



# Gresham Community Development Plan

## Volume 4: Transportation System Plan

City of Gresham, Oregon  
2002



# Gresham Community Development Plan

## Volume 4: Transportation System Plan

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City of Gresham, Oregon  
2002

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## Transportation System Plan: Livability or Gridlock?

Gresham’s transportation system is an essential element to support the community for neighborhood livability and economic vitality. Today, the street system operates fairly well, providing a high degree of mobility for drivers. However, there are major gaps in the transit, bicycle, and pedestrian networks, and congestion is growing on major arterials.

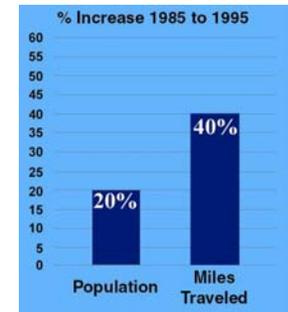
Oregon population and travel grew significantly from 1985 to 1995. However, travel grew twice as fast as the population. This trend is expected to continue for the city of Gresham, where the population is estimated to increase 40% from 1996 to 2020, while travel is estimated to grow by 56%.

With this increasing travel, the afternoon peak hour average travel speed is estimated to drop from 32 miles per hour (mph) in 1996 to 27 mph in 2020. That means a ten mile trip during the peak hour today that takes about 19 minutes will take 22 minutes in 2020, a 16% increase in travel time.

In addition, the portion of the arterial street travel in Gresham that is congested (Level of Service E or F) during the peak hour will increase from 7% in 1996 to 32% in 2020.

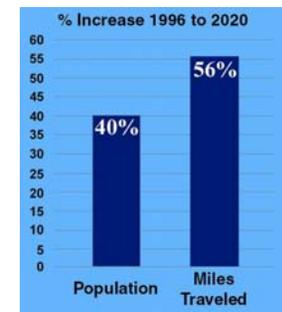
### The use of our roads and bridges has increased significantly

*Population in Oregon increased 20% from 1985 to 1995. Over this same period, vehicle miles traveled increased 40% -- twice the rate of population growth.*



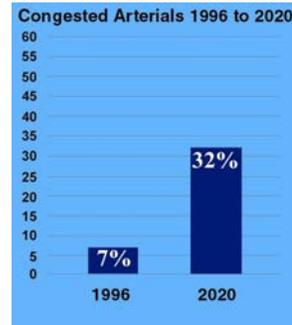
### The use of our roads and bridges will continue to increase significantly

*Population in Gresham will increase 40% from 1996 to 2020. Over this same period, vehicle miles traveled will increase 56%.*



## Congestion will increase four times by 2020 with current transportation investment

*The portion of Gresham arterial travel at Level of Service E or F will increase from 7% to 32% from 1996 to 2020.*



Traffic congestion threatens the health, safety, and livability of our community. More congestion, longer trips, and fewer travel choices will increase travel costs for residents and businesses, increase air pollution, and lead to fewer economic opportunities for Gresham's citizens.

The Transportation System Plan (TSP) provides a blueprint for the community in dealing with these problems.

## Transportation Choices – How Do We Get There From Here?

### Policy Framework

In 1998 the City adopted Transportation Policies to support a Vision and Guiding Principles as a framework for the TSP.

**Vision:** The Transportation System Plan will support the growth and development of Gresham as a vital, livable

community by providing pleasant and convenient access and travel to, through, and within the city.

**Guiding Principles:** The TSP has three guiding principles for defining and developing the transportation system:

- Implement Gresham's Vision 2020, Community Development Plan, and Metro's 2040 Plan with strategies that address local mobility and access needs and use transportation investments to support desired land use patterns.
- Increase travel choices and promote a "feet first" approach to personal travel by providing a continuous, connected transportation system.
- Ensure the transportation system provides safe, secure, and attractive travel and community interaction.

### Alternatives

The Plan evaluates three alternatives for addressing the community's transportation needs. The alternatives vary the investment in the transportation system, the focus of the system investment, and the extent to which they meet the City's transportation policies and objectives. The alternatives include the Status Quo, Street Expansion, and Travel Options. Based on an assessment of these three alternatives, the TSP includes a System Plan for achieving community goals over the next 20 years.

### Status Quo

This alternative continues current spending trends and stresses maintenance as the top priority.

*Elements*

- Provides limited improvements to major streets.
- Provides few improvements to neighborhood streets (collectors and local streets), sidewalks, or bicycle facilities.
- Addresses few existing and future major improvement needs.
- Relies on existing local revenues at current levels, with continued reliance on grants for major projects. Total cost: \$126 million

*Performance*

- Is not consistent with TSP Vision, Guiding Principles.
- Meets few TSP Policy goals.
- Pavement condition deteriorates and deferred maintenance increases more than ten fold.
- Traffic congestion increases and becomes critical in some corridors.
- Does not meet the intent of State Transportation Planning Rule requirements.

**Street Expansion**

This alternative focuses resources on improvements to major streets and intersections.

*Elements*

- Provides higher level of automobile mobility.
- Emphasizes auto capacity improvements over other system improvements.

- Strives to meet uncongested standard during the PM peak hour.
- Requires significant new transportation resources (\$145 million over 20 years).

*Performance*

- Is not consistent with TSP Vision or Guiding Principles.
- Meets some TSP Policy goals.
- Does not meet the intent of State Transportation Planning Rule requirements.
- Provides congestion relief in some major corridors.

**Travel Choices**

This alternative invests new resources to provide a high level of travel choice and greater accessibility.

*Elements*

- Balances strategic improvements in all systems (auto, transit, bicycle, and pedestrian) but with a focus on bicycles, pedestrians, and transit.
- Completes critical links in the bicycle and pedestrian system.
- Invests in neighborhood traffic calming, local street connections, local sidewalks, etc.
- Implements only the most critical auto capacity improvements.
- Requires significant increase in transportation resources (\$106 million over 20 years).

*Performance*

- Is consistent with TSP Vision and Guiding Principles.
- Meets many TSP Policy goals.
- Meets the intent of State Transportation Planning Rule requirements.
- Results in some congestion in major corridors.

## **System Plan – The Road Ahead**

The System Plan balances the alternatives and includes elements of each to best meet the community’s goals. The Plan balances the need for strategic investments in the street system and major corridors with enhancements to the bicycle, pedestrian, and transit infrastructure necessary to support implementation of the City’s Downtown, Civic Neighborhood, and Rockwood Plans.

*Elements*

- Balances strategic improvements in all systems (auto, transit, bicycle, and pedestrian) but with a focus on collector and community street improvements and enhancements to bicycle, pedestrian, and transit facilities.
- Invests in neighborhood traffic calming, local street connections, and local sidewalks.
- Implements the most critical auto capacity improvements, especially improving north/south accessibility.
- Identifies three new high-capacity transit corridors to meet long-term transit needs.

- Requires significant increase in transportation resources (\$167 million over 20 years).

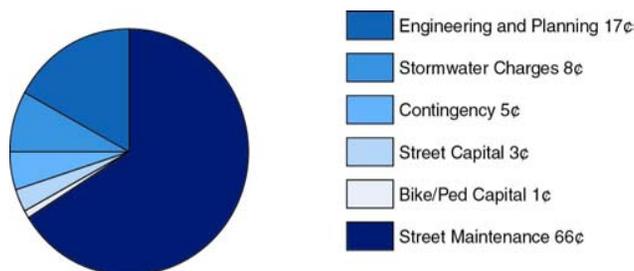
*Performance*

- Is consistent with TSP Vision and Guiding Principles.
- Meets many TSP Policy goals.
- Meets the intent of State Transportation Planning Rule requirements.
- Results in some congestion in major corridors.

## How Do We Pay For the Plan?

Gresham’s primary transportation resources are the state gasoline tax and county revenue sharing. The majority is spent on maintaining and operating the transportation system. Only 4% is available for street, bicycle, and pedestrian capital improvements.

### Gresham’s Transportation Dollar



The majority of capital improvement resources come from grants and Transportation Impact Fees (TIF) charged to new development. The TIF funds a list of growth-related improvement projects. Grant funds (federal and state) supplement City resources, but often come with strings attached, are typically geared toward special purpose projects, and require local matching funds.

The System Plan calls for a significant investment in the transportation system over the next 20 years. This investment will improve community access, enhance neighborhood livability, and strengthen Gresham’s economic competitiveness.

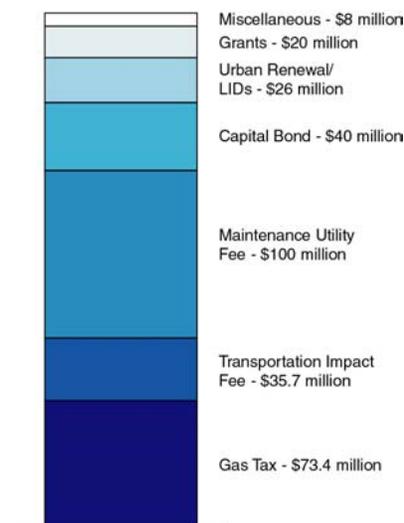
The 20-year investment need is some \$294 million, over a third of which is necessary to adequately maintain and operate the transportation system. Current levels of

revenue sources are forecast to provide approximately \$126 million over the next twenty years.

This Plan includes a funding strategy that spreads costs between several new and existing revenue sources. The gas tax at current levels remains a primary funding source. However, it is supplemented by a new Street Maintenance Utility Fee to operate and maintain the transportation system. This fee is assessed on developed properties based on system use (traffic generated), just like water, sewer, and phone utilities.

Other elements of the strategy include a bond program for capital improvements with broad community benefits along with the use of Urban Renewal and Local Improvement Districts (LIDs) to address more local needs.

### 20-Year Funding Plan





## Objectives of the Plan

The Gresham Transportation System Plan (TSP) is a 20-year blueprint for implementing a multi-modal transportation system. The Plan establishes policies and provides strategies that support the development of Gresham as a vital, livable community.

Key objectives of the Plan are to reduce reliance on the automobile and increase the convenience of walking, bicycling, and transit use. The Plan also identifies strategies to facilitate freight and goods movement, improve neighborhood connections, and provide an adequate funding program.

## The Planning Process

The TSP has been developed through a comprehensive public involvement and technical analysis process. A number of community forums (workshops, fairs, open houses, surveys, and newsletters) have been used to identify and assess public attitudes and priorities.

The overall process broadly includes setting goals, objectives, and policies; assessing the existing transportation system; identifying deficiencies and needs; developing and evaluating alternatives; and preparing a System Plan.

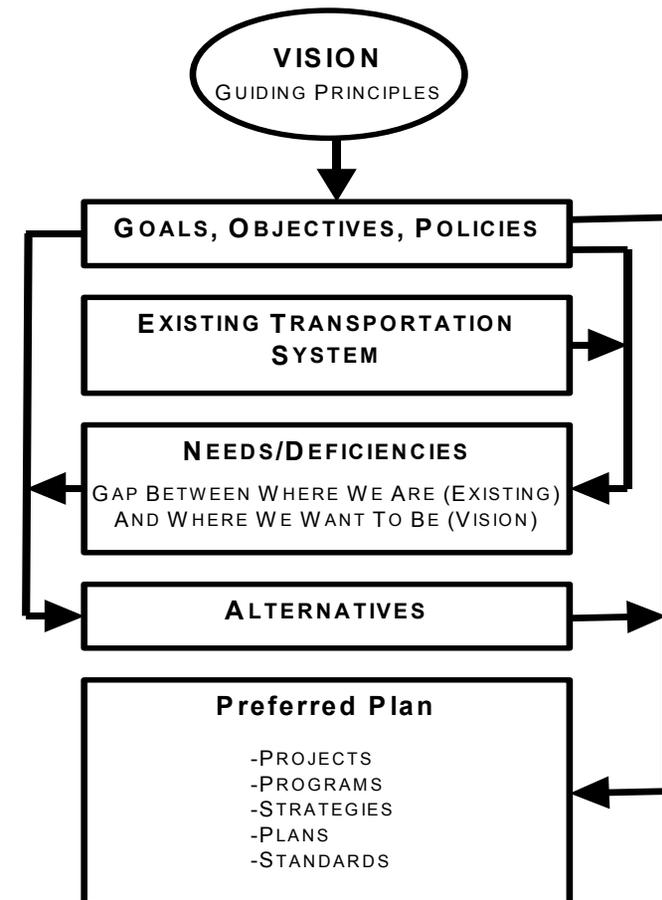


Figure 1 - Planning Process

## How to Use this Report

While the TSP is a long-range plan for transportation, the Plan is not a static document. The Plan is to be periodically reviewed and updated so that it always reflects the needs and priorities of the community. The Plan also includes a number of implementation measures that are necessary to meet the goals and policies it contains.

The Plan is organized into seven chapters and also includes a summary, introduction, and glossary of terms.

The Summary gives a brief overview of the Plan, including vision and guiding principles, the System Plan, and funding strategies.

The Introduction describes the objectives of the Plan and the overall planning process.

Chapter 1 lays out the planning framework and includes a description of Gresham, relevant state, regional, and local plans and requirements, interagency coordination, and the citizen involvement process.

Chapter 2 discusses assumptions and forecasts related to land use, demographics, and transportation finance.

Chapter 3 provides an inventory and assessment of existing conditions and needs for the various elements of the transportation system.

Chapter 4 contains the transportation policies and strategies. This section sets the direction for future planning and decision-making.

Chapter 5 analyzes three system alternatives that are evaluated in the Plan. The alternatives and their

assessment are the basis for the development of the System Plan.

Chapter 6 describes the System Plan, which includes the projects and programs that best meet the policies and strategies presented in Chapter 4.

Chapter 7 presents measures necessary to implement the System Plan. This section includes projects and priorities, costs, and a funding strategy.

The Glossary of terms located at the end of the Plan includes definitions of transportation-related terms that are used throughout the document.

### Introduction

The City of Gresham has experienced rapid growth over the past three decades and is now the second largest city in the Portland Metropolitan area. The community has also diversified during that time and now includes a full array of housing types, businesses, and industries.

The Transportation System Plan not only provides the framework for addressing the transportation needs for this diverse community, but also must work within the framework provided by other related state, regional, and local plans.

Finally, the Plan has been developed through an extensive citizen involvement process. This process ensures the Plan represents the vision and goals of the community.

### Community

#### Location

The city of Gresham, Oregon is located east of Portland in Multnomah County. Gresham stretches from the Columbia River to the southern limits of Multnomah County, where a range of forested hills form its southern boundary.

#### History

The city of Gresham has evolved from a small agricultural community and suburban bedroom community to the fourth largest city in Oregon and hub for the east side of the Portland metropolitan area.

Gresham's transportation system has grown in response to these land use changes and now provides an urban, multi-modal network that includes light rail, transit, arterials, and an interstate freeway.

Before 1950, the major roads serving Gresham were Sandy Boulevard (US 30), Mt. Hood Loop Highway (Orient Drive), Stark Street, Division Street, 223<sup>rd</sup> Avenue, and Powell Boulevard. By the 1960s, Interstate 84 and Burnside Road extension (Stark to Mt. Hood Highway) were added to the system to handle increased through-traffic. Today's arterial and collector road network follows a widely spaced grid system of former rural roads. In between the grid of major roads is a maze-like network of suburban residential streets.

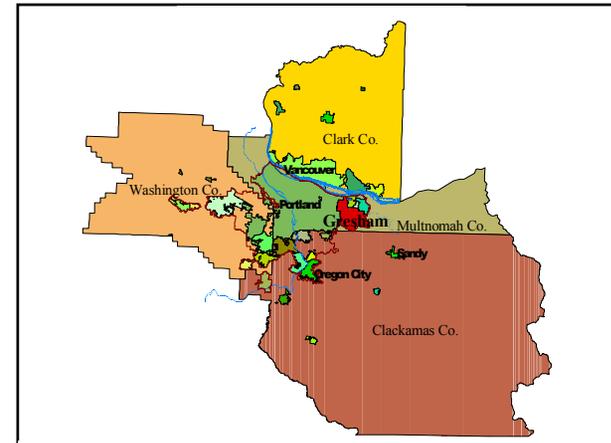


Figure 2 - Location Map

Gresham's early 20<sup>th</sup> century rail system included the Mt. Hood Railway and the Springwater branch of the Portland Traction Company, today's Springwater Trail. The Union Pacific Railroad came through the Wilkes area in the 1880s, spurring industrial development.

## Planning Framework

### Transportation Planning Rule

The State of Oregon has adopted 19 statewide planning goals that are required to be implemented through a comprehensive plan for each city and county. These comprehensive plans must specify the manner in which the land, air, and water resources of the jurisdictions will be used and must also determine the need for improved public facilities.

With the adoption of the statewide Goal 12 Transportation Planning Rule (referred to as either Rule 12 or the TPR), Gresham must adopt a Transportation System Plan (TSP) that complies with Rule 12, the State transportation system plan (OTP), and Metro's regional transportation plan (RTP).

In addition, the TPR describes specific elements and analysis that local and regional transportation system plans must include and requires the plans to target the following goals:

- A ten percent reduction in vehicle miles of travel per person during the next 20 years and twenty percent during the next 30 years.
- Reduce dependence on the automobile and the number of people driving alone.

- A ten percent reduction in the number of parking spaces per person during the next 20 years.
- A stronger connection between land use and transportation planning.

Local and regional transportation system plans must also examine possible land use solutions to transportation problems and identify multi-modal, system management, and demand management strategies to address transportation needs.

### Oregon Transportation Plan

The Oregon Transportation Plan sets policies and investment strategies for Oregon's multi-modal transportation system. The statewide plan calls for a transportation system marked by modal balance, efficiency, accessibility, environmental responsibility, connectivity among places, connectivity among modes and corridors, safety, and financial stability.

### Regional Transportation Plan

The Regional Transportation Plan (RTP) is developed and maintained by the Metropolitan Service District (Metro). Gresham participates on regional committees responsible for the on-going development of the Regional Transportation Plan. These include the Joint Policy Advisory Committee on Transportation (JPACT), composed of elected officials, and the Transportation Policy Alternatives Committee (TPAC), composed of technical staff.

The key objective of the Regional Transportation Plan is to identify a transportation system that will adequately serve the travel needs of the Portland Metropolitan area

for the next 20-years. The Regional Transportation Plan projects 20-year regional population and employment growth, evaluates expected travel demands and patterns, and examines the impacts of expected travel on the current “committed” transportation system (e.g., projects with committed construction funding). The Plan also recommends an alternative plan needed to meet Year 2020 travel demands and regional goals and recommends funding mechanisms and other implementing options to achieve the preferred regional plan.

### **Urban Growth Management Functional Plan**

The Urban Growth Management Functional Plan establishes regional policies that apply to all 24 cities and counties within the Metro region. The purpose of the functional plan is to implement regional goals and objectives adopted by the Metro Council as the Regional Urban Growth Goals and Objectives (RUGGO), including the Metro 2040 Growth Concept. The functional plan is the primary regional policy tool and contains both “recommendations” and “requirements” for changes in local plans. The Urban Growth Management Functional Plan contains requirements and recommendations relating to seven policy areas (Titles).

#### ***Title 1: Requirements for Housing and Employment Accommodation***

Cities and counties are required by this section to set minimum density standards for all zones allowing residential uses.

#### ***Title 2: Regional Parking Policy***

This title establishes region-wide parking policies that set the minimum and maximum number of parking

spaces that can be required by local governments for certain types of new development.

#### ***Title 3: Water Quality and Flood Management Conservation***

The goal of this section is to protect the region’s health and public safety by reducing flood and landslide hazards, controlling soil erosion and reducing pollution of the region’s waterways.

#### ***Title 4: Retail in Employment and Industrial Areas***

Title 4 requires cities and counties to prohibit retail development in excess of 60,000 square feet per building in areas designated as “industrial” to help focus retail development in mixed-use areas where it can be served by a variety of transportation modes.

#### ***Title 5: Neighbor Cities and Rural Reserves***

This section directs Metro to work with its neighbor cities (Canby, Sandy, North Plains, and others) to protect common locations for green corridors along transportation corridors connecting to the region.

#### ***Title 6: Regional Accessibility***

This title addresses the coordination of transportation with land use. It includes improving the street grid, establishing mode split targets for various areas of the region, and revising level-of-service standards.

#### ***Title 7: Affordable Housing***

A series of tools and approaches to encourage more affordable housing is recommended, but not required, in this title.

## Region 2040

The Region 2040 Growth Concept Plan states the preferred form of regional growth and development and identifies the location of future land uses and activity centers. Fundamental to the Growth Concept is a multi-modal transportation system that assures mobility of people and goods throughout the region.

Within the framework of the Growth Concept is a network of multi-modal corridors and regional through-routes that connect major urban centers and destination. Through-routes provide for high-volume auto and transit travel at a regional scale, and ensure efficient movement of freight. Within multi-modal corridors, the transportation system will provide a broader range of travel options, including auto, transit, bicycle, and pedestrian networks that allow choices of how to travel in the region. These travel options will encourage the use of alternatives to the auto, a shift that has clear benefits for the environment, the quality of neighborhoods and urban centers, and addresses the needs of those without access to automobiles.

## Vision 2020

Gresham's Vision 2020 was developed in 1991 by a consensus of citizens and community leaders. It outlines the way Gresham residents would like the city to look and be in the year 2020. Important factors include diversity in type and value of available housing, gateways that define the city and help create a sense of community, and higher residential densities and mixed-uses, especially in transit districts. Key Vision 2020 components related to transportation include:

- Create neighborhood community centers linked via transit to downtown.

- Redevelop the Rockwood area to encourage a mixture of small retail and commercial development with residential components to create a live and work community close to major arterials and transit.
- Strive to achieve an expanded light rail system with a downtown light rail loop; extension to connect Mt. Hood Community College, Mt. Hood Medical Center, and downtown; and frequent neighborhood stations.
- Encourage mixed-use development along the light rail corridor.
- In addition to light rail, expand transit service including but not limited to bus service, shuttles, and park-and-ride facilities.
- Build tree-lined boulevards on major arterials with separate bicycle lanes and pedestrian paths.

## Other Transportation Plans

### *40-Mile Loop Plan*

The 40-Mile Loop is a connected system of parks and trails throughout the Portland metropolitan area. About 50% of the designated bicycle segment of the 40-Mile Loop is planned to be an off-road facility. The route passes through Gresham in two areas, entering Gresham from the west following Johnson Creek and the rail line east to SE Roberts Avenue. The route continues east along SE Palmquist Road, then the bicycle route heads north along SE Kane Road into the city of Troutdale. The hiking trail segment of the route continues east to SE 282<sup>nd</sup> Avenue, then north into Troutdale. Another

segment of the 40-Mile Loop extends the full length of Gresham in the northern section of the city along Marine Drive.

### ***Oregon Statewide Bicycle Master Plan***

The Oregon Bicycle Advisory Committee developed the Oregon Statewide Bicycle Master Plan, which was adopted in 1984. The objective of the plan is to guide the State Highway Division in the administration of the State bicycle program. The plan serves as the framework for the development of State highways that pass through Gresham as routes that should be preserved or improved for bicycle circulation. These routes include US 26 (Powell Boulevard), US 30 (Sandy Boulevard), and Interstate 84.

## **Interagency Coordination**

### **East Multnomah County Transportation Committee**

Gresham is a member of the East Multnomah County Transportation Committee (EMCTC), a sub-regional planning body composed of elected officials and technical staff of Multnomah County and the cities of Gresham, Fairview, Wood Village, and Troutdale. This committee deals with the coordination of major transportation capital improvements and planning efforts affecting the urban portion of east Multnomah County (162<sup>nd</sup> Avenue to the Sandy River). The committee functions as a transportation consensus building and priority setting forum for Gresham area jurisdictions. Multnomah County coordinates the committee.

### **Multnomah County**

The City of Gresham works with the Multnomah County Transportation Division in the preparation of the county's Capital Improvement Program, the development and construction of County capital projects, and the review of land development affecting County roads. Applicable elements of the county's Capital Improvement Program are incorporated into the Gresham TSP.

### **Metro**

Metro is the metropolitan planning organization designated by the Governor to receive and disperse federal funds for transportation projects. Metro is responsible for approving expenditure of all federal transportation funds in the Oregon portion of the Portland metropolitan region. The Metro council has established a planning process for the development, adoption, and implementation of a 20-year Regional Transportation Plan. Biennial updates are made to a Metropolitan Transportation Improvement Program (MTIP), the capital improvement component of the Regional Transportation Plan. Metro also provides technical transportation planning services to local jurisdictions, including the City of Gresham.

### **Tri-Met**

Tri-Met is a three-county metropolitan public transportation district. Tri-Met provides light rail service, regional bus service, feeder bus service, special needs transportation, park-and-ride garages and lots, and rideshare programs to the Gresham area. Tri-Met prepares a five-year Transit Development Plan and an annual service plan. Approximately 4 1/2 miles of the

existing 33-mile light rail line are within the city of Gresham.

Gresham has worked closely with Tri-Met in the planning, development, and construction of the Metropolitan Area Express (MAX) light rail system. Both agencies cooperate in continuing efforts to assure appropriate development of lands adjacent to light rail stations. The City participates in the development of Tri-Met service plans. The City also reviews major land development with Tri-Met to assure that transit design and service issues are considered.

**Oregon Department of Transportation**

Gresham works with the State Highway Division in the preparation of the Division’s six-year Highway Improvement Program, the development and construction of State capital projects, and the review of land development affecting State highways. Applicable elements of the Highway Improvement Program are incorporated in the Gresham TSP.

**City of Portland**

Gresham works with Portland to coordinate development of transportation facilities connecting the two cities and to address common transportation issues.

**Clackamas County**

Gresham works with Clackamas County as needed. Greater coordination will be needed in the future as growth in both areas creates a need for better north-south road connections and for highway improvements proposed for Highway 212-224 and the I-84 to US 26 connector.

**Road System Jurisdiction**

Current road system responsibilities in the Gresham Planning Area are shared with Multnomah County and ODOT. Generally, the City has jurisdiction over all local and most collector streets. Multnomah County has jurisdiction over most arterial and some collector streets. ODOT has jurisdiction over the I-84 freeway and other State highways (see Table 1).

*Table 1. Road Mileage by Jurisdiction*

Jurisdiction	Arterial	Collector	Local	Total
City of Gresham	0.8	32.2	187.0	220.0
Multnomah County	38.9	10.9	1.1	50.9
ODOT	9.4	0.0	0.0	9.4
TOTAL	49.1	43.1	188.1	280.3

**City of Gresham**

The City of Gresham maintains 220 miles (centerline) of streets. One mile of these streets is classified as an arterial street, 32 miles are collector streets, and 187 miles are local streets. Gresham provides capital improvement programming, transportation engineering, and transportation planning services for City streets, and coordinates and develops improvements to County or State maintained streets within Gresham. Gresham prepares a 5-year capital improvement program (CIP) for transportation systems, which is updated annually. Gresham participates in regional transportation planning and programming efforts with a variety of different agencies and jurisdictions on a regular basis. The principal agencies with which the City cooperates are the Multnomah County Transportation Division, Metro,

TriMet, and the Oregon Department of Transportation (ODOT). The City's functional street classifications are coordinated with classifications adopted by Multnomah County, Metro, and ODOT.

### ***Multnomah County***

The Multnomah County Transportation Division maintains 51 miles (centerline) of County roads within the City of Gresham. 38.9 miles are classified as arterials, 10.9 miles are collectors, and 1.1 miles are local streets. A majority of significant new development in Gresham is occurring on the County's collector and arterial streets. The County provides capital improvement programming, transportation engineering, transportation planning, and traffic engineering services for County roads within Gresham. Multnomah County is responsible for preparing a five-year Capital Improvement Plan and Program, which is updated biennially.

### ***Oregon Department of Transportation (ODOT)***

The Oregon Department of Transportation State Highway Division maintains three major highways in the Gresham Planning Area:

1. Interstate 84: 2.1 miles, freeway
2. US 26: 1.3 miles, Mt. Hood Highway - principal arterial
3. US 26: 4.2 miles, Powell Boulevard – arterial and boulevard
4. US 30: 1.8 miles, NE Sandy Boulevard - arterial

The State Highway Division prepares a six-year Highway Improvement Program that is updated biennially.

## **Citizen Involvement**

### **Transportation System Citizens Advisory Committee (TSCAC)**

Overseeing the development of the Transportation System Plan is a key responsibility of the seven-member TSCAC. The committee is made up of citizens appointed by the City Council to advise staff, review transportation materials, and make recommendations to the City Council. The committee also actively participates in a wide range of outreach efforts to seek public involvement and citizen and business input.

### **Bicycle/Pedestrian Task Force (BPTF)**

The BPTF reviews policies and advises other committees and the City Council on bicycle and pedestrian issues.

### **Transportation System Plan Speakers Bureau**

City staff and members of the TSCAC presented information at a variety of forums including civic groups, neighborhood associations, and business associations.

### **City Moves Newsletter**

Newsletters were produced and distributed to disseminate information and updates to the public on the TSP. The newsletters also served to announce important opportunities for public input and involvement.

### **Transportation Summit and Fair (July 9, 1994)**

The Transportation Summit was a half-day event that brought together 90 citizens and key decision-makers for an in depth discussion of transportation planning issues. It included a panel discussion followed by nine workshops. The Transportation Fair was a large-scale event at Main City Park that attracted over 2,000 participants. It included a large tent featuring 23 displays on transportation and land use topics and programs, a design charrette on pedestrian access to downtown and a variety of demonstrations, activities, displays and vendors outside the tent. The Summit and Fair event won an APA award for Special Achievement in Planning. The issues listed below are excerpted from the workshop summaries and the “Traffic Guide” survey data.

### **Growth Issues Survey (July 13, 1996)**

A second smaller Transportation Fair was held in conjunction with the “Celebrate Gresham” open house for the new City Hall building and the Tri-Met parking structure at 8<sup>th</sup> & Kelly. The City collected over 220 surveys on transportation, land use, and housing growth issues.

### **Citizens First Workshops (Spring 1997)**

In the spring of 1997, three Citizens First Workshops were held throughout the City to seek public input on the long term planning issues facing Gresham: neighborhood transportation, affordable housing, and future development. Citizen Advisory and Neighborhood Association members volunteered their time to facilitate the workshops, while Council members

and City staff attended as resources. A total of approximately 90 citizens attended the three workshops.

In addition to the workshops themselves, a flyer advertising the workshops was distributed in the Oregonian and included a single page mail-in survey. Out of 34,000 flyers distributed, the City received 95 survey responses.

### **TSP Workshops (Summer 2000)**

City staff and the TSCAC hosted four neighborhood workshops during July and August 2000. The workshops provided an opportunity for the public to comment on transportation system and funding options as part of the alternatives development and review phase of the planning process.

### Introduction

Land use assumptions and growth forecasts are key factors for predicting future travel demand and transportation needs. Population is estimated to increase by about 25% over the next 20 years.

The transportation system is also important for supporting planned land uses. Gresham has adopted land use policies to encourage housing mixed with commercial uses in transit corridors, near MAX light rail stations, and within the Rockwood, Downtown, and Civic Neighborhood Plan Districts. Specific transportation strategies are necessary to fully implement these land use policies.

Finally, this chapter provides an overview of the City's transportation finance framework. Growth of the City's main funding source, State gas tax revenue, is flat. As a result, the City faces an ever-growing shortfall of revenues to sufficiently fund transportation maintenance and improvements. An additional \$33.5 million is required over the next 20 years simply to adequately maintain the system. In addition, there are currently some \$120 million of unfunded street improvements and \$24 million of unfunded bicycle and pedestrian improvements.

### Land Use Patterns

#### Existing Conditions

The City of Gresham is the fourth largest community in Oregon and second largest city in the Portland

metropolitan area. Gresham began as a bedroom community in the 1960s, but has rapidly transformed into a full-service community with a broad mix of housing and jobs.

#### Mix of Land Use Types

Residential neighborhoods occupy 48% of the city land area, 40% single family and 8% multi-family. The city has experienced a steady shift between single family and multi-family units since 1986. In 1986, 66% of dwelling units were single family. In 2000, 55% were single family. The majority of multi-family development is located along major roads, in Rockwood, in downtown, and near Mt. Hood Community College.

The City has adopted policies in recent years to encourage housing mixed with commercial uses along transit corridors, near MAX light rail stations, and within the Rockwood, Downtown, and the Civic Neighborhood Plan Districts.

Employment areas that include high-tech light industrial, manufacturing, office, warehouse, and distribution uses exist in the north portion of Gresham between Halsey and the Columbia River and east and west of 223<sup>rd</sup> Avenue between Stark Street and Glisan Street. Other smaller scale employment centers exist in Rockwood and Downtown.

#### Gresham Regional Center

The Gresham Regional Center encompasses the Downtown and Civic Neighborhood areas. The downtown area is the focus of the community. It

incorporates intensive commercial, residential, and mixed-use development and provides a pedestrian-oriented, transit-supportive environment.

Adjacent to downtown, the Civic Neighborhood is a designated mixed-use, transit-centered neighborhood that includes uses and features associated with the center of the city.

### **Rockwood Town Center**

The Rockwood Town Center is an important sub-center in Gresham. It is envisioned as a “live-work” district, where jobs, commercial services and a variety of housing are encouraged. The organizing principle for the area consists of a central core at the triangle formed by NE 181<sup>st</sup> Avenue, Burnside Street, and Stark Street, and a strong orientation to MAX stations within the district (181<sup>st</sup> Avenue, 188<sup>th</sup> Avenue, and 197<sup>th</sup> Avenue).

### **Transit Corridors and LRT Station Centers**

Transit Corridors are identified along good quality transit lines while Station Centers are areas within one-quarter mile of a light rail station. Both corridors and station centers feature a high-quality pedestrian environment, and provide convenient access to transit. Typical new developments in these areas include row houses, duplexes, 1-3 story office and retail buildings and mixed commercial and residential developments.

## **Demographic Changes and Trends**

### **Housing and Population Trends**

For decades, the city of Gresham has experienced rapid population growth. In 1960, Gresham was the 37<sup>th</sup> largest community in Oregon with 3,944 persons. In 1970, Gresham was the 23<sup>rd</sup> largest, and in 1980 it was

the 7<sup>th</sup> largest. The 2000 population of Gresham is 90,205, making it the 4<sup>th</sup> largest city in the state, after Portland, Salem and Eugene.

Population growth in Gresham has occurred incrementally over time. In 1970, the population density within the city was less than 2 persons per acre. The area surrounding Gresham to the north, east and south also contained less than 2 persons per acre.

The 1970s brought dramatic changes in population density. The density increased to between 4 and 8 persons per acre near Burnside Street, Division Street, and 182<sup>nd</sup> Avenue. Also in 1980, a significant population center started to develop in the Rockwood area, which was annexed into Gresham in the mid-1980s. Johnson Creek and Gresham Butte represent significant natural barriers that limit population expansion south of Powell Boulevard. Floodplain and wetlands along the Columbia Slough and its tributaries likewise limit expansion north of the Interstate.

The Rockwood population center had over 10 persons per acre by 1995. The area northeast of downtown also developed as a population center with between 8 and 10 persons per acre. All areas of Gresham experienced some population growth. In 1990, enough critical mass existed in Gresham to fuel expansion into more difficult to develop areas around Gresham Butte and south of Johnson Creek.

In 1995, a new population center started to emerge south of Powell. This area included an established single-family neighborhood with modest-sized lots adjacent to several recently constructed apartment developments





Table 2. Population Growth

Area	1980	1990	Change	2000	Change	2020	Change
Portland	366,383	438,802	20%	529,121	21%	N/A	N/A
<b>Gresham</b>	<b>33,005</b>	<b>68,249</b>	<b>107%</b>	<b>90,205</b>	<b>32%</b>	<b>112,773</b>	<b>25%</b>
Troutdale	5,831	7,825	34%	13,777	76%	16,648	37%
Fairview	N/A	2,391	N/A	7,561	216%	11,088	47%
Wood Village	2,263	2,814	24%	2,860	2%	4,355	52%
Multnomah County	562,640	583,887	4%	660,486	13%	N/A	N/A
Oregon	2,633,156	2,842,321	8%	3,421,399	20%	N/A	N/A

Data compiled by: Comprehensive Planning, City of Gresham, Oregon, 2001.  
 Data Sources: US Census Bureau, 1980, 1990, and 2000; Metro, 2001.

along Powell. This area could be the center of a new wave of population expansion as Gresham continues to grow to the southwest. The Metro Council recently approved an expansion to the Urban Growth Boundary, which could lead to significant population expansion in the Pleasant Valley area. Gresham will also see increases in population in other parts of the community. The area between Division and Powell will likely see increases as downtown and the Civic Neighborhood develop. The southeast corner of Gresham, along Orient and Highway 26, should also see population increases.

Population growth is likely to continue in Gresham according to the following historic trends: moderate increases in most areas of Gresham; increases around established population and commercial centers, and light rail stations; and the consumption of rural land. Metro, the metropolitan area’s planning agency, released *The 2040 Growth Concept* in 1994. This concept calls for more compact development with minimal consumption of agricultural and environmental sensitive land.

### Commercial Development and Employment Trends

Major new commercial and industrial development has occurred in areas well served by existing and planned transportation facilities.

### Industrial

The I-84 corridor, or “Columbia Southshore” (Stark Street to the Columbia River) between the Portland International Airport and Troutdale, is experiencing substantial new industrial development. Gresham has added almost 19,800 jobs over the last 20 years. Gresham has enjoyed industrial investment from firms such as LSI Logic, Fujitsu, Boeing, Albertsons, and US Bancorp, making Gresham a significant job center for the region. With over 38,900 jobs, Gresham had 3.3% of the region’s employment in 2000 – up from 2.9% in 1980.

Despite the increase in Gresham employment, job growth has not kept pace with population. The region and Multnomah County have increased their jobs relative to population, while Gresham remains well below county and regional averages. In 2000, Multnomah County had 2.08 jobs for every household and Gresham had 1.17 jobs for every household. (Gresham Industrial and Employment Study, August 2001)

**Commercial**

Strong commercial growth also occurred in the 1980s, following the city’s residential growth surge of the 1970s. The Gresham Town Fair, Gresham’s largest shopping center, opened in 1987 alongside Eastman Parkway, the city’s central north-south arterial street. Gresham’s largest commercial district, located between Burnside Street, Powell Boulevard, and Eastman Parkway, contains over two million square feet of commercial space and functions in many ways as a “regional shopping center” for a wide market area. The Gresham market area extends to all of Multnomah

County east of 162<sup>nd</sup> Avenue and most of northeast Clackamas County (Gresham Central Area Market Report, 1986).

In the 1990s Gresham’s population continued to grow, but commercial growth did not keep up. A Socioeconomic Profile completed for Gresham in 1998 demonstrated that Gresham had a significant amount of “retail leakage” as the residents of Gresham were choosing to spend money in other communities. Consumer spending for Gresham residents was \$2.246 billion in 1997 while total retail sales were \$1.437 billion. The difference between these numbers represents spending power of Gresham residents that is not captured locally.

From 1998 through 2000 commercial construction activity picked up in response to population increases and increased spending power. This construction activity was focused in Downtown, the Civic Neighborhood and in neighborhood centers throughout Gresham.

*Table 3. Employment Growth*

Area	1980	1990	Change	1994	Change	2020	Change
Portland	373,058	416,804	12%	430,026	3%	N/A	N/A
<b>Gresham</b>	<b>19,159</b>	<b>27,535</b>	<b>44%</b>	<b>32,707</b>	<b>19%</b>	<b>60,225</b>	<b>84%</b>
Troutdale	3,635	1,396	-62%	2,529	81%	8,581	239%
Fairview	1,290	1,551	20%	2,199	42%	7,950	262%
Wood Village	457	955	109%	1,540	61%	2,759	79%
Multnomah County	401,186	452,482	13%	473,395	5%	N/A	N/A

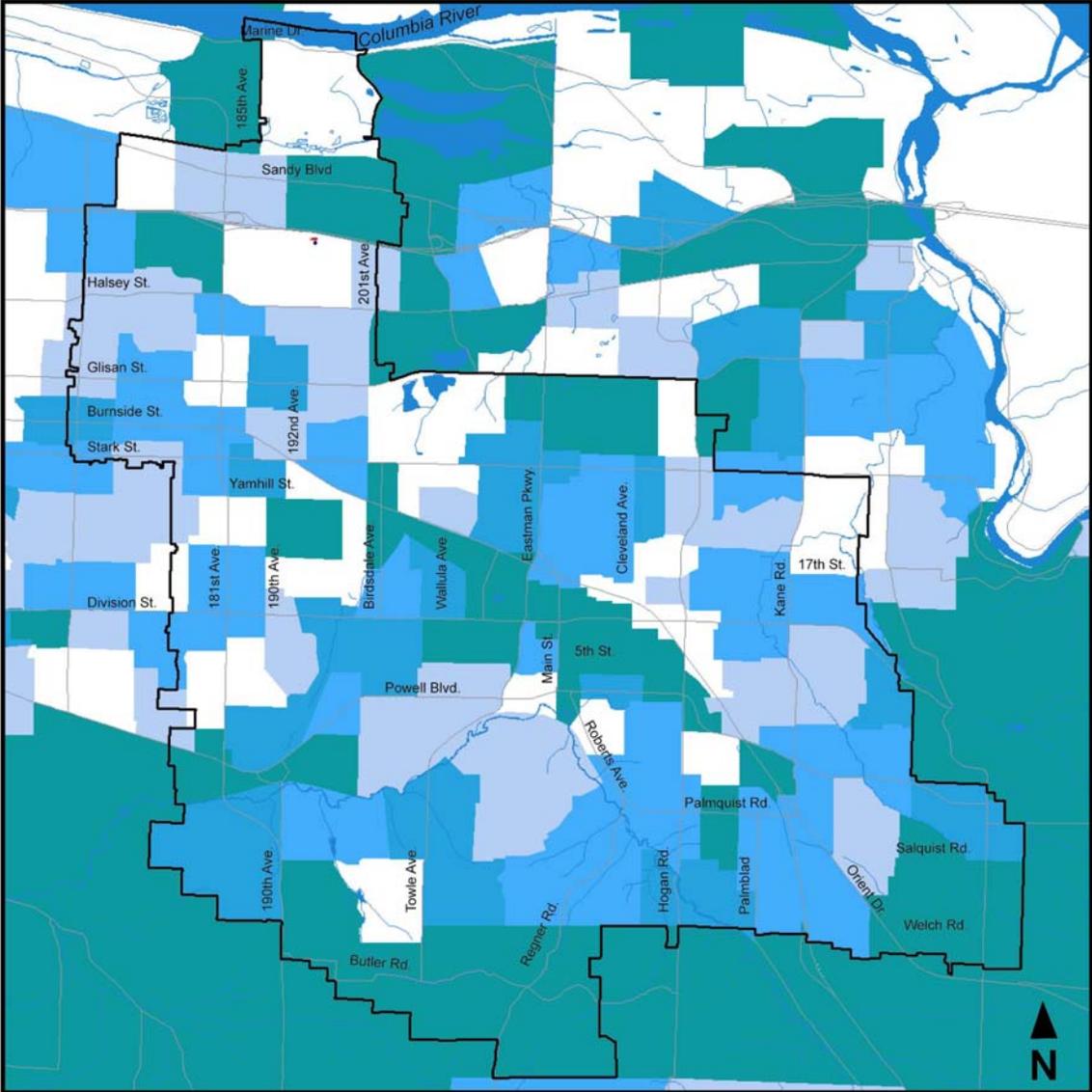
Data compiled by: Comprehensive Planning, City of Gresham, Oregon, 2001.

Data Sources: 1994 Employment Study, Metro, September 1995; Gresham Industrial Employment and Economic Study, August 2001.

# Transportation System Plan



Figure 4  
1996 - 2020 Households



% Change

< 0

0 - 25%

25% - 50%

50% - 75%

> 75%

0.5 0 0.5 1 Miles

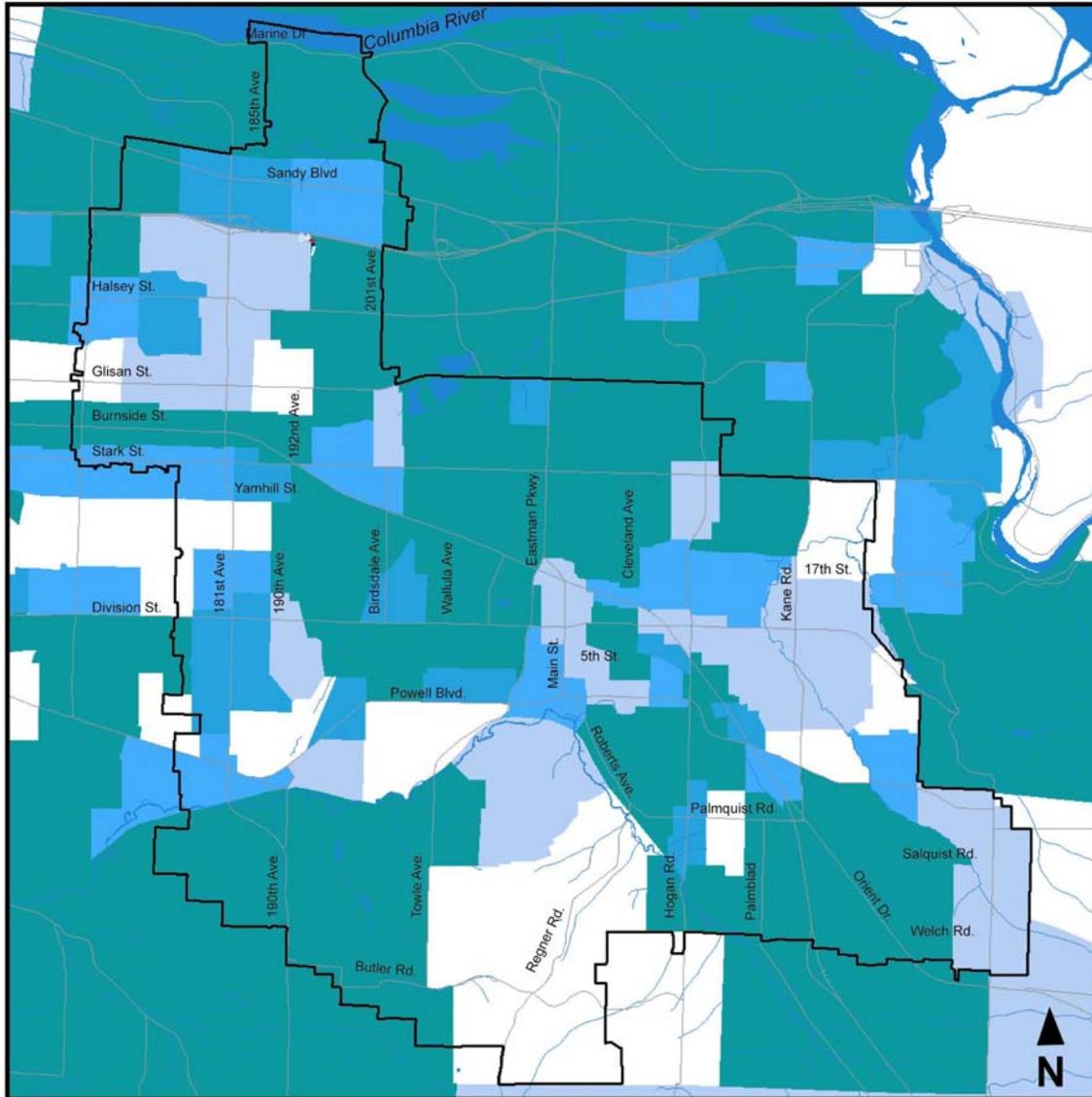




# Transportation System Plan



Figure 5  
1996 - 2020 Employment



% Change

< 0

0 - 25%

25% - 50%

50% - 75%

> 75%

0.5 0 0.5 1 Miles



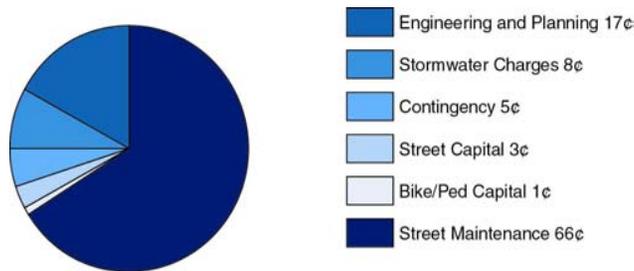


## Financial Framework

### Funding Sources

Gresham's primary transportation resources are the state gasoline tax (\$3.7 million in 2000/01) and county revenue sharing (\$0.45 million in 2000/01). The majority (66%) is spent on maintaining the transportation system. The remaining 34% is spent on

### Gresham's Transportation Dollar



engineering and design, system planning, and other expenses. Only 4% is available for street, bicycle, and pedestrian capital improvements.

The majority of capital improvement resources come from grants and Transportation Impact Fees (TIF) charged to new development. The TIF generates about \$1 million each year and funds a list of growth-related projects. Grant funds (federal and state) supplement City resources, but often come with requirements, are typically geared toward special purpose projects, and require local matching funds.

State gas tax revenue growth is flat. While there are more people, driving more, vehicles are more fuel-efficient. On top of that, costs to maintain what we have are increasing. Inflation increases the cost of asphalt,

equipment, and labor. Finally, rapid development over the past 10 years has increased the size of the system the City must maintain.

Over the next 20 years, the City faces an ever-growing shortfall of revenues to sufficiently fund transportation maintenance and improvements. An additional \$33.5 million is required over the next 20 years simply to adequately maintain the system. In addition, there are currently some \$120 million of unfunded street improvements and \$24 million of unfunded bicycle and pedestrian improvements.



### Introduction

This chapter presents an inventory of the existing transportation system serving the city of Gresham. Included with the inventory is information about system operating characteristics such as capacities, levels-of-service, travel demand, transit ridership, and condition.

This chapter also identifies current and future system deficiencies and safety problems for each mode of transportation. The assessment is based on an analysis of inventory maps and data, transportation surveys, transit ridership forecasts, and issue scoping material, as well as population, employment, and US Census data. The needs assessment identifies issues related to community access and mobility, safe and convenient bicycle and pedestrian circulation, transit facilities and service, and freight movement.

While the system operates relatively well today, growth and changing travel patterns will severely strain the system over the next 20 years. There are also significant gaps in basic system elements such as sidewalks and bicycle lanes that limit the transportation system's ability to accommodate future land use development.

### Transportation System

Throughout the 1960s and 1970s the Gresham area functioned largely as a bedroom community and residents created heavy work travel demands on radial routes leading into Portland. This pattern is changing as more major employment develops in the Gresham area.

