

City of Milton Freewater

Special Transportation Area Plan and Transportation System Plan Update

Submitted to:
City of Milton-Freewater
ODOT

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Acknowledgements

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The contents of this document do not necessarily reflect views or policies of the State of Oregon.

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Introduction

The intent of this project is to provide a STA Plan and TSP Update in cooperation with local businesses that maintains the through movement on Highway 11, while also making downtown more accessible and safe for local citizens. Planning was conducted for pedestrian and bicycle improvements to reduce local traffic on the highway and enhance local opportunities for walking and biking. In addition, development of zoning and development code amendments has been coordinated for consistency with the TSP to assure the transportation system is adequate to serve the future transportation needs.

This project evaluated effective development of compact commercial centers that are pedestrian-friendly, mixed-use, and balance local/through traffic needs. Ordinance revisions have been written to compliment the STA Plan and TSP Update, including a new downtown zone description.

The focus of this project is to guide the management of existing transportation facilities in the downtown and the design and implementation of future facilities for the next 20 years. This report identifies specific right of way improvements and prioritizes transportation projects for inclusion in the City's Capital Improvement Program.

Existing Conditions

The City has a population of 6,560 and is located on State Highway 11. The City is located 8 miles south of the Oregon/Washington border. The City has two established downtowns, reflecting the historical towns of Milton and Freewater. Milton is on the south side of the City and Freewater to the north. Outside downtown, commercial development extends along the Highway 11 corridor. The City's TSP was completed and adopted in 1999.

The area has had recent and growth and is projected for more. It is important to address access, circulation, and traffic problems now before they get even more difficult, and potentially expensive to solve. Main Street is currently four lanes, two lanes in each direction, with no center turn lane. There are no traffic signals or stop signs on Main Street within the study area.

Summary of Process

A Management Team was established to serve as the technical liaison to help guide the project and provide direction on technical and policy issues. A Technical Advisory Committee was also established to review work projects and at the conclusion of the project, make a recommendation.

This project started with a stakeholders' walking tour of the downtown "Main Street" commercial area to assess community needs and interests, identify local changes that have occurred to the downtown commercial area since the TSP was written, and identify alternatives for the STA Plan and TSP Update. Feedback was received from the stakeholders as to what their vision for Downtown Milton-Freewater included.

The design team then analyzed plans, policies, and data related to the commercial area conditions to identify project issues and opportunities. Items researched included the capacity of streets, sidewalks, parking and other spaces and how each of these is currently being used. Bike/pedestrian mobility, safety and access in relationship to neighborhoods, historic features, schools, recreation/parks, library, and other potential activity centers were also evaluated.

Underutilized and vacant parcel redevelopment opportunities on Main Street were also identified, including downtown alleyways and side streets. Existing and potential land use (planning and urban design) concerns, environmental issues, and conflicts with other modes were also identified as part of this study.

A Youth workshop was conducted to gather input from high school-aged youth on how they would like to see downtown develop. They were an engaging group that provided thoughtful and insightful ideas for improving downtown, both aesthetically and through land use improvements.

The public was then invited to Open House #1, where a presentation was given on walkable communities, focusing on street design, pedestrian crossings, and bike facilities. The presentation also included economic and community-building reasons to design for walkability. The workshop provided images of plaza/pocket parks, public art and other streetscape possibilities to help people communicate what their vision for downtown was.

After the Open House, redevelopment options were prepared illustrating various ways to develop Main Street based on the feedback received at the first public open house. These options included potential street, pedestrian and bicycle access design configurations, including circulation and crossing needs to downtown; different hardscape and landscape improvements; streetscape elements including street trees, bicycle racks, benches, illumination; and buffering/screening options.

A second Open House was conducted to present redevelopment options for downtown. A discussion was held at the Open House regarding land uses, types, densities, styles, analysis of costs, traffic operations, impact to codes and policies, and public infrastructure.

After the Preferred Redevelopment Option was established, existing and potential land use (planning design) concerns were then discussed in further detail. The code was then updated to reflect the changes necessary to support the plan.

The plan, as well as zoning and development code updates, was presented to the Planning Commission and City Council in Work Sessions for discussion and feedback. The proposed STA Plan and TSP Update, along with the code amendments, was then presented and adopted at a Joint Planning Commission/City Council Hearing.

Preferred Redevelopment Option

The Preferred Redevelopment Option combines converting Main Street to a three-lane facility through the Downtown District while keeping the remaining corridor four lanes and improving it with traffic calming features.

Traffic Signals

The City will need a strong advocate to get a pedestrian activated crossing signal placed in the Main Street corridor. ODOT may or may not approve a pedestrian activated crossing signal due to traffic volumes that currently do not reach the threshold for requiring one.

A full traffic signal will be hard to justify to ODOT. The community would likely need to close side streets to drive up traffic volumes enough to warrant a signal. For example, if a signal was placed at the intersection of 9th and Main, 8th and 10th streets would need to be closed. Initially it seems unlikely that ODOT would approve a full signal based on existing traffic volumes.

If the City decides to pay for and install an un-warranted traffic or crossing signal, it is possible they would be required to be responsible for any liabilities (i.e. a pedestrian gets hit in the crosswalk) that may occur.

As part of this project, a full report discussing traffic operations and analysis in detail has been prepared by Kittelson & Associates, Inc. and has been included in the appendix of this report.

Parking

It is essential to provide on-street parking in front of businesses in the Downtown and Civic Districts. The higher density of commercial establishments in the area contributes to the high parking demand. For most downtowns, the parking demand is highest during the mid-day period or just after lunchtime in the early afternoon. Public off-street

parking is available in the study area and is provided in four off-street parking lots in the corridor. These four lots provide approximately 130 parking spots for public use.

In addition, several private retail/commercial businesses in the study area have dedicated parking spaces for customers and employees. The majority of these lots are found at the north end of the corridor and supply approximately 180 business off-street parking spaces. In the future, if parking demand increases dramatically, it is possible that the private business parking spaces could be integrated into the public supply as part of an overall parking management plan for downtown.

As part of their analysis, Kittelson & Associates, Inc. included a Parking Inventory and Utilization Map (Figure 5) as part of their report.

Access

According to the 1999 OHP, if a section of statewide highway is designated as Special Transportation Area (STA), as planned for ORE 11 through Milton-Freewater, "direct street connections and shared on-street parking are encouraged" and "local auto, pedestrian, bicycle, and transit movement to the area are generally given more importance than the through movement of traffic." In case of public roadway spacing, the existing city block or the city block spacing as identified in the local comprehensive plan is an accepted norm. For private driveways, minimum driveway spacing of 175 feet, measured from center to center on the same side of the roadway is allowed.

A majority of the existing accesses do not meet the ODOT access spacing standard for an STA. Nonetheless, due to the low traffic volume in the area, and historically low number of crashes, the existing accesses are anticipated to operate safely and acceptably. Any future development in the corridor should be encouraged to meet the spacing standard and ensure that proposed driveways operate safely.

Safety and Traffic Issues

Traffic Speed – The speed at which vehicles, including large trucks, traveled through downtown was a primary concern during the planning process. Currently, vehicles travel above the speed limit through the corridor, partly because it "feels" faster due to the width of the right-of-way. Traffic calming measures have been introduced to "narrow" the visual distance between the curbs, including street trees, bump outs and a median. Introducing these traffic calming design elements will result in lowered speeds as people are become more aware of their surroundings.

Pedestrian Crossings – Pedestrians crossing a busy street without a signal for assistance was another primary concern voiced by citizens. The traffic calming design elements

discussed above will help reduce the speed of traffic. That, combined with well marked and enhanced crosswalks, will help pedestrians feel safer by making cars more aware of them. Bump outs and medians will also give pedestrians a safe refuge while waiting for a break in traffic.

Large Vehicle Access To Businesses In Downtown – Truck circulation to/from and within Downtown will be a consideration as detailed design begins. Considerations will include turning radii to and from businesses on ORE 11 and turning radii at intersections within the STA. The ODOT Highway Design Manual provides guidance on the standards for these features. The goal of the STA is to develop main street type access in downtown. This includes limiting the number of direct driveways onto and off-of ORE 11 and designing low speed turns at intersections. The design will not preclude large vehicles circulating within downtown. At corners, large vehicles may have to travel into the opposing lane on the minor street to complete the turn, or special design exceptions can be achieved with ODOT. Large vehicle direct access onto individual properties will become more constrained as downtown redevelops with STA compatible land uses; however designs can be developed to maintain access to specific properties.

Travel Lane Widths – Under the proposed plan, there is ample space within the current right-of-way to maintain 12-foot travel lanes within the STA. A 12-foot travel lane is consistent with ORE 11 lane widths outside the STA. Therefore large vehicles accommodated on ORE 11 outside of Downtown will also be accommodated through Downtown. In the event that overload or oversize vehicles are traveling through Milton-Freewater standard ODOT requirements would have to be fulfilled.

Loading Zones – Loading zones within the STA will also be identified as part of the detailed design. The location and number of the loading zones will be dependent on the distribution of businesses, and parking demand. The loading zone spaces can be permanent loading zone spaces, or they can be regular parking spaces during peak parking periods, and loading zone spaces during off-periods. As Downtown becomes more popular, it may be necessary to limit loading to specific off-peak hours (e.g. early in the morning).

Bicycle Facilities

There are currently no striped bicycle lanes through the study area. At the first Public Open House residents voiced strongly that they did not think it was appropriate to have striped bike lanes on Main Street. However, there are a few people in support of having bike lanes, striped or un-striped, as part of Main Street.

The existing Right-Of-Way does not have enough room to accommodate the existing four lanes of traffic, parking on both sides of the street and a striped bike lane the entire length of the corridor. Residents were unwilling to give up parking in order to provide bicycle lanes.

The proposed three lane configuration has enough room to accommodate travel lanes, parking on both sides of the street and marked bicycle lanes. However, residents again voiced at the first Public Open House that they did not want bike lanes on Main Street. In all cases they would prefer that bike routes be designated on parallel streets to Main Street, such as Columbia Street and Mill Street.

At the second Open House citizens again voted against incorporating striped bike lanes on Main Street. In addition to safety concerns due to possible conflicts with large trucks, the preferred option incorporates four lanes of traffic which does not allow enough room to also have bike lanes.

However, due to funding sources that may be tied to providing bicycle facilities, it was decided to allow bike facilities on the three lane configuration with alternate bike routes along Mill and Columbia (parallel to Main St.) along the four lane section.

Transit

Milton-Freewater recently started bus service again that provides local connection throughout Milton-Freewater as well as connections to Walla Walla. Proposed improvements should accommodate bus facilities and plan for future expansion of the transit system

Potential Development Projects

The Opera House has great potential for becoming a landmark for the downtown area of Milton-Freewater. There are several other buildings listed on the Historic Register in the area and a historic "focus" could be developed as a point of interest for visitors. The historic focus could help draw tourism spending which would in turn support commercial as well as arts, entertainment and recreation and accommodations and food service. The City should develop programs to assist owners and operators of these shops to upgrade their facilities through coordinated efforts which are sensitive to the historic and architectural values.

Streetscape improvements will need to be coordinated with State Historic Preservation Office prior to and during the engineering phase of the projects. Improvements, depending on the nature of the changes, which do not fit with the historical character or history of Milton-Freewater may impact decisions to be able to create a Historic District in the future. Proposed changes should be as unobtrusive as possible. Additional

information regarding SHPO coordination, including contact information, has been included in the appendix section of this report.

During the second Open House citizens responded favorably to allowing the residential areas in the Gateway Zones adjacent to Main Street to operate home-based businesses. In order for the downtown area to draw more business, flexibility should be given to the corridor to allow businesses to develop while still retaining the unique residential setting.

In addition, lots for potential redevelopment have been identified. Some of the lots are vacant and are ready for redevelopment while other lots are more appropriate for future redevelopment opportunities after their current land use changes.

