Metro Corridors Project: Case Study Report

PREPARED FOR
Metro and the Transportation Growth Management Program of the Oregon Department of Transportation and the Department of Land Conservation and Development

June 2005

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Metro Corridors Project: Case Study Report

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Summary

BACKGROUND

This report, *the Metro Corridors Case Study Report*, documents the research in Phase II of the Metro Corridors Project. The findings from this report and the Phase I Report are the basis for a final report to Metro, the *Metro Corridors Summary Report*.

The Metro Corridors Project is a study of Corridors within the context of the 2040 Growth Concept. Its purpose is to determine how the region can support the successful implementation of the Corridor design type to achieve the 2040 Growth Concept.

The Metro Corridors Project is divided into two phases:

- Phase I of the Metro Corridors Project, completed in December 2004, investigated land use and transportation issues in corridors in general and in a subset of specific Corridors in the Portland region. It resulted in the selection of a Corridor case study for Phase II of the project.
- Phase II of the project (this report) is a case study of the Beaverton-Hillsdale Highway and Canyon Road Corridors. Its purpose was to identify opportunities for and constraints to achieving the development in Corridors that the Metro 2040 Growth Concept, Regional Framework Plan, and related documents encourage or require. Phase II described how the case-study Corridors and the Beaverton Regional Center complement and compete with each other. It recommended a plan for land use and development and transportation and streetscape improvements that conform to regional guidelines for development in Corridors. Finally, it recommended changes to local, regional, and state policies that would be helpful for achieving the plan.

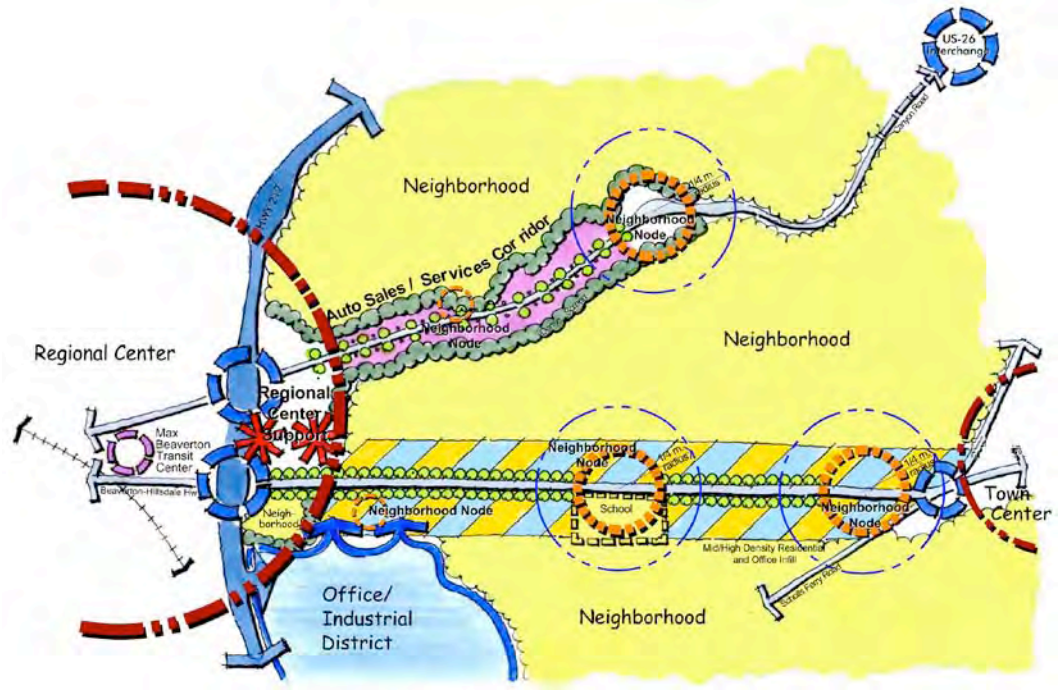
The report itself contains the details of the purpose, evaluation methods, data, assumptions, findings, and recommendations. This summary covers just the most important findings, organized as follows:

- **Land use and development concept** describes the land use and development concept for Canyon Road and the Beaverton-Hillsdale Highway.
- **Conclusions** present the consulting team's generalizations of the case-study findings to the rest of the region.
- **Recommendations** summarize the key policy changes that would be necessary to implement the land use, development, and transportation recommendations.

LAND USE AND DEVELOPMENT CONCEPT

Figure 1 shows the land use and development concept plan for the Canyon Road and Beaverton-Hillsdale Highway Corridors. The land use alternative concept retains the auto sales and services section along Canyon Road and the regional center-type big box uses at the western end of both Canyon Road and Beaverton-Hillsdale Highway Corridors. The majority of Beaverton-Hillsdale Highway is transformed from a commercial strip to four neighborhood serving retail areas and a neighborhood corridor—connecting centers to the east and the west and the residential neighborhoods to the north and the south—with primarily residential, office, lodging, and institutional uses.

Figure 1. Land use and development alternative concept, Canyon Road and Beaverton-Hillsdale Highway Corridors, 2005



Source: Freedman Tung & Bottomley, 2005.
Note: ECONorthwest made minor edits to the graph.

The elements of the land use and development alternative are:

- **Gateway.** Gateways are envisioned at the western end of both Canyon Rd. and the Beaverton Hillsdale Highway at 217. A gateway is envisioned at the eastern edge of the Raleigh Hills Town Center along the Beaverton Hillsdale Highway, and on the eastern end of Canyon Rd.
- **Regional center support: Big-box retail.** Large format retailers are concentrating at major intersections and freeway on- and off-ramps. It is not surprising, then, that this is a preferred location for big box retailers like Home Depot and Target.
- **Neighborhood center (node).** Four neighborhood centers are envisioned at 87th Street and Canyon Road, Beaverton-Hillsdale Highway near

Highway 217, Jesuit High School, and at Oleson Road. The commercial and retail uses in these nodes would be small format with a primarily neighborhood draw.

- **Neighborhood corridor: Mid/high density residential, office, lodging, and institutional infill.** The residential, office, lodging, and institutional segments along the Corridor includes commercial (primarily office) and residential (primarily multi-family) development uses. Development standards and design guidelines will be needed to insure, among other things, that non-residential uses are designed to be good neighbors to a potential residential neighbor on contiguous properties in all directions.

The redevelopment concept helps to facilitate the transition from a linear pattern of commercial development to a nodal pattern that is better able to respond to demand and investment preference, for example, the trend of large format retailers concentrating at major crossroads.

CONCLUSIONS

- **Corridors in the Portland metropolitan region are drawing from markets larger than those of the adjacent neighborhoods to support their retail sales.** The case study showed that there is more retail square footage in the Beaverton Corridors than the surrounding neighborhoods can support. Retail businesses along the Corridors are drawing customers from a larger region. The same is almost certainly true for other regional Corridors with significant retail.
- **If Corridors draw from the same regional markets that Centers do, then their effect on Centers depends on whether they are offering competing or complementary goods.** Lower land values, high drive-by traffic, generous parking, and large parcels give Corridors a comparative advantage over Centers for many types of retail. If Corridors offer the same types of retail and office space that are found in Centers, then they will be competing, at some level, for tenants. Retail that is land intensive and auto-oriented (e.g., building supplies and fast food) may prefer Corridor locations to those in Centers (but see next point).
- **National trends in retail show more new development at major intersections and less along extended strips.** The old distinctions between businesses that are center-oriented and those that are strip-oriented are blurring. The essential trade-off of development cost and access remains. Businesses in the past chose corridor locations because good access came with cheap land in large parcels. As congestion increases along corridors and land prices increase, the relative advantage of corridors on this dimension is decreasing. The result is that retail locations with the highest demand in the Metro area and across the nation are at major intersections. Not surprisingly, those intersections are on corridors.
- **There is an opportunity for the region to take advantage of national trends in retail to restructure strip development corridors.** The case-study analysis and advisory group gave evidence that there are good

reasons for retailers to develop along corridors. But they also supported the idea that the demand for retail along Corridors was more of a derived demand for ample space (and therefore less expensive land) with good access. If land with those attributes were available in Centers, then the retail on Corridors could locate in Centers, where Metro policy would like to shift it to. The problem is that historically the land in Centers could not compete on those dimensions with land in corridors. The gap has narrowed, not because land in Centers has become less expensive, but because the accessibility of Corridors relative to Centers has declined, and land prices of Corridors relative to Centers has increased. There are opportunities to (1) shift some retail directly to Metro Centers, (2) shift some retail (e.g., big box) to the edge of Centers—at the boundary between Centers and their connecting Corridors—where the uses might be complementary, and (3) concentrate some of the retail in Corridors into smaller "centers" or nodes[1] that occur along different segments of the Corridors (which will increase the possibility that some of the use along the Corridors will shift to residential uses).

- **Residential, office, lodging, and institutional uses have the potential to supplant retail as the highest and best uses along some parts of Corridors.** Residential uses could become the primary use in Corridor segments (with office, lodging, and institutional playing a secondary role) between the concentrations of retail around retail nodes in the Corridors. We say these uses have the *potential* to supplant retail because redeveloping the Corridors for these uses requires that the streetscape and the surrounding non-residential uses be designed (or redesigned) to support and complement these new uses, especially the residential ones.
- **Redeveloped Corridors would support Centers.** Encouraging higher-density retail at major intersections and Centers; increasing the capacity for residential, office, lodging, and institutional uses in Corridors; and identifying space for large-format retailers at the edge of Centers can encourage the redevelopment of Corridors that support Centers.

  There is clearly a competition between Centers and Corridors for many types of development. But that does not mean that restricting all that development in Corridors would force it to Centers. Squeezed out would be many businesses with low capitalization (including small start-ups) and highly capitalized businesses that have a standard big-box, land-intensive development format. Total economic activity would be lower and prices slightly higher for retail goods in the absence of retail development in Corridors.[2] There is the possibility that properly constructed could facilitate the commercial development most appropriate for Corridors, redirect some types of commercial development toward Centers or their

[1] We use the term neighborhood centers, noting that the term *centers* is used by Metro to refer to a hierarchy of Region 2040 Centers. The neighborhood center was introduced in the land use and development concept Chapter 4. The recommendations include adding neighborhood corridor to a typology to describe the uses (primarily residential, office, lodging, and institutional) between neighborhood, regional, and town centers.

[2] We do not comment here on whether that tradeoff is desirable: we are just describing the direction of the likely effects.

fringes, improve Corridor function, and in doing all of that, make Corridors work better.

- **A major transformation of current Corridors will require a major transformation of the streetscape.** It did not take this study to discover that a lot of development in Corridors in Portland and elsewhere is aesthetically disadvantaged designed with no thought of pedestrian use. These conditions, plus large traffic volumes and noise, make Corridors incompatible with residential uses today. Residential uses are less likely to be successful until the streetscape is changed to make Corridors more pedestrian friendly and to provide buffers (such as street trees for noise reduction and increased privacy).
- **Transportation improvements can decrease congestion and increase mobility and access along Corridors.** The transportation improvements listed in Chapter 4 will help to improve mobility and access for all modes of travel in Corridors. Local jurisdictions should develop and implement network plans that prescriptively improve conditions for non-vehicular modes. These plans should specifically identify missing links and secondary street alternatives that will preserve Corridor mobility for through traffic, ensure more direct off-corridor connections, and increase pleasant pedestrian and bicycle options on collector and local streets for access along the corridor and between neighborhoods. Corridor level planning recognizes that large format auto scale development typical in corridors will require a new armature of street connectivity.

  Recommended urban design guidance should be included in site plan review to produce active comfortable walking and bicycle environments especially around transit nodes to improve non-SOV mode share.
- **Without the benefit of clear public policy and public investment, most Corridors will change slowly.** There are multiple conditions that would provide opportunities for the restructuring of Corridors. They include market trends in retail that encourage retail to locate at major intersections, disinvestment along strip Corridors, increases in residential land values that are closing the gap between residential and commercial land values in Corridors, and increasing congestion along Corridors. These forces will slowly cause change in the development in Corridors. If the region wants that change to occur faster and with move coherence and amenity, then some policies—which could be adopted at the state, regional, or local level depending on their type—are probably necessary. A comprehensive policy would address all phases of implementation: identifying needed transportation/streetscape improvements, prioritizing Corridor investment, determining the interest of local jurisdictions to planning activities, and determining funding strategies.
- **Public efforts undertaken to transform development in Corridors will need to do all the things that are now typical of sub-area and Corridor planning in Oregon, and then some.**
  - **Public involvement.** Resistance to restructured Corridors is often the biggest barrier to implementation. The consultants' experience

elsewhere in restructuring Centers and Corridors suggests that approximately six local workshops are necessary for the successful adoption of a restructured Corridor plan. This level of public involvement is required to collect information from stakeholders, process the information, educate stakeholders on the existing conditions and market conditions, create alternatives, and to adopt a final plan.

- **Economic analysis.** A fundamental conclusion about major transformations of current Corridor patterns that are extended, low-density commercial strips is that the retail needs to be concentrated, and that some of the commercial land should convert to high-density residential uses. In similar restructuring projects in other parts of the country examined for this project, local property owners resisted the removal of retail entitlements, believing that the retail market would rebound and demand for retail in a Corridor would increase. A comprehensive economic study that identifies prototypical developments that are viable in a restructured Corridor is necessary to show property owners that there is an alternative to retail.

  The economic study has the additional benefit of showing how a restructured Corridor and the accompanying policies would increase the value of properties over the long term. Such a study would help jurisdictions defend themselves against potential Measure 37 claims (assuming that the economic study can demonstrate a likely increase in property values).

- **Local evaluation.** Many of the findings of the case-study Corridors are applicable in some form to Corridors throughout the region (primarily in suburban locations), but local conditions will dictate how restructuring occurs.
  - How close is the regional, town, or neighborhood center?
  - Are there specialty segments along the Corridor?
  - What is the local market for housing, office, and lodging?
  - Are parcels in the Corridor difficult to redevelop because of size (especially the depth of the parcels)?
  - What are the existing transportation conditions, including volumes, speeds, transit service, accident history, bicycle and pedestrian environment and streetscape design?
  - Are existing uses thriving, stagnant, or blighted?

- **State, regional, and local funding for transportation improvements along Corridors is necessary to support the land use and development alternatives.** A consistent message throughout this study was "there is not enough money to do Centers; where will the money for Corridors come from?" This question is in part one about priorities and has the obvious set of answers: increase total funding so there is more for Corridor restructuring; shift money from Centers to Corridors; decide that public

investment in restructuring of Corridors is not a high enough priority to merit a share of the limited funding available.

RECOMMENDATIONS

This section lists the recommended changes to state, regional, and local agency rules and policies.

STATE AGENCY RULES AND POLICIES

S1: Re-examine AASHTO interpretation within Corridors.

S2: Designate UBAs only in Neighborhood Corridors.

S3: Develop state-local agreements regarding transportation and streetscape improvements in the Corridors.

S4: Increase funding for Corridors in the State Transportation Improvement Program (STIP).

REGIONAL AGENCY RULES AND POLICIES

R1: Recognize Corridor segment typologies as a tool for Corridor planning.

R2: Provide Functional Plan support for retail clusters.

R3: Emphasize the importance of Corridor planning to improve the transportation system and enhance Centers.

R4: Increase the priority of Corridor funding in the Metropolitan Transportation Improvement Program (MTIP).

R5: Clarify the use of medians along Corridors.

R6: Develop gateways in Corridors.

R7: Coordinate with housing providers and advocacy groups to identify and implement a pilot project.

LOCAL AGENCY RULES AND POLICIES

L1: Change road designs policies within the Transportation System Plans (TSPs) or public works standards to encourage transportation improvements that support the land use and development alternatives and remove barriers.

L2: Rezone the neighborhood corridor segments to limit the amount of retail and allow for the density of residential, office, lodging, institutional and limited commercial uses envisioned by the land use and development alternatives.

L3: Implement transportation and street-design strategies to support the land use and development alternative.

L4: Review current codes for appropriate design guidelines and development standards for retail in corridors.

L5: Provide incentives to encourage the redevelopment of Corridors.

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Chapter 1

Introduction

This report, *the Metro Corridors Case Study Report*, documents the research in Phase II of the Metro Corridors Project. The findings from this report and the Phase I Report are the basis for a final report to Metro, the *Metro Corridors Summary Report*. It has four sections:

- **Background,** describes the relationship among this report, the *Phase I Report,* and the *Metro Corridors Summary Report*.
- **Study area,** describes the boundaries of the area studied.
- **Methods,** discusses the research plan for the report.
- **Organization of this study,** describes the chapters and appendices in this report.

BACKGROUND

The Metro Corridors Project is a study of Corridors within the context of the 2040 Growth Concept. Its purpose is to determine how the region can support the successful implementation of the Corridor design type to achieve the 2040 Growth Concept. The Metro Corridors Project is divided into two phases:

- Phase I of the Metro Corridors Project, completed in December 2004, investigated land use and transportation issues in corridors in general and in a subset of specific Corridors in the Portland region. It resulted in the selection of a Corridor case study for Phase II of the project.
- Phase II of the project is a case study of the Beaverton-Hillsdale Highway and Canyon Road Corridors. Its purpose is to identify opportunities for and constraints to achieving development in Corridors that conforms to the Metro 2040 Growth Concept, Regional Framework Plan, and related documents. Phase II describes how the case-study Corridors and the Beaverton Regional Center complement and compete with each other. It recommends a plan for land use and transportation development that conforms to regional guidelines for development in Corridors, and recommends local, regional, and state policies that would be helpful for achieving the plan.

The key findings from both the Phase I and the Phase II Reports will be summarized after this Phase II case-study report is approved in a final report to Metro, the *Metro Corridors Summary Report*.

A key principle of the 2040 Growth Concept is that land use and transportation can be developed together in ways that improve the performance of each. Compact, mixed-use development increases the opportunities for transit, walking, and cycling. It increases opportunities for a single trip to accomplish many tasks; people can drive to the area and walk from destination to destination.

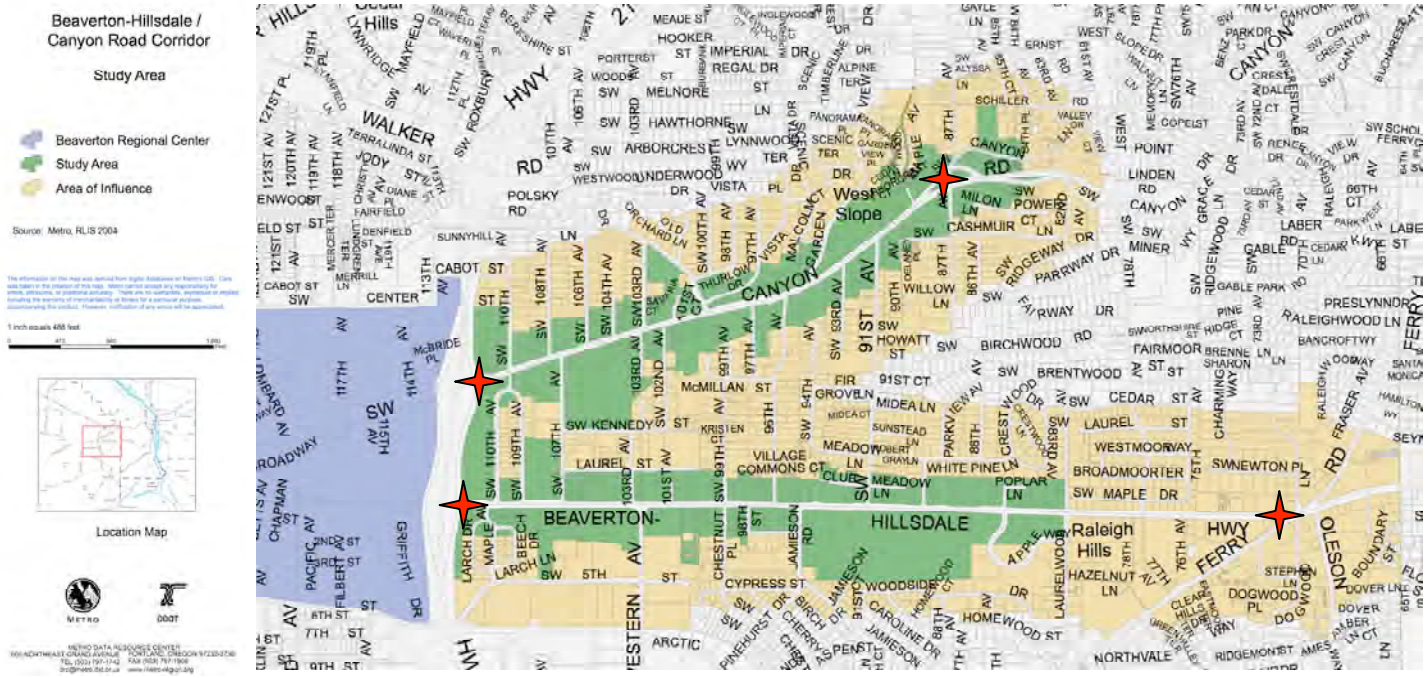
This pattern of development also keeps more local trips on local roads, preserving the highway capacity for through traffic.

Improving transportation efficiency through these means and others (e.g., access management) delays the need to expand the state highways. In addition, increased density along Corridors and in Centers reduces the need to expand the Urban Growth Boundary (UGB) and provide new transportation infrastructure at the edge of the region.

STUDY AREA

The study area includes two Corridors, the Beaverton-Hillsdale Highway Corridor and the Canyon Road Corridor, as shown in Figure 1-1. The Canyon Road Corridor study area extends from 87th Avenue at the north, to the Beaverton Regional Center to the south. The Beaverton-Hillsdale Highway Corridor study area extends from Laurelwood Road to the east and Highway 217 to the west.

Figure 1-1. Case Study Area, Beaverton-Hillsdale Highway and Canyon Road, 2004



Source: Metro DRC (Carol Hall) August 2004.