### Economic Development Linkage

The connection between economic growth and good transportation facilities is well known. Transportation facilities are very important to the successful operation of most Gresham area businesses. A 1987 Business Survey by the East Multnomah County Economic Development Commission found that business ranked transportation highly among all locational factors important to their operations.

Because of the importance of the transportation system to development, the City weighs the potential economic impacts of all transportation improvements in its public facilities plans and the transportation plans of other agencies. While upgraded transportation facilities are no guarantee of attracting development and strengthening existing businesses, transportation will remain a significant factor in Gresham business decisions.

### Development Traffic Impacts

Each increment of residential, commercial, and industrial growth changes Gresham's traffic patterns. Large-scale developments generate thousands of trips per day and can place stress on nearby street sections or intersections. Arterials are expected to carry additional traffic volumes efficiently, while also accommodating demands for new driveways, intersections, and signals. However, increased turn movements and demands for direct property access often conflict with efficient and safe through traffic movement on arterial streets.

Locally generated work travel (but some shorter trips) will increase on the transportation system. Some Gresham area residents will work closer to home but peak hour travel will become heavier and more widely dispersed in all directions.

The greatest single component of the present Gresham area weekday traffic is vehicle trips to and from areas outside the city. Travel to areas outside Gresham is estimated to be approximately 63%, with over 10% of that travel occurring to or from Fairview, Troutdale, and Wood Village. Over a third of all travel occurs within Gresham boundaries. As the cities in east Multnomah County continue to grow, there will be even more interaction that will lead to increased demand for north/south capacity.

Because Gresham will continue to be a high-growth area of the region, it is critical to continuously plan, maintain, and improve the area's major transportation system as local and market area travel increases.

Major transportation system improvements are necessary over the next 20 years to accommodate the substantial population and employment growth projected for the area. While 7% of arterial traffic is congested (Level of service E or F) today during the peak hour, over 30% will be congested in 2020.

## **Street System**

The automobile is the dominant means of travel in the Gresham area, accounting for nearly 85% of all trips. Over half the households in the area own two or more automobiles. The average single-family household generates ten automobile trips per day with the average trip length from the home being more than five miles.

Of all trips made from the home, 30% are shopping, 27% are for work, and the remaining are for other general-purpose trips.

The street network in Gresham, from freeways to local streets, contains about 260 miles of roadway. Between 1996 and 2020 substantial growth of vehicle trips are expected on this network. Gresham area vehicle traffic is projected to increase by nearly 68%. The greatest growth in traffic (+101%) will occur in trips that begin and end within the area.

## **Assessment of Condition**

For capital improvement purposes, the most important measures of a facility's condition are several of those criteria used for project priority setting:

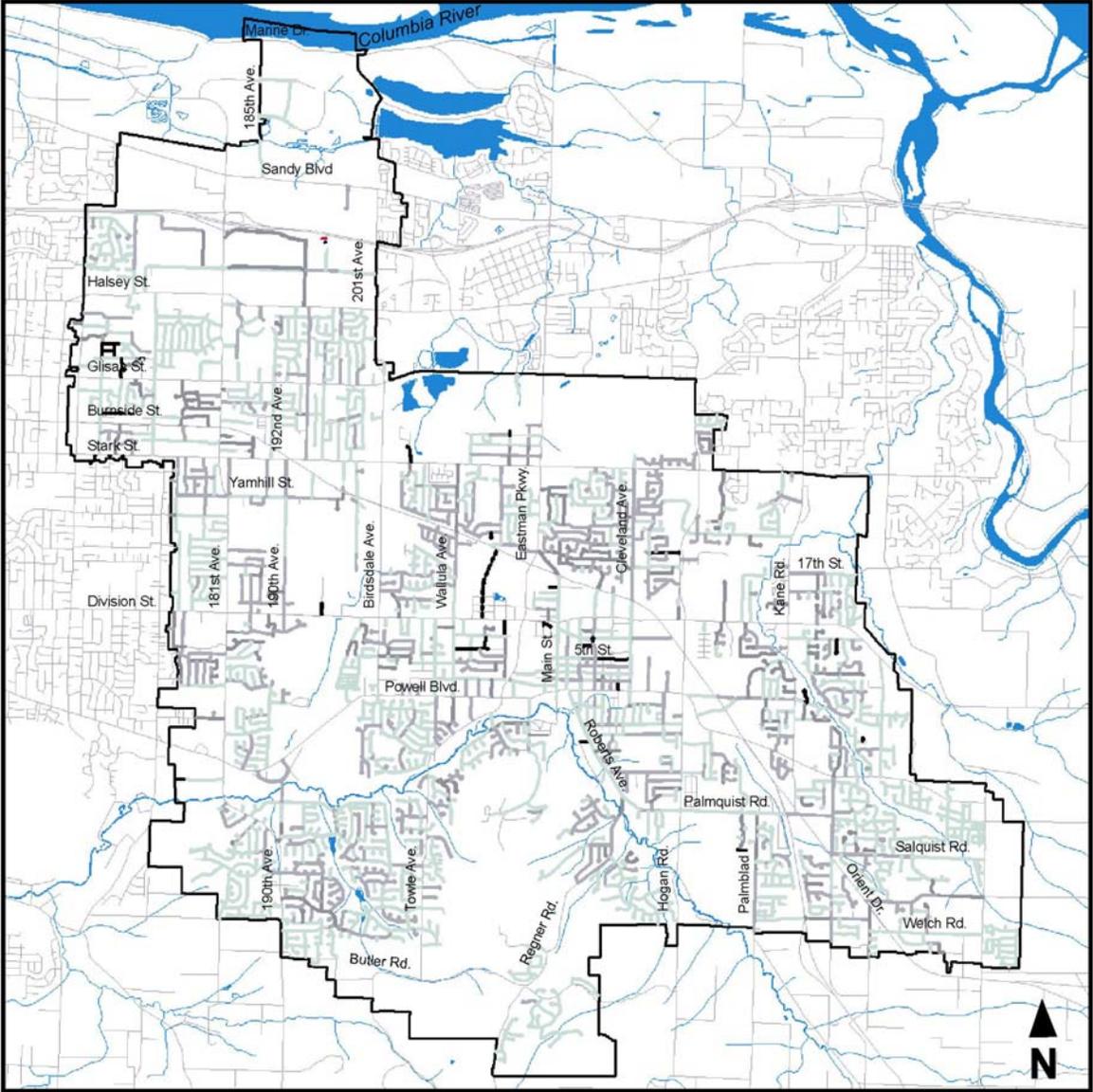
- Safety deficiency
- Unacceptable congestion or level-of-service
- Sub-standard facility

Normal roadway pavement problems, not requiring reconstruction or construction of a facility, are addressed by the annual road maintenance activities of the city and county. Maintenance priorities for both jurisdictions are established by a pavement management system, which inventories pavement condition and establishes optimal maintenance schedules. The City of Gresham has established a benchmark for pavement condition. The benchmark calls for maintaining an average pavement condition index of 75.

# Transportation System Plan



## Figure 6 Pavement Condition



2002 Pavement Condition Index

76 - 100

50 - 75

26 - 50

0-25

0.5 0 0.5 1 Miles





Most of the below-standard facilities are remnant sections of Gresham's old two-lane rural road system that have never been rebuilt to planned urban standards. Recent improvements to major streets have generally been concentrated within the more built-up or rapidly developing areas of the city. The remaining below-standard facilities are primarily located in areas of the city that are slated for future residential and industrial growth. Based upon projected year 2020 area development, traffic growth, documented capacity deficiencies, or safety problems, many of these below-standard roads will need upgrading within the 20 year time frame of this plan.

### **Intersections and Accidents**

The Traffic Accident Map portrays a 3-year summary of accidents by location. All intersections that have a recorded accident history are identified based on State Motor Vehicles Division accident records. Intersection accident rankings are best established over several years, so that seasonal or annual variations are averaged out. Changes to signals, approach lanes, or intersection geometry within the period of measurement can cause accident frequencies to change.

While the number of accidents is an important indication of safety problems, accident rates can provide a more complete picture. Accident rates relate the number of accidents at a given location to the number of vehicles traveling through the intersection. Accident rates are expressed in terms of the number of accidents per 1 million entering vehicles. Adding or improving signals, turn lanes, approach lanes, intersection realignment, or other treatment, can reduce some of the intersection accident problems.

Finally, accident type and severity are important considerations when identifying specific remedies to safety problems. As high accident rate locations are identified and prioritized, specific project development relies on a more detailed assessment of accident type and severity.

### **Traffic Signal System**

Multnomah County maintains most of the arterial streets and traffic signals in Gresham. The County allows most signals to operate on traffic-activated demand with appropriate cycle lengths, without the optimization of signals on the same street or arterial system. As arterial volumes and turn movements grow, additional signals have been added at closer intervals (1/4 to 1/2 mile). The closer-spaced signals create more delay and less efficiency for through movements. A traffic signal optimization program has been implemented to coordinate all traffic signals in Gresham.

The Institute of Transportation Engineers (Planning Urban Arterials and Freeway Systems, 1986) found signal-timing optimization to be a highly cost-effective means of reducing vehicle hours of travel, compared to other transportation system management actions. Signal coordination on the entire arterial system or on major through routes offers documented advantages:

- Higher level of traffic service, thus higher overall speed and fewer stops. Traffic should flow more smoothly;
- Vehicle stops should be more uniform. Fewer accidents because more vehicles proceed through signals while green;

- Through traffic tends to stay on arterials rather than on parallel minor routes. (ITE, Transportation and Traffic Engineering Handbook 1976)

### **Access Management**

The Institute of Transportation Engineers estimates that 12% of accidents on major urban routes are related to commercial driveways. Accident rates, capacity, and average speeds on urban roads are directly and negatively related to the number of access points per mile. The capacity of an average four-lane arterial street section will be reduced 1% for every 2% of the one-direction traffic that makes right turns in and out of unsignalized driveways. (*ODOT Guidebook for Access Management*) The City applies access management techniques to new street design and development. Access management techniques include median barriers, minimum intersection and driveway spacing, driveway setbacks from intersections, limiting the number and width of driveways, requiring joint access and driveway channelization, and imposing turn restrictions.

The Federal Highway Administration and ODOT support the use of access management techniques as a cost-effective approach to preserve road capacity and safety. The City applies these techniques in coordination with Multnomah County and the State Highway Division.

### **Existing Traffic Volumes**

#### **Daily Volumes**

Current and historic traffic counts can be used to describe the consistency of the functional classification

system with existing traffic and to indicate where significant traffic growth has occurred in the recent past.

Several conclusions can be drawn from the existing pattern of travel illustrated in Figure 8:

1. Current volumes are generally consistent with present functional classifications.
2. As a result of Gresham area development, substantial traffic growth has occurred between 1986 and 2000 on I-84 and most other major highways. I-84 volumes have increased by nearly 100%, putting severe pressure on 181<sup>st</sup> Avenue and its interchange at I-84.
3. The largest volume increases in the past decade have occurred on arterials that serve recent high-growth areas in southeast and northeast Gresham.
4. North/South Traffic Congestion: 181<sup>st</sup> Avenue, 207<sup>th</sup> Avenue/223<sup>rd</sup> Avenue, and 242<sup>nd</sup> Avenue are the major north/south corridors between I-84 and central and west Gresham and have experienced substantial traffic growth (60-85%). A fourth access at 257<sup>th</sup> Avenue north of Stark Street that opened in 1987 has relieved some of the east Gresham traffic formerly using 242<sup>nd</sup> Avenue.
5. Eastman Parkway/223<sup>rd</sup> Avenue was developed in the early 1980s to serve north/south arterial travel demands on the west/central side of Gresham. Traffic in this corridor has grown as predicted since the addition of the 207<sup>th</sup> Avenue interchange linking I-84 to 223<sup>rd</sup> Avenue via Glisan Street.

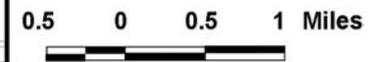
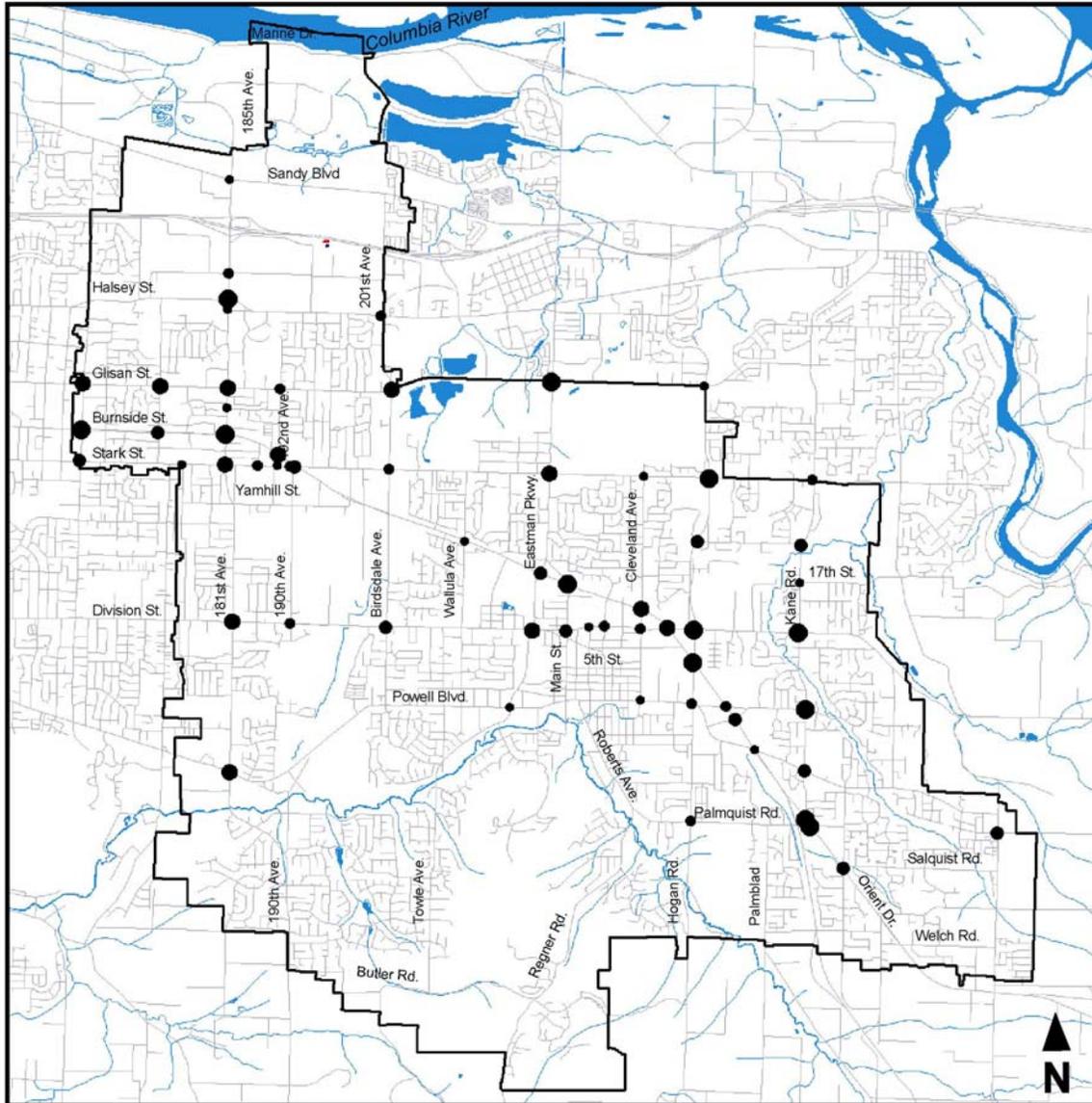


Figure 7

Vehicle Accidents

Accidents/million entering vehicles

- 0.22 - 0.59
- 0.60 - 0.90
- 0.91 - 1.23
- 1.23 - 1.72
- 1.73 - 2.82





### **Peak Hour Volumes**

The weekday PM peak hours normally show the highest directional and hourly volumes on urban roads. Typically, weekday peak hour volumes are about 10% of average daily traffic. PM peak hour directional traffic creates the greatest demand on the capacity of the street system.

Nearly all major Gresham streets have a pronounced PM peak hour direction; east-west traffic is 60% eastbound, north-south traffic is 62% southbound; southeast traffic is 68% southbound.

One major east-west arterial, Stark Street at 181st, has a balanced PM peak directional flow, eastbound is 53% and westbound is 47%. With the 100% growth of “internal” (within area) traffic projected by the year 2020, more balanced PM peak hour directional flow may develop on other arterials. Congestion now occurring in the PM peak direction only may develop in both directions of travel.

East-west peak arterial traffic is balanced between various routes because well-spaced arterials (Sandy, Halsey, Glisan, Burnside, Stark, Division, and Powell) are spaced one-half to one mile apart. No single arterial carries more than 13% of the total traffic. Powell Boulevard, west of 181<sup>st</sup> to I-205, although a substandard two-lane arterial, carries a significant share of east-west peak traffic (10.6%) and is important for south Gresham access to I-205.

North-south peak arterial traffic is relatively imbalanced. The three arterial routes with I-84 connections (181<sup>st</sup> Avenue, 207<sup>th</sup> Avenue/223<sup>rd</sup> Avenue, and 242<sup>nd</sup> Avenue) carry over 60% of the north-south traffic. North-south

arterials are not uniformly spaced, with a significant gap between 181<sup>st</sup> Avenue and 223<sup>rd</sup> Avenue (two miles). South of Powell Boulevard two arterial inter-tie projects have attempted to divert arterial demand to 181<sup>st</sup>/182<sup>nd</sup> Avenue and Eastman Parkway. 190<sup>th</sup> Avenue has been realigned to 181<sup>st</sup>/182<sup>nd</sup> Avenue and Towle has been realigned to Eastman Parkway/223<sup>rd</sup> Avenue.

The lack of a north-south arterial with I-84 access in the two miles between 181<sup>st</sup>/182<sup>nd</sup> Avenue and 223<sup>rd</sup> Avenue places heavy demand on the only continuous north-south collector street, 202<sup>nd</sup> Avenue. 202<sup>nd</sup> Avenue connects Sandy Boulevard to Eastman Parkway and carries peak hour and daily traffic volumes that approach arterial levels through a residential area.

Relatively heavy peak volumes exist on SE Kane Road and SE Hogan Road. These routes draw on a large rural area south and east of Gresham and are the only north/south through streets between I-84 and northeast Clackamas County.

As Gresham plans for the future, several key issues will dominate the city’s street system:

1. The need to develop and sustain a balanced transportation system that preserves community mobility, facilitates the area’s economic growth, enhances public safety, preserves community livability, and efficiently manages traffic flows and demands.
2. The need to complete development of the area’s arterial street system in coordination with improvement to the State highway system.

3. The need to provide better access for Gresham to and from I-84, especially at 181<sup>st</sup>, 207<sup>th</sup>, 238<sup>th</sup>, and 257<sup>th</sup> Avenues.
4. The need to develop an implementation plan for new connections between I-84 and US 26, especially to accommodate increasing freight movement.
5. The need to improve traffic flows and access from west Gresham to I-205 via the Powell Boulevard corridor.
6. The need to maximize light rail transit ridership, station area development, and other community benefits created by rapid public transit.

**Capacity and Level-of-Service Considerations**

***Evaluation Factors***

To evaluate the Portland region’s transportation system needs, Metro develops and maintains a travel forecasting computer model. Existing and planned land uses, employment, and population projections are used to predict trip generation and distribution by travel analysis zones (TAZs). Then mode choice (auto, transit, walk, and bicycle) is calculated and vehicle trips assigned to specific routes. Gresham area PM peak hour travel on the 1996 transportation system is compared with the projected year 2020 “Status Quo” system. The Status Quo system is the current street system plus committed system improvements that are adopted in the Regional Transportation Plan (Financially Constrained System) and are anticipated to be complete by the year 2020.

The 2000 Regional Transportation Plan provides a framework for evaluating congestion and its impact on

community livability. The regional motor vehicle policy prescribes how congestion is measured and when it should be “fixed.” Motor vehicle level of service is a measurement of congestion as a share of the designed road capacity. This measure of congestion assigns a grade (A to F) according to how “full” a road is as compared to its design capacity. Under this system, a road that fills to its capacity begins to fail.

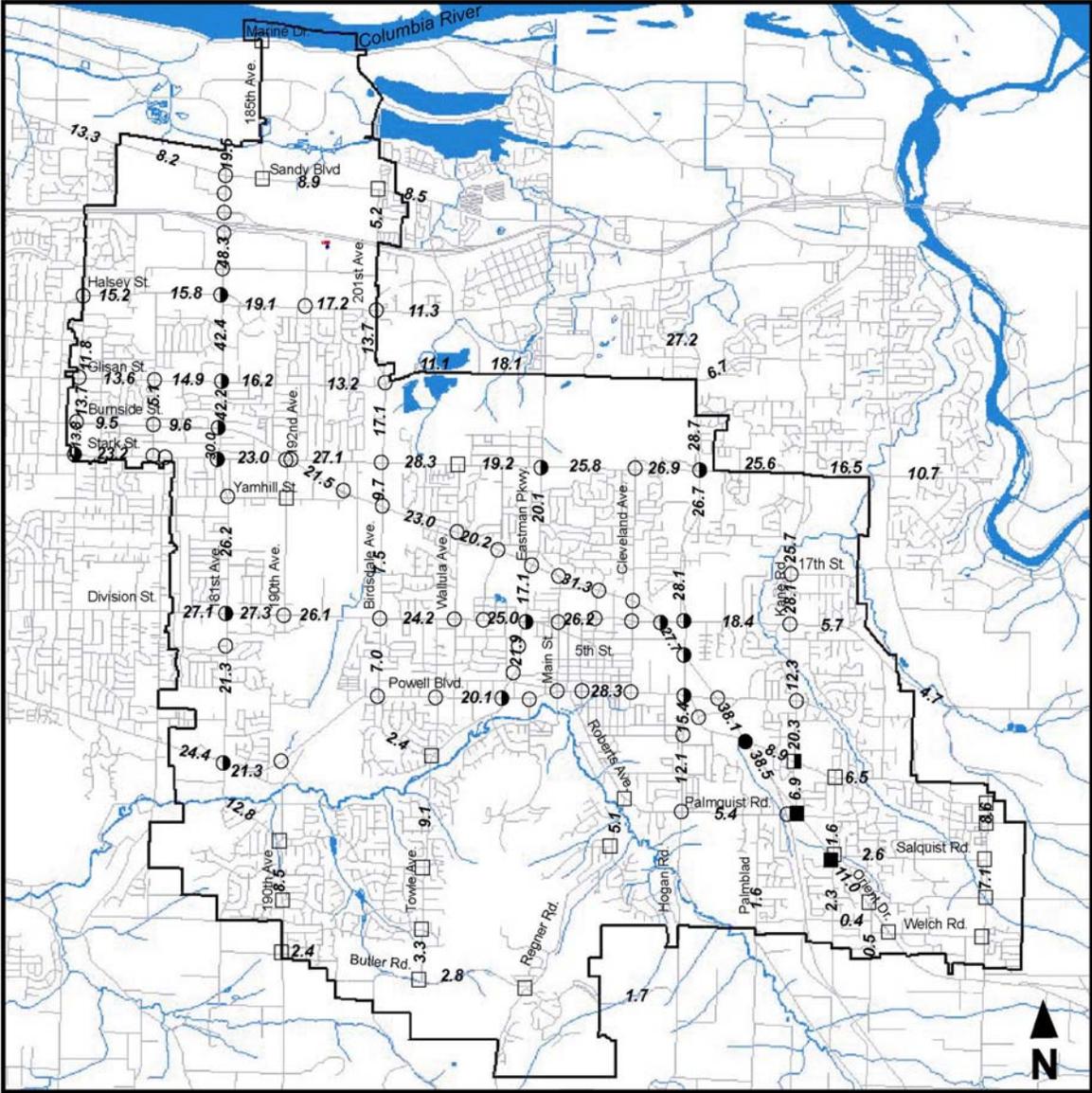
The RTP level of service policy seeks to maintain a level of service E on most roadways during peak periods, which means the facility is operating at 90% of capacity. In some areas where transit and other travel alternatives are offered (such as regional centers or corridors served by light rail), an F standard is acceptable during the afternoon peak hour.

The evaluation of motor vehicle level of service in the Transportation System Plan is depicted on Figure 9 and summarized below.

# Transportation System Plan



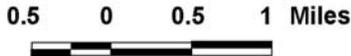
**Figure 8**  
**2000 Daily Traffic Volumes**



XX.X 1,000s of vehicles per day

**Intersection Level-of-Service**

- Signalized
  - Acceptable
  - ◐ Approaching Capacity
  - Over Capacity
- Unsignalized
  - Acceptable
  - ▣ Approaching Capacity
  - Over Capacity





**Comparison of Current and Future Travel Conditions**

To evaluate the current and committed arterial road systems, two comparisons of PM peak hour level-of-service are used: 1) Vehicle Miles Traveled (VMT) at various levels-of-service; and 2) projected levels-of-service by road segments. The first measure depicts overall travel conditions on the arterial system and the second measure identifies specific free flowing or congested road segments.

*Table 4. Gresham Freeway-Arterial System Travel Conditions - Vehicle Miles Traveled by Level-of-Service (Average Weekday PM Peak Hour)*

Level-of-service	Freeways			Arterials		
	A-C	D	E-F	A-C	D	E-F
1996 System	17,197 (79%)	4,270 (20%)	365 (1%)	76,076 (85%)	6,998 (8%)	6,141 (7%)
2020 Status Quo	17,091 (44%)	4,646 (12%)	16,797 (44%)	79,171 (57%)	14,920 (11%)	45,293 (32%)
Change	-106	376	16,432	3,095	7,922	39,152
% Change	0.6%	8.8%	4,502%	4.1%	113%	638%

**Major Street Needs**

**I-84 to US 26**

A concept for a new primary connector road between I-84 and US 26 was developed out of the 1987-88 Multnomah County Master Transportation Plan study. Multnomah County coordinated the study with active participation by the Cities of Gresham, Fairview, Wood Village, and Troutdale, and ODOT, Metro, and area residents. This study first examined the current and projected volume, capacities, and levels-of-service on

the 1985 and committed year 2005 arterial street system. The purpose of this study was to identify anticipated traffic growth and system deficiencies, together with various options for arterial improvements needed to serve current and planned land uses.

Based on the analysis for the TSP and the RTP, significant travel demand north/south between I-84 and US 26 will lead to severe congestion within the Hogan Road, Eastman Parkway and Burnside Boulevard corridors.

The “principal route” through the Gresham area has been Mt. Hood Highway to Burnside Street to 181<sup>st</sup> Avenue to I-84 and is currently designated as part of the National Highway System (NHS). West of Hogan Road this route is not favored by I-84 to US 26 through traffic because it serves substantial local and commercial traffic. In some areas there are numerous driveways and intersections that inhibit efficient through traffic flow.

Traffic growth will create pressure for this north-south connector even if the existing State Highway 212-224 between Mt. Hood Highway and I-205 is fully improved to five lanes in North Clackamas County. Highway 212 at Boring and US 26 into Gresham serve different regional travel demands in the south and north sections of the Portland Metropolitan region, respectively. The current traffic distribution of Mt. Hood Highway at the Highway 212/US 26 junction is one-third to North Clackamas County (Highway 212) and two-thirds to Multnomah County (Highway 26). The State Highway Division estimates this traffic split will remain the same over the next two decades, even if there is complete five-lane improvement of Highway 212-224. Traffic

volumes on both roads at this location, however, will double.

To address this need, the Regional Transportation Plan identifies a principal arterial (highway) connection between US 26 and I-84 in the Hogan Road corridor. The completion of this corridor will require the jurisdictions of east Multnomah County to cooperate to identify an acceptable means for developing this connection to adequately address local concerns while providing adequate regional and inter-regional mobility and freight access.

***Burnside Road***

In the projections of the Year 2020 committed system, Burnside Road experiences severe congestion through Gresham. Much of this is a result of inadequate north/south capacity to the I-84 corridor. Burnside Road also distributes traffic to Hogan Road, Eastman Parkway, and 181<sup>st</sup> Avenue. The significant impact of this is that the corridor traverses both the Gresham Regional Center and the Rockwood Town Center, both of which are planned to accommodate increased urban, mixed-used development served with high quality transit and providing excellent pedestrian and bicycle access.

Along with other strategies to improve north/south travel, the City will need to balance between providing regional mobility in this corridor with the need for the facility to provide important community accessibility for the adjacent urban centers.

***Powell Boulevard***

Powell Boulevard is another east/west arterial where congestion will increase without major improvements. The corridor is currently two lanes from 182<sup>nd</sup> Avenue to

I-205. Powell’s importance to the Gresham regional system was downgraded in the 1970s when Multnomah County determined to make Division its primary arterial west of I-205. While commercial development east of I-205 has gravitated to Division Street, major residential growth has occurred south of Powell Boulevard in southwest Gresham, in areas that depend upon Powell Boulevard for access. The proposed improvements to I-84 interchanges and the I-84 to US 26 connector will not alleviate problems on Powell Boulevard. Continuing rapid residential growth in southwest Gresham, along with future urbanization of the Pleasant Valley area, will further strain the corridor. In 1988 the East Multnomah County Transportation Committee identified Powell as a high priority corridor for future improvement west of 182<sup>nd</sup> to I-205 and recommended a Transportation System Management project in the 1989-94 six-year Highway Program update.

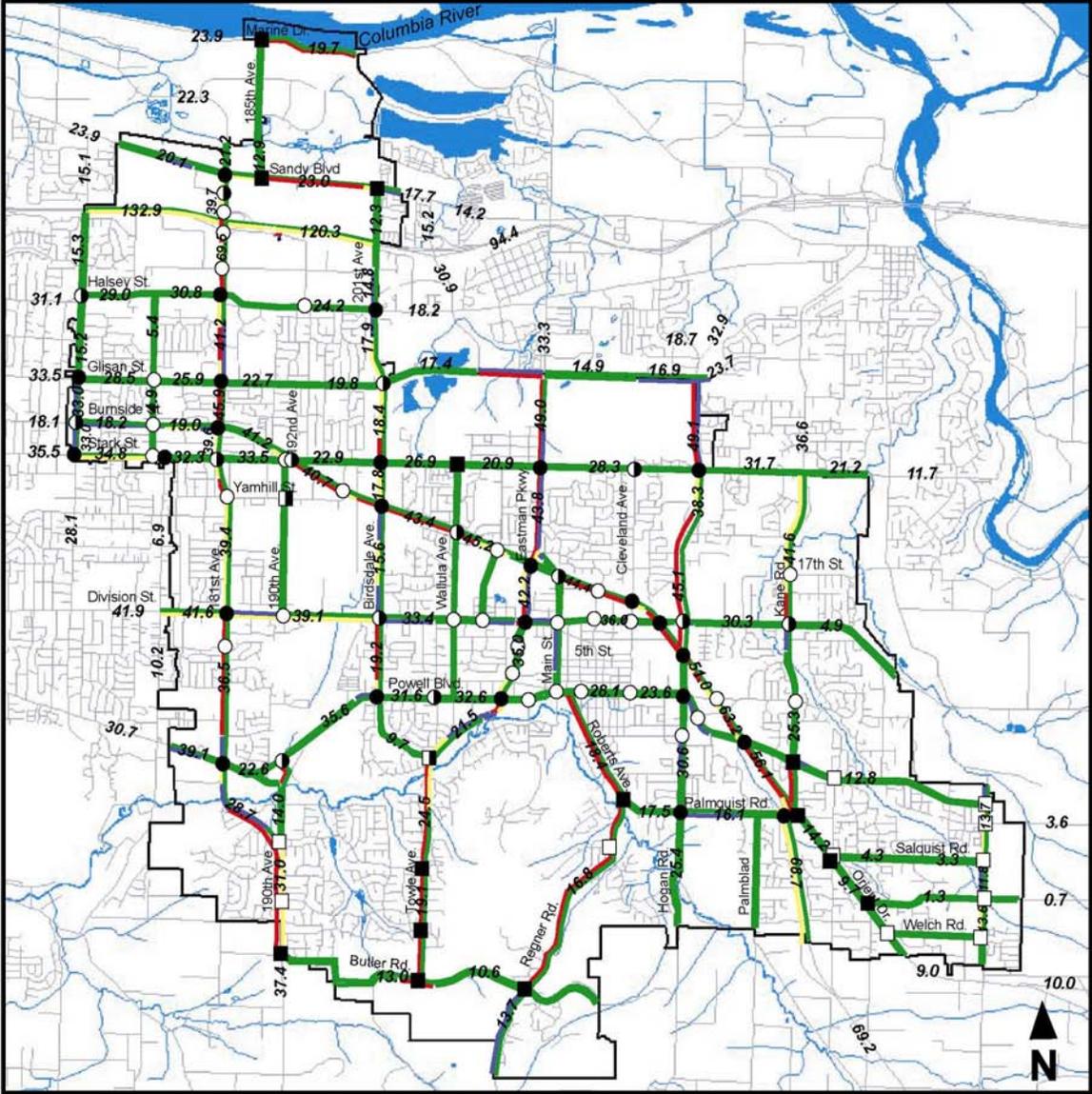
***South Gresham***

As further planning occurs in relation to Powell Boulevard improvements among affected jurisdictions, urban growth patterns and traffic projections in the areas now served by Powell Boulevard and Foster Road should be re-examined. These corridors are now under study at the regional level and the TSP may need refinement based on the results of that work as well as further planning for urbanization of the Pleasant Valley area to the south. In southeast Gresham higher residential growth is also predicted in the next decades. South Gresham growth will also create pressure for improvements to southeast radial routes such as Regner Road, Hogan Road, Orient Drive, and Powell Valley Road.

# Transportation System Plan



**Figure 9**  
**Status Quo Alternative**  
**2020 Daily Traffic Volumes**



XX.X 1,000s of vehicles per day

**Intersection Level-of-Service (peak hour)**

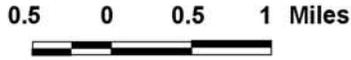
- Signalized
- Acceptable
  - ◐ Approaching Capacity
  - Over Capacity

- Unsignalized
- Acceptable
  - ◐ Approaching Capacity
  - Over Capacity

**Segment Level-of-Service (peak hour)**

- ↗ LOS A through C (v/c ratio < 0.8)
- ↘ LOS D (v/c ratio 0.8 to 0.9)
- ↖ LOS E (v/c ratio 0.9 to 1.0)
- ↙ LOS F (v/c ratio > 1.0)

\*v/c ratio = volume to capacity ratio





### **Aesthetic Quality**

Streets are a dominant part of the urban landscape. Both street design and development standards need to consider the visual quality of the street system. The aesthetic impacts of the street system directly affect Gresham's overall community image. The light rail line provides the most comprehensive local example of a transportation facility planned for positive aesthetic impacts: station structures and materials; signs; landscape design; vehicles; and pedestrian amenities all exhibit a concern for visual quality. Negative visual land use standards include street landscaping or buffering that is either non-existent or incompatible, excessive pavement, poor design of street system structures, inadequate pedestrian facilities, poor maintenance, or insensitivity to topographic and natural features.

New federal requirements for sound walls and the City's street tree standards raise interesting visual quality issues. On arterial streets, standard concrete sound walls without landscape treatment can create a "walled city" or "back alley" appearance to the street system. Sound walls, while mitigating noise impacts, isolate the street system from the urban landscape, and generally have not created more attractive streets than more traditional methods of separating streets and adjacent uses through set backs and buffers.

Street trees enhance the appearance of the street system. Since the Gresham area is home to some of the nation's largest tree nurseries, the selection and costs of trees are very favorable for high quality plantings. While the Gresham street standards require street trees with all new development, tree plantings for specific streets or developments have not always been well coordinated.

All elements of the street system and the adjacent urban landscape need to be tied together. The City can enhance the aesthetic quality of the street system by implementing more coordinated planting standards for street trees and by closely reviewing other elements of the street system for their visual impacts.

### **Underground Utilities**

For the past decade, the City of Gresham has required all underground utilities in the area of new construction and new streets. Because of this requirement, Gresham has a pleasant, uncluttered streetscape without overhead wires in many newer residential and commercial districts. The situation is problematic when transportation project improvements occur on existing streets that carry older above ground utilities.

If the utility is in the public right-of-way by permit and the specific street project requires the relocation of the utility, then the utility must relocate their facilities at their expense. However, if the street project itself does not require relocation of the utilities and it is requested that overhead utilities be relocated underground, either the City or the utility ratepayers must pay for the additional cost. The City can request the utility to pass those costs back to the ratepayer, and those costs can be spread over the entire jurisdictional boundary or over a small area that receives the benefit. The State Public Utility Commissioner has adopted Oregon Administrative Rules that apply to "forced conversion" of utility facilities, which is the term used for undergrounding overhead utilities. The City has never forced a utility to underground their overhead utilities, although in some cases utilities have voluntarily done so.

The costs to underground overhead utilities can be fairly significant. Gas tax monies cannot be used to underground overhead utilities. Therefore, financing has to come from the City's General Fund or the Council has to direct the utility to bill those costs to the ratepayers.

The benefits of underground utilities are mainly aesthetic, although there is less maintenance cost due to power outages from storms or auto accidents that can result in service disruptions. In addition, overhead utilities and their related infrastructure in the public right-of-way can create obstructions for pedestrians and bicyclists.

### **Street Lighting**

There are developed areas in the city where street lighting is inadequate or non-existent. The City does not have a policy or specific funding to provide infill street lighting. The City receives several requests each year for street lighting in developed areas.

The City of Gresham requires all new development to provide adequate street lighting on all adjacent frontages. As the city has recently experienced substantial development (particularly commercial development along arterials) many deficiencies in existing street lighting have been addressed. Other streetlights have been installed with street improvement projects. In addition, recently annexed areas in the western portion of the city participated in the Multnomah County streetlight fund for energy and maintenance costs. Some streetlight energy and maintenance costs along certain arterials and collectors are paid by Multnomah County.

### **Street Addressing and Signage**

The City of Gresham has two different street grid and addressing systems. The Portland metropolitan street grid is based upon numbered north-south avenues and named east-west streets with four quadrants divided by the Willamette River (defining east and west) and Burnside Street (defining north and south).

The Gresham city grid is based upon numbered east-west streets and named north-south avenues with four quadrants divided by Main Avenue (defining east and west) and Powell Boulevard (defining north and south), and their gridlines as extended. Since the turn of the century the Gresham city grid has expanded outward from the downtown area as new streets and neighborhoods developed. Where there were metropolitan grid street names and addresses, these have been incrementally converted to Gresham grid street names and addresses.

The area annexed since 1980 in the west and north side of the city (7 square miles) remains under the metro grid and is also designated as "Portland, Oregon" by postal zip codes. Most of this area developed historically with continuous east-west streets consistent with the metropolitan area grid.

The dual street grid and city designations are a source of confusion to Gresham residents, businesses, visitors, the postal service, emergency services, and others. Possible solutions to this dilemma include:

1. Make postal zip code adjustments to include all of Gresham city limits as a “Gresham” postal area.
2. Draw logical limits between the Gresham grid and metro grid to eliminate overlapping areas and allow dual grids both designated as “Gresham.” Some older suburbs in the Portland area use this system.
3. Convert all street names and property addresses to a single grid for the entire city.

A single grid solution, while attractive for consistency, would require massive changes in street signs and addresses, and could create substantial inconvenience and confusion for those affected. The Gresham grid and metropolitan grid areas of the city developed discontinuously and with different street patterns. The two grids could be difficult to mesh logically into a single street naming system.

Most new city street names are applied to subdivisions at the time of final platting. A Council Ordinance is required to officially name a new street or rename an existing street. After the Council passes a naming ordinance, several steps follow. Street names are changed on official maps and new street signs are installed. All affected residents and public agencies are officially notified of changes to individual addresses and building numbers.

In evaluating street name and address changes in Gresham the City considers the following factors:

- Consistency with the City’s adopted street grid and number system.

- Logical street names and building numbers for general public identification. Street names follow a logical pattern in the grid and cannot be confused with similar names.
- Reduce delays or confusion in emergency calls and responses.
- Resident requests and convenience.
- Postal and delivery service needs.
- Retention of historic street names where possible.
- Ability of the system to expand as growth occurs.

Emergency response takes highest priority in street renaming because of the potential loss of life and injury from emergency service delay caused by address confusion.

### **Neighborhood Circulation and Access**

Confusion about Gresham addresses and streets also results from the incomplete development of a local residential street system. Many local streets are discontinuous sections a single block long, reflecting the popularity of cul-de-sacs, loops, and maze-like layouts in residential subdivisions. In older parts of the city near downtown or those areas developed under the metropolitan grid on the north and west sides of the city, smaller blocks allow more convenient local circulation. Throughout the more recently developed parts of the city, a large number of temporary and permanent dead-end local street systems exist and multiple streets tie into a single point of access to the major street system.

For example, the Binford Farms area between Johnson Creek, Butler Road, Towle Avenue, and 190<sup>th</sup> Avenue, has 61 cul-de-sacs and one east/west through street, Binford Lake Parkway. SW Walters Road, an old farm road, serves as the sole access to a developing area for nearly one mile south of Powell Boulevard. Six subdivisions with 21 cul-de-sacs or dead-end streets all feed north into Walters Road.

Some local street circulation problems are slowly being resolved as development-related local streets are connected. The City now requires Neighborhood Circulation Plans and Future Street Plans for most new developments. Along with local street standards, these requirements lead to the implementation of a more connected local street system with smaller block sizes.

However, most areas with incomplete local streets have no adopted future street plans and little undeveloped land. Because of long and unpredictable delays in the development and continuation of many streets, the City needs to designate local circulation plans in some areas that do not have future street plans.

**Hazardous Signage**

Signs along and within the public right-of-way can have significant impacts on public safety. The City currently prohibits a broad class of signs that are identified as hazardous, including flashing and moving signs that distract or confuse motorists and signs that mimic traffic control devices. State law also prohibits many of these signs. Sign standards also must consider the physical impact of signs on sight distance, and the confusing or distracting effect of sign clutter near congested intersections.

**Bridges**

Gresham is responsible for the maintenance of six bridges. Each bridge is inspected annually through the ODOT Bridge Inspection Program. The results of these inspections are reported to ODOT and the local jurisdiction. The results of the 2000 inspections are shown below.

*Table 5. 2000 Bridge Inspection Summary*

Bridge Location	Condition	Deficiencies	Est. Cost
Regner Road @ Johnson Creek	Good	Repair NE shoulder	\$300,000
		Repair AC surface	\$300,000
Main Street @ Johnson Creek	Good	Deck planks damaged	\$99,750
Walters Road @ Johnson Creek	Good	None	\$0
7 <sup>th</sup> Street @ Johnson Creek	Not rated	Not inspected	\$0
190 <sup>th</sup> Avenue @ Johnson Creek	Fair	Monitor rusty leaks	\$0
		Widen for bike/ pedestrian	\$630,000
185 <sup>th</sup> Avenue @ Columbia Slough	Very good	Secure guard rails to posts	\$100,000
Airport Way @ Pacific RR	Very good	N/A	N/A

The 7<sup>th</sup> Street and the 185<sup>th</sup> Avenue bridges are less than 10 years old and were built to accommodate bicycles and pedestrians. The Walters Road Bridge has substandard pavement width with a 4-ft. wide wooden structure attached to the west side to accommodate pedestrians. The Regner Road Bridge has a 34-ft. roadway pavement width, which provides adequate shoulders for bicycles and pedestrians. The 190<sup>th</sup> Avenue Bridge has a substandard pavement width that forces pedestrians and bicyclists to use the travel lanes. This "bottleneck" poses a barrier to potential users of the Springwater Trail from southwest Gresham. The Main Street Bridge needs to have the deck replaced, sidewalks and guardrail added, and additional structural work done.

## **Transit System**

In the past decade, the Portland metro area has seen major advances in the development of a regional transit system. Tri-Met has evolved from a radial bus network, essentially serving one market (downtown Portland), to a multi-directional bus and rail transit system providing improved regional access for many parts of the Portland area.

### **Light Rail Transit (LRT)**

#### ***Service and Facilities***

The regional light rail system, Metropolitan Area Express (MAX), is a 39-mile light rail system that runs east and west from Portland and connects the communities of Gresham, Beaverton and Hillsboro. The system was built in two segments. Eastside MAX, opened in 1986, stretches 15 miles eastward to Gresham; Westside MAX, opened in September 1998, runs 18 miles west to Hillsboro. An I-205 route from the Gateway Transit Center to Portland International Airport

opened in September 2001; further enhancing Gresham's regional access. Additions to the light rail system now being pursued include a north/south route between downtown Portland and the Expo Center (Interstate MAX) and a north/south route between the Clackamas Town Center and Gateway via I-205.

The system includes 49 stations, 15 park-and-ride facilities, and 9 transit centers. Of those facilities, 8 stations, 4 park-and-ride facilities, and 2 transit centers are located in Gresham. A ninth station is planned in the Civic Neighborhood and will open when sufficient development occurs.

The Gresham park-and-ride facilities are located at the Cleveland Avenue, Gresham Central, City Hall, and 181<sup>st</sup> Avenue stations. Transit centers, where multiple bus lines converge, are located at the Rockwood/188<sup>th</sup> Avenue station (6 bus lines) and the Gresham Central Station (7 bus lines). Two bus lines also serve the City Hall station. The existing transit system is shown on the Figure 10.

Light rail service headways (time between trains) are attractive to riders and exceed most bus lines in frequency: peak hours, 7-10 minute headways; midday, 15 minute headways; night, 15-30 minute headways. All-day transit travel time between Gresham (City Hall) and Portland (Pioneer Square) has improved significantly from 51 minutes on the fastest 1985 bus to 36 minutes on MAX. All trains are currently scheduled as local trains (i.e. they stop at all stations).

The opportunity and challenge for Tri-Met is to build upon light rail's success to develop a regional transit system that serves a wide range of purposes and will attract an increasing share of all types of trips. Prior to

light rail service, in 1983 only a small fraction of all daily Portland area trips were made by transit, with the highest transit usage focused on Portland’s Central Business District (CBD).

Table 6. 1996 Portland Area Weekday Transit Person-Trips

Type of Trip	All Trips Transit Share	Home-Based Work Trips Transit Share
Intra-Suburban	1.2%	2.3%
Intra-Portland	3.5%	6.1%
Suburban-Portland	3.0%	5.1%
Portland-CBD	23.1%	47.4%
Suburban-CBD	20.9%	37.5%
Intra-CBD	36.6%	57.6%
Total Trips	4.2%	9.3%

Source: Metro Regional Transportation Plan, 2001

**Ridership Patterns**

MAX light rail has proved itself to be a superior people mover. Weekday ridership for the first year of operation averaged 19,600 riders per day (two-way), far more than the 14,000-17,000 daily riders predicted by Tri-Met. Saturday riders averaged 22,000 and Sunday 14,000 for the first year.

In East Multnomah County (East of I-205), a dramatic transit ridership increase of 38% occurred with the inauguration of MAX service.

Table 7. Transit Use: Before and After MAX

Transit Boardings (Ons Only)	East County Average Weekday Boardings
Spring, 1986 (Before MAX)	10,319
Spring, 1987 (After MAX)	14,279 (+38%)
1987 MAX boardings	6,845
1987 Bus boardings	7,434

Source: Tri-Met, Transit Development Department, August 1987.

The biggest surprises in the public response to light rail have been the heavy weekend patronage, the high use for recreation, entertainment, and shopping trips, and the appeal of MAX as a visitor attraction.

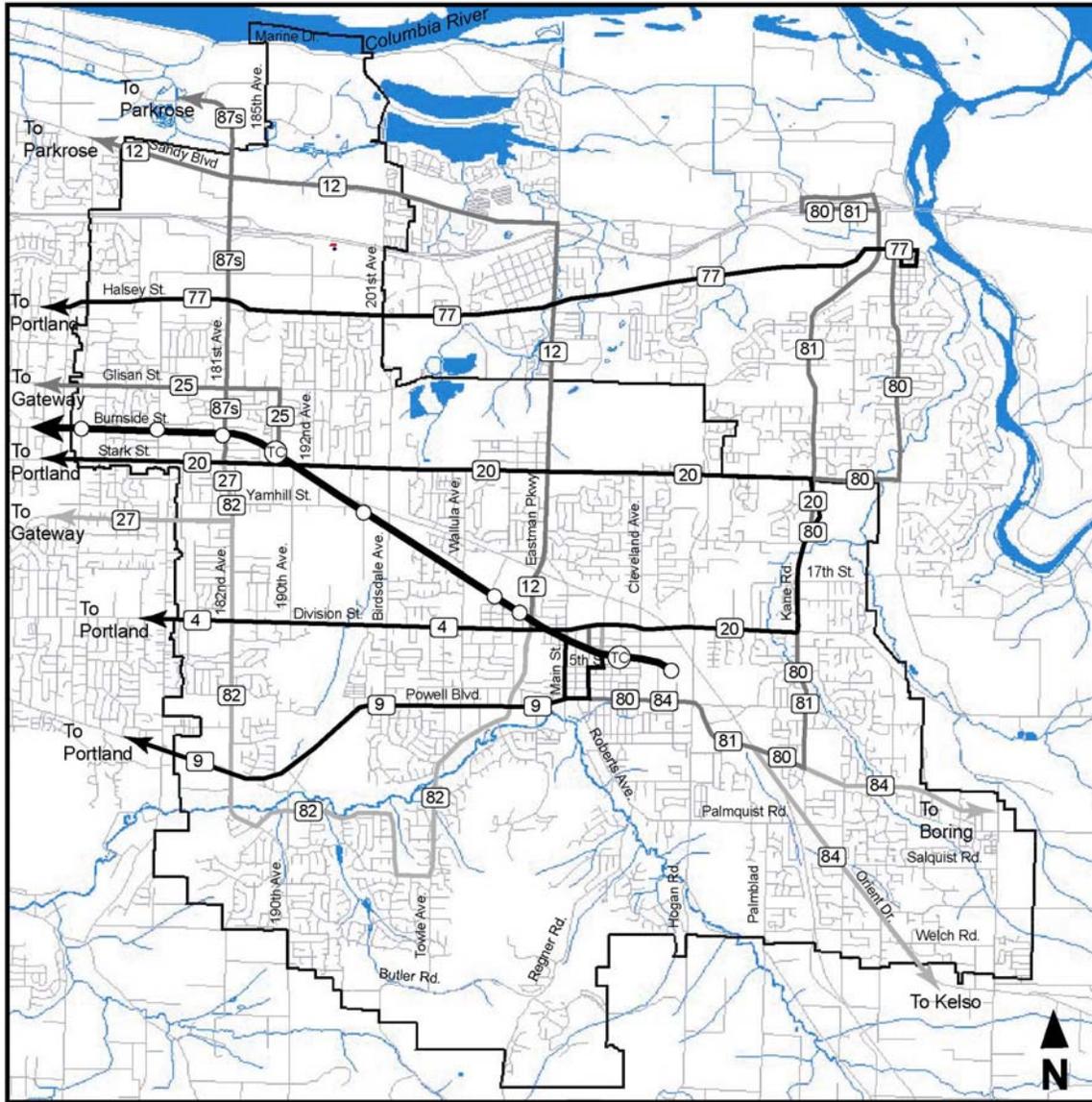
Based on the most recent 2002 passenger census of the MAX Blue Line, Gresham’s eight stations account for 16,654 weekday boardings or about 10.9% of the entire weekday Eastside ridership (see Table 8). These same eight stations accounted for 7,825 weekend boarding in 2001. The Blue Line’s eastside experienced average weekday boardings of 19,500 in 1987, but by 2002 East County MAX ridership increased 38.6% to 31,800. The Westside averaged an additional 28,400 daily trips in 2002. The new Red Line to the airport averages 10,900 daily boardings as well.