Downtown District for Freewater

It is recommended that Freewater adopts a similar ordinance to Milton, addressing similar issues while making them specific to their area. Coordination between the two areas, especially due to their close proximity to each other, is encouraged. The local comprehensive plan recognizes the importance of redeveloping the two downtowns. The plan states that "a pressing commercial need is for redevelopment and upgrading of the two old downtowns. Major revitalization has taken place in the south and north districts. These efforts have helped to bring new businesses and shoppers to the areas. It is vital that other store owners and operators continue the trend started by these projects so that everyone can benefit from increased shopping activity in the community. The city has provided technical help to shopkeepers and the Chamber of Commerce to initiate and assist these efforts. This will remain a high priority."

Redevelopment of Alleyways

Currently, the alleyways in the project area are in various stages of improvement. Some of the alleyways are unimproved while others are paved. The City has a standard alleyway cross section and it is encouraged that as lots adjacent to alleys develop or re-develop the alleyways are brought up to City standards where possible.

For this study, the focus was placed on re-vitalizing Main Street to become a more vibrant and integral part of town. As improvements happen over time, it will be appropriate to look at how the alleyways can play a more integral role. As re-development occurs on Main Street it will affect the use of the alleyways. Some alleyways may be appropriately developed to accommodate vehicle circulation and access while others may be better suited for pedestrian connections. However, until the new use is determined it is difficult to make specific recommendations for the alleyways. It is strongly recommended that the focus remain on Main Street until such a time that it's appropriate to dedicate resources to the alleyways.

Currently the alleyways are utilitarian in nature and primarily serve vehicle access. They serve a secondary circulation system and could potentially be further developed to accommodate loading and unloading activities in certain blocks for businesses on Main Street, which would free up parking in front of the buildings. In the future, some of the alleyways could also provide pedestrian connections if they don't conflict with vehicle circulation.

However, it is also important for encouraging redevelopment opportunities that the City accommodate alley access to landlocked parcels where possible. This may help spur redevelopment opportunities where access issues had previously been a concern.

Creation of Greenspace and Pocket Parks

The creation of public spaces through pocket parks and greenways is encouraged as a way to enhance the downtown area and promote pedestrian activity. Potential "greenspace" areas have been identified on the plan. In addition, "pockets" of greenspace should be encouraged as new development moves in or existing buildings are replaced, as small spaces for tables and benches will help enhance the downtown core. In addition, greenspace can be used to encourage pedestrian links between main street and adjacent streets and alleys.

Impact to Codes and Policies

Three new zoning districts were created to assist in creating a pedestrian-oriented, mixed use downtown that preserves and enhances the historic buildings and existing residences. The development and design standards contained in the Downtown Business (DB), Main Street Residential (MSR), and Civic Overlay (CO) districts zoning are intended to assist with the revitalization of the downtown area. Buildings, streets and public spaces are required to be oriented toward the pedestrian, while not excluding the automobile, to support mixed use developments and provide a pedestrian-friendly character of the area. South and North Main Streets shall be the business and mixed-use centers of the community. South Main serves the additional role of being the civic center of the community.

The Main Street Residential (MSR) district is intended to preserve the residential feel of the district while allowing small-scale businesses that are compatible with the existing residential uses. The Main Street Residential (MSR) district shall support a mix of residential and small scale business. Land uses within the Main Street Residential (MSR) district shall be compatible in size and design with the residential character of the area. Small-scale businesses in the MSR district should be encouraged to locate in former residences.

The Downtown Business (DB) district is the place for people to gather and promote commercial activity. Improved pedestrian access and streetscape through the downtown will improve the district's image. Elements of design and appropriate mixed use development will enhance this goal. Mixed use developments should be permitted and encouraged in the Downtown Business (DB) District.

The Civic Overlay (CO) district contains special uses to emphasize the City's desire to concentrate civic facilities in the heart of the downtown. This section lists those uses allowable in the Civic Overlay (CO) district. The development standards in the Downtown Business (DB) district shall apply to all development in the Civic Overlay (CO) district.

Adopted ordinances, as well as a map showing zoning code changes, are included in the appendix of this report.

Economic Analysis

Currently, the Milton-Freewater economy revolves primarily around the regional agricultural-base which includes productive orchards, irrigated row crops and dry land wheat, pea and bean production. Related spin-off industries include food handling, processing, packaging, and shipping. Milton-Freewater's access to Interstate Highway 84, US Route 395, rail and water terminals enables regional agricultural goods to be efficiently shipped nationally, and exported to many countries around the world.

For downtown Milton-Freewater, the most favorable retail growth potential appears to be within the miscellaneous retail, and food and beverages categories. However, some general merchandise will also be supported by increased retail sales. The other/miscellaneous category could possibly include a modest-sized lodging facility and/or an additional independent bed-and-breakfast, which could potentially be added to support regional visitation trends.

Tourism and visitation spending plays an important role in supporting commercial development in Umatilla County and is accredited for supporting 1,720 jobs. The fastest growing segments that were supported by tourism spending over the 1991-2003 time period included "arts, entertainment and recreation" and "accommodations and food service".

The demand for office space in downtown Milton Freewater depends on growth in employment in the competitive market region and changes in household formations and work location preferences. As households get older, demand for professional services, such as medical, legal and financial services tends to rise. Other factors, such as availability and price of land/buildings, telecommunications and internet access also play into location decisions.

In the short-term (years 1-5), this commercial demand in downtown Milton Freewater could likely be accommodated in existing vacant or underutilized downtown buildings. In the longer-term, it is likely that some of the commercial office growth would require new buildings on vacant or redevelopment parcels.

The future outlook for office job growth and land needs are forecasted to show an improvement over the next 10 years. Steady growth in county wide tourism spending as well as moderate growth in local buying power holds promising potential for existing and new commercial, retail and lodging establishments.

A full Economic Analysis has been included in the appendix of this report.

Funding Information

As part of the funding information for this report, research was done for the following site furnishings: benches, litter receptacles, bike racks and drinking fountains. Product manufactures, contact information, and prices (not including installation) have been included in the Funding Memorandum included in the appendix of this report. The City currently has light fixtures and tree grates that have been used on previous projects. For a sense of continuity throughout the corridor it is recommended that the same product models and manufacturer are used on future improvements.

The City currently has an Urban Renewal District and has successfully provided programs in the past to assist business owners with making improvements. The mission of the Milton-Freewater Urban Renewal Agency is to eliminate blight and depreciating property values in the Area and in the process, attract private investments that will improve property values, create jobs well matched to the labor force and create opportunities for business expansion and development.

Two primary goals that have remained consistent throughout the life span of the URA are the elimination of blight and the creation of jobs. Money to help accomplish these goals is created through this agency via tax increment financing. The Milton-Freewater Urban Renewal will continue to be a very positive and viable tool in revitalizing the community.

The city also previously used a business improvement grant program that ran for three years, with up to \$2000 being reimbursed to the property owner for storefront improvements. The program worked with 75% being paid by the Urban Renewal Agency and 25% being paid by the property owner.

This program was recently revised to focus on the new frog branding effort recently started by the City. The program has now created a frog art reimbursement program for business owners paying \$125 for a carved wooden statue with a value of \$500.

The City should consider the following options to enhance or modify the existing downtown urban renewal district:

1. Re-establish the store front improvement program and consider making it available for residential frontage improvements - The vision for South Main Street and implementing zoning describe a pedestrian-friendly, economically vital, and nicely landscaped streetscape and front yard area along South Main. Providing financial assistance to achieve these objectives will help both investors and city interests move toward the vision. The plan and implementing zoning apply to both Downtown Business properties (that have storefronts) and Main Street Residential properties that have a residential character but may have small businesses in them. Extending frontage improvement incentives to the residential properties will help tie the entire area together with an improved look that is consistent with the plan.
2. Ensure the "life" of the district is consistent with the timing for public improvements - Many other Oregon communities that have improved their Main Streets have seen private investment that follows. One improvement leverages the other. Milton Freewater should make sure the downtown Urban Renewal district is active during and beyond the period where the streetscape improvements are finished, so that the City can capture the increment from the private investment that may follow.
3. Ensure that key "catalyst" properties are fully within the district boundaries - The current boundaries should be reviewed to ensure that the most likely redevelopment sites (consistent with the new zoning) are fully within the renewal district boundaries.

Another option to consider is working with the State Economic and Community Development Department and ODOT to form a Community Solutions Team to focus on ways to improve downtown Milton. In other areas of the state the Community Solutions Team has been successful in implementing infrastructure improvements to further community redevelopment. For more information, Mike Burton, Manager of the State Economic and Community Development Department, can be reached at 503-986-0129.

The Funding Memorandum included in the appendix describes in detail several programs available to help fund future improvements.

Project Prioritization and Descriptions

The improvements to Main Street have been broken out into three projects and prioritized as high, medium, and low importance projects. Identifying separate phases and breaking the project out into manageable pieces will allow the City to start making improvements, plan for future and identify funding sources. Descriptions of the projects are provided in the following paragraphs.

The high priority project is the South Gateway between SE 14th and SE 12th. This project was chosen as a high priority because it is easy to break out, relatively inexpensive to construct, and will help make a visual impact and generate excitement that more improvements will be made. This project creates a gateway element to announce the edge of the downtown area and to help reduce vehicle speeds. The intersection of SE 14th will need additional engineering and design work to determine how best to accommodate turning movement onto and off of Main Street. The intersection will likely include a landscape median that could be tied in visually with the adjacent park.

Improvements throughout the two blocks also include sidewalk improvements, street trees in planter strips, and bulb outs at the intersection of SE 12th. On street parking will remain along the two blocks. The designs of these proposed improvements, as well as future phases, are shown on drawings included in this report.

A transition median starting at SE 12th is also shown in the high priority project area, but would not be constructed until the second phase. The transition median facilitates the transition from four travel lanes down to two travel lanes and a median, which will not happen until the next phase.

The medium priority project is the Downtown District between SE 12th and SE 8th. This project is the “heart” of the corridor and will have a large impact on improving the visual aspect of the street, creating more pedestrian friendly spaces, and providing traffic calming effects.

Improvements throughout the four blocks change the lane configurations from four lanes down to two with a center median and turn lane. On street parking is provided as well as marked bike lanes in both directions. Bulb outs are provided at each intersection as well as sidewalk improvements, street trees in tree grates, and crosswalk improvements.

The transition medians, one at SE 12th and the other at SE 8th, will also need to be constructed during this phase. The transition medians will facilitate the transition from four travel lanes into two travel lanes and a median. These medians are not intended to be landscaped but will use striping to designate their boundaries.

The center medians are to be planted with street trees, low shrubs and groundcover. A listing of recommended plants for the corridor has been included in the appendix of this report. Prior to installation, the medians will need to be further coordinated with the community and businesses.

The low priority project is the Civic District and Main Street Residential area between SE 8th and SE 3rd. This area can be expanded from the Downtown District on a "block by block" basis as redevelopment occurs and/or funding becomes available.

