.	>12	>12	>10	0.72	0.54	0.36	90%	95%	100%				32%	37%	37%
Town Centers - Tier 3 Fairview/Wood Village Troutdale Happy Valley Lake Grove Farmington Cedar Mill Tannasbourne	Moderate housing and employment density planned, with high level of access by all modes. Currently has modest mix of uses, poorly connected street system and poor transit. Existing topography or physical barriers may limit bike and pedestrian travel.	>10	>10	>8	0.55	0.41	0.28	100%	100%	100%				34%	37%	36%

(P) 2020 Preferred System
(SPT) 2020 Priority System
(FC) Financially Constrained System

2040 Grouping	Group Characteristics	Intersection Density			Parking Factors			Transit Pass Factor			Fareless Areas			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping)*		
		P	SPT	FC	P	SPT	FC	P	SPT	FC	P	SPT	FC	1994	2020 Preferred System	2020 Priority System
Town Centers - Tier 4 Pleasant Valley Damascus Bethany Murrayhill	Moderate housing and employment density planned, with high level of access by all modes. Currently undeveloped or developing urban uses, with skeletal street system and poor transit. Existing topography or physical barriers may limit bike and pedestrian travel.	>8	>8	>8	0.36	0.27	0.18	100%	100%	100%				37%	40%	39%
Mainstreets - Tier 1 Eastside Portland to 60th	Moderate housing and employment density planned, with high level of access by all modes. Currently has good mix of uses, well connected street system and good transit.	>16	>16	>14	0.90	0.68	0.45	100%	100%	100%				40%	45%	45%
Mainstreets - Tier 2 Remaining Region	Moderate housing and employment density planned, with high level of access by all modes. Currently has some mix of uses, moderate connectivity and some transit.	>12	>10	>8	0.72	0.54	0.36	100%	100%	100%				38%	43%	43%

(P) 2020 Preferred System
(SPT) 2020 Priority System
(FC) 2020 Financially Constrained System

2040 Grouping	Group Characteristics	Intersection Density			Parking Factors			Transit Pass Factor			Fareless Areas			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping)*		
		P	SPT	FC	P	SPT	FC	P	SPT	FC	P	SPT	FC	1994	2020 Preferred System	2020 Priority System
Corridors Full Region	Moderate housing and employment density planned, with high level of access by all modes. Currently has modest mix of uses, moderate connectivity and some transit.	>10	>10	>10	None	None	None	100%	100%	100%				36%	39%	39%
Inner Neighborhoods Full Region	Low density housing planned, with moderate level of access by all modes. Currently has moderate connectivity and some transit.	>10	>10	>10	None	None	None	100%	100%	100%				39%	42%	42%
Outer Neighborhoods - Tier 1 Current Urban Areas	Low density housing planned, with moderate level of access by all modes. Currently has poorly connected street system and little transit.	>8	>8	>8	None	None	None	100%	100%	100%				37%	40%	39%
Outer Neighborhoods - Tier 2 Urban Reserve Areas	Low density housing planned, with moderate level of access by all modes. Currently has skeletal street system and no transit.	>6	>6	>6	None	None	None	100%	100%	100%				36%	39%	38%
Employment Areas Full Region	Low density employment planned, with moderate level of access by all modes. Currently has poorly connected street system and limited transit.	>8	>8	>8	None	None	None	100%	100%	100%				28%	30%	29%

(P) 2020 Preferred System
(SPT) 2020 Priority System
(FC) Financially Constrained System

2040 Grouping	Group Characteristics	Intersection Density			Parking Factors			Transit Pass Factor			Fareless Areas			Non-SOV Modal Performance *(combined share of non-SOV trips to, from and within 2040 grouping)*		
		P	SPT	FC	P	SPT	FC	P	SPT	FC	P	SPT	FC	1994	2020 Preferred System	2020 Priority System
Industrial Areas - Tier 1 Rivergate Swan Island Airport	Low density employment planned, with high level of access by rail and truck freight, and moderate access by other modes. Currently has somewhat connected street system and some transit.	>10	>10	>10	None	None	None	100%	100%	100%				26%	27%	27%
Industrial Areas - Tier 2 South Shore Clackamas Tualatin Beaverton Sunset	Low density employment planned, with high level of access by rail and truck freight, and moderate access by other modes. Currently has developing street system and poor transit.	>8	>8	>8	None	None	None	100%	100%	100%				28%	28%	28%
Greenspaces Same as Tier 2 Outer Neighborhoods.	Recreational uses are planned, with moderate level of access by all modes	>6	>6	>6	None	None	None	100%	100%	100%				n/a	n/a	n/a
Rural Reserves Same as Tier 2 Outer Neighborhoods.	Urban uses are not planned in the foreseeable future. Currently has skeletal street system and no transit.	>6	>6	>6	None	None	None	100%	100%	100%				34%	37%	37%
Special Area 1 Portland International Airport		*	*	*	6.14	6.14	6.14	60%	60%	60%				*These places are relatively small geographic areas with special characteristics that make it difficult to determine actual non-SOV modal performance based on analysis of the regional model.*		
Special Area 2 Oregon Health Sciences University		*	*	*	1.86	1.86	1.86	60%	60%	60%						
Special Area 3 Oregon Zoo		*	*	*	1.86	1.86	1.86	100%	100%	100%						
Special Area 4 SMART (Wilsonville)		*	*	*	*	*	*	*	*	*	X	X	X		*	*

* Use parent zone values.

8/10/00

(**P**) 2020 Preferred System
(**SPT**) 2020 Priority System
(**FC**) 2020 Financially Constrained System

RTP POST-ACKNOWLEDGEMENT AMENDMENTS

Exhibit 'B'

Special Needs Transportation Policy

Chapter 1

Replace Policy 5.1 Interim Special Needs Transportation Policy with the following:

14.4 Special Needs Public Transportation

Provide an appropriate level, quality and range of public transportation options to serve the variety of special needs individuals in this region and support the implementation of the 2040 Growth Concept.

a. Objective: Continue to work with Tri-Met, SMART, special needs providers, and local jurisdictions to meet the adopted minimum standards for service levels established for the Metro area.

b. Objective: Ensure public transportation that serves the special needs population is sensitive to and balances the cultural, functional or age related needs of the elderly and disabled individuals with the need to utilize resources in a cost-effective manner.

c. Objective: Improve the accountability of the special needs transportation network by enhancing customer input and feedback opportunities

d. Objective: Support informal (family, neighbors, self) and formal (paid and volunteer special needs transportation options by establishing training and information services

14.4 Special Needs Public Transportation

Provide a seamless and coordinated public transportation system for the special needs population.

a. Objective: Continue to work with Tri-Met, SMART special needs providers, and local jurisdictions to provide a customer information system that improves community familiarity with, access to and understanding of the elderly and disabled transportation network.

b. Objective: Employ technology to create a seamless, coordinated and single point of entry system for the user's ease that maximizes efficiency of operation, planning and administrative functions.

14.7 Special Needs Public Transportation

Encourage the location of elderly and disabled facilities in areas with existing transportation services and pedestrian amenities.

a. Objective: Encourage new and existing development to create and enhance pedestrian facilities near elderly and disabled developments, including sidewalks, crosswalks, audible signals, etc. and provide incentives for the future pedestrian orientation in areas serving elderly and disabled individuals.

b. Objective: Incorporate elderly and disabled housing into mixed use developments that includes public facilities such as senior centers, libraries and other public services as well as commercial and retail services such as stores, medical offices and other retail services.

c. Objective: Provide for audible signals, curb cut tactile strips and appropriately timed signalized crosswalks at major retail centers or near bus stops for arterial street, high volume neighborhood circulators or other major roadways near elderly or disabled facilities or in neighborhoods with significant elderly or disabled populations.