The star symbol identifies the case-study Corridor's gateways.

This report also considers an area of influence around the Corridors that includes all of the Beaverton Regional Center and approximately one-quarter mile around the Corridors. The Beaverton Regional Center is included because a key purpose of the case study is to examine the relationship between the Center and the Corridors. The one-quarter mile area was chosen because Metro wanted a

better understanding of the transportation connectivity and supportive development uses surrounding the Corridors.

According to Metro staff, Corridors were originally assigned a 700-foot width in Metro databases; this width was chosen to capture approximately a half block area in the Corridors. The width was problematic for the purposes of this project, however, because it bisected many (if not all) of the parcels, making it difficult to measure development use. To counter that problem, the study area boundaries in this study include only those complete parcels that are a minimum of 350 feet deep (as measured from the middle of the road).

METHODS

The research plan for this study comprised the following tasks:

- **Evaluate land use and transportation databases.** Metro evaluated existing land use and transportation data currently available in Metro databases and from the Oregon Department of Transportation, the City of Beaverton, and Washington County.
- **Review policy documents.** Metro and Angelo Eaton reviewed policy documents, including comprehensive plans, transportation plans, and regional plans from the Oregon Department of Transportation, Metro, the City of Beaverton, and Washington County to determine if there are conflicting policies that will hinder the implementation of Corridors.
- **Survey of existing development uses.** Metro and Freedman Tung and Bottomley staff conducted a field survey to map the existing development uses in the Corridors.
- **Conduct a market analysis.** Building upon the preliminary market analysis completed for the Phase I Report, Johnson Gardner evaluated the market potential for the study Corridors to determine their potential with a mix of different development types.
- **Gather feedback from advisory committee, focus groups, and developers.** An advisory committee composed of local and regional staff and decision makers, neighborhood representatives, business owners, property owners along the Corridors, and area developers provided feedback regarding opportunities and constraints and land use and development alternatives.

ORGANIZATION OF THIS STUDY

The rest of this report is organized as follows:

- **Chapter 2: Framework for evaluating the case-study Corridors.** This chapter describes the problem Metro is trying to solve, its vision for Corridors as described in the 2040 Growth Concept, and what others North American communities envision for their strip development Corridors.

- **Chapter 3: Opportunities and constraints in the Corridors.** This chapter describes existing land use and transportation conditions, how those conditions are likely to change if trends continue, and an evaluation of the opportunities and constraints that exist within the case-study Corridors.
- **Chapter 4: Land use and development concept.** This chapter presents a land use and development concept for Canyon Road and the Beaverton-Hillsdale Highway. It also discusses streetscapes, the treatment of retail, and transportation and implementation strategies for the Corridors.
- **Chapter 5: Conclusions and policy implications.** This chapter presents conclusions and suggests policy changes necessary to implement the land use and development concept.
- **Technical Appendix.** The technical appendix consists of the following technical work by contractors on this project:
  - Existing conditions report completed by Metro
  - Market analysis conducted by Johnson Gardner
  - Evaluation of land use existing conditions by Freedman Tung and Bottomley
  - Evaluation of transportation existing conditions by Kittelson and Associates
  - Description of land use concepts by Freedman Tung and Bottomley
  - Description of transportation concepts by Kittelson and Associates
  - Policy recommendations for Metro based on the case study by Angelo Eaton
  - Focus group and developer interview notes summarized by ECONorthwest
  - Advisory committee notes summarized by ECONorthwest

Framework for Evaluating the Case-Study Corridors

Chapter 2

This chapter defines the 2040 Growth Concept Corridor design type and summarizes the literature definitions from the Phase I Report[1]. It has two sections:

- **What does the 2040 growth concept say about Corridors and Centers?** This section defines the Corridor and Center design types according to the 2040 Growth Concept.
- **What does the literature say about Corridors?** This section summarizes the current thinking on corridors throughout North America.

WHAT DOES THE 2040 GROWTH CONCEPT SAY ABOUT CORRIDORS AND CENTERS?

PORTLAND METRO DEFINITION OF CORRIDORS

In the Portland area, Metro has defined Corridors through the 2040 Growth Concept, as described in the Regional Framework Plan. Metro has designated over 400 miles of arterial streets within the region as Corridors.

Metro defines Corridors as having the following characteristics:

- Relatively high density (25 persons [combined population and employment] per acre)
- Mixed-use development
- Continuous intensity or smaller centers/nodes (often at major intersection) with auto-oriented activities sometimes between the nodes
- Arterial street with four travel lanes and significant traffic flows
- High-quality bicycle and pedestrian environment
- Convenient access to good quality transit

Many of these characteristics are planned or envisioned for Corridors but do not reflect the current state of Corridors in the Metro region. Densities are often lower than 25 persons per acre, not all provide a high-quality bicycle and pedestrian environment, the non-SOV shares are less than 45-55%, and the roadway does not always consist of four travel lanes plus bike lanes and sidewalks.

[1] See Chapter 2: Framework in the Metro Corridors Phase I Report, completed by the ECONorthwest Consulting Team, December 2004.

The scope of work for this project adds additional dimensions to the definition of corridors, describing them (emphasis added) as:

> A *continuous, narrow band* of higher intensity, *mixed-use* development along an arterial road *or a series of smaller centers* at major intersections or other locations along the arterial road. Generally, a Corridor *is well connected to adjacent neighborhoods* and is served by good quality transit.

The scope of work[2] also points out that Corridors are usually "regional streets," meaning that they carry significant vehicle traffic plus public transit, bicycle, and pedestrian travel. They are typically planned to have four lanes of traffic plus bike lanes and sidewalks.

PORTLAND METRO DEFINITION OF CENTERS

Metro describes Centers as "compact, mixed-use neighborhoods of high-density housing, employment and retail that are pedestrian-oriented and well served by public transportation and roads. Centers are defined as the central city, Regional Centers, Town Centers, Station Communities, and Main Streets."[3]

Regional Centers complement the Central City and serve large markets outside Portland. They are the most accessible areas in the region by auto and high-quality transit, highways and pedestrian-oriented streets.[4]

Town Centers, station communities, and main streets are the smaller components of the 2040 Growth Concept. These are significant areas of urban activity connected to the regional Centers by transit and key arterial streets. They provide local shopping and employment opportunities.[5]

Metro proposes the following objectives for all Centers[6]:

- Promote more intensive mixed-use development
- Promote greater efficiency in the use of land
- Provide infrastructure to support more intensive development
- Provide roads for effective local and regional connections that provide access to, and circulation within, the Center for all modes of travel, including freight
- Promote shared parking and driveways between developments

[2] While the Scope of Work is not adopted Metro policy (such as the Regional Framework Plan or the Transportation System Plan), however, it provides guidance on policy issues that this project will address.

[3] http://www.metro-region.org/article.cfm?articleID=6547, viewed 2 June 2004.

[4] ibid.

[5] ibid.

[6] http://www.metro-region.org/article.cfm?articleID=6547, viewed 2 June 2004.

- Provide a pleasant, healthy, safe and convenient bike and pedestrian environment
- Promote walking, bicycling and public transit use
- Provide a distinct identification for each Center through signs, street design and marketing, etc.
- Provide public spaces, such as town squares
- Incorporate "green" practices in developing buildings and infrastructure, particularly for stormwater runoff
- Recognize the natural environment (streams, wetlands) as a desired amenity
- Promote public/private partnerships to achieve Center goals.

DIFFERENCE BETWEEN CORRIDORS AND CENTERS

Both Corridors and Centers are envisioned to be mixed-use, higher-density areas well served by transit. So why have some places been designated as Corridors and others as Centers?

The primary difference between Centers and Corridors in the 2040 Concept Plan is that Centers are focused at major intersections and include activity on a cluster of parallel and perpendicular streets, while Corridors usually connect Centers and are linear in nature. Corridors may also have nodes of activity at major intersections, but these nodes are generally smaller and more neighborhood-serving than town Centers or regional Centers. Between the nodes and official Centers, Corridors tend to be lower-density and more auto-dominated than Centers.

In many cases, these distinctions do not reflect existing conditions: some Centers are as low-density as portions of Corridors, and some sections of Corridors contain large retail uses that serve a regional market. Many of the areas designated as Centers and Corridors in the Concept Plan currently serve similar markets (particularly Town Centers and Corridors), which have more of a neighborhood draw, as opposed to a regional draw. As a result, there is a great deal of competition for commercial tenants. Most Town Centers are composed of a series of self-supporting developments, with exclusive parking and little provision for cross shopping. A lack of variety of shopping opportunities within many Town Centers, which gives Corridors an advantage (or at least, no competitive disadvantage) for attracting tenants. Corridors often have an advantage over Town Centers because of better access.

WHAT DOES THE LITERATURE SAY ABOUT CORRIDORS?

Urban planning literature defines centers and corridors in terms similar to those adopted in the Portland region. Corridors are usually thought of as linear bands of reasonably high-density development that achieve even higher densities

when they reach centers. Centers, meanwhile, are defined as clusters of parallel and perpendicular streets with economic activity that has a citywide or regional market. In some communities, corridors do not necessarily have denser land use than surrounding streets—they are simply arterials with high traffic volumes.[7]

Though the exact definitions may be unclear, most planners around the country agree that centers and corridors are different, if sometimes overlapping, elements of urban structure. Centers are generally thought of as the "heart" of the neighborhood, the city, or the region. As such, they generally contain a mixture of uses and a high intensity of development. Centers typically have the greatest concentration of public spaces, including pedestrian streets, squares, greens, promenades, esplanades, and plazas. Centers are necessarily located at major intersections and include activity on a cluster of parallel and perpendicular streets.

In contrast, the role of corridors in a healthy metropolitan area has been much less well defined, complicating the efforts planners and community members to visualize and articulate a desirable form for them. Nevertheless, corridors, along with centers, districts, and neighborhoods, are one of the primary organizing elements of cities and metropolitan regions. In a healthy metro area, corridors are different than centers, districts, and neighborhoods in that they are *connectors* of the primary pieces of our cities, as well as connectors of cities themselves. Corridors contain a region's primary transportation infrastructure, from lanes for motorized vehicles to transit rights-of-way, and therefore must accommodate efficient movement of such vehicles. Corridors also serve as primary organizing features by providing the most common form of *edge* to neighborhoods and districts. Corridors also provide such neighborhoods and districts with the most viable locations for access to services and transit, in that corridors are "seams" between neighborhoods and therefore can serve multiple neighborhoods in ways that internal neighborhood streets cannot. Ultimately, the most fundamental difference between corridors and centers is that centers are always the primary destinations in our cities, whereas corridors connect such primary destinations.

[7] See Phase 1 Report, Appendix A, Literature Review, for more information on the relationship between corridors and centers in the literature, and Phase 1 Report, Appendix C, North American Case Studies, for more information about specific corridor revitalization projects.

Chapter 3 Opportunities and Constraints in the Corridors

This chapter discusses the opportunities and constraints that exist in the two case-study Corridors based on the existing conditions. It has five sections:

- **Land use.** This section describes and evaluates the existing land use condition of the gateways, aesthetics, development pattern, and existing commercial assets of the Corridors.
- **Transportation.** This section describes the existing transportation condition of traffic, transit, bicycle, and pedestrian systems, and evaluates the street design, access, parking management, bicycle network, and pedestrian network.
- **Policy analysis.** This section summarizes and evaluates transportation and land use policy issues in the Corridors.
- **Market analysis.** This section identifies existing market opportunities and constraints, describes the current outlook for commercial, retail, rental, and home ownership markets, and suggests appropriate uses in the Corridors.
- **Summary.** The final section briefly summarizes the analysis.

The evaluation in this chapter is summarized from technical work in the technical appendix: (1) an analysis of existing conditions by Metro, (2), a market analysis conducted by Johnson Gardner, (3) an evaluation of land use existing conditions by Freedman Tung and Bottomley, (4) an evaluation of transportation by Kittelson and Associates, and (5) summary of findings from a property owner focus group and interviews with area developers.

LAND USE

EXISTING CONDITIONS

BEAVERTON-HILLSDALE HIGHWAY

The case study area begins at the east edge of the Beaverton Regional Center at Highway 217 and extends to SW Laurelwood Avenue (a map of the case-study Corridors is in Chapter 1, Figure 1-1). The area is primarily a mix of low-density residential and retail/commercial uses. The western portion of the Beaverton-Hillsdale Highway contains mostly lower-density retail/commercial (Home Depot and Target) with large parking areas. Strip development with some office and the Jesuit High School campus is located in the middle of the case study area. Residential uses are located on the eastern end of the Corridor on the north side of the Highway, and strip-development commercial is located on the south side.

CANYON ROAD

The Canyon Road Corridor's western edge is located at the Beaverton Regional Center at Highway 217 and extends past SW 87th Avenue at the eastern edge, as shown in Figure 3-1. This Corridor is primarily developed with low-density commercial uses with large parking areas. Residential development abuts the commercial properties, many of which are single-family residences.

LAND USE IN THE CORRIDORS

Figure 3-1 shows the existing development types along the Beaverton-Hillsdale Highway and the Canyon Road Corridors. Unlike a typical land-use map, which colors all land in parcels whether they are developed or not, Figure 3-1 shows just the "footprints" of buildings and, thus, gives a sense of not only the use, but also the density of those uses.

Figure 3-1. Existing development, Beaverton-Hillsdale Highway and Canyon Road Corridors, 2004

Source: Metro DRC (Carol Hall) August 2004.

Of the 557 parcels in the two Corridors, 529 parcels (95%) are considered developed or partially developed. The developed parcels account for 315 acres (94%) of the 335 acres within the study areas. The vast majority of the vacant parcels are small, less than an acre. Sixteen of the vacant parcels that total 29 acres contain Title 3 identified natural resources. The Title 3 lands are all associated with Golf Creek and Hall Creek in the Canyon Road Corridor. Development has occurred on most of the parcels that contain natural resources and it appears the resource has either been piped or channeled to the edge of the property. Thus, the natural resources have not posed much of a constraint for development in the past. However, they may pose a constraint for future

development or redevelopment as Metro and local jurisdictions adopt measures and programs to comply with Statewide Planning Goal 5, Natural Resources.

GATEWAYS

The overpass of Highway 217 forms a western natural gateway to each of the study area Corridors. The intersection at Canyon Road and 87th Avenue is marked by a distinct grade change and a shift in roadway character creates a natural eastern gateway (see Figure 1-1). However, no perceivable or visible change marks the Laurelwood Avenue intersection at the eastern edge of the Beaverton-Hillsdale Highway Corridor. A more natural gateway occurs at the six-point intersection of Beaverton Hillsdale, Scholls Ferry and Oleson Roads.

The City has applied for federal funding to install gateway elements (such as improving the landscaping and installing monument signs). Neither the City of Beaverton nor Washington County has plans at this time to develop a distinctive gateway on the eastern end of Canyon Road. Washington County has developed a plan to improve the Beaverton-Hillsdale Highway/Scholls Ferry Road/Oleson Road intersection that could potentially create a gateway into the Corridor. The proposed redesign changes the character of the intersection, separating it into multiple intersections with landscaping and green space opportunities. MTIP funding is pending a decision expected in early March 2005.

EVALUATION

Several common problems faced by commercial corridors identified in the Phase I analysis were also found in the case-study Corridors:

- **Aesthetics.** The Corridors are a visible part of a City. In general, they are aesthetically unappealing, with a utilitarian streetscape, and lined with unattractive box buildings surrounded by surface parking lots and outsized signage.
- **Development pattern.** Corridors are generally lined by low-density, linear development strung out along the corridor, which prevents synergy between businesses and discourages movement between them.
- **Commercial assets.** With its underutilized land, the Corridors attract uses that should be located in Centers, draining nearby Centers vitality and market share.
- **Market conditions.** The strip is continuously zoned for commercial development, creating an oversupply of retail land.

AESTHETICS

The roadways themselves are relatively barren, with a utilitarian design that contains little landscape or street furniture. Commercial development on the Corridors place more importance on signage than on building design. Most developments in the case-study Corridors utilize large-scale signage to announce their businesses. The overall effect is a cacophonous jumble of signs. Buildings are usually an afterthought. Most retail buildings are undecorated boxes at varying

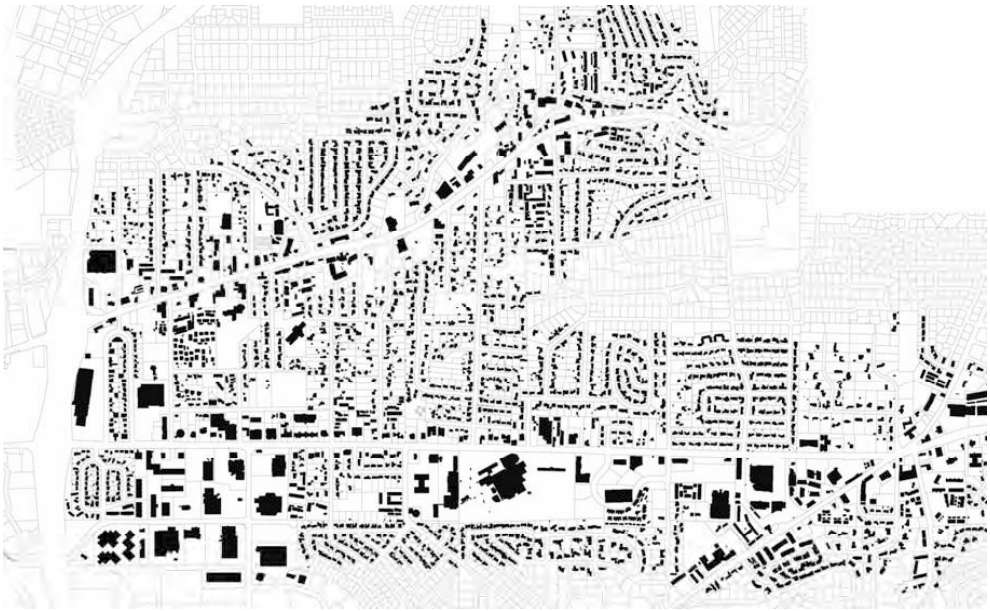
scales, with flat, shed, or mansard roofs, and blank walls along some of their facades. Buildings along the roadway are set back with parking in front.

Focus group participants at a November 10, 2004 meeting generally agreed that the issue of aesthetics was of primary concern, and agreed that most of the development design and architecture along the Corridors is unattractive. They suggested that redevelopment activities should attempt to improve aesthetics along the Corridors.

DEVELOPMENT PATTERN

Figure 3-2 illustrates two points regarding the scale of development in the case-study Corridors: (1) the scale of buildings increase as one moves from the small scaled residential areas in adjoining neighborhoods towards the land abutting the Corridors. The largest scaled buildings are adjacent to the freeway. (2) The distance between buildings increases as one moves from the neighborhoods towards the properties along the Corridors.

Figure 3-2. Building footprint, Beaverton-Hillsdale Highway and Canyon Road Corridors, 2004



Source: Freedman Tung & Bottomley (Sarah Dennis), 2004.

Freedman Tung and Bottomley identified several common development types in the Corridors. These development types are the building blocks of the Corridors. They provide a catalog of the kinds of properties that can be either improved or redeveloped. By identifying the opportunities and constraints presented by each, based on use, parcel size and depth, we can identify the spectrum of possibilities for the redevelopment for each.

The development types identified along Beaverton Hillsdale Highway and Canyon Road Corridors are:

- **Big Box.** Typically a large-scale building of 100,000 or more square feet set back from the roadway behind a large parking lot. Sometimes includes in-line or pad stores on the same site.
- **Medium Box.** A medium-sized box building of 50,000-75,000 square feet set in or behind parking. Uses are usually neighborhood serving, like a grocery or drug store. This type may also include in-line stores.
- **Small Box.** A smaller box building of 10,000-25,000 square feet, with parking in front or to the side of the building, often with additional parking to the rear. Typical uses range from national or chain retailers to gyms or offices.
- **Strip.** A long building with multiple tenants, usually greater than 7,500-10,000 square feet depending on the number of stores in the strip. Parking always fronts the strip, although that can range from a half to a full bay lot, with additional parking in the rear.
- **Stand Alone.** A single freestanding building of anywhere from 3,000-6,000 square feet set in the middle of a parking lot. Often a fast food or convenience store.
- **Shack.** A small business of approximately 1,000-2,000 square feet on its own small paved lot. It typically houses an independent business in a one-room building or a converted single-family home.

COMMERCIAL ASSETS

Appropriate uses in corridors were identified in Phase I. These uses include neighborhood-oriented retail, office and its supporting services and convenience uses, fast food establishments, and the sale of large scale goods, like warehouse retail, furniture and appliances, or auto-related. Most of these uses occur in the study-area Corridors.

Uses that are potentially competitive with centers (because of their orientation, scale, and most importantly their ability to generate activity) include sit-down restaurants, entertainment uses like cinemas and theaters, regional anchor stores, specialty and boutique retail, and civic uses (a notable exception are neighborhood civic uses, such as schools and post offices). Many of these kinds of uses also occur on the study-area Corridors, suggesting that Corridors compete with nearby regional and town centers.

MARKET CONDITIONS

The market share of the Corridor businesses compete with a larger network of retail in Centers, shopping districts, and neighborhood nodes. Retail demand is finite within a region. Any retail that is located in one area takes away demand from any of the other shopping locations in the region. According to Johnson Gardner, the surrounding neighborhood can support approximately 1,532,000 square feet of retail space on the Corridors (not counting automotive parts, accessories and tire stores). Currently the total non-auto oriented retail on the Corridors is about 1,645,500 square feet. The Corridors have more retail than

their surrounding communities can support. The result is a retail market that is stretched across too many stores, with each individual establishment doing enough business to survive, but not enough to thrive.

This oversupply means that the existing retail space on the Corridor is declining in value. This is evident in pockets of disinvestment occurring on the Corridors, including several vacant sites and many more underutilized properties. These disinvested areas provide the Corridor with its strongest opportunities for change.