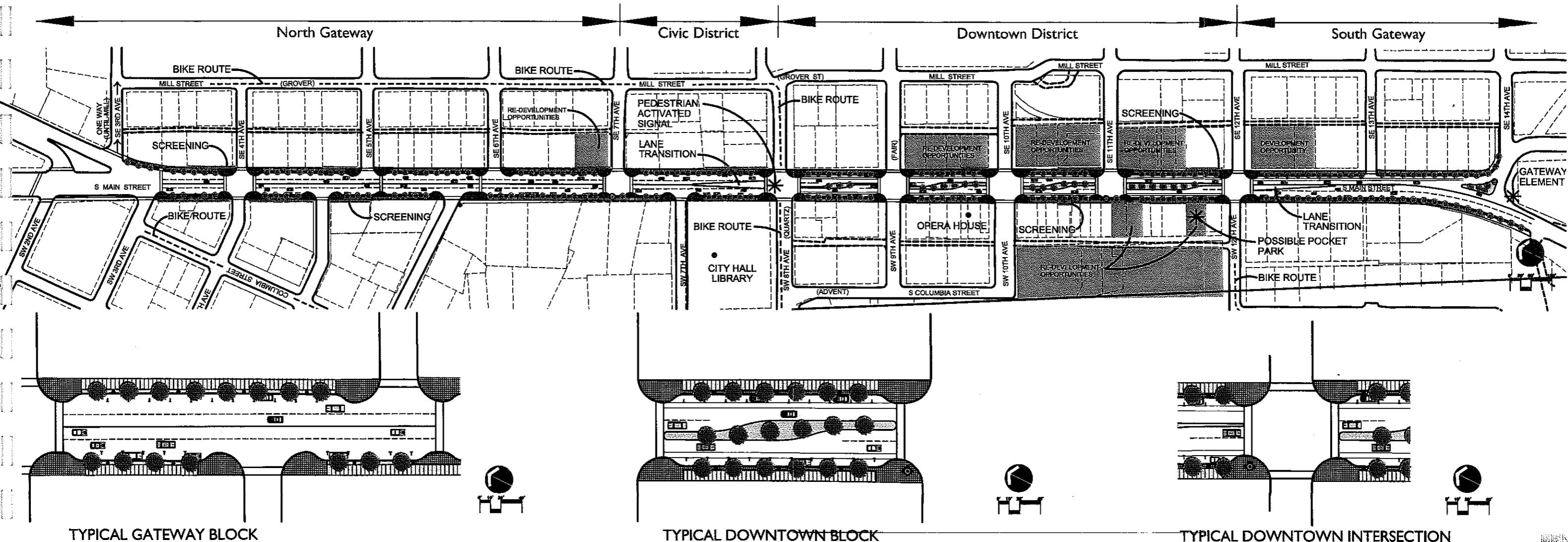
Improvements throughout this area include sidewalk improvements, street trees in planter strips, and bulb outs at the intersections. On street parking will remain along the corridor as well. As part of this planning study, the community expressed concern of the intersection of Main Street and 3rd and would like this area to be further studied during the engineering phase.

The three projects have been further broken down in the next section, including a preliminary cost estimates for the improvements.

Cost Estimates (Capital Improvements Plan)

Cost estimates have been included for the improvement area. The estimates have been broken out into three projects and identified as high, medium, and low priority. The high priority project is the South Gateway between SE 14th and SE 12th, the medium priority project is the Downtown District between SE 12th and SE 8th, and the low priority project is the Civic District and Main Street Residential area between SE 8th and SE 3rd. These projects and cost estimates are updated to be included in the City's Capital Improvement Plan.

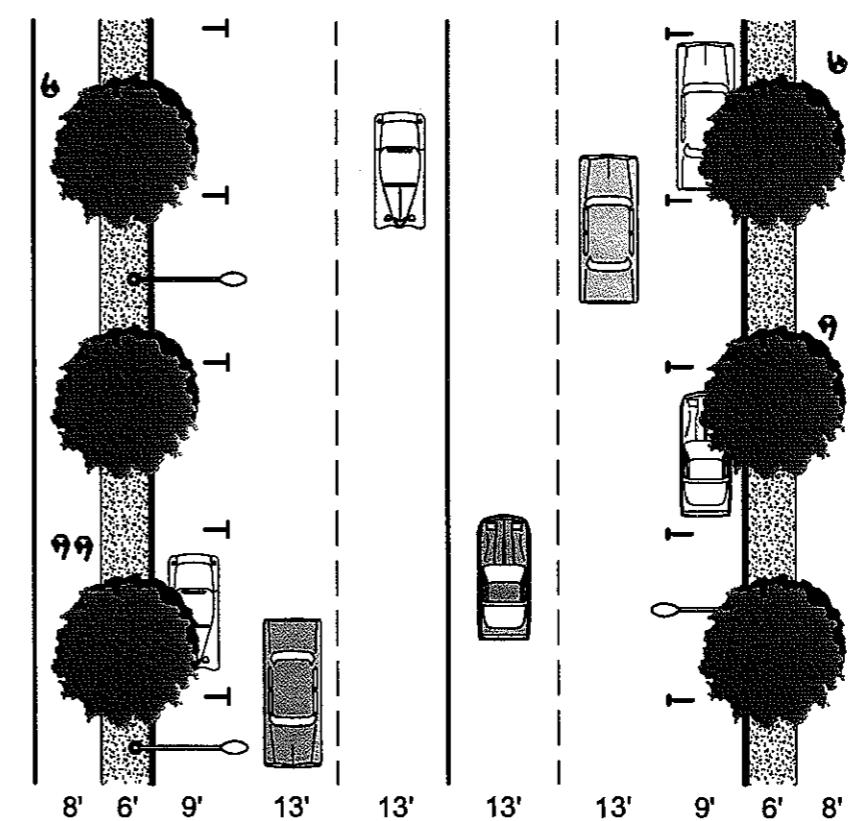
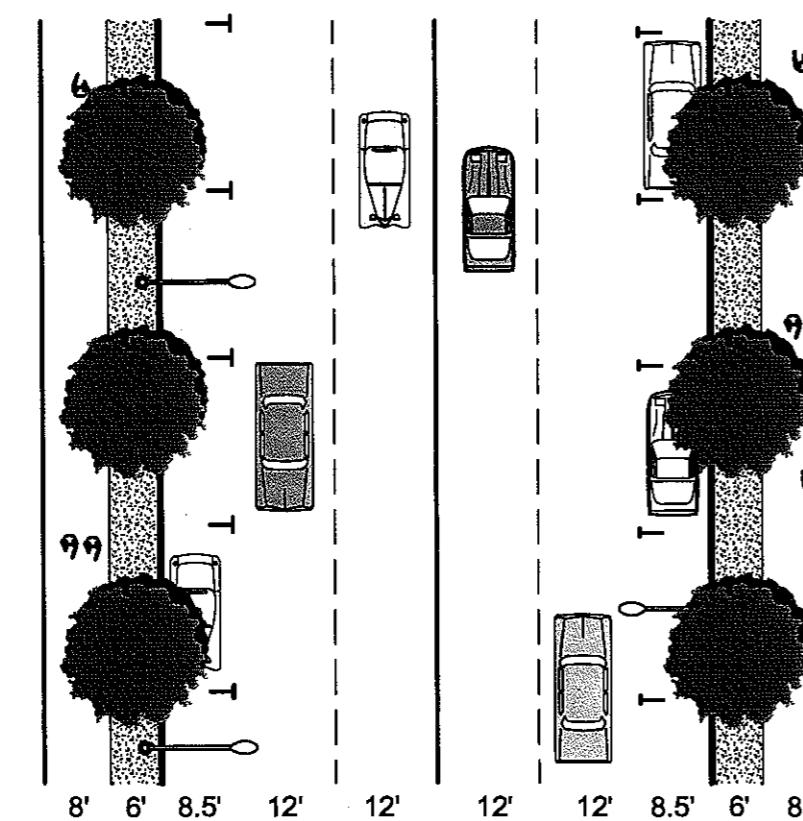
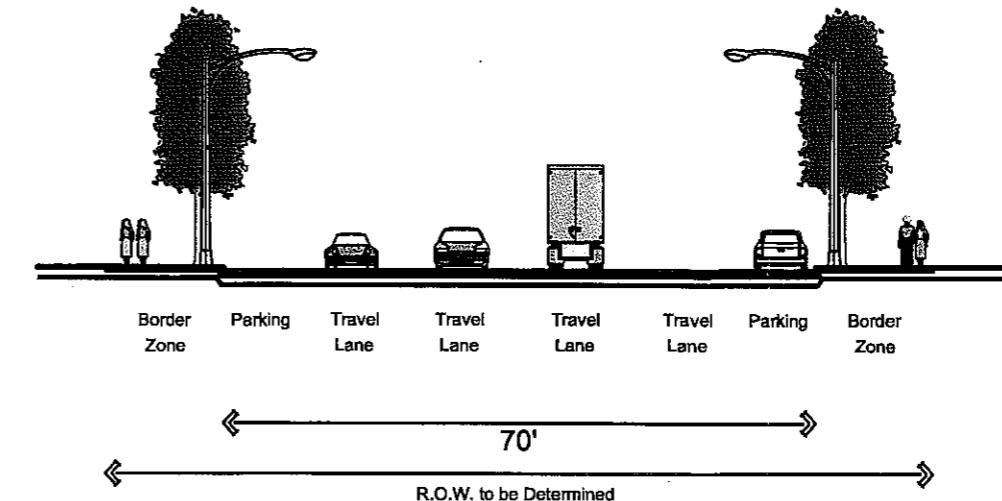
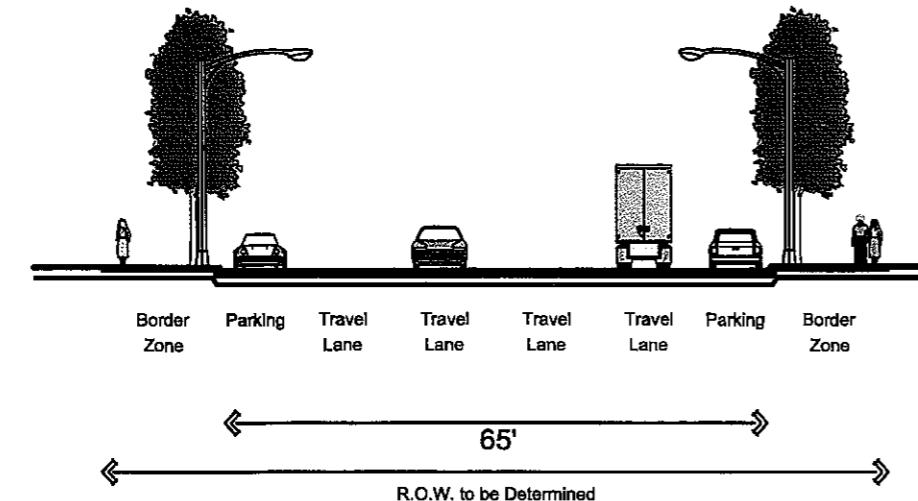
MAIN STREET PLAN



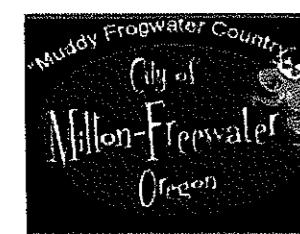
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JUNE 6, 2005