Chapter 6 - Implementation

~~6.8.12 Special Needs Transportation Study~~

~~A collaborative effort is underway for special transportation planning in the tri-county area. As sponsors of this plan, the Areas Agencies on Aging and Disabilities of Washington, Multnomah and Clackamas counties, Tri-Met and the Special Transportation Fund Advisory Committee are coordinating a broad-based effort to create an elderly and disabled transportation services plan. The plan will develop special needs transportation options for both the urban and rural portions of the tri-county area and will be included in the Regional Transportation Plan.~~

~~The special needs transportation plan requires a unique, broad-based and inclusive planning process. The plan's sponsors created an Elderly and Disabled Transportation Plan Steering Committee made up of over 20 representative from the tri-county area. Representatives include senior and disabled advocates, agencies and advisory committees, county commissioners, service providers, system users, Metro staff, city staff and other regional transit districts.~~

~~In 2000-01, the Steering Committee will meet monthly to:~~

~~1. Produce a vision statement for elderly and disabled transportation and assure this vision is included in the RTP;~~

~~2. Define the need for transportation services over the next five to ten years;~~

~~3. Adopt a service, capital and information plan to meet those needs;~~

~~4. Identify financing mechanisms and phasing to implement the plan;~~

~~5. Assess organizational and institutional arrangements to best meeting the plan's goals; and~~

~~6. Present the plan and advocate for the plans implementation at the local, regional and state levels.~~

~~In anticipation of completing this program, interim policies and objectives have been included in the RTP. These policies will be updated during the next RTP update, reflecting the recommendations from the special needs transit plan.~~

RTP POST-ACKNOWLEDGEMENT AMENDMENTS

Exhibit 'C'

Corridor Initiatives Amendments - Part 1

Chapter 6 - Implementation

Section 6.7 - Project Development and Refinement Planning

6.7.4 Refinement Planning Scope and Responsibilities

In some areas defined in this section, the need for refinement planning is warranted before specific projects or actions that meet and identified need can be adopted into the RTP. Refinement plans generally involve a combination of transportation and land use analysis, multiple local jurisdictions and facilities operated by multiple transportation providers. Therefore, unless otherwise specified in this section, Metro or ODOT will initiate and lead necessary refinement planning in coordination with other affected local, regional and state agencies. Refinement planning efforts will be multi-modal evaluations of possible transportation solutions in response to needs identified in the RTP. The evaluation may also include land use alternatives to fully address transportation needs in these corridors. Appendix 3.1 describes the 2000 RTP prioritization for corridor refinement ~~plans~~ studies and specific corridor studies. Refinement plan and corridor study prioritization, and specific scope for each corridor, is subject to annual updates as part of the Unified Work Plan (UWP).

6.7.5 Specific Corridor Refinements

The system analysis in Chapter 3 identifies a number of corridor refinement studies that must be completed before specific transportation solutions can be adopted into the RTP. In these corridors, both the need for transportation improvements, and a recommended action have been determined. At this stage, these proposed transportation projects must be developed to a more detailed level before construction can occur. This process is described in Section 6.7.3 of this chapter.

The project development stage determines design details, and a project location or alignment, if necessary, after evaluating engineering and design details, and environmental impacts. While all projects in this plan must follow this process before construction can occur, the following projects must also consider the design elements described in this section:

Banfield (Interstate 84) Corridor

Despite the relatively heavy investments made in transit and highway capacity in this corridor in the 1980s, further improvements are needed to ensure an acceptable level of access to the central city from Eastside Portland neighborhoods and East Multnomah County. However, physical, environmental and social impacts make highway capacity improvements in this corridor unfeasible. Instead, local and special district plans should consider the following transportation solutions for this corridor:

- mitigate infiltration on adjacent corridors due to congestion along I-84 through a coordinated system of traffic management techniques (ITS)

- improve light rail headways substantially to keep pace with travel demand in the corridor

- improve bus service along adjacent corridors to keep pace with travel demand, including express and non-peak service

- consider additional feeder bus service and park-and-ride capacity along the eastern portion of the light rail corridor to address demand originating from East Multnomah and North Clackamas Counties

- develop TSM strategies for the Gateway regional center to mitigate expected spillover effects on the development of the regional center

Northeast Portland Highway

As radial urban highways such as the Banfield and Interstate-5 are increasingly burdened by peak period congestion, freight mobility will rely more heavily on circumferential routes, including I-205 and Northeast Portland Highway, for access to industrial areas and intermodal facilities. Northeast Portland Highway plays a particularly important role, as it links the Rivergate marine terminals and PDX air terminals to industry across the region (this route includes Killingsworth and Lombard streets from I-205 to MLK Jr. Boulevard, and Columbia Boulevard from MLK Jr. Boulevard to North Burgard). Though Northeast Portland Highway appears to have adequate capacity to serve expected 2020 demand, a number of refinements in the corridor are needed. Local and special district plans should consider the following transportation solutions as improvements are made in this corridor:

- improve Northeast Portland Highway as a strategy for addressing Banfield corridor and east Marine Drive congestion

- develop a long-term strategy to serve freight movement between Highway 30 and Rivergate

- implement aggressive access management along Northeast Portland Highway

- implement and refine Columbia Corridor improvements to address full corridor needs of Northeast Portland Highway, from Rivergate to I-205

- consider future grade separation at major intersections

- streamline the Northeast Portland Highway connection from the Lombard/Killingsworth section to Columbia Boulevard with an improved transition point at MLK Jr. Boulevard

- improve the Columbia Boulevard interchange at I-5 to provide full access to Northeast Portland Highway

- construct capacity and intersection improvements between 82nd Avenue and I-205

- develop a long-term strategy to deal with the existing conflicts between truck traffic and residential traffic on Lombard Street.

- establish a plan to redirect truck traffic off of Lombard Street to Columbia Boulevard/ Columbia Way/Fessenden Street between Penninsular Street and Philadelphia Avenue (St. Johns Bridge) to protect neighborhoods in the St. Johns area.

Interstate-84 to US 26 Connector

The long-term need to develop a highway link between I-84 and Highway 26 exists, but a series of interim improvements to Hogan Road are adequate to meet projected demand through 2020. The RTP calls for a series of interim improvements that will better connect Hogan Road to both I-84 on the north, and Highway 26 to the south.

These improvements are needed to ensure continued development of the Gresham regional center and expected freight mobility demands of through traffic. They also benefit transit-oriented development along the MAX light rail corridor, as they would move freight traffic from its current route along Burnside, where it conflicts with development of the Rockwood town center and adjacent station communities. In addition to planned improvements to the Hogan Road corridor, local plans or ~~should consider~~ a corridor study should address:

- more aggressive access management between Stark Street and Powell Boulevard on 181st, 207th and 257th avenues

- *redesigned intersections improvements on Hogan at Stark, Burnside,* Division and Powell to streamline through-flow.