Transit ridership is outpacing both population and automobile travel growth. While a positive sign that transit is a viable and competitive alternative to the automobile for transportation, this growth is beginning to strain the capacity of the system and there is an increasing demand for additional and improved transit service in Gresham as in other areas of the region.

# Transportation System Plan



Figure 10  
Existing Transit System



-  Light Rail (5-7 min.)
-  Bus (15-20 min.)
-  Bus (30 min.)
-  Bus (60 min.)
-  Light Rail Station
-  Transit Center



Table 8. 2002 MAX Weekday Ridership by Station, East Multnomah County Stations

Station	Eastbound			Westbound			Total		
	Ons	Offs	Load	Ons	Offs	Load	Ons	Offs	Activity
Gateway TC	1,313	3,032	8,703	2,231	1,114	9,689	3,544	4,146	7,690
102 <sup>nd</sup> Avenue	394	768	6,909	674	340	7,075	1,068	1,108	2,176
122 <sup>nd</sup> Avenue	478	1,502	5,885	1,431	482	6,741	1,909	1,984	3,893
148 <sup>th</sup> Avenue	146	495	5,536	436	148	5,792	582	643	1,225
162 <sup>nd</sup> Avenue	330	913	4,953	901	349	5,504	1,231	1,262	2,493
172 <sup>nd</sup> Avenue	182	453	4,682	396	169	4,952	578	622	1,200
181 <sup>st</sup> Avenue	250	778	4,154	757	190	4,725	1,007	968	1,975
Rockwood/188th TC	314	962	3,506	953	331	4,158	1,267	1,293	2,560
Ruby Junction	141	368	3,279	315	149	3,536	456	517	937
Gresham City Hall	141	1,110	2,310	1,078	110	3,370	1,219	1,220	2,439
Gresham Central	45	1,228	1,127	1,414	106	2,402	1,459	1,334	2,793
Cleveland Avenue	0	1,127	0	1,094	0	1,094	1,094	1,127	2,221
<b>East Multnomah Co.</b>	<b>3,734</b>	<b>12,736</b>		<b>11,680</b>	<b>3,489</b>		<b>15,414</b>	<b>16,224</b>	<b>31,638</b>
<b>MAX Blue Line Total</b>	<b>38,975</b>	<b>37,555</b>		<b>37,067</b>	<b>38,564</b>		<b>76,042</b>	<b>76,119</b>	<b>152,161</b>

Source: MAX Passenger Census, Tri-Met, 2002

Table 9. MAX Boardings (Ons and Offs) By Area

	Weekday <sup>1</sup>	Weekend <sup>2</sup>
Gresham Central Area Stations (Cleveland to City Hall)	7,453 (4.9%)	4,785 (10.9%)
Rockwood Stations (162 <sup>nd</sup> to 197 <sup>th</sup> /Ruby Junction)	9,201 (6.0%)	3,040 (7.0%)
Total Gresham Stations (162 <sup>nd</sup> to Cleveland)	16,654 (10.9%)	7,825 (17.9%)
East County Stations (Gateway to Cleveland)	31,638 (20.8%)	14,049 (32.1%)
All Other Stations	87,170 (57.3%)	14,001 (32.0%)
Total All Stations	152,116 (100%)	43,700 (100%)

Source: MAX On-Board Ridership Survey, Tri-Met, 2001 and 2002.

<sup>1</sup> 2002 MAX Passenger Census

<sup>2</sup> 2001 MAX On-Board Ridership Survey

**Transit Station Area Planning and Development**

For Gresham, light rail can be more than a commuter conveyor. Significant redevelopment is anticipated near the Rockwood and Central Area stations. Light rail links Gresham businesses to a larger countywide and regional market and to key regional attractions, such as the new Convention Center. Ridership surveys have demonstrated light rail’s ability to serve shopping, recreation, and entertainment trips. The capacity to serve additional riders to Gresham destinations is available in the current system.

The opportunity and challenge for Gresham in the future is to take advantage of MAX to focus intensive transit-supportive development to the MAX station areas. Light

rail can become a spine of new development in Gresham that creates a more diverse and compact urban center; strengthens and ties together existing commercial districts; provides greater choices of travel, employment, and shopping to residents; and helps create an attractive community image.

*Station Area Planning*

The early 1980s Transit Station Area Planning Program by Gresham and Tri-Met found that the three Central Area Station Areas (City Hall, Central, and Cleveland Avenue), relative to all 27 stations on the line, had the highest potential for new housing and retail development, together with reasonable expectations for new office use. The Central Area’s major asset is its large supply of redevelopable and underutilized land near the MAX stations, more than any place else on the line.

In 1982-83, Gresham adopted a revised plan for the Central Area with new land use standards and designations. Reflecting the assumptions of the 1980 Market Study (ERA, Regional Corridor Market Analysis), the plan created an intensive mixed-use Transit Development District around the stations. This district assumed that office use demand would be highest near stations. Therefore, the Transit Development District designated office and residential uses as the primary permitted uses with limited retail use (10% of a project) allowed only as a support use to the primary use. The County station area zoning, originally adopted near the Rockwood stations, placed an emphasis on high density residential, office uses, and intensive retail uses.

*Transit Supportive Uses*

Successful station area development needs transit supportive uses. “Transit supportive” uses generate relatively high levels of transit trips while minimizing vehicular trips and parking demands. National studies indicate:

- Community colleges and some retail uses create the highest transit ridership per square foot. Hotels, residences, and light industry create less transit ridership per square foot.
- Retail establishments are desirable. Major department stores generate more transit trips than convenience goods. Retail uses create more off-peak trips than most other uses, and thus fill up the system during off-peak hours.
- Office uses have a mixed record. At central city stations, offices are quite transit-supportive. At some suburban rail station locations, large-scale office developments have proved counter-productive to transit use, because suburban office workers are much less likely to use transit for work trips than central city workers because of dispersed living patterns. Government offices and others that serve regular clients and visitors (e.g. medical) can generate somewhat more transit trips than private offices that serve workers only.

Sources: Robert Cervero, *Suburban Gridlock*, 1986; and Louis Keefer, *An Interim Review of Nine UMTA-Associated Joint Development Projects*, 1984.

*Table 10. Transit Development Strategies*

<b>Recommended Land Use/ Financing Strategy</b>	<b>Use by Gresham</b>	<b>Use by Tri-Met</b>
1. Reduce downtown parking or minimum parking requirements	Yes	N/A
2. Major public investments and capital improvements in station areas	Yes	Yes
3. Public lease/sale of land around stations to private developers	No	Possible
4. Provide and promote pedestrian walkways and mezzanines to LRT stations	Yes	Yes
5. Air rights development above LRT stations	No	Possible
6. Tax increment financing	No	
7. Revise zone densities	Yes	N/A
8. Create special transit development districts	No	Possible

*Transit Development Strategies for Gresham*

A national study of development opportunities created by new light rail lines found that LRT may provide considerable urban development potential, though other pro development forces need to exist. Experiences with rapid rail transit have taught us that a strong regional economy, supportive local policies, and a hospitable station environment are essential if positive and substantial land use outcomes are to occur. (Source: Robert Cervero, “Light Rail Transit and Urban Development,” *Journal of the American Planning Association*, Spring, 1984.)

This same study recommended eight successful transit development strategies to encourage transit-supportive development. Gresham and Tri-Met will be able to use some of these strategies to stimulate transit-supportive development as the market implications of light rail become clear to developers. Gresham station areas enjoy several advantages:

1. Supportive local land use policies;
2. Available land near stations;
3. Attractive stations and park-and-ride facilities;
4. Growing local economy;
5. Hospitable station environment (most stations); and
6. Positive ridership trends

Constraints to station area development can be remedied:

1. Need for infrastructure improvements (Central Station, Cleveland);
2. Inhospitable station environment (Rockwood, Central Station, Cleveland Avenue Station); and
3. Local government or transit agency redevelopment powers.

The 1980 LRT Market Study made overly optimistic market and land use assumptions about large-scale office development in the Central Area. Smaller scale office use is now anticipated in station areas (Central Area Market Study, 1986, Memorandum #1, pp. 34, 43). Originally, land use districts around light rail stations heavily favored major office use near light rail. While major office use may develop, the MAX ridership survey of June 1996 shows that retail, entertainment and restaurant uses are popular rider attractions. Through

specific area plans for Downtown, Civic Neighborhood, Rockwood, and Corridors, the City has broadened the scope of permitted “transit supportive” uses around transit stations to allow “transit supportive” retail uses and to encourage joint development projects directly tied to light rail stations.

Vacant or under developed parcels next to several Gresham stations create unique opportunities for “joint development,” development which is physically and/or functionally linked to light rail stations or park-and-ride lots. Joint development can create major transit destination uses, providing a strong tie between light rail stations and surrounding established commercial and residential districts.

## **Bus System**

### ***Service and Operations***

Most Gresham transit service was provided by six regular east-west radial bus routes prior to the startup of light rail: Halsey Street, Glisan Street, Stark Street, Division Street, Mill-Main Street, and Powell Boulevard. In addition there was the MKC Flyer, a peak hour commuter bus on I-84 and a Gresham to Troutdale shuttle bus. With light rail all bus routes except Division Street and Powell Boulevard lines were reconfigured into nine light rail feeder lines and new routes were added in southwest and north Gresham.

Apart from the MAX light rail line, which runs every 6 to 10 minutes, most services in East Multnomah County run at all-day headways of 30 or 60 minutes, with some additional trips during the peak hours. The route structure is a typical "modified grid" design, in which

the bus line follows a major arterial across East Gresham into Portland. These trips may divert from this pattern to converge at transit centers in Gresham and Rockwood or at major attractions, such as Mt. Hood Community College. The convergence at transit centers is necessary because service to East Multnomah County is too infrequent to permit randomly timed connections wherever arterials cross.

The most dramatic feature of the present transit system is the imbalance between north-south and east-west service. In addition to the east-west light rail line, six of the eight east-west corridors in East Multnomah County have at least 30-minute bus service all day. Three of those lines provide 15-minute service. By contrast four of the six north-south corridors have 30-minute service. The north-south corridors are also more fragmented, especially toward the north end of the lines. Table 13 is Tri-Met's Ridership Census for East Multnomah County.

**Tri-Met Service Standards**

Tri-Met uses specific standards to evaluate service effectiveness and guide service changes. The standards include route spacing, population coverage, bus frequencies (headways), ridership (boardings per revenue hour), and rush hour passenger loadings.

Approximately 75% of Gresham's population and 84% of employment is located within 1 mile of transit service. This compares to Tri-Met Service Area coverage of

69.4% of population and 80% of employment. Two areas of Gresham with significant population and employment densities with a significant gap in route coverage are the southeast residential area and the Columbia Southshore/Rockwood industrial area.

*Table 11. Tri-Met Service Standards*

Standard	Criteria
Route Spacing	<p>≤ ½ mile in urban areas</p> <p>≤ 1 mile in suburban areas</p>
Population Coverage	<p>Bus route within ½ mile of most residents in urban areas</p> <p>Bus route within 1 mile of most residents in suburban areas</p>
Weekday Frequency	<p>Regional grid: 10 to 15-minute peak 15-minute base</p> <p>Community: 15 to 30-minute peak 30-minute base</p>
Ridership	Minimum ridership of 10 to 15 boardings per revenue hour
Passenger Loadings	<p>Standard – 44 seated/20 standing</p> <p>Articulated – 64 seated/47 standing</p> <p>Minibus – 25 seated/8 standing</p>

Source: Tri-Met, Transit Choices for Livability Handbook, 1999.

Table 12. 2001 Transit Frequencies per Line

Line Route #	Daily Peak	Daily Off-Peak	Saturday Peak	Saturday Off-Peak	Sunday Peak	Sunday Off-Peak
4 – Division	15 minute	30 minute	30 minute	60 minute	30 minute	60 minute
9 – Powell	20 minute	30 minute	30 minute	30 minute	30 minute	30 minute
12 – Sandy Blvd.	30 minute	30 minute	30 minute	60 minute	30 minute	60 minute
77 – Broadway-Halsey	15 minute	15 minute/30 minute after 7:30 p.m.	30 minute	30 minute	30 minute	60 minute
25 – Glisan -Rockwood	30 minute	60 minute	None	None	None	None
20 – Burnside-Stark	15 minute	15 minute/30 minute after 10:00 p.m.	15 minute	30 minute	30 minute	30 minute
27 – Market-Main	60 minute	60 minute	None	None	None	None
80 – Kane Rd.- Troutdale Rd.	30 minute	30 minute	60 minute	None	60 minute	None
81 – Kane Rd.-257 <sup>th</sup> Ave.	20-30 minute	30 minute	None	None	None	None
82 – Eastman-182 <sup>nd</sup> Ave.	60 minute	None	None	None	None	None
84 – Kelso-Boring	60 minute	None	None	None	None	None
87s – 181 <sup>st</sup> Ave.	30 minute	30 minute	None	None	None	None

Source: September 2001 Service Guide, Tri-Met

Table 13. East Multnomah County Bus Ridership (Ons and Offs) by Line within the City of Gresham

Line Route #	Change				Change				Change	
	1990	1999	1990-99	%	2000	1999-00	%	2001	2000-01	%
4 – Division	640	771	131	20.5%	1,184	413	53.6%	1,125	-59	-5.0%
9 – Powell	751	1,051	300	39.9%	1,428	377	35.9%	1,563	135	9.5%
12 – Sandy Blvd.	---	---	---	---	---	---	---	---	---	---
77 – Broadway-Halsey	265	439	174	65.7%	447	8	1.8%	481	34	7.6%
25 – Glisan -Rockwood	163	128	-35	-21.5%	110	-18	-14.1%	98	-12	-10.9%
20 – Burnside-Stark	1,849	2,782	933	50.5%	3,031	249	9.0%	3,025	-6	-0.2%
27 – Market-Main	79	67	-12	-15.2%	46	-21	-31.3%	44	-2	-4.3%
80 – Kane Rd.- Troutdale Rd.	351	484	133	37.9%	571	87	18.0%	572	1	0.2%
81 – Kane Rd.-257 <sup>th</sup> Ave.	34	96	62	182.4%	183	87	90.6%	304	121	66.1%
82 – Eastman-182 <sup>nd</sup> Ave.	336	248	-88	-26.2%	316	68	27.4%	325	9	2.8%
84 – Kelso-Boring	129	177	48	37.2%	58	-119	-67.2%	43	-15	-25.9%
87s – 181 <sup>st</sup> Ave.	---	172	172	---	231	59	34.3%	131	-100	-43.3%

Source: Spring Passenger Census, Tri-Met, 1990, 1999, 2000, 2001.

Note: Line 12-Sandy Blvd. service began September 2001.

### ***Ridership Patterns***

In spite of strong ridership on MAX, several of the Gresham feeder lines currently experience low ridership. Most of the routes with poor ridership also have sub-standard service (i.e. 30-minute peak hour service; 60 minutes daytime, no night service). A dilemma for Tri-Met in expanding feeder bus service is that service is stretched too thin or too seldom to be convenient and attractive to potential riders. Thirty to sixty minute waits for buses are not competitive when MAX has 7-to 15-minute service. To improve service and ridership Tri-Met will have to take the financial risk of adding more service to currently underused routes.

The strongest ridership is on the two long east-west radial routes south of MAX (Division and Powell) and Mt. Hood Community College routes (Stark and Gresham-Troutdale). The lowest ridership is found on the Eastman-182nd, Boring-Sandy, and Rockwood-Gresham routes.

### **Previous Transit Plans**

The 1995 East Multnomah County Long Range Transit Plan analyzed transit needs in Gresham, Fairview, Wood Village, and Troutdale and developed several recommendations for transit service. The Plan called for 15-minute all day service on key routes throughout the area.

Most recently, Gresham citizens identified a significant north/south transit deficiency through Tri-Met's Transit Choices for Livability program. The top three suggestions from residents dealt with the lack of north/south connections between the light rail line and major employers such as LSI, Fujitsu, Boeing, and Boyds Coffee; and a lack of neighborhood transit service

from Gresham's Downtown core to southeast neighborhoods.

Tri-Met has developed several strategies to provide better transit service in the Gresham area as part of the Transit Choices for Livability (TCL) process. For transit to play a role in achieving regional and local community livability goals, Tri-Met must provide not only more service, but also much different service. The Transit Choices for Livability improvements build up transit service to match how the region and each community have been growing.

Sketch plans to meet the different transit needs of today, and those anticipated over the next 10 years were developed for distinct geographic areas based on their unique character, transportation challenges, and development patterns. Implementing the sketch plans will provide citizens with a transit system that better serves their needs by offering:

1. Faster, more direct connections to different communities and regional destinations – eliminating the need to go to downtown Portland first;
2. New local circulators that serve neighborhoods, schools, and employment centers;
3. Efficient, reliable transit where Tri-Met maintains current service;
4. More – and more efficient – links to light rail, so that more people can have easy access to this popular form of transit.

In the northeast cluster, including Gresham, TCL ideas include:

1. New neighborhood service from Gresham to areas along Roberts, Palmquist, and Powell Valley
2. Connect Gresham to the Portland Airport with service along Airport Way
3. New rapid bus service along Division Street from downtown Portland to Gresham
4. New service in the Columbia Corridor area between Parkrose and Rockwood along Sandy Boulevard
5. New north-south connections between neighborhood areas, MAX, and Airport Way along the 148<sup>th</sup> and 162<sup>nd</sup> corridors
6. Local service in the neighborhoods north of downtown Gresham, around 242<sup>nd</sup>
7. Commuter express service on I-84 between Troutdale and Portland
8. Improve frequency and service hours on lines serving Wood Village, Troutdale, Sandy, Mt. Hood Community College, Powell, Glisan, and Market/Main
9. Provide and improve amenities such as shelters, customer information, and pedestrian connections to transit

### **Major Transit Needs**

Transit system improvements should focus on supporting Gresham's land use plans, and promoting development and redevelopment of the Rockwood Town Center, the Gresham Regional Center, and

employment/education centers. Based upon local priorities expressed in the East Multnomah County Long Range Transit Plan and Transit Choices for Livability, and in the context of the Regional Transportation Plan, there are several specific major transit needs the TSP should address:

1. Light rail extension or other high capacity transit connection to Mt. Hood Community College
2. High capacity transit (7 to 8 minutes all day service) connecting the Regional Center, Town Center, and other major destinations and employment centers
3. Primary transit (15 minutes all day service) on other arterial corridors serving higher density and mixed-use, transit-oriented land uses and community destinations
4. Fixed route neighborhood transit services in moderate- and lower-density residential areas connecting to transfer points and major destinations
5. Light rail station improvements and downtown shuttle needs. Especially the completion of the Civic Neighborhood station
6. Fareless zone for areas along light rail within the Gresham Regional Center
7. Rockwood Plaza and Transit Center improvements
8. Improvements at high-ridership stops, such as shelters and improved pedestrian access

## **Paratransit Strategies**

Tri-Met coordinates the Portland area’s regional ride share program, which includes carpool matching services, carpool parking, employer-assisted ridesharing (vanpools) and park-and-ride lots. On a regional basis, shared rides represent an important goal of the 2000 Regional Transportation Plan (25% of all peak hour work trips in shared ride vehicles Year 2020). This goal, if attained, could have significant reductions in the number of peak hour vehicle trips.

To address anticipated Gresham area travel growth, “paratransit” techniques should be encouraged by both Tri-Met and the City. Vanpools can run shuttle service between large-scale employers and light rail transit centers. Both the Rockwood (188<sup>th</sup> Avenue) and Gresham Central Station Transit Centers, which connect Light Rail to numerous bus lines, could be used efficiently by private vanpools. Light rail park-and-ride lots attract Gresham area commuters and others who might normally take a longer vehicle trip. These facilities reinforce suburban transit ridership and will need to be expanded in the next decade.

Gresham bus service suffers from a number of typical suburban transit deficiencies that can be addressed by more flexible small vehicle services: limited route coverage, limited service frequency (headway), dispersed residential and employment densities, and long walking distances to bus routes. Tri-Met’s proposed service strategies, especially those connecting small transit vehicles with flexible routes to Light Rail stations, are promising means of providing better transit service in the Gresham area. The potential advantages of small bus or “paratransit” services over larger bus fixed route services are several: door-to-door service,

higher quality service, passenger amenities, more privacy, less community impacts, and usually lower cost.

## **Handicapped Transit Service and Accessibility**

Tri-Met provides accessible bus and light rail service at reduced fares to senior citizens and disabled citizens. Tri-Met’s entire bus fleet is lift equipped. All MAX stations are handicapped accessible. In addition, Tri-Met provides LIFT, a special transportation for door-to-door trips for individuals who are unable to use the regular transit system due to physical or mental disability. A fleet of 80 vans and mini-buses provides weekday service.

The City of Gresham is implementing several related programs that result in improved handicapped accessibility throughout the city, especially in commercial districts and public facilities. These include:

1. Uniform Building Code requirements for accessible buildings, on-site handicapped ramps, and designated handicapped parking spaces.
2. Parking enforcement of handicapped parking.
3. City Design Review requires accessible site development and handicapped parking.
4. City street construction standards require handicapped ramps at pedestrian crossings.

For example, a series of city projects will create a continuous handicapped accessible walkway from the Central Light Rail Station to Downtown Gresham: Pedestrian-to-MAX walkway projects on NE Hood and NE 5<sup>th</sup> and the Main Street reconstruction project (Powell to Division).

## Bicycle System

Traveling by bicycle is healthy, energy-efficient, quiet, and non-polluting. Bicycles also require less space to park than automobiles. In addition, bicycle travel is well suited for short trips, replacing the most polluting automobile trips. Most importantly, bicycles are a viable travel option for the more than 800,000 Oregonians who do not have a valid driver's license.<sup>1</sup>

One of the biggest obstacles to bicycle use is the lack of adequate and safe bicycle facilities. Several studies indicate that if adequate facilities are provided, bicycle use will increase substantially. A 1995 Harris Poll shows that 5% of survey respondents currently walk or bicycle as their primary means of transportation. However, if bicycling and walking facilities are improved, two and a half times this number will use walking or bicycling to meet their transportation needs.<sup>2</sup> The 1993 Gresham Transportation Choices Survey finds that more than 50% of residents surveyed believe that providing bicycle lanes and sidewalks is very important.

A recent study of major bicycle access routes into downtown Seattle suggests improved bicycle facilities relate directly to increased ridership. If improvements to bicycle facilities are made, bicycling becomes an attractive option to more traditional commuting habits. In general, cities with more bicycle lanes per roadway mile experience higher bicycle commuting rates. While more bicycles are sold in the United States than cars,

bicycle owners say there are few places near their homes where they can ride safely.<sup>3</sup>

According to the 1990 Census, only 1% of all work trips in Oregon is made by bicycle. However, the share of automobile trips that could potentially be made by bicycle is greater than 60%. According to a National Personal Transportation Survey Urban Travel Patterns Study (FHWA 1994), more than a quarter of all trips are one mile or less, 40% are two miles or less, almost half are three miles or less, and two-thirds are five miles or less. For short trips bicycling provides a convenient alternative to the automobile. Trips of three miles or less can often be accomplished as quickly or more quickly by bicycle than by automobile.

The City is working to develop a comprehensive bicycle network that includes both on-street and off-street facilities to serve both bicycle commuters and recreational riders. The on-street element includes shared travel lanes and bicycle lanes along arterials and collector streets. The purpose of the on-street system is to encourage safe and predictable bicycle circulation on city streets. Bicycle safety is at its highest when bicyclists are encouraged to operate as vehicles and are separated from the pedestrian system. It is the lack of safe, convenient, and appropriate facilities that leads to bicyclists riding in an unsafe manner.

The off-street element links urban destinations along continuous greenbelts. This includes multi-use paths like the Springwater Trail. Off-street facilities can significantly increase bicycle trips, improve safety,

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<sup>1</sup> Oregon Department of Transportation, Department of Motor Vehicles, "Oregon Drivers," 1991

<sup>2</sup> Federal Highway Administration, US Department of Transportation, "The National Bicycling and Walking Study, Final Report," p. VII

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<sup>3</sup> Miller-Howser, Beth, "Putting Value on Trails," *Public Management*, April 1997, p. 4

particularly for less experienced riders, and increase bicycle access to town centers, employment areas, and neighborhoods.

**Assessment**

The existing bicycle system includes City, County, and State maintained routes, which are identified and described in Table 14. The 28 miles of existing bicycle lanes on City, Multnomah County, or State roads are the primary bicycle facilities within the existing bicycle system.

A bicycle lane, according to ODOT, is "a portion of the roadway designated for preferential use by bicyclists. Bicycle lanes are appropriate on urban arterials and major collectors."<sup>4</sup> The standard width of a bicycle lane is six feet according to ODOT. Some bicycle lanes within Gresham measure less than five feet in width. A majority are five feet wide, which does not meet the City standard of six feet. Drainage grates are also a concern as they frequently are not flush with the pavement and some older grates have not yet been replaced with more current styles that safely accommodate bicycle travel. These sub-standard conditions create a potentially hazardous and uncomfortable bicycling environment. All local streets are considered a part of the bicycle network, marked or unmarked. Local streets have lower auto volumes and slower speeds making them highly appropriate for bicyclists.

Gresham has two multi-use paths: one parallels I-84 and a second is the city’s portion of the Springwater Trail. Combined, they provide an additional 10 miles of bicycle network. The I-84 trail provides an excellent

link between Portland and Gresham but can be an uncomfortable riding experience given its proximity to I-84. The Springwater Trail serves as a major spine of the bicycle system. It is well used by both commuters and recreational cyclists. A third trail is planned to connect the Springwater Trail to Marine Drive following a north/south alignment west of 201<sup>st</sup> Avenue. This facility (the Gresham/Fairview Trail) will provide an important link between neighborhoods and job centers.

*Table 14. Gresham Bicycle Lanes*

Route	Type of Facility	Condition
Marine Drive	5’ wide lane	Very good
Glisan Street	5’ wide lane	Good
Stark Street	5’ wide lane	Excellent
Burnside Road	5’ wide lane	Excellent
Powell Boulevard	5’ or wider lane	Good
181 <sup>st</sup> /182 <sup>nd</sup> Avenue	5’ wide lane	Excellent
202 <sup>nd</sup> Avenue	5’ wide lane	Excellent
Eastman Parkway	4’ & 5’ wide lane	Good
223 <sup>rd</sup> Avenue	5’ wide lane	Excellent
242 <sup>nd</sup> Avenue	5’ wide lane	Good
Kane Road	5’ wide lane	Good

Source: City of Gresham, 1988.

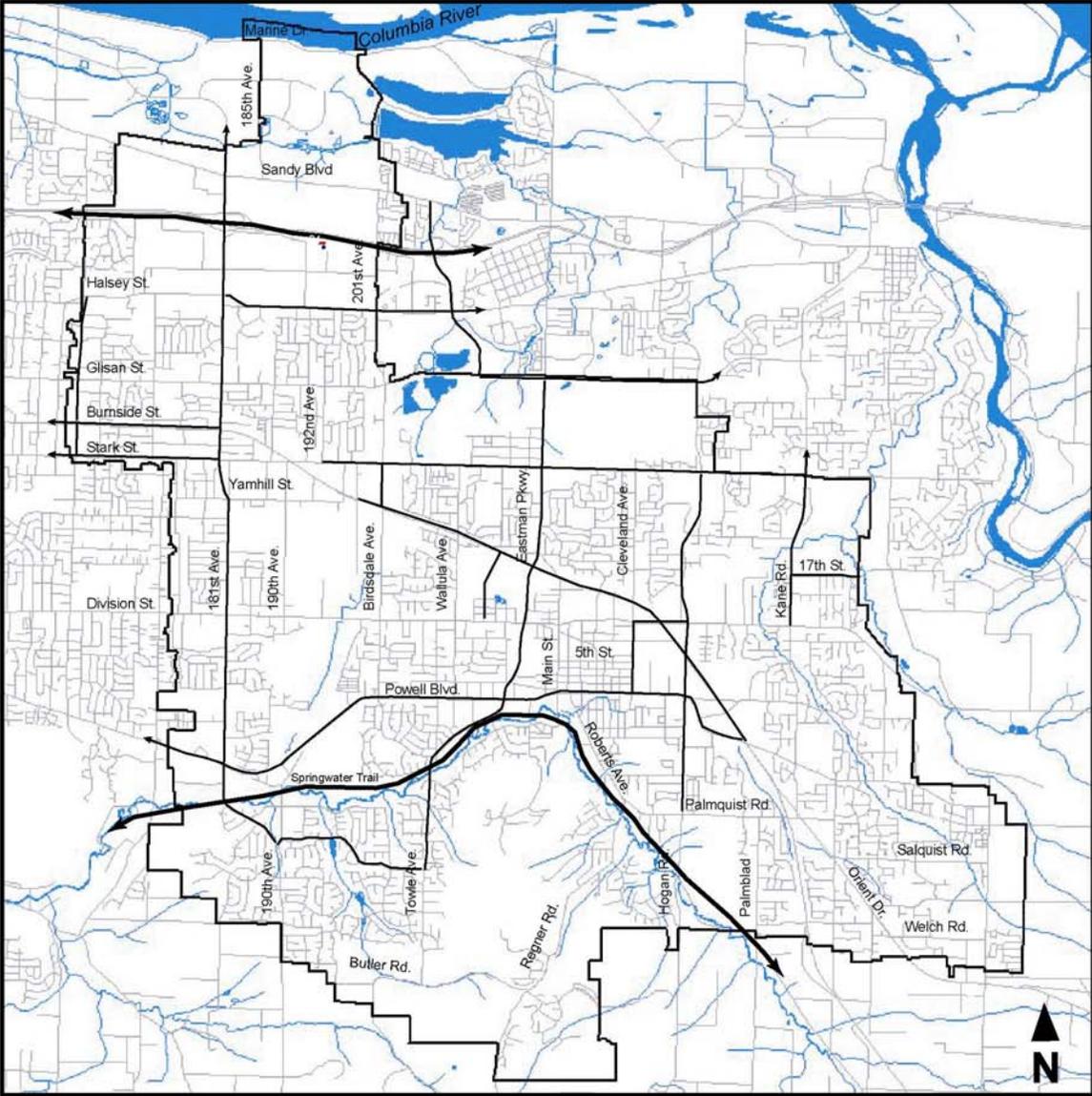
The east/west network is reasonably sufficient for bicyclists given the many arterials and two multi-use paths connecting Gresham to Portland. However, there are significant gaps in the bicycle lane system on most east/west arterials. Of even greater concern is the lack of safe north/south alternatives connecting Gresham to Troutdale, Fairview, and Wood Village.

<sup>4</sup> Oregon Department of Transportation, “1995 Oregon Bicycle and Pedestrian Plan,” p. 65.

# Transportation System Plan



**Figure 11**  
**Existing Bicycle Facilities and Accidents**



-  Bicycle Lane
-  Multi-use Path

**Bicycle Accidents (1997-2000)**

- 1 - 10
- 11 - 20
- 21-30
- 31 - 40
- 41 - 60



Bicycle parking is available at all the light rail stations, in core business areas, and most recently, the covered, secure facility at Tri-Met's Gresham Central park-and-ride garage. However, it is lacking in many other areas where many destinations are located.

### **Needs**

Removing perceptions of danger and establishing good bicycle routes are fundamental to increasing bicycle use. If bicycle facilities are designed to allay safety concerns and are linked such that bicycle access matches the access motorists have come to expect, then bicycling will increase.

All roads except urban freeways should be accessible by bicycle. Appropriate bicycle lane facilities must be included to accommodate bicyclists' needs whenever streets are constructed or reconstructed. This is also State law; ORS 366.514, adopted in 1971, states that "Footpaths and bicycle trails, including curb cuts or ramps as part of the project, shall be provided wherever a highway, road or street is being reconstructed, constructed or relocated." The guidelines in Table 15 are used to determine the appropriate treatment for all new or reconstructed streets.

A bicycle route is a designated street that is shared by both bicycles and motor vehicles. Signs are used but not lane markings. Bicycle lanes are striped for exclusive bicycle use. The lane's width standard is six feet and indicated with pavement markings. The facilities are most often used on high volume or high-speed streets. A

multi-use path is separate from the street and is generally designed for joint use with pedestrians.

### **Bicycle Lanes**

The most frequently identified bicycle system need in Gresham is bicycle lanes, generally located on arterial and collector roadways. These are usually the most direct routes for bicyclists. The existing bicycle lane network is incomplete and does not facilitate safe bicycle travel through the city.

Bicycle lanes improve access to destinations and commute options. Bicycle lanes on arterials:

- Establish the correct position of bicyclists on the roadway
- Reduce bicycle/pedestrian conflicts as fewer cyclists ride on sidewalks
- Provide bicyclists a space to travel at their own speed next to motorists
- Guide bicyclists through intersections

Bicycle lanes on existing streets can be implemented by 1) narrowing existing travel lanes; 2) removing a travel lane; 3) removing parking when it is not deemed essential to serve adjacent land uses; and 4) shoulder widening. Bicycle lanes may be implemented through stand-alone projects, through roadway construction or reconstruction, and through routine roadway resurfacing.

Table 15. Guidelines for Selecting Bicycle Lane Facilities for All New or Reconstructed Streets

Street Functional Classification	Average Number of Vehicles per Day	Recommended Bicycle Facility
Local Street	< 1000	Street as is, unless specified on Bicycle Network as signed connection.
Local Street	≥ 1000	Bicycle lane preferred*
Community Street	3,500 - 10,000	Bicycle lane preferred*
Collector and higher classifications; Transit Routes; Truck Routes	10,000 – 30,000	Bicycle lane required*
Collector and higher classifications; Transit Routes; Truck Routes	≥ 30,000	Bicycle lane required. Where not possible due to width constraints or parking needs, a parallel facility must be developed.

\* Traffic calming improvements or wide outside lane may be acceptable where the following conditions exist:

- It is not possible to eliminate lanes or reduce lane widths
- Topographical constraints exist
- Additional pavement would disrupt the natural environment or character of the natural environment
- Parking is essential to serve adjacent land uses or to improve the character of the pedestrian environment.

when the street configuration can be modified without parking removal or serious additional congestion.<sup>5</sup>

Some streets have width constraints and parking needs that make bicycle lane installation very difficult. These circumstances include 1) difficulty of eliminating travel lanes or reducing lane widths; 2) severe topographical constraints; 3) harm to the natural environment or character of the natural environment due to additional pavement; and 4) economic or aesthetic necessity of retaining parking on one or both sides of the street. These circumstances are to be carefully considered before a decision is made to implement an alternative treatment. Removal of a travel lane should be considered even if traffic congestion may increase, and

the additional congestion weighed against the benefit to the bicycling environment. If careful investigation proves that bicycle lanes are simply unfeasible, traffic calming improvements or a wider outside lane may be substituted. Alternative parallel bicycle lanes may also be developed.<sup>6</sup>

**Hazard Mitigation**

Many small improvements can make a big difference, such as connecting existing bicycle lanes and other bicycle facilities, widening shoulders, making utility covers flush with the pavement, modifying storm sewer inlet grates, and regular bicycle lane sweeping.

<sup>5</sup> City of Portland, Office of Transportation, “Bicycle Master Plan,” August 30, 1995, p. 20

<sup>6</sup> City of Portland, Office of Transportation, “Bicycle Master Plan,” August 30, 1995, p. 20

Intersections are of primary concern to the City because, generally, it is at intersections where the highest crash rates are experienced. Good intersection design indicates to those approaching the intersection what path they must follow and who has the right-of-way, including bicyclists, whose movements are complicated by their lesser speed and visibility.

#### 1994 Bicycle/Motor Vehicle Crashes In Oregon

- 45% occurred at intersections:
  - 27% of motorists failed to yield to bicyclists at a stop, signal or turn
  - 18% of bicyclists failed to yield to motorists at a stop, signal or turn
- 20% occurred at mid-block (driveway or alley)
  - 12% of motorists entered or left the road
  - 8% of bicyclists entered or left the road (mostly young riders)
- 17% resulted from wrong-way bicycle riding
- 8% were caused by turning or swerving movements
  - 5% of bicyclists turned or swerved
  - 3% of motorists turned or swerved
- 3% occurred when a cyclist was hit from behind
- The remaining 7% was due to miscellaneous causes, e.g. motorist opening car door into the path of a bicyclist, etc.<sup>7</sup>

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<sup>7</sup> Oregon Department of Transportation, “1995 Oregon Bicycle and Pedestrian Plan,” p. 185

A general solution is to better indicate positioning for both cyclists and motorists at the intersection through the City’s Spot Check program. Bicycle lanes are striped to a marked crosswalk or a point where turning vehicles would normally cross them. The lane resumes at the other side of the intersection. Good design creates a path for bicyclists that is direct, logical, and close to the path of motor vehicle traffic. Only in rare cases should cyclists proceed through intersections as pedestrians.<sup>8</sup>

#### **Linking to Transit**

Linking bicycles with mass transit (both bus and light rail) overcomes such barriers as lengthy trips, cycling through unfriendly parts of the city, riding at night, poor weather, or severe terrain. The link also enables bicyclists to reach more distant areas and increases transit ridership on weekends and days.

Tri-Met manages most aspects of bicycle-transit integration. Tri-Met provides bicycle parking at transit stations, transit transfer stations, and Tri-Met owned park-and-ride lots. Tri-Met also allows bicycles to be carried on-board MAX and via racks on buses.

The City is working to implement a Bicycle-and-Ride program that will designate specific streets for bicycle transit and provide improved facilities to assist bicycle commuters. For example, specially marked bicycle lanes noting routes to transit centers, long-term bicycle parking at transit centers and park-and-rides, and transit information.

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<sup>8</sup> Oregon Department of Transportation, “1995 Oregon Bicycle and Pedestrian Plan,” p. 125

Long-term, secure, covered bicycle parking is also essential to better link bicycle travel to transit use. Gresham is administering a park-and-ride program for bicyclists at Tri-Met’s parking garage at the Gresham Central MAX Station.

**Signs and Traffic Signals**

Clear destination signs must be provided that direct riders to key activity centers, such as shopping areas, transit stops, recreation facilities, schools, and bicycle parking facilities.

With City support, Multnomah County is working to install bicycle loop detectors at all signalized intersections so that bicycles can trigger a signal without having to dismount. To be detected, bicyclists need to be correctly positioned over a signal detector loop, which has a sensitive wire buried in the pavement, usually in the shape of a diamond. The loop detects the presence of metal, and then relays the information to a signal control box.

**Parking**

Bicycle parking is needed at likely destination points to provide a comprehensive bicycle system. The same consideration needs to be given to bicyclists as to motorists, who expect convenient and secure parking at all destinations. Both long-term and short-term parking are necessary. Long-term parking is intended for situations where the bicycle is left unattended for long periods of time and provides complete protection from the weather. Short-term parking provides a secure place to lock the bicycle, but not bicycle accessories. The bicycle is typically left for short periods of time and is

visible and convenient to the building entrance.<sup>9</sup> Weather protection is not necessarily provided.

The City will continue to expand its bicycle rack inventory for both long-term and short-term parking.

**Education**

Education is an important element in increasing bicycling and improving safety. While one of the most effective ways to improve the safety of cycling is simply to improve the quality of Gresham’s bicycle facilities, facilities cannot do it alone. There is also a need for proper education of both youth and adult cyclists and motorists. The East Multnomah County Bicycle Map is an on-going education project. The bicycle map is a cost-effective way to encourage bicyclists to make the best use of the existing system.

The Bicycle Transportation Alliance (BTA) and other groups also offer education and training programs. The City has worked successfully with the BTA to provide education to schools and other community groups.

**Pedestrian System**

People walk everywhere. In fact, many people may not realize just how much walking they do in their daily travel. Every trip, be it by car, bicycle, or bus, includes walking. Walking is also the most popular recreational activity in the United States, with more than 100 million

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<sup>9</sup> Oregon Department of Transportation, “1995 Oregon Bicycle and Pedestrian Plan,” p. 87

people of all ages walking for recreation from two to three times a week.<sup>10</sup>

Conflicts between cars and pedestrians occur when pedestrian facilities are incomplete or when crossings are inadequate. Walking becomes more difficult and dangerous as roads are widened to accommodate greater traffic volumes. Each additional traffic lane adds to the time that crossing pedestrians are exposed to vehicles. Wider roads also encourage increased traffic speeds, shorter reaction times in dangerous situations, and a greater likelihood of fatal or debilitating injuries.

The City is committed to providing pedestrian facilities that ensure safety and convenience for pedestrians. Accommodating pedestrian needs will not only reduce traffic fatalities, but also promote a healthier and more vital community. A pedestrian-friendly environment supports the use of other modes, such as transit, ridesharing, and bicycling, and may be one of the most cost effective pollution reduction strategies because walking displaces shorter automobile trips – the most polluting on a per mile basis. The objective is not only to make our streets safe for cars, but more importantly to make our community safe for people.<sup>11</sup>

The goal of Gresham’s pedestrian plan is to encourage walking as a viable mode of transportation by increasing awareness and establishing a framework to improve and maintain pedestrian facilities in the city.

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<sup>10</sup> Miller-Howser, Beth, “Putting Value on Trails,” *Public Management*, April 1997, p. 4

<sup>11</sup> Surface Transportation Policy Project and the Environment Working Group, “Mean Streets”

## Assessment

Gresham is relatively flat with the exception of Gresham and Jenne Buttes, and has acceptable street connectivity in most areas. The City has a good share of its streets equipped with sidewalks, particularly in the older, more established neighborhoods and business districts. However, because of the heavily trafficked County arterials that traverse the city, intersections and street crossings are of primary concern.

Official pedestrian counts have not been taken in Gresham to determine current use of pedestrian facilities, but a 1993 citywide survey, “Transit Choices,” reports that walking is most common in central Gresham and least common in southwest Gresham. These results correlate to results from the 1988 study, *Making the Land Use, Transportation, and Air Quality Connection* (LUTRAQ). An outcome of the study was the identification of Pedestrian Environment Factors (PEFs) that describe the quality of the pedestrian environment based on pedestrian facilities, physical characteristics, and land use. The study found that pedestrian activity correlated to sidewalk continuity and street connectivity. Survey respondents indicated a willingness to walk rather than go by car if Gresham had a system of walkways connecting residential and business districts.

Of the 258 street miles within Gresham city limits, 71 miles have curb only, with no sidewalks. The Centennial neighborhood has a majority of curb-only streets. Adding sidewalks to these curb-only sections of street is of highest priority to the City, particularly in areas that serve schools or transit stations. North central Gresham and southwest Gresham are best equipped with sidewalks, whereas Mt. Hood and Asert neighborhoods have the least.

In 1996, 52 pedestrian-related crashes were reported in Gresham. Areas of greatest concern are located within the Rockwood Town Center in the triangle formed by 181<sup>st</sup> Avenue, Stark Street, and Burnside Street. Intersections in this area experience high crash rates. Given that the Rockwood light rail station is the third highest used station of Gresham’s eight stations, this area must be assessed fully.

**Needs**

Using these data, the following programs are proposed to meet the pedestrian needs in Gresham.

**Sidewalks**

A well-connected street network is recommended as the primary means of providing safe, direct, and convenient routes for pedestrians. Areas of highest priority are along arterials and collectors, within ¼ mile of schools and transit stops, and linking commercial and residential areas, schools, parks, and other public facilities with transit routes and streets. Areas of top priority are those where transit and school zones overlap. The City will continue to coordinate with Multnomah County (who is responsible for most of the city’s arterials) to complete the sidewalk network.

Modifying the existing street system to add sidewalks is preferred over creating a separate pedestrian network. This is true for several reasons. The street system already exists and creating a new and separate infrastructure for pedestrians is not financially or physically feasible. Streets also take people where they want to go, usually providing the most direct pedestrian connections. Finally, pedestrians are more visible, and

therefore safer and more secure, when they are on sidewalks.<sup>12</sup>

However, research on pedestrian modal share suggests that simply adding sidewalks will not create walkable communities. The LUTRAQ project establishes a correlation between pedestrian modal share and four Pedestrian Environmental Factors (PEFs): ease of street crossings, sidewalk continuity, street connectivity, and topography.<sup>13</sup>

Sidewalks are recommended on local streets to provide a complete network that accommodates users from home to their destination. Sidewalks are critical to home-based pedestrian trips and transit accessibility. Without

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<sup>12</sup> Oregon Department of Transportation, “1995 Oregon Bicycle and Pedestrian Plan,” p. 6

<sup>13</sup> Parsons Brinckerhoff Quade and Douglas, Inc., with Cambridge Systematics, Inc. and Calthorpe Associates, Making the Land Use Transportation Air Quality Connection, “The Pedestrian Environment,” December 1993, p. 5





Table 16. Guidelines for Selecting Pedestrian Facilities for All New or Reconstructed Streets

Land Use/Roadway Functional Class	New Streets	Existing Streets
Commercial and Industrial-All Streets	Sidewalks required on both sides of the street	Sidewalks recommended on both sides of the street. Every effort should be made to add sidewalks where they do not exist and complete missing links.
Residential-Arterial, Boulevard	Sidewalks required on both sides of the street	Sidewalks recommended on both sides of the street
Residential-Collector, Community Street	Sidewalks required on both sides of the street	Multi-family - sidewalks required on both sides of the street. Single family - sidewalks preferred on both sides of the street; required on at least one side.
Residential-Local Street	Sidewalks required on both sides of the street	Sidewalks preferred on both sides of the street; required on one side

**Source:** Institute of Transportation Engineers, Technical Council Committee, “Design and Safety of Pedestrian Facilities.” December 1994, p.17.

sidewalks, pedestrians must walk either in the road or on the roadway shoulder. These conditions make walking unsafe, inconvenient, and ultimately discourage walking trips.<sup>14</sup>

Table 16 outlines the recommended guidelines for sidewalks based on functional street classification and land use.

According to ODOT, the standard sidewalk width is six feet, exclusive of curb and obstructions. This width allows two pedestrians (including wheelchair users) to walk side by side, or pass each other comfortably. The minimum width may be five feet on local streets. Circumstances may include a combination of width constraints or low potential usage.

<sup>14</sup> American Planning Association, “TPR Ordinance Recommendation,” February 1993, p. 14

The City’s Missing Links Program completes sidewalks on city streets with existing curb. The City will continue its coordination efforts with Multnomah County to also infill sidewalks on County roads with existing curb.

**Planter Strips**

Planter strips provide a buffer between the street and sidewalk, providing a physical and psychological separation between pedestrians and adjacent vehicle traffic. This space also accommodates street trees, street furniture, pedestrian amenities, and utility structures such as street lights, signal poles, fire hydrants, and street signs.

Planter strips are currently required on local streets within Gresham. They should also be required along major streets to provide a space for vehicle unloading

adjacent to on-street parking and to provide separation from vehicle traffic.

### **Crosswalks**

Oregon law defines a crosswalk as the prolongation of a curb, sidewalk, or shoulder across an intersection, whether it is marked or not. Outside an intersection, a crosswalk is created with markings on the road. If a pedestrian is in a crosswalk, all drivers on that half of the street are required to yield the right-of-way to the pedestrians.<sup>15</sup>

One of the key indicators of the quality of the pedestrian environment is the degree to which one may safely cross the street. Width, signal timing, speed, and traffic volumes are key factors affecting the safety and convenience of pedestrian crosswalks.<sup>16</sup> Pedestrian improvements at intersections include refuge islands, curb extensions, reduced curb radii, crossings at right angles, and slower traffic speeds.

A majority of pedestrian and automobile conflicts occur when a pedestrian crosses a street. In 90% of reported intersection crashes, the pedestrian was in the crosswalk. In 65% of the crashes, the pedestrian was crossing with the signal.<sup>17</sup> However, a majority of pedestrian collisions happen at mid-block crossings where few lighted crosswalks exist. Pedestrians most often choose

the shortest route to their destination. Prohibiting such movements is counter-productive if pedestrians dash across the road with no protection. It is better to design roadways that enable pedestrians to cross safely.

Two approaches can be considered to increase pedestrian crossing opportunities and improve pedestrian safety. First, design and operate roads to allow crossings to occur safely by incorporating features such as raised medians or using signal timing that creates gaps in traffic. Second, construct pedestrian crossings with pedestrian activated signals, mid-block curb extensions, marked crosswalks, landscaping, and other pedestrian facilities.

Some studies indicate that pedestrians may develop a “false sense of security” when crossing a road in marked crosswalks. Other studies indicate that motorists are more likely to stop for pedestrians in marked crosswalks, especially where the right-of-way laws are enforced. Proper design makes it clear who has the right-of-way.

Several design measures can be implemented to improve pedestrian safety at crosswalks. The primary objective is to shorten the crossing distance for pedestrians and reduce their exposure to traffic. Raised medians benefit pedestrians by allowing pedestrians to cross only one direction of traffic at a time. Island refuges can be created between intersections and other accesses where it is not possible to provide a continuous raised median. Medians should be located across from high pedestrian generators such as schools, park entrances, libraries, and parking lots. Curb extensions are another design feature

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<sup>15</sup> Oregon Department of Transportation, “1995 Oregon Bicycle and Pedestrian Plan,” p. 105

<sup>16</sup> Parsons Brinckerhoff Quade and Douglas, Inc., with Cambridge Systematics, Inc. and Calthorpe Associates, Making the Land Use Transportation Air Quality Connection, “The Pedestrian Environment,” December 1993, p. 5

<sup>17</sup> Oregon Department of Transportation, “1995 Oregon Bicycle and Pedestrian Plan,” p. 192

that reduce the crossing distance and improve the visibility of pedestrians by motorists.