STREET SECTION OPTIONS



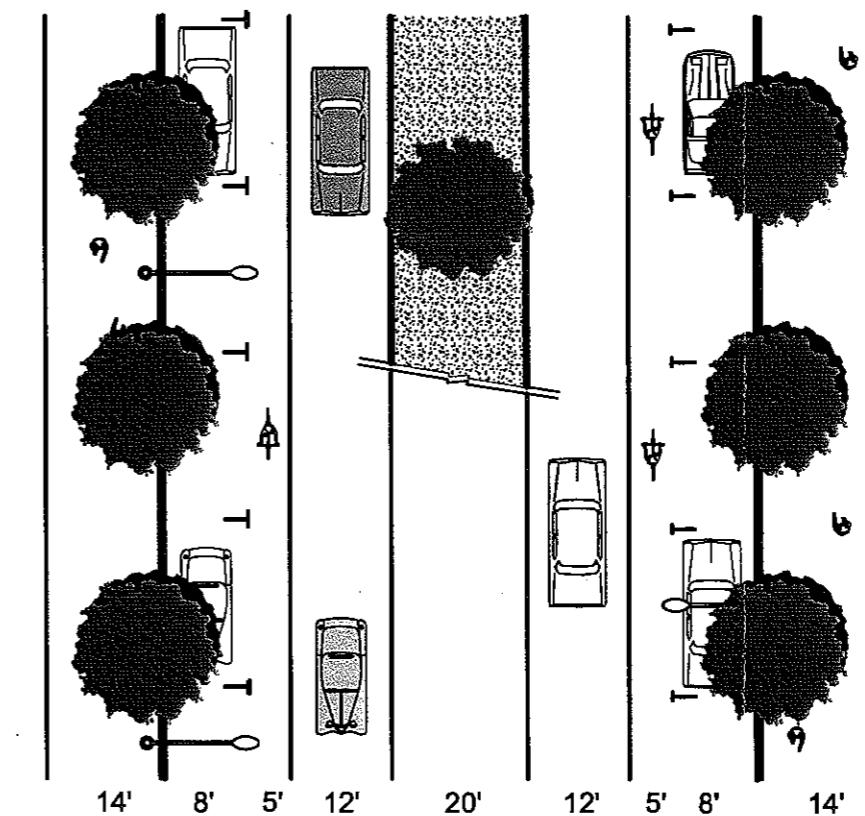
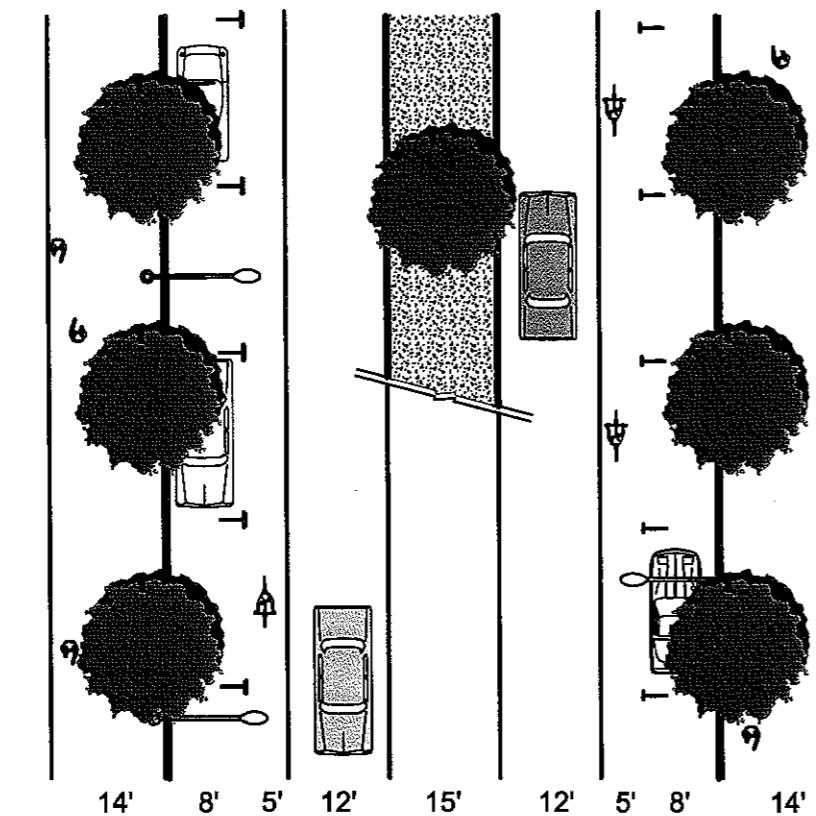
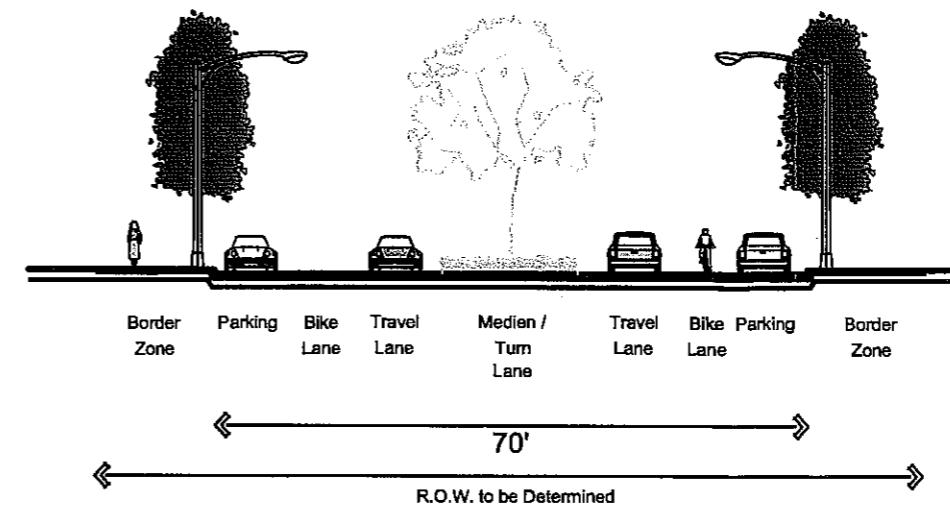
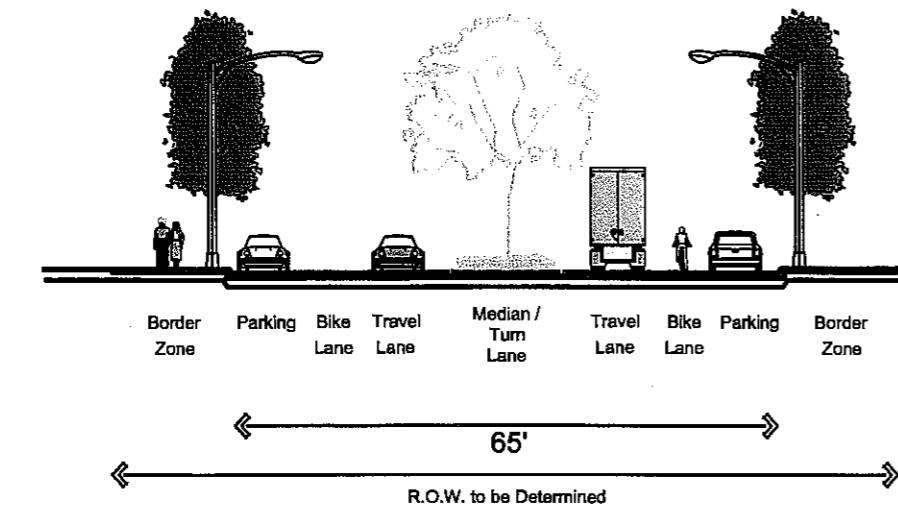
4 Lane Street
No Turn Lane or Median
Parking on Both Sides
No Bike Lanes



Special Transportation Area Plan and
Transportation System Plan Update



STREET SECTION OPTIONS



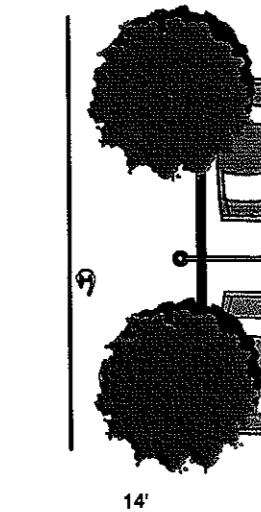
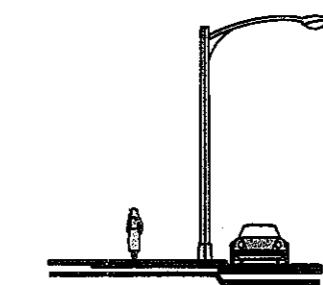
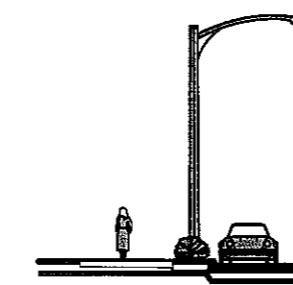
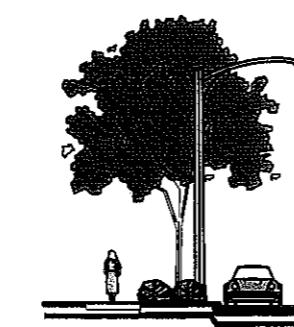
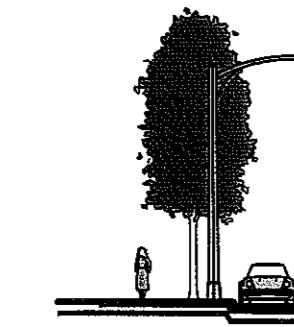
2 Lane Street
Center Turn Lane with Optional Median
Parking on Both Sides
With Bike Lanes