- the need for a long-term primary freight route in the corridor

- the potential for a new alignment south of Powell Boulevard to US 26

Sunrise Corridor

The full Sunrise Corridor improvement from I-205 to Highway 26 is needed during the 20-year plan period, but should be implemented with a design and phasing that reinforces development of the Damascus town center, and protect rural reserves from urban traffic impacts. Though a draft environmental impact statement has been prepared for this corridor, the final environmental impact statement should be refined to consider the following ~~design~~ elements:

- Construct the segment from I-205/Highway 224 interchange to existing Highway 212 at Rock Creek as funds become available

- preserve right-of-way (ROW) from Rock Creek to Highway 26 as funds become available

- consider phasing Sunrise construction as follows: (a) complete I-205 to Rock Creek segment first, followed by (b) ROW acquisition of remaining segments, then (c) construction of 222nd Avenue to Highway 26 segment and (d) lastly, construction of middle segment from Rock Creek to 222nd Avenue as Damascus town center develops

- consider express, peak period pricing and HOV lanes as phases of the Sunrise Corridor are constructed

- reflect planned network of streets in Damascus/Pleasant Valley area in refined interchange locations along the Sunrise Route, including a connection at 172nd Avenue, the proposed major north/south route in the area

- implement bus service in parallel corridor from Damascus to Clackamas regional center via Sunnyside Road

- avoid premature construction that could unintentionally increase urban pressures in rural reserves east of Damascus

- examine the potential for the highway to serve as a "hard edge" in the ultimate urban form of the Damascus area

- develop a concurrent plan to transition the function of the existing Highway 212 facility into a major arterial function, with appropriate access management and intersection treatments identified

I-5 to 99W Connector

An improved regional connection between Highway 99W and I-5 is needed in the Tualatin area to accommodate regional traffic, and to move it away from the Tualatin, Sherwood and Tigard town centers. This connection will have significant effects on urban form in this rapidly growing area, and the following ~~design~~ considerations should be addressed in a corridor plan:

- balance improvement plans with impacts on Tualatin and Sherwood town centers and adjacent rural reserves

- in addition to the northern alignment considered in the Western Bypass Study, examine the benefits of a southern alignment, located along the southern edge of Tualatin and Sherwood, including the accompanying improvements to 99W that would be required with either alignment

- identify parallel capacity improvements to Tualatin-Sherwood Road and 99W in Tigard from I-5 to Highway 217 that could be used to phase in, and eventually complement future highway improvements

- link urban growth boundary expansion in this area to the corridor plan and examine potential the proposed highway to serve as a "hard edge" in the ultimate urban form of the Sherwood area

- develop an access management and connectivity plan for 99W in the Tigard area that balances accessibility needs with physical and economic constraints that limit the ability to expand capacity in this area

- consider express, peak-period pricing and HOV lanes

Sunset Highway

Improvements are needed in this corridor to preserve access to and from the central city and the Sunset Corridor employment area, and provide access to Hillsboro regional center. The following ~~design~~ elements should be considered as improvements are implemented in this corridor:

- maintain off-peak freight mobility

- phase in capacity improvements from the Sylvan interchange to 185th Avenue, expanding to a total of three general purpose lanes in each direction

- improve light rail service, with substantially increased headways

- construct major interchange improvements at Sylvan, Cedar Hills Boulevard and Cornelius Pass Road

- identify and construction additional over crossings in the vicinity of interchanges to improve connectivity and travel options for local traffic, thus improving interchange function

- consider express, peak period pricing or HOV lanes when adding highway capacity, especially west of Highway 217

Highway 213

Improvements to this highway link between I-205 and the Willamette Valley should be built in phases, and consider the following:

- continued development of the Oregon City regional center

- interim improvements identified in the 1999 Highway 213 Urban Corridor Study (and included in this plan)

- freight mobility demands

- access needs of Beavercreek urban ~~reserves~~ area, including a re-evaluation of the suitability of Oregon City ~~urban reserves~~ Urban Growth Boundary expansion in light of transportation constraints

- transit service to areas south of Oregon City

Macadam/Highway 43

Though heavy travel demand existing along Macadam/Highway 43, between Lake Oswego and the central city, physical and environmental constraints preclude major roadway expansion. Instead, a long-term strategy for high-capacity transit that links the central city to southwest neighborhoods and Lake Oswego town center is needed. As this service is implemented, the following ~~design~~ options should be considered in local and special district plans:

- interim repairs to maintain Willamette Shores Trolley excursion service

- implement frequent bus service from Lake Oswego town center to Portland central city in the Macadam corridor

- phasing of future streetcar commuter service or commuter rail in this corridor to provide a high-capacity travel option during congested commute periods, using either the Willamette Shore Line right-of-way, the Macadam Corridor Design Guidelines (1985) rail alignment or other right-of-way as appropriate.

- implement bicycle safety improvements where appropriate south of the Sellwood Bridge

6.7.6 Specific Corridor Studies

Major corridor studies will be conducted by state or regional agencies working in partnership with local governments in the following areas. In each case, a transportation need has been established by the RTP. A transportation need is identified when regional standards for safety, mobility, or congestion are exceeded. In many of these corridors, RTP analysis indicates several standards are exceeded.

The purpose of the corridor studies is to develop an appropriate transportation strategy or solution through the corridor planning process. For each corridor, a number of transportation alternatives will be examined over a broad geographic area or through a local TSP to determine a recommended set of projects, actions or strategies that meet the identified need. The recommendations from corridor studies are then incorporated into the RTP, as appropriate. This section contains the following specific considerations that must be incorporated into corridor studies as they occur:

Interstate-5 North (I-84 to Clark County)

This heavily traveled route is the main connection between Portland and Vancouver. In addition to a number of planned and proposed highway ~~refinements~~ capacity improvements, light rail is proposed along Interstate Avenue to the Expo Center, and may eventually extend to Vancouver. As improvements are implemented in this corridor, the following design considerations should be addressed:

- consider HOV lanes and peak period pricing
- transit alternatives from Vancouver to the Portland Central City (including Light Rail Transit and express bus)
- maintain an acceptable level of access to the central city from Portland neighborhoods and Clark County
- maintain off-peak freight mobility, especially to numerous marine, rail and truck terminals in the area
- consider adding reversible express lanes to I-5
- consider new arterial connections for freight access between Highway 30, port terminals in Portland, and port facilities in Vancouver, Washington
- maintain an acceptable level of access to freight intermodal facilities and to the Northeast Portland Highway
- construct interchange improvements at Columbia Boulevard to provide freight access to Northeast Portland Highway
- address freight rail network needs
- ~~construct~~ consider additional Interstate Bridge capacity sufficient to handle projected needs
- develop actions to reduce through-traffic on MLK and Interstate to allow main street redevelopment

Interstate-5 South (Highway 217 to Wilsonville)

This facility serves as the major southern access to and from the central city. The route also serves as an important freight corridor, and provides access to Washington County via Highway 217. Projections for this facility indicate that growth in traffic between the Metro region and the Willamette Valley will account for as much as 80 percent of the traffic volume along the southern portion of I-5, in the Tualatin and Wilsonville area. For this reason, the appropriate

improvements in this corridor are unclear at this time. However, I-5 serves as a critical gateway for regional travel and commerce, and an acceptable transportation strategy in this corridor has statewide significance. A major corridor study is proposed to address the following issues:

- the effects of peak period congestion in this area on regional freight mobility and travel patterns
- the ability of inter-city transit service, to/from neighboring cities in the Willamette Valley, including commuter rail, to slow traffic growth in the I-5 corridor
- the ability to maintain off-peak freight mobility with capacity improvements
- the potential for better coordination between the Metro region and valley jurisdictions on land-use policies
- the effects of a planned long-term strategy for managing increased travel along I-5 in the Willamette Valley

In addition, the following design elements should be considered as part of the corridor study:

- peak period pricing and HOV lanes for expanded capacity
- provide rapid bus service on parallel Barbur route, connecting Wilsonville to the central city
- provide additional over crossings in West Portland town center to improve local circulation and interchange access
- add capacity to parallel arterial routes, including 72nd Avenue, Boones Ferry, Lower Boones Ferry and Carmen Drive
- add over crossings in vicinity of Tigard Triangle to improve local circulation
- extend commuter rail service from Salem to the central city, Tualatin transit center and Milwaukie, primarily along existing heavy rail tracks