TRANSPORTATION

EXISTING CONDITIONS

Beaverton-Hillsdale Highway and Canyon Road provide access to suburban residential and commercial land uses and conform to the Urban Business Area (UBA) ODOT designation. The Highways function as arterials and connect the neighborhoods and Corridors businesses to the regional transportation network, including ORE 217, I-5, and ORE 26. Both roads are five lanes, typically four through lanes with a striped continuous two-way center left-turn lane. Marked bike lanes, on-street parking, or acceleration/deceleration lanes are absent. Several neighborhood routes link Canyon Road with the Beaverton-Hillsdale Highway.

TRANSPORTATION ELEMENTS

This section summarizes the automobile, transit, bicycle, and pedestrian elements on the case-study Corridors. While transit is available and pedestrians and bicyclists are present on the Corridors, especially the Beaverton-Hillsdale Highway, the auto-oriented low-scale development pattern suggests that the private automobile is the mode of choice for the vast majority of the Corridors users.

- **Automobile.** The Beaverton-Hillsdale Highway is the more diverse of the two case-study Corridors in terms of function, form, and character. Year 2002 traffic volumes in the study area varied between 31,700 and 38,500 vehicles daily. Several high volume intersections accommodate free right turns and a recent resurfacing of the Beaverton-Hillsdale Highway included a raised median in front of the Target retail center and the addition of sidewalk to meet the six foot ODOT recommended width and ADA standards. Most Beaverton-Hillsdale Highway intersections are operating at a Level of Service C and conform to ODOT's mobility standards.

  Average daily traffic on Canyon Road is generally lower than the Beaverton-Hillsdale Highway, ranging from 21,900 east of 87th Avenue to 30,900 east of ORE 217. According to the Beaverton Transportation System Plan, major intersections within the Corridor operate at a Level of Service C or better. The 110th Avenue intersection is identified for safety improvements due to a history of accidents.

- **Transit.** TriMet operates bus service along both Corridors. The #58 operates with 15 to 30 minute peak hour headways on Canyon Road. The #54 provides 20 to 60 minute headways during peak hours along the Beaverton-Hillsdale Highway. Both routes terminate at the Beaverton Transit Center just west of ORE 217. Shelters are provided at stops with the highest ridership. The study area is also close to the Beaverton Transit Station providing regional rail access.
- **Bicycle.** While both roads are designated as regional access bikeways, neither road has striped bike lanes. Off-street paths and parallel neighborhood routes for local trips and recreation are limited. The only street marked for bicycle use is 96th Avenue. Limited roadway width on the Beaverton Hillsdale Highway prohibited a recent resurfacing project from providing more than wide unmarked curb lanes for bicycles.
- **Pedestrian.** Residents and employees walk along the Corridors to schools, transit, retail, and service attractions. Except for several missing links along Canyon Road, sidewalk coverage along both arterials meets minimum guidelines. The recent Beaverton-Hillsdale Highway resurfacing project upgraded sidewalks to meet ADA requirements. There is a lack of sidewalk and formal pedestrian pathways on side streets and through parking lots in the Corridor.

  Pedestrians use an informal network of unmarked paths through parking lots, drive aisles, and fence breaches to shorten the walk. The separation and size of many of these sites are barriers to neighborhood residents, especially pedestrians and bicyclists.

EVALUATION

Several common problems faced by commercial corridors identified in the Phase I analysis were also found in the case-study Corridors:

- **Street design.** Arterials are built almost exclusively for the motor vehicle, with little space or thought given to transit riders, bicyclists, or pedestrians.
- **Access and movement.** Poor transportation connections (for example, too many driveways and frequent left turns), and lack of connection between businesses forces automobiles on the Corridors and result in increased congestion.
- **Parking management.** Historically generous parking standards have resulted in too much parking in the Corridors. Property owners have installed barriers between businesses, which decreases mobility between businesses.
- **Bicycle network.** Inadequate bicycle facilities in the Corridors increase the danger of riding a bicycle.
- **Pedestrian network.** While recent upgrades have improved the pedestrian environment, they have not resulted in a comfortable or convenient pedestrian environment in the Corridors.

STREET DESIGN

Due to the dependence on automobiles to move residents, employees, and customers around the Corridors, the transit, bicycle, and pedestrian environment suffers. The public frontage along both Corridors consists of a narrow concrete sidewalk located directly adjacent to the curb. This sidewalk runs (for the most part) continuously along Beaverton Hillsdale Highway, but occurs only sporadically along Canyon Road. Frequently the sidewalk at the Canyon Road's northeastern segment bleeds into parking lots that intrude into the roadway, or is broken by planted or gravel areas where there is no sidewalk at all. The pedestrian realm has no protection from the vehicular traffic, either on the sidewalk, or in parking lots.

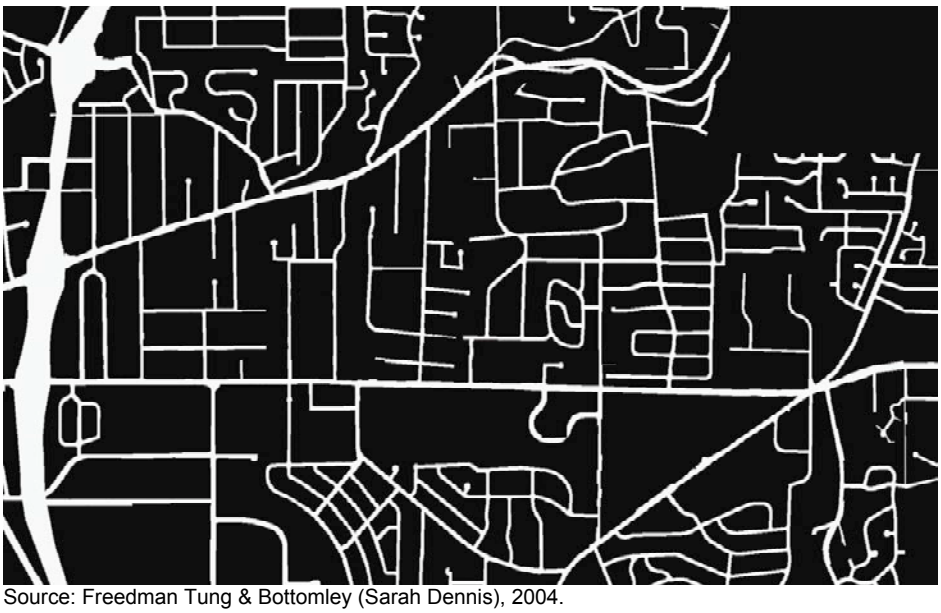
ACCESS AND MOVEMENT

Access to businesses along the Corridors is inhibited by the site-by-site approach to parking. Many property owners have installed barriers between their properties, forcing drivers to use the Corridors or adjacent streets to travel from business to business.

Numerous private access points and a center two-way left-turn lane along both case-study Corridors contribute to safety concerns for all transportation modes. ODOT guidelines recommend a series of local roads at regularly spaced intervals serving numerous sites. A retrofit of the system should create a more redundant street network and rely less on direct access to the Corridors.

Few streets cross the Corridors to connect the neighborhoods behind them, and even fewer connect between the two Corridors, as shown in Figure 3-3. These few neighborhood connections not only carry community traffic, but also are short cuts for regional traffic, frustrating neighborhood property owners. Many property owners have created signs and organized support of divider islands at the neighborhood approaches.

Figure 3-3. Circulation network, Beaverton-Hillsdale Highway and Canyon Road Corridors, 2004



Source: Freedman Tung & Bottomley (Sarah Dennis), 2004.

PARKING MANAGEMENT

Parking on the Beaverton-Hillsdale Highway Corridor is perhaps the most critical contributor to the degraded condition of area aesthetics, the natural environment, pedestrian access, and transportation efficiency. The City of Beaverton and Washington County have established maximum parking ratios consistent with the 2040 Regional Plan. They also provide incentives for reducing parking. However, most of the Corridors were developed before the reduced parking guidelines were adopted. Alternative development should be built according to a framework that integrates compatible land uses and works to improve the efficiency of parking and the movement of all transportation types between businesses.

BICYCLE NETWORK

The lack of a bicycle system in the Corridors provides numerous opportunities for conflicts with automobiles. Multimodal area planning should provide a bicycle system that includes access to the region-serving arterial, as well as the neighborhood streets. Bicycles should also have access to businesses from the side and the rear.

PEDESTRIAN NETWORK

The pedestrian environment in the Corridors has improved with recent upgrades of sidewalks, signal heads, and crosswalks, especially along the Beaverton-Hillsdale Highway. However, these improvements are not enough to make the Corridors a comfortable or convenient pedestrian environment. Creating a pedestrian system on roads and land developed for auto-scale access and circulation is generally inconsistent with a comfortable pedestrian environment. Frequent curb cuts that provide automobile access to each business increases the

number of areas where pedestrians and automobiles cross paths. The Corridors design and generous spacing encourage high speeds and long crossing distances for pedestrians. Targeted attention to balance the high levels of automobile activity with the needs of non-motorized users will be important to transforming the Corridors to multimodal facilities.

Building design can also improve the pedestrian environment. Sidewalks and pathways along long blank walls and large parking fields make pedestrians feel vulnerable, especially after dark. Reinforcing pedestrian pathways with "active" building fronts produces "eyes on the street" and enhances walkability.

A fully functioning pedestrian system is critical to building a future with high transit and non-auto mode share along the Corridors. Such a system links destinations and transit stops/stations at comfortable walking distances of less than .25 mile for bus, on a barrier free network of connected streets reinforced with buildings oriented to streets, pedestrian amenities such as shade and seating, and frequent marked street crossings.

POLICY ANALYSIS

This section describes elements of existing land use and transportation policies that define how the Corridors are envisioned to develop in the future. The review evaluates the extent to which existing land use and transportation policies are supportive, or in conflict, with the 2040 Concept Plan. Land use and transportation documents reviewed are:

- Beaverton Comprehensive Plan
- Beaverton Development Code
- Washington County Comprehensive Framework Plan
- Cedar Hills – Cedar Mill and Raleigh Hills – Garden Home Community Plans
- Washington County Community Development Code
- Metro Urban Growth Management Functional Plan and the Regional Framework Plan.
- Beaverton and Washington County Transportation System Plans (TSP)
- Metro Regional Transportation Plan
- Metro Livable Streets document
- Oregon Highway Plan.

LAND USE POLICY SUMMARY

Metro policy requires that local jurisdictions take actions to advance opportunities to improve modal splits along corridors, regional centers, town centers, station communities, and main streets. Targets set for corridors by the year 2040 that comply with Oregon's Transportation Planning Rule suggest environments that can produce 45 to 55% non-SOV (single-occupancy vehicle)

trips. While local plans are generally consistent with the Metro Corridor designation and contain policies that direct the future use of the Corridors to meet the 2040 designation, their implementing mechanisms are not as effective. These planning policies include references to a mixture of commercial and residential uses that are pedestrian friendly with access to transit. However, the zoning districts intended to implement this vision may not result in the desired land use patterns. Most of the land area fronting the roadways is zoned commercial. While residential development is allowed in most of these zones, it is not a requirement of development in the area, nor is there a requirement for a mixture of uses at nodes along the Corridors. Achieving reduced SOV use along corridors, especially in favor of transit, require that densities, designs, and mixes of land use produce an environment and service frequency that can compete with the SOV in terms of convenience, comfort, and safety.

TRANSPORTATION POLICY SUMMARY

City of Beaverton and Washington County staff coordinated with Metro Regional Transportation Planning staff during the development of their respective Transportation System Plans (TSPs) to ensure that the two guiding documents are consistent with the Regional Transportation Plan. Thus, the local and regional transportation policies are consistent. The Oregon Highway Plan's designation as a District Highway that functions largely as county and city arterials and collectors is also consistent with the local and regional classifications, resulting in no conflicts within the various guiding documents.

One of the obstacles to developing the desired transportation/land use system is the difficulty of coordinating multiple jurisdictions (city, county, and state) in the Corridors and adjacent properties. Even though there is review coordination between the different agencies, the complexity of development regulations this creates can impede development in the Corridors.

MARKET ANALYSIS

The Corridors have a number of attributes that influence their ability to attract alternative forms of development. The current land use pattern in the area includes a wide variety of land uses, reflecting the generally conducive environment in the area for these development forms. This section summarizes the key opportunities and constraints as it relates to attracting and retaining development.

EXISTING CONDITIONS

The Portland metropolitan area is emerging from an economic downturn. There was a significant oversupply of several income property types, including speculative office space, industrial space, and rental apartments. The residential-ownership market experienced strong demand due to a combination of historically low mortgage rates and in-migration. The following is a summary of market trends by major land use classification.

- **Office.** At a metropolitan level, the speculative office market has begun to recover, although it is still considered too soft to support new speculative construction, which is expected to rebound in 2006 (at the earliest).

  While the overall market is weak, the most appropriate office space uses along the Beaverton-Hillsboro Corridor in the short run are neighborhood-serving uses, which serve a more specific geographic area and are less impacted by metropolitan area conditions. These types of uses include medical/dental office space and service office users (i.e., title companies, travel agencies). The strength of surrounding demographics make these more limited office tenants viable uses over both the short- and longer-term horizon.

- **Retail market.** Unlike the office and industrial markets, the retail market is relatively strong. The demographic strength of the area surrounding the Beaverton-Hillsdale Corridor is favorable to retail development, as demonstrated by the tenant mix found in the Corridor. The existing concentration of grocers probably limits new groceries, but support continues for a wide range of neighborhood-serving tenant types. Regional-draw tenants are more appropriately located at the western edge of the Corridor, close to Highway 217 and the Beaverton Regional Center.

- **Rental apartment market.** The Portland metropolitan area's rental apartment market has been substantially over-built, with market-rate projects struggling to keep occupancy. Weakness in the Close-in Westside (which includes the Beaverton-Hillsdale Highway) may be attributed to several factors including a disproportionately large number of renters taking advantage of lower interest rates and buying homes. It also may be due to a preference for newly constructed apartment product in the nearby Central City.

  Over the short-term, rental apartment demand is expected to be limited due to soft market conditions. Over the long-term, the Beaverton-Hillsdale Corridor remains a very strong residential market, achieving relatively high lease rates for a suburban location.

- **Ownership housing.** The ownership-housing segment of the market has performed extremely well within the metropolitan area over the last several years. The Beaverton-Hillsdale Corridor is well established as a residential location, with high-end, single-family housing and a strong existing amenity base supportive of attached for-sale development over the short- and longer-term horizons. The relative scarcity of buildable residential land in the Corridor means that not much of the new ownership housing is likely to be single-family detached units.

EVALUATION

The market opportunities in the Corridors are:

- The Beaverton School District is well regarded and considered a marketable amenity for residential development

- The local area has strong demographics, especially residential density and income profile
- The Beaverton-Hillsdale Highway has a significant traffic volume
  - Drive-by market support for retail
  - Exposure for retail and office
- An existing strong commercial mix provides for cross shopping opportunities
- Relative geographic isolation allows for limited cross competition, particularly for convenience goods
- The local park network is well developed
- Nearby high-end amenities such as the Portland Golf Club, Oregon Episcopal School, and Jesuit High School
- Infill site opportunities
- Good regional access
- Good transit linkages to the regional center and city center
- Opportunity to create a multimodal transportation system through new connections and conversions that build on an existing "grid" of streets and highways to reinforce desirable transportation patterns through land use and design changes.

The market constraints in the Corridors are:

- The Beaverton-Hillsdale Highway, Scholls Ferry Road, and Oleson Road intersection is consistently congested
- There are significant slopes on the eastern portion of the Corridor
- Limited parcel size and/or depth
- The need to assemble parcels makes development difficult
- Concerns and fears of adjacent neighborhood groups may complicate new development projects
- The Corridor's streets are unwelcoming to residents and lack a safe pedestrian environment

Table 3-1 summarizes potential viable uses in the Beaverton-Hillsdale Highway and Canyon Road Corridors.

Table 3-1. Viable uses, Beaverton-Hillsdale Highway and Canyon Road Corridors, 2004

Land Use Category	Short-Term Uses	Mid- and Long-Term Uses
Office Space	Service Office Medical Office	Service Office Medical Office
Retail Space	Restaurants Neighborhood Serving (i.e., coffee, bakery, convenience) Regional serving at west end Specialty retail (i.e., Asian)	Specialty Grocer Restaurants Neighborhood Serving (i.e., coffee, bakery, convenience) Regional serving at west end Specialty retail (i.e., Asian)
Rental Residential	Limited, potentially tax-credit affordable project. (Wood frame walk-up) Senior housing	Market-rate projects, potentially in a mid-rise configuration at appropriate site. Senior Housing
Ownership Residential	Townhomes Condominium Flats Single Family Homes	Townhomes Condominium Flats (potentially mid-rise) Single Family Homes
Construction Types	Single story tilt-up or wood frame construction Surface parking	Single story tilt-up or wood frame construction Potential for podium or tuck-under parking in prime locations.

Source: Johnson Gardner (Jerry Johnson), 2004.

SUMMARY

The Beaverton-Hillsdale Highway and Canyon Road Corridors have land use development and transportation elements that are common in Corridors. While Canyon Road is dominated by auto dealerships, Beaverton-Hillsdale Highway has primarily retail and commercial uses that are set back from the road and include large parking areas. Congestion is common and the environment is uncomfortable for pedestrians and bicyclists. The evaluation of the land use, transportation, policy, and market existing conditions have numerous implications for redevelopment of the Corridors. These implications are described in Chapter 4.

OPPORTUNITIES

- The City of Beaverton is actively pursuing funding for gateway improvements between the Corridors and the Center.
- Surrounding neighborhood amenities including well-established residential neighborhoods with a strong demographic profile (especially in

regards to residential density and income profile), a good school district, and a good park network.

- High traffic volumes to support the commercial and retail market.
- Good regional access and transit linkages.

CONSTRAINTS

- The Corridors are generally aesthetically unappealing, with a utilitarian streetscape and lined with unattractive box buildings.
- Corridors are lined with low-density, linear development that prevents synergy between businesses and discourages movement between them.
- The underutilized land attracts uses that should locate in Centers, draining nearby Centers of vitality and market share.
- The continuous strip of commercially zoned land creates an oversupply of retail land.
- Arterials are built almost exclusively for the motor vehicle, with little space or thought given to transit riders, bicyclists, or pedestrians.
- Poor transportation connections (for example, too many driveways and frequent left turns), and lack of connection between businesses forces automobiles on the Corridors and result in increased congestion.
- Historically generous parking standards have resulted in too much parking in the Corridors. Property owners have installed barriers between businesses, which decreases mobility between businesses.
- Inadequate bicycle facilities in the Corridors increase the danger of riding a bicycle.
- While recent upgrades have improved the pedestrian environment, they have not resulted in a comfortable or convenient pedestrian environment in the Corridors.
- Local plans are *generally* consistent with the Metro Corridor designation and contain policies that direct the future use of the Corridors to meet the 2040 designation. However, the policies, as written, are not enough to ensure that the Corridors will develop to meet the 2040 designation.
- Multiple jurisdictions in the Corridors make coordination difficult. Even though there is review coordination between the different agencies, the complexity of development regulations this creates can impede development in the Corridors.
- Congestion along the Beaverton-Hillsdale Highway, Scholls Ferry Road, and Oleson Road (though planned improvements could reduce congestion).
- Limited parcel size and/or depth
- The need to assemble parcels makes development difficult

Chapter 4 Land Use and Development Concepts

This chapter describes strategies for the redevelopment of the Beaverton-Hillsdale Highway and Canyon Road Corridors in ways envisioned by the 2040 Growth Plan. The strategies include land use and development concepts, supporting transportation and streetscape improvements, and other policies that might encourage development in the form proposed.[1] The chapter has four sections:

- **Implications of conditions in the Corridors for their redevelopment.** This section describes the implications of the findings in Chapter 3 for land use, transportation, and balancing land use and transportation in the case-study Corridors.
- **Land-use and development alternatives to achieve 2040 Corridor redevelopment objectives.** This section describes the "no build" alternative and shows why it does not achieve the 2040 Corridor redevelopment objectives, and two alternatives that do. It also shows the streetscape strategies that are necessary to support each segment envisioned for the land use and development alternatives.
- **Transportation strategies to achieve 2040 Corridor redevelopment objectives.** This section describes transportation strategies that help achieve the land use and development alternatives.
- **Implementation strategies to achieve the 2040 Corridor redevelopment objectives.** This section describes three implementation strategies for redevelopment of the case-study Corridors to achieve the 2040 design type.

IMPLICATIONS OF CONDITIONS IN THE CORRIDORS FOR THEIR REDEVELOPMENT

The opportunities and constraints in the Corridors have implications for their likely and potential development. This section describes them in four parts:

- Land use
- Transportation
- Balancing land use and transportation
- Preliminary strategies for developing alternatives through the development mix, development pattern, and street design.

[1] This chapter uses the terms "alternatives" to describe the broad options for redevelopment of the Corridors. "Strategies" are referred to as the tools, incentives, investments, and implementation techniques that local jurisdictions can choose from to achieve one or both of the alternatives. It may be appropriate to use one, several, or all of the strategies in one or more locations along the Corridors.

These implications become guidelines for the development and evaluation of land-use and transportation alternatives in the Corridors, described in a later section of this chapter.

LAND USE

- **Maintain and support the land development pattern just outside the Corridors.** Though this is a Corridor study, the area of influence and impact extends beyond the properties fronting on the Corridor. The properties off the Corridor are predominantly residential. The land use alternatives should support the surrounding residential neighborhoods. In addition, there are regionally designated "centers" at both ends of the Beaverton-Hillsdale Highway Corridor: development in the Corridor should complement, not compete with, the development in those centers.
- **Improve gateways to the Corridors.** The gateways to the Corridors are non-descript; they do not announce to travelers that they are moving into a new (Corridor) area. The alternatives should include gateway treatments for both Corridors at Highway 217.