Special Transportation Area Plan and
Transportation System Plan Update

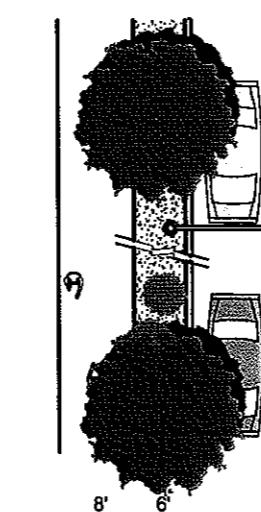


STREET BORDER SECTION OPTIONS



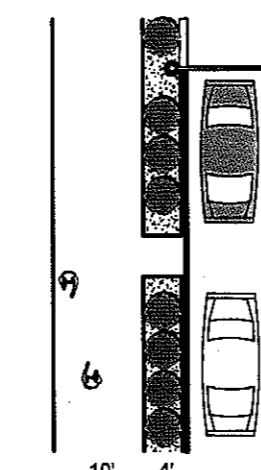
Sidewalk and
Tree Grates

STRONG PREFERENCE

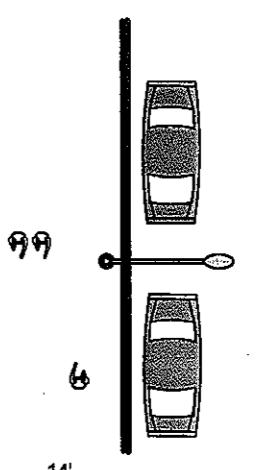


Sidewalk and
6' Planter Strip

STRONG PREFERENCE



Sidewalk and
4' Planter Strip



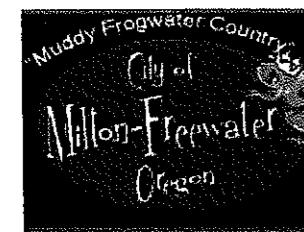
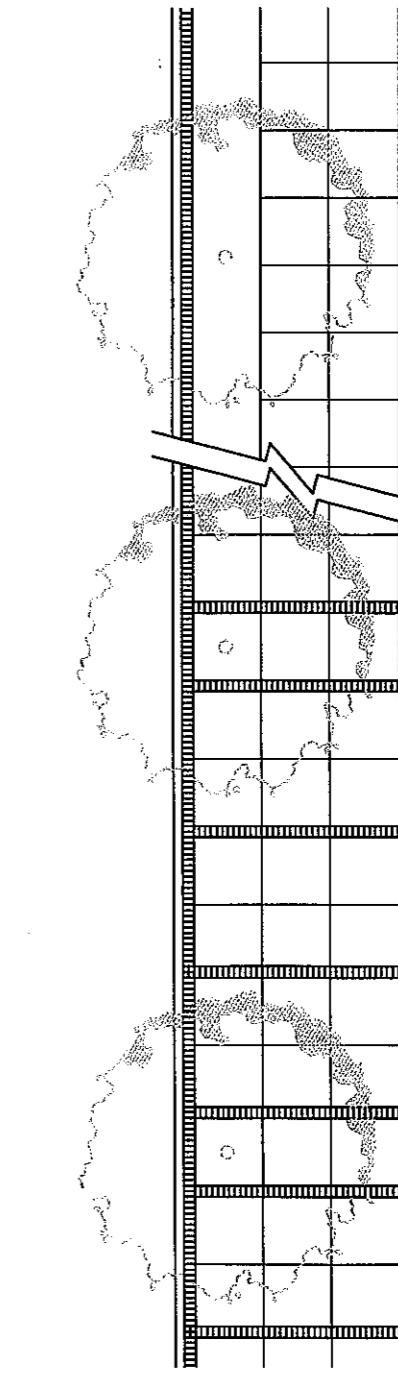
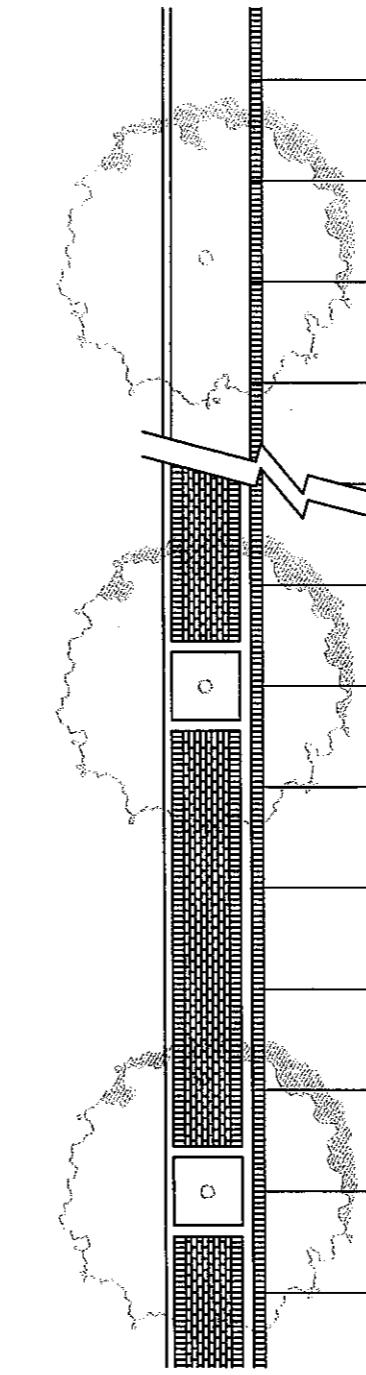
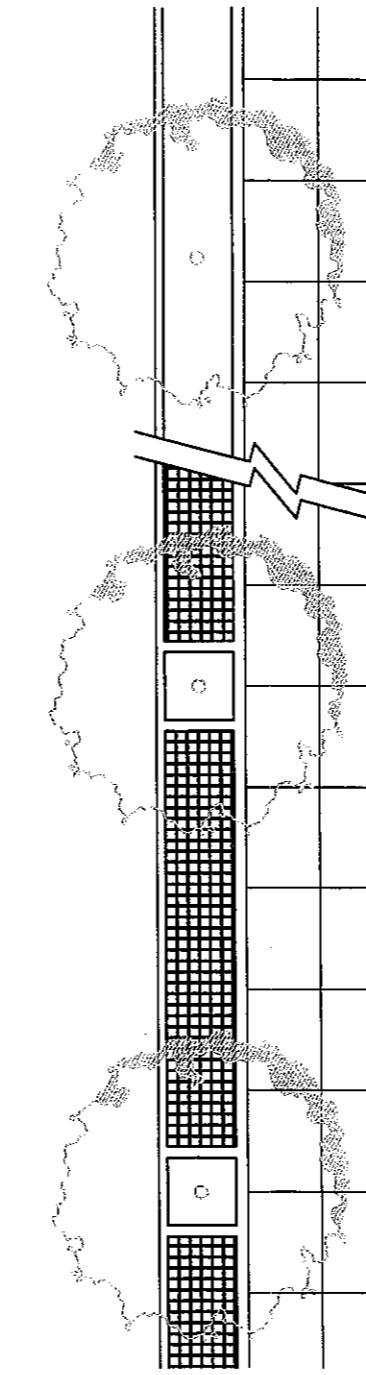
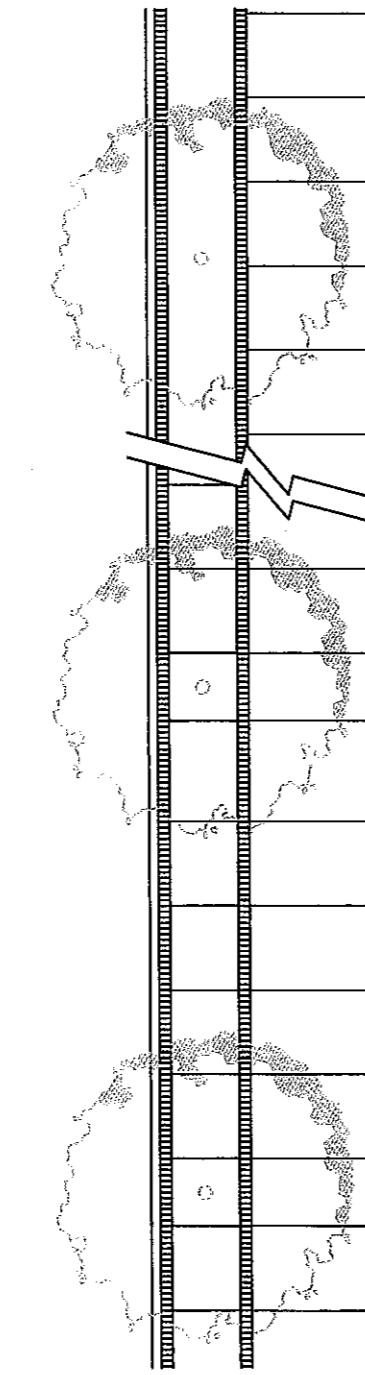
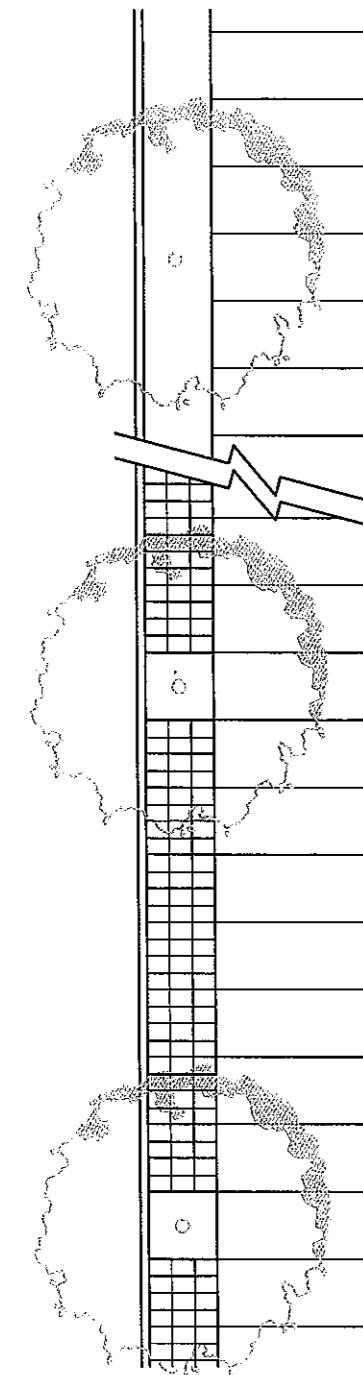
Sidewalk
Only



Special Transportation Area Plan and
Transportation System Plan Update



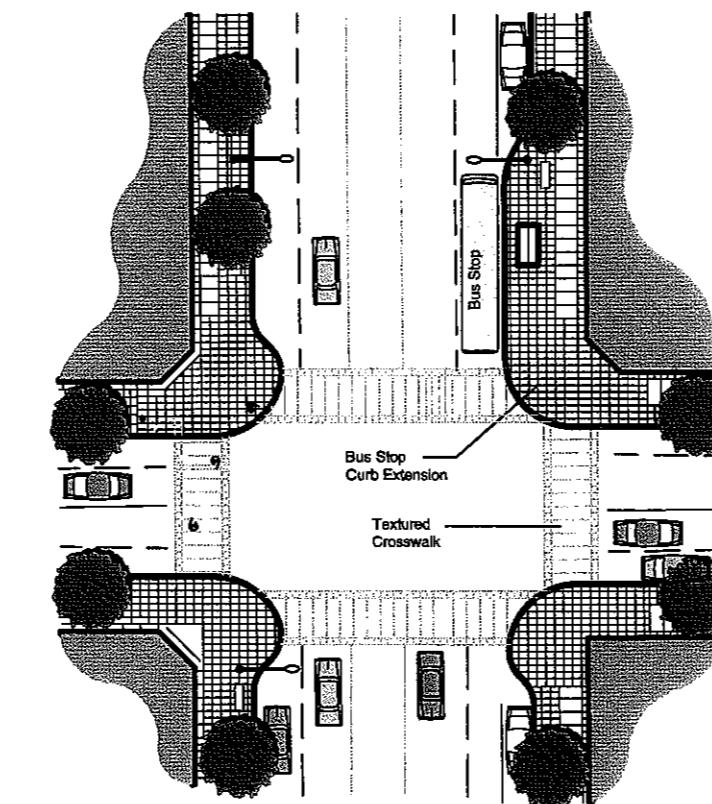
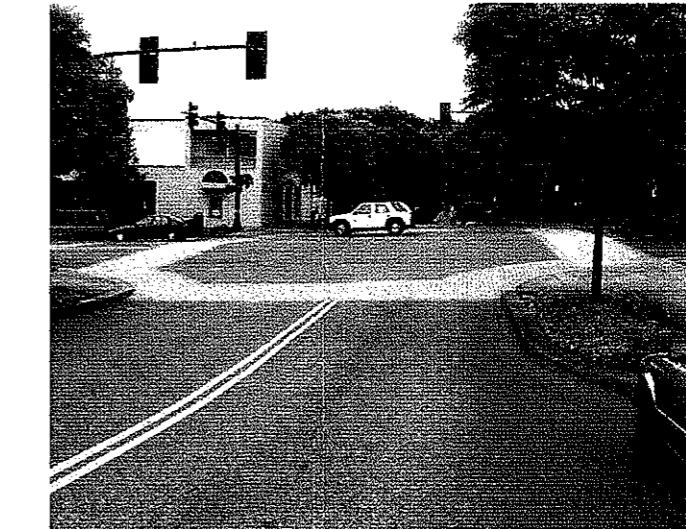
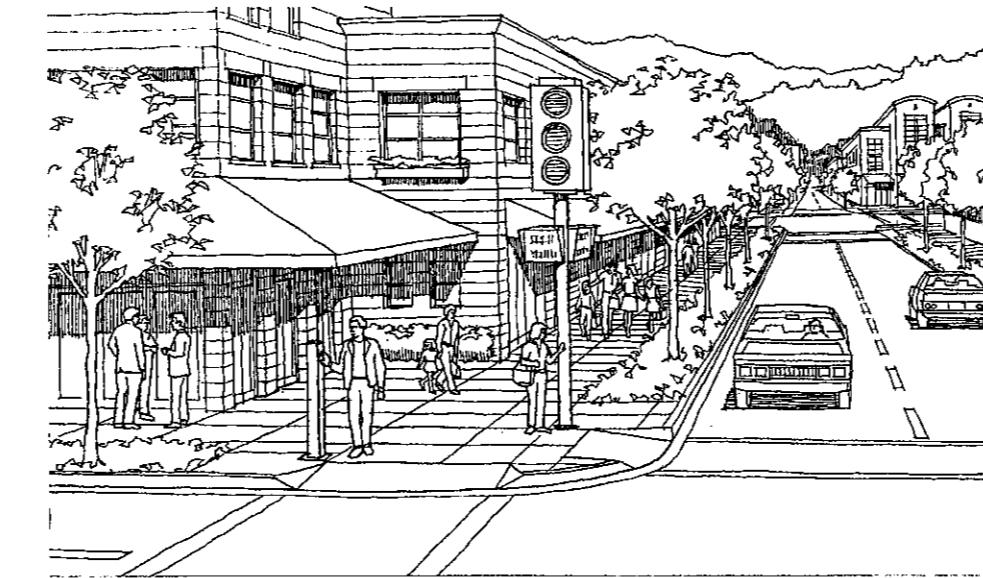
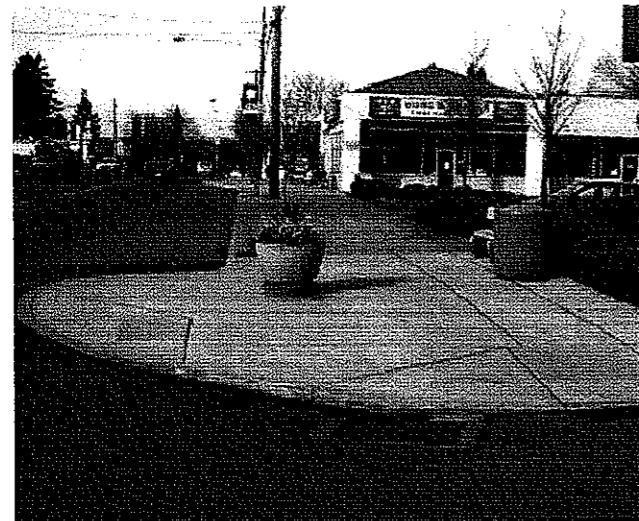
SIDEWALK PATTERN OPTIONS