Interstate 205

Improvements are needed in this corridor to address existing deficiencies and expected growth in travel demand in Clark, Multnomah

and Clackamas counties. Transportation solutions in this corridor should address the following needs and opportunities:

- provide for some peak period mobility for longer trips
- preserve freight mobility from I-5 to Clark County, with an emphasis on connections to Highway 213, Highway 224 and Sunrise Corridor
- maintain an acceptable level of access to the Oregon City, Clackamas and Gateway regional centers and Sunrise industrial area
- maintain acceptable levels of access to PDX, including air cargo access
- shape urban form in the Stafford ~~urban reserve~~ area with physical configuration of highway improvements

Potential transportation solutions in this corridor should evaluate the potential of the following design concepts:

- auxiliary lanes added from Airport Way to I-84 East
- consider express, peak period pricing or HOV lanes as a strategy for expanding capacity
- relative value of specific ramp, over crossing and parallel route improvements
- eastbound HOV lane from I-5 to the Oregon City Bridge
- truck climbing lane south of Oregon City
- potential for rapid bus service <u>or light rail</u> from Oregon City to Gateway
- potential for extension of rapid bus service <u>or light rail</u> north from Gateway into Clark County
- potential for refinements to 2040 land-use assumptions in this area to expand potential employment in the subarea and improve jobs/housing imbalance
- potential for re-evaluating the suitability of the Beavercreek ~~urban reserve~~ <u>area for Urban Growth Boundary expansion</u>, based on ability to serve the area with adequate regional transportation infrastructure

McLoughlin-Highway 224

Long-term improvements are needed in this corridor to preserve access to and from the Central City from the Clackamas County area, to provide access to the developing Clackamas regional center and to support downtown development in the Milwaukie town center. The recently completed South/North light rail study demonstrated ~~both~~ a long-term need for high-capacity transit service in this corridor. ~~and a short-term opposition to construction of light rail. However,~~ The long-term transit need is ~~still~~ critical, as demonstrated in the RTP analysis, where both highway and high-capacity transit service were needed over the 20-year plan period to keep pace with expected growth in this part of the region. The 2040 Growth Concept also calls for the regional centers and central city to be served with light rail. ~~Therefore, the recommendations for this corridor study assume a short-term rapid bus, or equivalent, transit service in the corridor, and light rail service is retained in the long-term as a placeholder.~~ Transportation solutions in this corridor should address the following design considerations

- institute aggressive access management throughout corridor, including intersection grade separation along Highway 224 between Harrison Street and I-205

- design access points to McLoughlin and Highway 224 to discourage traffic spillover onto Lake Road, 34th Avenue, Johnson Creek boulevard, 17th Avenue and Tacoma Street

- monitor other local collector routes and mitigate spillover effect from congestion on McLoughlin and Highway 224

- consider an added reversible HOV or peak-period priced lane between Ross Island Bridge and Harold Street intersection

- expand highway capacity to a total of three general purpose lanes <u>in each direction</u> from Harold Street to I-205, with consideration of express, HOV lanes or peak period pricing for new capacity

- provide a more direct transition from McLoughlin to Highway 224 at Milwaukie to orient long trips and through traffic onto Highway 224 and northbound McLoughlin

- provide improved transit access to Milwaukie and Clackamas regional centers, including rapid bus in the short term, and light rail service from Clackamas regional center to Central City in the long term

Powell Boulevard/Foster Road

The concentration of ~~urban reserves~~ potential Urban Growth Boundary expansions in Clackamas County and southeast Multnomah County will place heavy demands on connecting routes that link these areas with employment centers in Portland and Multnomah County. Of these routes, the Foster/Powell corridor is most heavily affected, yet is also physically constrained by slopes and the Johnson Creek floodplain, making capacity improvements difficult. More urban parts of Foster and Powell Boulevard are equally constrained by existing development, and the capacity of the Ross Island Bridge.

As a result, a corridor study is needed to explore the potential for high capacity transit strategies that provide access from the developing Pleasant Valley and Damascus ~~urban reserves~~ areas to employment areas along the Foster/Powell corridor, Gresham regional center, Columbia South Shore industrial area and central city. Such a study should consider the following transportation solutions:

- aggressive transit improvements, including rapid bus service from Central City to Damascus town center via Powell and Foster roads, and primary bus on 172nd Avenue and to the Gresham regional center, Eastside MAX and Columbia South Shore

- capacity improvements that would expand Foster Road from two to three lanes from 122nd to 172nd avenues, and from two to five lanes from 172nd Avenue to Highway 212, phased in coordination with planned capacity improvements to Powell Boulevard between I-205 and Eastman Parkway

- extensive street network connection improvements in the Mount Scott and Pleasant Valley areas to reduce local travel demand on Foster Road and Powell Boulevard, and to improve access between these areas and adjacent East Multnomah and northeast Clackamas Counties

- ITS or other system management approaches to better accommodate expected traffic growth on the larger southeast Portland network, East Multnomah and northeast Clackamas County network

Highway 217

Improvements in this corridor are needed to accommodate expected travel demand, and maintain acceptable levels of access to the Beaverton and Washington Square regional centers. The following design and functional considerations should be included in the development of transportation solutions for this corridor:

- expand highway to include a new lane in each direction from I-5 to US 26
- address the competing needs of serving localized trips to the Washington Square and Beaverton regional centers and longer trips on Highway 217
- consider express, HOV lanes and peak period pricing when adding new capacity
- design capacity improvements to maintain some mobility for regional trips during peak travel periods
- design capacity improvements to preserve freight mobility during off-peak hours
- retain auxiliary lanes where they currently exist
- improve parallel routes to accommodate a greater share of local trips in this corridor
- consider improved light rail service or rapid bus service with substantially improved headways
- coordinate with planned commuter rail service from Wilsonville to Beaverton regional center

Tualatin Valley Highway

A number of improvements are needed in this corridor to address existing deficiencies and serve increased travel demand. One primary function of this route is to provide access to and between the Beaverton and Hillsboro regional centers. Tualatin Valley Highway also serves as an access route to Highway 217 from points west along the Tualatin Valley Highway corridor. As such, the corridor is defined as extending from Highway 217 on the east to First Avenue in Hillsboro to the west, and from Farmington Road on the south to Baseline Road to the north. The following design considerations should be addressed as part of a corridor study:

- develop an ~~manage~~ access management plan as part of a congestion management strategy

- implement TSM and other interim intersection improvements at various locations between Cedar Hills Boulevard and Brookwood Avenue

- the relative trade-offs of a variety of capacity and transit improvements, including:
  a. improvements on parallel routes such as Farmington, Alexander, Baseline and Walker roads as an alternative to expanding Tualatin Valley Highway

  b. seven-lane arterial improvements from Cedar Hills Boulevard or Murray Boulevard to Brookwood Avenue or Baseline Road in Hillsboro

  c. a limited access, divided facility from Cedar Hills Boulevard or Murray Boulevard to Brookwood Avenue, with three lanes in each direction and some grade separation at major intersections

  d. transit service that complements both the function of Tualatin Valley Highway and the existing light rail service in the corridor

- evaluate impacts of the principal arterial designation, and subsequent operation effects on travel within the Beaverton regional center

- evaluate motor vehicle and street design designations as part of the study to determine the most appropriate classifications for this route

North Willamette Crossing

The RTP analysis shows a strong demand for travel between Northeast Portland Highway and the adjacent Rivergate industrial area and Highway 30 on the opposite side of the Willamette River. The St. Johns Bridge currently serves this demand. However, the St. Johns crossing has a number of limitations that must be considered in the long term in order to maintain adequate freight and general access to the Rivergate industrial area and intermodal facilities. Currently, the St. Johns truck strategy is being developed (and should be completed in 2000) to balance freight mobility needs with the long-term health of the St. Johns town center. The truck strategy is an interim solution to demand in this corridor, and does not attempt to address long-term access to