Providing adequate crossing opportunities is a high priority to the City because of the many arterials that traverse Gresham. Many arterials are a minimum of five lanes wide, some with rights-of-way of more than 90-feet. Many arterial intersections include left and right-turn lanes as well as wide shoulders or bicycle lanes that motorists use as right turn lanes. Crosswalks are indicated at all major intersections, however long distances and short signal phases make crossing difficult. Typical arterials also have long block lengths that create a great need for mid-block crossing opportunities.

The City is working toward reconfiguring major arterials to accommodate multi-modal travel. Segments of arterials are being identified for comprehensive planning and redesign study. The first such redesign will be Division Street between Wallula Avenue and Kelly Street. This stretch runs through the Gresham Regional Center and divides numerous activity generators. Tightened crossing distances, mid-block crossings, wider sidewalks, pedestrian lighting, and other amenities will be analyzed.

Pedestrians must be permitted to move easily and safely across arterials if a pedestrian-friendly environment is to be created. Intersections should be designed to provide direct pedestrian connections between core commercial areas, employment areas, parks, schools, residential areas, and other destinations. Crosswalks should be provided at all signalized intersections to facilitate easy and safe pedestrian movement across arterials or difficult to reach destinations. Pedestrian-activated signals can be located at strategic intersections, such as where a connection is available to a transit stop or core

commercial area. Underpasses or pedestrian bridges are discouraged because they are expensive and create generally long, circuitous routes that are often underused.

### ***Pedestrian Districts***

Pedestrian districts are areas where special emphasis is placed on improving the pedestrian environment through physical improvements and development requirements that promote pedestrian orientation. The City has identified two pedestrian districts. The Gresham Regional Center, made up of the Civic Neighborhood and Downtown, has been identified as a pedestrian district. The Rockwood Town Center has been identified as a second pedestrian district.

Future development and City investment will build a majority of improvements in the Civic Neighborhood and Rockwood. The City has invested in downtown and continues to partner with future development to expand pedestrian treatments throughout the district.

### ***Transit Connection***

Invariably, utilizing public transit involves a pedestrian component prior to and after the transit ride. Investments in pedestrian improvements not only promote walking, but also increase the cost effectiveness of the large public investments in transit systems.

Pedestrian-friendly street design and land-use patterns in Portland are associated with higher rates of transit ridership, according to one recent analysis. Transit ridership in the least pedestrian-friendly zones of the city

ranges from about 2.5% to 3.5%. In the most pedestrian-friendly zones, ridership ranges from 10.6% to 12.6%.<sup>18</sup>

Gresham is working to improve its pedestrian connection to light rail through the Pedestrian-to-MAX program. Much of the light rail line in Gresham runs down the middle of Burnside Street. Three stations are located between four lanes of traffic on this National Highway System (NHS) route. Because of heavy traffic and truck use, the stations are inconvenient and feel isolated. Pedestrian-to-MAX is improving the station areas to better accommodate pedestrians in this auto-dominated environment. Phase I includes pedestrian system improvements to assist transit riders transferring between buses and trains at the Rockwood Station. The project includes a mid-block crossing of Stark Street at 188<sup>th</sup> Avenue. Other projects include improvements to Hood Street and Main Street in downtown.

***Right-of-Way Management***

Demands for right-of-way access are increasing as development and land use activity increase. In the past, utilities, signs, fire hydrants, and more have been placed in sidewalk areas to provide maximum travel lane capacity. However, this practice creates dangerous obstructions to pedestrians.

The right-of-way management program will develop an on-going effort to mitigate pedestrian hazards citywide and establish a management program for future right-of-way improvements. Future design standards will prioritize pedestrian facilities within the existing right-of-way. In designated pedestrian districts and transit

station areas, stricter pedestrian standards will be applied. The right-of-way management program will identify and catalog the many obstacles to pedestrians and a final listing will be incorporated into the City’s Capital Improvement Program for implementation.

***Accommodating the Disabled***

The Americans with Disabilities Act (ADA) requires that transportation facilities accommodate the disabled. While the ADA requires a minimum sidewalk width of three feet, the City utilizes a five-foot standard. The ADA also requires two curb cuts per corner at intersections for new construction. The City has an on-going capital improvement program to retrofit existing sidewalks with curb ramps. Those areas prioritized include schools, parks, transit corridors, and high pedestrian activity generators.

***Pedestrian Accessways and Multi-Use Paths***

A direct, well-connected street system provides the most desirable pedestrian system. However, where a street connection is not feasible, pedestrian accessways and multi-use paths are reasonable alternatives. Pedestrian accessways can connect cul-de-sacs, link residential and commercial areas, and provide essential access to parks, schools, transit stops, and neighborhood centers.

***Education***

An important companion to facility improvements is a program to encourage walking and increase awareness of opportunities to walk as an alternative to driving. Evaluation of educational programs shows that several

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<sup>18</sup> 1000 Friends of Oregon, “The Pedestrian Environment,” Making the Land Use Transportation Air Quality Connection, December 1993.

programs have reduced accident rates for school-age children.

The City also has an on-going program to develop Walking Guides for Gresham Neighborhoods. While resolving traffic problems is a costly, long-term process, a pedestrian map is a cost-effective way to encourage people to make the best use of the existing system. To date, maps have been completed for Downtown Gresham and Gresham's portion of the Springwater Trail.

## Travel Demand Management

The overall goal of a Travel Demand Management (TDM) Program is to maximize the efficiency of the existing transportation system by reducing the number of single occupant vehicles using the road system. The program of strategies and actions can also help meet mobility, air quality, and livability goals, as well as achieve Vehicle Miles Traveled (VMT) per capita and parking per capita reduction requirements of the state's Transportation Planning Rule (TPR). Reduction in travel can be accomplished through the provision of a wide variety of mobility options including transit, walking, biking, carpooling, and telecommuting.

Travel Demand Management is not one action, but rather a set of actions or strategies that encourage drivers to not drive alone, especially during heavily congested peak travel periods of the day. TDM therefore includes measures and /or incentives to:

- Provide pedestrian/bicycle amenities and urban design elements to help provide pedestrian interest and scale, as well as improved transit connections and amenities to increase non-auto trips.

- Reduce single occupant vehicle traffic with an emphasis on the peak travel periods which may incorporate carpools, vanpools, express buses, park-and-ride lots, transit pass incentive programs, etc.
- Spread traffic volumes away from the peak travel periods, which may include flex-time, staggered work hours, trip reduction ordinances, impact fees, etc.
- Improve traffic flow, which may include signal optimization, one-way streets, reversible travel lanes, ramp metering, etc.
- Remove vehicle trips completely from the roadway, such as telecommuting, conference calling, and compressed work weeks, etc.

## Assessment

Gresham currently uses several travel demand management strategies. The Traffic Impact Fee ordinance provides reductions for development near light rail (30%) and designated transit streets (10%). These districts require increased density, pedestrian friendly buildings, street frontage, and direct building orientation with primary building entrances to the street. Well planned and connected pedestrian systems link developments to each other, to light rail stations, to transit centers and to transit stops. Additional pedestrian amenities and urban design elements help provide pedestrian interest and scale.

Traffic Impact Fees can also be reduced for developments implementing a Travel Demand Management Plan that reduces peak hour vehicle trips.

This program allows developments located outside transit districts or corridors to utilize innovative or creative strategies to reduce travel impacts.

The City also provides tax incentives to promote transit oriented development and transit supportive public or private facilities through a Transit Oriented Development Tax Exemption (TOTE) program. The TOTE program is available in Downtown, Civic Neighborhood, and Rockwood areas. The program provides a 10-year property tax abatement for transit-oriented developments that meet program criteria.

Finally, as a major employer, Gresham utilizes the regional rideshare assistance and guaranteed ride home programs. The City provides transit incentives by reducing daily and monthly transit ticket costs and encourages employees to use alternative modes by providing materials and information through transportation fairs and City bicycle fleet programs.

### **Needs**

The Transportation System Plan must establish measurable objectives to accomplish reduction in Vehicle Miles Traveled, including:

- An increase in the modal share of non-auto trips.
- An increase in average automobile occupancy.
- A decrease in number of automobile trips through demand management strategies, rearranging of land uses or other means.
- Promote effective employer incentive programs that reduce the number of people driving alone and dependence on the automobile.

- Promote, establish and support transportation management associations (TMAs) in regional centers, industrial areas, town centers, and employment centers.
- Promote end-of-trip facilities that support alternative transportation modes.
- Promote private and public sector programs and services that encourage employees to use non-single occupant vehicle modes or changes to commuting patterns.

### **Parking Management**

Parking is an integral part of the transportation system. As such, on- and off-street parking management is key to meeting the City's goals to facilitate the movement of people and goods and foster economic development while reducing congestion, urban sprawl, and air pollution. One way to accomplish this is to more effectively utilize existing roadway capacity by encouraging alternatives to single-occupant vehicle (SOV) travel -- carpooling, transit, walking, biking, and telecommuting -- when feasible and appropriate.

The availability of abundant and free trip-end parking is one of several factors that make SOV travel convenient and attractive, and therefore, is a disincentive to using alternative modes of transportation. Moreover, a recent Oregon Department of Environmental Quality (DEQ) study suggests that off-street parking supplies often exceed even peak annual demand for stand-alone uses, resulting in a waste of precious land resources. Suburban jurisdictions may unintentionally contribute to this problem by establishing overly generous minimum parking standards. As noted by Dr. Richard W. Wilson

in his article, "Suburban Parking Requirements: A Tacit Agreement for Automobile Use and Sprawl":

Suburban parking requirements have largely unrecognized effects on travel behavior, development density, development cost, and urban design. Case studies of suburban Southern California office buildings reveal that zoning codes cause parking to be oversupplied, and that automobile commuters are shielded from the economic cost of parking. These circumstances increase automobile commuting, lower building density and land value, and create automobile-oriented urban design. Taken together, such site effects contribute to the automobile-oriented, low-density character of suburban areas. Suburban parking requirements thus work at cross-purposes with efforts to reduce traffic congestion and air pollution (Page 29).

On the other hand, if the parking supply is pinched too severely, it could put new Gresham businesses and institutions at an economic disadvantage and drive city residents to use goods and services outside the city. This outcome could, in the long run, lead to increased vehicle miles traveled (VMT) or result in spillover parking into nearby residential areas. Therefore, Gresham has developed parking requirements that encourage the provision of an adequate, but not excessive, supply of on- and off-street parking. Moreover, parking strategies are tied to a program to aggressively develop alternative modes of transportation so that those who choose not to drive (and park) alone have reasonable, safe, and convenient alternatives.

The City has developed Public Parking Management Plans for the Gresham Regional Center and the Rockwood Town Center. These plans evaluated the use of public parking spaces (on-street and off-street) and analyzed future parking demand, location, financing and operation, and evaluated program alternatives.

### **Gresham Regional Center**

Parking standards are typically written with the assumption that each separate business or business complex needs off-street parking for each of its customers. Many newer Gresham business areas are developed in a space-extensive, auto-oriented development pattern where customers park and walk to separate businesses rather than park and walk to multiple nearby businesses. The downtown core of the Central Area has a small-block lot pattern and a compact mix of small businesses on separate small lots. This pattern lends itself to high pedestrian activity and consolidated off-street parking facilities for multiple businesses. In this area it is inefficient and sometimes unfeasible for each small business to provide required off-street parking. With conveniently located common parking facilities, the downtown core area can remain compact and function efficiently as a single shopping center.

There are over 7,200 parking spaces in the downtown Gresham area, including approximately 1,500 on-street spaces. Nearly two-thirds of the existing parking inventory is privately owned.

The City provides 324 off-street public parking spaces in seven lots in a Parking Assessment District within the downtown core, bounded by Powell Boulevard, 3<sup>rd</sup> Street, NW Miller Street, and NE Hood Street. These

lots satisfy off-street parking requirements for businesses within the District, which were assessed to construct these lots. Within these blocks there are also 172 private off-street spaces, for a total of 496 spaces.

An October 1998 survey of downtown parking found a 57% peak weekday occupancy of all off-street spaces (public and private) within the Parking District blocks. Were each business in this area required to provide its own parking lot, 836 parking spaces would be required, resulting in a substantial oversupply. Surveyed peak weekday parking occupancy for all off-street spaces in the wider commercial area between the Gresham Central Station and Powell Boulevard was a similar 58%. Parking occupancy is estimated to reach 83% within the next twenty years within the area. Generally, parking becomes difficult when an occupancy rate of 85% or more is reached (TDA, Inc., Parking Recommendations, Central Area Market Report, May 1986).

While an adequate parking supply presently exists within the downtown area, future development will create the need for additional consolidated private and public parking. City development standards contain provisions that support efficient parking within the downtown area, including parking reductions near transit stations, and allowing joint parking for complementary uses, allowing off-site parking within 250 feet of a business. The City needs to monitor downtown parking and development trends, and facilitate additional consolidated parking, when and where appropriate.

The City is also working with property owners within the Civic Neighborhood to identify and explore opportunities for structured parking within this high-density district. There are fewer than 3,800 parking spaces in the area, including 865 in the Civic

Neighborhood core. The peak weekday occupancy rate is approximately 51%. However, the utilization of the City Hall parking lot is effectively full at 93%. As development continues, the City will work to promote opportunities to reduce the need for land intensive surface parking lots.

A logical action following the development of the Public Parking Management and Development Plan has been to establish Transportation Management Associations (TMA). A TMA can resolve parking and transportation problems, manage public parking, and research potential future programs such as parking meters, pay-for-parking on City owned lots, or the construction and management of structured parking facilities. The Association can also establish preferential parking locations for carpools, establish a Downtown Transit Shuttle, or develop a demand-responsive transit service for the east County area.

The City is currently working with the Gresham Downtown Development Association (GDDA) to implement a Gresham Regional Center TMA. Primary goals for the TMA include:

- Parking management to stimulate on-street parking turnover and better utilize existing parking supply.
- As part of a Customer First program, provide designated employee parking lots to leave prime parking spots open for customers.
- Pursue additional parking supply and parking structures in the Gresham Regional Center.

- Improve transit use that results in better service and increased ridership to reduce parking demand.
- Improve pedestrian connections between Downtown and Civic Neighborhood to reduce short automobile trips.

### Rockwood Town Center

The existing and forecast parking conditions analysis of the Rockwood Town Center shows parking pressures in some isolated areas, including on-street parking spaces. However, the existing parking supply total is adequate to meet overall existing and future demands. The challenge in the Rockwood area is that a significant proportion of the parking supply is privately controlled and limits the flexibility of the City to manage the existing parking supply. The existing parking inventory in the Rockwood area is approximately 2,825 spaces, of which nearly 2,600 (92%) are in surface parking lots for designated users. Adjacent parking areas were generally experiencing high vacancy rates.

### Gresham Park-And-Ride Lots

The City Hall and Cleveland lots experience high occupancy, higher than originally anticipated. The City Hall and Cleveland lots serve riders originating from wide areas to the east and south of the MAX line terminus. All other park-and-rides closer to Portland, such as 183<sup>rd</sup> Avenue, serve smaller areas and have lower occupancy. Some MAX riders may choose auto access to MAX because of deficiencies in feeder bus service to the Gresham stations. Other new rail transit riders did not use bus service previously and are attracted to light rail because of the convenience of park-and-ride facilities.

The 162<sup>nd</sup> Avenue Station is the most heavily patronized station east of Gateway not served by a park-and-ride lot. Since there are no feeder bus connections to this station, MAX riders come from the fairly dense neighborhoods around the station. Near this station Tri-Met has worked to resolve some problems of informal park-and-ride use on surrounding local streets. The two heavily used Central Area park-and-rides may exceed their capacity in the next five years. It is important for the City and Tri-Met to monitor the demand for park-and-ride facilities to assure an adequate supply is available to support ridership growth, while avoiding conflicts of overflow or informal park-and-ride use on streets and other parking lots near stations.

Table 17. Park-and-Ride Facilities

Location	Number of Spaces		Average Daily Use	
	Long Term	Kiss & Ride	Vehicles	% of Spaces
Cleveland	383	9	392	100%
Gresham Central Garage	540	0	243	45%
City Hall	390	14	343	85%
183 <sup>rd</sup> /Burnside	247	0	82	33%
Total Gresham	1560	23	1060	67%

Source: Tri-Met, Park-and-Ride Survey, February 2000.

Managing these parking facilities also has important land use implications. Other than the Gresham Central Garage, the park-and-ride facilities are surface parking

lots. These surface lots occupy valuable land within the Gresham Regional Center and Rockwood Town Center. To the extent that management practices such as parking fees may maximize the efficient use of existing spaces, there may be opportunities to redevelop some of these surface lots to more intense urban land uses.

### **Parking Standards**

Standards that achieve the goal of "adequate but not excessive" parking must take into account employment density, patron and customer travel patterns, availability of alternative transportation modes, site size and configuration, and land use requirements. Several important conclusions are apparent from a review of the literature and field observations within Gresham.

1. There are examples of existing development in Gresham -- primarily "big-box retail" and large office and multi-family housing projects -- that appear to have an excessive amount of parking. That is, a significant portion of their parking lots are vacant most of the time. On the other hand, an analysis of 1994 building permits, conducted as part of the Gresham Parking Study, suggests that minimums become the benchmark for parking supply. Nearly one-third of developers built the minimum number of spaces required by the code. Most of the 60% who built above the minimum only did so modestly. Five projects accounted for 86% of the spaces constructed above the minimum number required. It could be argued that these developments probably over-built their parking.
2. From both a public policy and economic perspective, it is not desirable to permit parking to exceed peak annual demand, as this means that spaces only needed once or twice a year stand vacant the rest of the year.
3. The establishment of realistic minimum parking rates for each land use is a major component of a successful parking program. A minimum ratio should be high enough to accommodate average peak demand, so as not to impair the user's competitive advantage and/or encourage parking spillover, but not so high as to result in significant under-utilization. Because suburban areas are typically more auto-oriented than central city areas, suburban jurisdictions have tended to set their minimum ratios higher than necessary. Moreover, minimum ratios only establish the "floor" for parking; developers can build parking as far above the minimum as they choose, unless regulated by maximum parking ratios. As noted above, this in turn can result in the development of land use patterns and travel behavior that reinforces SOV use.
4. Many jurisdictions are experimenting with their minimum standards as a regulatory tool to reduce overall parking development. These modifications take several forms:
  - Permitting a developer to reduce the amount of parking minimally required by a set amount as a right of development. For example, Eugene's new parking code allows an outright 25% reduction and up to 50% if justified by a parking demand study.
  - Other jurisdictions provide reductions from the minimum in downtown and/or transit zones as a matter of right because it is assumed that pedestrian and transit use will

reduce parking demand. Several jurisdictions -- including Gresham, Portland, Hillsboro, Montgomery County (MD), and Phoenix (AZ) -- permit outright parking reductions if the site is located within a specified distance of bus, light rail, or commuter rail stations.

- Many jurisdictions only grant such reductions in return for the developer's implementation of transportation demand management (TDM) incentives to encourage other modes of transportation including transit pass subsidization and carpool matching/preferential parking programs. Hartford (CT), Palo Alto (CA), Sacramento (CA), Chicago (IL), Seattle (WA), and Dallas (TX) all have enacted parking reductions based on this requirement.
  - Calgary (Canada) and Orlando (FL) permit and, in some cases, require developers to reduce on-site parking in exchange for "in-lieu" payments to finance the construction of a comparable number of spaces in a municipal parking facility or to support local transportation management efforts.
5. Incentives to voluntarily reduce parking below the minimum required can be successful. This is illustrated in Gresham where, according to a 1994 building permit survey, several developers took advantage of the option provided in the Community Development Code to reduce parking for residential projects located within 1/4 mile of transit. This suggests that many developers inherently recognize the benefit of reducing parking if reliable alternatives,

particularly transit, are available. There were also examples in the survey where owners used the concept of shared parking to eliminate or reduce the need for additional parking to support a site expansion. This suggests that over the long-term, the total number of new parking spaces provided can be significantly reduced through a comprehensive program of parking reduction incentives and public education about the true economic costs of under-utilized parking.

6. Encouraging the use of shared parking, where two or more users share the same parking supply, can result in significant reductions of parking construction. If the uses operate at different times of the day or week, e.g., church and day-care center, there is essentially a 100% savings because both users use the same space. Even when the demand overlaps somewhat, or where a patron may visit several of the uses in the same mixed-use development, substantial economies-of-scale can be achieved through shared parking. Estimated savings in parking spaces can range between 6% and 64%. Mixed-use projects where such economies have been observed include residential/daytime employment; retail and restaurants/office; and office/night- and weekend-oriented entertainment. Half of California's jurisdictions, many Canadian cities, and Alexandria (VA) have adopted shared use parking reduction regulations.

7. Increasing the number of compact car spaces, which are 7.5 - 8.0 feet compared to the standard 9.0 feet wide, can significantly increase parking lot efficiency. When 50% of spaces in a parking lot are designated as compact, up to 10% more spaces can be accommodated in the same land area. Re-stripping existing lots to permit more compact spaces is one way of creating additional parking without increasing the land area devoted to parking. Significantly changing the proportion of compact spaces presents a risk as the automobile market goes through cyclical changes in vehicle size. Gresham already allows up to 50% compact spaces in new parking lots by right.
8. Although a significant proportion of developers build at or slightly above the minimum, there is a role for establishing maximum parking ratios for all land uses. The combination of maximum and minimum ratios sets the acceptable range of parking construction, giving developers flexibility to accommodate the project-specific conditions without permitting unneeded parking. However, relatively few jurisdictions have adopted comprehensive maximum parking ratios. In 1991, Bellevue (WA) was the only jurisdiction of 127 to have adopted such regulations. As Washington State's Commuter Trip Reduction Rule encourages maximums, several of the state's cities and counties are proposing such regulations. As part of its new parking code, Eugene recently defined maximums as 150% of minimum standards for all uses in all zones. Over a period of time, this percentage will be reduced so that by the year

2015, maximums and minimums will be the same.

9. The Oregon Transportation Planning Rule (TPR) sets a goal to reduce non-residential per capita parking by 10% in the next 20 years. Based on a recent study of the Portland metropolitan area, it is estimated that the current ratio is .85 non-residential spaces/capita. As of July 1995, Gresham's per capita ratio is estimated at 1.28 spaces, 51% above the regional average. According to the Portland Metropolitan off-street parking survey (November 1995), Gresham has 350 acres of paved surface lots. This area is comparable to the entire Downtown Plan District and is three times the size of the Civic Neighborhood Plan District. To reach this goal region-wide, the regional per capita ratio will have to be reduced to about .77 spaces. A comprehensive parking management program will be necessary to meet this ambitious State goal. Metro and its constituent local jurisdictions are working to establish regional parking strategies and policies to ensure that the Portland metropolitan area meets this TPR requirement.

## **Freight System**

The movement of freight by truck and rail plays an important role in the economy of Gresham and the region. The capacity of the roads and rails must be adequate to efficiently transport raw materials and finished products within and through the city if local employers are to remain competitive.

## **Truck Freight**

The focal point for freight related industries in Gresham is the intersection of I-84 and 181<sup>st</sup> Avenue where two National Highway System (NHS) routes converge. This area is a gateway to Portland International Airport and the Columbia Southshore industrial area to the north where numerous reload facilities and truck terminals are located. To the south, the NHS route follows 181<sup>st</sup> Avenue to Burnside Street, passing through the Rockwood Town Center and the north edge of the Gresham Regional Center to US 26 and points east. Interstate 84 is a major east/west route in the National Highway System.

Several large manufacturing and distribution facilities have located in the Banfield Corporate Park and the Rockwood Industrial Park near this major interchange to take advantage of the freight mobility. Other significant freight generators (LSI Logic and Fujitsu) are located to the east with good access to I-84 at the 207<sup>th</sup> Avenue Interchange and convenient access to US 26 via arterial streets.

The region's interstate routes are most significant for truck mobility. These corridors carry almost 66 percent of all trucks miles of travel. The corridors with the greatest hours of delay are predicted to also be the corridors with the highest truck volumes.

In 1994, Gresham handled more than 21,959 truck trips daily. This number is expected to grow by 43 percent between 1994 and 2020. Of this total, approximately 11 percent are expected to be on the regional transportation system in the evening two-hour peak period. Truck hours of delay are expected to increase by more than 60 percent during the evening two-hour peak period between 1994 and 2020.

## **Heavy Rail**

Gresham is served by one heavy rail line. The Union Pacific crosses the north side of the city and has two parallel branches, the mainline north of and parallel to Sandy Boulevard (1.8 miles) and the branch line parallel to I-84 (2 miles). The south branch provides direct rail service to Rockwood-Banfield Corporate Park industrial areas and several large manufacturing and distribution uses. The area enjoys tri-weekly rail service. The annexation of the north Gresham industrial areas served by Union Pacific allows the city to more effectively encourage the location of businesses needing direct and efficient rail service with the assurance that rail service will continue to be provided for those businesses.

Both the Rockwood and Banfield industrial parks have rail access via a spur and sidings off the Kenton Line. There are no other active sidings in Gresham, but also no evidence of additional demand, as the existing sidings are under-utilized. A spur off the Union Pacific mainline serves the Reynolds Aluminum site and other employers and reload facilities in Troutdale.

The Union Pacific mainline splits in Portland and two rail lines crossing the north part of Gresham and following the south bank of the Columbia River. With 590 miles of track, (23% of the state's total) Union Pacific is the state's second largest carrier. This line handles over 40 million gross tons of freight traffic annually. Union Pacific originated or terminated the largest freight tonnage of any carrier in Oregon in 1992, almost 15 million tons. Since the vast majority of coal, chemicals and farm products shipped by rail to terminals

in Oregon come from northern tier states (Idaho, Montana, Wyoming & the Dakotas), the Union Pacific

line will continue to be a significant conduit for exports leaving Oregon ports.

There are two at-grade heavy rail crossings in Gresham. The first is a signalized crossing of 181<sup>st</sup> Avenue between San Rafael and Halsey Street, which has a significant potential for conflicts with motor vehicle travel, but has little or no rail traffic. The second is on San Rafael near 192<sup>nd</sup> Avenue. This industrial area has low traffic volumes and the rails are seldom used. An increase in rail volume in the future would not create any significant conflicts.

In addition, there are railroad bridges crossing 162<sup>nd</sup> Avenue, 181<sup>st</sup> Avenue, and 201<sup>st</sup> Avenue, all of which are Multnomah County maintained streets. There is also a low narrow bridge over 185<sup>th</sup> Avenue, a City maintained collector street in this area. The spans of all these bridges except for the 181<sup>st</sup> Avenue crossing are insufficient to construct the planned roadway facilities and they create a barrier to safe motor vehicle, transit, freight, pedestrian and bicycle circulation. Multnomah County has identified these bridge replacements as Priority 1 projects. However, funding limitations and the logistics of maintaining the operation of mainline rail traffic have proven to be formidable constraints to constructing these projects. Gresham is planning improvements to the 185<sup>th</sup> Avenue railroad crossing that will provide adequate vehicle, freight, bicycle, and pedestrian access to the surrounding industrial area.

### **Needs**

High truck volumes are not always compatible with street designs that support high pedestrian and transit use as planned in 2040 Centers. Trucks must compete for limited space in the right-of-way along with cars, transit,

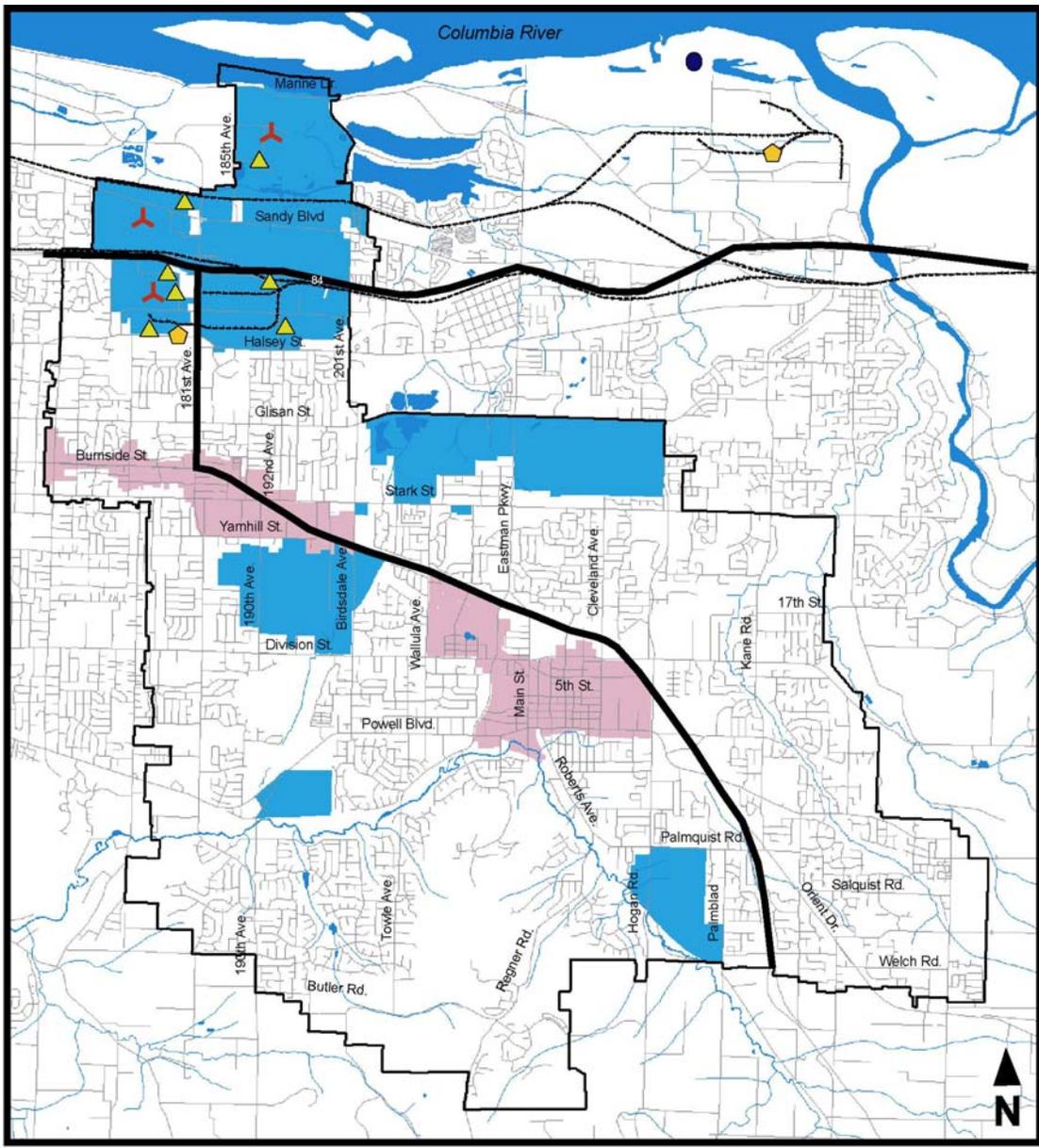
bicyclists, and pedestrians. Greater delay to through movement of freight is likely as the Town Center and Regional Center are built to the design densities needed to support the 2040 Growth Concept.

The 181<sup>st</sup> Avenue/Burnside Street route is experiencing increasing congestion as the number of commuter, freight, recreation, and shopping trips keeps growing. Frequent turn movements to the many commercial driveways along this route also reduce the efficiency of the system to move freight. Therefore, the most critical need is for an improved freight route connection between I-84 and US 26.

Interim improvements to freight mobility in this corridor are proposed for funding in the RTP, including a 242<sup>nd</sup> Avenue Connector from the I-84 to Stark Street and an improved south connection between Hogan Road and US 26. East Multnomah County jurisdictions need to work to identify a strategy for this connection since funding and timely construction of an alternative connection will be critical to preserving freight mobility over the next 20 years.

An important freight consideration to monitor is the ability of the street system to provide for efficient commercial delivery, particularly in 2040 Centers where lower peak hour levels-of-service may be accepted. The City needs to develop standards for loading zones and consider system management techniques such as limiting delivery times.

The Oregon Transportation Plan projects a 2.5% growth rate for both rail and truck freight traffic, which is a



# Transportation System Plan



**Figure 13**  
**Existing Freight System**

-  National Highway System (NHS) Route
-  Railroad Lines and Spurs
-  Railroad Facility
-  Marine Facility
-  Distribution Facility
-  Truck Terminal





60% increase over 20 years. The 1994 Oregon Rail Freight Plan did not identify any rail capacity or facility improvements in Gresham, however significant needed investments were identified at the Port of Portland terminals.

## Passenger Rail

The era of passenger rail service in Gresham ended in 1958 with the termination of rail service from Portland to Cazadero. Tracks were removed as part of the Rails to Trails conversion of this right-of-way to the Springwater Corridor multi-use trail.

The Union Pacific mainline is the only inter-city passenger rail corridor crossing through Gresham. No other future corridors crossing Gresham were identified in the 1992 Oregon Rail Passenger Policy and Plan. However, additional service options using the Union Pacific rail were evaluated. Until April 1997, Amtrak provided service three days a week from Portland through Boise and Ogden to Denver. The Amtrak Pioneer service included stops in Oregon at Hood River, The Dalles, Hinkle-Hermiston, Pendleton, La Grande, Baker, and Ontario. As a corridor of statewide significance, the restoration of this east/west rail service should be a high priority for the region and the State.

Two other service concepts for the Union Pacific corridor were identified in the Oregon Rail Passenger Policy and Plan. The Columbia Corridor concept would add a second Pioneer trip from Portland to Boise. However, even assuming equal ridership to the existing Pioneer, the cost per passenger would be \$539.70 versus a likely fare of \$45. A Deschutes/Cascade Corridor concept was also evaluated. This service would supplement the Coast Starlight from Portland to Los

Angeles except the northern segment would travel from Portland to The Dalles then south through Bend to Chemult where it would continue on the usual route. The population along this route is only 15% that of the Eugene route, so ridership volume sufficient to support the service is doubtful. The report concludes that costs outweigh the benefits in the foreseeable short term and that improvements to Willamette Valley service should receive priority.

An analysis of commuter rail as an option to light rail was performed in 1993 as part of the South/North Transit Corridor Study. Commuter rail was also evaluated in 1997 as a cost cutting measure following the defeat of a statewide ballot measure regarding South/North Light Rail construction funding. The study report compares characteristics of commuter rail service in four west coast cities. It notes that commuter rail typically connects large outlying communities to a central business district with average trip length in the 40 to 80 mile range.

Several potential commuter rail lines have been identified in the Portland Metropolitan Region. One would utilize the Union Pacific line from Union Station to a new station and intermodal passenger facility called Edgefield Station in Troutdale and potentially to Hood River and The Dalles. The stated purpose of this service would be to relieve congestion on Interstate 84. While there are many issues to be addressed, including the effect on the Urban Growth Boundary, Gresham continues to support the evaluation of commuter rail service in the Union Pacific corridor.

## **Air Transportation System**

Aviation facilities vary in their importance to the overall transportation network from the small private airfield to the international airport. A key concern for all airports is the compatibility of nearby land uses with safe aviation operations. Another consideration, particularly for larger airports, is good access by a variety of transportation modes.

There are no existing or planned public or private airports in Gresham. There is one helicopter landing facility located at the Gresham City Hall complex. The Aeronautics Division of ODOT has site approval authority for all airports and helicopter landing facilities. The Federal Aviation Administration regulates public use airports. There are specific approval criteria for the location of helicopter landing facilities in the Gresham Community Development Code.

Portland International Airport (PDX) is the major aviation facility serving the region. It was originally developed in the 1940s as a replacement for the Swan Island Airport and grew to its present size of about 3,200 acres to accommodate airfield expansion needs and to ensure that adjacent land uses were compatible with airport operations. In addition to aviation facilities and support uses (such as rental cars), present uses include airfield dependent uses (air cargo) at the Airtrans Center and a variety of commercial and industrial uses in the Portland International Center (PIC). The Port of Portland operates PDX. The Port of Portland also operates general aviation airports in Troutdale, Hillsboro, and Mulino, which are becoming increasingly important as “reliever” airports for PDX by serving corporate aircraft and training flights.

## **Land Use Compatibility**

Cone-shaped "safety zones" are designated at the end of each runway where land uses and building heights are restricted to provide for safe aircraft landings and take-offs. No portions of Gresham are within the safety zones of either the Portland International or Troutdale Airports. There are no special design review requirements that would apply to proposed developments in Gresham. Each land use district has building height limits. State guidelines indicate that local jurisdictions should consider safety-related factors such as exhaust, smoke, building height, lighting, and disruption of radio communications or navigational aids in design review for industrial lands close enough to be affected by noise levels.

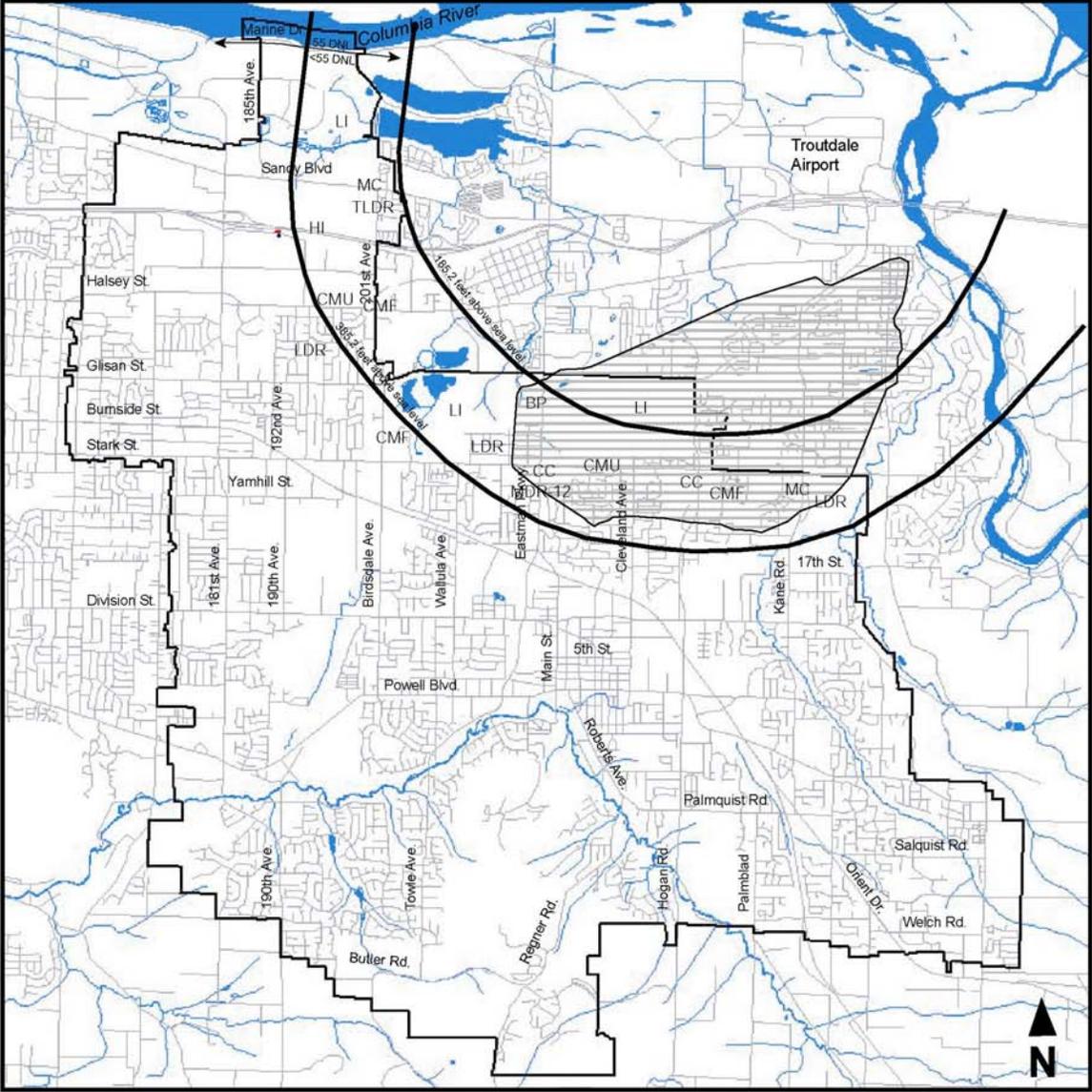
There are also “imaginary surfaces” that surround Troutdale Airport that the City must consider. The first of these surfaces extends out from the airport at an elevation of 185 feet above sea level. The second surface extends from the first at a slope of 20:1 until it reaches an elevation of 385 feet above sea level. Oregon law and administrative rules require local jurisdictions to limit the height of physical structures within areas covered by these surfaces. Physical structures may not extend beyond the imaginary surfaces. Where the ground elevation is higher than the imaginary surface as is the case in a portion of northeast Gresham, no physical structure may exceed a height of 35 feet.

A review of ground elevations outside this area and existing height limitations indicates that no additional restrictions will be necessary. However, within that area where the ground penetrates the imaginary surfaces, the City will need to limit building heights to 35 feet.

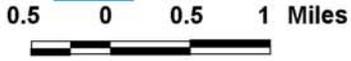
# Transportation System Plan



**Figure 14**  
**Airport Compatibility Areas**



- Troutdale Airport Imaginary Surface
- Terrain penetrating Imaginary Surface
- Portland International Airport Noise Contour
- Low Density Residential (LDR)
- Transit LDR (TLDR)
- Corridor Multi-Family (CMF)
- Moderate Density Residential (MDR-12)
- Corridor Mixed Use (CMU)
- Moderate Commercial (MC)
- General Commercial (GC)
- Community Commercial (CC)
- Business Park (BP)
- Light Industrial (LI)
- Heavy Industrial (HI)





Local governments also need to consider the compatibility of the land uses they establish with expected aircraft noise levels. Both the Federal Aviation Administration and the Oregon Department of Transportation have developed land use compatibility guidelines for aircraft noise exposure areas. Aircraft noise exposure is expressed in DNL (Day-night average sound level). Residential uses are considered incompatible with a DNL of 65 dnl or higher. The highest levels of noise exposure in Gresham are in the area north of Marine Drive with a DNL of 55 to 60 Dbl. This noise corridor zone is expected to remain approximately the same over the next 15 years. The area in Gresham north of Marine Drive is designated Low Density Residential to reflect the existing marina and houseboat uses. The area south of Marine Drive is designated Light Industrial and Heavy Industrial, which generally allow uses compatible with a noise corridor zone.

Two primary landing approaches cross over large residential areas in Gresham. While aircraft noise under these flight paths may not be at levels that exceed regulations, some residents have reported disruption and annoyance from aircraft noise. Citizens have questioned the need for aircraft approaches over an urban residential area when the urban growth boundary is only a mile or two east of the flight path. While there may be operational constraints to moving these landing approaches further east, this issue should be discussed further with the Port. The Noise Abatement Advisory Committee to the Port Commission may be the most appropriate forum for addressing this issue.

## Airport Access

The number of passengers using PDX is expected to increase from 11 million in 1995 to 24 million by 2010. A 1997 study of passenger origins/destinations and travel modes revealed that 38.4% of passenger trips to the airport originate within the Portland Metro region including 1.9% from Gresham. The current passenger mode split is listed below.

Maintaining and improving access to the airport by a variety of modes is important to Gresham and the region. The Port is developing a long-term strategy to preserve and enhance access to the terminal. Key goals are to: 1) maintain a good level-of-service for inbound trips on Airport Way to the terminal at all hours; 2) increase the use of public and private transit by passengers to 24% of all passenger trips; 3) reduce single-occupant vehicle trips by passengers and employees, particularly passenger drop-offs; and 4) reduce the rate of growth in parking demand.

*Table 18. Airport Access Mode*

<b>Travel Mode</b>	<b>Percentage</b>
Private Vehicle	67%
Rental Car	17%
Hotel/Motel Van	4.7%
Taxi	3.7%
Commercial Van	3.7%
RAZ	1.9%
Town car / Limousine	1.4%
Airport MAX	0.6%

Source: Port of Portland

A Light Rail extension from downtown Portland to the terminal via Gateway opened in 2001. This new transit link significantly enhances regional access to the airport. Travelers to the airport from the Gresham area must transfer to an Airport MAX train at the Gateway Transit Center.

Motor vehicle and freight access to the Airport through Gresham travels primarily via Airport Way. Any access to that segment of Airport Way within the Gresham city limits from adjoining properties must be carefully considered to ensure that freight access is not negatively affected. Freight traffic from US 26 to the airport typically travels on Burnside and 181<sup>st</sup>, the National Highway System route.

### Pipeline System

Pipelines serve an important transportation function in the transmission of large quantities of liquid and gas products. They are more safe and efficient than moving the same products by rail, truck, or barge. There are currently six major pipelines crossing Gresham within four corridors.

Four major water pipelines (Bull Run Conduits) cross east/west through Gresham, with a fifth conduit planned. The Portland Water Bureau maintains these pipelines and five metering facilities where water is transferred to the local reservoir storage and distribution system in Gresham. Conduits 2, 3, and 4 are currently in service and provide water used in the Portland metropolitan area. Conduit 5 is planned.

Table 19. Bull Run Conduits in Gresham

Conduit #	Year Built	Diameter	Status
1			Abandoned in place
2	1911	44"	In Service
3	1925	50"	In Service
4	1953	56"	In Service
5	N/A	?	Planned

Two high-pressure natural gas pipelines also cross Gresham in north/south corridors. A 20" pipeline built in 1964 is almost entirely within the Hogan Road right-of-way through Gresham. A 30" pipeline, built in 1996 that generally follows the PP&L utility corridor passes through the eastern part of the city. Northwest Pipeline Corporation operates these two pipelines as well as two metering stations in Gresham where natural gas is transferred to a local distribution company. Both pipelines transport natural gas from the mainline at Washougal, Washington, down the Willamette Valley, and south to the terminus at Grants Pass via a series of large compressors. They provide over 90% of the natural gas used in Oregon west of the Cascades. Existing pipelines have sufficient capacity to accommodate the anticipated growth in demand over the next 20 years. If replacement of the 20" pipeline is needed due to significant changes in the Hogan corridor (i.e. construction of the Mt. Hood Parkway), there is adequate right-of-way or permanent easement in the eastern corridor for a second pipeline. No additional future corridors through Gresham have been identified.

The City of Gresham has a very limited role in determining pipeline routes and regulating their construction. The Federal Energy Regulatory Commission (FERC) regulates the siting and construction of natural gas pipelines. The Gresham Community Development Code exempts major transmission lines from design review, but requires construction in each Special Purpose District to meet particular approval criteria.

The operation, maintenance, and repair of existing regional pipeline facilities are also ordinarily exempt from land use regulation. The Office of Pipeline Safety, a branch of the US Department of Transportation (DOT) sets special design and operating requirements for natural gas pipelines in urban areas and conducts annual audits of operations, maintenance, and safety procedures for all interstate pipelines. The Oregon Public Utility Commission regulates intrastate pipelines and distribution lines in the public right-of-way. However, three ruptures of high-pressure natural gas pipelines in rural Washington in recent years have increased awareness and concern about the safety of pipelines passing through residential areas in Gresham. According to Department of Transportation statistics, the greatest risk to pipelines is from damage caused by third parties, primarily from excavation.

Damage prevention measures used for the natural gas pipelines through Gresham include:

- Active participation in the One-Call Utility Locate System
- Encroachment permits required for activities in the pipeline right-of-way

- On-site inspection of excavation near the pipeline
- Weekly aerial surveillance
- Coordination with local planning and emergency response personnel
- Markers on the right-of-way including an emergency 800 number
- Annual contacts with adjacent landowners
- Semi-annual leak detection surveys

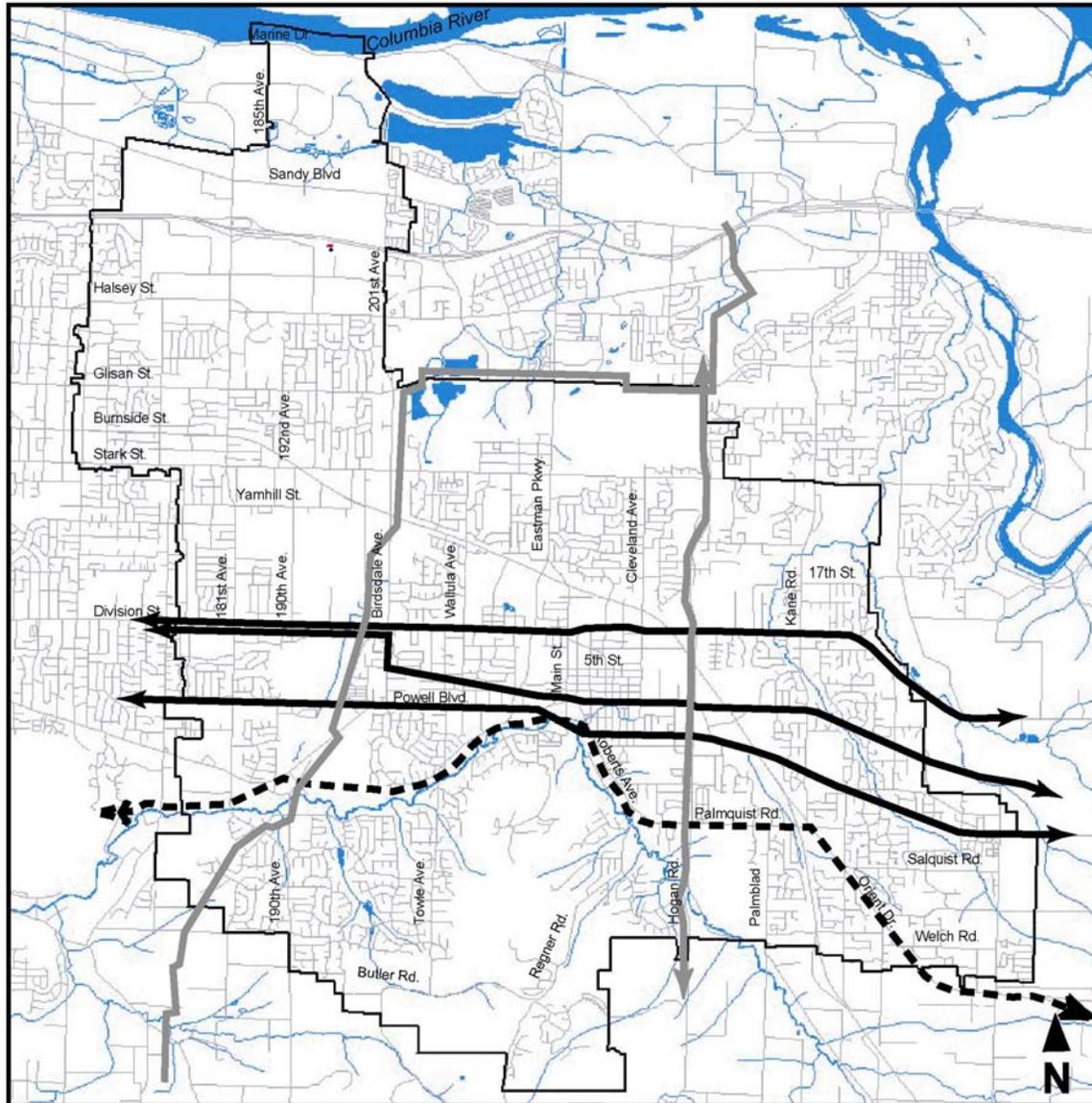
Land movement is the primary cause of natural gas pipeline damage in the Northwest. Slopes typically become unstable as a result of excessive soil moisture, increased loads from fills, or erosion at the toe of the slope. Contributing factors to land movement include:

- Unstable soils on steep slopes
- Changes in drainage patterns due to unusually heavy rainfall, clear-cutting, grading, or diversion of surface water
- Uncontrolled runoff from other land use activities

A geotechnical investigation by CH2M-Hill prior to construction of the 30" natural gas pipeline found no active faults and no active or potentially active landslide areas along the eastern corridor through Gresham. A post-construction survey of the right-of-way in March 1997 found some minor erosion problems, but confirmed that there are no active landslide areas.