**Special Transportation Area Plan and
Transportation System Plan Update**



CROSSING OPTIONS



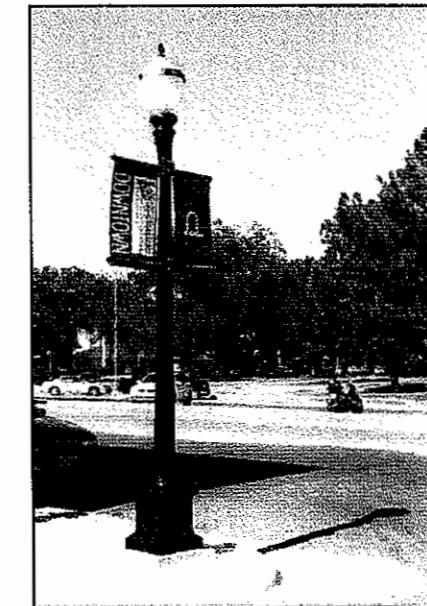
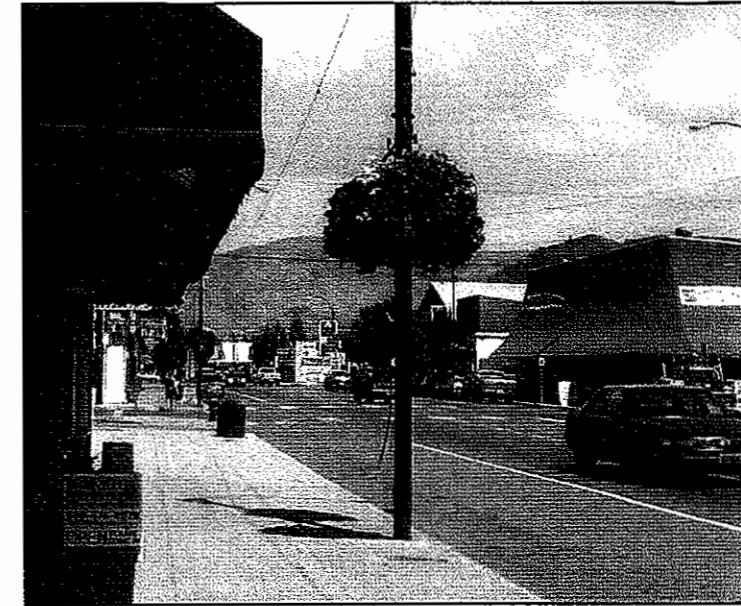
Curb Extension with
Parking on Both Sides
and Bus Stop
STRONG PREFERENCE



Special Transportation Area Plan and
Transportation System Plan Update



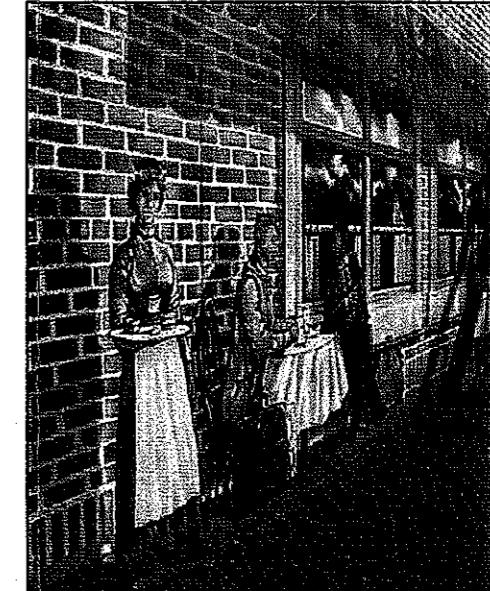
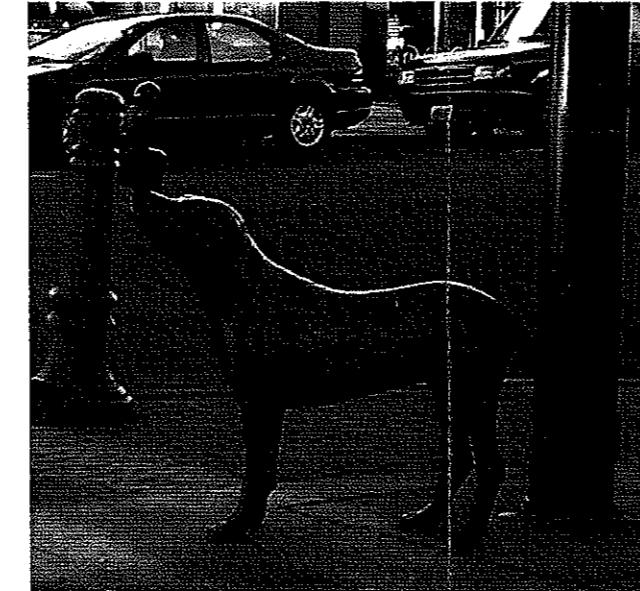
STREET FURNISHINGS AND PUBLIC ART: STRONG PREFERENCE



Special Transportation Area Plan and
Transportation System Plan Update



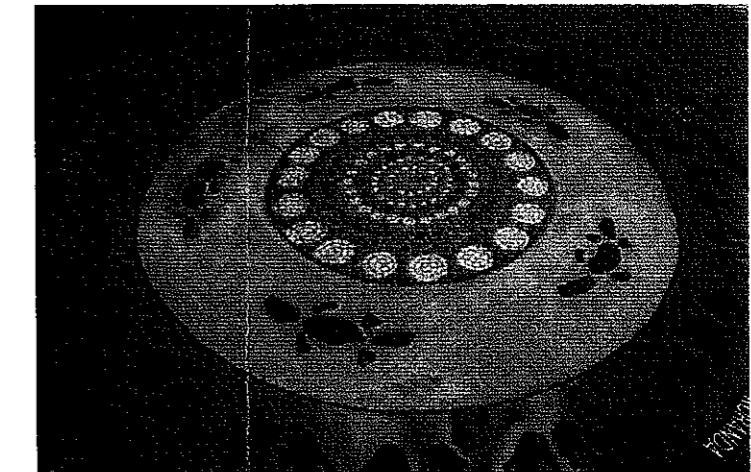
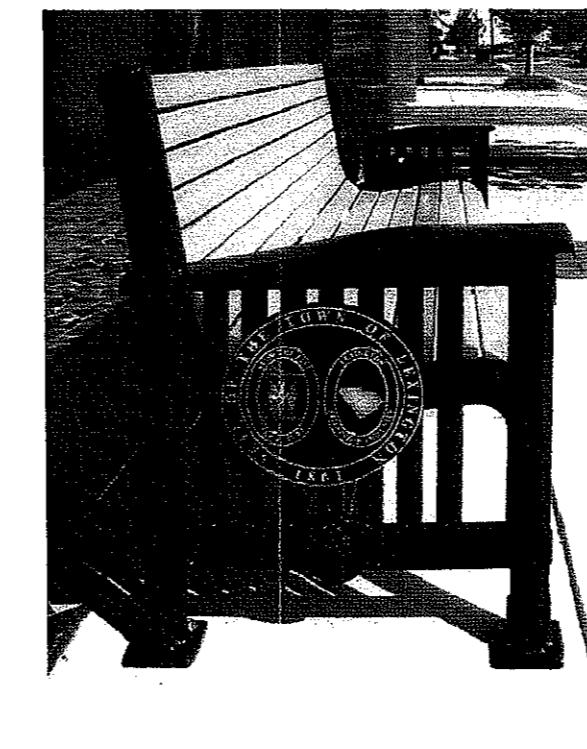
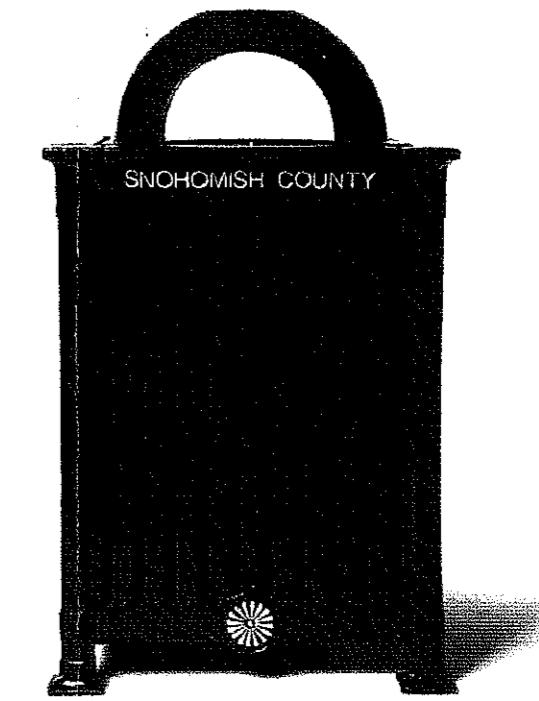
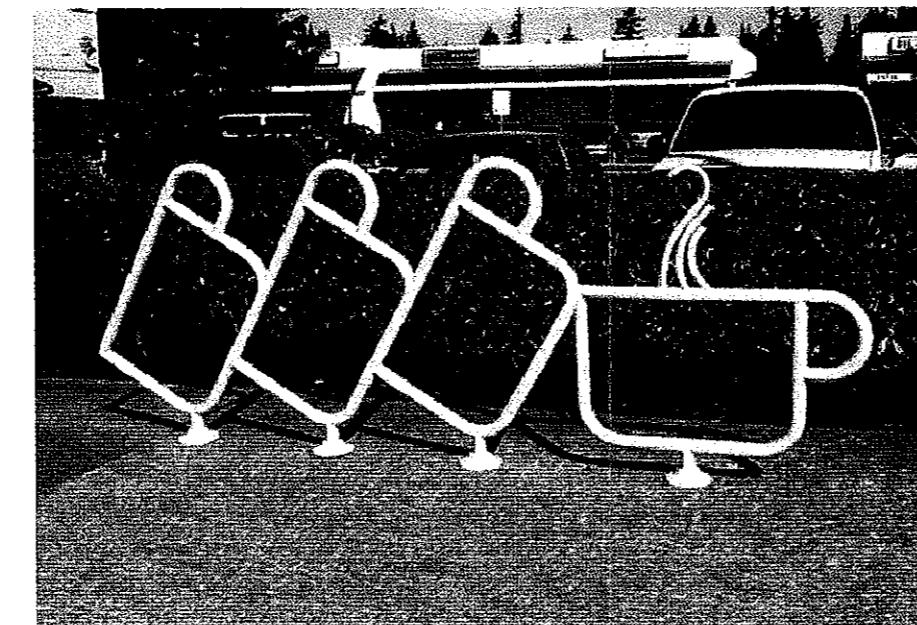
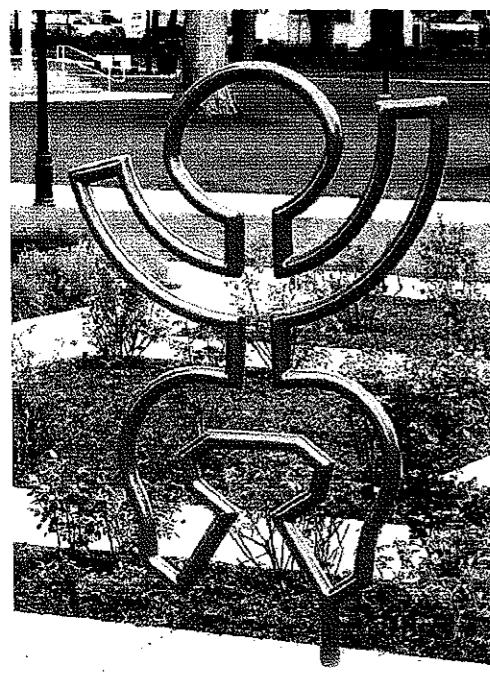
STREET FURNISHINGS AND PUBLIC ART: SECONDARY PREFERENCE