  The gateway at the eastern end of Canyon Road can be improved. It is obvious that travelers are moving from a residential area to a commercial area as they travel west along the Corridor. Focus group participants indicated that they preferred a "village" development that caters to neighborhood residential needs at the eastern edge of the Canyon Road Corridor.

  The gateway at the eastern end of the Beaverton-Hillsdale Highway Corridor is more problematic. The study area ends at Laurelwood Avenue, which does not make a distinct gateway. A more natural gateway occurs at the six-point intersection of Beaverton Hillsdale, Scholls Ferry and Oleson Roads. Washington County plans on improving this intersection, though it is unclear if the improvements will clearly label the Corridor/Town Center boundary.
- **Improve aesthetics in the Corridors.** There is a balance between requiring improved development and urban design and the resistance from property owners that do not want to pay the increased costs of the design upgrades. Focus group and advisory committee members noted that aesthetics in the Corridors could be improved.
- **Develop a land-use pattern that can be served better by transit.** One way to make land use more efficient is to segment the Corridors to transform them from undifferentiated strip development into a series of distinct segments, each with a clear grouping of uses and functions. Street design can be improved to create a pattern of interconnected streets whose design supports the uses it serves.
- **Do not encourage the Corridors to develop large-scale regional retail that transportation policy constraints suggest should go to 2040 Centers.** Develop incentives and regulations that encourage primarily neighborhood-serving uses in the Corridors, and discourage regional uses

that are more appropriate for 2040 Centers. For example, the City could encourage auto dealerships to move from the City Center to the Corridors, and encourage cinemas in the City Center.

- **Concentrate retail uses at key nodes and intersections along the Corridors.** There is more retail use in the Corridors than the local market area around the Corridors can support. The alternatives should consider a revised mix of uses in the Corridors that focuses retail uses at accessible (particularly transit-accessible) locations, in a pattern that facilitates easy movement between stores without impacting travel on the corridor. Non-retail areas should be focused towards other uses that will support corridor retail, like office and housing.
- **Consider mixed-use development in areas where it is easiest to develop a pedestrian-friendly node.** Developers believe that it will be difficult to lure a developer to build a mixed-use project in the Corridors. They would need to be convinced that mixed-use could work. Mixed-use depends on surrounding amenities, such as existing neighborhood serving businesses and services, supporting residential uses, and a friendly pedestrian environment. This type of development is most likely to occur at the eastern end of the Canyon Road Corridor or close to Jesuit High School.

TRANSPORTATION

- **Preserve mobility in the Corridors.** Preserving mobility in Corridors, combined with measures to reduce the desirability of using shortcuts through neighborhoods, helps to keep through traffic on arterials that are designed to handle higher traffic volumes. Maintaining and restoring system connectivity where possible is especially desirable in suburban Corridor environments to reduce vehicle reliance on a few streets and increase bicycle and pedestrian mobility.
- **Decrease the number of private access points onto the Corridors.** Creating a fine grain network of redundant secondary streets and improving connections from those streets to shared parking helps to reduce the need for direct access to main corridors. This in turn reduces vehicle conflict points and helps preserve capacity and increase safety for all modes using the Corridors.
- **Mange parking.** Both the Metro Plan, the City of Beaverton, and Washington County require maximum parking ratios (in new developments), and encourage reduced parking through incentives to developers, participation in Transportation Management Association (City), and provisions for transit amenities (County). Policy is in place to address parking management issues for new development. However, the challenge now is to encourage existing businesses to coordinate parking needs with adjacent properties to address some of the parking issues in the Corridor.
- **Improve the pedestrian environment.** Overall, the effort to provide for pedestrian uses in auto-oriented Corridors has lead to investments in

sidewalks, signal heads, and crosswalks. These efforts improved pedestrian safety and heightened driver awareness of pedestrians, but the issue of scale and utility of these facilities is generally inconsistent with walking comfort for people. A variety of improvements, such as changing the orientation and design of buildings and providing buffers between pedestrians and automobiles will help improve the pedestrian environment.

- **Provide a comfortable, safe, and a comprehensively connected system of bicycle and pedestrian routes.** Improved bicycle and pedestrian systems are fundamental to decreasing the reliance of automobiles in Corridors. Bicycle improvements could include marked lanes and secure bicycle parking. Redevelopment along the Corridor that creates walkable distances with uninterrupted pedestrian connections designed for pedestrian comfort will increase walking and transit use.
- **Encourage conditions that support greater transit frequency and coverage.** Both of these require greater densities organized in nodes of employment, education, and housing. Transit mode share also depends on safe and pleasant pedestrian access and stop amenities such as waiting comfort and security, and service information.

BALANCING LAND USE AND TRANSPORTATION

- **Increase development densities to encourage transit, bicycle, and pedestrian mobility, and relieve inevitable development impacts on the adjacent areas.** Increased densities designed with good pedestrian connections and a bicycle network can make more efficient use of existing land and infrastructure. Current corridor uses and patterns require greater consumption of space for both auto circulation and parking and should be retrofitted.
- **Facilitate the transition from a linear, all-the-same corridor development pattern to a nodal development pattern** that provides a good pedestrian realm, vital street life at centers, and transit access.
- **Facilitate the clustering of retail uses** in an environment that provides transportation alternatives, via shared parking, transit access, and close proximity to homes and workplaces.
- **Encourage the transformation of in-between segments towards housing, office, lodging and uses based on market demand.** Accommodate these uses by providing the kinds of transportation systems that support them: transform the auto-only arterial currently serving drive-by retail to a pedestrian-friendly multi-modal route that serves a range of uses by encourages walking between them, by providing intensity nodes where transit is supported.

DEVELOPMENT STRATEGIES

One of the primary strategies that may help the Corridors achieve the regional standards in the 2040 Growth Concept is to segment the Corridors: transform

them from undifferentiated strips to a series of distinct segments, each with a clear grouping of uses and functions. The segments should be defined by the answers to these questions:

- **Where will retail be most successful?** All retail should be focused in a defined cluster with a defined orientation, for example destination retail, neighborhood services, or office support. The clusters should be small enough to enable synergy between business types, and allow people to park once and walk between stores.
- **What clusters of uses can be built?** Examples of successful clusters of uses exist (such as the North American case studies reviewed in Phase I of this project). We should learn from these examples and develop incentives such as providing moving fees, assembling land, tax breaks, designing improvements like new streetscapes, expanding utilities, or providing other amenities that enhance the environment of the segment's.
- **What other uses can be introduced, based on market demand?** Typical non-retail uses that can be successful on the corridor include housing, workplaces, and lodging. While it can be difficult to encourage transition from retail uses, policy changes combined with education can provide landowners sitting on underutilized land with real alternatives that can offer them immediate return on their property. Small parcel sizes and shallow depths on the corridor can present a challenge to redevelopment in some cases, but public/private efforts such as demonstrating with development prototypes that will work on constrained site types, assisting in relocation or land assembly, can increase the feasibility of change.

Another strategy is to change the street by designing the roadway to support the uses it serves. The right setting can not only improve the success of existing uses, but also provide the incentive for land use changes. New streetscapes can attract interest in redevelopment. Street design should be based on the segments of the corridor, and the kinds of uses and functions occurring in each should include:

- Commercial stretches should maintain visibility and access, with on-street parking, clear views to storefronts, and more left turn lanes.
- Office segments should provide connectivity between offices and uses that support them (i.e. office convenience clusters with lunch or copy shops).
- Housing segments should be protected by tree-lined medians, with sheltered pedestrian environments and setbacks that increase the privacy of houses.
- Access and movement should be increased along all stretches by providing alternatives to the automobile, such as public transit, bicycling and walking.

LAND-USE AND DEVELOPMENT ALTERNATIVES THAT ACHIEVE THE 2040 OBJECTIVES FOR CORRIDOR REDEVELOPMENT

The report for Phase I of this project discussed typologies for corridor segments. That report identified four types of segments: (1) strip commercial segments, (2) residential parkway segments, (3) segments featuring auto sales and service (a type of "specialty segment"), and (4) neighborhood sales and service segments. The Canyon Road and Beaverton-Hillsdale Highway have three out of the four types of segments (and would have all four if the residential parkway along the northeastern section of Canyon Road were included in the study area).

This section is an analysis of three land-use and development alternatives. It discusses why the "no change" alternative does not achieve the 2040 goals (in either the Corridor or Centers). It then describes two patterns that seem consistent with those goals: one that *supports commercial/retail more appropriate in Corridors than Centers* (auto sales and service on Canyon Road), and another that is *primarily neighborhood serving* (Beaverton-Hillsdale Highway). It describes how the two alternatives achieve the 2040 goals for corridors and introduces the transportation strategies and implementation strategies (discussed more fully in later sections and Chapter 5) that can encourage the development of the suggested land use and development patterns.

WHY A "NO CHANGE" ALTERNATIVE DOES NOT ACHIEVE THE 2040 CORRIDOR OBJECTIVES

A development alternative has to be an alternative to something. It is usually compared to a "no change" (or "status quo" or business as usual" or "trend") alternative. A continuation of existing development patterns ("no change") is certainly a real possibility for the Corridors. If this study were city-sponsored neighborhood planning study, it would have to evaluate such an alternative more thoroughly. But this study has the objective of showing how the Metro goals for corridors might be achieved. The Phase 1 report and the analysis of existing conditions in Chapter 3 lead to a conclusion that is difficult (if not impossible) to achieve 2040 Corridor objectives without significant change: local jurisdictions can't implement the 2040 Concept Plan through business as usual.

Chapter 2 described the 2040 Corridor objectives (described as characteristics) as envisioned by the 2040 Growth Concept:

- Relatively high density (25 persons [combined population and employment] per acre)
- Mixed-use development
- Continuous intensity or smaller centers/nodes (often at major intersection) with auto-oriented activities sometimes between the nodes
- Arterial street with four travel lanes and significant traffic flows
- High-quality bicycle and pedestrian environment

- Convenient access to good quality transit

Neither Canyon Road nor the Beaverton-Hillsdale Highway have development with high densities, mixed-use, smaller centers/nodes, high-quality bicycle and pedestrian environment, or convenient (safe and pedestrian friendly) access to good quality transit.

Corridors compete with centers for retail and commercial businesses, potentially undermining the success of centers (as envisioned in the 2040 Growth Concept). The development of center and corridor design types are dependent on the successful implementation of each. If centers are successfully implemented, they will attract businesses with a regional market that require less land. This implies a transformation of corridors from a mix of regional and neighborhood serving commercial uses to primarily neighborhood serving, with a secondary market for regional businesses that are inappropriate in the center (such as auto sales and big box development near major transportation facilities).

The alternative land use and development patterns described in concept below are the only alternatives that achieve the 2040 Corridor design type and support centers. However, there are many alternative streetscapes, transportation strategies, and implementation strategies that jurisdictions can choose from to achieve the 2040 Corridor design type. In other words, the alternatives are in the details.

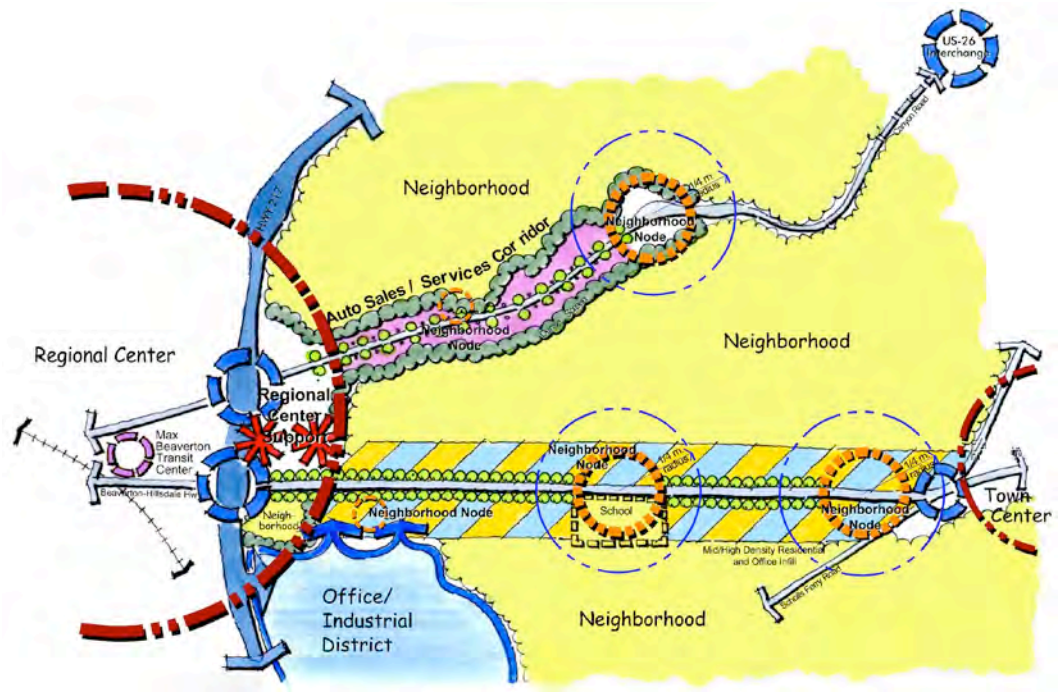
LAND USE AND DEVELOPMENT ALTERNATIVES THAT ACHIEVE THE 2040 CORRIDOR OBJECTIVES

Current development patterns suggest a land use and development pattern that can achieve the 2040 Corridor objectives. This section describes the characteristics of the alternatives, and of treatments for gateways and streetscapes that support the alternatives.

Figure 4-1 shows the land use and development concept plan for the Canyon Road and Beaverton-Hillsdale Highway Corridors. The land use alternative concept retains the auto sales and services section along Canyon Road and the regional center-type big box uses at the western end of both Canyon Road and Beaverton-Hillsdale Highway. The majority of Beaverton-Hillsdale Highway is transformed from a commercial strip to four neighborhood serving retail areas and a neighborhood "corridor"—connecting centers to the east and the west and the residential neighborhoods to the north and the south—with primarily office, limited commercial, and residential uses. The regional and town centers located at either end of the Beaverton-Hillsdale Highway will be located within a short drive of the primary trade area for the surrounding neighborhood. Once these Centers are fully implemented, they will shrink the market share for retail use in the

Corridor[2]. Thus, the net new retail along the Corridor is envisioned to be primarily neighborhood retail and services.

Figure 4-1. Land use and development alternative concept, Canyon Road and Beaverton-Hillsdale Highway Corridors, 2005



Source: Freedman Tung & Bottomley, 2005.
Note: ECONorthwest made minor edits to remove a street name.

The elements of the land use and development alternative are:

- **Gateway.** Gateways are envisioned at the western end of both Canyon Rd. and the Beaverton Hillsdale Highway at 217. A gateway is envisioned at the eastern edge of the Raleigh Hills Town Center along the Beaverton Hillsdale Highway, and on the eastern end of Canyon Rd.
- **Regional center support: Big-box retail.** Large format retailers are concentrating at major intersections and freeway on- and off-ramps. It is not surprising, then, that this is a preferred location for big box retailers like Home Depot and Target.
- **Neighborhood center (node).** Four neighborhood centers are envisioned at 87th Street and Canyon Road, Beaverton-Hillsdale Highway near Highway 217, Jesuit High School, and at Oleson Road. The commercial and retail uses in these nodes would be small format with a primarily neighborhood draw.

[2] The case-study market analysis indicates the Beaverton-Hillsdale Corridor serves a regional and local commercial and retail market. The market area cannot absorb all of the retail if it converts from regional commercial to neighborhood serving commercial. Disinvestment in the Corridor appears to confirm this conclusion.

- **Corridor neighborhood: Mid/high density residential, office, and lodging infill.** The residential, office, lodging segments along the Corridor includes commercial (primarily office) and residential (primarily multi-family) development uses. Development standards and design guidelines will be needed to insure, among other things, that non-residential uses are designed to be good neighbors to a potential residential neighbor on contiguous properties in all directions.

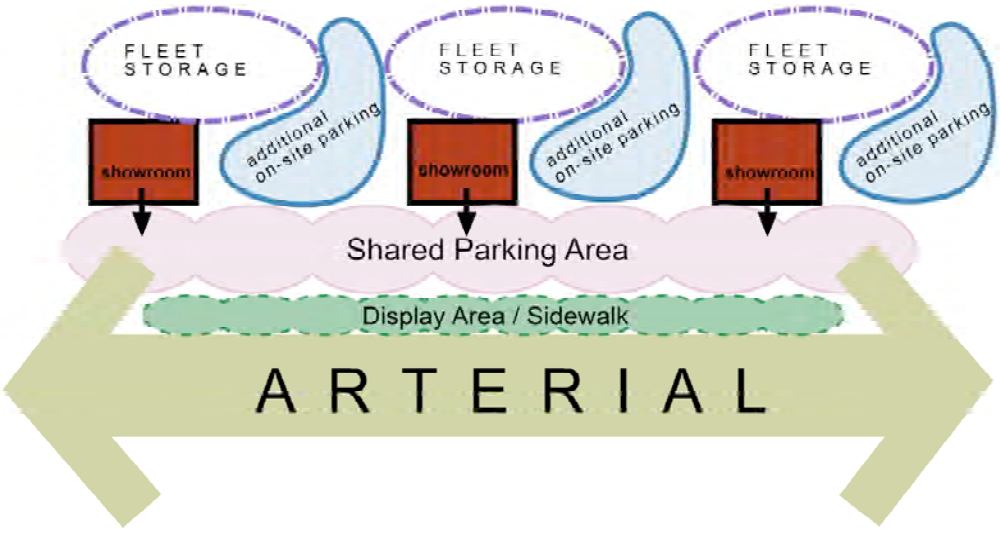
The redevelopment concept helps to facilitate the transition from a linear pattern of commercial development to a nodal pattern that is better able to respond to demand and investment preference, for example, the trend of large format retailers concentrating at major crossroads.

ALTERNATIVE 1: REGIONAL DRAW RETAIL/COMMERCIAL WITH NEIGHBORHOOD SERVING (CANYON ROAD CORRIDOR)

The existing conditions along Canyon Road concluded that the auto-oriented businesses are very successful (land values are high, owners are upgrading their facilities, additional auto sales and services are moving into the Corridor, etc.). The Corridor currently has one of the characteristics of Corridors as envisioned by the 2040 Growth Concept: it has a "continuous intensity… (of) auto-oriented activities." One of the reasons to retain this type of development in the Corridor is to encourage the development in the Corridors as opposed to the Centers.

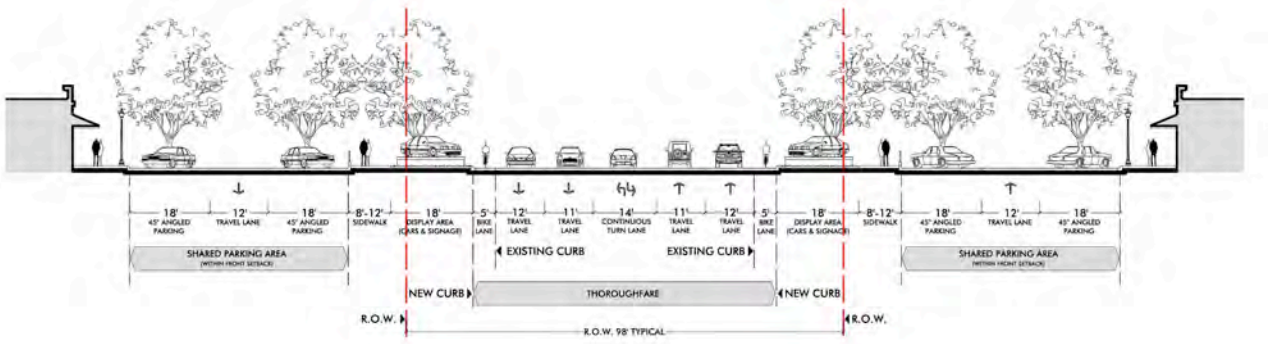
The creation and support of specialty segments may be important to implementation of both the Centers and Corridor design types. It may improve the success of Centers to encourage the relocation of inappropriate uses in Centers to Corridors. Design of auto sales can encourage "one-stop-shopping" and improve access by creating shared parking for multiple dealers, as shown in Figure 4-2. An auto display area between the arterial and the shared parking can create interest for drive-by traffic and encourage impulse shopping. Figure 4-3 shows the streetscape envisioned for the redesigned auto dealerships.

Figure 4-2. Design concept for auto dealerships, 2005



Source: Freedman Tung & Bottomley, 2005.

Figure 4-3. Design concept streetscape for auto dealerships, 2005



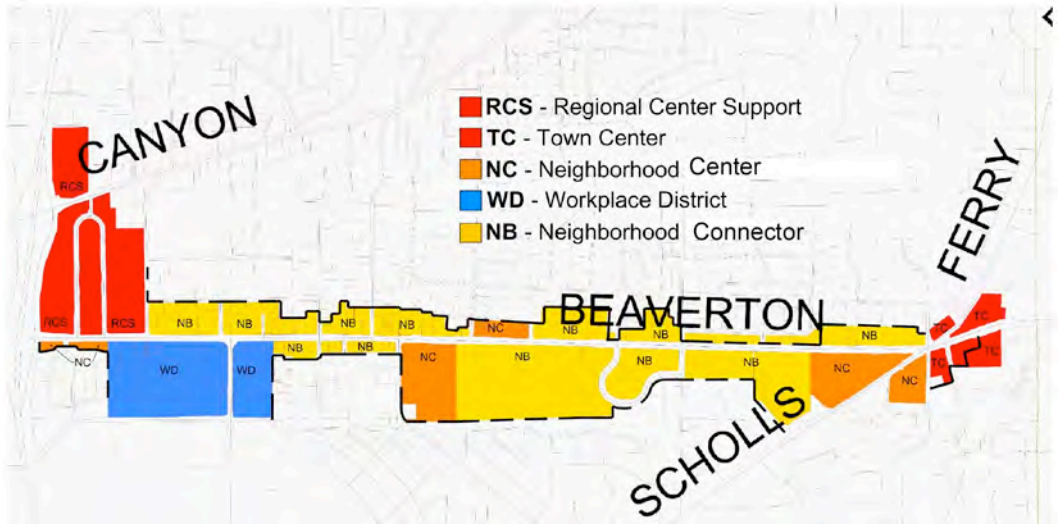
Source: Freedman Tung & Bottomley, 2005

The Corridor lacks land uses that support the surrounding neighborhood and bicycle, pedestrian, and transit facilities. The neighborhood center suggested at 87th would help to achieve the 2040 Corridor design type by adding higher density development, mixed-use development, and an improved pedestrian environment.