Rivergate and Northeast Portland Highway from Highway 30. Specifically, the following issues should be considered in a corridor plan:

- build on the St. Johns Truck Strategy recommendations to adequate freight and general access to Rivergate, while considering potentially negative impacts on the development of the St. Johns town center

- incorporate the planned development of a streamlined Northeast Portland Highway connection from I-205 to Rivergate to the crossing study

- include a long-term management plan for the St. John's Bridge, in the event that a new crossing is identified in the corridor plan recommendations

Barbur Boulevard/ I-5

This corridor provides access to the Central City and to neighborhoods and commercial areas in the inner southwest quadrant of the region. Barbur Boulevard is identified as a multi-modal facility with potential light rail or Rapid Bus as well as serving a regional role for motor vehicle, bicycle and pedestrian systems. I-5 in this corridor is a Main Roadway route for freight and a Principle Arterial for motor vehicles extending southward beyond the region.

Segments of both Barbur Boulevard and I-5 in this corridor experience significant congestion and poor service levels even with Priority System improvements, especially from the Terwilliger interchange northward. However, Rapid Bus service along Barbur and other expanded bus services are expected to experience promising ridership levels. Significant localized congestion occurs along the intersecting street segments of Bertha, Terwilliger and Capitol Highway/Taylors Ferry. Broad street cross-sections, angled intersections and limited signalized crossing opportunities along Barbur creates traffic safety hazards and inhibits walking to local destinations and access to transit services.

Transportation solutions in the corridor should include the following considerations:

- Regional and local transit services and facilities needed to serve the Barbur corridor within the RTP planning horizon.

- Possible new locations or relocations for I-5 on-ramps and off-ramps and street connections across the freeway right-of-way.

- Opportunities for new or improved local street connections to Barbur Boulevard.

- Facilities to improve bicycle and pedestrian safety along Barbur and access to transit services and local destinations.

- Traffic management and intelligent transportation system improvements along the corridor.

- Potential mainline freeway improvements including possible southbound truck climbing lanes.

Exhibit C to Ordinance No. 02-946
RTP Post-Acknowledgement Amendments
Part 2 – Corridor Initiative Amendments

Proposed Revisions to Appendix 1.1 - RTP Project List

Corridor #	Study Name (Facility)	RTP Project number	RTP Post-Acknowledgement Amendments	RTP Program Years
1	North Willamette Crossing Study	4016	$1,000,000	2011-20
2	I-5 Trade Corridor Study and Tier 1 DEIS	4009	$8,000,000	2000-05
3	~~US-30 Bypass Study - Phase 2~~	~~4014~~		~~2000-05~~
3	~~US-30 Bypass Improvements Study~~ (Make this a project to improve both intersections.)	4015		2000-05
3	NE Portland Highway Corridor Study	assign #	$500,000	2011-20
4	definition to Highway 224 to Vancouver Washington)	4008	$1,000,000	2006-10
5	Banfield (I-84) Corridor Study (transit/TSM)	assign #	$1,000,000	2006-10
6	I-84 to US 26 Corridor Study (ROW and arterials)	assign #	$1,000,000	2006-10
7	Powell Boulevard/Foster Road HCT Corridor Study	1228	$1,500,000	2000-05
8	Sunrise Corridor Study/EA (revise DEIS) ~~(unit 2)~~	assign #	$1,500,000	2000-05
9	~~Study~~	~~5061~~		
9	~~Highway 99E/224 *Transit Corridor Study*~~	~~5029~~		~~2000-05~~
9	South *Corridor Transit Study (Mcloughlin/Highway 224) and EIS*	assign #	$8,000,000	2000-05
9a	Highway 224 and Mcloughlin Blvd. Highway Corridor Study	assign #	$1,000,000	2011-20
10	Highway 213 Corridor Study	assign #	$500,000	2011-20
11	I-205 South Corridor Study (change definition to Highway 224 to I-5)	5027	$1,500,000	2006-10
12	Macadam/Highway 43 Transit/TDM Study	assign #	$1,000,000	2000-05
13	I-5 South Corridor Study	assign #	$1,500,000	2011-20
14	~~Tualatin-Sherwood Highway MIS?~~	~~6004~~		~~2000-05~~
14	I-5 to Highway 99W Corridor Study	assign #	$1,500,000	2011-20
15	Barbur/I-5 Corridor Study	1096	$1,500,000	2006-10
16	Highway 217 Corridor Study	assign #	$1,500,000	2000-05
17	TV Highway Corridor Study	3121	$1,500,000	2000-05
18	Sunset Highway Refinement and EA Study	assign #	$500,000	2000-05
	Total		$35,500,000	

Underline denotes a new study name, a change in corridor definition or cost, the need to assign a RTP project number, or a change in program year from the current RTP.

Note: All Corridor Studies will need to be assigned RTP project numbers.

METRO

RTP POST-ACKNOWLEDGEMENT AMENDMENTS

Exhibit 'C'

Corridor Initiatives Amendments – Part 3

Appendix 3.1
Regional Transportation Plan
Corridor Planning Priorities

This appendix prioritizes completion of Corridor Plans and Corridor Refinements called for in Chapter 6 of the 2000 RTP. Section 6.7.4 of the 2000 RTP describes the planning scope and responsibilities for refinement planning. Sections 6.7.5 and 6.7.6, respectively, specifically list Corridor Refinements and Corridor Planning studies.

Due to the number of corridor planning needs and the lack of available resources, Metro initiated the Corridor Initiatives Process in December 2000 to establish regional corridor planning priorities. This effort resulted in the attached work program for completion of these studies. The work program is monitored and updated annually as part of the Unified Work Program process.

The Corridor Initiatives Process

Representatives from the Multnomah, Clackamas, Washington and Clark counties, ODOT, cities in the metropolitan area, the Port of Portland and Tri-Met participated in technical and project management committees. These committees guided the process and formulated recommendations with respect to corridor refinement planning. A technical evaluation was completed, with each corridor evaluated on several criteria and a number of measures related to mobility, 2040 land use relationships, expected 2040 travel modes, reliability and safety. A scoring system was established and points allocated for each technical measure.

In addition to the technical evaluation, the advisory committees considered non-technical factors such as relation to other planning

efforts, community interest and available resources for each corridor. Meetings were held with groups of elected officials from around the region to gather further input on the rankings. A public meeting was also held where information was provided and public input solicited.

A resolution describing this process and resulting recommendations for completing the corridor studies was presented to TPAC, JPACT and the Metro Council in the summer of 2001. A final report documenting the entire process was prepared in the Spring of 2002, along with amendments to the RTP necessary to incorporate the recommendations in RTP procedural and project-level plan provisions.

Work Program Description

Based on this process, those corridors that demonstrated the more urgent planning needs and a level of jurisdictional interest considered sufficient to support a successful project were reviewed in more detail. Many of these corridors already had planning activities taking place or planned. Proposed actions were developed for the remaining corridors.

The attached work program summarizes the planning activities for each of the 18 corridors by RTP planning time period (e.g. 2001-2005, 2006-2010 and 2011-2020). The corridors are organized into three groups depending on the status of planning efforts. The first group includes six corridors where work was ongoing in 2001. The second group highlights two corridors (Powell/Foster and Highway 217 Corridors) where major new corridor refinements are recommended in the first planning period. The third group lists the ten other corridors where no major planning work was ongoing in 2001. The "Other Corridor" group includes some corridors where significant planning work had already been completed or was planned. It also includes corridors for which no major work was anticipated in the near term.