The City's Development Code regulates all land use activities likely to affect drainage patterns. It is important to monitor drainage along this corridor. The

City should adopt a process of coordination and notification of the pipeline of all developments within 300' to 600' of the natural gas pipelines. This could be accomplished by adding a special "tag" to the pipelines in the Geographic Information System that would alert staff to notify the district office in Battleground, Washington.

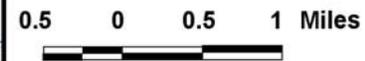


# Transportation System Plan



**Figure 15**  
**Major Pipelines**

-  Existing Bull Run Conduit
-  Planned Bull Run Conduit
-  High Pressure Gas





### Introduction

This chapter provides policies and strategies that together will guide transportation decisions in Gresham. This section does not contain specific project recommendations, but rather provides a basis for assessing the transportation needs of the community as it develops. The following chapters identify specific projects, programs, and other actions to implement these policies.

### Vision Statement

The Transportation System Plan will support the growth and development of Gresham as a vital, livable community by providing pleasant and convenient access and travel to, through, and within the city.

### Guiding Principles

Guiding Principles provide a bridge between the Vision statement and more specific policies and strategies. The Transportation System Plan has three guiding principles for defining and developing the transportation system:

- Facilitate development of Vision 2020, Community Development Plan, and Metro 2040 land use components with specific strategies that address mobility and accessibility needs and use transportation investments to leverage and support desired land use patterns.
- Increase travel choices and promote a “feet first” approach to personal travel by providing a continuous, interconnected transportation system.

- Ensure the transportation system provides a safe, secure, and attractive travel experience that increases opportunities for community interaction.

### Policies and Strategies

The policies are grouped into a series of broad system categories: Transportation System, Street System, Transit System, Bicycle System, Pedestrian System, Travel Demand Management, Parking Management, Truck and Rail Freight System, Passenger Rail, Air Transportation System, and Pipeline System. All of the policies and strategies support one or more of the guiding principles and will ensure the vision is ultimately achieved. The transportation system policies provide direction to the development of the overall transportation system and define how the various components of the system will be assembled. The policies assembled under the individual system elements are generally founded on more specific needs.

### Transportation System

**Policy 1: Develop and promote a balanced transportation system that provides a variety of travel choices and reduces reliance on automobiles.**

1. Adopt land use patterns that provide for a mix of uses that supports alternative modes.

2. Provide and promote a range of viable transportation alternatives that respond to people’s needs for mobility, safety, comfort, and convenience.
3. Promote commute trip reduction programs, ridesharing, carpooling, telecommuting, parking management, flexible work hours, and other travel demand management strategies aimed at reducing the number and length of single occupant vehicle trips.
4. Reduce subsidies for single-occupant automobile travel.
5. Adopt and monitor 20 year modal share targets for the Gresham Regional Center (Downtown and Civic Neighborhood), Rockwood Town Center, station areas, and citywide, to be updated on a five year basis.

**Policy 2: Plan, implement, and maintain an efficient transportation system.**

1. Coordinate transportation capital improvement plans, street design standards, the functional classification of streets, transportation system management actions, review of development with significant transportation impacts, and transportation planning activities:
  - With affected agencies, jurisdictions, and special districts such as Oregon

- Department of Transportation (ODOT), Metro, Multnomah and Clackamas Counties, Portland, and the East Multnomah County cities;
- With Tri-Met and other transportation service providers; and
  - With local and regional transportation plans.
2. Require new development to provide public facilities to serve the site and to extend public facilities to provide for the logical continuation of the city's utility and street systems. A development may be required to modify or replace off-site systems to provide adequate public facilities. The City Manager may require a development to provide a traffic analysis by a licensed traffic engineer that evaluates the traffic impacts and mitigation requirements.
  3. Coordinate transportation projects, programs, and investment strategies with land use, economic development, noise reduction, air quality, water quality, and other Goal 5 policies.
  4. Adopt and update a 20-year transportation capital improvement plan every five years, as part of the capital improvement program.
  5. Develop a Transportation Financing Plan that:

- Gives top priority to safety and the preservation and maintenance of existing transportation facilities;
  - Prioritizes investments in the transportation system to best support community development goals;
  - Maximizes expenditures on pedestrian and bicycle capital improvements;
  - Considers the future operating and maintenance costs associated with improvements when making transportation capital investment decisions;
  - Includes funding from a variety of sources such as regional, state, and federal grant programs; state and federal gas taxes and vehicle registration fees; regional congestion pricing, user fees, and employer taxes; city bonds, Bancroft bonds, Local Improvement Districts, benefiting property owners, development impact fees; etc.;
  - Identifies creative, non-traditional funding sources; and
  - Maintains the City’s flexibility to take advantage of new funding opportunities, including public/private partnerships.
6. Develops inter-modal transportation facilities that make passenger or freight transfers convenient and efficient.
7. Promotes the use of energy-efficient or low- and zero-emission vehicles and travel modes.
8. Allows facility operation, maintenance, repair, preservation, widening, or reconstruction without a development permit within rights-of-way designated in the Community Development Plan. Allows changes in alignment of proposed projects without plan amendments or future street plans, if such changes fall within a designated transportation corridor, route, or right-of-way in the Community Development Plan or a future street plan.

**Policy 3: Provide a transportation system that maximizes accessibility to and within regional centers, town centers, transit corridors, station areas, and employment centers.**

1. Protect existing and planned transportation corridors from conflicts with adjacent land uses by the adoption of:
  - Future street plans;
  - Design standards and classifications that reflect adjacent land use designations;
  - Access management standards;
  - Appropriate land use designations; and

- Development requirements including setbacks, buffering and landscaping standards, building orientation, density transfer provisions, easements, and right-of-way dedication.
- 2. Design and build transportation facilities that are consistent with the scale and character of adjacent land uses.

**Policy 4: Provide a safe transportation system.**

1. Protect local streets from through traffic, high volumes, and high speeds using neighborhood traffic control devices and strategies.
2. Monitor high accident locations and types and develop appropriate programs and projects to address problems.

**Street System**

**Policy 1: Provide a street system that accommodates a variety of travel options.**

1. Revise and update the functional classification system and street design standards to serve all modes of transportation and support regional and local land use plans more effectively.
2. Designate Pedestrian Districts with special street design standards to support

the Gresham Regional Center (Downtown and Civic Neighborhood), the Rockwood Town Center, transit corridors, and MAX station areas.

3. Designate boulevard design along some major streets within the Regional Center, Rockwood Town Center, and on transit corridors.
4. Develop major street design standards that support land uses and reduce pedestrian barriers (e.g., reduce pavement width, limit the number of lanes, add pedestrian crossings).
5. Improve the pedestrian environment of the Street System by requiring coordinated street tree plantings, underground utilities, pedestrian amenities and safety enhancements, and coordinated street signs, light standards, and utility facilities within the public right-of-way.
6. Change land use and transportation standards to integrate major streets with adjacent neighborhoods.
7. In the development of the Street System, and in all land development, provide:
  - Bus loading areas and shelters for transit riders;
  - Safe and convenient pedestrian circulation;

- The Powell Boulevard corridor from southwest Gresham to I-205; and
  - Corridors between Gresham and urban reserve areas to the south.
9. Work with the Oregon Department of Transportation, affected local jurisdictions, and citizens to develop an acceptable plan for an improved I-84 to US 26 connector. The City's planning and decision making for this project will be guided by adopted community objectives. Adopt a specific alternative, if one is acceptable, using the City's Future Street Plan process. Concurrently adopt any required plan amendments or goal exceptions, and applicable changes to the functional classification system.

**Policy 3: Provide a street system that maximizes accessibility within the community.**

1. Locate major activity centers in areas that are accessible by a variety of transportation modes.
2. Develop solutions to special traffic problems created around major activity centers that minimize non-local traffic through residential neighborhoods.
3. Ensure the development and completion of logical and continuous local street patterns within residential and mixed-use areas as development occurs by adopting future street plans and street connectivity

standards. New development must provide for the continuation and inter-connection of existing streets and must avoid long dead-end street patterns.

4. Establish public street and land division standards that reinforce the public street system as the City's essential framework for safe, convenient, and efficient neighborhood circulation, property access, emergency response, public facilities, and utilities for all properties.
5. Develop a well-connected public street system while minimizing motor vehicle traffic impacts within residential areas.
6. Ensure that all residential development will be served by a connected local public street system and provide street frontage and access for all residential parcels.
7. Establish a hierarchy of connected collector and local streets. Require Neighborhood Circulation Plans that seek to balance local traffic among local streets, provide multi-directional access to the collector-arterial system, reduce non-local traffic, and ensure optimal emergency response.

#### **Policy 4: Ensure a safe street system.**

1. Adopt and implement a uniform street naming and addressing system. Develop logical and convenient solutions to resolve problems associated with the present dual address grids and multiple City postal service designations within Gresham.
2. Develop and manage a multi-modal street system that meets vehicular emissions and noise level standards.
3. Require adequate street lighting with street capital improvement projects and private development projects. Additionally, develop a program to provide street lighting in areas where lighting is inadequate or non-existent.
4. Use traffic calming techniques in neighborhood traffic control projects and update street standards to include traffic calming devices.
5. Adopt specific access management strategies to separate vehicle conflicts (e.g., reduce the number of driveways, increase the spacing between driveways and intersections, and remove turning vehicles from through lanes) for each roadway classification: more access control for higher classification streets and less access control for lower classification streets.

6. Require that new street improvements be designed to meet or exceed minimum guidelines set forth in the AASHTO Policy on Geometric Design of Highways and Streets and Institute of Transportation Engineers recommended practice for urban streets. Traffic impact analysis shall utilize the Institute of Transportation Engineers Trip Generation Manual wherever applicable. Design traffic calming devices in accordance with accepted industry standards such as detailed in Institute of Transportation Engineers recommended practice for urban streets and Oregon State University Transportation Research Institute's Neighborhood Traffic Management guide.

### **Transit System**

#### **Policy 1: Advocate convenient, expanded transit service within Gresham and the east Multnomah area.**

1. Encourage Tri-Met to provide transit service for Gresham that meets or exceeds the service level criteria established by Tri-Met for:
  - Route coverage;
  - Frequency of service; and
  - Travel time.
2. Work with affected jurisdictions and transit providers in the operation and improvement of the transit system serving Gresham.

3. Encourage the public to utilize mass transit so as to make effective use of the transit system investment while reducing single occupant automobile use. Communicate community needs to the agencies responsible for transit planning, programming, and funding.
4. Advocate service enhancements such as peak hour express trains between the Rockwood-Central Area Stations and Gateway-Downtown Portland and off-peak discount tickets to encourage off-peak rider use and off-peak direction trips.
5. Promote logical extensions of the light rail system such as: a Gresham loop or line extension, and a light rail extension to the Portland International Airport from the Gateway station.
6. Cooperate with Tri-Met and other entities in the planning and implementation of light rail and bus service improvements, especially feeder bus service to MAX stations.
7. Support adopted regional strategies and priorities for transit improvements.
8. Establish pedestrian districts as intensive mixed-use districts within light rail and other transit corridor areas. Encourage pedestrian-oriented

development and transit-supportive uses within pedestrian districts. Apply special transit design standards to development within pedestrian districts, and along mixed-use transit corridors.

**Policy 2: Encourage efficient transit services to meet the current and projected transportation needs of the citizens of Gresham.**

1. Advocate and support cost-effective and flexible transit service for the Gresham area, such as:
  - Small vehicle bus service on some feeder bus routes;
  - Paratransit and demand-responsive service (bus pools, shared-ride taxis, carpools, van pools) as an alternative to fixed route large bus service and single occupant automobile use; and
  - Contracted, demand responsive bus service by local providers using small vehicles where large bus, fixed route service is not yet justified by existing population and employment.

**Policy 3: Promote the development of a transit system that maximizes accessibility.**

1. Encourage development of a local and regional transit system that benefits Gresham residents and businesses, improves Gresham’s regional accessibility, and strengthens system ridership.
2. Work with transit providers to extend transit service to areas of the city that do not have transit service and to improve the route coverage, frequency of service, and ridership for feeder bus and cross-town bus lines. Give priority to transit corridors, Mixed-Use Districts, Plan Districts, employment centers, shopping centers, moderate density residential areas, and routes or facilities that serve transit-dependent populations.
3. Work with transit providers to encourage transit service that addresses the special needs of the transit dependent (e.g., the elderly, the handicapped, and the low-income).
4. Discourage development patterns that hinder access to transit services.
5. Encourage intensive development in the transit corridors and transit station areas. Adopt Community Development Plan policies, land use patterns, standards, capital improvement plans, and specific strategies that support increased transit ridership and are compatible with light rail station area design.
6. Locate population concentrations, intensive commercial and employment centers, senior or special needs housing, and public institutions and offices in areas that can be efficiently served by public transit, especially light rail.
7. Encourage intensive new uses and development within the light rail station areas that:
  - Create major destinations for transit riders;
  - Are compatible with and supportive of transit use;
  - Create high levels of pedestrian activity and provide safe, direct, and attractive pedestrian circulation between stations and adjacent commercial and residential areas;
  - Attract transit ridership, reduce the number and length of vehicular trips, and minimize the amount of land used for private off-street parking;
  - Utilize joint access, joint parking, and interior circulation between adjacent uses and parcels;
  - Create a more efficient land use pattern by land assembly, redevelopment of under-utilized parcels, or by infill within an existing developed area; and

- Create a cohesive and attractive transition between station areas and adjacent existing commercial and residential areas.
- 8. Provide park-and-ride facilities near light rail stations to attract transit riders and minimize on-street parking in station areas. Support development of additional programmed park-and-ride facilities as needed at appropriate station locations. Work to monitor existing park-and-ride facilities and station area parking and seek to resolve transit rider parking problems that may develop.

**Policy 4: Assist in the development of a safe transit system.**

1. Work with Tri-Met to identify and implement safety features at bus stops, transit centers, and MAX stations, including shelters, lighting, and emergency or pay telephones.

**Bicycle System**

**Policy 1: Develop a continuous and convenient bicycle network.**

1. Coordinate with Multnomah County, Metro, and Oregon Department of Transportation to:
  - Develop consistent design standards and classifications for bicycle facilities on multi-modal streets in

- Gresham to assure that bicycle facilities are appropriate to the traffic volume and speed;
- Install detector loops that allow bicyclists to trigger traffic lights while traveling on the road; and
  - Develop a destination-based sign code that identifies major destinations accessible to bicyclists from the bicycleway.
2. Require preferential parking and accessibility for bicycles for all multi-family, commercial, industrial, and community service uses.
  3. Encourage the state to reconsider its restriction on the use of gas tax revenues for funding facilities outside public street rights-of-way.
  4. Require bicycle and mass transit accessibility within residential, commercial, industrial, and community service development proposals submitted to the city.
  5. Support regional efforts to establish the Metropolitan Greenspaces Master Plan, including the 40-Mile Loop trail system, and coordinate with state, regional, and local agencies in planning and developing the regional trail and greenway segments within Gresham.

6. Acquire access easements along major power line corridors and abandoned railroad rights-of-way.
7. Promote Tri-Met’s “Bicycles on Transit” program and work to increase the number of bicyclists using transit.
8. Integrate on-street bicycleways with multi-use paths and other bicycle facilities identified in the Trails Master Plan.
9. Create and promote a City owned bicycle fleet for official employee use.
10. Identify criteria and potential routes for bicycle boulevards.
11. Stripe planned bicycleways with street resurfacing projects or improvements.
12. Implement design options that reduce traffic speed, while providing bicycle facilities as part of the local street improvements and neighborhood traffic control projects.

**Policy 2: Support programs and projects to improve bicycle safety and reduce the rate of bicycle-related accidents.**

1. Support Bicycle Rodeos and other local events that promote bicycle safety.
2. Work with Multnomah County, other East County cities, City of Portland, and

Metro to develop and participate in a bicycle promotion event or program during Bicycle Commute Week in May.

3. Work with appropriate jurisdictions to remove obstructions and hazards from bicycle facilities.
4. Establish a bicycle facility maintenance schedule and a procedure for quick response to bicycle facility maintenance and safety problems.
5. Create a bicycle education and safety program to present at schools and to the general public.
6. Develop and distribute an East Multnomah County bicycle map.

## **Pedestrian System**

**Policy 1: Provide pedestrian facilities that are continuous, accessible, and adaptable to all users.**

1. The City’s top priorities for pedestrian improvements are: sidewalk infill; elimination of pedestrian barriers; transit station areas; and school walk routes. Identify and prioritize these projects in the capital improvement program.

2. Coordinate with Multnomah County and ODOT to develop consistent design standards for pedestrian facilities on arterial and collector streets in Gresham including sidewalks, pedestrian crossings, and pedestrian refuges.
3. Require the construction of appropriate pedestrian facilities as part of all transportation capital improvement projects, including road construction, reconstruction, traffic calming, and intersection improvement projects.
4. Develop pedestrian facilities consistent with the City of Gresham Trails Master Plan and the City of Gresham Parks and Recreation Plan.
5. Incorporate in the trail and park system any special or unique sites for nature trails, scenic walkways, exercise circuits, or other special purpose trails.
6. Require internal pedestrian circulation within residential, commercial, industrial, and community service development proposals submitted to the City.
7. Develop a program for interim pedestrian facilities on substandard arterial and collector streets not scheduled for construction in the adopted 5 year Capital Improvement Program.
8. Identify project areas for comprehensive pedestrian improvements, including

traffic calming, signal improvements, crossing treatments, and pedestrian amenities.

9. Adopt a comprehensive set of design guidelines and standards for pedestrian facilities that are adapted to the anticipated level of pedestrian activity. Identify the areas where specific standards apply.
10. Ensure that the needs of pedestrians are considered in the timing plans of all traffic signals.
11. Implement design options that reduce traffic speed, while providing pedestrian facilities as part of local street improvement and neighborhood traffic control projects.

**Policy 2: Improve pedestrian access to transit.**

1. Adopt site design and street standards supporting internal and external pedestrian circulation and transit accessibility for residential, commercial, industrial, and community service developments.
2. Identify needed connections for direct walking routes. Require dedication of right-of-way and improvement as pedestrian/bicycle accessways with development of adjoining property.

3. Prioritize pedestrian projects that improve access to and within the Gresham Regional Center and Rockwood Town Center and that provide access to the Springwater Trail and the future Gresham-Fairview Trail from adjacent neighborhoods.
4. Require pedestrian connections and facilities in areas with planned high levels of pedestrian activity such as mixed-use, high-density districts, school zones, commercial districts, and areas adjacent to transit corridors.
5. Identify priority improvements for pedestrian access to transit in Pedestrian-to-MAX capital improvement projects. Priorities include completing the sidewalk network, providing adequate crossing opportunities, and adding pedestrian amenities near transit centers, stations, and stops.
4. Coordinate with public and private utilities to remove obstacles from sidewalks and to provide an alternative location for utilities within the right-of-way or easements.
5. Sponsor volksmarches and other walking events in Gresham.
6. Develop neighborhood walking guides.
7. Coordinate with the Bicycle Education Program to promote safe pedestrian activities.

**Policy 3: Develop safe pedestrian environments.**

1. Increase traffic law awareness and enforcement in pedestrian districts.
2. Develop educational programs and events.
3. Coordinate with school personnel and parent groups to identify and mitigate obstacles to walking to school through a School Walk Routes program.

**Transportation Demand Management**

**Policy: Implement transportation demand management programs and strategies that reduce the need to travel, reduce single occupant vehicle (SOV) travel, and make the use of alternative modes more convenient for all trips throughout Gresham.**

1. Support public/private partnerships with transit service providers including the establishment of Transportation Management Associations.

2. Adopt and monitor the effectiveness of appropriate minimum and maximum parking ratios and investigate other measures that reduce parking demand.
3. Adopt transit supportive design standards for developments in districts near transit station areas and along designated transit corridors.
4. Provide reduced traffic impact fees for new development in the Gresham Regional Center, Rockwood Town Center, and along designated transit corridors.
5. Continue the City's employee commute reduction program.
6. Work with local employers to promote telecommuting, flexible work hours and compressed work weeks, the regional carpool matching database, and other demand management strategies.
7. Employ market-based strategies such as parking pricing, parking meters, and congestion pricing to promote more compact land use development, increase alternative mode share, reduce vehicle miles traveled (VMT), and encourage more efficient use of resources.

## Parking Management

**Policy: Manage the on- and off-street parking supply to ensure there is an adequate but not excessive amount of parking available for all land uses.**

1. Periodically review the Off-Street Parking and Loading Requirements of the Community Development Standards document to:
  - Review and update as necessary minimum and maximum parking ratios for all land uses;
  - Develop incentives for new development to provide less than the minimum number of parking spaces required by code and for existing development to convert existing parking to other uses.
  - Develop standards for structured parking including those related to ground-floor non-parking use, layout, landscaping, and other design, structural, and functional issues; and
  - Undertake other revisions as necessary to simplify interpretation and administration of parking standards.
2. Encourage construction of structured parking in Transit Districts, Civic Neighborhood, Downtown, and Central Rockwood areas to support transit use and encourage high-density development.

If feasible, provide incentives in other districts of the city to encourage developers to provide decked or underground parking to reduce land devoted to parking lots.

3. Develop and implement a master plan for public parking facilities in the Downtown and Rockwood areas to provide consolidated central parking for existing and future residences and businesses and facilitate more intensive development of these areas.
  4. Encourage the development of joint-use parking agreements where one or more users share the same pool of parking. Identify existing sites with excess parking that could be shared with new users as an alternative to building new parking spaces. Ensure that Community Development Code regulations are sufficiently flexible to allow joint-use parking agreements.
  5. Establish a cooperative transportation management association within the Downtown and Rockwood areas with business organizations, community associations, and employers to consider:
    - Parking and transit validation programs;
    - One-stop shopping;
    - Alternative transportation modes for customers and employees;
    - Public parking marketing programs;
- Intra- and inter-district shuttle service; and
  - Shared-parking agreements.
6. Consider other parking strategies and programs in the Transportation System Plan that further City goals including:
    - Timed parking zones and parking meters to encourage parking turnover in high-demand areas; and
    - Preferential on-street parking programs for residents and businesses adjacent to areas with high on-street parking demand.
  7. Provide encouragement and, where appropriate, technical support to large employers who will be required to reduce single-occupant vehicle (SOV) commute trips as part of the DEQ Employee Commute Option (ECO) Rule.
  8. Continue working with Metro and other local jurisdictions to adopt regional strategies and policies to meet the per capita parking reduction mandated by the Transportation Planning Rule.

## Truck and Rail Freight System

**Policy: Provide for the safe and efficient movement of truck and rail freight through and within Gresham.**

1. Provide for efficient movement of truck freight when conducting traffic analyses and adopting multi-modal street design standards.
2. Allow on-street loading facilities in the Gresham Regional Center and the Rockwood Town Center.
3. Ensure adequate accessibility to regional freight routes from commercial and industrial districts.
4. Identify and correct safety problems on the freight network including roadway geometry and traffic control deficiencies, at-grade rail crossings, truck-infiltration into neighborhoods, congestion on grades, and the movement of hazardous materials.
5. Cooperate with railroads to provide an adequate level of rail freight service.
6. Preserve the rails to trails conversion of the Portland Traction line to the Springwater Trail as a “railbanked corridor,” in accordance with the Federal Rails to Trails Act, ensuring that the integrity of this corridor is

maintained for possible return to rail use.

## Passenger Rail

**Policy: Support federal, state, regional and private investments in passenger rail service to the metropolitan area.**

1. Support cost-effective commuter and inter-city passenger rail projects that serve a demonstrated need.
2. Support connections that make commuter and inter-city service accessible to Gresham residents by a variety of modes.

## Air Transportation System

**Policy: Ensure that land uses in Gresham are compatible with aircraft noise exposure and aircraft safety**

1. Work with PDX officials to identify and resolve land use compatibility issues.
2. Participate in noise abatement activities with the Noise Abatement Advisory Committee and PDX staff.
3. Ensure that the location and use of helicopter landing facilities are compatible with surrounding land uses.

## Pipeline System

**Policy: Ensure that land uses in Gresham are compatible with established and planned pipeline corridors.**

1. Identify and provide for appropriate inter-modal terminals along pipeline corridors.
2. Protect established and planned pipeline corridors from conflicts with incompatible land use development.
3. Support the development of a regional pipeline system.



### Introduction

Three alternative strategies are identified for implementing the Transportation System Plan over the next twenty years. The alternatives vary in their focus, the extent to which they support or implement the Plan's policies, system performance, and the amount of resources necessary to carry them out. Finally, an analysis and comparison of the alternatives is described.

### Alternative 1: Status Quo

#### Description

This alternative continues current spending trends and stresses system maintenance as the highest priority. It implements only the most critical community priorities by leveraging existing resources. Few existing and future system improvements needs addressed.

#### Elements

The Status Quo alternative focuses resources on maintaining the current infrastructure. Only the most critical safety and capacity needs are mitigated. This alternative provides few improvements to community and local streets, sidewalks, or bicycle facilities. Transit service improvements include the Regional Transportation Plan Financially Constrained transit system. Under this alternative, only the state-mandated 1% of State gas tax revenue is invested in the bicycle and pedestrian system.

### Financial Allocation

This alternative allocates nearly the entire City's resources to maintenance and operation activities. System improvements are provided only through the Transportation Impact Fee (TIF) Program, which charges new development to pay for growth-related improvements, and through aggressive pursuit of grants.

Funding for this alternative relies only on existing revenues at current levels over the next twenty years, with continued reliance on federal grants for major projects. The total cost of the alternative is \$126 million:

- \$67 million maintenance
- \$27 million street capital
- \$20 million TIF projects
- \$9 million bicycle/pedestrian projects
- \$3 million transit-related capital projects

### Alternative 2: Street Expansion

#### Description

The Street Expansion alternative focuses on maximizing vehicular mobility. It increases automobile access to employment areas and other centers of activity. It also places a high priority on improvements to the arterial street system and major intersection.

#### Elements

The Street Expansion alternative emphasizes automobile capacity improvements over other system improvements. Maintenance activities are increased to ensure a quality

street system. Transit service improvements include the Regional Transportation Plan Financially Constrained transit system. This alternative allocates only the state-mandated 1% of state gas tax revenue to the bicycle and pedestrian system.

### **Financial Allocation**

This alternative requires significant new transportation resources over the next twenty years. The total cost of the alternative is \$271 million, allocated to the following improvement categories:

- \$101 million maintenance
- \$118 million street capital
- \$40 million TIF projects
- \$9 million bicycle/pedestrian projects
- \$3 million transit-related capital projects

## **Alternative 3: Travel Choices**

### **Description**

This alternative emphasizes a high level of travel choice and accessibility. It increases non-auto access to the Gresham Regional Center, Rockwood Town Center, and employment areas. It implements only the most critical auto capacity improvements.

### **Elements**

The Travel Choices alternative balances strategic investments in all systems. It completes critical links in the bicycle and pedestrian systems, as well as completing important community street and local street improvements within the Regional Center and Town Center to support land use goals. This alternative also makes investments in neighborhood traffic calming, local street connections, substandard streets, and the

local sidewalk network. Transit service improvements include the Regional Transportation Plan Priority transit system.

### **Financial Allocation**

This alternative also requires significant new transportation resources. However, the allocation of funding provides a more balanced investment in the system. The total cost of the alternative is \$232 million:

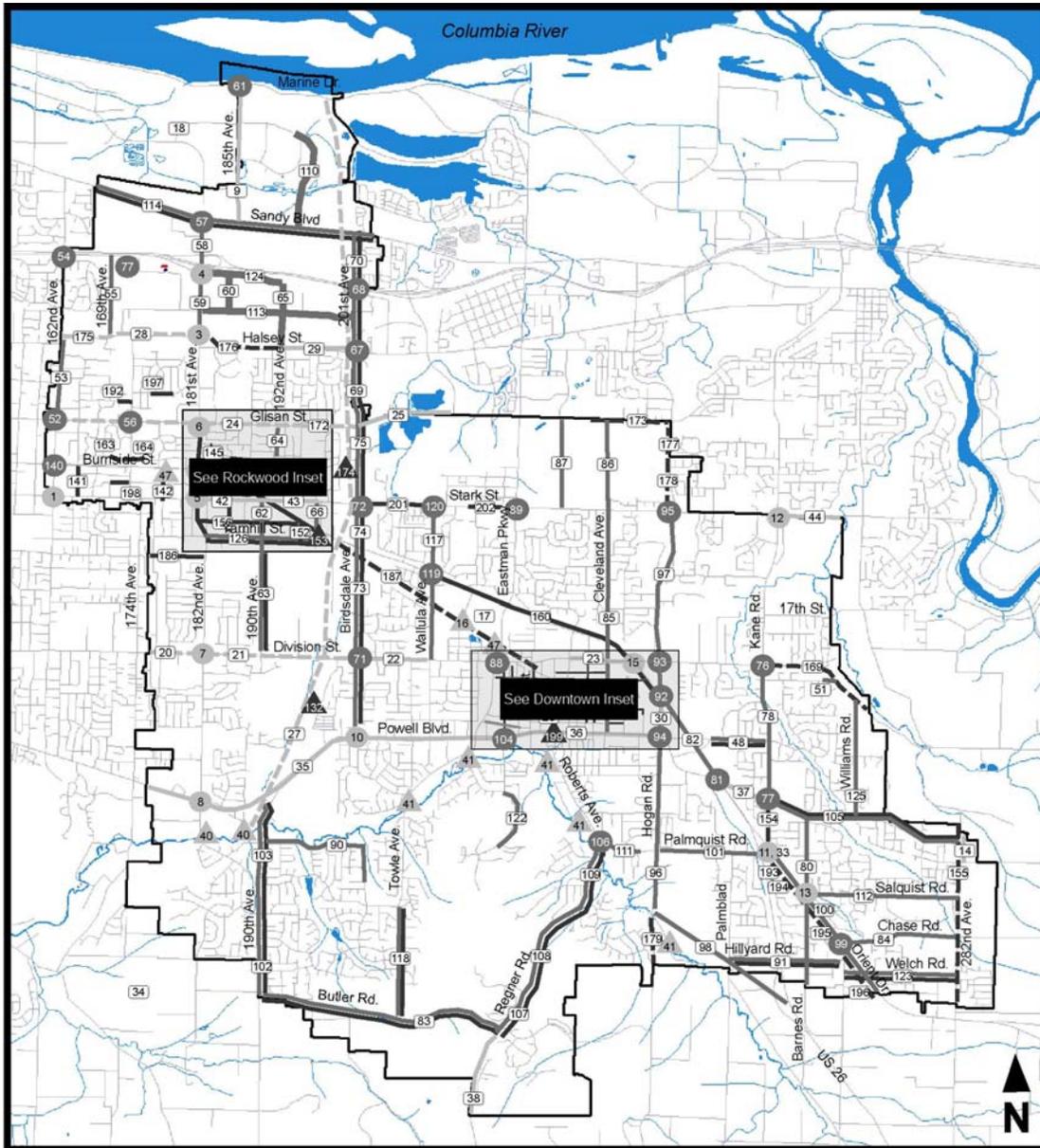
- \$101 million maintenance
- \$83 million street capital
- \$24 million TIF projects
- \$21 million bicycle/pedestrian projects
- \$3 million transit-related capital projects

## **Alternatives Evaluation**

The system alternatives are analyzed using the regional travel demand forecast model maintained by Metro. The model has been used to develop forecast traffic volume, level-of-service, mode split, and other operating characteristics. Additional performance measures have been developed based on the policies in Chapter 4.

### **Performance Measures**

The major performance measures used to evaluate the alternatives include both technical and qualitative measures. The following sections summarize the performance of each alternative against each measure, using technical results and information to the extent possible. For technical performance measures, specific results are listed. For qualitative performance measures, a scale of negative (-), neutral (0), and positive (+) is used.

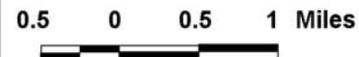


# Transportation System Plan



**Figure 16**  
**System Alternatives**

- Status Quo
  - — Roadway
  - ▲ - - - Bike/Pedestrian/Transit
- Street Expansion
  - — Roadway
- Travel Choices
  - — Roadway
  - ▲ - - - Bike/Pedestrian/Transit





## Technical Analysis

The technical analysis shows great variation in the performance of each alternative. The following table

compares each alternative to the 1996 base condition for a number of key measures.

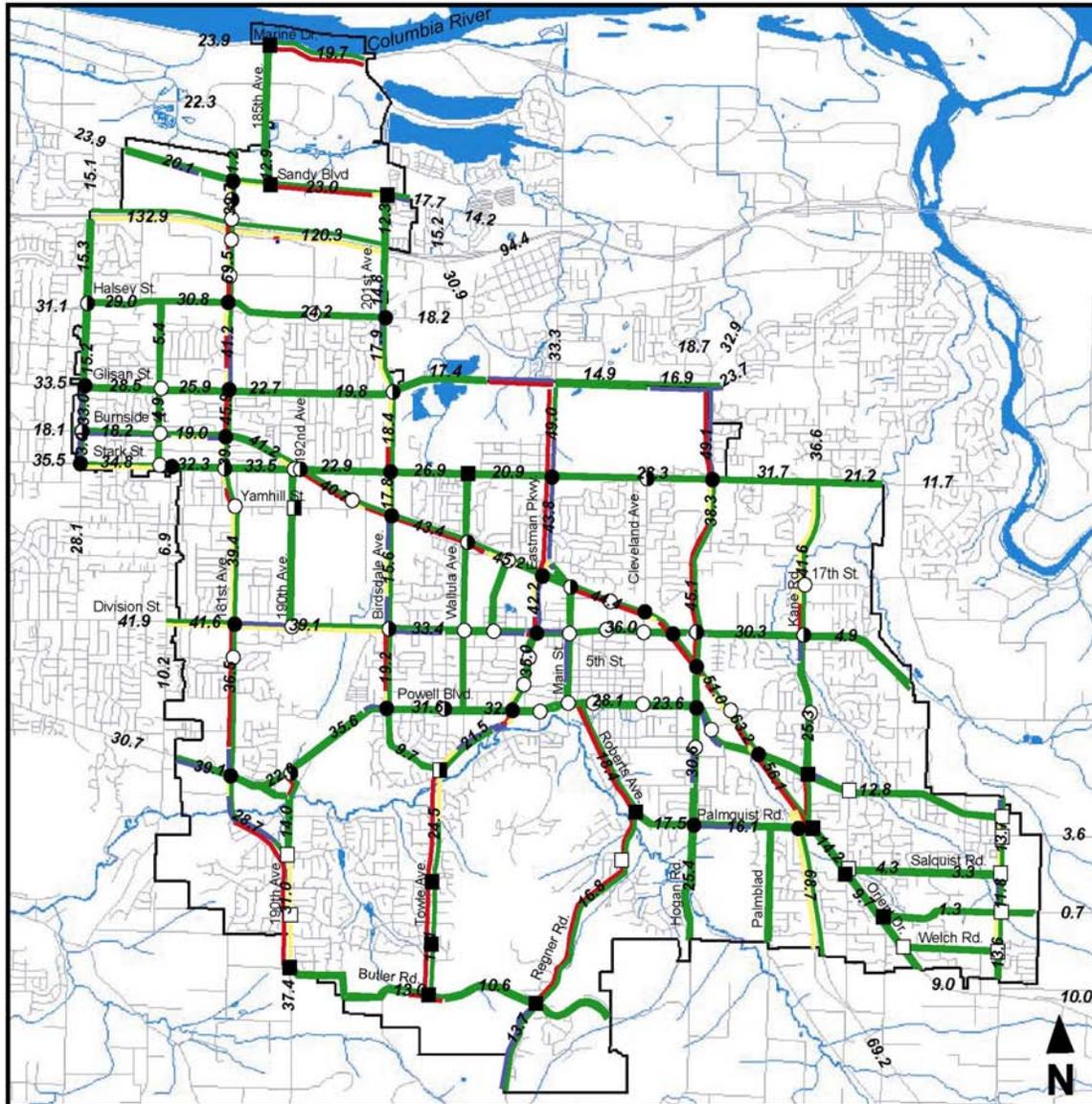
Table 20. Alternatives Technical Analysis

Peak Hour Analysis	1996 Base		Status Quo		% change 96-2020		2020 Alternatives Street Expansion		% change 96-2020		Travel Choices		% change 96-2020	
Population	82,100		112,773		37%		112,773		37%		112,773		37%	
Employment	35,500		60,225		70%		60,225		70%		60,225		70%	
Vehicle Trips	205,101	97%	328,819	96%	60%		328,819	96%	60%		321,162	94%	57%	
Transit Trips	5,446	3%	14,135	4%	160%		14,135	4%	160%		20,701	6%	280%	
Work Trips	51,118		82,824		62%		82,824		62%		82,614		62%	
Drive Alone	41,255	81%	62,749	76%	52%		62,749	76%	52%		59,805	72%	45%	
Shared Ride	7,007	14%	11,347	14%	62%		11,347	14%	62%		11,211	14%	60%	
Transit	1,907	4%	6,313	8%	231%		6,313	8%	231%		9,054	11%	375%	
Walk	594	1%	1,487	2%	150%		1,487	2%	150%		1,564	2%	163%	
Bike	355	1%	928	1%	161%		928	1%	161%		983	1%	177%	
Vehicle Miles Traveled (VMT)	117,586		183,353		56%		180,854		54%		177,334		51%	
VMT/Capita	1.43		1.63		14%		1.60		12%		1.57		10%	
VMT/Employee	3.31		3.04		-8%		3.00		-9%		2.94		-11%	
Vehicle Hours Traveled (VHT)	3,653		6,792		86%		6,429		76%		6,327		73%	
VHT/Capita	0.04		0.06		35%		0.06		28%		0.06		26%	
VHT/Employee	0.103		0.113		10%		0.107		4%		0.105		2%	
Congested Arterial VMT (v/c > 0.90)	6,141	5%	45,293	32%	638%		43,335	31%	606%		38,698	29%	530%	
Peak Hr. Avg Speed (mph)	32		27		-16%		28		-13%		28		-13%	
Peak Hr. Hours of Delay	30		516		1620%		328		993%		312		940%	





Figure 17  
 Status Quo Alternative  
 2020 Daily Traffic Volumes



XX.X 1,000s of vehicles per day

Intersection Level-of-Service (peak hour)

- Signalized  
 ○ Acceptable  
 ● Approaching Capacity  
 ● Over Capacity

- Unsignalized  
 □ Acceptable  
 ■ Approaching Capacity  
 ■ Over Capacity

Segment Level-of-Service (peak hour)

- LOS A through C (v/c ratio < 0.8)
- LOS D (v/c ratio 0.8 to 0.9)
- LOS E (v/c ratio 0.9 to 1.0)
- LOS F (v/c ratio > 1.0)

\*v/c ratio = volume to capacity ratio

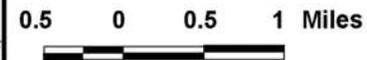
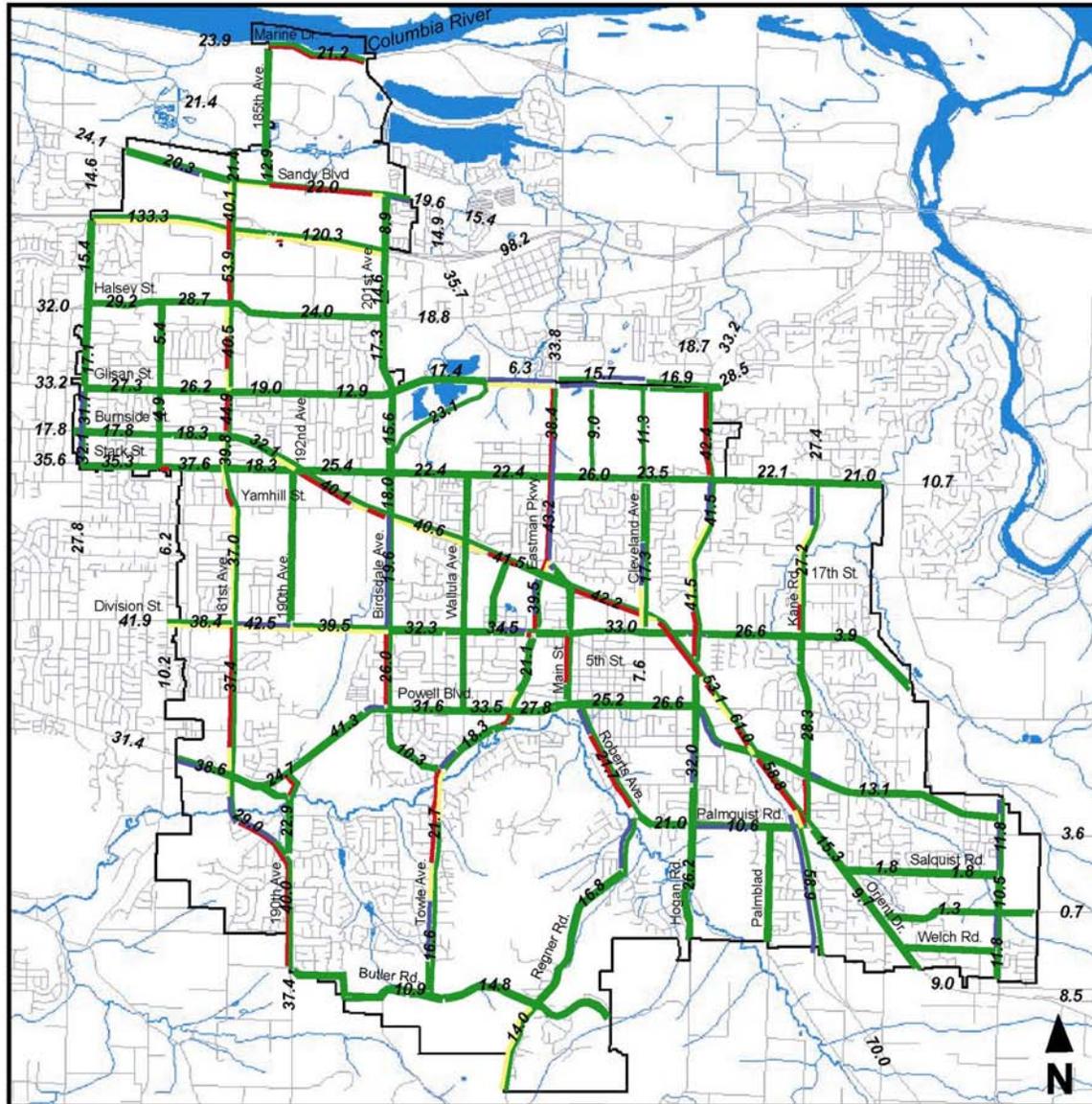






Figure 18  
Street Expansion Alternative  
2020 Daily Traffic Volumes



XX.X 1,000s of vehicles per day

Segment Level-of-Service (peak hour)

- ↗ LOS A through C (v/c ratio < 0.8)
- ↘ LOS D (v/c ratio 0.8 to 0.9)
- ↗ LOS E (v/c ratio 0.9 to 1.0)
- ↘ LOS F (v/c ratio > 1.0)

\*v/c ratio = volume to capacity ratio

0.5 0 0.5 1 Miles





# Transportation System Plan



**Figure 19**  
**Travel Choices Alternative**  
**2020 Daily Traffic Volumes**

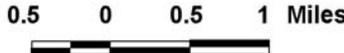


XX.X 1,000s of vehicles per day

Segment Level-of-Service (peak hour)

- █ LOS A through C (v/c ratio < 0.8)
- █ LOS D (v/c ratio 0.8 to 0.9)
- █ LOS E (v/c ratio 0.9 to 1.0)
- █ LOS F (v/c ratio > 1.0)

\*v/c ratio = volume to capacity ratio





**Qualitative Assessment**

The qualitative analysis evaluates factors derived from the technical analysis as well as those that are not as easily quantified. Some of these factors relate to policies included in Chapter 4, as well as measuring consistency with Regional Transportation Plan policies and Oregon Transportation Planning Rule requirements.

Utilizing technical analysis results along with non-technical information, the qualitative analysis provided below rates each alternative using a scale of negative (-), neutral (o), or positive (+) in terms of the degree to which it meets the objectives of the stated measure.

*Table 21. Alternatives Qualitative Assessment*

<b>Performance Measure</b>	<b>Status Quo</b>	<b>Street Expansion</b>	<b>Travel Choices</b>
Support implementation of the Gresham Community Development Plan	-	o	+
Increase travel choices	-	o	+
Reduce single occupant automobile travel	o	o	+
Expand transit service	-	-	+
Develop a continuous and convenient bicycle network	o	o	+
Provide a continuous and accessible pedestrian system	o	o	+
Provide adequate access to regional freight routes	-	+	+
Provide a cost-effective transportation system	-	o	+
Consistent with Regional Transportation Plan	-	-	+
Consistent with Oregon Transportation Planning Rule	-	-	+



### Introduction

This chapter describes the plans for each major system element. The system elements include Streets, Transit, Bicycle, Pedestrian, Travel Demand Management, Parking Management, and Truck and Rail Freight. A description of the planned facilities, general locations, and operational or design parameters is provided for each system element.

The system plans have been developed based on the system inventory and assessment described in Chapter 3 and the policies and strategies identified in Chapter 4. These system plans represent a complete picture for the transportation system over time, however, it is expected that fully implementing these system plans will go beyond the 20-year horizon of the TSP.

Chapter 7 describes a specific set of projects, programs, and strategies that will be pursued to achieve these plans over time.

### Priority Setting

Each transportation provider serving Gresham has a separate but complementary process for priority setting. To establish logical project timing, each provider ranks all proposed projects in order of project need and establishes a short-term (one to six year) capital improvement program consistent with forecasted revenue. All providers generally consider project need criteria such as:

- Congestion or level-of-service
- Economic development support

- Safety
- Public support
- Significance to the State, Region, County, City system
- Logical sequence or phase
- Cost/benefit
- Links to the existing transportation network
- Existing facility below functional classification standard

### Street System

#### Functional Classification System

Functional Classification refers to the design of streets to accommodate various levels of traffic demand, adjacent land uses, transit service, and bicycle and pedestrian travel. The System Plan provides a network of arterial routes to serve regional destinations and accommodate large amounts of through volumes and high frequency transit service as well as a system of collector, community, and local streets to accommodate and distribute local travel. In addition, the system identifies a network of Boulevards that supports high density, mixed-use development in the Rockwood Town Center and the Gresham Regional Center.

The classifications vary in their functional parameters (typical traffic volume, design speed, lanes) as well as design elements (parking, bicycle facilities, medians).

Figure 20 depicts the classifications of all streets designated Freeway through Community Street. All other streets are local streets. Additional Community

Streets or Collectors may be identified through development or City initiated Future Street Plans.

Table 22 identifies the preferred functional parameters and design elements for each classification. The stated volume ranges are used as one factor in determining the appropriate classification for a given facility and represent the parameters under which in most cases that classification will operate at an acceptable level. The ranges do not represent a standard. The actual capacity of roadways is typically governed by traffic operations at intersections along with other roadway features such as turning movements, grade, number of lanes, and hourly traffic variations. Detailed engineering studies may determine that the actual capacity of a particular road section falls outside these ranges.

Since the existing street system has been developed over many years, implementing this system will occur over

time through development, redevelopment, and publicly funded capital improvements. Application of the design elements will occur through project development and design.

The following sections describe the general function and operating parameters for each classification. The right-of-way requirements are provided along with generalized cross-sections. More specific design detail and requirements are provided in the Gresham Community Development Code and the Gresham Public Works Standards. Some intersections may require auxiliary turn lanes that may necessitate additional rights-of-way or easements.

*Table 22. Functional Classification System Functional Parameters and Design Elements*

Street Classification	Functional Parameters			Design Elements				
	Volume	Design Speed	Travel Lanes	Parking	Bicycle Lane	Median	Left Turn Lane	Left Turn Bay
Principal Arterial	35,000-60,000	45-55	4 to 6	No	Yes	Yes	No	Only at major intersection
Arterial	15,000-40,000	35-45	4	Within Centers and adjacent to mixed-use districts	Yes	Yes	Only when necessary to serve adjacent commercial uses	At major intersections and activity centers
Boulevard	15,000-40,000	25-35	4	Within Centers and adjacent to mixed-use districts	Yes	Yes	Only when necessary to serve adjacent commercial uses	At local streets and major driveways
Collector	10,000-20,000	25-35	2	Within Centers and adjacent to commercial and mixed-use districts	Yes	Adjacent to residential uses and within Centers	Within commercial and industrial areas	At local streets and major driveways
Community Street	3,500-10,000	25-35	2	Yes	Yes	No	No	At major intersections

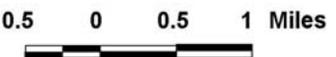


# Transportation System Plan



Figure 20  
Functional Classification System

-  Freeway
-  Principal Arterial
-  Arterial
-  Boulevard
-  Collector
-  Community Street
-  Transit Street





Where a design element is listed as “No” for a particular classification, that design element is not preferred due to the operational characteristics of that classification, especially design speed and volume. Bicycle lanes are required on all streets designated Community Street through Principal Arterial. For other design elements, when “Yes” is listed or other guidance is provided, the design element is preferred, but may not be included in a particular improvement project depending on specific operational or land use characteristics identified during project development and design. The project development process is described in Chapter 7 – Implementation.