ALTERNATIVE 2: NEIGHBORHOOD-SUPPORTIVE CORRIDOR (BEAVERTON-HILLSDALE HIGHWAY CORRIDOR)

The Beaverton-Hillsdale Highway Corridor shows the greatest potential for change. Figure 4-4 shows the restructured policy framework that corresponds to the land use and development alternative concept shown in Figure 4-1.

Figure 4-4. Restructured policy framework, Beaverton-Hillsdale study corridor, 2005



Source: Freedman Tung & Bottomley, 2005.
Note: ECONorthwest made minor edits to change the name of the Neighborhood Center and Corridor neighborhood.

The policy framework is separated into four distinct segments in the Corridor (the Town Center is located outside of the Corridor). The segments are:

- Regional Center support
- Neighborhood center
- Workplace district
- Corridor neighborhood

Strip corridor restructuring must be planned in relation to the pattern of existing and planned retail-driven centers in the city and region. Land uses in segments listed above are described previously (see land uses and development alternatives to achieve the 2040 Corridor objectives in relation to Figure 4-1). The treatment of retail is described below.

TREATMENT OF RETAIL

A hierarchy of retail development types is:

- **Regional Center retail.** Major retail and entertainment targeted to a regional trade area; wide range of specialty goods; no local serving anchors e.g. super markets, fitness centers; structured and surface parking.
- **Town Center shops and retail.** Multi-story development with ground-level shop fronts facing public streets; anchored retail and entertainment, including supermarkets; meant to appeal to both regional and local trade areas; linear shop fronts required for big box; structured parking.
- **Regional Center support.** Auto-oriented commercial sales e.g. big box, drive-in uses, sales of large-scale goods.

- **Neighborhood center retail.** Small-scale businesses anchored by super markets oriented to nearby neighborhoods, preferably integrated into mixed-use building; limited to one per neighborhood. Restricted parking.
- **Station stops.** Shop fronts with convenience retail fronting transit station that is not part of a town or regional center or along block frontage closest to a transit station; off-street parking restricted.
- **Corner store shops.** Individual stores or very small cluster of stores incorporated into the corner of a residential or workplace building. No off-street parking permitted.

The retail clusters along the Corridors should have design guidelines for setbacks, parking, and architectural features. For example, the tallest building masses should be located closest to the street. A public face should be presented to the street, and buildings should have a distinctive roofline. Parking should be located at the side and rear of buildings with lots landscaped in "groves."

The land use and development concepts promote the transformation of the long segments of Corridor in between the major crossroads/centers to residential, employment, lodging and other uses not competitive with retail in Centers. With residential as the primary use in the in-between segments, development standards and design guidelines must require uses that are designed to be compatible with residential, both along the Corridor and in the surrounding residential neighborhood. This includes appropriate scale, setback, side and rear yard transitions across from and adjacent to single family residential development.

Residential development along the corridor can succeed if public and private investments foster the creation of a corridor neighborhood segment that captures value for property owners and provides an appealing edge between the corridor and residential neighborhoods. This can include a tree-lined street with wide planting strips and sidewalks. Housing must fit the scale of the street. Multi-family housing can be massed to fit the street. Housing can be buffered by larger setbacks from the road, and trees or other landscaping. Changes in elevation can help mark where the private space begins and ends.

Corridors land use and transportation elements should be redesigned to support each other. The current street design that caters to the automobile (fast moving traffic, high volumes, poor facilities for pedestrians and bicycles) reinforces strip mall development with large bays of parking in front of medium-box and strip development. The land use and development concept can not succeed without the creation of the supportive streetscape, discussed below.

TREATMENT OF GATEWAYS

Landmarks can be an effective way of calling attention to the edge of a city or district. Figure 4-4 shows a gateway treatment for the Beaverton-Hillsdale Highway between the center and the corridor. It shows the corridor with a median, and large, leafy trees. The tree foliage buffers residential uses along the corridor.

Figure 4-4. Example of a gateway treatment for the Beaverton-Hillsdale Highway (between the Corridor and the Center), City of Beaverton, 2005

Source: Freedman Tung and Bottomley, 2005.

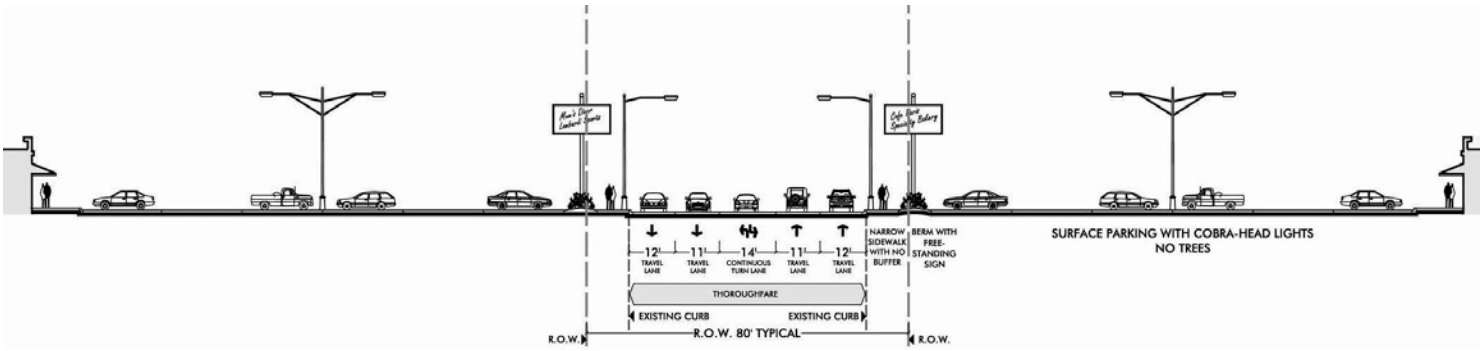
Changing the form of development can also create gateways. For example, the City of Beaverton can make the center distinctive with taller buildings, smaller setbacks, mixed-use development, and design guidelines that are unique to the regional center. Each segment (corridor neighborhood and neighborhood center) is "entered" when the pedestrian, bicyclist, or driver can sense a change in character from changes in the streetscape and development pattern.

STREETSCAPE STRATEGIES

There are a variety of streetscape strategies that jurisdictions can choose from to implement the alternatives. However the logistics of implementing these strategies require an evaluation of the existing conditions to make some preliminary engineering decisions. For example, along Beaverton-Hillsdale Highway, the City of Beaverton and ODOT will have to determine if they will relocate the curbs or not. Relocation of the curbs to widen the street may be necessary to allow enough room for a dedicated bicycle lane and allowing other configurations. Leaving the curbs where they are restricts the configuration of the road.

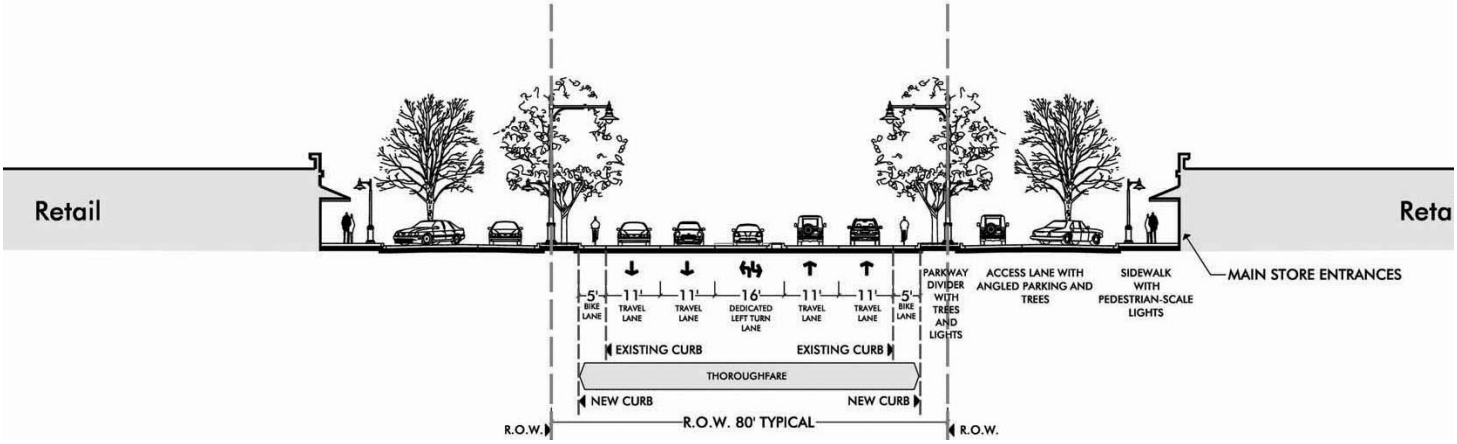
Figure 4-5 shows illustrative streetscapes that support each Corridor element. The street design concepts are based on treating the Corridors as integrated segments rather than one continuous use. Each segment has a development pattern and street design that is mutually supportive, as indicated in Figure 4-5 through 4-10.

Figure 4-5. Typical strip development (existing)



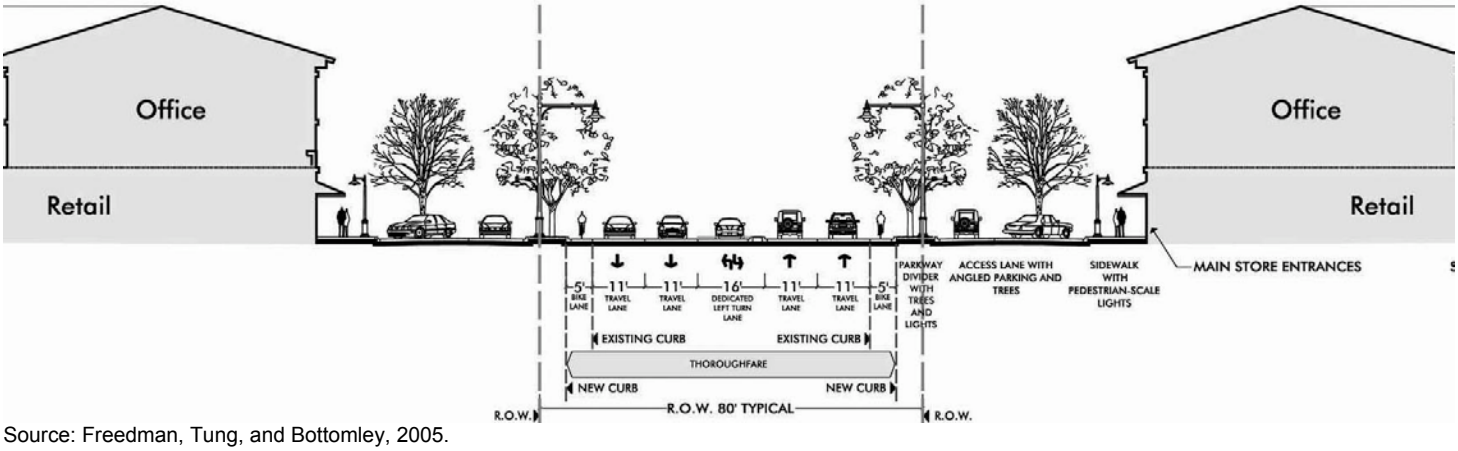
Source: Freedman, Tung, and Bottomley, 2005.

Figure 4-6. Regional retail support, Neighborhood Center (restructured)



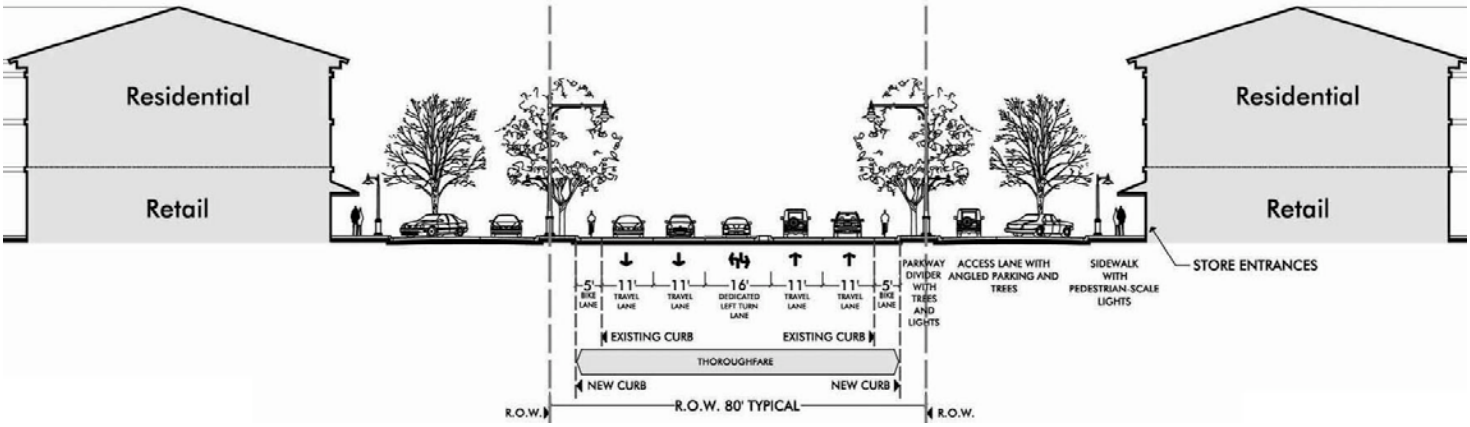
Source: Freedman, Tung, and Bottomley, 2005.

Figure 4-7. Regional center, Regional center support, Town Center, Neighborhood Center (restructured)



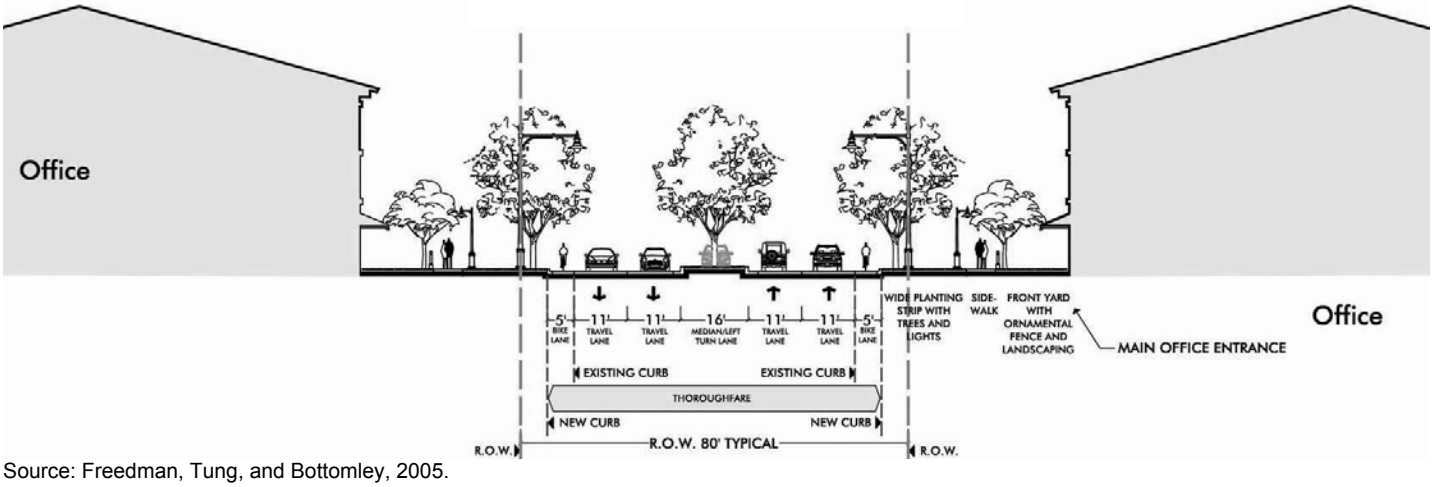
Source: Freedman, Tung, and Bottomley, 2005.

Figure 4-8. Regional Center, Regional Center Support, Town Center, Neighborhood Center



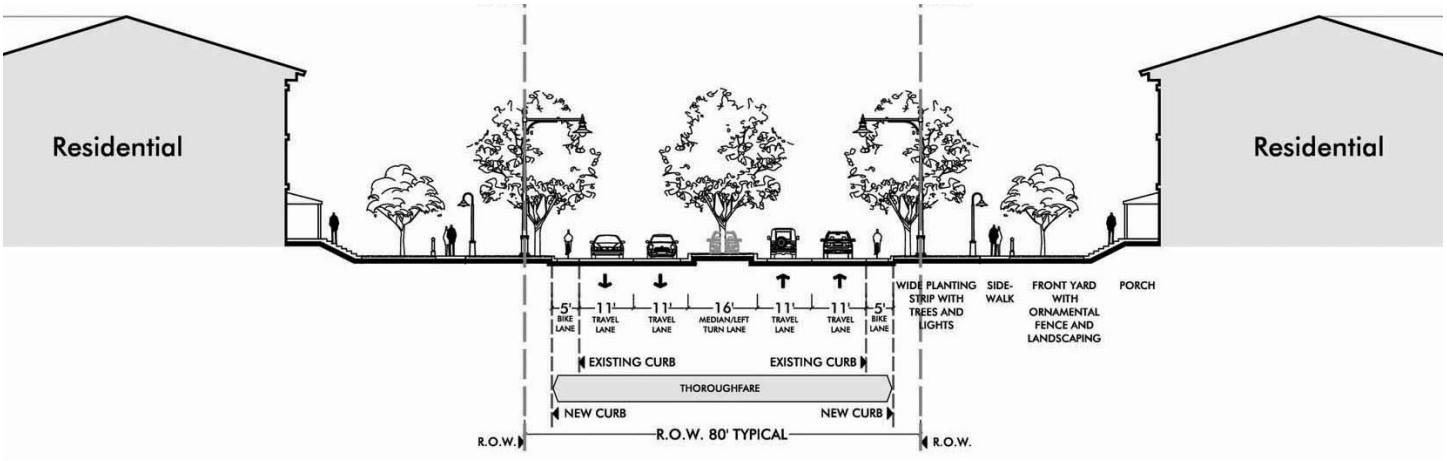
Source: Freedman, Tung, and Bottomley, 2005.

Figure 4-9. Neighborhood Corridor



Source: Freedman, Tung, and Bottomley, 2005.

Figure 4-10. Neighborhood Corridor



Source: Freedman, Tung, and Bottomley, 2005.

SPECIAL TRANSPORTATION AREA (STA) AND URBAN BUSINESS AREA (UBA) APPLICATION TO CORRIDORS

The Oregon Highway Plan Policy 1B guides ODOT system management planning and implementation activities with local jurisdictions to link land use and transportation planning, access permitting, and project development together. The policy adopts highways segment designations to reflect that the highways themselves can be tools to implement more compact community development patterns. Segment types potentially applicable in Corridors are Special Transportation Areas (STAs) and Urban Business Areas (UBAs). While no Metro Portland corridors have a STA or UBA designation (as of March 2005), UBA designation may be appropriate in Corridors.

The intent of the policy is to use UBA designation as a tool to redevelop Corridors. The policy language encourages mobility on the parcel, instead of the highway. In other words, it encourages design that allows pedestrians and drivers to access adjacent businesses without having to re-enter the highway.

The policy suggests that development and redevelopment "along designated UBAs can work to encourage the shift of land use patterns from auto-oriented with individual driveways to patterns served by common access, nodal development and more compatibility with pedestrians and bicycles." It further identifies incremental steps that are consistent with the strategies of this case study that encourage inter-parcel circulation and pedestrian, bicycle, and transit oriented development patterns. The analysis suggests that the most appropriate locations for UBA designations would be along the neighborhood centers. Each neighborhood center should be studied to determine of the UBA designation is appropriate, given the transportation strategies necessary to support the land use and development alternative.