Special Transportation Area Plan and
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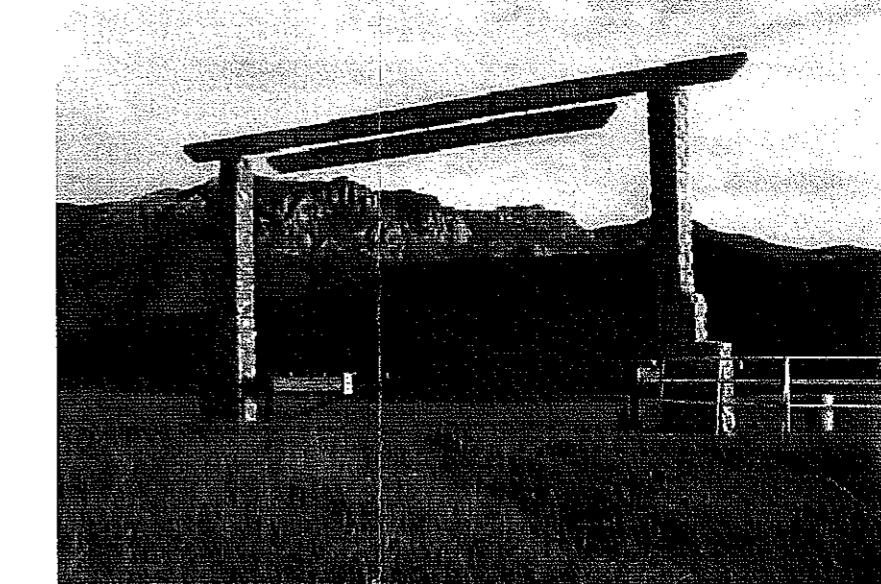
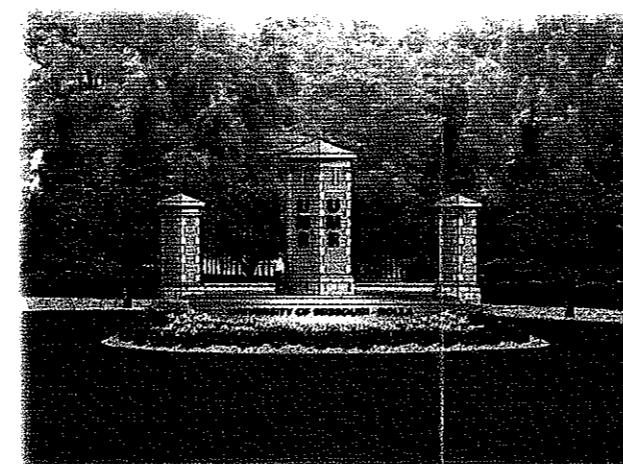
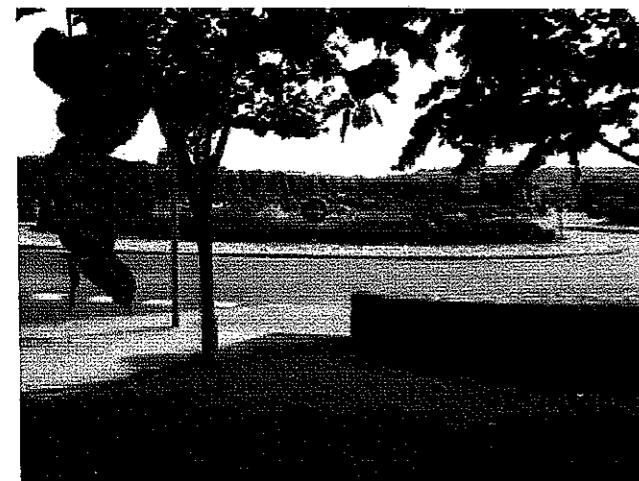
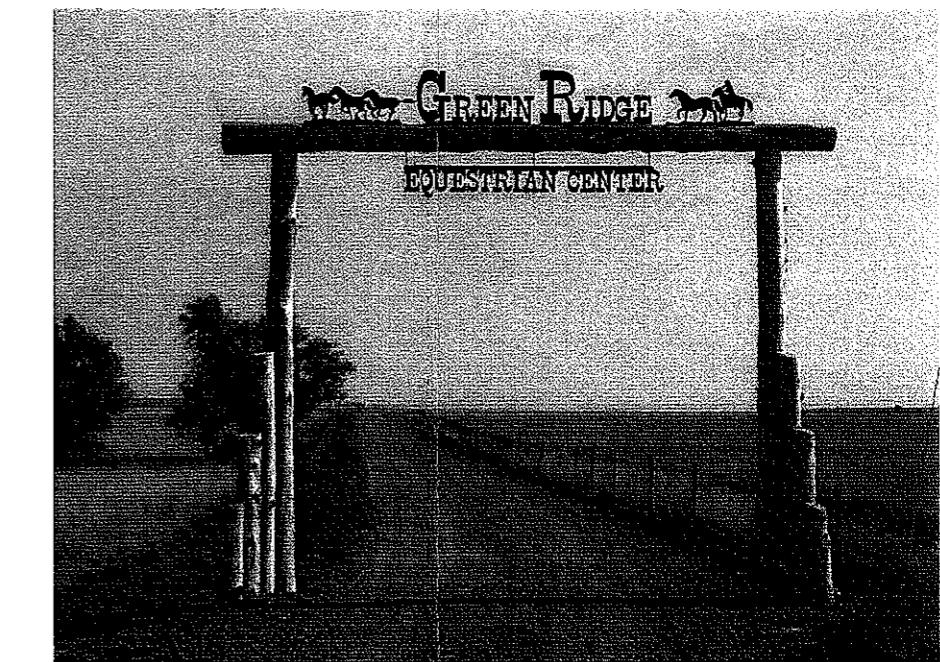
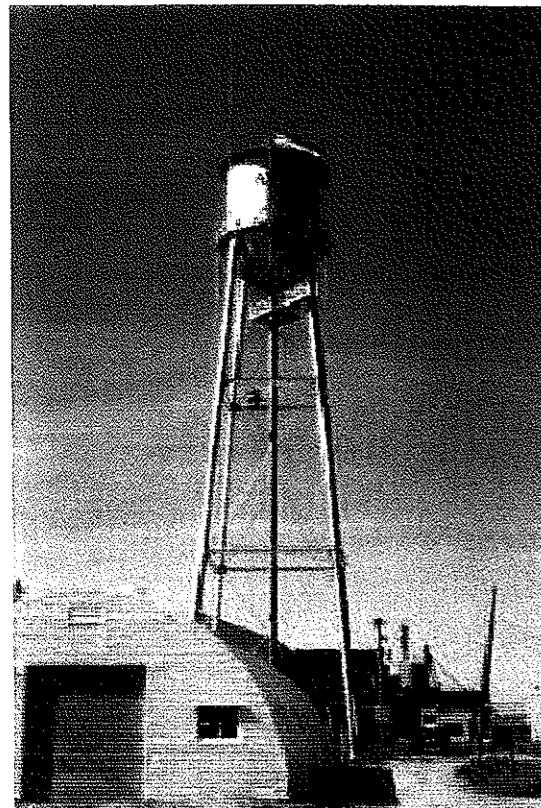
LOGO OPTIONS



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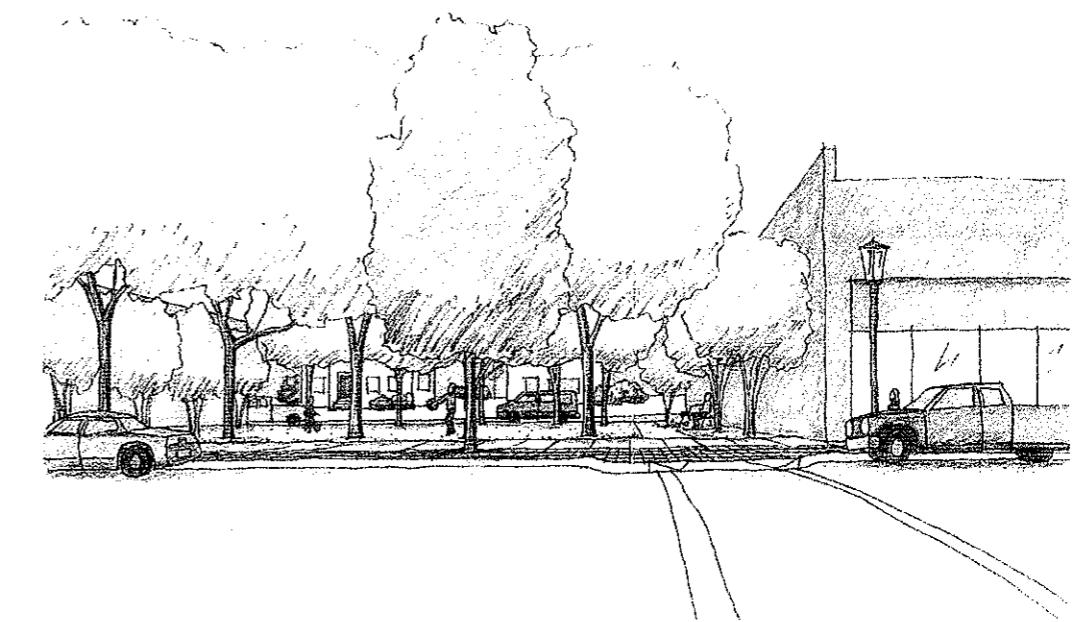
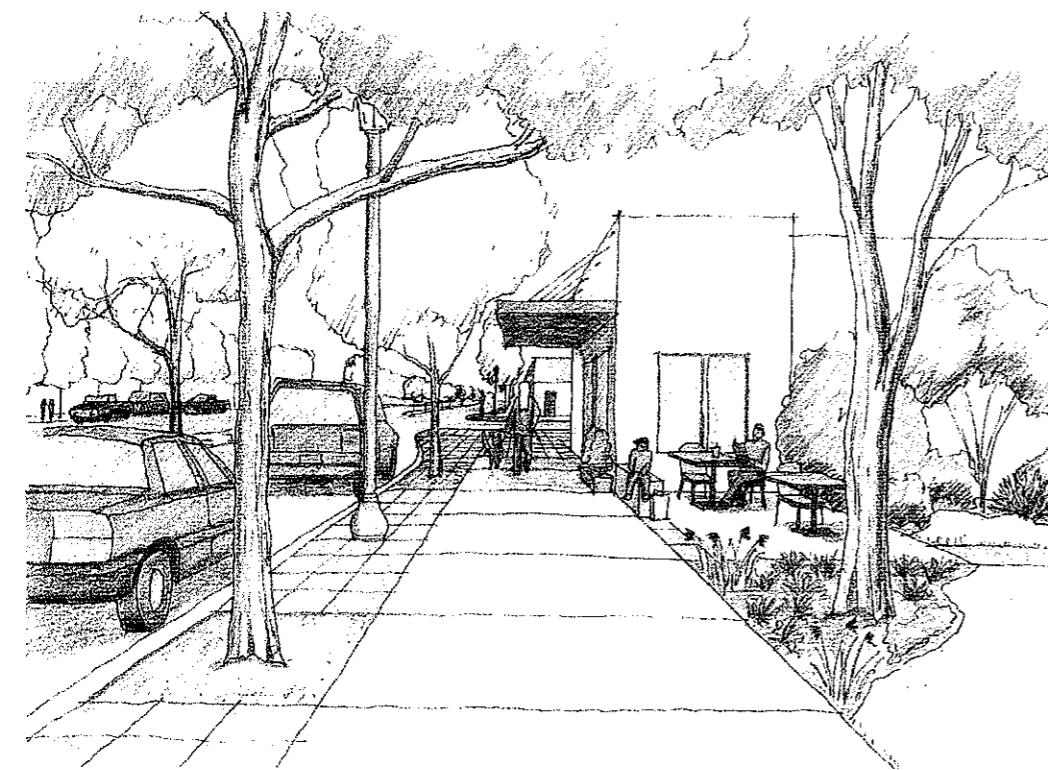
GATEWAY EXAMPLES