Appendix 3.1 - Work Program for Corridor Refinement Planning Through 2020

Corridor and Key Facilities	First Planning Period (2001 - 2005)	Second Planning Period (2006 - 2010)	Third Planning Period (2011 - 2020)
Corridor Planning On-Going			
I-5 (North) Corridor - I-5 from I-84 to Vancouver	I - 5 Trade Corridor Study	Financial Plan/EIS/Preliminary Engineering	
NE Portland Highway Corridor - Columbia Blvd. from Burgard to Killingsworth, Lombard from I - 5 to Killingsworth, and Killingsworth from Lombard to I - 205.	East End Connector Environmental Assessment; Begin Refinement Planning through I-5 Trade Corridor; Adopt St Johns Truck Access Study	Implement St Johns Truck Access Study Recommendations; Environmental Assessment and Engineering on I-5 Trade Corridor Recommendations	
I-205 (North) Corridor - I - 205 from Hwy. 224 to Vancouver.	South Transit Corridor Study and I-5 Trade Corridor Study (transit only)	Corridor Planning for Interchange Improvements	Corridor Planning for Roadway Widening
Banfield (I-84) Corridor - I - 84 from I - 5 to Troutdale.	Light Rail Capacity Analysis	Transit, Transportation System Management Corridor Plan	Transit Improvements and/or Transportation System Management Projects
McLoughlin and Hwy. 224 Corridor - Hwy. 99E from Hawthorne Blvd to Oregon City. Hwy. 224 from McLoughlin Blvd. To I - 205.	South Transit Corridor EIS and Preliminary Engineering		Corridor Planning for Highway Improvements
I-5 to Highway 99W Connector - Tualatin-Sherwood Road from I-5 to Hwy. 99W. Hwy. 99W from Tualatin-Sherwood Road to Bell Road.	Southern Alignment Study; Complete Exceptions; Right-of-Way Preservation Analysis		Complete Corridor Planning
New Major Corridor Refinements Recommended in the First Period			
Powell/Foster Corridor - Powell Blvd from I-5 west exit ramp to Ross Island Bridge to Gresham-Fairview Road from Powell to Hwy. 212 Damascus	**Corridor Planning**	Environmental Impact Study and Preliminary Engineering	
Highway 217 Corridor - Hwy. 217 from Sunset Hwy to I-5	**Corridor Planning**	Environmental Impact Study and Preliminary Engineering	
Other Corridors			
North Willamette Crossing Corridor - Study new crossing near St. Johns Bridge (Hwy. 30 from NW Newberry Road to BN Railroad Bridge).	Adopt Signage and Truck Control Recommendations of St Johns Study; St Johns Town Center Study	Implement Signage and Truck Control Recommendations of St Johns Studies	Corridor Planning
I-84 to US 26 Connector Corridor - 238th/242nd from I - 84 to Burnside, and US 26/Burnside from Hogan Road to 282nd.	National Highway System Truck Study	Corridor Planning for Preservation of Right-of-Way and Arterial Improvements	Complete Corridor Planning
Sunrise Corridor - Hwy. 212/224 from I-205 to US 26.	Complete Refinement Planning and EIS for Unit 1 and Engineering for Phase One; Complete Exceptions		Begin Unit Two Environmental Assessment or Environment Impact Statement Process
Highway 213 Corridor - Hwy. 213 from I-205 to Leland Road.	Construct Southbound Turning lane on Highway 213	Implement Funded Recommendations of Highway 213 Design Study	Corridor Planning
I-205 (South) Corridor I 205 from I-5 to Hwy. 224.	Interchange Ramp Access Study	Corridor Planning for Freeway Improvements	
Macadam/Highway 43 Corridor - Hwy. 43 from Ross Island Bridge to West Linn.	Transit/Pedestrian/Bike Transportation Demand Management Study	Environmental Assessment/ DEIS/and Preliminary Engineering	
I-5 (South) Corridor - I-5 from Hwy. 99W in Tigard to Wilsonville.	Boeckman Road Interchange Study		Corridor Planning
Barbur Blvd./I-5 Corridor - Hwy. 99W and I-5 from I - 405 to Tigard.	Implement Transit Service Improvements and Elements of the Barbur Streetscape Plan	Initiate Corridor Planning	Begin Environmental Assessment/ Environmental Impact Statement Process
TV Highway Corridor - Tualatin Valley Hwy. from Hwy. 217 to downtown Hillsboro.	System Planning for Access Management and Right-of-Way		Corridor Planning (if required)
Sunset Highway Corridor - US 26 from I-405 to Jackson School Road.	Refinement and Environmental Assessment of US Hwy. 26 Widening. Barnes Road Design and Construction	Engineering of US 26 Widening west of Murray Boulevard	

RTP POST-ACKNOWLEDGEMENT AMENDMENTS

Exhibit 'D'

Green Streets Amendments – Part 1

CHAPTER 1

Regional Transportation Policy

1.3.4 Protecting the Environment

Policy 7.0. The Natural Environment
Protect the region's natural environment.

a. Objective: Place a priority on protecting the natural environment in all aspects of the transportation planning process.
b. Objective: Reduce the environmental impacts associated with transportation system planning, project development, construction and maintenance activities.
c. Objective: Reduce negative impacts on parks, public open space, natural areas, wetlands and rural reserves arising from noise, visual impacts and physical segmentation.
d. Objective: New transportation and related utility projects shall seek to avoid fragmentation and degradation of components of the Regional System (regionally significant parks, natural areas, open spaces, trails and greenways). If avoidance is infeasible, impacts shall be minimized and mitigated.

Policy 8.0. Water Quality
Protect the region's water quality.

a. Objective: Meet applicable state and federal water quality standards in the planning process.
b. Objective: Support the implementation of *Green Streets* practices through pilot projects and regional funding incentives.
~~b.~~c. Objective: Support local jurisdiction efforts to reduce impervious surface coverage in the development review and street design process ~~through implementation of the *Green Streets* guidelines~~.
~~c.~~d. Objective: ~~Comply with the Governor's fish initiative and federal requirements related to endangered species listings~~Continue to coordinate updates to the *Green Streets* guidelines with state and federal regulatory agencies to ensure ongoing compliance with fish protection regulations.
e. Objective: Implement a coordinated strategy to remove or retrofit culverts on the regional transportation system that block or restrict fish passage.

Ecosystems do not conform to political boundaries. Streams and watersheds cross both city and county boundaries, and transportation projects often impact watersheds. In recent years, it has become increasingly important to acknowledge the effect of developing the public right-of-way on the health of our environment, particularly urban waterways. Streets and driveways combine to form the largest source of impervious surfaces in our urban landscape. A particular challenge is how to address conflicts between planned

transportation improvements and identified stream corridors, and how transportation improvements can be constructed in concert with stream corridor protection plans.