TRANSPORTATION STRATEGIES TO ACHIEVE 2040 CORRIDOR REDEVELOPMENT OBJECTIVES

This section describes the transportation strategies that support the land use and development alternatives. This section also discusses the jurisdictional issues and policy implications of implementing the transportation strategies. It has three sections:

- Overview of Corridor transportation strategies
- Transportation strategies to achieve the land use and development alternatives
- Jurisdictional and policy implications of the transportation strategies

OVERVIEW OF CORRIDOR TRANSPORTATION STRATEGIES

Table 4-1 lists the transportation strategies to implement the land use and development alternatives. These strategies are primarily applicable to the Beaverton-Hillsdale Highway Corridor. The transportation strategies are related

to the treatment of functional elements based on the corridor segment type and its related development pattern. These functional elements are:

- Parking
- Intersecting street spacing
- Private/parking access
- Corridor cross section
- Corridor medians
- Corridor Intersection treatments
- Grid Cross Section
- Streetscape amenity
- Pedestrian treatments
- Transit treatments
- Bicycle treatments

Table 4-1. Summary of transportation strategies, Corridors Case Study Area, 2005

Element	Regional Center Support	Neighborhood Center	Corridor Neighborhood
Parking	Surface parking laid out to support future redevelopment street network	Oriented away from corridor in internal blocks	Oriented away from corridor and in internal blocks
	Mixed site layout and/or complimenting adjacent use for shared parking	On-street parking along intersecting streets, diagonal or perpendicular possible	On-street parking along intersecting streets, diagonal or perpendicular possible
Intersecting Street Spacing	600' - 1000' with future grid potential in driveway layout, 300-500' private/public spacing to support infill block length	300-400' with signals at 600' - 800'	300-500' with signals at 600' - 1000'
Private/Parking Access	Restricted access relying on intersecting streets and corridor access points spaced according to possible future street grid	Limited or No Private access relying on grid system of intersecting and/or parallel streets and signalized intersections for access; or creation of UBA	No Private Access - Off street access from intersecting and parallel streets midblock
Corridor Cross Section	Median with protected 10-12' left turn lane and 6' pedestrian refuge, 11' travel lanes, 6' bicycle lane, urban landscaped buffer and min 6' sidewalk	Median with protected 10-12' left turn lane and 6' pedestrian refuge, 11' travel lanes, 6' bicycle lane, urban landscaped buffer and 6-18' sidewalk	Median with optional protected 10-12' left turn lane at signalized intersections only and 6' pedestrian refuge, 11' travel lanes, 6' bicycle lane, landscaped buffer and min 6' sidewalk
	Alternative - Access drive and diagonal or perpendicular parking rather than parking field at the street edge	Alternative - Access drive and diagonal or perpendicular parking at the street edge optional	
Corridor Medians	Raised median between signalized intersections	Two way left turn lane to support UBA or raised landscaped median	Median with unmarked pedestrian refuge; allow median breaks for unsignalized intersecting street intersections to reduce demand at high volume intersections keeping them pedestrian-friendly

Element	Regional Center Support	Neighborhood Center	Corridor Neighborhood
Corridor Intersection Treatments	Traditional four-way signalized intersection	Traditional four-way signalized intersection	Traditional four-way signalized intersection
	Widened intersection for U-turns	Widened intersection for U-turns	
	Multiple Roundabouts	Multiple Roundabouts	Multiple Roundabouts
		Two way left turn lane to support UBA	
Grid Cross Section	Building orientation and width to support future infill/block length	Two-lane two-way public street with wide sidewalks, building front orientation and parking access midblock	Typical sidewalks and parking access midblock
	Alternative - Access drive built to public street standard	Alternative - Narrower one-lane one-way street, on-street parking optional	One or two-way public or private street
		In shallow sections provide circulatory drive with shared parking and access	In shallow sections provide circulatory drive with shared parking and access
Streetscape Amenity	Pedestrian Scale Street lighting maintained by property owner, BID or Local jurisdiction	Pedestrian Scale Street lighting maintained by property owner, BID or Local jurisdiction	Continuous pedestrian scale street lighting optional with maintenance assured by local jurisdiction
	Street trees and landscaping in planted buffer or formal urban tree grates and edged planting areas (along relinquished/transferred sections only, otherwise meeting ODOT sight distance criteria)	Street trees in urban tree grates and landscaping in edged planter strips (along relinquished/transferred sections only, otherwise meeting ODOT sight distance criteria)	Street trees and landscaping in buffer between the street and sidewalk and in 14' or wider median sections (along relinquished/transferred sections only, otherwise meeting ODOT sight distance criteria)
Pedestrian Treatments	Landscaped or building edged pathways through parking fields, landscaped buffer between corridor and min 6' sidewalk, signalized crossing only, tight corner radii including private access points	Visible crosswalk, protected crossing refuge, tight corner radii or curb extensions on intersecting streets, wide sidewalks buffered with urban-style planting strip	Landscaped buffer with moderately wide sidewalks, pathway indicators to cross at signalized crossings, and logical links between related uses for midblock crossing, tight corner turning radii including right-in-out access

Element	Regional Center Support	Neighborhood Center	Corridor Neighborhood
Transit Treatments	Shelters at the street edge close to marked crosswalks, real time information and full stop amenities	Shelters at the street edge close to marked crosswalks, real time information & full stop amenities	Covered seating close to crosswalk
Bicycle Treatments	Marked On-Street bicycle lanes, with bicycle parking	Marked On-Street bicycle lanes or shared roadway, and bicycle parking	Marked On-Street bicycle lanes or shared roadway, and bicycle parking

Source: Kittelson and Associates, 2005.

TRANSPORTATION STRATEGIES TO ACHIEVE THE LAND USE AND DEVELOPMENT ALTERNATIVES

This section describes how the transportation strategies described in Table 4-1 achieve the 2040 Corridor objectives to create a more sustainable transportation system that relies less on the private automobile for many local and regional trips. Along corridors the objectives focus on:

- Building connections between sites to:
  - Reduce reliance on arterials
  - Facilitate shared parking opportunities
  - Eliminate reliance on private access points
- Providing human scale transportation system to:
  - Increase sustainable travel modes for trips within the Corridor
  - Increase safety and convenience of transit for longer trips
- Improving connectivity to and through adjacent neighborhoods
- Assuring well-spaced and easy to cross locations to connect pedestrians to bus stops and destinations across the arterial
- Retrofitting infrastructure for an urban form supporting multiple modes of moving within community
- Improving efficiencies of the road network, to especially improve transit use opportunities

MULTIMODAL EFFICIENCY AND SAFETY

Transportation planning for Corridors must reconcile their dual functions: moving traffic—including transit—from and between neighborhoods and districts to the regional and interstate system; and, accessing businesses drawn to their edges due to consistently high traffic volumes. To perform their function within the larger transportation system, Corridors must be planned and designed to maximize efficient use of limited space. In an auto dominant environment two-way center turn lanes, acceleration lanes and free-right turn lanes were introduced

as development occurred to move slower traffic out the path of through traffic, offsetting potential access congestion with mobility mitigating solutions. Planning for transit, pedestrian, and bicycle modes as alternatives to the private automobile for certain types of trips introduces opportunities to increase system efficiency with a broader safety and mobility focus.

PARKING AND ACCESS MANAGEMENT

The sharing of access and parking by compatible users and a thoughtful approach to their layout can minimize conflicts and reduce the intrusiveness of these necessary elements on pedestrian and bicycle systems. Examples of these intrusions discussed in Chapter 3 include vast parking fields uncomfortable for pedestrians, and multiple private driveways that reduce cycling safety. Introducing an urban grid into the suburban environment helps to improve multimodal safety and circulation, and presents efficiencies in the transportation system. As different uses have different time-of-day peaks, greater economies-of-scale occur when uses are mixed; access is provided from intersecting streets rather than single use driveways; and, parking occurs on the street or in jointly accessible lots rather than on single sites completely insulated from neighboring users. Along Corridors, the focus of this shared access and parking approach is especially important at neighborhood centers and, if possible, at regional center support segments.

INTERSECTING STREET SPACING

Intersecting street spacing along an existing Corridor should avoid the accumulation of too much traffic and too many turning movements at any single intersection, but rather to distribute traffic along a series of signalized intersections. This spacing, coupled with a secondary circulation network, will help to keep intersections at a pedestrian scale and permit short signal cycle lengths, improving transportation for all users. Signalized intersections should be focused to the neighborhood centers and the regional center support segments. ODOT policy recommends signalized intersections every 1/2 mile, but allows deviations based on topography, existing or proposed road layout, and other factors (see OAR 734-020-0470). If signalized intersections are allowed less than 1/2 mile, then they should be no less than 600’ apart to maintain planted medians where minimum left turn storage is needed, and no more than 1000’ for pedestrian mobility.

Intersecting street spacing along the corridor neighborhood will occur more frequently and typically be unsignalized and without an auto scale median break. Perpendicular or diagonal pedestrian paths with bollards or other vertical markers and road grade access should be provided through the median to permit pedestrian and dismounted bicycle crossing. These passages would typically be unmarked in the travelway unless warrants and safe sight/stopping distance permit.

PRIVATE/PARKING ACCESS

Private access from the Corridor should be limited in the regional center support segment, avoided in the neighborhood centers, and, eliminated along the

corridor neighborhoods. Private and shared parking access in Corridors should be provided from the intersecting and parallel (including service road) streets. All private access should support pedestrian travel with tight turning radii and modest curb openings to keep turning speeds low and minimize pedestrian exposure. Focusing access points along lower order streets also contributes to a more accessible street hierarchy with defined crossing locations for pedestrians and fewer driveway openings reducing fluctuations in traffic speed.

CORRIDOR CROSS-SECTIONS

The RTP identifies Regional and Community streets as the most appropriate design classifications for corridors. Given the anticipated traffic volumes and the level of mobility, the regional street designations are most appropriate for many of the corridors Per the RTP, the primary design elements included in each are as follows:

- Regional Streets: two travel lanes in each direction, bikeways, sidewalks and pedestrian buffers, and a median (for pedestrian refuge and turn lanes)

- Community Streets: one travel lane in each direction, bikeways, on-street parking and loading, sidewalks and pedestrian buffers and a median (for pedestrian refuge and turn lanes)

The RTP does not provide specific dimensions on the primary design elements; rather it refers to the companion publication *Creating Livable Streets: Street Design Guidelines* (herein referred to as the Design Guidelines). The Design Guidelines document presents a typical cross-section for a Regional Street with a right-of-way of 100 feet and a median that is only used for separating traffic, controlling access and providing trees. The document recognizes that Regional Streets typically have right-of-ways of 80 – 100 feet and that medians may need to be as wide as 16 feet for provision of turning bays.

The following presents a comparison of the corridor supportive streetscapes presented earlier in this document to those contained in the Design Guidelines:

- Travel lanes: the RTP recommends 11 – 12 foot lanes, depending on the speed. The corridor supportive streetscapes recommend 11-foot lanes to achieve speeds consistent with a multimodal environment.

- Bike lanes: the RTP recommends 5 feet typically with 6 feet for higher speed roadways or areas of high bicycle use; the corridor supportive streetscapes present a 5 foot guideline in recognition of areas of constrained right-of-way.

- Medians: the RTP identifies raised landscaped medians with turn pockets at intersections for regional streets. The preferred width for this configuration is 16 feet. This width is consistent with the corridor supportive streetscapes. Further detail on the use of medians in corridors is provided below.

- Sidewalks: the RTP specifies a minimum of five feet, with a range up to 15 feet in width depending on the adjacent land uses and use of street furniture. Generally, with the type of adjacent land uses expected along corridors, 5 – 6 feet is appropriate per the Design Guidelines. The corridor supportive streetscapes do not specify a preferred sidewalk width but defer to the Design Guidelines. In recognition of the potential for narrow right-of-ways, the corridor supportive streetscapes identify the placement of sidewalks outside of the right-of-way, if necessary. This condition would require easements from adjacent property owners, which is not ideal. It is preferable to construct and maintain the sidewalks within the public right-of-way.

- Landscaping and planter (buffer) strips: the RTP and Design Guidelines offer flexibility in the width of the planter strips but suggest that wider planting strips with areas where there is less need for wide sidewalks to create comfortable pedestrian environments. The Design Guidelines generally suggest 5 – 6 feet for Regional Streets. The corridor supportive streetscapes do not specify a preferred planter strip width but defer to the Design Guidelines. In recognition of the potential for narrow right-of-ways, the corridor supportive streetscapes identify the placement of planter strips outside of the right-of-way, if necessary, which would require easements from adjacent property owners, which is not ideal. It is preferable to place the planter strips within the public right-of-way.

- On-Street Parking: Like the RTP, the corridor supportive streetscapes do not identify the use of on-street parking along corridors. Parking along the Corridor may be provided as described in the previous section off the Corridor in shallow parking lots, along side streets and in internal blocks.

- Access lane: the corridor supportive streetscapes identify the use of an access lane with parking and landscaping adjacent to a "parkway divider" with landscaping and lighting. This access lane is intended to provide cross-parcel circulation to ensure that the corridor is not used for local-trip making by automobiles. In settings where the access lane is used, it is preferable to construct the sidewalks between the access lane and edge of building. The access lane would require cross-over easements between parcels. The access lane is not specifically addressed in the RTP but its use is supported by local and statewide access management strategies and policies.

Overall, the corridor supportive streetscapes identify the same design elements and within the width ranges specified by the RTP. Therefore, an amendment of the RTP would not be needed to utilize the streetscapes suggested through the case study.

It is important to maintain the flexibility of widths allowed by the Design Guidelines to respond to individual corridor constraints. The appropriate width for each element in individual corridors should be established through specific corridor refinement plans or Transportation System Plans. The strategies and

elements discussed in Table 4-1 and outlined above are important to consider in establishing the appropriate design for each corridor.

However, as discussed below, the RTP language regarding the use and type of the median on corridors should be amended. This is discussed in more detail below.

The RTP should also be amended to support the use of access lanes, cross-over easements, and other tools that can be used to support successful access management in corridors. Because Metro is not a permitting authority for local accesses, it is not appropriate to adopt access management standards and strategies (such as cross-over easements) that are different than those adopted by the state and local jurisdictions. It is appropriate, though, for Metro to adopt policies that support the use of the access management tools and strategies that are necessary to achieve the goals of the corridors.

CORRIDOR MEDIANS

The use of raised medians can help to provide comfortable, safe and efficient multimodal corridors. Raised medians can reduce the number of vehicular conflicts, provide pedestrian refuges, and provide aesthetic benefits. Where feasible, a raised median should be constructed along the majority of the corridor with breaks provided at designated locations. Examples of where median breaks and turn lanes would be constructed in lieu of landscaped medians include:

- All signalized intersections;
- Designated unsignalized intersections where either there is an insufficient adjacent grid network to support the use of the median and/or at locations that provide significant benefits in reducing traffic demand at adjacent high volume intersections (thereby maintaining a higher level of pedestrian comfort at the adjacent high volume signalized intersections); and,
- Within UBAs or neighborhood centers.

The appropriate spacing and location of median breaks should be established through a corridor refinement plan that comprehensively reviews the state and local access management requirements, the local grid network, and the type of land uses adjacent to the corridor. In most cases, the breaks in the medians should occur no closer than 600 feet. Right-in-right-out accesses could be provided at closer intervals.

Currently, ODOT policy requires that plantings within the median be maintained by a local entity. The use of landscaped medians on state-owned corridors may require that a local jurisdiction accept long-term maintenance responsibility, preferably through a road transfer.

CORRIDOR INTERSECTIONS

Corridor intersection treatments will depend on the operational needs of the intersections, the right-of-way available, and the level of budget commitment from funding sources. In the absence of property depth to introduce parallel streets some intersections may require widening to permit u-turns for truck access where direct access has been reduced due to median construction. A growing number of communities are using roundabouts to create community gateways, reduce traffic speeds and accident severity, provide for u-turns, and create additional intersection capacity. Multiple roundabouts can be used along Corridors or at targeted locations in combination with traditional 4-way intersections.

GRID CROSS-SECTIONS

Intersecting streets can also be designed with several lane configurations. Most importantly, buildings should be oriented toward them with few blank walls or service areas at the street edge. These roads should be small in scale and occur at a frequency within the network to encourage pedestrian use and reduce out of direction pedestrian travel. The sustainable transportation modes, bicycles and pedestrians, should be clearly dominant so these streets can offer the circulation network unable to exist on the higher capacity, higher speed arterial. These streets will be most prominent in the neighborhood center and the corridor neighborhood segments.

STREETSCAPE AMENITY

Pedestrian scale street lighting will be important to reinforce pedestrian use and transit priority of the Corridors. According to current ODOT policy they would be installed and maintained by property owners, a local Business Improvement District or the local jurisdiction. This lighting will be especially important in the neighborhood center and the regional center support segment.

Landscaping along Corridors is important to raise driver awareness that other modes are present and to create a comfortable environment for sustainable transportation modes. The neighborhood center will identify higher levels of pedestrian activity on and near the Corridor and typically use an urban landscaping standard with tree grates and a more formal landscaping pallet. Along the corridor neighborhood, greater setbacks and grade changes will provide space for wider greener buffers with a combination of public and private space landscaping.

PEDESTRIAN, TRANSIT, AND BICYCLE TREATMENTS

Sustainable transportation modes can be developed based on the pedestrian scale of street connections and limited points of conflict with motor vehicles. A system that increases the use of secondary streets designed at a pedestrian scale also improves mobility and access for bicyclists. Corridors themselves should have well defined linear routes for both modes and obvious locations for crossing where bus shelters and transit amenities are located.

Pedestrian treatments will include pathways through parking fields in regional support center segments, visible cross walks at signalized intersections and mid-block on intersecting streets, and logical links between related uses for midblock crossing, especially along the corridor neighborhood segments. Along the Corridors, pedestrian treatments must include sidewalks and landscaping buffers, marked crosswalks, signalized crossing at reasonable intervals related to generators of pedestrian activity, and median refuges across the Corridors at all intersecting street locations.

The pedestrian and bicycle treatments described in Table 4-1 lists the improvements envisioned for the bicycle and pedestrian system in the Corridors. Corridors without shoulders and within limited right-of-way may find it expensive to create bicycle lanes and medians that can accommodate refuge islands at left turn storage locations. One decision that must be made in the Beaverton-Hillsdale Highway Corridor whether or not to relocate curbs to make space for on-street bicycle lanes.

Transportation improvements envisioned to support higher levels of transit include shelters, real time information, and full stop amenities. Pedestrian improvements throughout the Corridors will also help improve safety of transit riders and encourage more people to use transit.

TRIP GENERATION OF LAND USE AND DEVELOPMENT ALTERNATIVES

One of the analytical steps planned for this project was a detailed modeling analysis of anticipated volume-to-capacity ratios on the case-study Corridors associated with the land use alternatives. The land use alternatives and the Transportation Analysis Zones (TAZs) in Metro's model, however, are not at the level of detail needed to yield discernable differences in volume-to-capacity ratios along Beaverton-Hillsdale Highway. As an alternative to the detailed volume-to-capacity ratio analysis, the consultant team and ODOT staff agreed that a comparative analysis of trip generation potential associated with the basic land use types.

The existing Beaverton-Hillsdale Highway corridor is flanked by primarily low-density retail with some office uses. Under the proposed land use and development alternative, the corridor would redevelop into three land use types:

- Retail center support –larger scale, regional retail attractions
- Neighborhood centers – mixed retail, residential and office uses
- Corridor neighborhoods – higher density residential and office uses

For the purposes of this analysis, the trip generation potential of one acre and five acre retail, residential, and office uses were estimated. This comparative analysis is provided in Table 4-2.

Table 4-2. Comparative vehicular trip generation, Beaverton-Hillsdale Highway, 2005

Land Use	Size	Daily Trip Generation	PM Peak Hour Trip Generation
One Acre Parcel			
Retail	11,000 sq ft	470 trips	40 trips
Residential	20 apartments	130 trips	10 trips
Low Density Office	11,000 sq ft	120 trips	15 trips
High Density Office	22,000 sq ft	240 trips	30 trips
Five Acre Parcel			
Retail	55,000 sq ft	4,600 trips	420 trips
Residential	100 apartments	670 trips	60 trips
Low Density Office	55,000 sq ft	610 trips	80 trips
High density Office	110,000 sq ft	1,220 trips	160 trips

Source: Kittelson and Associates, 2005
*For the purposes of this analysis, it was assumed that low density office equated to a 0.25 floor area ratio whereas a high density office equated to a 0.5 floor area ratio. Further, it was assumed that residential would develop at a density of 15 – 20 units per acre.
**Retail uses often have a component of "pass-by trip-making." Pass-by trips could constitute up to 50 percent of the trips to a retail development, depending on the type of use. Although these trips are not experienced at "off-site" intersections (i.e., upstream or downstream of the corridor from the access point), the pass-by trips do contribute to traffic movements at the site access on the corridor. For this reason, the retail trips were not discounted in Table 1 to account for pass-by trip-making.

As shown in Table 4-2, a comparable acreage of retail uses has a higher trip generation potential than residential or office uses. A conversion of the corridor to a mixture of primarily residential and office uses will lower the vehicular trip generation potential of the adjacent uses. Further, this mixing of uses will increase the propensity for non-vehicular trip-making. The predominant use along the corridor is commercial. A more integrated mix of uses is more conducive of a mix of walking, cycling, driving, and transit, instead of a dependence on driving.

Today, there is a small neighborhood node near the SW 78th intersection that serves the neighborhoods to the north. This neighborhood node experiences a higher level of non-vehicular trip-making than other locations throughout the corridor. The proposed land use concept will build upon the mode split characteristics of the existing node and help the City to achieve the mode splits outlined in the Metro 2040 concept plan for Corridors.

JURISDICTIONAL AND POLICY IMPLICATIONS OF THE TRANSPORTATION STRATEGIES

JURISDICTIONAL IMPLICATIONS FOR THE OPERATIONS AND MAINTENANCE OF REDESIGNED TRANSPORTATION NETWORKS

ODOT maintains policies and agreements with local jurisdictions regarding the operations and maintenance of improved facilities. ODOT has an agreement with the City of Beaverton to operate and maintain streetlights in the ODOT right-

of-way. ODOT staff indicated that local jurisdictions would be responsible for landscaping maintenance and lighting improvements made in Corridors.

In addition, ODOT staff said that ODOT's Highway Design Manual might limit the location and density of street trees on the Corridors. These interpretations suggest that street trees are restricted to locations that are 10 times the speed limit from any public or private access point. For example, a Corridor with a speed limit of 35 miles per hour would prohibit street trees 350 feet from intersections in all directions (both the median and the sides of streets). This interpretation would reduce the buffering attribute of a green leafy median envisioned in the residential/office segments and pedestrian improvements along the Corridor. This potential limitation would be removed if the highway jurisdiction was transferred from ODOT to the local jurisdiction.