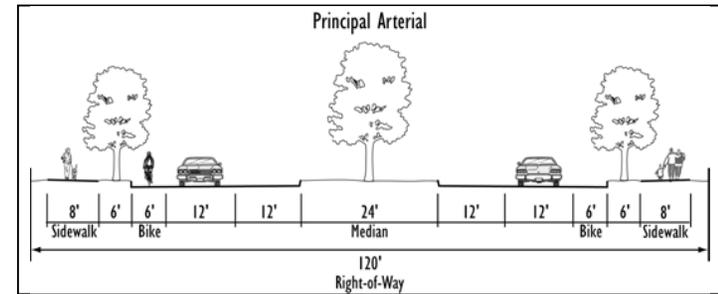
**Freeway**

Freeways are high speed, high volume corridors that facilitate through movements of regional, statewide, and interstate travel. They include grade separated interchanges, four to eight travel lanes with median separation, and fully controlled property access. Volumes can be in excess of 60,000 vehicles per day. Interstate 84 is the only freeway facility in Gresham.

Transit service, if it is provided, consists of express buses or fixed-guideway service such as light rail. Bicycle and pedestrian travel within these corridors is provided on either parallel streets or on dedicated pathways.

**Principal Arterial**

These are high speed, high volume arterials that provide a high level of mobility for regional and interregional travel. Principal Arterials include four to six travel lanes, raised medians, and street intersections generally limited to signalized intersections with arterial and collector streets. Traffic volumes are typically between

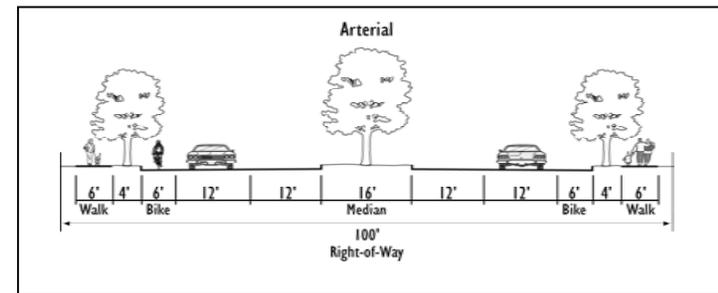


35,000 and 50,000 vehicles per day, and may be as high as 60,000 vehicles per day.

Transit service will generally consist of regional or express bus service with relatively infrequent stops. On-street bicycle lanes are provided along with wide sidewalks separated from the street.

**Arterial**

Arterials are moderate speed, high volume streets that accommodate the majority of regional travel through Gresham. They consist of four travel lanes with a raised median and provide access to major activity centers. Traffic volumes are typically between 15,000 and 30,000 vehicles per day, and may be as high as 40,000 vehicles per day.

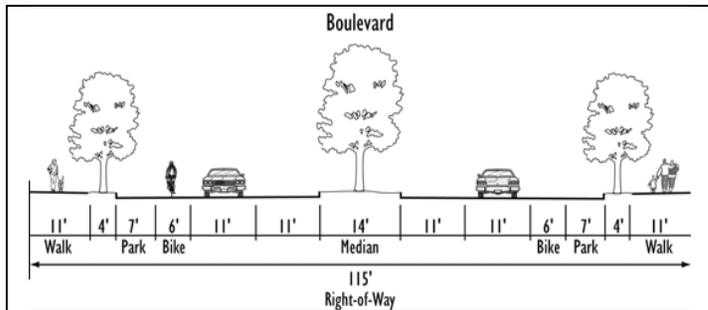


Primary bus routes are provided on the arterial street system with frequent bus stops located to serve major destinations. On-street bicycle lanes are provided as well as sidewalks.

**Boulevard**

Boulevards are moderate volume, moderate speed facilities located in the Gresham Regional Center and Rockwood Town Center to support adjacent high-density, mixed-use development. They generally include on-street parking and four travel lanes with a raised, landscaped median. Traffic volumes are typically between 15,000 and 30,000 vehicles per day, and may be as high as 40,000 vehicles per day.

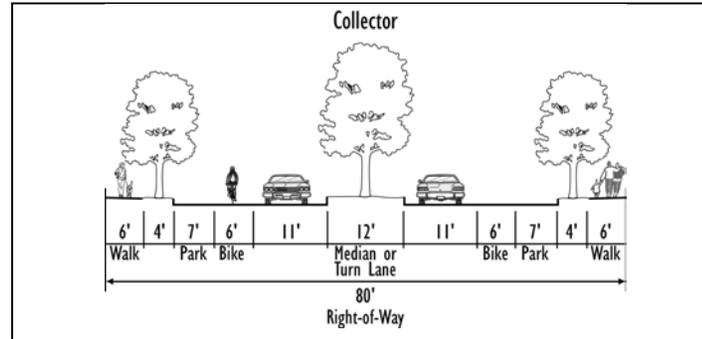
Primary bus routes provide service on boulevards with frequent bus stops. On-street bicycle lanes are provided and wide sidewalks accommodate high levels of pedestrian travel.



**Collector**

The Collector street system provides access between neighborhoods or from neighborhoods to the arterial system. Land is directly accessible with emphasis on collection and distribution of trips within an arterial grid. Collectors provide two travel lanes with a raised median.

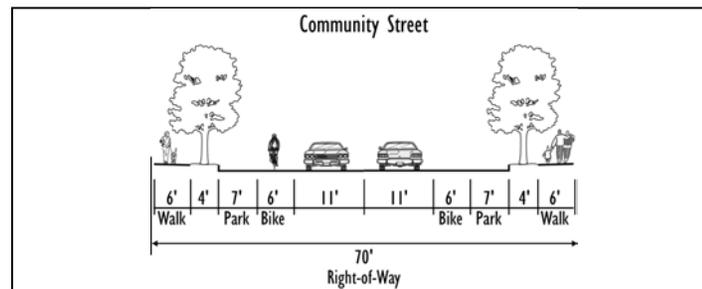
Left turn lanes are provided at local streets and major driveways. A continuous left turn lane may be provided where necessary for access within commercial and industrial areas. Traffic volumes are typically between 10,000 and 15,000 vehicles per day, and may be as high as 20,000 vehicles per day.



Transit service on collector streets generally consists of secondary routes. Bicycle lanes and sidewalks are provided.

**Community Street**

Community Streets facilitate travel within the community and neighborhoods with an emphasis on serving adjacent land uses. Raised medians may be



included when compatible with adjacent land uses. Traffic volumes are typically 3,500 to 10,000 vehicles per day.

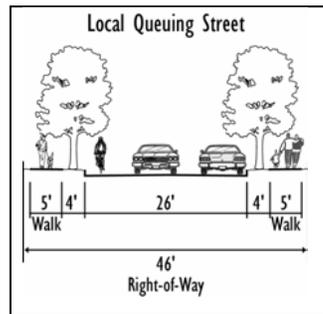
Transit service, if it is provided, consists of neighborhood circulation routes. Bicycle lanes and sidewalks are provided to facilitate neighborhood access.

### Local Streets

The local street system provides local circulation and direct property access. Local streets carry neighborhood traffic and make up the largest percentage of total street mileage in the city. There are four local street classifications.

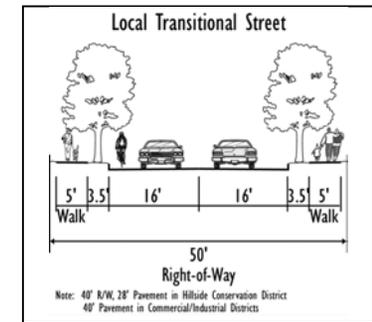
#### Queuing Street

Queuing streets are low volume, low speed through streets intended for two-way travel. They provide one travel lane and two parking lanes. When two vehicles meet on a queuing street one vehicle must yield by pulling into a vacant segment of the adjacent parking lane. Queuing streets are the primary local streets for new residential development. Queuing street block lengths are limited to 400 feet. Traffic volumes are typically 800 vehicles per day or less.



#### Transitional Street

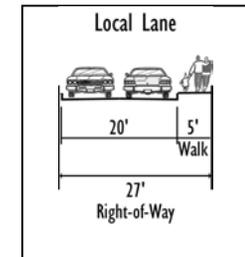
Transitional streets are low volume, low speed local streets that serve neighborhood access needs. They provide two travel lanes and two parking lanes. Traffic volumes are typically 1,000 vehicles per day or less.



Transitional streets are used where queuing streets are not appropriate, such as to continue existing local streets in established neighborhoods, in mixed-use neighborhoods where density precludes queuing streets due to insufficient off-street parking, on primary emergency response routes, when a street must be terminated in a cul-de-sac, or on local streets where volumes are expected to exceed 800 vehicles per day.

#### Lane

Lanes are short public streets that connect at each end to a higher classification street. They provide access primarily to the adjacent homes and do not provide significant neighborhood circulation. Lanes provide two travel lanes, with sidewalk on one side, and no on-street parking. Traffic volumes are typically 200 vehicles per day or less.

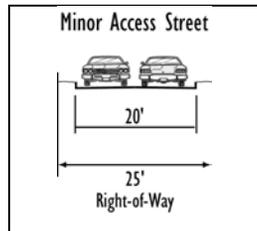


Lanes are principally intended for infill development. However, they may be applied on the periphery of

neighborhoods where physical constraints such as open space, steep terrain, wetlands, natural resource areas, limited access highways, railroads, or other barriers exist. Lanes are not intended to provide neighborhood access directly to the arterial street system.

*Minor Access Street*

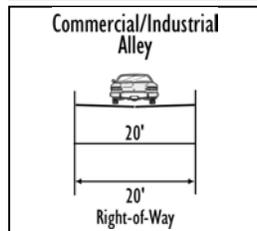
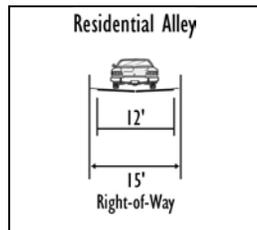
Minor access streets provide public street access to lots created as part of an infill process where there is no opportunity for connection to another public street by a lane or other local street. A minor access street may serve no more than six dwelling units and may not exceed 150 feet in length. Additional off-street parking for residents and visitors must be provided since no on-street parking is allowed. Sidewalks are not required due to the extremely low traffic volumes on the street.



**Alley**

Alleys can be useful in providing property access and allowing efficient property use when direct public street access is either not possible or is undesirable. The use of alleys in residential neighborhoods can enhance front yard pedestrian orientation to adjacent streets and reduce the number of individual driveways, improving pedestrian safety.

Alleys may also be useful in



commercial areas to separate service vehicle traffic from other vehicle and pedestrian traffic.

In all cases, alleys must connect to a street at each end. All adjacent lots must also have frontage on a public street. Additional parking spaces may also be necessary if parking is restricted on the adjacent public street.

**Transit Street**

Transit Streets are currently served by frequent transit service or are designated in this Plan as High Capacity or Primary transit corridors. The Transit Street designation is not a functional classification per se, but rather relates to specific land development standards to ensure adjacent land uses support the use of adjacent high quality transit service.

The transit design criteria applicable to development along transit streets are intended to provide convenient, direct, and accessible pedestrian routes to and from public sidewalks and transit facilities; provide safe, pleasant, and convenient pedestrian circulation by connecting activities within a structure to the adjacent sidewalk and to nearby transit stops; and promote the use of pedestrian and transit modes to access retail and commercial uses. Standards for windows and walls are designed to increase surveillance opportunities, avoid a monotonous pedestrian environment, and prevent fortress-like facades along public streets.

## **Transit System**

The Transit System consists of a hierarchy of service designed to provide the highest possible service to the Regional Center, Town Center, employment areas, and along major regional trunk lines. Neighborhood access and circulation routes provide more flexible transit service to connect outlying low-density neighborhoods to the centers and other transit lines.

### **Light Rail**

The light rail system provides the highest level of transit service on the system. This component of the system connects the Regional Center and Town Center to other Regional Centers and the Portland Central Business District with high frequencies and long operating hours.

### **High Capacity Transit**

The Plan identifies three high capacity transit corridors: 181<sup>st</sup> Avenue, the I-84 Corridor, and the Regional Center/MHCC/OSTP Link. These corridors are identified as areas where the City will work with regional partners to pursue major new transit initiatives to serve high demand corridors and link major transit destinations.

No determination has been made as to a preferred transit system for these corridors. As each corridor is refined through future analysis and corridor planning, recommendations will be made regarding preferred transit modes.

#### **181<sup>st</sup> Avenue**

The 181<sup>st</sup> Avenue corridor experiences very high travel demands and links residential neighborhoods in southern Gresham to the Rockwood Town Center, MAX light rail, and the Columbia Corridor employment area in northern Gresham. Travel demand in this corridor will

grow significantly over the next 20 years and will become a key connection to the Pleasant Valley area.

Providing high capacity transit in the corridor may alleviate the need to pursue additional road widening beyond the current five-lane section. The most likely transit service within this corridor may be frequent, high-quality bus service equivalent to the Rapid Bus or Frequent Bus designation in the Regional Transportation Plan.

#### ***I-84 Corridor***

The I-84 corridor presents a significant opportunity to provide high-speed transit service in north Multnomah County and connect several employment and community centers. Initially, this service could be implemented as express bus service on I-84 connecting Troutdale, Wood Village, Fairview and Gresham to Portland.

Express bus service could be replaced in the future with Commuter Rail service within the freight rail corridor consistent with the Regional Commuter Rail Study completed by the region in 1997.

#### ***Regional Center/MHCC/OSTP Link***

There are two key economic development engines, Mt. Hood Community College (MHCC) and the Oregon Science and Technology Park (OSTP), that will need to be linked to the Gresham Regional Center by high capacity transit and to other centers and emerging growth areas with an integrated transit network. The OSTP will create a premier research center for bioscience, semiconductor, information technology and other knowledge-based disciplines, create a central facility to educate engineers, scientists, and technicians and promote collaboration between colleges, universities and these knowledge-based industries. It is envisioned as a vibrant generation of new companies and family-

wage, knowledge-based jobs. At the same time, the MHCC University Center will provide college courses from Oregon’s four-year universities, giving the opportunity to earn bachelor’s degrees without leaving the area. A refinement study will determine the specific route, termini, and mode (light rail, rapid bus, or streetcar) of this high capacity transit service and an overall transit service strategy between this high capacity transit line and the other centers and emerging growth areas in East Multnomah County.

**Primary Route**

Primary routes serve as regional trunk lines and provide high quality transit service between centers. This service is equivalent to the regional bus system designated in the Regional Transportation Plan and includes one designated frequent bus corridor (Division Boulevard). The Primary Routes have been designated to ensure adequate route coverage for Gresham and provide the main connections between community and employment centers and the rest of the region.

A priority within these corridors will be to ensure adequate and convenient pedestrian access to stops and high quality passenger amenities. Within the Division Boulevard corridor, transit preferential treatments such as signal preemption and enhanced passenger amenities such as bus shelters and curb extensions will be implemented. These routes should provide 10 to 15 minute service frequency during peak hours and no less than 30-minute frequency at other times.

**Secondary**

Secondary transit routes connect higher-density neighborhoods to light rail, primary transit routes, and centers. These are typically shorter routes that serve mainly Gresham and the rest of east Multnomah County.

Peak hour service on these routes should be 10-15 minutes with off-peak service between 30 and 60 minutes.

**Neighborhood Access and Circulation**

Neighborhood Circulation routes provide local service connections between lower-density neighborhoods, employment centers, and higher-frequency transit routes. The routes shown on the plan are illustrative and provide guidance as to how these connections may be made. These routes refine the Radial Community Bus Service described in the Regional Transportation Plan. These services may be provided via shuttle buses or vans and may include paratransit.

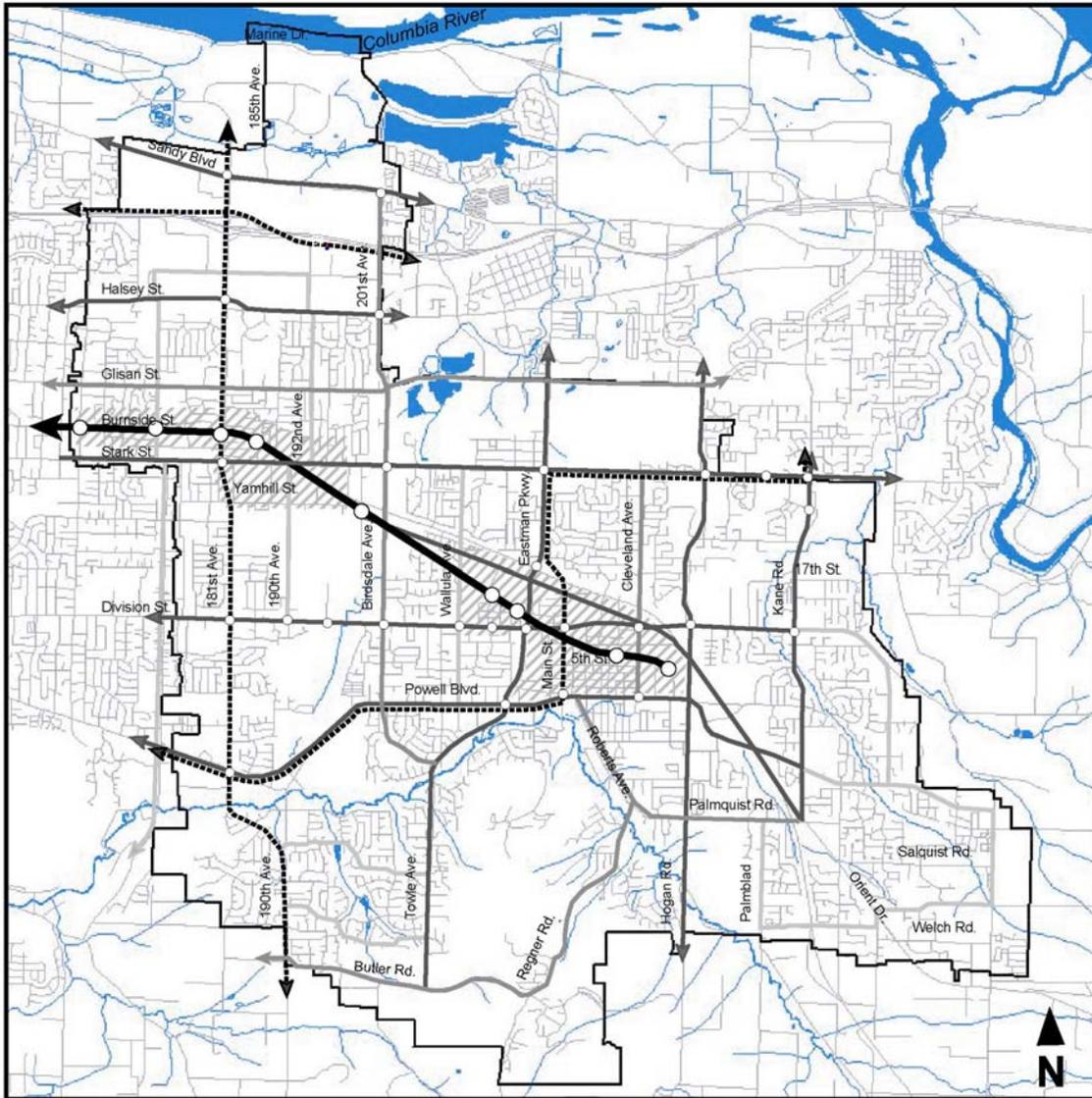
*Table 23. Preferred Transit Service Frequencies (headways in minutes).*

Service Type		Primary	Secondary	Neighborhood
Weekday	Peak	10-15	10-15	15-30
	Day	15	30	30
	Evening	15-30	30	30-60
	Night	30	60	60
Saturday	Day	15	15	30
	Evening	30	30	60
	Night	30	60	60
Sunday	Day	30	30	60
	Evening	30	60	-
	Night	30	60	-

# Transportation System Plan



Figure 21  
Transit Plan



- Light Rail
- High Capacity Transit
- Primary Route
- Secondary Route
- Neighborhood Circulation
- Pedestrian District
- Light Rail Station
- Major Transit Stop

0.5 0 0.5 1 Miles



### **Major Transit Stop**

Major transit stops are intended to provide a high degree of transit passenger comfort and access. They are located at stops on primary and secondary transit routes. Improvements will be focused at these locations to ensure high levels of passenger amenities are provided. At a minimum, major transit stops will provide schedule information, lighting, benches, shelters, and trash receptacles. Other features may include real time transit information, special lighting or shelter design, public art, or bicycle parking.

Each major transit stop is located on a designated transit street. As such, developments adjacent to these locations are required to meet transit-orientation standards as described in the Gresham Community Development Code. In addition, developments are required to provide transit facilities at adjacent transit stops, including landing pads, benches, shelters, or lighting.

### **Fareless Square**

In order to increase mobility and reduce total auto trips, Gresham will work with Tri-Met to develop a fareless transit area in the regional center by the year 2020. Implementation of a fareless area should enhance local land use and transportation management plans that encourage transit use. Tri-Met's Implementing Criteria for Special Fare Zones requires that areas meet specific criteria such as a transportation and parking management plan, fee for parking, and an analysis of the financial impacts and evaluation of the costs and benefits to Tri-Met and the region.

Gresham will pursue a study of implementation measures such as parking and partnership opportunities

to fund and operate fareless square in the Gresham Regional Center with Tri-Met.

## **Bicycle and Pedestrian System**

Both the bicycle and pedestrian systems benefit greatly from the new functional street classification system noted on page 134. The new classifications require bike lanes on all major streets, as well as wide sidewalks with street trees and planter strips. All street improvements require the construction of applicable bicycle and pedestrian system components. Noted below are plans specific to the bicycle and pedestrian networks.

### **Bicycle System**

The bicycle system has two primary elements: on-street bike lanes and off-street multi-use paths. The bicycle system plan develops a connected bicycling network that establishes direct and convenient access to all significant destinations within the city and provides complete multi-modal accessibility.

Other programs and amenities that support cycling in Gresham include: bike rack installation, directional signage, bike helmet distribution, bicycle safety education programs, and bike maps.

Following are the preferred projects and programs to encourage bicycling in Gresham.

### ***On-Street Bike Lanes***

All streets should be accessible by bike and the new functional street classification assures this by adding bike lanes to the major streets from principal arterials to community streets. On-street bike lanes are essential to a well-designed bicycle system. Bicycles are legally

classified as vehicles and are allowed on most roadways except urban freeways. Bicyclists, just like auto drivers, need well-designed facilities to operate safely.

The preferred project list calls for all new and reconstructed streets to include bike lanes. Any substandard street will be upgraded to include bike lanes. This applies city wide on all streets classified as “community street” or above. Local Streets have travel lanes that are wide enough and traffic speeds that are slow enough to allow for shared lanes between autos and bicycles.

To provide a bicycle system that attracts cyclists and helps realize the policy of integrating bicycling into daily life, the city must aggressively pursue development of a comprehensive, connected bikeway network - a system of selected streets on which bikeway facilities will be implemented. Figure 22 shows the preferred bicycle network.

The streets of highest priority for bicycle lanes include: Sandy Boulevard, Burnside, Stark, Yamhill, Wallula, Cleveland, Kane, Regner, Palmquist, and Orient. These streets are prioritized because they complete significant links in the bicycle network and provide access to major destinations.

### ***Burnside Boulevard***

Burnside provides a major east/west cycling corridor between Portland City Center and Gresham. It has a consistent bike lane with the exception of a missing segment between 181<sup>st</sup> and 197<sup>th</sup>. Burnside narrows here as it parallels the light rail tracks and eliminates the bike lanes. But it is here that bike lanes are most needed. Burnside becomes part of the National Highway System

and a designated freight route. The conflicts between cyclists and freight are significant.

The Burnside Boulevard project will add bike lanes in this missing section by widening the street or eliminating a travel lane. It will also assess the potential for moving the freight designation to a different corridor, better equipped to safely serve a freight route.

### ***Trail Access***

Safe and convenient access to multi-use paths is essential. Gresham’s two existing multi-use paths are well-used facilities but getting to them poses some serious safety issues. Improving access to the Springwater Trail at 190<sup>th</sup> is a top priority. The street has a narrow bridge spanning Johnson Creek just south of the trail. Travel lanes are very tight and bike lanes are eliminated. This access improvement will entail widening the bridge to add much needed bike lanes.

The I-84 trail is surprisingly well used given its location adjacent to the freeway, but it provides route into Portland and access to the I-205 Trail. Increased access is needed to this trail especially from Sandy Boulevard where the industrial corridor is growing.

Once complete, access to the Gresham Fairview Trail will also be a high priority program. Numerous residential neighborhoods back up to the trail. Without direct link from the neighborhood, users can only access the trail via the arterial street system. To avoid this out of direction travel and encourage trail use, trail access points will be identified and installed. The trail also crosses several arterials. The Gresham Fairview Trail Master Plan identifies possible design solutions to provide safe street crossings at these locations.

### ***Bike Signage***

Current bike signage consists of nothing but green signs noting “bike route.” Signs are frequently missing, making it difficult to follow the routing, and often the routes lead to nowhere. A new directional signage plan will provide greater information for cyclists. The project will designate routes to specific destinations such as the Gresham Library, Main City Park, Springwater Trail, etc.

### ***Education and Encouragement***

Education is an important element in increasing bicycling while also improving safety. It is often thought that improving the facilities for bikes is all that is needed to improve safety of cyclists. However, bikeways cannot do it alone. Bicycle education is also needed to improve bicycling safety.

Gresham has begun and will continue to prioritize two education programs: the Bicycle Safety Education Program and Bike Helmets Everywhere.

**Bicycle Safety Education Program:** Run by the Bicycle Transportation Alliance (BTA), the Bicycle Safety Education Program introduces bicycle maintenance and safety to 6<sup>th</sup> graders in Gresham’s schools. BTA goes to the school and for two weeks, teach the students both in the class and in the field, proper bicycle etiquette.

**Bike Helmets Everywhere:** This program distributes helmets free of charge to Gresham children 16 and younger. Low-income children are targeted, but all are welcome to helmets.

### ***Pedestrian System***

Much like the preferred bicycle system, the preferred pedestrian system is largely incorporated into the functional street classification system. The new classification system calls for wider sidewalks, street trees, on-street parking, and more flexible use of medians. It also creates a more accessible environment by increasing compliance with the Americans with Disabilities Act. The following programs enhance the functional classification system by addressing specific pedestrian circulation needs.

### ***Pedestrian Districts***

Downtown, Civic Neighborhood, and Rockwood have been identified as Pedestrian Districts within Gresham. All have existing land use plans that support pedestrian-friendly development. The plans include minimum or zero setback, higher densities, building orientation toward the street, and transit corridor designation, among other pedestrian amenities.

The existing street standards in Downtown and Civic Neighborhood also support these areas as pedestrian districts. Downtown streets call for eight to 12 foot sidewalks with street trees, pedestrian-scale lighting, underground utilities, on-street parking, and skinny travel lanes. The Civic Neighborhood street standards widen the sidewalks to 15 feet with planter strips and buffer zones.

Moreover the Civic Neighborhood Street Standards include a shared street classification. A shared street is shared by all travel modes, but designed for pedestrians as the predominate mode. Autos are allowed, but must travel at a walking pace to operate safely. The street is

intended for local access and will assure a continuous and connected street grid pattern.

***Missing Links***

Missing Links is an on-going effort to infill missing segments of sidewalk. Many areas exist in Gresham where curb is in place but sidewalk was never constructed or development related improvements do not link to the existing sidewalk network leaving small gaps in the system. Missing Links constructs these types of small sidewalk projects. Major destination routes are prioritized for sidewalk infill, such as parks, community service uses, major retail centers, as well as the Rockwood and Downtown neighborhoods.

***School Walking Routes***

The School Walking Routes program is much like Missing Links but it focuses on pedestrian needs in school zones. School Walking Routes goes beyond sidewalk construction to improve the safety of crosswalks and increase the convenience of walking to school by adding short, off-street paths between schools and surrounding neighborhoods. Elementary and middle schools are a top priority, such as Gordon Russell, Kelly Creek, Alder, and Wilkes.

***Pedestrian-to-MAX***

The Pedestrian-to-MAX program improves pedestrian access to transit. The program is primarily focused around light rail stations and transit centers, but improvements to well used bus stops are also included. The program includes a wide range of possible improvements such as wide sidewalks, street trees and lighting, crosswalks, public art and urban plazas. The

priority station areas are Rockwood and Cleveland Station.

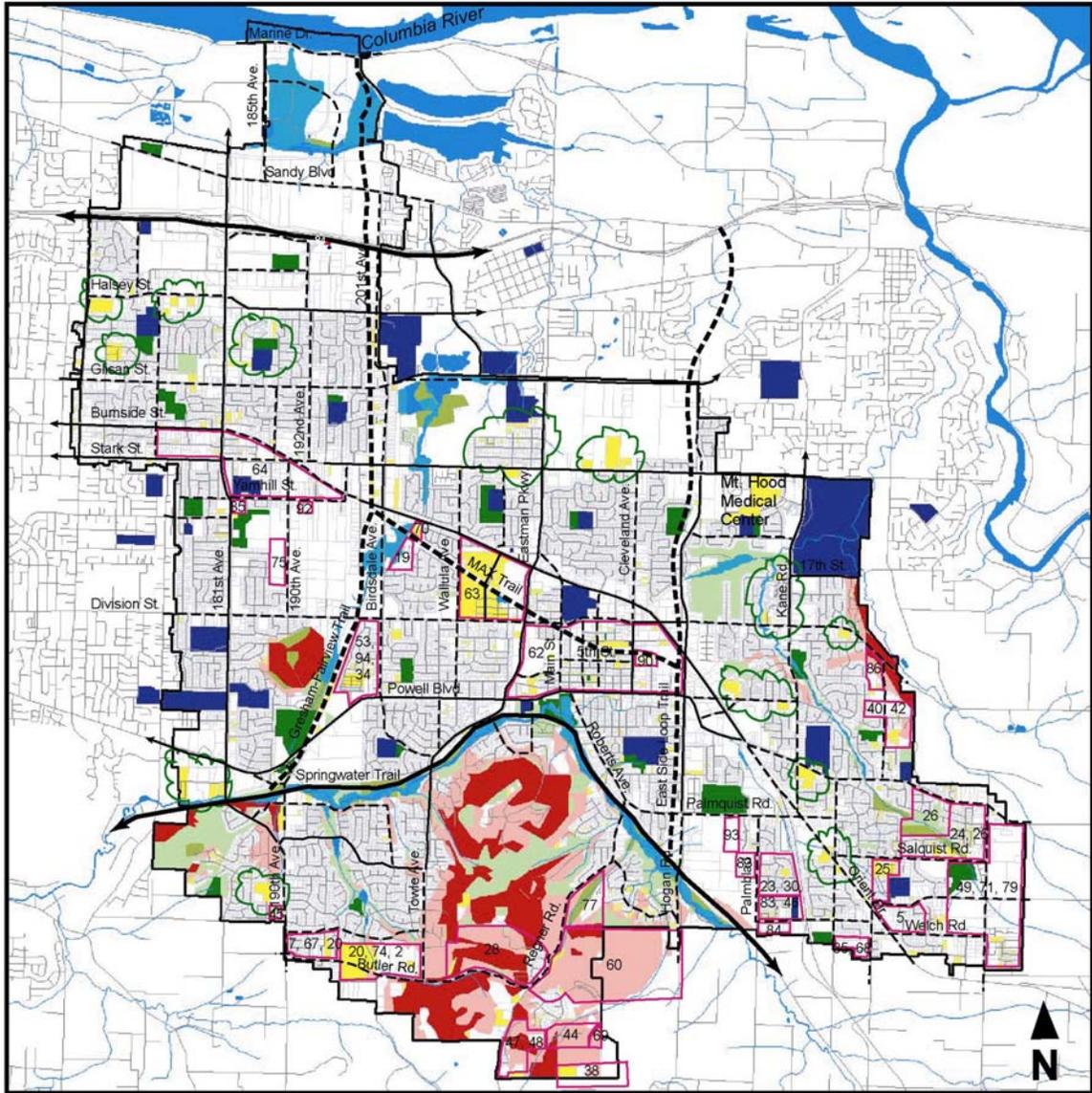
Phase I improvements to the Rockwood Station were constructed in 2000. These improvements added sidewalk, street trees and lighting and bus stop facilities on 188<sup>th</sup> Street between Stark and Burnside. Phase II includes an urban plaza on the northeast corner of Burnside and 188<sup>th</sup> Street. It is currently a vacant lot. Previous design efforts called for an 800 square foot plaza that included seating, trees, a fountain, and public art. This design may be revisited as part of the Rockwood Urban Renewal program to assure an appropriate project scope as future land uses in the area are determined.

***Curb Ramps***

The Americans with Disabilities Act requires an appropriate street accommodation for all users. Curb ramp retrofits and new installations are required of new street construction and major street reconstruction. However, relying on street projects to implement the city’s curb ramp program is inadequate. The Curb Ramp program works independently from street repair to install and upgrade curb ramps citywide. Priority areas for ramp construction are the identified pedestrian districts of Rockwood, Downtown, and Civic Neighborhood. School zones will also take priority.

***Off Street Multi Use Paths***

Off-street paths are designed to establish safe and convenient routes separate from auto traffic for bicycle, walking and other non-motorized users. The Springwater Trail and proposed Gresham Fairview Trail



# Transportation System Plan



Figure 22

## Bicycle and Pedestrian System Plan

- Existing Bike Lane
  - Planned Bike Lane
  - Existing Multi-use Path
  - Planned Multi-use Path
  - School
  - Park
  - Open Space
  - Flood Plain
  - Hillside
  - Hillside >35% Slope
  - Vacant/Underdeveloped Residential/Mixed Use Land
  - Existing Future Street Plan
  - Future Connectivity Study Areas
- 0.5 0 0.5 1 Miles



provide a solid framework for bicycle access. The following two additional paths will complete the network.

- **MAX Path:** The MAX Path parallels the light rail tracks from Cleveland Station to Ruby Junction. The path links Gresham’s Downtown, Civic Neighborhood, and Rockwood. It also connects with the Gresham Fairview Trail. The path will be built primarily within Tri-Met light rail right-of-way.
- **East Side Loop:** Gresham’s off street access to Portland and within Gresham is improving. However, greater access to the east is needed. The East Side Loop is a proposed north/south multi-use path to connect Gresham with Wood Village and Troutdale somewhere between 242<sup>nd</sup> and 257<sup>th</sup>. It would serve Mt. Hood Community College and enhance bicycle access for the neighborhoods in southeast Gresham. The new path would also hook up with the MAX Path and the Springwater Trail for full access to the multi-use path network.

**Street Connectivity**

A very important element of the bicycle and pedestrian system is adequate local street connectivity. A well-connected local street system provides convenient connections between neighborhoods, schools, parks, shopping, and transit. The City has adopted aggressive neighborhood circulation and street connectivity standards for new residential and mixed-use development. These requirements have resulted in the development of several future street plans that guide the construction of new local street connections with land use development and redevelopment.

The bicycle and pedestrian element of the Plan also identifies vacant and underdeveloped residential and mixed-use areas. Those areas not constrained by schools, parks, open space, flood plains, or hillsides, and not already covered by an existing future street plan, have been called out for future connectivity studies. These studies will identify conceptual alignments for local street connections to meet the City’s street connectivity, maximum block length, and maximum block perimeter standards.

**Travel Demand Management**

A key component of the Transportation System Plan is the establishment of Modal Share Targets. While these targets are for 2040, the analysis of the System Plan shows significant gains toward these targets by 2020.

*Table 24. 2040 Non-SOV Modal Targets*

Area	Non-SOV Target	1996 Non-SOV Estimate <sup>1</sup>	2020 Non-SOV Estimate <sup>1</sup>
Rockwood Town Center	45%	25.1%	36.8%
Gresham Regional Center	50%	18.8%	30.4%
All other areas	40%	19.1%	26.3%

<sup>1</sup> Percent of p.m. peak hour work trips to, from, and within these areas by other than single occupant vehicle (SOV).

The Transportation System Plan establishes many projects, programs, and strategies designed to increase the use of transit, walking, bicycling, work schedule changes, and telecommuting, especially during the most congested times of the day. Increasing options to driving alone allows people to eliminate some trips or switch to another mode of travel, and helps maximize the efficiency of the transportation system. The strategies included in the TSP to manage and reduce travel demand over time include:

- Promoting effective employer incentive programs that reduce the number of people driving alone and dependence on the automobile. The City will continue to utilize Tri-Met’s regional rideshare matching and promotional assistance, and guaranteed ride home programs to increase vehicle occupancy and reduce automobile use during peak travel periods.
- Prioritizing pedestrian and bicycle amenities as well as improved connections to transit to increase non-auto trips.
- Supporting transportation management associations (TMAs) in the Gresham Regional Center, Rockwood Town Center, and industrial and employment areas.
- Improving end-of-trip facilities that support alternative transportation modes. For example, the Transit System Plan identifies transit facility improvements at Major Transit Stops and along primary transit routes as a high priority.
- Promoting private and public sector programs and services that encourage employees to use non-single occupant vehicle modes or changes to commuting patterns. The City will continue

to encourage all large employers to join the City in participating in the state’s Employee Commute Options (ECO) program by compiling travel information in a survey every two years.

In addition, there are many provisions included in the Gresham Community Development Code that help reduce overall travel demand and improve non-single occupant vehicle (SOV) mode share.

For instance, the City provides tax incentives for transit-oriented developments within the Rockwood Town Center and Gresham Regional Center through the Transit Oriented Development Tax Exemption program (TOTE). To qualify for the tax exemption, the development must show public benefit through among other things, pedestrian, bicycle, or transit facilities.

The City also provides Traffic Impact Fee reductions for developments near light rail and designated transit streets and corridors. TIF reductions for other developments are allowed based on a specific transportation demand reduction strategy submitted by the developer.

## **Parking Management**

Parking management is in itself a transportation demand management strategy. Parking management strategies are used to optimize the utility of existing parking supplies. Parking management strategies can improve the capacity of parking inventories by increasing turnover rates and capitalizing on complementary needs. Other strategies are aimed at reducing the overall demand for parking by introducing parking meters or fee-based parking. The other strategies deal with new expansion to the parking supply.

The City has adopted revised minimum and maximum parking ratios for new development in compliance with Title 2 of the Metro Functional Plan. In addition, the Code requires a minimum amount of carpool and vanpool parking spaces for industrial and office developments, allows and encourages the use of shared parking facilities, and allows reduced parking ratios.

Finally, the City has adopted specific parking management plans for the Gresham Regional Center and Rockwood Town Center. These plans are described below.

### **Gresham Regional Center**

Parking strategies for the Gresham Regional Center are aimed at increasing turnover of the on-street parking spaces, improving utilization of the existing inventory, and creating a source of revenues to support future parking-related activities. Several strategy elements were considered to alleviate existing parking pressures and to accommodate forecast demands in a manner that supports economic vitality in the area.

Develop a unified way-finding system to public parking areas. When on-street parking occupancy reaches 85% in the peak period, additional parking management strategies must be implemented. Limit on-street parking in the cores of downtown and Civic Neighborhood to two hours to increase turnover. Identify shared parking opportunities among various economic uses to optimize utilization of existing parking supply and the utility of land in the area. Such opportunities in the downtown area would be to pursue shared use agreement between downtown businesses and neighborhood churches.

Establish fee parking to ensure compliance with time limits. This will also help to establish a dedicated revenue source that will augment the supply of parking and provide transportation demand management activities to encourage use of alternative travel modes. Parking rates should be established to distinguish short-term from long-term parkers.

Vacant properties can be purchased or leased to phase in new public parking supplies as needed. These sites will serve to determine the customer priority for parking by area and test the feasibility of future centralized municipal parking structures. When new municipal parking facilities are provided, they should be designed to serve multiple uses, with an emphasis on short-term parking supporting desired economic activities. The objective is to optimize the utilization of parking inventories and reduce the need for additional parking spaces. Facilities need to be appropriately sited and managed to balance multiple access demand.

Seek improvements to transit service and other travel mode options to reduce overall demand for parking.

### **Rockwood Town Center**

Develop a unified way-finding system to public parking areas. Impose time limits for on-street parking to ensure an adequate supply of short-term parking spaces for customers and visitors. Where roadway widths and traffic conditions permit, consider additional opportunities for on-street parking. As future development occurs, provide on-street parking on new streets to meet public parking demands.

Work with Tri-Met to improve security at the Rockwood Park and Ride lot, and to pursue an agreement to allow short-term parking in the park and ride lot. Increasing the frequency of parkers coming and going will in itself help security. The park and ride lot has the potential for redevelopment as a parking structure or mix use community development. Until the level of redevelopment in the Rockwood core increases, additional parking is not needed.

## Truck and Rail Freight System

Freight mobility is essential to the movement of goods and services. National and international freight movement contributes significantly to our regional and local economies. The 2040 Commodity Flow analysis for the region, predicts freight volumes to more than double by 2040.

The significant growth in freight projected by the 2040 Commodity Flow Analysis indicates the need to ensure adequate land for expansion of intermodal facilities, manufacturing, wholesale and distribution activities, and to maintain and enhance the freight transportation network.

### Truck Freight

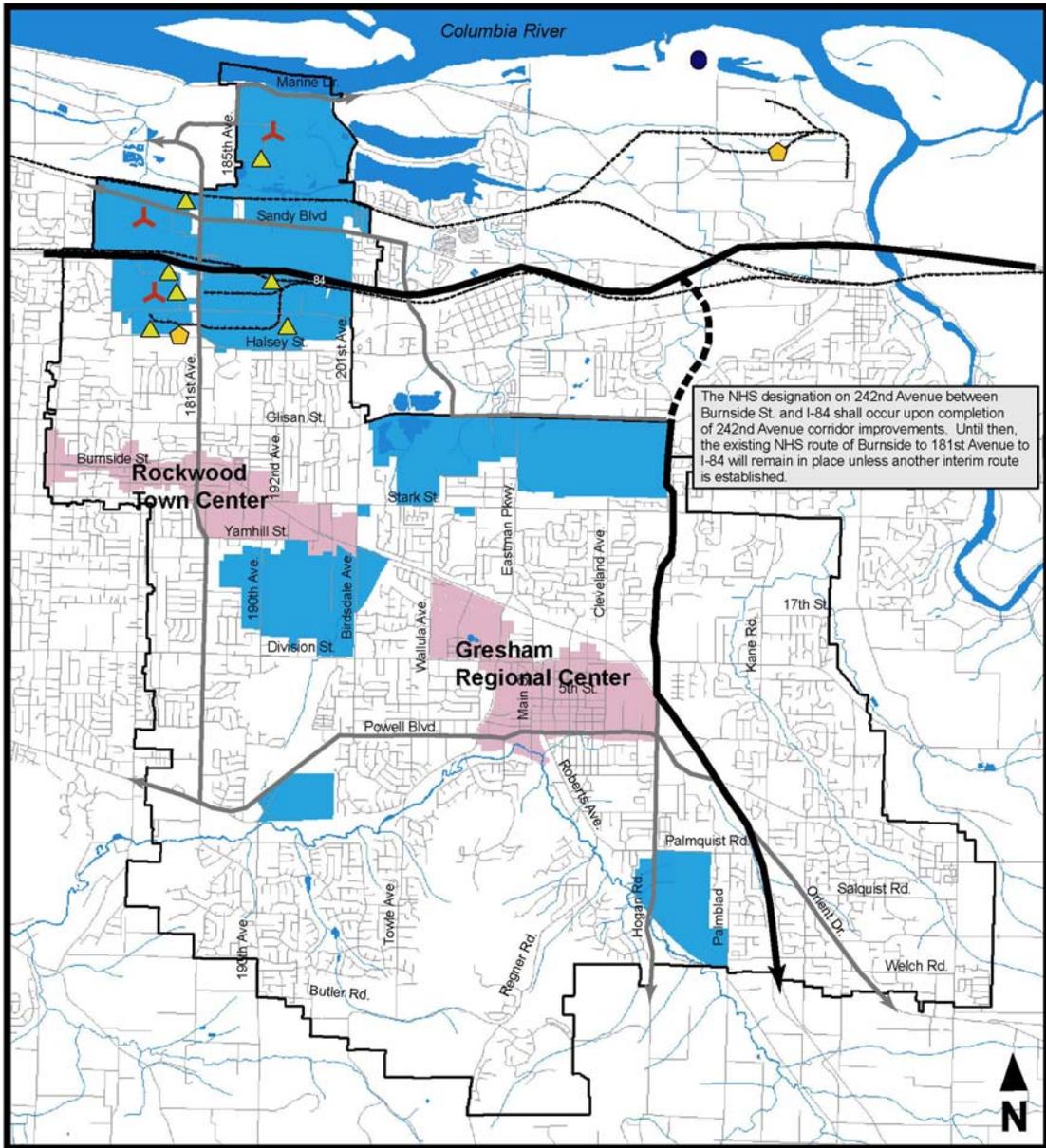
Trucks are a critical part of moving goods within the Portland metropolitan region. Of the total goods moving into, out of and within the region, 62 percent complete all or part of the trip by truck. Overall, the preferred system results in adequate mobility and access for freight movement in an out of Gresham. To provide adequate truck freight access and capacity, the System Plan includes:

- Improvements within the east Columbia Corridor industrial area focused on improving freight access to Portland International Airport and intermodal facilities in the west Columbia Corridor.
- Improving substandard rail crossings that limit freight mobility on north/south arterial and collector streets.
- Improving intersections along arterial corridors to remove traffic bottlenecks.
- Improving the Hogan Road corridor and developing a connection between US 26 and I-84 within the corridor to reduce the impacts of through truck demand in the Burnside and 181<sup>st</sup> Avenue corridors and increase capacity for local freight access.

Completing the Hogan Road corridor improvements and ultimately completing a new connection between I-84 and US 26 in this corridor will require that the City work closely with other local jurisdictions to ensure that any negative impacts are mitigated while providing this essential regional facility. Upon its completion, the Regional Transportation Plan calls for relocating the National Highway System (NHS) designation from Burnside/181<sup>st</sup> Avenue to Hogan Road.

Finally, a number of local and regional freight initiatives are currently under way or are planned to be undertaken in the near term. First, Metro is leading a regional freight study to identify regional freight demands, major freight corridors and regional strategies for improving freight mobility.

Multnomah County and east county cities have also identified a need to address freight movement in this area. This sub-area analysis may be undertaken within

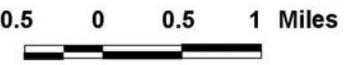


# Transportation System Plan



Figure 23  
Freight System Plan

-  National Highway System (NHS) Route
-  Road Connector
-  Railroad Lines and Spurs
-  Railroad Facility
-  Marine Facility
-  Distribution Facility
-  Truck Terminal
-  Employment Area
-  Regional Center/ Town Center





the next few years. Any findings from these efforts will be reviewed and incorporated as appropriate into the TSP through future amendments or updates.

### **Rail Freight**

The Union Pacific heavy rail line serves the Rockwood-Banfield Corporate Park industrial areas. This line crosses the north side of the city, and has two parallel branches, the mainline north of and parallel to Sandy Boulevard (1.8 miles) and the branch line parallel to I-84 (2 miles) that provides direct rail service to Rockwood-Banfield Corporate Park industrial areas and several large manufacturing and distribution uses. The area enjoys tri-weekly rail service. The Gresham industrial areas served by the Union Pacific allows the City to more effectively encourage the location of businesses needing direct and efficient rail service with the assurance that rail service will continue to be provided for those businesses.



### Introduction

The previous chapter describes the system elements of the Plan. This chapter describes how the Plan will be implemented over time. The implementation of the plan will include the capital improvement projects that provide bicycle lanes, sidewalk connections, transit facilities, and street improvements. In addition, a number of programs that focus on travel demand management, parking management, bicycle safety, and other priorities will be pursued. Finally, a number of revisions to the Gresham Community Development Code and Public Works Standards will be necessary to fully implement the Plan. These revisions include the functional classification system and revised street connectivity standards.

### Projects and Programs

The implementation plan includes over 175 projects and programs totaling nearly \$200 million. Together, these projects represent a significant improvement to Gresham's transportation system over the next twenty years. The projects are illustrated on Figure 23 and listed in Appendix 4. A prioritization of the projects and programs is provided following the description of the funding strategy.

### Funding Strategy

Gresham's primary transportation resources are the state gasoline tax and county revenue sharing. The majority is spent on maintaining and operating the transportation

system. Only 4% is available for street, bicycle, and pedestrian capital improvements.

The majority of capital improvement resources come from grants and Transportation Impact Fees (TIF) charged to new development. The TIF funds a list of growth-related improvement projects. Grant funds (federal and state) supplement City resources, but often come with strings attached, are typically geared toward special purpose projects, and require local matching funds.

### Need

The System Plan calls for a significant investment in the transportation system over the next 20 years. This investment will improve community access, enhance neighborhood livability, and strengthen Gresham's economic competitiveness.

The 20-year investment need is some \$293 million, about 34% of which is necessary to adequately maintain and operate the transportation system. Current revenue sources are forecast to provide approximately \$126 million.

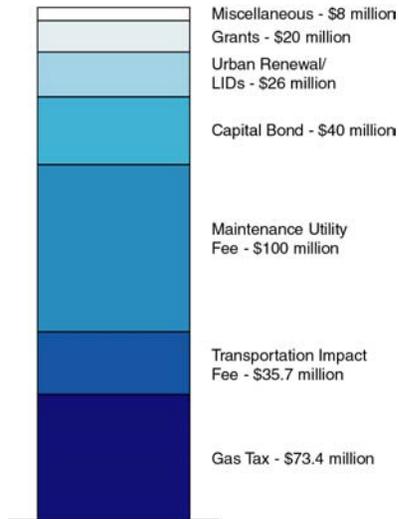
### Strategy

This Plan includes a funding strategy that spreads costs between several new and existing revenue sources. The gas tax at current levels remains a primary funding source. However, it is supplemented by a new Street Maintenance Utility Fee to operate and maintain the transportation system. This fee is assessed on developed

properties based on system use (traffic generated), just like water, sewer, and phone utilities.

Other elements of the strategy include a bond program for capital improvements with broad community benefits along with the use of Urban Renewal and Local Improvement Districts (LIDs) to address more local needs.

**20-Year Funding Plan**



**Gas Tax**

The Gas Tax remains the cornerstone for funding the System Plan. The funding strategy assumes there is no increase in the state gas tax. Over the next twenty years, the gas tax is estimated to generate approximately \$73.4 million in revenue sharing for the City. By state law, 1% of the City’s gas tax revenue must be used to fund improvements to bicycle and pedestrian facilities.

**Transportation Impact Fee (TIF)**

The Transportation Impact Fee (TIF) is a special system development charge (SDC) for transportation improvements. By law, SDCs are limited to use for improvements necessary to accommodate new development. Gresham’s existing TIF generates around \$1 million per year for capital improvements. This funding strategy is based on an increase based on the 2001 Transportation Impact Fee Update. Under the proposed increase, the TIF will generate approximately \$36 million over twenty years to pay for growth-related transportation improvements.