Impervious surfaces are hard surfaces that do not allow water to ~~soak~~ filter into the ground, and instead, ~~increase the amount of~~rely on piped stormwater ~~running off into the stormwater~~ drainage systems that convey runoff directly to streams. The majority of total impervious surfaces are from roads, sidewalks, parking lots and driveways. ~~Stormwater runoff from these impervious surfaces reduces the amount of recharge of water to ground water and increases the capacity requirements of the storm water drainage system.~~

Higher impervious surface coverage has been linked to dramatic changes in the shape of streams, water quality, water temperature and the biological health of ~~the flora and fauna that live in the natural~~ waterways. The regional *Green Streets Program* seeks to mitigate this effect on streams over time through a combination of retrofits to existing streets, and design guidelines for new streets that allow stormwater to infiltrate directly into the ground. Examples of ~~impervious surface reduction~~*Green Streets* techniques that could be used by local jurisdictions in the development review and street design process include:

- extensive use of street trees to intercept, absorb and evaporate stormwater
- use of pervious paving materials on sidewalks and local streets
- ~~consider~~ use of ~~open channels~~stormwater detention basins and swales ~~on smaller streets and roads, as long as runoff velocities are low enough to prevent erosion~~ to capture and infiltrate stormwater
- ~~grade sidewalks~~design impervious surfaces on streets and sidewalks so that stormwater ~~runs off~~ drains into adjacent ~~unpaved~~ pervious areas such as planting strips or landscaped private property
- ~~encourage the~~ use of shared parking to reduce the size and number of parking lots

~~consider reducing commercial, industrial and multi-family use parking requirements to reduce impervious surface coverage~~

- ~~encourage shared driveways between adjacent development projects~~
- ~~follow guidelines for~~use erosion control techniques during construction of regional streets and adjacent development projects.

1.3.5 Designing the Transportation System

The design and function of individual transportation facilities and entire systems have a significant impact on adjacent land uses and the character of the communities they serve. As a result, transportation systems planning must consider larger regional and community goals and values, such as protection of the environment, the regional economy and the quality of life that area residents presently enjoy.

The Regional Transportation Plan measures economic and quality-of-life impacts of the proposed system by evaluating key indicators, such as access to jobs and retail services, mode share, vehicle miles traveled, travel times, travel speeds, level of congestion and air quality impacts. Other key indicators include economic benefits to the community, access to transportation by the traditionally underserved, including low-income and minority households and the disabled, energy costs and protection of natural resources. The Regional Transportation Plan defines a transportation system that balances all of the policies in this plan. Sometimes these policies are in conflict – so each transportation project or program must be evaluated in terms of financial constraints, associated social, economic and environmental impacts, and how it best achieves an overall balance between those conflicting goals.

The following policy guides planning and implementation of the region's transportation system.

Policy 11.0. Regional Street Design
Design regional streets with a modal orientation that reflects the function and character of surrounding land uses, consistent with regional street design concepts.

a. Objective: Support local implementation of regional street design concepts and Green Streets design ~~guidelines~~ alternatives in local transportation system plans and development codes.

Regional street design policies address federal, state and regional transportation planning mandates with street design concepts intended to support local implementation of the 2040 Growth Concept. The design concepts reflect the fact that streets perform many, often conflicting functions, and the need to reconcile conflicts among travel modes to make the transportation system safer for all modes of travel. Implementation of the design concepts is intended to promote community livability by balancing all modes of travel and address the function and character of surrounding land uses when designing streets of regional significance. The *Green Streets* design guidelines are tailored to support the regional street design guidelines, and provide a series of complementary *Green Street* guidelines for each of the street design classifications contained in this section.

RTP POST-ACKNOWLEDGEMENT AMENDMENTS

Exhibit 'D'

Green Streets Amendments – Part 2

CHAPTER 6

Implementation

6.4 Local Implementation of the RTP

6.4.5 Design Standards for Street Connectivity

The design of local street systems, including "local" and "collector" functional classifications, is generally beyond the scope of the 2000 RTP. However, the aggregate effect of local street design impacts the effectiveness of the regional system when local travel is restricted by a lack of connecting routes, and local trips are forced onto the regional network. Therefore, streets should be designed to keep through trips on arterial streets and provide local trips with alternative routes. The following mapping requirements and design standards are intended to improve local circulation in a manner that protects the integrity of the regional transportation system.

Cities and counties within the Metro region are required to amend their comprehensive plans, implementing ordinances and administrative codes, if necessary, to comply with or exceed the following mapping requirements and design standards:

1. Cities and counties must identify all contiguous areas of vacant and redevelopable parcels of five or more acres planned or zoned for residential or mixed-use development and prepare a conceptual new streets plan map. The map shall be adopted as a part of the Transportation System Plan element of the local Comprehensive Plan. The purpose of this map is to provide guidance to land-owners and developers on desired street connections that will improve local access and preserve the integrity of the regional street system.

   The conceptual street plan map should identify street connections to adjacent areas in a manner that promotes a logical, direct and connected street system. Specifically, the map should conceptually demonstrate opportunities to extend and connect to existing

streets, provide direct public right-of-way routes, and limit the potential of cul-de-sac and other closed-end street designs.

2. In addition to preparing the above conceptual street plan map, cities and counties shall require new residential or mixed-use development ~~that will require~~involving construction of new street(s) to provide a ~~street map~~site plan that reflects the following:

a. Street connections:

- ~~a.~~ Responds to and expands on the conceptual street plan map as described in Section 6.4.5(1) for areas where a map has been completed.

- ~~b.~~ Provides full street connections with spacing of no more than 530 feet between connections except where prevented by barriers such as topography, railroads, freeways, pre-existing development, or where lease provisions, easements, covenants or other restrictions existing prior to May 1, 1995 which preclude street connections.

- Where streets must cross ~~or~~ water features ~~where regulations implementing~~identified in Title 3 of the Urban Growth Management Functional Plan (UGMFP) ~~do not allow construction of or prescribe different standards for street facilities~~, provide crossings at an average spacing of 800 to 1,200 feet, unless habitat quality or length of crossing prevents a full street connection.

b. Accessways:

- ~~c.~~ When full street connections are not possible provides bike and pedestrian accessways on public easements or rights-of-way in lieu of streets. Spacing of accessways between full street connections shall be no more than 330 feet except where prevented by barriers such as topography, railroads, freeways, pre-existing development, or where lease provisions, easements, covenants or other restrictions existing prior to May 1, 1995 which preclude accessway connections.

- Bike and pedestrian accessways that cross water features identified in Title 3 of the UGMFP should have an average spacing no more than 530 feet, unless habitat quality or length of crossing prevents a connection.

c. Centers, main streets and station communities:

Where full street connections ~~or~~ over water features ~~where regulations implementing~~identified in Title 3 of the ~~Urban Growth Management Functional Plan~~UGMFP ~~do not allow construction of or prescribe different standards for construction of accessway facilities.~~cannot be constructed in centers, main streets and station communities (including direct connections from adjacent neighborhoods), or spacing of full street crossings exceeds 1,200 feet, provide bicycle and pedestrian crossings at an average spacing of 530 feet, unless exceptional habitat quality or length of crossing prevents a connection..

d. Other considerations:

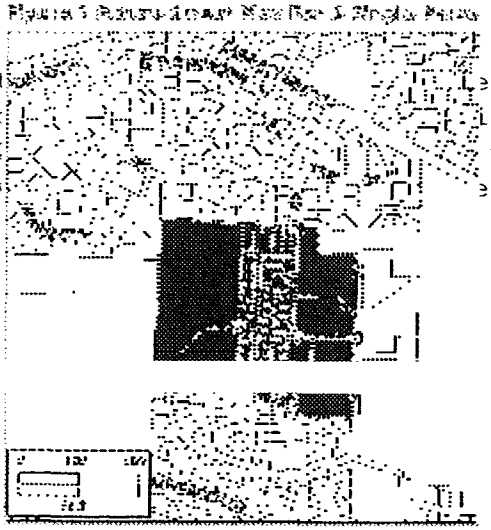
- ~~d~~.Limits the use of cul-de-sac designs and other closed-end street systems to situations where barriers prevent full street extensions.

- e.Includes no closed-end street longer than 200 feet or with more than 25 dwelling units.

- ~~f~~.Includes street cross-sections demonstrating dimensions of right-of-way improvements, with streets designed for posted or expected speed limits.