IMPLEMENTATION STRATEGIES TO ACHIEVE THE 2040 CORRIDOR REDEVELOPMENT OBJECTIVES

The passage of Measure 37 in November 2004[3] complicates the implementation of the Corridor design type. Historically, jurisdictions implement Metro policies through local land use regulations. Measure 37 increases the threat of costly compensation claims with the adoption of new regulations. Based on the increased difficulty of implementation through regulation, three implementation alternatives were developed. They are:

1. **Jurisdictions adopt new development code regulations.** This would reorganize entitlements, removing retail from undesirable locations and replacing it with residential, office, or lodging uses. This alternative requires a strong case for improving land values with the new code to defend against potential Measure 37 claim.
2. **Jurisdictions allow developers to build based on a performance-based development code** that provides incentives for developing areas as envisioned under the 2040 Plan, and provides no incentives to develop under the existing code (this alternative does not trigger a M37 claim).
3. **Transportation and streetscape strategies as a catalyst for change.** This alternative would use physical improvements to force change. For example, construction of a median that restricts left turn lanes will probably hasten the transformation of commercial to residential or office. The jurisdiction would only build infrastructure improvements that support the land use and development concept.

[3] Oregon voters passed Measure 37 in November 2004. The measure requires local governments to compensate land owners, or waive regulations, when land use laws that were passed after they purchased their property reduces the value of their property.

Chapter 5

Conclusions and Policy Implications

This chapter summarizes conclusions, describes policy issues, and makes recommendations to the Oregon Department of Transportation, Metro, and local government regarding policies that would encourage development and redevelopment in Metro's designated 2040 Corridors in ways compatible with Metro's stated objectives. The question addressed in this chapter is: What does the case study suggest about policy changes necessary to implement the 2040 corridors objectives?

The rest of this chapter uses the term "policy" broadly to mean "anything that the public sector might do." It includes not only policies, but also strategies, actions, programs, incentives, and investments. Its general topic is policies related to land use and transportation that *should be revised* if the objective is to increase the probabilities of getting land use and transportation development to occur in the manner described in Chapter 4. This chapter does not discuss the many ways in which existing policies (strategies, actions, programs and incentives) may be used to implement the preferred land use alternative.

The chapter has two sections:

- **Conclusions about regional Corridors** presents the consulting team's generalizations of the case-study findings to the rest of the region. Each conclusion is cross-referenced with a policy recommendation (indicated in parentheses), if appropriate.
- **Policy issues and recommended changes** identifies existing policies that possibly conflict, or at least do not support, the land use and development alternatives (specifically) and, by implication, Metro's development objectives for land use and transportation in its designated corridors. The top level of organization for the presentation of policy issues and corresponding policy changes is by *type of jurisdiction*, from the one with the largest boundaries to the ones with the smallest:
  - **State (S)**
  - **Regional (R)**
  - **Local (City and County) (L)**

  The discussion of policies at each jurisdictional level has two parts:
  - **Policy issues**. Each section starts with a summary of the main policy issues regarding the implementation of the land use and development alternatives (described in Chapter 4).
  - **Policy changes necessary to achieve the land use and development alternative**. For state, regional, and local jurisdictions, the policy implications begin with a general

description, and is then followed by a summary of *what type, who,* and *when.*

CONCLUSIONS ABOUT REGIONAL CORRIDORS

- **Corridors in the Portland metropolitan region are drawing from markets larger than those of the adjacent neighborhoods to support their retail sales.** The case study showed that there is more retail square footage in the Beaverton Corridors than the surrounding neighborhoods can support. Retail businesses along the Corridors are drawing customers from a larger region. The same is almost certainly true for other regional Corridors with significant retail. (See policy recommendation L-2.)
- **If Corridors draw from the same regional markets that Centers do, then their effect on Centers depends on whether they are offering competing or complementary goods.** Lower land values, high drive-by traffic, generous parking, and large parcels give Corridors a comparative advantage over Centers for many types of retail. If Corridors offer the same types of retail and office space that are found in Centers, then they will be competing, at some level, for tenants. Retail that is land intensive and auto-oriented (e.g., building supplies and fast food) may prefer Corridor locations to those in Centers (but see next point).
- **National trends in retail show more new development at major intersections and less along extended strips.** The old distinctions between businesses that are center-oriented and those that are strip-oriented are blurring. The essential trade-off of development cost and access remains. Businesses in the past chose corridor locations because good access came with cheap land in large parcels. As congestion increases along corridors and land prices increase, the relative advantage of corridors on this dimension is decreasing. The result is that retail locations with the highest demand in the Metro area and across the nation are at major intersections. Not surprisingly, those intersections are on corridors.
- **There is an opportunity for the region to take advantage of national trends in retail to restructure strip development corridors.** The case-study analysis and advisory group gave evidence that there are good reasons for retailers to develop along corridors. But they also supported the idea that the demand for retail along Corridors was more of a derived demand for ample space (and therefore less expensive land) with good access. If land with those attributes were available in Centers, then the retail on Corridors could locate in Centers, where Metro policy would like to shift it to. The problem is that historically the land in Centers could not compete on those dimensions with land in corridors. The gap has narrowed, not because land in Centers has become less expensive, but because the accessibility of Corridors relative to Centers has declined, and land prices of Corridors relative to Centers has increased. There are opportunities to (1) shift some retail directly to Metro Centers, (2) shift some retail (e.g., big box) to the edge of Centers—at the boundary between Centers and their connecting Corridors—where the uses might be

complementary, and (3) concentrate some of the retail in Corridors into smaller "centers" or nodes[1] that occur along different segments of the Corridors (which will increase the possibility that some of the use along the Corridors will shift to residential uses). (See policy recommendation L-2.)

- **Residential, office, lodging, and institutional uses have the potential to supplant retail as the highest and best uses along some parts of Corridors.** Residential uses could become the primary use in Corridor segments (with office, lodging, and institutional playing a secondary role) between the concentrations of retail around retail nodes in the Corridors. We say these uses have the *potential* to supplant retail because redeveloping the Corridors for these uses requires that the streetscape and the surrounding non-residential uses be designed (or redesigned) to support and complement these new uses, especially the residential ones. (See policy recommendation L-2.)
- **Redeveloped Corridors would support Centers.** Encouraging higher-density retail at major intersections and Centers; increasing the capacity for residential, office, lodging, and institutional uses in Corridors; and identifying space for large-format retailers at the edge of Centers can encourage the redevelopment of Corridors that support Centers.

  There is clearly a competition between Centers and Corridors for many types of development. But that does not mean that restricting all that development in Corridors would force it to Centers. Squeezed out would be many businesses with low capitalization (including small start-ups) and highly capitalized businesses that have a standard big-box, land-intensive development format. Total economic activity would be lower and prices slightly higher for retail goods in the absence of retail development in Corridors.[2] There is the possibility that properly constructed could facilitate the commercial development most appropriate for Corridors, redirect some types of commercial development toward Centers or their fringes, improve Corridor function, and in doing all of that, make Corridors work better.
- **A major transformation of current Corridors will require a major transformation of the streetscape.** It did not take this study to discover that a lot of development in Corridors in Portland and elsewhere is aesthetically disadvantaged designed with no thought of pedestrian use. These conditions, plus large traffic volumes and noise, make Corridors incompatible with residential uses today. Residential uses are less likely to be successful until the streetscape is changed to make Corridors more pedestrian friendly and to provide buffers (such as street trees for noise

[1] We use the term neighborhood centers, noting that the term *centers* is used by Metro to refer to a hierarchy of Region 2040 Centers. The neighborhood center was introduced in the land use and development concept Chapter 4. The recommendations include adding neighborhood corridor to a typology to describe the uses (primarily residential, office, lodging, and institutional) between neighborhood, regional, and town centers.

[2] We do not comment here on whether that tradeoff is desirable: we are just describing the direction of the likely effects.

reduction and increased privacy). (See policy recommendations S1, S3, R-2, R-5, L-1, and L-3.)

- **Transportation improvements can decrease congestion and increase mobility and access along Corridors.** The transportation improvements listed in Chapter 4 will help to improve mobility and access for all modes of travel in Corridors. Local jurisdictions should develop and implement network plans that prescriptively improve conditions for non-vehicular modes. These plans should specifically identify missing links and secondary street alternatives that will preserve Corridor mobility for through traffic, ensure more direct off-corridor connections, and increase pleasant pedestrian and bicycle options on collector and local streets for access along the corridor and between neighborhoods. Corridor level planning recognizes that large format auto scale development typical in corridors will require a new armature of street connectivity. (See policy recommendations S2 and R2.)

  Recommended urban design guidance should be included in site plan review to produce active comfortable walking and bicycle environments especially around transit nodes to improve non-SOV mode share. (See policy recommendation L4.)

- **Without the benefit of clear public policy and public investment, most Corridors will change slowly.** There are multiple conditions that would provide opportunities for the restructuring of Corridors. They include market trends in retail that encourage retail to locate at major intersections, disinvestment along strip Corridors, increases in residential land values that are closing the gap between residential and commercial land values in Corridors, and increasing congestion along Corridors. These forces will slowly cause change in the development in Corridors. If the region wants that change to occur faster and with move coherence and amenity, then some policies—which could be adopted at the state, regional, or local level depending on their type—are probably necessary. A comprehensive policy would address all phases of implementation: identifying needed transportation/streetscape improvements, prioritizing Corridor investment, determining the interest of local jurisdictions to planning activities, and determining funding strategies.

- **Public efforts undertaken to transform development in Corridors will need to do all the things that are now typical of sub-area and Corridor planning in Oregon, and then some.**

  - **Public involvement.** Resistance to restructured Corridors is often the biggest barrier to implementation. The consultants' experience elsewhere in restructuring Centers and Corridors suggests that approximately six local workshops are necessary for the successful adoption of a restructured Corridor plan. This level of public involvement is required to collect information from stakeholders, process the information, educate stakeholders on the existing conditions and market conditions, create alternatives, and to adopt a final plan.

- **Economic analysis.** A fundamental conclusion about major transformations of current Corridor patterns that are extended, low-density commercial strips is that the retail needs to be concentrated, and that some of the commercial land should convert to high-density residential uses. In similar restructuring projects in other parts of the country examined for this project, local property owners resisted the removal of retail entitlements, believing that the retail market would rebound and demand for retail in a Corridor would increase. A comprehensive economic study that identifies prototypical developments that are viable in a restructured Corridor is necessary to show property owners that there is an alternative to retail.

  The economic study has the additional benefit of showing how a restructured Corridor and the accompanying policies would increase the value of properties over the long term. Such a study would help jurisdictions defend themselves against potential Measure 37 claims (assuming that the economic study can demonstrate a likely increase in property values).

- **Local evaluation.** Many of the findings of the case-study Corridors are applicable in some form to Corridors throughout the region (primarily in suburban locations), but local conditions will dictate how restructuring occurs.
  - How close is the regional, town, or neighborhood center?
  - Are there specialty segments along the Corridor?
  - What is the local market for housing, office, and lodging?
  - Are parcels in the Corridor difficult to redevelop because of size (especially the depth of the parcels)?
  - What are the existing transportation conditions, including volumes, speeds, transit service, accident history, bicycle and pedestrian environment and streetscape design?
  - Are existing uses thriving, stagnant, or blighted?

  (See policy recommendation R-2 and R-3.)

- **State, regional, and local funding for transportation improvements along Corridors is necessary to support the land use and development alternatives.** A consistent message throughout this study was "there is not enough money to do Centers; where will the money for Corridors come from?" This question is in part one about priorities and has the obvious set of answers: increase total funding so there is more for Corridor restructuring; shift money from Centers to Corridors; decide that public investment in restructuring of Corridors is not a high enough priority to merit a share of the limited funding available. (See policy recommendations S-4 and R-3.)

POLICY ISSUES AND RECOMMENDED CHANGES

The recommendations in this section start from the assumption that Metro and the local jurisdictions affected by its requirements *want to achieve* Metro's stated objectives (in its 2040 planning documents) for land use and transportation development designated Corridors. Not everyone on the case-study advisory group agreed with all those objectives; it seems safe to conclude that a similar group assembled for other Corridors would have similar differences of opinion.

It is not the task of this report to make an *absolute* recommendation about what to do in Corridors. Rather, it is making a *contingent* recommendation: *if* you want to move in the direction of meeting 2040 objectives for Corridors more thoroughly or more rapidly, *then* here are the kinds of things that should be done. Those things are described for three levels of governments: state (ODOT), region (Metro), and local (cities and counties). An obvious alternative, and one not explored in this report, is to substantially relax requirements for land use and transportation in Corridors, or eliminate the Corridor designation entirely.

STATE AGENCY RULES AND POLICIES

POLICY ISSUES

State agencies have many policies that affect redevelopment in 2040 Corridors. The case study showed that several existing Oregon Department of Transportation (ODOT) policies might be in conflict with, or at least have policy implications for, the development of the case-study land use and development alternatives and corresponding transportation strategies. No policy changes are recommended for statewide planning goals and their associated rules (Goal 9, Economic Development, and Goal 12 and its associated Transportation Planning Rule). The three state policy issues are:

- Interpretation of AASHTO policy regarding the placement of street trees
- Corridor segment designations
- Maintenance issues

The case study documents potential conflicts with ODOT interpretations of AASHTO (American Association of State Highway and Transportation Officials). The interpretations would restrict the location of street trees and other objects that may impair the vision of drivers. According to ODOT's interpretation of the policy, the spacing of street trees could occur at a minimum of 300 feet from intersections. This policy effectively prohibits the use of street trees and other objects due to the spacing of accesses and intersections along the corridor. This requirement for the spacing of trees or other objects would make the creation of a leafy corridor (along the corridor corridor) difficult if not impossible.

Other agencies throughout Oregon and the nation have interpreted the same AASHTO policy so as to not place these restrictions on street trees in the right-of-way. ODOT's interpretation should be reexamined to reflect current research and the practices of other agencies. Research suggests that constrained sight lines

along busy roads can increase driver awareness and produce slower speeds. Trees in the median and roadside features that frame the Corridor reduce speeds, communicate expectations of pedestrian activity and increased conflict points to motorists, and enhance the roadway environment for non-vehicular modes. Further, the inability to enhance Corridors with trees and landscaping reduces the potential to attract infill with the mix of activities that can achieve the transportation and land use goals of the 2040 Corridor objectives.

The Oregon Highway Plan (OHP) includes policies and actions that recognize that some highway segments should be planned, designed, and managed differently than other highway segments. In accordance with the OHP, Corridors could be designated as Special Transportation Areas (STAs), Urban Business Areas (UBAs), or urban other. As discussed in Chapter 4, the potential for UBA designations was evaluated as part of the case study. The UBA designation was created to enable transition from auto-oriented strip retail commercial development patterns to multi-modal mixed-use patterns. UBA designations in 2040 Corridors will be most beneficial at neighborhood centers. Local plans should align access standards and land uses described in the OHP policies for a UBA designation to ensure that the access and parking provided along Corridors advance both the goals of the UBA designation and 2040 Corridor objectives.

Though local jurisdictions want greater flexibility in street design standards than allowed by ODOT policies, they are often unwilling or unable to commit the funds necessary to improve and maintain these facilities themselves. It is often difficult for ODOT to justify construction and maintenance of enhancements when weighed against demands for greater highway capacity and safety. Therefore, since public resources are typically insufficient and noncompetitive for beautification alone, such projects should be considered and receive priority based on their ability to:

- Stimulate redevelopment
- Create greater non-SOV mode share
- Increase taxable revenue

Projects meeting these goals can then justifiably benefit from local general fund support, state transportation fund support, and business improvement district assessments.

POLICY CHANGES NECESSARY TO ACHIEVE THE LAND USE AND DEVELOPMENT ALTERNATIVE

S1: Re-examine AASHTO interpretation within Corridors. ODOT should re-examine its policies regarding street-tree spacing and other street design elements along Corridor sections to allow the provision of street trees and other street design changes envisioned in the Corridor land use and development alternatives.

What type: Voluntary

Who: ODOT
When: Immediate/ongoing

S2: Designate UBAs only in Neighborhood Centers. As part of individual corridor plans, the local jurisdiction, Metro and ODOT should consider whether the use of a UBA would assist in the transition of land uses within neighborhood centers.

What type: Voluntary
Who: ODOT and local jurisdictions through Transportation System Plan amendments
When: Immediate/ongoing

S3: Develop state-local agreements regarding transportation and streetscape improvements in the Corridors. ODOT, Metro, and local governments should prepare local 2040 Corridor Plans as refinements to Transportation System Plans (TSPs). The 2040 Corridor Plans should identify the functional classifications related to land use and provide system detail for all modes, the desired cross-section, street design, access management, mobility standard, funding strategies, and the best timing for implementing new road designs or improvement projects. These plans should identify who is responsible for the construction, operations, and maintenance of improvements and the plans should note if a transfer of ownership is planned for the corridor. This recommendation does not suggest that ODOT should require additional management plans beyond the existing freight route plans. The intent is to recognize that the complex ownership status of some Corridors can be a hindrance to the appropriate redevelopment of the right-of-way and application of new standards. Intergovernmental agreements (IGAs) are one way to clarify improvement schedules and responsibilities.

What type: Voluntary IGAs
Who: ODOT and local jurisdictions
When: Ongoing

S4: Increase funding for Corridors in the State Transportation Improvement Program (STIP). Funding for transportation improvements along Corridors is necessary to support the land use and development alternatives. Since many 2040 Corridors are state highways, ODOT should work with Metro and local jurisdictions to identify and create opportunities for funding Corridor transportation improvements. For example, more state funding may be available if the region provides matching funds, which would satisfy state funding criteria for leveraging local funds. In addition, ODOT preservation and safety projects in the STIP should also provide a significant opportunity to leverage the long-term vision for these areas.

What type: Funding
Who: ODOT
When: Ongoing

REGIONAL AGENCY RULES AND POLICIES

POLICY ISSUES

The case-study land use and development concept described in Chapter 4 suggests that, in general, retail uses should be more limited in the Corridors and concentrated in neighborhood centers as well as in existing centers (regional and town centers). Current Metro design types (i.e., designations in the 2040 documents of categories of Centers and Corridors) do not address retail at a smaller scale than "Main Street," and not at sub-levels within Corridors. Given that the implementation of the land use and development alternatives requires Corridors with long commercial strips to transition to Corridors with retail concentrated at major intersections, new design types at the sub-corridor level may be necessary.

Phase I concluded that Metro's designated Corridors are not identical throughout the region; that there are different corridor types. Metro should consider whether some Corridors types continue to have residential targets in Metro's capacity calculations. For example, does it make sense to have residential targets in primarily employment corridors?

Prioritizing Corridor improvements is necessary for implementation of the land use and development alternatives. Transportation improvements (such as corridor corridor streetscape) may be the most effective way to initiate land use changes along Corridors. Currently, Metro's RTP and transportation funding program focuses on leveraging economic development in priority 2040 land uses through investments in mixed-uses areas (the central city, regional centers, town centers, main streets and station communities) and industrial areas. Metro can change transportation funding priorities to implement the alternatives that also include mixed-use areas at the sub-corridor level. In addition, Metro can revise the Urban Growth Management Functional Plan and the RTP, a Metro functional plan, to refine the objectives for 2040 Corridors and encourage the implementation of these objectives.

Finally, because the recommendations at the regional level include suggestions that funding for improvements and studies be increased for Corridors, one recommendation suggests guidance on the levels of density and mixed-use components are needed to qualify these areas as a regional priority for funding. In addition, if this project moves forward with 2040 Corridor sub-category recommendation, then the subcategories could be given comparable priority to other 2040 designations for purposes of identifying funding priority–for example neighborhood centers = main streets; freeway oriented retail and specialty areas = employment areas; corner store = inner/outer neighborhood).

POLICY CHANGES NECESSARY TO ACHIEVE THE LAND USE AND DEVELOPMENT ALTERNATIVE

R1: Recognize Corridor segment typologies as a tool for corridor planning.

Two questions about Metro's Corridor policy should be addressed at the policy level: (1) Should all the Corridors now designated continue to be Corridors? and (2) For whatever Corridors remain, should policy recognize different Corridor types and requirements?

Number of Corridors. The consultant team recommends that all 2040 Corridors be re-evaluated to determine if they should still be designated as Corridors in the 2040 Growth Concept, based on the likelihood that the Corridor could be transformed to the proposed land use and transportation alternative. Some corridors will be easier to restructure to accommodate residential growth (or other types) based on the existing uses, land characteristics, or the ability of the local jurisdiction to invest supportive streetscape and transit improvements.

The evidence suggests that there are more Corridors than the market or public funding will be able to restructure over the next 20 years. Metro has identified over 400 miles of Corridors in the 2040 Growth Concept. Roadway improvement funds already fall well short of the need—narrowing the number of Corridors that potentially could be in competition for funds is practical.

The question for Metro is one of focus. On the one hand, all the Corridors could remain designated if the policies that apply to them are relatively general—if they point to a desired direction for change without mandating near-term changes that are inconsistent with current markets or funding capacity and, thus, strong impediments to continued development in the Corridors. On the other hand, if the policies are to be stronger, then they should be focused on the Corridors that are most important and most likely to be redeveloped; that focus also focuses public funding.

The question about the number of Corridors is not independent of the question about Corridor types: a larger number of Corridors is more likely to be workable if there are subcategories of Corridor types that have different requirements, and different priorities for the timing of the conversion.

Corridor Types. Phase 1 of this study made clear that 2040 designated Corridors are very different in function and character, and that not all Corridors are suitable for redevelopment to the proposed alternative. The consultant team recommends that whatever Corridors remain as Corridors (after the re-evaluation of the number of Corridors recommended above) should be classified by the Corridor segment typologies identified in Phase 1, Chapter 2 (defined below). These typologies can help identify which Corridors or segments of Corridors may be vulnerable to change, and which ones may have the potential support of the community for change. One result of this re-evaluation may be that portions of the currently designated 2040 Corridors remain so designated, but that other sections drop that designation, resulting in a non-continuous pattern of Corridor designation along some routes. Another outcome is the prioritization of Corridors for redevelopment funding purposes (described in greater detail in R2).

There is a decision to made about whether the Corridor designations are to describe *existing conditions* or *desired future conditions*. In general, plan designations do the latter. The designations that follow, however, do the former.