**Street Maintenance Utility**

A Street Maintenance Utility can be established to fund transportation operation and maintenance. It is structured similar to water, sewer, and other utilities, with a monthly bill based on use. In this case, the use is based on the number of trips a property generates. A street maintenance utility fee can provide a stable revenue source dedicated to maintaining the street system. It is estimated that a modest fee of \$2.00 per month per single-family house (proportionately more for non-residential uses depending on number of trips) could generate about \$5.0 million per year.

**Capital Bond**

Bonds are commonly used to finance large public facility improvements, including transportation. General Obligation (GO) Bonds are repaid from increased property tax rate. The authority to issue general obligation bonds, and raise property taxes to retire the debt must be granted by voters. A \$20 million bond levy equals a rate increase of about 43¢ / \$1,000 assessed value or \$65 per year for a \$150,000 house

(\$5.42 per month). Two \$20 million bond issues over twenty years are assumed in this funding strategy.

### ***Urban Renewal and Local Improvement Districts (LIDs)***

Urban renewal and LIDs are mechanisms for funding local projects. Under urban renewal, improvements are funded by increased property tax revenues that are generated by increased property valuation over time. The tax rate within the urban renewal district is not increased. This funding strategy assumes two urban renewal districts in Gresham over twenty years that together fund \$16 million in transportation projects.

Local Improvement Districts (LIDs) may be formed to fund specific improvements within the district. The cost for improvements is financed by the local jurisdiction and repaid through special assessments on properties within the district.

### ***Grants***

Federal, State, regional, and local grants provide an important source of funding for transportation improvements. They are often used to implement special programs and projects, since many grants target specific types of strategies or improvements. Most grants also come with a local match requirement that can range from 10% to 40%. This funding strategy assumes the City will continue to secure around \$1 million per year on average in grant awards.

### ***Development Exactions***

New development has an obligation to mitigate its anticipated traffic impacts, which are normally reviewed by the City, County, State or other jurisdictions in a traffic impact study. A standard development

requirement is the dedication and improvement of abutting streets to their designated functional classification and design. The City may require development to make specific improvements to address safety, circulation, or capacity issues on an abutting street, such as lane striping, turn lanes, corner reconstruction, median barriers, or traffic signals. When substantial traffic impacts are anticipated beyond the abutting streets, the City may require off-site improvements. When development affects a planned public street improvement, the City, County, and State may work out cost-sharing agreements for some development-related improvements.

To the extent that any requirement is included in the City's TIF Program, the cost to the development is offset by a TIF credit.

## **Projects and Priorities**

The implementation plan represents the best combination of transportation strategies to implement Gresham's Vision 2020 Plan and the Region 2040 Plan. It identifies the 20-year priorities for system improvements and programs to implement the policies and goals for Gresham's transportation system. It balances key arterial corridor improvements to facilitate through traffic with strategic investments in transit, bicycle, and pedestrian facilities to improve community accessibility. The total cost of the program is \$294 million:

- \$101 million maintenance
- \$122 million street capital
- \$49 million TIF projects
- \$19 million bicycle/pedestrian projects
- \$3 million transit-related capital

The projects and programs to implement the Transportation System Plan have been prioritized and allocated to specific timeframes. Projects are divided into years 1 through 5, 6 through 10, and 11 through 20 based on priority and funding assumptions. Several key factors have been considered to establish project priorities: economic development, Regional/Town Center support, existing commitments, and system continuity. These priorities represent a general guide. Projects have not been prioritized within each general timeframe. Refinement to these priorities and actual project implementation is subject to annual Capital Improvement Plan (CIP) development and funding availability.

Subsequent design studies, environmental impact studies, capital improvement programs, unforeseen needs, unanticipated conditions, and changes in revenues, costs, or funding sources may necessarily result in changes to a listed project's description, functional classification, location, timing, cost, source of funds, or provider. Modifications to listed project details may be made without amendment to the TSP when these are minor administrative changes, or technical and environmental changes resulting from final engineering or environmental evaluation (see Public Facilities and Services Policy, 10.330, Strategy 6). Examples of administrative changes are modifications of estimated timing, cost, and source of funds. For listed projects whose source is a draft plan or program, needed modifications to project details will be made when a final plan or program is adopted.

## **Years 1 through 5**

### **131 5th St., Liberty Ave. to Cleveland Ave.**

Construct new downtown local street to improve access and circulation.

### **50 5th St., Main Ave. to Cleveland Ave.**

Reconstruct with pedestrian enhancements, curb extensions, textured crosswalks, streetlights, and street furniture.

### **133 6th St., Elliott Ave. to Cleveland Ave.**

Improve substandard local street with curb, gutter, sidewalk, and streetlight improvements.

### **52 162nd Ave. at Glisan St.**

Add eastbound right turn lane.

### **54 162nd RR Bridge at I-84**

Reconstruct railroad bridge to accommodate 4 travel lanes, sidewalks, and bike lanes.

### **57 181st Ave. at Sandy Blvd.**

Add northbound right turn lane, second westbound left turn lane, and overlap eastbound right turn.

### **5 181st Ave. at Stark St.**

Add second left turn lane on east and west legs of the intersection.

### **206 181st Ave./I-84 Study**

Study alternatives to improve access and circulation to accommodate industrial and employment growth in the area.





**145 182nd Ave., Everett St. to Couch St.**

Construct new local street to improve access and circulation in the Rockwood Town Center area.

**60 184th Ave., Wilkes St. to San Rafael**

Construct new collector street to improve freight access and circulation for the surrounding industrial area.

**149 185th Ave., Burnside St. to Davis St.**

Construct new local street to improve access and circulation in the Rockwood Town Center area.

**9 185th Ave., Sandy Blvd. to Marine Dr.**

Widen and realign 185th and widen under crossing at railroad to improve freight access and circulation in the surrounding industrial and employment areas.

**148 185th Ave., Yamhill St. to Stark St.**

Construct new local street to improve access and circulation within the Rockwood Town Center area.

**62 190th Ave., Stark St. to Yamhill St.**

Improve to community street standard with street lighting, sidewalks and bicycle facilities, and storm drains.

**67 201st Ave. (Birdsdale) at Halsey St.**

Change signal phasing from permitted to protected left turns on east and west legs of the intersection.

**71 202nd Ave. (Birdsdale) at Division St.**

Add southbound and eastbound right turn lanes.

**10 202nd Ave. (Birdsdale) at Powell Blvd.**

Add exclusive southbound left turn lane.

**72 202nd Ave. (Birdsdale) at Stark St.**

Add eastbound right turn lane and second southbound left turn lane.

**12 257th Ave. (Kane) at Stark St.**

Add second northbound left turn lane, and exclusive eastbound right turn lane.

**11 257th Ave. (Kane), Orient to Palmquist**

Realign intersection to improve safety and circulation.

**154 257th Ave. (Kane), Powell Valley Rd. to Palmquist Rd.**

Construct bike lane.

**13 262nd Ave. at Orient**

Add northbound and southbound left turn lanes and signalize intersection.

**158 Bike signs**

Add directional signs to bicycle lane network. This is an on-going project that will occur over the full 20-year period.

**15 Burnside St. at Division St.**

Add exclusive eastbound right turn lane, and signal upgrades.

**81 Burnside St. at Powell Blvd.**

Eliminate eastbound and westbound left turns.

**16 Civic Neighborhood Station and Plaza**

Construct light rail transit station and adjacent plaza.

**17 Civic Neighborhood Transit Oriented Design**

Support street infrastructure improvements through development reimbursements for a portion of transportation improvements. This on-going project will occur over the full 20-year period.

**207 Cleveland Ave./Clyde/Wallula, Glisan to Stark**

Study local street connection alternatives to improve access and circulation to the surrounding industrial and employment area.

**18 Columbia Corridor TMA**

Implement a Transportation Management Association program with employers.

**167 Curb ramps**

Install sidewalk curb ramps at various locations throughout the city to implement Americans with Disabilities Act requirements. This on-going project will occur throughout the 20-year period.

**19 Development Support Projects**

Leverage transportation and development projects to ensure logical and cost-efficient improvements. This on-going project will occur throughout the 20-year period.

**21 Division St., 174th Ave. to Wallula Ave.**

Retrofit street to add bike lanes and sidewalks.

**24 Glisan St., 162nd Ave. to 202nd Ave.**

Retrofit bike lanes to existing street.

**172 Glisan St., 193rd Ave. to 202nd Ave.**

Construct sidewalk on both sides of the roadway.

**26 Gresham Regional Center TMA**

Implement a Transportation Management Association program with employers.

**27 Gresham/Fairview Trail, Springwater Trail to Marine Drive**

Construct a new multi-use trail connecting the Springwater Trail to Marine Drive through Rockwood.

**175 Halsey St., 162nd Ave. to 181st Ave.**

Construct sidewalk on both sides of the roadway.

**28 Halsey St., 162nd Ave. to 181st Ave.**

Retrofit bike lanes to existing street.

**92 Hogan Rd. at Burnside St.**

Improve intersection with turn lanes, and new traffic signals.

**208 Hogan Rd. Connector, Palmquist to US 26**

Study alternative alignments for new principal arterial connection to US 26.

**177 Hogan Rd., Glisan St. to Stark St.**

Construct bike lane.

**178 Hogan Rd., Glisan St. to Stark St.**  
Construct sidewalk on west side of roadway.

**31 Hood St., 5th to Powell**  
Reconstruct roadway to add pedestrian enhancements and storm drainage.

**182 Liberty Ave., 5th St. to 8th St.**  
Construct new downtown local street to improve access and circulation.

**185 Main Ave., Division St. to 5th St.**  
Provide enhanced pedestrian facilities, curb extensions, and crosswalks to improve pedestrian access to light rail transit.

**188 Mignonette Ave., Division St. to 8th St.**  
Improve substandard street.

**190 Missing Links Sidewalk Program**  
Fill gaps in neighborhood sidewalk systems at various locations throughout the city. This on-going project will occur throughout the 20-year period.

**32 Neighborhood Traffic Control**  
Install neighborhood traffic control devices, and traffic calming features at various locations throughout the city. This on-going project will occur throughout the 20-year period.

**191 Oak St., 183rd Ave. to 185th Ave.**  
Construct new local street to improve access and circulation within the Rockwood Town Center area.

**100 Orient Dr., Kane Dr. to Troutdale Rd.**  
Upgrade to arterial standards with four travel lanes, bike lanes, curb, gutter, and sidewalk facilities.

**33 Palmquist, Hwy 26 - Orient Rd.**  
Realign and reconstruct Palmquist to improve safety and circulation.

**34 Pleasant Valley Transportation Plan**  
Develop and implement a transportation plan to support urbanization of the Pleasant Valley area.

**103 Pleasant View Dr., Powell Loop to Binford Lake Pkwy.**  
Widen roadway and construct curb and gutter, sidewalks, bike lanes and storm drainage.

**35 Powell Blvd, 174th Ave. to Eastman Pkwy.**  
Widen Powell to five lanes and add bike lanes, sidewalks, curbs, gutters, street lighting, and center medians.

**36 Powell Blvd., Eastman Pkwy. to Hogan Rd.**  
Complete boulevard design improvements to support implementation of the Downtown Plan.

**106 Regner Rd. at Roberts**  
Construct traffic control circle and bike lanes.

**109 Regner Rd., Roberts Dr. to Kelly Ave.**  
Widen roadway and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements.

**110 Riverside Drive extension to Sandy Blvd.**  
Extend collector street from 190th Ave. to Sandy Blvd. to improve industrial access.

**111 Roberts Rd., Maple Lp. to Regner Rd.**  
Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements.

**113 San Rafael, 181st Ave. to 201st Ave.**  
Complete collector street standards and remove frontage road to improve access to adjacent industrial properties.

**200 School Walking Routes**  
Improve pedestrian access to schools at various locations throughout the city. This on-going project will continue during the 20-year period.

**39 Signal Optimization Phase II**  
Engineering and integration of 58 traffic signals for coordination and optimization to improve travel without physical capacity increases.

**40 Springwater Trail Connections, 182nd and 190th Avenues**  
Provide bicycle access to the Springwater Trail at 182nd Avenue and 190th Avenue.

**42 Stark St., 181st Ave. to 190th Ave.**  
Retrofit street with boulevard improvements to improve pedestrian, bicycle, and transit access and circulation in the Rockwood Town Center.

**201 Stark St., 202nd Ave. to 206th Ave.**  
Construct sidewalk on both sides of the roadway.

**202 Stark St., 216th Ave. to 223rd Ave.**  
Construct sidewalk on both sides of the roadway.

**117 Substandard Streets**  
Upgrade substandard streets at various locations throughout the city to improve neighborhood access and circulation. This on-going project will continue during the 20-year period.

**45 Survey Monumentation**  
Complete survey monumentation throughout the city.

**47 Transit center and park-and-ride upgrades, Cleveland, City Hall, and 181st.**  
Construct, expand and/or upgrade transit stations and park-and-ride facilities.

**124 Wilkes St., 181st Ave. to 192nd Ave.**  
Improve Wilkes St. to collector street standards and provide slip ramp connection from eastbound I-84 on-ramp to enhance freight access and circulation. Slip ramp connection subject to completion of the I-84/181<sup>st</sup> Avenue Refinement Plan and approval by ODOT.

## **Years 6 through 10**

**130 4th St., Victory Ave. to Cleveland Ave.**  
Construct new downtown local street to improve access and circulation.

**132 5th St., Gresham/Fairview Trail access**  
Construct access to the Gresham/Fairview Trail from the surrounding neighborhood.

**134 8th St., Eastman Pkwy. to Victoria Ave.**  
Construct new downtown local street to improve access and circulation.

**135 8th St., Main Ave. to Victoria Ave.**  
Improve substandard street with sidewalks, drainage, and pavement to improve neighborhood access and circulation.

**136 9th St., Hood Ave. to Linden Ave.**  
Improve substandard street with sidewalks, drainage, and pavement to improve neighborhood access and circulation.

**137 9th St., Linden Ave. to Cleveland Ave.**  
Construct new downtown local street to improve access and circulation.

**138 10th St., Linden Ave. to Cleveland Ave.**  
Improve substandard street with sidewalks, drainage, and pavement to improve neighborhood access and circulation.

**139 10th St., Mignonette Ave. to Earl Ave.**  
Improve substandard street with sidewalks, drainage, and pavement to improve neighborhood access and circulation.

**1 162nd Ave. at Stark St.**  
Add exclusive southbound and eastbound right turn lanes.

**2 181st Ave. at Burnside St.**  
Add second left turn lane to north and south legs of the intersection.

**6 181st Ave. at Glisan St.**  
Add eastbound right turn lane, and second northbound and southbound left turn lanes.

**3 181st Ave. at Halsey St.**  
Add second left turn lane to north and south legs, exclusive right turn lanes to eastbound, westbound, and southbound approaches, and upgrade traffic signal.

**7 182nd Ave. at Division St.**  
Add exclusive southbound right turn lane.

**146 183rd Ave., Stark St. to Burnside St.**  
Construct new local street to improve access and circulation in the Rockwood Town Center area.

**147 184th Ave., Stark St. to Pine St.**  
Construct new local street to improve access and circulation in the Rockwood Town Center area.

**150 188th Ave. at Burnside St.**  
Provide pedestrian enhancements to improve access to transit.

**151 188th Ave. at Stark St.**

Realign intersection of 187<sup>th</sup> Avenue/188<sup>th</sup> Avenue at Stark St. to improve safety and neighborhood access.

**63 190th Ave., Division St. to Yamhill St.**

Improve to community street standard with sidewalks and storm drains.

**65 192nd Ave., Wilkes St. to Halsey St.**

Improve to collector street standards with street lighting, sidewalks and bicycle facilities.

**153 197th Ave. at Burnside St.**

Provide pedestrian enhancements to improve access to transit.

**66 197th Ave., Yamhill St. to Stark St.**

Improve to community street standard with street lighting, sidewalks and bicycle facilities, and storm drains.

**68 201st Ave. railroad bridge at I-84**

Construct new railroad bridge to accommodate travel lanes with bike lanes and sidewalk and improve freight access and circulation to surrounding industrial and employment areas.

**70 201st Ave., Halsey St. to Sandy Blvd.**

Upgrade to collector standards with street lighting, sidewalks and bicycle facilities to improve access and circulation to surrounding industrial and employment areas.

**156 Alder St., 182nd Ave. to Burnside St.**

Construct new local street to improve access and circulation in the Rockwood Town Center area.

**157 Ash St., 181st Ave. to 182nd Ave.**

Improve substandard street with curb, gutter, sidewalk, and drainage to improve neighborhood access and circulation within the Rockwood Town Center area.

**161 Central Station Pedestrian to MAX**

Improve pedestrian access to light rail transit with enhanced pedestrian facilities.

**85 Cleveland Ave., Powell Blvd. to Stark St.**

Widen roadway and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements

**162 Cleveland Station Area, Pedestrian to MAX**

Improve pedestrian access to light rail transit by providing enhanced pedestrian facilities.

**165 Couch St., 184th Ave. to 188th Dr.**

Construct new local street to improve access and circulation in the Rockwood Town Center area.

**168 Davis St., 184th Ave. to 188th Dr.**

Improve substandard street with curb, gutter, sidewalk, and drainage to improve neighborhood access and circulation within the Rockwood Town Center area.

**20 Division St. Frequent Bus Capital Improvements**

Construct improvements that enhance frequent bus service.

**23 Division St., Kelly Ave. to Burnside Rd.**

Retrofit street with boulevard improvements to improve pedestrian, bicycle, and transit access and circulation in the Gresham Regional Center.

**170 Earl Ave., Division St. to 8th St.**

Improve substandard street with sidewalks, drainage, and pavement to improve neighborhood access and circulation.

**88 Eastman Ave. at Division**

Add southbound right turn lane and second northbound and southbound left turn lanes.

**173 Glisan St., LSI to Hogan Rd.**

Construct bike lanes.

**174 Gresham Fairview Trail Access**

Construct neighborhood access to trail.

**176 Halsey St., 181st Ave. to 201st Ave.**

Construct sidewalk on both sides of the roadway.

**29 Halsey St., 190th Ave. to 201st Ave.**

Construct standard arterial improvements with four travel lanes, curb, gutter, bike lanes, and sidewalks.

**93 Hogan Rd. at Division St.**

Add second southbound left turn lane and southbound right turn lane.

**94 Hogan Rd. at Powell Blvd.**

Add eastbound and northbound right turn lanes.

**183 Linden Ave., 3rd St. to 6th St.**

Improve substandard street with sidewalks, drainage, and pavement to improve neighborhood access and circulation.

**184 Linden Ave., Division St. to 8th St.**

Improve substandard street with sidewalks, drainage, and pavement to improve neighborhood access and circulation.

**187 MAX Path, Ruby Junction to Cleveland Ave.**

Construct new multi-use path from Ruby Junction to Cleveland Ave. Station within MAX light rail right-of-way.

**99 Orient Dr. at Chase Rd.**

Signalize intersection.

**101 Palmquist Rd., Hogan Rd. to Hwy 26**

Upgrade to collector standards.

**104 Powell Blvd. at Walters Rd.**

Provide traffic signal safety improvements.

**108 Regner Rd., Kelly Ave. to Gabbert Rd.**

Widen roadway and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements.

**114 Sandy Blvd., 174th Ave. to 207th Ave.**

Improve to arterial street standards with four travel lanes, curb and gutter, bike lanes, and sidewalks to improve access to surrounding industrial area.

**115 Signal Optimization Phase 3A**

Install closed circuit TV, variable message signs and Hwy Advisory Radio equipment.

**41 Springwater Trail Pedestrian Access**

Provide pedestrian access to the Springwater Trail at Eastman Parkway, Towle Road, Roberts Road, Regner Road, and Hogan Road, including wider sidewalks and lighting.

**43 Stark St., 190th Ave. to 197th Ave.**

Retrofit street with boulevard improvements to improve pedestrian, bicycle, and transit access and circulation in the Rockwood Town Center.

**46 TIF Study Updates**

Updates Traffic Impact Fee Study.

**126 Yamhill St., 181st Ave. to 197th Ave.**

Upgrade to community street standards with curbs, sidewalks, bike lanes, street lighting and storm drainage.

**Years 11 through 20**

**48 1st St., 3rd St. to Kane Rd**

Upgrade to community street standards with curbs, sidewalks, bike lanes, street lighting and storm drainage.

**127 2nd St., Liberty Ave. to Cleveland Ave.**

Construct new downtown local street to improve access and circulation.

**128 3rd St., Liberty Ave. to Cleveland Ave. to**

Construct new downtown local street to improve access and circulation.

**129 3rd St., Liberty Ave. to Victory Ave.**

Construct new downtown local street to improve access and circulation.

**4 181st Ave. at I-84**

Provide improvements to facilitate freight mobility and freeway access to support industrial and employment growth within the area. Subject to findings of the 181<sup>st</sup> Ave./I-84 Refinement Plan.

**144 181st Ave., Glisan St. to Yamhill St.**

Retrofit street with boulevard improvements to improve pedestrian, bicycle, and transit access and circulation in the Rockwood Town Center.

**59 181st Ave., I-84 to Halsey St.**

Add third southbound lane.

**58 181st Ave., Sandy Blvd. to I-84**  
Add southbound auxiliary lane and widen railroad over crossing.

**8 182nd Ave. at Powell Blvd.**  
Provide southbound and northbound lanes.

**61 185th Ave. at Marine Dr.**  
Signalize intersection.

**152 195th Ave., Yamhill St. to Alder St.**  
Construct new local street to improve access and circulation in the Rockwood Town Center area.

**69 201st Ave., Glisan St. to Halsey St.**  
Improve to collector standards with street lighting, sidewalks and bicycle facilities.

**73 202nd Ave., Burnside St. to Powell Blvd.**  
Upgrade to collector standards with street lighting, sidewalks and bicycle facilities.

**74 202nd Ave., Stark St. to Burnside St.**  
Improve to collector standards with street lighting, sidewalks and bicycle facilities.

**75 202nd Ave., Stark St. to Glisan St.**  
Upgrade to collector standards with street lighting, sidewalks and bicycle facilities.

**76 257th Ave. (Kane) at Division St.**  
Add southbound right turn lane and second eastbound left turn lane.

**77 257th Ave. (Kane) at Powell Valley**  
Signalize intersection.

**78 257th Ave. (Kane), Division St. to Powell Valley Rd.**  
Reconstruct street to arterial standards, including bike lanes, sidewalks, drainage, lighting and traffic signals.

**14 282nd Ave., Lusted Rd. to Powell Valley Rd.**  
Improve to community street standards.

**155 282nd Ave., Troutdale Rd. to Orient Dr.**  
Construct bike lanes.

**80 Barnes Rd., Powell Valley Rd. to South City Limits**  
Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements.

**159 Burnside Blvd., 181st Ave. to 197th Ave.**  
Retrofit street with boulevard improvements to improve pedestrian, bicycle, and transit access and circulation in the Rockwood Town Center.

**160 Burnside Rd., Wallula to Hogan Rd.**  
Retrofit street with boulevard improvements to improve pedestrian, bicycle, and transit access and circulation in the Gresham Regional Center.

**83 Butler Rd., 190th Ave. to Regner Rd.**  
Construct to collector standards with curb and gutter, bike lanes, and sidewalks.

**163 Couch St., 169th Ave. to 171st Ave.**

Construct new local street to improve access and circulation in the Rockwood Town Center area.

**166 Couch St., 190th Ave. to 192nd Ave.**

Improve substandard street with curb, gutter, sidewalk, and drainage to improve neighborhood access and circulation within the Rockwood Town Center area.

**22 Division St., Birdsdales Ave. to Wallula Ave.**

Retrofit street with boulevard improvements to improve pedestrian, bicycle, and transit access and circulation in the Gresham Regional Center.

**169 Division St., Kane Dr. to UGB**

Construct bike lanes.

**89 Eastman Ave. at Stark St.**

Add eastbound and northbound right turn lanes and second northbound and southbound left turn lanes.

**171 Elliott Ave., 2nd St. to 6th St.**

Improve substandard street with sidewalks, drainage, and pavement to improve neighborhood access and circulation.

**25 Glisan St., 202nd Ave. to 207th Ave.**

Construct arterial standard improvements with four travel lanes, bike lanes, sidewalks, drainage improvements.

**91 Hillyard Rd., Palmsblad Rd. to Anderson Rd.**

Widen roadway and construct curb and gutter, sidewalks, bike lanes, streetlights, storm drainage and intersection improvements.

**95 Hogan Rd. at Stark St.**

Add right turn lanes on all approaches and second northbound and southbound left turn lanes.

**97 Hogan Rd., Burnside St. to Stark St.**

Construct arterial standard improvements with four travel lanes, bike lanes, sidewalks, drainage improvements.

**30 Hogan Rd., Powell Blvd. to Burnside St.**

Retrofit street with boulevard improvements to improve pedestrian, bicycle, and transit access and circulation in the Gresham Regional Center.

**180 Juniper Ave., 1st St. to Powell Blvd.**

Improve substandard street with sidewalks, drainage, and pavement to improve neighborhood access and circulation.

**181 Juniper Ave., 2nd St. to 6th St.**

Improve substandard street with sidewalks, drainage, and pavement to improve neighborhood access and circulation.

**189 Miller Rd., 5th St. to 8th St.**

Construct new downtown local street to improve access and circulation.

**197 Pacific St., 174th Ave. to 177th Ave.**

Improve substandard street with curb, gutter, sidewalk, and drainage to improve neighborhood access and circulation within the Rockwood Town Center area.

**198 Pine St., 169th Ave. to 172nd Ave.**

Construct new local street to improve access and circulation in the Rockwood Town Center area.

**102 Pleasant View Dr., Highland Dr. to Butler Rd.**

Construct arterial standard improvements with four travel lanes, bike lanes, sidewalks, drainage improvements.

**37 Powell Valley Rd, Burnside Rd to Kane Rd (257th Ave)**

Construct arterial standards with four travel lanes, center turn lane, bike lanes and pedestrian facilities.

**105 Powell Valley Rd., Kane Dr. to Troutdale Rd.**

Construct collector street standards with bike lanes and pedestrian facilities, realign intersection at Lusted/Troutdale Rd.

**38 Regner Rd, Butler Rd. to County Line**

Widen roadway and construct to collector standards with curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements.

**107 Regner Rd., Butler Rd. to Gabbert Rd.**

Widen roadway and construct to collector standards with curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements.

**116 Signal Optimization Phase 3B**

Install closed circuit TV, variable message signs and Hwy Advisory Radio equipment.

**44 Stark St., Kane Dr. to Troutdale Rd.**

Add two additional traffic lanes, a continuous left turn lane, bike lanes, sidewalks, and intersection improvements.

**204 Victoria Ave., Division St. to 8th St.**

Improve substandard street with sidewalks, drainage, and pavement to improve neighborhood access and circulation.

**119 Wallula Ave. at Burnside St.**

Add northbound and southbound left turn lanes.

**120 Wallula Ave. at Stark St.**

Signalize intersection.

**117 Wallula Ave., Division Blvd. to Stark St.**

Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements.

**123 Welch Rd., Anderson Rd. to 282nd Ave**

Widen roadway and construct curb and gutter, sidewalks, bike lanes, streetlights, storm drainage and intersection improvements.

## Code Amendments

To fully implement the TSP, it will be necessary to revise the Gresham Community Development Code as well as the Public Works Standards. These amendments

will be pursued and completed immediately upon adoption of the Plan. Because the City has already implemented many progressive standards for parking, street connectivity, and skinny streets, the revisions are relatively limited. The key revisions will include the functional classification system (Principal Arterial through Community Street) and detailed design standards for them.

## **Refinement Plans**

In areas defined in this section, the need for refinement planning is warranted before specific projects or actions that meet an identified need can be adopted into the TSP. Refinement plans may involve a combination of transportation and land use analysis, multiple local jurisdictions, and facilities operated by multiple transportation providers. Therefore, the City will initiate refinement planning in coordination with other affected local, regional, and state agencies. Refinement planning efforts will generally be multi-modal evaluations of possible transportation solutions in response to needs identified in the TSP. The evaluation may also include land use alternatives to fully address transportation needs in these areas.

### **181<sup>st</sup>/I-84 Study**

Continued development and redevelopment of employment areas in the vicinity of I-84 and 181<sup>st</sup> Avenue is essential to Gresham's future. Travel demand on 181<sup>st</sup> is estimated to increase to over 55,000 vehicles per day just south of I-84 by 2020. This study will assess opportunities for system improvements that may relieve some of this travel demand and free system capacity for freight access and mobility to support surrounding employment uses. These alternatives may

include interchange upgrades, new access across I-84, or new freeway access. The TSP project list includes placeholder projects for interchange improvements and a slip ramp connection from the eastbound on-ramp to Wilkes St. This study will need to include a wide variety of stakeholders including ODOT, Portland, Fairview, Multnomah County, and surrounding employers and land owners.

### **Hogan Corridor Alignment Study**

While the Regional Transportation Plan and the TSP identify the need for significant improvements within the Hogan corridor and ultimately an improved connection between I-84 and US26, the TSP analysis shows that the Mt. Hood Parkway is not necessary as a limited access freeway facility. Since the Mt. Hood Parkway alignment assumed a new south connection linking Hogan to US 26 just north of the Springwater Trail alignment, the proposed Principal Arterial connection may be able to utilize existing street alignments to provide the connection. This study will assess options for the south end of this connection and select a preferred alignment.

### **Stark to Glisan Local Street Study**

Two large industrial blocks exist between Stark Street and Glisan Street. The first extends from 201<sup>st</sup> Avenue to 223<sup>rd</sup> Avenue. The second extends from 223<sup>rd</sup> Avenue to Hogan Road. These large blocks have no continuous local or collector streets connecting the surrounding arterials. Travel demands on the adjacent north/south arterials, especially 223<sup>rd</sup> Avenue and Hogan Road, are estimated to grow substantially and will exceed the capacity of these facilities, even with full arterial improvements. This study, in cooperation with affected property owners, will assess opportunities for new local

or collector street connections within these blocks and their effectiveness at removing local traffic from the surrounding arterial streets.

### **Local Connectivity Plans**

The Transportation System Plan identifies residential and mixed-use area that are vacant or underdeveloped and that are not constrained by schools, parks, open space, floodplains, or hillsides. The Regional Transportation Plan and Title 6 of the Urban Growth Management Functional Plan requires that the City prepare conceptual local street plans to provide local connectivity within these areas. Many of these areas are already covered by adopted Future Street Plans. In the remaining areas identified on Figure 22, the City will develop local connectivity plans. These local connectivity plans will be developed by the City beginning in year 1 and completed by year 3.

### **Regional Center/MHCC/OSTP High Capacity Transit Plan**

This planning effort will study the transit network in the corridor linking the Gresham Regional Center, Mt. Hood Community College, and the Oregon Science and Technology Park. These three areas are key economic engines of East Multnomah County and need to be served by high capacity transit service. The study will develop a preferred transit service strategy that addresses three issues:

- a high capacity transit mode (light rail, rapid bus or streetcar)
- a route and termini for the high capacity improvement connecting these three centers

- an integrated network of transit service connecting the high capacity transit improvement with other centers and emerging growth areas such as the Columbia Southshore, Troutdale, Wood Village, Fairview, Pleasant Valley, and Damascus.

### **Pleasant Valley Concept Plan and Implementation Study**

The Pleasant Valley Concept Plan calls for high quality transit service to connect Pleasant Valley with Gresham, Portland and Clackamas. Specifically, it calls for Frequent Bus service between the Pleasant Valley Town Center and the Gresham Regional Center as well as several regional bus routes. The Pleasant Valley Implementation Study currently underway will provide more specific details on routes and timing for implementation of that service. The TSP will be updated to reflect the results of this study.

### **Powell/Foster Corridor Study**

Metro, in cooperation with Gresham and other affected jurisdictions, is leading a study to consider alternatives for improving Powell Boulevard and Foster Road to meet local and regional transportation needs, including roadway, transit, bike and pedestrian improvements. The results of this study will be amended into the Gresham Transportation System Plan as well as the Regional Transportation Plan.

### **I-84 Commuter Rail Study**

Consistent with the policies of the Regional Transportation Plan (14.0 d): work with Tri-Met, Metro, Troutdale, Wood Village, Fairview, Portland, the Port of Portland and the Union Pacific Railroad on the feasibility of Commuter Rail service between Troutdale and the Portland CBD on the existing freight railroad tracks.

## **Regional Transportation Plan Amendments**

In most cases, the Transportation System Plan represents a local refinement of the RTP and does necessitate changes or amendments to the RTP. There are a handful of RTP amendments that the City will need to seek as a result of the local planning effort. These amendments are related to the Regional Motor Vehicle and Street Design Systems, the Regional Public Transportation System maps, and the RTP project lists.

### ***Motor Vehicle and Street Design Maps***

As part of the preparation of the TSP and a related focused study of the 181<sup>st</sup> Avenue and Sandy Boulevard area in northern Gresham, a preferred alignment for the Riverside Drive extension has been identified. Therefore, the proposed projects (dashed lines) depicted on these RTP system maps should be amended to reflect the alignment depicted on the TSP Functional Classification System map.

### ***Public Transportation System Map***

The TSP has identified three future high capacity transit corridors to link major existing or planned employment and population centers and to address specific corridor

needs. The specific transit mode within these corridors will be refined through future corridor studies, but the RTP should be amended to better reflect the TSP designations.

- **181<sup>st</sup> Avenue:** Change designation from “Regional Bus” to “Frequent Bus”;
- **I-84 Corridor:** Add a “Potential Commuter Rail” designation connecting Troutdale to Portland; and
- **North/South Transit Corridor:** Add a “Potential Light Rail or Rapid Bus” designation linking Mt. Hood Community College, the Gresham Regional Center, and Pleasant Valley/Damascus.

### **RTP Project Lists**

- **I-84 Corridor Commuter Rail:** Feasibility Study for commuter rail in the I-84 corridor connecting Troutdale, Wood Village, Fairview, Gresham, and Portland.
- **Glisan St, 202<sup>nd</sup> Ave. to 207<sup>th</sup> Ave.:** Add these arterial improvements to the bottleneck in Glisan St., provide a parallel facility to the 3-lane section of Halsey St., accommodate forecast travel demand, and improve freight access to I-84.
- **Halsey St., 190<sup>th</sup> Ave. to 201<sup>st</sup> Ave.:** Add these arterial improvements to remove a bottleneck, accommodate forecast travel demand, and provide adequate freight access and mobility to the adjacent industrial area.

- **Regional Center/MHCC/OSTP High Capacity Transit Plan:** Develop a preferred transit service strategy addressing high capacity transit (light rail, rapid bus, or streetcar), a route for the high capacity transit improvements connecting these centers, and an integrated network of transit service connecting this service to other centers and emerging growth areas such as Columbia Southshore, Troutdale, Wood Village, Fairview, Pleasant Valley, and Damascus.
- **Orient Dr., Kane Rd. to Troutdale Rd.:** Add these arterial improvements to provide adequate access to the rapidly developing southeast Gresham area, improve system continuity, and complete a key bicycle and pedestrian corridor.



**Access Management** – Measures regulating access to streets, roads and highways from public roads and private driveways. Measures may include but are not limited to restrictions on the siting of interchanges, restrictions on the type and amount of access to roadways, and use of physical controls, such as signals and channelization including raised medians, to reduce impacts of approach road traffic on the main facility.

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

**Affected Local Government** – A city, county or metropolitan service district that is directly impacted by a proposed transportation facility or improvement.

**Alternative Modes** – Travel modes such as rail, transit, bicycles, and walking that provide transportation alternatives to the use of single-occupant automobiles.

**Arterials** – Roads that principally provide service to through traffic between cities, towns, and major destinations.

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

**Average Annual Daily Traffic (ADT)** – The estimated vehicle travel for an average day over a given roadway segment or through an intersection.

**Bicycle/Pedestrian Accessway** – A walkway that provides pedestrian and or bicycle passage either between streets or from a street to a building or other destination such as a school, park, or transit stop.

**Boulevards** – Multi-modal streets designed with special amenities that promote pedestrian, bicycle, and public transportation travel in the region's most intensely developed activity centers (central city, regional centers, station communities, town centers).

**C-Tran** – Transit agency for Clark County, Washington.

**Capital Improvement Program (CIP)** – Local document that programs funds for non-operational capital infrastructure improvements and investments.

**Citizen Advisory Committee (CAC)** – A group of citizen volunteers appointed to represent citizen interests for a specific issue, project, or process.

**Collectors** – Roads that provide access to property and collect and distribute traffic between local streets and arterials.

**Committed Transportation Facilities** – Those proposed transportation facilities and improvements that are consistent with the acknowledged comprehensive plan and have approved funding for construction in a public facilities plan or the Six-Year Highway or Transportation Improvement Program.

**Congestion Mitigation/Air Quality (CMAQ)** – A program within the federal ISTEA and TEA-21 to address congestion and transportation-related air pollution.

**Demand Management** – Actions that are designed to change travel behavior in order to improve performance of transportation facilities and to reduce need for additional road capacity. Methods may include but are not limited to the use of alternative modes, ride-sharing and vanpool programs, and trip-reduction ordinances.

**East Multnomah County Transportation Committee (EMCTC)** – A 5-member committee of elected officials representing Fairview, Gresham, Troutdale, Wood Village, and Multnomah County. The Committee provides a forum for discussion and consensus building on transportation issues, plans, and projects.

**Functional Plan** – A limited purpose multi-jurisdictional plan for an area or activity having significant district-wide impact upon the orderly and responsible development of the metropolitan area that serves as a guideline for local comprehensive plans consistent with ORS 268.390.

**Growth Concept** – A concept for the long-term growth management of the Portland region, stating the preferred form of the regional growth and development, including if, where, and how much the urban growth boundary should be expanded, what densities should characterize different areas, and which areas should be protected as open space.

**High-Occupancy Vehicle (HOV)** – A vehicle carrying more than just the driver.

**Inner Neighborhoods** – Areas in Portland and older suburbs that are primarily residential, close to employment and shopping areas, and have slightly smaller lot sizes and higher population densities than in outer neighborhoods.

**Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991** – Federal highway/transit funding reauthorization that provided regions and states with additional funding and more flexibility in making transportation decisions. Among other things, the Act requires the metropolitan area planning process to consider such issues as land use, intermodal connectivity, methods to enhance transit service, and needs identified through management systems.

**Joint Policy Advisory Committee on Transportation (JPACT)** – A 17-member committee of local-area elected officials, Metro councilors, and other

transportation officials who coordinate transportation decisions for the region.

**Land Conservation and Development Commission (LCDC)** – The 7-member directorship of Oregon’s statewide planning program. The LCDC is responsible for approving comprehensive land use plans promulgating regulations for each of the statewide planning goals.

**Level-of-Service (LOS)** – A measure of how the transportation system is operating relative the use (demand) and the system’s capacity.

**Light Rail Transit (LRT)** – See Metropolitan Area Express.

**Local Comprehensive Plan** – A generalized, coordinated land use map and policy statement of the governing body of a city or county that inter-relates all functional and natural systems and activities related to the use of land, consistent with state law.

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

**Main Streets** – Neighborhood shopping areas along a main street or at an intersection, sometimes having unique character that draws people from outside the area.

**Major** – In general, those facilities or developments which, considering the size of the urban or rural area and the range of size, capacity or service level of similar facilities or developments in the area, are either larger than average, serve more than neighborhood needs or

have significant land use or traffic impacts on more than the immediate neighborhood:

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

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

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

**Major transit stop** – Means:

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

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

(A) Have or are planned for an above average frequency of scheduled, fixed-route service when compared to region wide service. In urban areas of 1,000,000 or more population, major transit stops are generally

located along routes that have or are planned for 20-minute service during the peak hour; and

(B) Are located in a transit oriented development or within 1/4 mile of an area planned and zoned for:

(i) Medium or high density residential development; or

(ii) Intensive commercial or institutional uses within 1/4 mile of subsection (i); or

(iii) Uses likely to generate a relatively high level of transit ridership.

**Metro** – the regional government and designated Metropolitan Planning Organization (MPO) of the Portland metropolitan area. It is governed by a seven-member Metro Council elected by and representing districts within Metro’s jurisdictional boundaries. Metro manages the Washington Park Zoo, solid waste landfills, the Oregon Convention Center, and the Portland Center for the Performing Arts. Metro also is responsible for establishing and maintaining the Urban Growth Boundary (UGB), and for regional transportation planning activities such as the preparation of the Regional Transportation Plan (RTP), and the planning regional transportation projects such as light rail.

**Metro Council** – composed of 7 members elected from districts throughout the metropolitan region: all of Multnomah County and generally the urban portions of Clackamas and Washington Counties. The Council approves Metro policies, including transportation plans, projects, and programs recommended by the Joint Policy Advisory Committee on Transportation (JPACT).

**Metro Policy Advisory Committee (MPAC)** – Established by the Metro Charter and composed of local elected officials. MPAC is responsible for recommending to the Metro Council adoption of or amendment to any element of the Charter-mandated Regional Framework Plan.

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

**Metropolitan Area Express (MAX)** – A regional light rail mass transit facility serving the Portland central city, the Hillsboro, Beaverton, and Gresham Regional Centers, and several Town Centers.

**Metropolitan Planning Organization (MPO)** – An individual agency designated by the state governor in each federally recognized urbanized area to coordinate transportation planning for that region. Metro is the agency for Clackamas, Washington, and Multnomah Counties; for Clark County, Washington, the agency is the Southwest Washington Regional Transportation Council (SWRTC).

**Metropolitan Transportation Improvement Program (MTIP)** – A staged, multi-year, intermodal program of transportation projects that is consistent with the Regional Transportation Plan.

**Multi-Modal** – Involving several modes of transportation (bus, rail, bicycle, car, etc.).

**National Highway System (NHS)** – The National Highway System consists of interconnected urban and

rural principal arterials and highways that serve major population centers, international border crossings, ports, airports, public transportation facilities, other intermodal transportation facilities and other major travel destinations; meet national defense requirements; and serve interstate and interregional travel. All routes on the Interstate System are a part of the National Highway System.

**Neighborhood Centers** – Retail and service development that surrounds major MAX stations and other major intersections, extending out for one-quarter to one-half mile.

**ODOT** – The Oregon Department of Transportation.

**Oregon’s Statewide Planning Goals** – 19 goals in four broad categories: land use, resource management, economic development, and citizen involvement. Locally adopted comprehensive plans and regional transportation plans must be consistent with the statewide planning goals.

**Oregon Transportation Plan (OTP)** – The state’s official statewide, intermodal transportation plan that sets priorities and state policy in Oregon for the next 40 years. The plan, developed by the Oregon Department of Transportation (ODOT) through the statewide transportation planning process, responds to federal requirements and Oregon’s Transportation Planning Rule (TPR).

**Outer Neighborhoods** – Areas in the outlying suburbs that are primarily residential, farther from employment and shopping areas, and have slightly larger lot sizes and lower population densities than inner neighborhoods.

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

**Peak Period or Peak Hour** – A period of the day with the highest level of travel; normally taking place between 6-9 a.m. and 4-6 p.m. on weekdays.

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

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

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

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

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

**Pedestrian plaza** – A small semi-enclosed area usually adjoining a sidewalk or a transit stop that provides a place for pedestrians to sit, stand or rest. They are usually paved with concrete, pavers, bricks or similar material and include seating, pedestrian scale lighting and similar pedestrian improvements. Low walls or planters and landscaping are usually provided to create a semi-enclosed space and to buffer and separate the plaza from adjoining parking lots and vehicle maneuvering areas. Plazas are generally located at a transit stop, building entrance or an intersection, and connect directly to adjacent sidewalks, walkways, transit stops and building entrances; or at an intersection and connect directly to adjacent sidewalks, walkways, transit stops and buildings. A plaza including 150-250 square feet would be considered "small."

**Pedestrian scale** – Site and building design elements that are dimensionally less than those intended to accommodate automobile traffic, flow and buffering. Examples include ornamental lighting of limited height; bricks, pavers or other modules of paving with small dimensions; a variety of planting and landscaping materials; arcades or awnings that reduce the height of walls; and signage and signpost details that can only be perceived from a short distance.

**Planning Period** – The twenty-year period beginning with the date of adoption of a TSP to meet the requirements of this rule.

**Preliminary Design** – An engineering design that specifies in detail the location and alignment of a planned transportation facility or improvement.

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

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

**Regional Centers** – Areas of mixed residential and commercial use that serve hundreds of thousands of people and are easily accessible by different types of transit.

**Regional Framework Plan** – The Regional Framework Plan is required under the Metro Charter and must address nine specific growth management and land use planning issues (including transportation), with the consultation and advice of MPAC. To encourage regional uniformity, the regional framework plan shall also contain model terminology, standards, and procedures for local land use decision-making that may be adopted by local governments.

**Regional Transportation Plan (RTP)** – The official intermodal transportation plan that is developed and adopted through the metropolitan transportation planning process for the metropolitan planning area.

**Regional Urban Growth Goals and Objectives (RUGGOs)** – An urban growth policy framework that represents the starting point for the agency’s long-range regional planning program.

**Right-of-Way (ROW)** – The publicly owned land on which public facilities and infrastructure is placed.

**Roads** – Streets, roads and highways.

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

**Single-Occupant Vehicle (SOV)** – A vehicle carrying only the driver.

**Southwest Washington Regional Transportation Council (SWRTC)** – The designated Metropolitan Planning Organization (MPO) for the Clark County, Washington portion of the Portland/Vancouver metropolitan region.

**State Implementation Plan (SIP)** – A plan for ensuring that all parts of Oregon remain in compliance with Federal air quality standards.

**State Transportation Improvement Program (STIP)** – A staged, multi-year, statewide, intermodal program of transportation projects that is consistent with the statewide transportation plan and planning process and metropolitan plans, TIPS and processes.

**Technical Advisory Committee (TAC)** – A group of technical staff from government agencies participating in a project or process. The TAC is responsible for producing the base technical information that will ultimately be used by local decision-makers to complete the project purpose.

**Town Centers** – Areas of mixed residential and commercial use that serve tens of thousands of people.

**Transit-Oriented Development (TOD)** – A mix of residential, retail, and office uses and a supporting network of roads, bicycle, and pedestrian ways focused on a major transit stop designed to support a high level of transit use. Key features include: a mixed-use center and high residential densities.

**Transit-Oriented Development (TOD)** – A mix of residential, retail and office uses and a supporting network of roads, bicycle and pedestrian ways focused on a major transit stop designed to support a high level of transit use. The key features of transit-oriented development include:

- (a) A mixed-use center at the transit stop, oriented principally to transit riders and pedestrian and bicycle travel from the surrounding area;
- (b) High density of residential development proximate to the transit stop sufficient to support transit operation and neighborhood commercial uses within the TOD;
- (c) A network of roads, and bicycle and pedestrian paths to support high levels of pedestrian access within the TOD and high levels of transit use.

**Transportation Analysis Zone (TAZ)** – A geographic sub-area used to assess travel demands using a travel demand forecasting model. Often defined by the transportation network, travelsheds, US Census blocks, etc.

**Transportation Corridors** – Residential and retail development concentrated along major arterials and bus lines.

**Transportation Demand Management (TDM)** – Actions such as ridesharing and vanpool programs, use of alternative modes, and trip reduction ordinances that are designed to change travel behavior in order to improve performance of transportation facilities and to reduce the need for additional road capacity.

**Transportation Disadvantaged People** – Individuals who have difficulty in obtaining transportation because of their age, income, physical, or mental disability.

**Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21)** – The most recent federal highway / transit funding reauthorization. TEA-21 builds on the initiatives established in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), which was the last major authorizing legislation for surface transportation. The Act combines the continuation and improvement of current programs with new initiatives to meet transportation challenges.

**Transportation Enhancement Activities (TEAs)** – An exclusive list of ten specific activities that are eligible for funding under federal transportation legislation. Included are bicycle and pedestrian facilities, rehabilitation of historic transportation facilities, and control of outdoor advertising.

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

**Transportation Management Association (TMA)** – A group of employers working together to implement strategies and programs to reduce reliance on single-occupant automobiles.

**Transportation Needs** – Estimates of the movement of people and goods consistent with acknowledged comprehensive plan and the requirements of this rule. Needs are typically based on projections of future travel demand resulting from a continuation of current trends as modified by policy objectives, including those expressed in Goal 12 and this rule, especially those for avoiding principal reliance on any one mode of transportation.

**Transportation Needs, Local** – Needs for movement of people and goods within communities and portions of counties and the need to provide access to local destinations.

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

**Transportation Needs, State** – Needs for movement of people and goods between and through regions of the state and between the state and other states.

**Transportation Planning Rule (TPR)** – The implementing rule of statewide land use planning goal

number 12 dealing with transportation, as adopted by the Stale Land Conservation and Development Commission (LCDC). Among its many provisions, the Rule includes requirements to preserve rural lands, reduce vehicle miles traveled (VMT) per capita by 20% in the next 30 years, and to improve alternative transportation systems.

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

**Transportation Policy Alternatives Committee (TPAC)** – Senior staff-level policy committee that reports and makes policy recommendations to JPACT. TPAC’s membership includes technical staff from the same governments and agencies as JPACT, plus representatives of the Federal Highway Administration and the Southwest Washington Regional Transportation Council (SWRTC); there are also six citizen representatives appointed by the Metro Council.

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

**Transportation System Management Measures** – Techniques for increasing the efficiency, safety, capacity or level of service of a transportation facility without increasing its size. Examples include, but are not limited to, traffic signal improvements, traffic control devices including installing medians and parking removal, channelization, access management, ramp metering, and restriping of high occupancy vehicle (HOV) lanes.

**Transportation System Plan (TSP)** – A plan for one or more transportation facilities that are planned, developed, operated and maintained in a coordinated manner to supply continuity of movement between modes, and within and between geographic and jurisdictional areas.

**Tri-County Metropolitan Transportation District (Tri-Met)** – The transit agency for most of Clackamas, Multnomah, and Washington Counties.

**Urban Area** – Lands within an urban growth boundary, two or more contiguous urban growth boundaries, and urban unincorporated communities as defined by OAR 660-022-0010(9). For the purposes of this division, the area need only meet the definition contained in the Unincorporated Communities Rule although the area may not have been designated as an unincorporated community in accordance with OAR 660-022-0020.

**Urban Fringe** –

- (a) Areas outside the urban growth boundary that are within 5 miles of the urban growth boundary of an MPO area; and
- (b) Areas outside the urban growth boundary within 2 miles of the urban growth boundary of an urban area containing a population greater than 25,000.