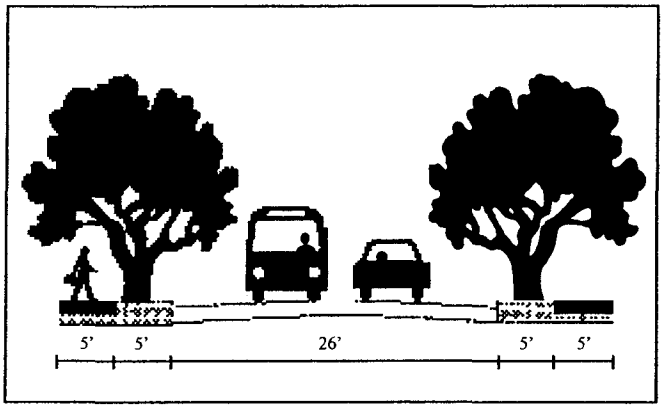
~~Cities and counties, Tri-Met, ODOT, and the Port of Portland shall consider stream crossing design guidelines contained in the *Green Streets Handbook* for replacement or new construction of local street crossings on streams identified in Title 3 of the Urban Growth Management Functional Plan.~~ For replacement or new construction of local street crossings on streams identified in Title 3 of the Urban Growth Management Functional Plan, Cities and Counties, Tri-Met, ODOT and the Port of Portland shall amend design codes, standards and plans to allow consideration of the stream crossing design guidelines contained in the Green Streets handbook.

Figure 6.1 demonst[illegible]eloper would provide to meet c[illegible]sion of a single parcel. Figure 6.[illegible] that could be submitted by a de[illegible]e permitting process.



Source: Metro

Figure 6.2
Street Cross Section – Local Street, mid-block



Source: Metro

3. Street design code language and guidelines must allow for:

   a. Consideration of narrow street design alternatives. For local streets, no more than 46 feet of total right-of-way, including pavement widths of no more than 28 feet, curb-face to curb-face, sidewalk widths of at least 5 feet and landscaped pedestrian buffer strips that include street trees. Special traffic calming designs that use a narrow right-of-way, such as woonerfs and chicanes, may also be considered as narrow street designs.

   b. Short and direct public right-of-way routes to connect residential uses with nearby commercial services, schools, parks and other neighborhood facilities.

   c. Consideration of opportunities to incrementally extend streets from nearby areas.

   d. Consideration of traffic calming devices to discourage traffic infiltration and excessive speeds on local streets.

4. For redevelopment of existing land-uses that require construction of new streets, cities and counties shall develop local approaches to encourage adequate street connectivity.

6.7 Project Development and Refinement Planning

6.7.3 Project Development Requirements

Transportation improvements where need, mode, corridor and function have already been identified in the RTP and local plans must be evaluated on a detailed, project development level. This evaluation is generally completed at the local jurisdiction level, or jointly by affected or sponsoring agencies. The purpose of project development planning is to consider project design details and select a project alignment, as necessary, after evaluating engineering and design alternatives and potential environmental impacts. The project need, mode, corridor, and function do not need to be addressed at the project level, since these findings have been previously established by the RTP.

The TPR and Metro's Interim 1996 Congestion Management System (CMS) document require that measures to improve operational efficiency be addressed at the project level, though system-wide considerations are addressed by the RTP. Therefore, demonstration of compliance for projects not included in the RTP shall be documented in a required Congestion Management System report that is part of the project-level planning and development (Appendix D of the Interim CMS document). In addition, this section requires that street design guidelines be considered as part of the project-level planning process. This section does not apply to locally funded projects on local facilities. Unless otherwise stipulated in the MTIP process, these provisions are simply guidelines for locally funded projects.

Therefore, in addition to system-level congestion management requirements described in Section 6.6.3 in this chapter, cities, counties, Tri-Met, ODOT, and the Port of Portland shall consider the following project-level operational and design considerations during transportation project analysis:

1. Transportation system management (e.g., access management, signal inter-ties, lane channelization, etc.) to address or preserve existing street capacity.

2. Street design policies, classifications and design principles are contained in Chapter 1 of this plan. See Section 1.3.5, Policy 11.0, Figure 1.4. Implementing guidelines are contained in *Creating Livable Streets: Street Design Guidelines for 2040* (~~1997~~2nd edition, 2002) or other similar resources consistent with regional street design policies.

3. Environmental design guidelines, as contained in *Green Streets: Innovative Solutions for Stormwater and Street Crossings* (2002), and *Trees for Green Streets: an Illustrated Guide* (2002), or other similar resources consistent with federal regulations for stream protection.

Transportation providers in the Metro region, including the cities and counties, Tri-Met, ODOT, and the Port of Portland are required to amend their comprehensive plans, implementing ordinances and administrative codes, if necessary, to consider the *Creating Livable Streets* design guidelines as part of project development. ~~Transportation providers should also consider amending local plans and design codes to include the guidelines contained in *Green Streets: Innovative Solutions for Stormwater and Street Crossings.*~~ *Transportation providers shall amend design codes, standards and plans to allow consideration of the guidelines contained in Green Streets: Innovative Solutions for Stormwater and Street Crossings.*

6.8 Outstanding Issues

The section describes a number of outstanding issues that could not be addressed at the time of adoption of this plan, but should be addressed in future updates to the RTP.

~~6.8.1 Green Streets Initiative and the ESA~~

~~Metro has been awarded a TCM grant to conduct a Green Streets project to address the growing relationship between transportation planning and stream protection. The Green Streets project will address potential conflicts between good transportation design and the need to protect streams and wildlife corridors. The Oregon Salmon and Watershed Plan and recent federal listing of steelhead trout further bolster the need to develop strategies to improve water quality in our region's streams and address declining fish populations in water bodies determined to support salmon and steelhead populations.~~

~~Impervious surfaces are hard surfaces that do not allow water to soak into the ground and increase the amount of storm water running into the storm water drainage system. Streets and driveways combine to form the largest source of impervious surfaces in our urban landscape, followed by buildings and parking lots. The public right-of-way covers some 20 percent of our urban landscape. As this region continues to grow, so will the amount of land dedicated for use as public right-of-way. It has become increasingly important to acknowledge the effect of this right-of-way on the health of our environment and identify strategies that minimize conflicts between uses within the right-of-way and our region's lakes, streams and wildlife corridors.~~

~~Elements of the Green Streets project include:~~

- ~~A regional culvert inventory and database that will provide jurisdictions with the latest information on transportation impacts on stream corridors.~~

- ~~New street connectivity provisions that consider tradeoffs between improved connectivity and potential stream crossing impacts.~~

- ~~A demonstration project that tests connectivity and environmental design proposals as part of the Pleasant Valley-Damascus urban reserve plan.~~

- ~~A best practices *Green Streets* guidebook that defines acceptable design solutions where major streets and streams meet.~~

~~Final recommendations from the Green Streets project will be incorporated, as appropriate, into the RTP. The project is scheduled for completion in July 2001.~~

RTP POST-ACKNOWLEDGEMENT AMENDMENTS

Exhibit 'D'

Green Streets Amendments – Part 3

Glossary of Transportation Definitions

Exceptional Habitat Quality - "For the purpose of transportation planning, exceptional habitat quality may be defined as (1) riparian-associated wetlands identified under Title 3, locally or regionally significant wetlands, (2) locally or regionally rare or sensitive plant communities such as oak woodlands, (3) important forest stands contributing multiple functions and values to the adjacent water feature habitats of sensitive, threatened or endangered wildlife species, or (4) habitats that provide unusually important wildlife functions, such as (but not limited to) a major wildlife crossing/runway or a key migratory pathway.