- **Residential Parkway.** These segments are characterized by exclusively residential uses on properties contiguous to a Corridor right-of-way, and are almost always buffered from the thoroughfare by landscaping, grade changes, or an orientation of development away from the roadway. The northern half of Canyon Road is an example. These segments in general do not seem very vulnerable to change. The consultant team assumes that there would be little support at the regional, municipal, or neighborhood levels for policy to encourage these areas redevelop as Corridors envisioned in the 2040 Growth Concept. Metro policy should not be interpreted as encouraging a conversion of these residential areas to employment areas, and it should have some guidance on what, if any, requirements there are for residential types and density, and transportation design. This should include guidance on what levels of residential density are appropriate to support the 2040 Corridor objectives and the level of transit service planned for the corridor in the RTP.
- **Specialty Segments (dominance by a single land use such as automobile sales and service, or office employment).** There is a strong market demand for specialty uses (like automobile sales and service) along some Corridors. This segment recognizes the need for these uses and the appropriate locations based on the large scale and low coverage of the properties, the need for substantial on site parking, and the need for visibility and access for prospective customers. These segments are not vulnerable to change in the near future, and the consultant team does not recommend use changes. However, these segments may need streetscape improvements to improve pedestrian, bicycle, and transit use.
- **Commercial Strip.** These primarily retail-oriented Corridors are characterized by auto-dominated, low-intensity development with rapidly moving traffic, and a lack of integrated design or design standards. The result is so well-known that it needs only the name—commercial or retail strip—for most people to get an image of what it looks like. That image, typically, is one high function but low aesthetics. These areas are usually described as locations of general retail rather than specialty or clustered retail, and of low-intensity and lower-quality development. For reasons described in the Phase I report, these areas provide some of the best opportunity for change and should be prioritized for redevelopment funding.
- **Neighborhood Sales and Service.** These areas often share many of the characteristics of strip development except for their short length. They are often short interruptions in residential parkway corridors that provide neighborhood uses to those adjacent residential areas. They are often found along the narrower Corridors and not along the wider ones with the greatest vehicular capabilities. There is potential for smaller scale change to increase retail and service support for the adjacent neighborhoods.

What type: Non-regulatory planning descriptions
Who: Metro and local governments
When: Immediate/ongoing

R2: Provide Functional Plan support for retail clusters. An important element of the case-study land use and development alternative is to cluster retail development into nodes (i.e., into regional-center-support areas and neighborhood centers, as defined below). Building on the 2040 Corridors that have the potential to transform to mixed-use pedestrian friendly environments (Policy R-1), Metro should add sub-categories (see definitions below) to the Corridor design type as defined in the Functional Plan Section 3.07.130. These non-regulatory sub-category descriptions, derived from the case study analysis, could assist in the development of local government corridor plans by the identification of locations along Corridors that have the greatest potential for redevelopment. The Functional Plan should include criteria to determine the appropriate location and type of retail nodes. The Functional Plan could also encourage local governments to use a variety of tools to achieve retail clusters.

CORRIDOR SUB-CATEGORIES DESCRIPTIONS AND CRITERIA FOR LOCATION

- **Regional Center Support.** Large-format retailers are concentrating at major Corridor intersections and freeway on-and-off ramps that are near Centers. Auto-oriented commercial sales, drive-in uses, sales of large-scale goods.

  Potential criteria for designation: Land adjacent to Corridors with existing or the potential for large format retailers. Land aggregation potential may be necessary to realize large format retailer uses.

- **Neighborhood Center.** A Corridor segment at major intersections with small-scale businesses anchored by supermarkets oriented to nearby neighborhoods, preferably integrated into a mixed-use building.

  Potential criteria for designation: major intersections with land aggregation potential of a minimum of 10 to 15 acres/pre-existing commercial nodes that are under-utilized/concentration of like uses such as recreation and school facility/existing anchor facility.

- **Workforce District.** An established employment portion of the Corridor that is functioning as a distinct and separate land use of sufficient size and quality to ensure its continued existence. An example may be a cluster of office parks that are integrated into the fabric of the adjacent residential uses.

  Potential criteria for designation: Areas of existing employment that can be strengthened by improving the transportation system or by increasing workforce housing in nearby locations.

- **Corridor Neighborhood.** A Corridor segment between Regional, Town and neighborhood centers that does not have one of the previous

Corridor designations. Land uses envisioned are mid-to-high-density residential, office, lodging, institutional, or limited retail uses.

Potential criteria for designation: High vacancy rates or low land values (compared to other commercial Corridors), disinventment, congestion, poor pedestrian environment, and limited transit opportunities.

TOOLS TO ACHIEVE RETAIL CLUSTERS

- New development code district/overlays (see "Local" section for details)
- New performance-based development code language
- Economic studies that support rezoning efforts
- Street improvements

What type: Implementation guidance for local governments
Who: Metro
When: Immediate/ongoing

R3: Emphasize the importance of corridor planning to improve transportation system and enhance centers. Metro could reinforce the importance of corridor planning and implementation of the 2040 Regional Plan at the local level with regulations (R2 and R3), funding (R4), or both. Metro could require that planning for Corridors be done as part of local TSP/TSP updates and refinements for governments within Metro boundaries. If this option were pursued, then the level of TSP refinements that would trigger Corridor planning would need to be identified. It is not the intent of this recommendation that Corridor plans are triggered when a local jurisdiction is completing a minor adjustment for an entirely different purpose.

Corridor plans should determine the functional classifications for all modes, the appropriate cross-section (including number and type of lanes and widths), street design, access management, mobility standards, funding and implementation strategies, and the best timing for implementing new road designs or improvement projects. Corridor plans should establish policy both for the roadway and the land use, so that improvements in the desired direction may be made over time as development occurs.

As part of the Centers improvement measures being recommended by the Get Centered program, Metro could require local governments to examine existing Corridors, classify their segments, and evaluate their potential economic relationship to proximate Centers. Metro should provide assistance in the form of funding or staff time. A jurisdiction would then suggest, as with the case study Corridors in this report, specific measures it would take to implement the 2040 Corridor objectives.

What type: Consistency with the Regional Transportation Plan (RTP)

Who: Metro and local jurisdictions

When: Immediate/ongoing

R4: Increase the priority of Corridor funding in the Metropolitan Transportation Improvement Program (MTIP). Funding for transportation improvements along Corridors is necessary to support the land use and development alternatives. Metro may need to recognize the need for corridor improvements in MTIP and other regional funding priorities and award credits for projects that propose corridor improvements in accordance with corridor plans and improvements that will encourage Regional Corridor goals.

This policy is obviously a controversial one. On the one hand, there is not enough money in the MTIP to do many of the improvements that are desirable *within* centers. On the other hand, if there is to be no funding for streetscape improvements in Corridors, then change will be slower and, in some cases, impossible. Individual property owners, even with the assistance of local governments, will not be able to assemble the capital to complete a concentrated and coordinated redevelopment of the streetscape, resulting in piecemeal development that is unlikely to create an integrated streetscape.

If funding is not available, it would be preferable for Metro to acknowledge that the Corridor policy is suggestive and voluntary: it could (1) state its belief that a restructuring of land use and transportation in Corridors along the lines described above would be advantageous for citizens, local governments, and the private sector; (2) provide materials that show the private sector and local governments how that restructuring could take place in a world of limited public funds and incremental private development; and (3) hope that '1' plus '2', plus changing market conditions and local government desires, are enough to get the desired change in some Corridors.

Metro should continue to monitor street preservation and modernization programming and track conversions of "complete street" Corridors to ensure coordination with other potential funds to reinforce the importance of the Corridor goals of the Metro 2040 Plan. There are other funding mechanisms for Corridor planning, such as urban renewal funding (Tax Increment Financing) that local governments may be able to use in addition to MTIP funds. The recommendation here does not preclude any other creative financing, but suggests that the regional funding priorities make the connection between improvements to Corridors as one way to improve Centers in certain circumstances.

What type: Policy (change to Regional Transportation Plan) and (change to Transportation Priorities Program funding criteria)

Who: Metro

When: Ongoing

R5: Clarify the use of medians along corridors. Metro could amend the Regional Street standards to specify that raised medians should be used along the majority of corridors to provide comfortable and safe multimodal travel. The appropriate spacing and location of median breaks should be established through a corridor refinement plan that comprehensively reviews the state and local access management requirements, the local grid network, and the type of land uses adjacent to the corridor. In most cases, the breaks in the medians should occur no closer than 600 feet. Right-in-right-out accesses could be provided at closer intervals. Metro could also amend the RTP to support the use of access lanes, cross-over easements, and other tools that can be used to support successful access management in corridors. The use of these access management strategies and tools are needed to achieve the goals of corridors.

What type: Regulatory
Who: Metro
When: Ongoing

R6: Develop gateways in the Corridors. The case study concluded that the Beaverton Corridors would be improved if they had some feature that gave some relief to the sameness of the commercial strip to announce a new sub-area: a "gateway." No policy changes are necessary to implement gateways. The description of Metro design types should include a discussion of gateways and their value. Regional transportation funding could be used in new gateway projects (with the same caveat: in a world of constrained funding for roadway maintenance and improvements, how likely is it that the available funding will be shifted to the creation of gateway features?).

What type: Funding
Who: ODOT, Metro, and local jurisdictions
When: Immediate/ongoing

R7: Coordinate with housing providers and advocacy groups to identify and implement a pilot project. Metro should coordinate with housing providers and advocacy groups to identify and obtain sources of funding to complete additional studies on implementation issues. This would include the initial groundwork for the identification and implementation of a pilot project. A pilot project is useful in demonstrating to the development community that a mixed-use nodal focused development project can be successful while supporting the continued growth of the nearby Center.

What type: Funding and coordination
Who: Metro
When: Immediate

IMPLICATIONS FOR LOCAL GOVERNMENT POLICIES AND DEVELOPMENT CODES

POLICY ISSUES

The case study suggests that street design should be "contextual"—matched to support and encourage the desired adjacent development. This concept does not fit neatly within current TSP requirements, nor with the way a road hierarchy is mapped and roads are built. If local jurisdictions are to implement the transportation and streetscape improvements, they most evaluate their design policies to encourage connectivity between the Corridor and the surrounding neighborhood.

The case study suggests that certain segments of the Beaverton Corridors should be transformed to Corridor Neighborhood, a new land use overlay or district concept that would help the Corridor act like a green seam between neighborhood, town, and regional centers. The Corridor Neighborhood district has less commercial activity and uses; instead it includes transit supportive uses such as residential, office, and lodging in long green segments. One way that local governments can limit the amount of retail along corridor corridors is by adopting new zoning districts.

There are a variety of tools that local governments can use to implement the land use and development alternative without changing the zoning. For example, regional and local governments can provide educational opportunities (like the Metro program Get Centered!) that discuss the issues with 2040 Corridor objectives and how developers can avoid pitfalls. There are also tax incentive programs that local jurisdictions can adopt, or they could waive fees for pilot projects and pay moving costs for businesses that relocate out of the corridor.

Vertical Housing Tax Credits provide financial incentives to developers of mixed-use buildings within a Vertical Housing Tax Credit district. Local governments must adopt these special tax districts, and only buildings built or renovated within those areas are eligible. Local Governments can spur redevelopment and mixed-use buildings by using this relatively new state law (ORS 285C.450 to 285C.480)[3].

The case study existing conditions analysis, focus groups, developer interviews, and advisory committee all found that the design aesthetics of buildings and the streetscape need improvement. They recommended that design standards be encouraged or required in the corridors.

[3] The 2005 legislature is considering changes to the existing law that may change the details described in this section.

POLICY CHANGES NECESSARY TO ACHIEVE THE LAND USE AND DEVELOPMENT ALTERNATIVE

L1: Change road designs policies within the Transportation System Plans (TSPs) or public works standards to encourage transportation improvements that support the land use and development alternatives and remove barriers.

Local governments should encourage different road designs for Corridors in their TSPs or public works standards, remove policy obstacles, and acknowledge the importance of road improvements, streetscape, and funding as alternatives to achieve 2040 Corridor objectives. See also R.3 related to funding.

What type: Revise TSPs (regulatory) during updates and refinements
Who: Local jurisdictions
When: Immediate/ongoing

L2: Rezone the neighborhood corridor segments to limit the amount of retail and allow for the density of residential, office, lodging, institutional and limited commercial uses envisioned by the land use and development alternatives.

This could be achieved through the following policy changes:

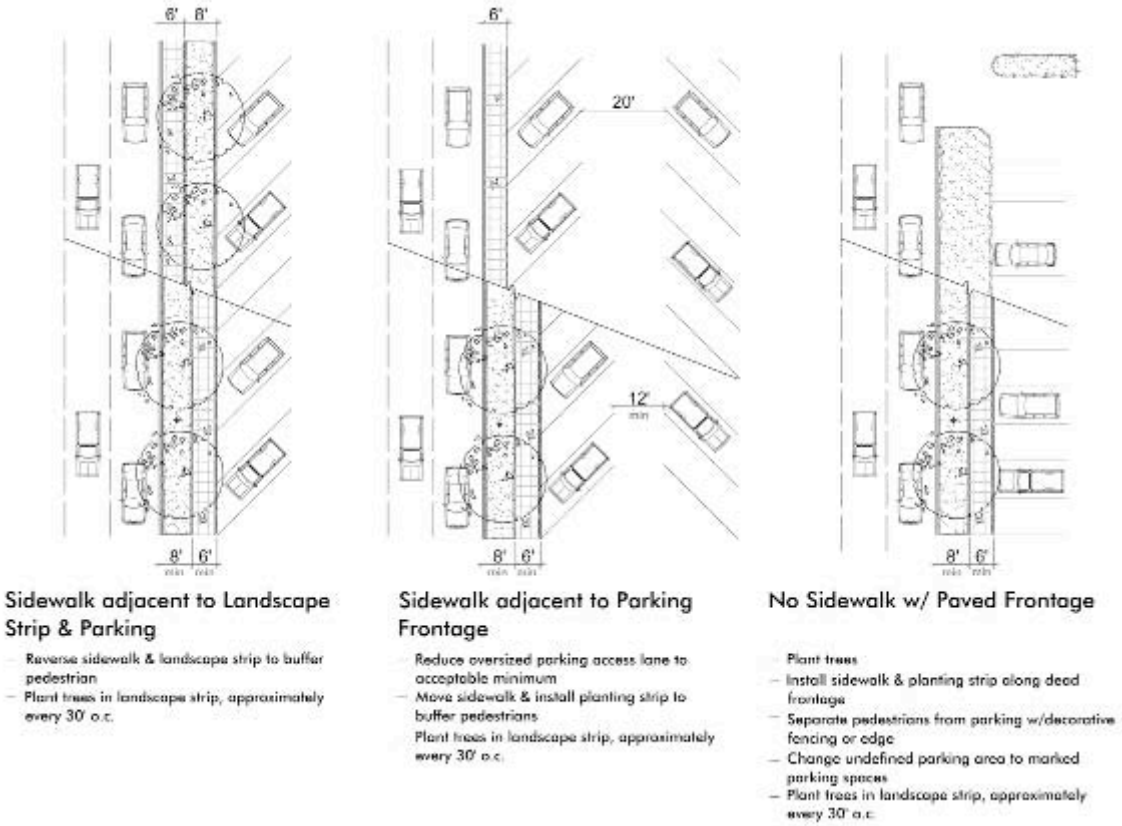
- Examine commercial zoning types along corridors, see if the following designations could apply, create a vision for each corridor, and match local districts as appropriate to the following zoning categories. Create new districts (or existing Corridor commercial zoning districts as needed) in Development Code with use restrictions, design standards that buffer adjacent single-family residential areas.
- In terms of applying the districts, work with local private organizations such as chamber of commerce or local business groups to get property owners to voluntarily apply the new districts and make the changes "friendly legislative changes" or streamlined individual zone changes consistent with a locally adopted corridor plan.
- New district categories:
  - Regional Center Support: allows big box, auto-oriented development
  - Workplace District: allows employment uses (both commercial and industrial)
  - Corridor Neighborhood: a new district that allows mid- to high-density residential, office, lodging, and other limited commercial uses)
  - Neighborhood Center: Allows mixed-use and a concentration of neighborhood oriented retail, such as an anchor grocery store with additional retail. Expected retail building sizes would be less than 40,000 square feet and would have building orientation towards the street. The uses include retail, small offices, and residential above ground floor non-residential uses.

What type: Regulatory
Who: Local jurisdictions
When: Immediate/ongoing

L3: Implement transportation and street-design strategies to support the land use and development alternative. Improvements could include:

- Standards for "public frontage," sidewalk location, and street tree planting (where appropriate) for new development.
- Volunteer tree planting and publicly/privately funded maintenance programs.
- Redevelopment (required or encouraged) off street-side parking lots and frontages to achieve better pedestrian protections, as shown in Figure 5-1.

Figure 5-1. Possible right-of-way and street front parking configurations, Beaverton-Hillsdale Highway and Canyon Road case study corridors, 2005



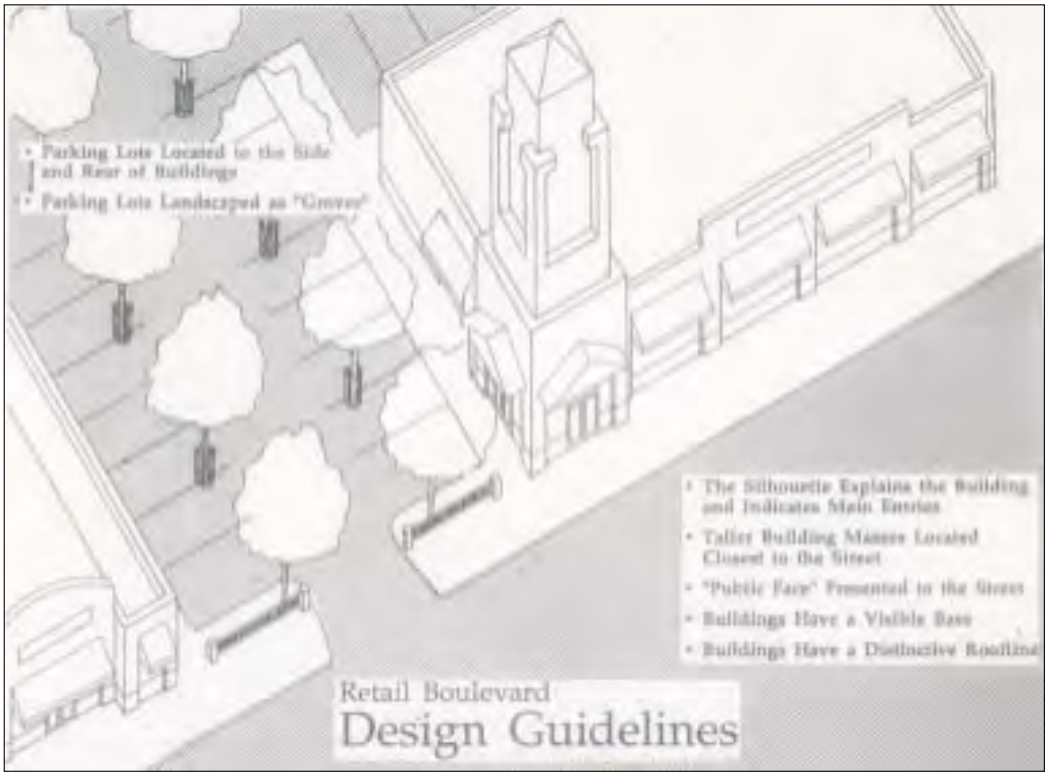
Source: Freedman Tung & Bottomly, 2005.

What type: Revise TSPs, fund streetscape improvements
Who: Local jurisdictions
When: Immediate/ongoing

L4: Review current codes for appropriate design guidelines and development standards for retail in corridors. The appropriate standards should include:

- Minimum building heights for retail buildings
- Maximum building setbacks (or "build to" lines) to a certain percentage of "frontage coverage" along street lot lines
- Public street frontage requirements
- Public street network circulation and spacing guidance
- Limitations on parking location and design (to the side and rear and with "orchard" landscaping of one tree per five spaces and exterior screening)
- Building entrances oriented to streets as well as parking lots
- Limits on building massing (required "breaks" and/or material/color changes)
- Design of open air storage and display

Figure 5-2. Example of retail design, (side of building with parking)



Source: Freedman Tung & Bottomley, 2005.

What type: Revise TSPs, fund streetscape improvements
Who: Local jurisdictions
When: Immediate/ongoing

L5: Provide incentives to encourage the redevelopment of Corridors. There are numerous regulatory and non-regulatory incentives that local jurisdictions could provide to property owners and developers to encourage implementation of 2040 Corridor objectives. Other studies on Centers[4] describe regulatory and non-regulatory tools to increase density. Many of these tools are appropriate in Corridors, if the objective of the regulation or incentive is changed to the 2040 Corridor objectives.

Examples of regulations that encourage the redevelopment of Corridors:

- Regulatory relief in the permitting process or design standards.
- Mixed-use zoning in neighborhood centers with limited application in neighborhood corridors.
- Interim development standards that limit development through large lot zoning, development moratoria, or land banking until the land can be developed at planned densities.
- Shadow platting to allow infill of higher density uses in the future.

Examples of incentives are:

- Form of Vertical Housing District(s) to provide incentives for mixed use and higher intensity developments. Review or "audit" existing code specifications for residential densities so that residential densities are appropriate (not too high or too low) for the desired, or expected development.
- Conduct research and education to inform property owners, developers, and others of the long-term benefits of implementing the 2040 Corridor objectives.
- Purchase or transfer of development rights that allow for property owners to purchase development rights from M37 claimants to increase the density of development on their property (or other benefit).
- Purchase small parcels of land and assemble them into larger parcels for easier development.

What type: Regulation and incentives
Who: Local jurisdictions
When: Immediate/ongoing

[4] *The Beaverton Downtown Regional Center Development Strategy*, (2004), a study of Metro Centers, and *Metro Urban Centers: An Evaluation of the Density of Development*, (2001).