**Walkway** – A hard surfaced area intended and suitable for use by pedestrians, including sidewalks and surfaced portions of accessways.

**Urban Growth Boundary (UGB)** – The politically defined boundary around a metropolitan area outside of which no urban improvements may occur (sewer, water, etc.) It is intended that the UGB be defined to accommodate all projected population and employment growth within a 20-year planning period. A formal process has been established for periodically reviewing and updating the UGB so that it accurately reflects projected population and employment growth.

**Vehicle Hours Traveled (VHT)** – A transportation measure relating traffic volumes to speed and length on a roadway segment or system of roadways within a defined area.

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

## Appendix 1 – Status Quo Alternative Project List

Project No.	Project Name	Project Description	Cost Estimate
1	162nd Ave. at Stark St.	Add exclusive SB and EB right turn lanes	\$419,132
2	181st Ave. at Burnside St.	Add second left turn lane to north and south legs	\$316,225
3	181st Ave. at Halsey St.	Add second left turn lane to north and south legs, exclusive right turn lanes to EB, WB, and SB approaches, band upgrade traffic signal	\$854,910
4	181st Ave. at I-84	Provide standard partial cloverleaf, restripes SB 181st as exclusive right turn lane, and restripe center lane as SB through	\$3,764,280
5	181st Ave. at Stark St.	Add second left turn lane on east and west legs	\$681,880
6	181st Ave. at Glisan St.	Improve intersection	\$690,270
7	182nd Ave. at Division St.	Add exclusive SB right turn lane	\$327,022
8	182nd Ave. at Powell Blvd.	Provide SB and NB lanes.	\$588,835
9	185th Ave., Sandy Blvd. to Marine Dr.	Widen and realign 185th and widen under crossing at railroad	\$3,300,781
10	202nd Ave. (Birdsdale) at Powell Blvd.	Add exclusive SB left turn lane	\$73,792
11	257th Ave. (Kane), Orient to Palmquist	Realign intersection	\$2,000,000
12	257th Ave. (Kane) at Stark St.	Add second NB left turn lane, and exclusive EB right turn lane	\$625,041
13	262nd Ave. at Orient	Construct facilities and utilities	\$656,040
14	282nd Ave., Lusted Rd. to Powell Valley Rd.	Improve to community street standards	\$2,399,000
15	Burnside St. at Division St.	Add exclusive EB right turn lane, and signal upgrades	\$391,830
16	Civic Neighborhood Station and Plaza	Construct station and plaza	\$1,198,920
17	Civic Neighborhood Transit Oriented Design	Support street infrastructure improvements	\$1,846,000
18	Columbia Corridor TMA	Implements a transportation management association program with employers	\$142,500
19	Development Support Projects	Leverage transportation and development projects	\$666,000
20	Division St. Frequent Bus Capital Improvements	Construct improvements that enhance frequent bus service	\$834,900
21	Division St., 174th Ave. to Wallula Ave.	Retrofit street to add bike lanes and sidewalks	\$160,000

<b>Project No.</b>	<b>Project Name</b>	<b>Project Description</b>	<b>Cost Estimate</b>
22	Division St., Birdsdale Ave. to Wallula Ave.	Complete boulevard design improvements	\$1,000,000
23	Division St., Kelly Ave. to Burnside Rd.	Complete boulevard design improvements	\$1,500,000
24	Glisan St., 162nd Ave. to 202nd Ave.	Retrofit bike lanes to existing street	\$140,000
25	Glisan St., 202nd Ave. to 207th Ave.	Construct arterial standard improvements with four travel lanes, bike lanes, sidewalks, drainage improvements	\$725,000
26	Gresham Regional Center TMA	Implement a transportation management association program with employers	\$174,500
27	Gresham/Fairview Trail, Springwater Trail to Marine Drive	Construct new multi-use trail	\$7,399,233
28	Halsey St., 162nd Ave. to 181st Ave.	Retrofit bike lanes to existing street	\$70,000
29	Halsey St., 190th Ave. to 201st Ave.	Construct standard arterial improvements	\$1,175,000
30	Hogan Rd., Powell Blvd. To Burnside St.	Improve to boulevard standards	\$1,205,000
31	Hood St., 5th to Powell	Roadway reconstruction to add pedestrian enhancements and storm drainage	\$20,000
32	Neighborhood Traffic Control	Install neighborhood traffic control devices, and traffic calming features	\$1,100,000
33	Palmquist, Hwy 26 - Orient Rd.	Realign and reconstruct Palmquist	\$1,000,000
34	Pleasant Valley Transportation Plan	Develop and implement plan	\$55,500
35	Powell Blvd, 174th Ave. to Eastman Pkwy.	Widen Powell to five lanes and add bike lanes, sidewalks, curbs, gutters, street lighting, center medians	\$6,466,020
36	Powell Blvd., Eastman Pkwy. to Hogan Rd.	Complete boulevard design improvements	\$4,000,000
37	Powell Valley Rd, Burnside Rd to Kane Rd (257th Ave)	Construct arterial standards with four travel lanes, center turn lane, bike lanes and pedestrian facilities	\$1,195,000
38	Regner Rd, Butler Rd. to County Line	Construct standard collector improvements	\$1,107,000
39	Signal Optimization Phase II	Engineering and integration of 58 traffic signals for coordination and optimization	\$581,942
40	Springwater Trail Connections, 182nd and 190th Avenues	Provide bicycle access to the Springwater Trail at 182nd Avenue and 190th Avenue	\$900,000

<b>Project No.</b>	<b>Project Name</b>	<b>Project Description</b>	<b>Cost Estimate</b>
41	Springwater Trail Pedestrian Access	Provide pedestrian access to the Springwater Trail at Eastman Parkway, Towle Road, Roberts Road, Regner Road, and Hogan Road, including wider sidewalks and lighting	\$500,000
42	Stark St., 181st Ave. to 190th Ave.	Complete boulevard design improvements	\$1,000,000
43	Stark St., 190th Ave. to 197th Ave.	Complete boulevard design improvements	\$3,000,000
44	Stark St., Kane Dr. to Troutdale Rd.	Add two additional traffic lanes, a continuous left turn lane, bike lanes, sidewalks, and intersection improvements	\$1,578,000
45	Survey Monumentation	City wide	\$22,200
46	TIF Study Updates	Updates Traffic Impact Fee Study	\$49,853
47	Transit center and park-and-ride upgrades, Cleveland, City Hall, and 181st.	Construct, expand and/or upgrade transit stations and park-and-ride facilities	\$576,000
			\$58,477,606



## Appendix 2 – Street Expansion Alternative Project List (in addition to Status Quo)

Project No.	Project Name	Project Description	Cost Estimate
48	1st St., 3rd St. to Kane Rd	Upgrade to community street standards with curbs, sidewalks, bike lanes, street lighting and storm drainage	\$666,000
49	1st St., Main Ave. to Eastman Pkwy.	Road repair and reconstruction	\$138,500
50	5th St., Main St. to Cleveland Ave.	Road reconstruction, install storm, curb extensions, bomanite crosswalks, street trees, streetlights and street furniture	\$705,012
51	8th St., La Mesa Ct. to Division St.	Improve to local street standards with street lighting, sidewalks and bicycle facilities	\$395,149
52	162nd Ave. at Glisan St.	Add eastbound right turn lane	\$374,290
53	162nd Ave., Glisan St. to Halsey St.	Build arterial standard improvements with street lighting, sidewalks and bicycle lanes	\$1,844,000
54	162nd RR Bridge at I-84	Reconstruct railroad bridge to accommodate 4 travel lanes, sidewalks, and bike lanes	\$960,000
55	169th Ave., Halsey St. to Wilkes Rd.	Improve to community street standards with street lighting, sidewalks and bicycle facilities	\$396,697
56	172nd Ave. at Glisan St.	Upgrade traffic signals	\$175,000
57	181st Ave. at Sandy Blvd.	Add northbound right turn lane, second westbound left turn lane, and overlap eastbound right turn	\$548,100
58	181st Ave., Sandy Blvd. to I-84	Add southbound auxiliary lane and widen railroad over crossing	\$3,208,625
59	181st Ave., I-84 to Halsey St.	Add third southbound lane	\$1,097,500
60	184th Ave., Wilkes St. to San Rafael	Construct new collector street	\$1,790,000
61	185th Ave. at Marine Dr.	Signalize intersection	\$150,000
62	190th Ave., Yamhill St. to Stark St.	Improve to community street standards with street lighting, sidewalks and bicycle facilities	\$700,000
63	190th Ave., Division St. to Yamhill St.	Improve to community street standards with street lighting, sidewalks and bicycle facilities	\$700,000
64	191st Ave., Couch St. to Glisan St.	Improve to community street standards with street lighting, sidewalks and bicycle facilities	\$587,375

<b>Project No.</b>	<b>Project Name</b>	<b>Project Description</b>	<b>Cost Estimate</b>
65	192nd Ave., Wilkes St. to Halsey St.	Improve to collector street standards with street lighting, sidewalks and bicycle facilities	\$1,450,000
66	197th Ave., Yamhill St. to Stark	Improve to community street standards with street lighting, sidewalks and bicycle facilities	\$619,125
67	201st Ave. (Birdsdale) at Halsey St.	Change signal phasing from permitted to protected left turns on east and west legs	\$50,000
68	201st Ave (Birdsdale) Railroad Bridge at I-84	Construct new railroad bridge to accommodate collector street improvements with bike lanes and sidewalk	\$2,300,000
69	201st Ave. (Birdsdale), Glisan St. to Halsey St.	Improve to collector street standards with street lighting, sidewalks and bicycle facilities	\$1,119,000
70	201st Ave. (Birdsdale), Halsey St. to Sandy Blvd.	Improve to collector street standards with street lighting, sidewalks and bicycle facilities	\$1,780,000
71	202nd Ave. (Birdsdale) at Division St.	Add southbound and eastbound right turn lanes	\$399,000
72	202nd Ave. (Birdsdale) at Stark St.	Add eastbound right turn lane and second southbound left turn lane	\$541,940
73	202nd Ave. (Birdsdale), Burnside St. to Powell Blvd.	Improve to collector street standards with street lighting, sidewalks and bicycle facilities	\$2,000,000
74	202nd Ave. (Birdsdale), Stark St. to Burnside St.	Improve to collector street standards with street lighting, sidewalks and bicycle facilities	\$700,000
75	202nd Ave. (Birdsdale), Stark St. to Glisan St.	Improve to collector street standards with street lighting, sidewalks and bicycle facilities	\$1,301,000
76	257th Ave. (Kane) at Division St.	Add southbound right turn lane and second eastbound left turn lane	\$552,125
77	257th Ave. (Kane) at Powell Valley	Signalize intersection	\$220,000
78	257th Ave. (Kane), Division St. to Powell Valley Rd.	Reconstruct street to arterials standards, including bike lanes, sidewalks, drainage, lighting and traffic signals	\$4,000,000
79	Banfield Industrial Park Truck Turn-around	Construct truck turn-around	\$139,971
80	Barnes Rd., Powell Valley Rd. to South City Limits	Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$4,349,868
81	Burnside St. at Powell Blvd.	Eliminate eastbound and westbound left turns	\$300,000

<b>Project No.</b>	<b>Project Name</b>	<b>Project Description</b>	<b>Cost Estimate</b>
82	Burnside St., Hogan Rd. to Powell Blvd.	Safety improvements and reconstruction	\$970,000
83	Butler Rd., 190th Ave. to Regner Rd.	Improve to collector standards with street lighting, sidewalks and bicycle facilities	\$2,000,000
84	Chase Rd., Orient Dr. to 282nd Ave.	Widen road and construct curb and gutter, sidewalks, bike lanes, street lights, storm drainage and intersection improvements	\$1,507,380
85	Cleveland Ave., Powell Blvd. to Stark St.	Widen road and construct curb and gutter, sidewalks, bike lanes, street lights, storm drainage and intersection improvements	\$2,152,106
86	Cleveland Ave., Glisan St. to Stark St.	Construct new collector street	\$2,000,000
87	Clyde, Glisan St. to Stark St.	Construct new collector street	\$2,000,000
88	Eastman Ave. at Division	Add southbound right turn lane and second northbound and southbound left turn lanes	\$760,865
89	Eastman Ave. at Stark St.	Add eastbound and northbound right turn lanes and second northbound and southbound left turn lanes	\$2,204,160
90	Heiny St., Pleasant View Dr. to 18th Ct.	Widen road and construct curb and gutter, sidewalks, bike lanes, street lights, storm drainage and intersection improvements	\$1,868,075
91	Hillyard Rd., Palmsblad Rd. to Anderson Rd.	Widen road and construct curb and gutter, sidewalks, bike lanes, street lights, storm drainage and intersection improvements	\$1,324,341
92	Hogan Rd. at Burnside St.	Improve intersection with turn lanes, and new traffic signal	\$545,715
93	Hogan Rd. at Division St.	Add second southbound left turn lane and southbound right turn lane	\$545,480
94	Hogan Rd. at Powell Blvd.	Add eastbound and northbound right turn lanes	\$589,715
95	Hogan Rd. at Stark St.	Add right turn lanes on all approaches and second northbound and southbound left turn lanes	\$1,161,230
96	Hogan Rd., Powell Blvd. to Springwater Trail	Improve to arterial street standards	\$2,334,000
97	Hogan Rd., Burnside Rd. to Stark St.	Improve to principal arterial standards	\$2,000,000
98	Hogan Rd., US 26 Connector	Construct new arterial connector	\$2,500,000
99	Orient Dr. at Chase Rd.	Signalize intersection	\$150,000

<b>Project No.</b>	<b>Project Name</b>	<b>Project Description</b>	<b>Cost Estimate</b>
100	Orient Dr., Kane Dr. to 282nd Ave.	Improve to arterial standards	\$2,000,000
101	Palmquist Rd., Hogan Rd. to Hwy. 26	Improve to collector standards	\$1,399,710
102	Pleasant View Dr., Highland Dr. to Butler Rd.	Improve to arterial standards	\$2,000,000
103	Pleasant View Dr., Powell Blvd. to Highland Dr.	Widen road and construct curb and gutter, sidewalks, bike lanes and storm drainage	\$754,441
104	Powell Blvd. at Walters Rd.	Safety Improvement and full traffic signal upgrade.	\$150,000
105	Powell Valley Rd., Kane Dr. to Troutdale Rd.	Construct collector street standards with bike lanes and pedestrian facilities and realign intersection at Lusted/Troutdale Rd.	\$2,000,000
106	Regner Rd. at Roberts Ave.	Construct traffic control circle and add bike lanes	\$500,000
107	Regner Rd., Butler Rd. to Gabbert Rd.	Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$969,902
108	Regner Rd., Kelly Ave. to Gabbert Rd.	Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$1,076,700
109	Regner Rd., Roberts Rd. to Kelly Ave.	Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$1,264,046
110	Riverside Dr., extension to Sandy Blvd.	Extend Riverside Drive to Sandy Boulevard. Construct crossing of Columbia Slough and UP Railroad	\$3,175,000
111	Roberts Rd., Maple Lp. to Regner Rd.	Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$323,010
112	Salquist Rd., Barnes Rd. to 282nd Ave.	Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$2,142,633
113	San Rafael, 181st Ave. to 201st Ave.	Complete collector street standards and remove frontage road	\$1,400,000
114	Sandy Blvd., 174th Ave. to 207th Ave.	Improve to arterial street standards	\$3,900,000
115	Signal Optimization Phase 3A	Install closed circuit TV, variable message signs and highway advisory radio equipment	\$600,262

<b>Project No.</b>	<b>Project Name</b>	<b>Project Description</b>	<b>Cost Estimate</b>
116	Signal Optimization Phase 3B	Install closed circuit TV, variable message signs and highway advisory radio equipment	\$4,299,902
117	Substandard Street Upgrades	Upgrade substandard streets - various locations	\$6,500,000
118	Towle Ave., Butler Rd. to Binford Lake Pkwy.	Improve to collector standards	\$2,000,000
119	Wallula Ave. at Burnside St.	Add northbound and southbound left turn lanes	\$528,290
120	Wallula Ave. at Stark St.	Signalize intersection	\$150,000
121	Wallula Ave., Division Blvd. to Stark St.	Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$2,261,070
122	Walters Dr., 7th St. to 1000' South	Realign and widen road with curb and gutter, sidewalks, bike lanes, street lights, storm drainage and intersection improvements	\$1,938,060
123	Welch Rd., Anderson Rd. to 282nd Ave.	Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$1,248,972
124	Wilkes St., 181st Ave. to 192nd Ave.	Improve Wilkes to collector street standards and provide slip ramp connection from eastbound I-84 on-ramp	\$2,275,000
125	Williams Rd., Powell Valley Rd. to Division St.	Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$1,292,040
126	Yamhill St., 181st Ave. to 197th Ave.	Improve to community street standard with street lighting, sidewalks and bicycle facilities	\$2,000,000
			\$111,020,382



## Appendix 3 – Travel Choices Alternative Project List (in addition to Status Quo)

Project No.	Project Name	Project Description	Cost Estimate
48	1st St., 3rd St. to Kane Rd	Upgrade to community street standards with curbs, sidewalks, bike lanes, street lighting and storm drainage	\$666,000
127	2nd St., Liberty Ave. to Cleveland Ave.	Construct new street	\$662,250
128	3rd St., Cleveland Ave. & Liberty Ave.	Construct new street	\$662,250
129	3rd St., Liberty Ave. to Victory Ave.	Construct new street	\$662,250
130	4th St., Victory Ave. to Cleveland Ave.	Construct new street	\$1,103,750
50	5th St., Main St. to Cleveland Ave.	Reconstruct with pedestrian enhancements, curb extensions, textured crosswalks, street lights, and street furniture	\$654,200
131	5th St., Liberty Ave. to Cleveland Ave.	Construct new street	\$573,950
132	5th St., Gresham/Fairview Trail access	Construct trail access	\$197,000
133	6th St., Elliott Ave. to Cleveland Ave.	Improve substandard street	\$571,500
134	8th St., Eastman Pkwy. to Victoria Ave.	Construct new street	\$441,500
135	8th St., Main Ave. to Victoria Ave.	Improve substandard street	\$571,500
136	9th St., Hood Ave. to Linden Ave.	Improve substandard street	\$666,750
137	9th St., Linden Ave. to Cleveland Ave.	Construct new street	\$662,250
138	10th St., Linden Ave. to Cleveland Ave.	Improve substandard street	\$495,300
139	10th St., Mignonette Ave. to Earl Ave.	Improve substandard street	\$412,750
140	162nd Ave. at Burnside St.	Pedestrian enhancements	\$1,500,000
141	165th Ave., Stark St. to Burnside St.	Improve substandard street	\$284,000
142	176th Ave., Pine St. to Stark St.	Construct new street	\$432,670
143	181st Ave. at Burnside St.	Pedestrian enhancements	\$100,000
144	181st Ave., Glisan St. to Yamhill St.	Boulevard retrofit	\$2,000,000
145	182nd Ave., Everett St. to Couch St.	Construct new street	\$353,200
146	183rd Ave., Stark St. to Burnside St.	Construct new street	\$706,400
147	184th Ave., Stark St. to Pine St.	Construct new street	\$679,910
148	185th Ave., Yamhill St. to Stark St.	Construct new street	\$688,740

<b>Project No.</b>	<b>Project Name</b>	<b>Project Description</b>	<b>Cost Estimate</b>
149	185th Ave., Burnside St. to Davis St.	Construct new street	\$500,000
150	188th Ave. at Burnside St.	Pedestrian enhancements	\$300,000
151	188th Ave. at Stark St.	Realign intersection	\$339,072
62	190th Ave., Yamhill St. to Stark St.	Improve to community street standards with street lighting, sidewalks and bicycle facilities	\$700,000
63	190th Ave., Division St. to Yamhill St.	Improve to community street standard with sidewalks and storm drains	\$700,000
152	195th Ave., Yamhill St. to Alder St.	Construct new street	\$516,555
153	197th Ave. at Burnside St.	Pedestrian enhancements	\$500,000
68	201st Ave. (Birdsdale) Railroad bridge at I-84	Construct new railroad bridge to accommodate travel lanes with bike lanes and sidewalk	\$2,300,000
69	201st Ave. (Birdsdale), Glisan St. to Halsey St.	Construct to collector standards	\$1,119,000
70	201st Ave. (Birdsdale), Halsey St. to Sandy Blvd.	Construct to collector standards	\$1,780,000
73	202nd Ave. (Birdsdale), Burnside St. to Powell Blvd.	Upgrade to collector standards	\$2,000,000
74	202nd Ave. (Birdsdale), Stark St. to Burnside St.	Improve to collector standards with street lighting, pedestrian and bicycle facilities	\$700,000
75	202nd Ave. (Birdsdale), Stark St. to Glisan St.	Improve to collector standards with street lighting, pedestrian and bicycle facilities	\$1,301,000
154	257th Ave. (Kane), Powell Valley Rd. to Palmquist Rd.	Construct bike lane	\$115,900
155	282nd Ave., Troutdale Rd. to Orient Dr.	Construct bike lane	\$68,100
156	Alder St., 182nd Ave. to Burnside St.	Construct new street	\$847,680
157	Ash St., 181st Ave. to 182nd Ave.	Improve substandard street	\$317,500
158	Bike signs	Add directional signs to bicycle lane network	\$1,000,000
159	Burnside St., 181st Ave. to 197th Ave.	Construct boulevard improvements	\$3,000,000
160	Burnside Rd., Wallula to Hogan Rd.	Construct boulevard improvements	\$4,500,000
83	Butler Rd., 190th Ave. to Regner Rd.	Construct collector improvements	\$2,000,000
161	Central Station pedestrian to MAX	Improve pedestrian access to light rail transit	\$500,000
162	Cleveland Station Area, pedestrian to MAX	Improve pedestrian access to light rail transit	\$500,000

<b>Project No.</b>	<b>Project Name</b>	<b>Project Description</b>	<b>Cost Estimate</b>
163	Couch St., 169th Ave. to 171st Ave.	Construct new street	\$650,000
164	Couch St., 171st Ave. to 173rd Ave.	Improve substandard street	\$467,250
165	Couch St., 184th Ave. to 188th Dr.	Construct new street	\$582,780
166	Couch St., 190th Ave. to 192nd Ave.	Improve substandard street	\$222,250
167	Curb ramps	Install sidewalk curb ramps - various locations	\$500,000
168	Davis St., 184th Ave. to 188th Dr.	Improve substandard street	\$527,050
169	Division St., Kane Dr. (257th Dr.) to UGB	Construct bike lane	\$302,000
170	Earl Ave., Division St. to 8th St.	Improve substandard street	\$349,250
171	Elliott Ave., 2nd St. to 6th St.	Improve substandard street	\$587,375
172	Glisan St., 193rd Ave. to 202nd Ave.	Construct sidewalk on both sides of the roadway	\$19,110
173	Glisan St., LSI to Hogan Dr.	Construct bike lane	\$122,900
174	Gresham Fairview Trail Access	Neighborhood access to trail	\$300,000
175	Halsey St., 162nd Ave. to 181st Ave.	Construct sidewalk on both sides of the roadway	\$44,500
176	Halsey St., 181st Ave. to 201st Ave.	Construct sidewalk on both sides of the roadway	\$55,700
91	Hillyard Rd., Palmland Rd. to Anderson Rd.	Widen roadway and construct curb and gutter, sidewalks, bike lanes, street lights, storm drainage and intersection improvements	\$1,324,341
177	Hogan Rd., Glisan St. to Stark St.	Construct bike lane	\$101,800
178	Hogan Rd., Glisan St. to Stark St.	Construct sidewalk on west side of roadway	\$7,400
179	Hogan Rd., Springwater Trail to County Line	Construct bike lane	\$55,400
180	Juniper Ave., 1st St. to Powell Blvd.	Improve substandard street	\$127,000
181	Juniper Ave., 2nd St. to 6th St.	Improve substandard street	\$381,000
182	Liberty Ave., 5th St. to 8th St.	Construct new street	\$679,910
183	Linden Ave., 3rd St. to 6th St.	Improve substandard street	\$476,250
184	Linden Ave., Division St. to 8th St.	Improve substandard street	\$476,250
185	Main Ave., Division St. to 5th St.	Improve pedestrian access to light rail transit	\$550,000
186	Main St., 174th Ave. to 182nd Ave.	Widen roadway and construct curb and gutter, sidewalks, bike lanes, street lights, storm drainage and intersection improvements	\$598,645

Project No.	Project Name	Project Description	Cost Estimate
187	MAX Path, Ruby Junction to Cleveland Ave.	Construct new multi-use path from Ruby Junction to the Cleveland Ave. station within MAX light rail right-of-way	\$1,000,000
188	Mignonette Ave., Division St. to 8th St.	Improve substandard street	\$381,000
189	Miller Rd., 5th St. to 8th St.	Construct new street	\$838,850
190	Missing links sidewalk program	Install missing or replace sub-standard sidewalks	\$2,000,000
191	Oak St., 183rd Ave. to 185th Ave.	Construct new street	\$194,260
192	Oregon St., 169th Ave. to 172nd Ave.	Improve substandard street	\$428,625
193	Orient Dr., 14th St. to Salquist Rd.	Construct sidewalk on the north side of the roadway	\$2,900
194	Orient Dr., Palmquist Rd. to Salquist Rd	Construct bike lane	\$196,600
195	Orient Dr., Salquist Rd. to Welch Rd.	Construct bike lane	\$217,700
196	Orient Dr., Welch Rd. to Doge Park Rd.	Construct shoulder bike lane	\$54,900
197	Pacific St., 174th Ave. to 177th Ave.	Improve substandard street	\$523,875
198	Pine St., 169th Ave. to 172nd Ave.	Construct new street	\$150,110
102	Pleasant View Dr., Highland Dr. to Butler Rd.	Construct arterial improvements	\$2,000,000
103	Pleasant View Dr., Highland Dr. to Powell Blvd.	Construct arterial improvements	\$754,441
199	Powell Blvd. at Hood Ave., Ped to Max	Pedestrian improvements	\$85,000
105	Powell Valley Rd., Kane Dr. to Troutdale Rd.	Construct collector street bike lanes and pedestrian facilities	\$2,000,000
108	Regner Rd., Kelly Ave. to Gabbert Rd.	Widen roadway and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements as well as acquire right of way	\$1,076,700
109	Regner Rd., Roberts Ave. to Kelly Ave.	Widen roadway and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements as well as acquire right of way	\$1,264,046
200	School walking routes	Work with schools to develop school walking routes	\$500,000
201	Stark St., 202nd Ave. to 206th Ave.	Construct sidewalks on both sides of the roadway	\$33,690
202	Stark St., 216th Ave. to 223rd Ave.	Construct sidewalks on both sides of the roadway	\$24,540
203	Substandard streets	Upgrade substandard streets - various locations	\$1,000,000
118	Towle Rd., Butler Rd. to Binford Lake Pkwy.	Construct collector improvements	\$2,000,000

<b>Project No.</b>	<b>Project Name</b>	<b>Project Description</b>	<b>Cost Estimate</b>
204	Victoria Ave., Division St. to 8th St.	Improve substandard street	\$381,000
205	Walters Rd., Powell Blvd. to 3rd St.	Construct new street	\$838,850
123	Welch Rd., Anderson Rd. to 282nd Ave	Widen roadway and construct curb and gutter, sidewalks, bike lanes, street lights, storm drainage and intersection improvements	\$1,248,972
126	Yamhill St., 181st Ave. to 197th Ave.	Construct community street with bike lanes and pedestrian facilities	\$2,000,000
			\$72,057,147



## Appendix 4 – System Plan Project List

Project No.	Project Name	Project Description	Cost Estimate
48	1st St., 3rd St. to Kane Rd	Upgrade to community street standards with curbs, sidewalks, bike lanes, street lighting and storm drainage	\$666,000
127	2nd St., Liberty Ave. to Cleveland Ave.	Construct new street	\$662,250
128	3rd St., Liberty Ave. to Cleveland Ave	Construct new street	\$662,250
129	3rd St., Liberty Ave. to Victory Ave.	Construct new street	\$662,250
130	4th St., Victory Ave. to Cleveland Ave.	Construct new street	\$1,103,750
132	5th St., Gresham/Fairview Trail access	Construct trail access	\$197,000
131	5th St., Liberty Ave. to Cleveland Ave.	Construct new street	\$573,950
50	5th St., Main Ave. to Cleveland Ave.	Reconstruct with pedestrian enhancements, curb extensions, textured crosswalks, street lights, and street furniture	\$654,200
133	6th St., Elliott Ave. to Cleveland Ave.	Improve substandard street	\$571,500
134	8th St., Eastman Pkwy. to Victoria Ave.	Construct new street	\$441,500
135	8th St., Main Ave. to Victoria Ave.	Improve substandard street	\$571,500
136	9th St., Hood Ave. to Linden Ave.	Improve substandard street	\$666,750
137	9th St., Linden Ave. to Cleveland Ave.	Construct new street	\$662,250
138	10th St., Linden Ave. to Cleveland Ave.	Improve substandard street	\$495,300
139	10th St., Mignonette Ave. to Earl Ave.	Improve substandard street	\$412,750
52	162nd Ave. at Glisan St.	Add eastbound right turn lane	\$374,290
1	162nd Ave. at Stark St.	Add exclusive SB and EB right turn lanes	\$419,132
54	162nd RR Bridge at I-84	Reconstruct railroad bridge to accommodate 4 travel lanes, sidewalks, and bike lanes	\$960,000
141	165th Ave., Stark St. to Burnside St.	Improve substandard street	\$284,000
142	176th Ave., Pine St. to Stark St.	Construct new street	\$432,670
2	181st Ave. at Burnside St.	Add second left turn lane to north and south legs	\$316,225
6	181st Ave. at Glisan St.	Improve intersection	\$690,270

Project No.	Project Name	Project Description	Cost Estimate
3	181st Ave. at Halsey St.	Add second left turn lane to north and south legs, exclusive right turn lanes to EB, WB, and SB approaches, and upgrade traffic signal	\$854,910
4	181st Ave. at I-84	Provide improvements to facilitate freight mobility and freeway access to support industrial and employment growth within the area. Subject to findings of 181 <sup>st</sup> Ave./I-84 Refinement Study findings.	\$3,764,280
57	181st Ave. at Sandy Blvd.	Add northbound right turn lane, second westbound left turn lane, and overlap eastbound right turn	\$548,100
5	181st Ave. at Stark St.	Add second left turn lane on east and west legs	\$681,880
144	181st Ave., Glisan St. to Yamhill St.	Boulevard retrofit	\$2,000,000
59	181st Ave., I-84 to Halsey St.	Add third southbound lane	\$1,097,500
58	181st Ave., Sandy Blvd. to I-84	Add southbound auxiliary lane and widen railroad over crossing	\$3,208,625
206	181st Ave./I-84 Study	Study alternatives to improve access and circulation	\$50,000
7	182nd Ave. at Division St.	Add exclusive SB right turn lane	\$327,022
8	182nd Ave. at Powell Blvd.	Provide SB and NB lanes.	\$588,835
145	182nd Ave., Everett St. to Couch St.	Construct new street	\$353,200
146	183rd Ave., Stark St. to Burnside St.	Construct new street	\$706,400
147	184th Ave., Stark St. to Pine St.	Construct new street	\$679,910
60	184th Ave., Wilkes St. to San Rafael	Construct new collector street	\$1,790,000
61	185th Ave. at Marine Dr.	Signalize intersection	\$150,000
149	185th Ave., Burnside St. to Davis St.	Construct new street	\$500,000
9	185th Ave., Sandy Blvd. to Marine Dr.	Widen and realign 185th and widen under crossing at railroad	\$3,300,781
148	185th Ave., Yamhill St. to Stark St.	Construct new street	\$688,740
150	188th Ave. at Burnside St.	Pedestrian enhancements	\$300,000
151	188th Ave. at Stark St.	Realign intersection	\$339,072
62	190th Ave., Stark St. to Yamhill St.	Improve to community street standard with street lighting, sidewalks and bicycle facilities, and storm drains	\$700,000

Project No.	Project Name	Project Description	Cost Estimate
63	190th Ave., Division St. to Yamhill St.	Improve to community street standard with sidewalks and storm drains	\$700,000
65	192nd Ave., Wilkes St. to Halsey St.	Improve to collector street standards with street lighting, sidewalks and bicycle facilities	\$1,450,000
152	195th Ave., Yamhill St. to Alder St.	Construct new street	\$516,555
153	197th Ave. at Burnside St.	Pedestrian enhancements	\$500,000
66	197th Ave., Yamhill St. to Stark St.	Improve to community street standard with street lighting, sidewalks and bicycle facilities, and storm drains	\$619,125
68	201st Ave. RR bridge at I-84	Construct new RR bridge to accommodate travel lanes with bike lanes and sidewalk	\$2,300,000
67	201st Ave. (Birdsdale) at Halsey St.	Change signal phasing from permitted to protected left turns on east and west legs	\$50,000
69	201st Ave., Glisan St. to Halsey St.	Improve to collector standards with street lighting, sidewalks and bicycle facilities	\$1,119,000
70	201st Ave., Halsey St. to Sandy Blvd.	Upgrade to collector standards with street lighting, sidewalks and bicycle facilities	\$1,780,000
71	202nd Ave. (Birdsdale) at Division St.	Add southbound and eastbound right turn lanes	\$399,000
10	202nd Ave. (Birdsdale) at Powell Blvd.	Add exclusive SB left turn lane	\$73,792
72	202nd Ave. (Birdsdale) at Stark St.	Add EB right turn lane and second SB left turn lane	\$541,940
73	202nd Ave., Burnside St. to Powell Blvd.	Upgrade to collector standards with street lighting, sidewalks and bicycle facilities	\$2,000,000
74	202nd Ave., Stark St. to Burnside St.	Improve to collector standards with street lighting, sidewalks and bicycle facilities	\$700,000
75	202nd Ave., Stark St. to Glisan St.	Upgrade to collector standards with street lighting, sidewalks and bicycle facilities	\$1,301,000
76	257th Ave. (Kane) at Division St.	Add SB right turn lane and second EB left turn lane	\$552,125
77	257th Ave. (Kane) at Powell Valley	Signalize intersection	\$220,000
12	257th Ave. (Kane) at Stark St.	Add second NB left turn lane, and exclusive EB right turn lane	\$625,041

Project No.	Project Name	Project Description	Cost Estimate
78	257th Ave. (Kane), Division St. to Powell Valley Rd.	Reconstruct street to arterials standards, including bike lanes, sidewalks, drainage, lighting and traffic signals	\$4,000,000
11	257th Ave. (Kane), Orient to Palmquist	Realign intersection	\$2,000,000
154	257th Ave. (Kane), Powell Valley Rd. to Palmquist Rd.	Construct bike lane	\$115,900
13	262nd Ave. at Orient	Construct facilities and utilities	\$656,040
14	282nd Ave., Lusted Rd. to Powell Valley Rd.	Improve to community street standards	\$2,399,000
155	282nd Ave., Troutdale Rd. to Orient Dr.	Construct bike lanes	\$68,100
156	Alder St., 182nd Ave. to Burnside St.	Construct new local street	\$847,680
157	Ash St., 181st Ave. to 182nd Ave.	Improve substandard street	\$317,500
80	Barnes Rd., Powell Valley Rd. to south city limits	Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$4,349,868
158	Bike signs	Add directional signs to bicycle lane network	\$1,000,000
159	Burnside Blvd., 181st Ave. to 197th Ave.	Improve to boulevard standards	\$3,000,000
160	Burnside Rd., Wallula to Hogan Rd.	Construct boulevard improvements	\$4,500,000
15	Burnside St. at Division St.	Add exclusive EB right turn lane, and signal upgrades	\$391,830
81	Burnside St. at Powell Blvd.	Eliminate EB and WB left turns	\$300,000
83	Butler Rd., 190th Ave. to Regner Rd.	Construct to collector standards	\$2,000,000
161	Central Station Pedestrian to MAX	Improve pedestrian access to light rail transit	\$500,000
16	Civic Neighborhood Station and Plaza	Construct station and plaza	\$1,198,920
17	Civic Neighborhood Transit Oriented Design	Support street infrastructure improvements	\$1,846,000
85	Cleveland Ave., Powell Blvd. to Stark St.	Widen roadway and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$2,152,106
207	Cleveland Ave./Clyde/Wallula, Glisan to Stark	Study local street connection alternatives	\$50,000
162	Cleveland Station Area, Ped to MAX	Improve pedestrian access to light rail transit	\$500,000
18	Columbia Corridor TMA	Implement a transportation management association program with employers	\$142,500
165	Couch St., 184th Ave. to 188th Dr.	Construct new street	\$582,780

Project No.	Project Name	Project Description	Cost Estimate
163	Couch St., 169th Ave. to 171st Ave.	Construct new street	\$650,000
166	Couch St., 190th Ave. to 192nd Ave.	Improve substandard street	\$222,250
167	Curb ramps	Install sidewalk curb ramps - various locations	\$500,000
168	Davis St., 184th Ave. to 188th Dr.	Improve substandard street	\$527,050
19	Development Support Projects	Leverage transportation and development projects	\$666,000
20	Division St. Frequent Bus Capital Improvements	Construct improvements that enhance frequent bus service	\$834,900
21	Division St., 174th Ave. to Wallula Ave.	Retrofit street to add bike lanes and sidewalks	\$160,000
22	Division St., Birdsdales Ave. to Wallula Ave.	Complete boulevard design improvements	\$1,000,000
169	Division St., Kane Dr. to UGB	Construct bike lanes	\$302,000
23	Division St., Kelly Ave. to Burnside Rd.	Complete boulevard design improvements	\$1,500,000
170	Earl Ave., Division St. to 8th St.	Improve substandard street	\$349,250
88	Eastman Ave. at Division St.	Add SB right turn lane and second NB and SB left turn lanes	\$760,865
89	Eastman Ave. at Stark St.	Add EB and NB right turn lanes and second NB and SB left turn lanes	\$2,204,160
171	Elliott Ave., 2nd St. to 6th St.	Improve substandard street	\$587,375
24	Glisan St., 162nd Ave. to 202nd Ave.	Retrofit bike lanes to existing street	\$140,000
172	Glisan St., 193rd Ave. to 202nd Ave.	Construct sidewalk on both sides of the roadway	\$19,110
25	Glisan St., 202nd Ave. to 207th Ave.	Construct arterial standard improvements with four travel lanes, bike lanes, sidewalks, drainage improvements	\$725,000
173	Glisan St., LSI to Hogan Rd.	Construct bike lanes	\$122,900
174	Gresham Fairview Trail Access	Neighborhood access to trail	\$300,000
26	Gresham Regional Center TMA	Implement a transportation management association program with employers	\$174,500
27	Gresham/Fairview Trail, Springwater Trail to Marine Drive	Construct new multi-use trail	\$7,399,233
28	Halsey St., 162nd Ave. to 181st Ave.	Retrofit bike lanes to existing street	\$70,000
175	Halsey St., 162nd Ave. to 181st Ave.	Construct sidewalk on both sides of the roadway	\$44,500
176	Halsey St., 181st Ave. to 201st Ave.	Construct sidewalk on both sides of the roadway	\$55,700

<b>Project No.</b>	<b>Project Name</b>	<b>Project Description</b>	<b>Cost Estimate</b>
29	Halsey St., 190th Ave. to 201st Ave.	Construct standard arterial improvements	\$1,175,000
91	Hillyard Rd., Palmland Rd. to Anderson Rd.	Widen roadway and construct curb and gutter, sidewalks, bike lanes, street lights, storm drainage and intersection improvements	\$1,324,341
92	Hogan Rd. at Burnside St.	Improve intersection with turn lanes, and new traffic signals	\$545,715
93	Hogan Rd. at Division St.	Add second SB left turn lane and SB right turn lane	\$545,480
94	Hogan Rd. at Powell Blvd.	Add EB and NB right turn lanes	\$589,715
95	Hogan Rd. at Stark St.	Add right turn lanes on all approaches and second NB and SB left turn lanes	\$1,161,230
208	Hogan Rd. Connector, Palmquist to US 26	Study alternative alignments for new principal arterial connection	\$100,000
97	Hogan Rd., Burnside St. to Stark St.	Upgrade to arterial standards	\$2,000,000
177	Hogan Rd., Glisan St. to Stark St.	Construct bike lane	\$101,800
178	Hogan Rd., Glisan St. to Stark St.	Construct sidewalk on west side of roadway	\$7,400
30	Hogan Rd., Powell Blvd. to Burnside St.	Improve to boulevard standards	\$1,205,000
31	Hood St., 5th to Powell	Roadway reconstruction to add pedestrian enhancements and storm drainage	\$20,000
180	Juniper Ave., 1st St. to Powell Blvd.	Improve substandard street	\$127,000
181	Juniper Ave., 2nd St. to 6th St.	Improve substandard street	\$381,000
182	Liberty Ave., 5th St. to 8th St.	Construct new street	\$679,910
183	Linden Ave., 3rd St. to 6th St.	Improve substandard street	\$476,250
184	Linden Ave., Division St. to 8th St.	Improve substandard street	\$476,250
185	Main Ave., Division St. to 5th St.	Improve pedestrian access to light rail transit	\$550,000
187	MAX Path, Ruby Junction to Main St.	Construct new multi-use path from Ruby Junction to Main Street on north side of MAX light rail	\$1,500,000
188	Mignonette Ave., Division St. to 8th St.	Improve substandard street	\$381,000
189	Miller Rd., 5th St. to 8th St.	Construct new street	\$838,850
190	Missing Links Sidewalk Program	Fill gaps in neighborhood sidewalk systems	\$2,000,000

<b>Project No.</b>	<b>Project Name</b>	<b>Project Description</b>	<b>Cost Estimate</b>
32	Neighborhood Traffic Control	Install neighborhood traffic control devices, and traffic calming features	\$1,100,000
191	Oak St., 183rd Ave. to 185th Ave.	Construct new street	\$194,260
99	Orient Dr. at Chase Rd.	Signalize intersection	\$150,000
100	Orient Dr., Kane Dr. to Troutdale Rd.	Upgrade to arterial standards	\$2,000,000
197	Pacific St., 174th Ave. to 177th Ave.	Improve substandard street	\$523,875
101	Palmquist Rd., Hogan Rd. to Hwy 26	Upgrade to collector standards	\$1,399,710
33	Palmquist, Hwy 26 - Orient Rd.	Realign and reconstruct Palmquist	\$1,000,000
198	Pine St., 169th Ave. to 172nd Ave.	Construct new street	\$150,110
34	Pleasant Valley Transportation Plan	Develop and implement plan	\$55,500
102	Pleasant View Dr., Highland Dr. to Butler Rd.	Upgrade to arterial standards	\$2,000,000
103	Pleasant View Dr., Powell Loop to Binford Lake Pkwy.	Widen roadway and construct curb and gutter, sidewalks, bike lanes and storm drainage	\$754,441
35	Powell Blvd, 174th Ave. to Eastman Pkwy.	Widen Powell to five lanes and add bike lanes, sidewalks, curbs, gutters, street lighting, center medians	\$6,466,020
104	Powell Blvd. at Walters Rd.	Traffic signal safety improvements	\$150,000
36	Powell Blvd., Eastman Pkwy. to Hogan Rd.	Complete boulevard design improvements	\$4,000,000
37	Powell Valley Rd., Burnside Rd. to Kane Rd. (257th Ave)	Construct arterial standards with four travel lanes, center turn lane, bike lanes and pedestrian facilities	\$1,195,000
105	Powell Valley Rd., Kane Dr. to Troutdale Rd.	Construct collector street standards with bike lanes and pedestrian facilities, realign intersection at Linden/Troutdale Rd.	\$2,000,000
38	Regner Rd, Butler Rd. to County Line	Construct standard collector improvements	\$1,107,000
106	Regner Rd. at Roberts	Construct traffic control circle and bike lanes	\$500,000
107	Regner Rd., Butler Rd. to Gabbert Rd.	Widen roadway and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$6,908,000
108	Regner Rd., Kelly Ave. to Gabbert Rd.	Widen roadway and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$1,076,700

Project No.	Project Name	Project Description	Cost Estimate
109	Regner Rd., Roberts Dr. to Kelly Ave.	Widen roadway and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$4,619,000
110	Riverside Drive extension to Sandy Blvd.	Extend collector street from 190th Ave. to Sandy Blvd. to improve industrial access	\$4,250,000
111	Roberts Rd., Maple Lp. to Regner Rd.	Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$323,010
113	San Rafael, 181st Ave. to 201st Ave.	Complete collector street standards and remove frontage road	\$1,400,000
114	Sandy Blvd., 174th Ave. to 207th Ave.	Improve to arterial street standards	\$3,900,000
200	School Walking Routes	Improve pedestrian access to schools	\$500,000
115	Signal Optimization Phase 3A	Install closed circuit TV, variable message signs and Hwy Advisory Radio equipment	\$600,262
116	Signal Optimization Phase 3B	Install closed circuit TV, variable message signs and Hwy Advisory Radio equipment	\$4,299,902
39	Signal Optimization Phase II	Engineering and integration of 58 traffic signals for coordination and optimization	\$581,942
40	Springwater Trail Connections, 182nd and 190th Avenues	Provide bicycle access to the Springwater Trail at 182nd Avenue and 190th Avenue	\$900,000
41	Springwater Trail Pedestrian Access	Provide pedestrian access to the Springwater Trail at Eastman Parkway, Towle Road, Roberts Road, Regner Road, and Hogan Road, including wider sidewalks and lighting	\$500,000
42	Stark St., 181st Ave. to 190th Ave.	Complete boulevard design improvements	\$1,000,000
43	Stark St., 190th Ave. to 197th Ave.	Complete boulevard design improvements	\$3,000,000
201	Stark St., 202nd Ave. to 206th Ave.	Construct sidewalk on both sides of the roadway	\$33,690
202	Stark St., 216th Ave. to 223rd Ave.	Construct sidewalk on both sides of the roadway	\$24,540
44	Stark St., Kane Dr. to Troutdale Rd.	Add two additional traffic lanes, a continuous left turn lane, bike lanes, sidewalks, and intersection improvements	\$1,578,000
117	Substandard Streets	Upgrade substandard streets - various locations	\$4,500,000
45	Survey Monumentation	City wide	\$22,200

<b>Project No.</b>	<b>Project Name</b>	<b>Project Description</b>	<b>Cost Estimate</b>
46	TIF Study Updates	Updates Traffic Impact Fee Study	\$49,853
47	Transit center and park-and-ride upgrades, Cleveland, City Hall, and 181st.	Construct, expand and/or upgrade transit stations and park-and-ride facilities	\$576,000
204	Victoria Ave., Division St. to 8th St.	Improve substandard street	\$381,000
119	Wallula Ave. at Burnside St.	Add NB and SB left turn lanes	\$528,290
120	Wallula Ave. at Stark St.	Signalize intersection	\$150,000
117	Wallula Ave., Division Blvd. to Stark St.	Widen road and construct curb and gutter, sidewalks, bike lanes, storm drainage and intersection improvements	\$2,261,070
123	Welch Rd., Anderson Rd. to 282nd Ave	Widen roadway and construct curb and gutter, sidewalks, bike lanes, street lights, storm drainage and intersection improvements	\$1,248,972
124	Wilkes St., 181st Ave. to 192nd Ave.	Improve Wilkes to collector street standards and provide slip ramp connection from EB I-84 on-ramp. Slip ramp connection subject to completion of the I-84/181 <sup>st</sup> Avenue Refinement Plan and approval by ODOT.	\$2,275,000
126	Yamhill St., 181st Ave. to 197th Ave.	Upgrade to community street standards	\$2,000,000
			\$192,208,925



## Appendix 5 – Functional Classification Comparison

Metro	Multnomah County		Gresham Existing		Gresham Proposed	
<b>Freeway</b> •4 to 6 lanes •No parking	<b>Freeway</b> •40,000 to 100,000 ADT •No parking		<b>Freeway</b> •4 to 6 lanes      •60,000 ADT •No parking			
<b>Highway</b> •4 to 6 lanes •No parking	<b>Principal Arterial</b> •5 to 7 lanes      •20,000 to 40,000 ADT •100' ROW      •No parking				<b>Principal Arterial</b> •4 to 6 lanes      •35,000 to 60,000 w/median      ADT •120' ROW      •No parking	
<b>Regional Street</b> •4 lanes w/median •97' ROW •Some parking (1)	<b>Major Arterial</b> •5 lanes •100' ROW •16,000 to 28,000ADT •Some parking (2)	<b>Regional Street</b> •5 lanes •Some parking (2)	<b>Major Arterial</b> •4 to 5 lanes •90' ROW •16,000 or more ADT •No parking		<b>Arterial</b> •4 lanes w/median •100' ROW •20,000 to 40,000 ADT •Some parking (2)	
<b>Regional Boulevard (1)</b> •4 lanes w/median •110' ROW •Parking	<b>Regional Boulevard (1)</b> •4 lanes w/median •90' ROW •No parking				<b>Boulevard (2)</b> •4 lanes w/median      •20,000 to 35,000 •115' ROW      ADT •Parking	
<b>Community Street</b> •2 to 4 lanes w/median (3) •76' ROW •Parking	<b>Minor Arterial (2)</b> •3 to 5 lanes •90' ROW •8,000 to 16,000 ADT	<b>Community Street</b> •2 to 4 lanes •Parking	<b>Minor Arterial</b> •3 to 4 lanes      •10,000 to 16,000 •60'to 90' ROW      ADT •No parking			
<b>Community Boulevard (1)</b> •2 to 4 lanes w/median •80' ROW •Parking	<b>Community Boulevard (2)</b> •2 to 4 lanes •80' ROW •Parking (2)					
<b>Community Street</b> •2 to 4 lanes w/median (3) •76' ROW •Parking	<b>Major Collector</b> •3 lanes      •2,000 to 12,000ADT • 80' ROW      •Parking (2)		<b>Collector</b> •3 lanes •60' ROW		<b>Collector (2)</b> •2 lanes w/median      •10,000 to 20,000 (3)      ADT • 80' ROW	
<b>Community Boulevard (1)</b> •2 to 4 lanes w/median •80' ROW •Parking	<b>Neighborhood Collector</b> •2 lanes •60' ROW	<b>Neighborhood Collector</b> •500 to 4,500 ADT •Parking	<b>Neighborhood Collector</b> •2 lanes      •1,000 to 4,000 •50'to 60' ROW      ADT •Parking		<b>Community Street</b> •2 lanes      •3,500 to 10,000 •70' ROW      ADT •Parking	

1. Boulevard application used primarily in RC, TC, and on Transit Corridors with existing or planned transit-oriented land use.
2. Parking dependent on traffic volumes and adjacent land use.
3. Medians optional.