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Transportation System Plan Update



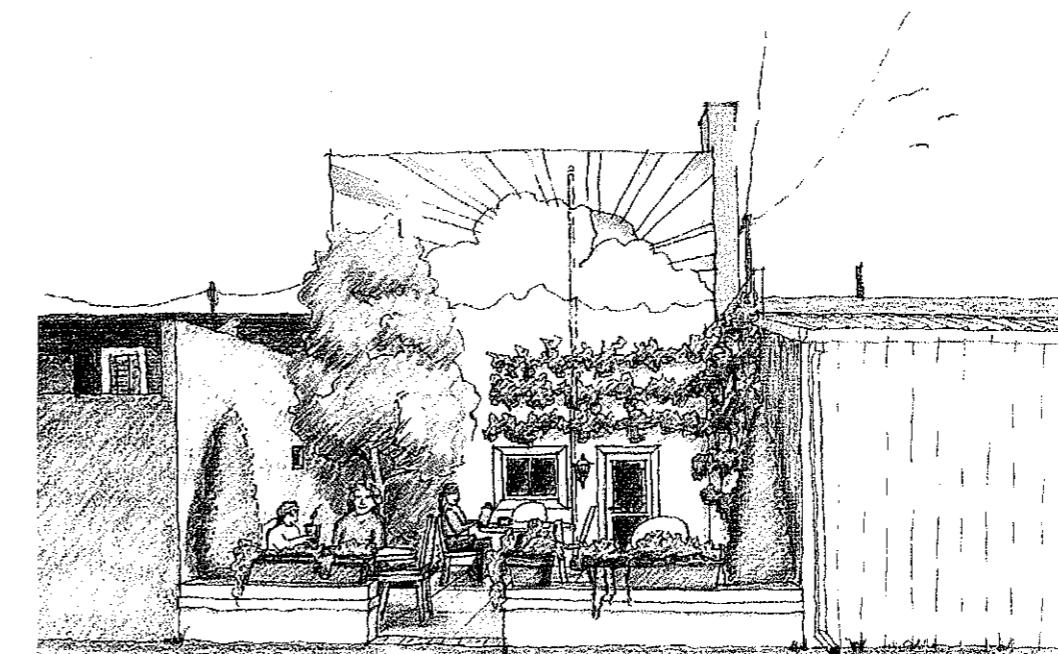
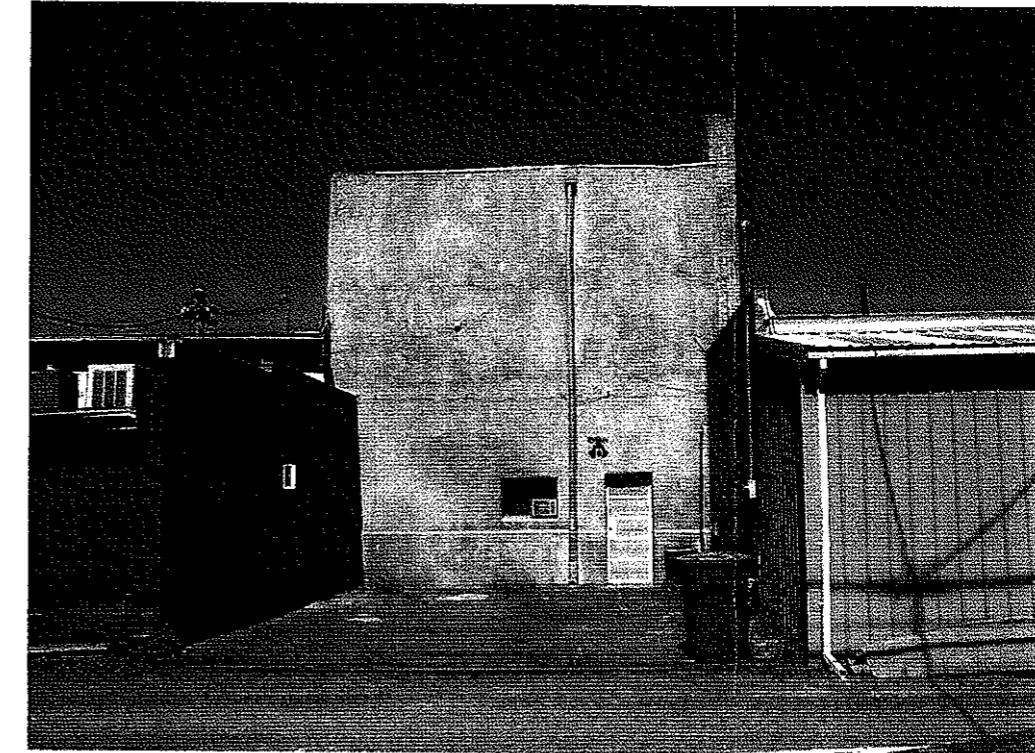
STREET IMPROVEMENT PERSPECTIVES



**Special Transportation Area Plan and
Transportation System Plan Update**



BUILDING FAÇADE AND ALLEYWAY IMPROVEMENT PERSPECTIVES



Special Transportation Area Plan and
Transportation System Plan Update



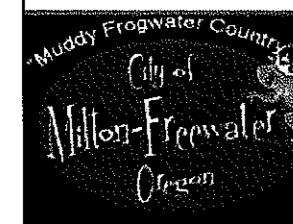
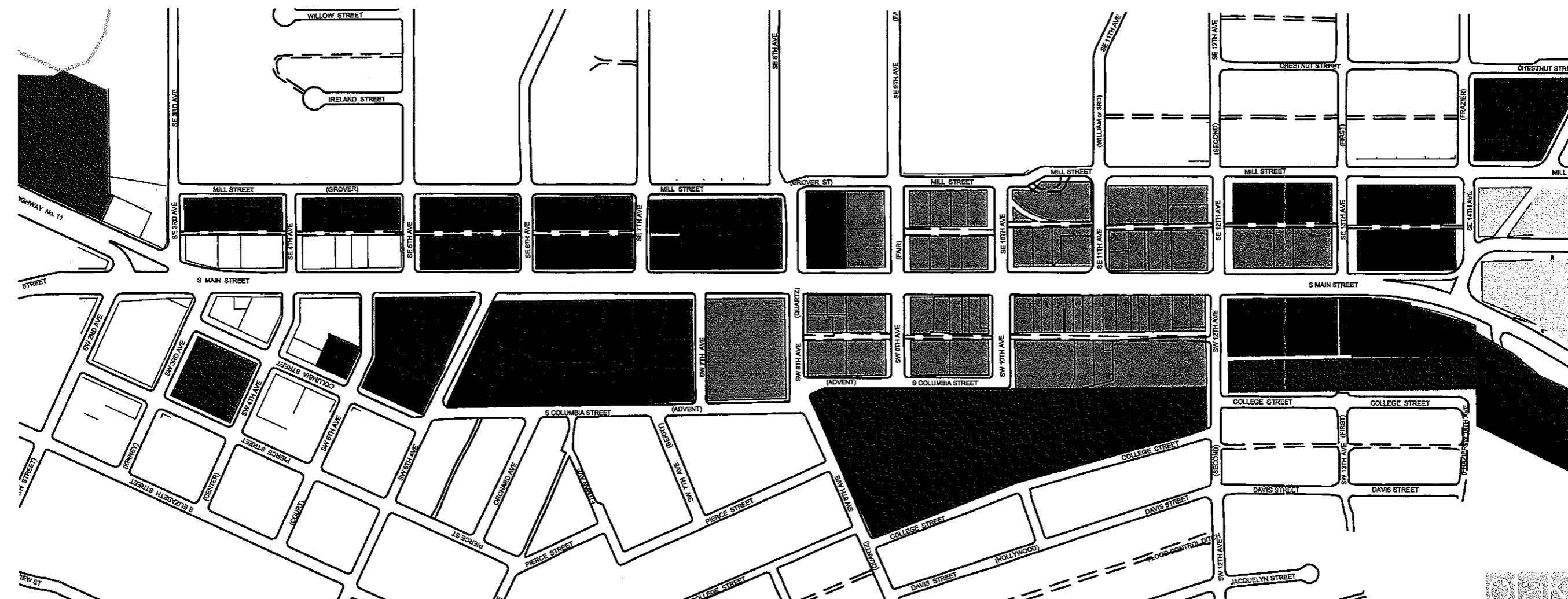
PROPOSED ZONING

EXISTING

R-2	C-1
R-3	C-2

NEW

CV	CIVIC OVERLAY DISTRICT
DB	DOWNTOWN BUSINESS
MSR	MAIN STREET RESIDENTIAL



Special Transportation Area Plan and
Transportation System Plan Update





KITTELSON & ASSOCIATES, INC.

TRANSPORTATION PLANNING/TRAFFIC ENGINEERING

610 SW ALDER, SUITE 700 • PORTLAND, OR 97205 • (503) 228-5230 • FAX (503) 273-8169

TECHNICAL MEMORANDUM

Milton Freewater STA and TSP Update Traffic Analysis

Date: June 2, 2005

Project #: 6743

To: Kay Van Sickle, OTAK
From: Elizabeth Wemple, P.E., Sagar Onta, P.E.
cc: Cheryl Jarvis-Smith, ODOT

INTRODUCTION

As a sub-consultant to OTAK, Kittelson & Associates, Inc. (KAI) conducted the traffic operations analysis for the update of the City of Milton-Freewater Transportation System Plan (TSP) to reflect the development of the City's Special Transportation Area (STA). The STA has been adopted by the Oregon Transportation Commission and extends from SE 14th Avenue at the south end of downtown to SW 2nd Avenue at the north end of downtown on ORE 11. The goals of the STA are to increase the vibrancy of Downtown Milton-Freewater, reduce vehicle travel speeds and encourage non-auto modes of transportation.

To assist the project team, KAI conducted an inventory of transportation related infrastructure and an analysis of existing transportation conditions. This analysis served as a foundation for developing and analyzing alternative transportation system improvements. KAI has also conducted an analysis of future year conditions in order to assess the impact of possible modifications to ORE 11 through downtown Milton-Freewater.

RECOMMENDATIONS

Based on the findings of the traffic operations analysis, it will be possible to convert ORE 11 to a three-lane facility from the vicinity of SW 8th Avenue to the vicinity of SW 14th Avenue. Under existing a.m. and p.m. peak hour conditions, if this configuration were implemented all study intersections would meet the ODOT volume-to-capacity ratio standard for Special Transportation Areas. By the forecast year of 2025 a.m. and p.m. peak hour conditions, all study intersections will continue to meet ODOT volume-to-capacity ratio standard.

EXISTING CONDITIONS

Transportation Facilities

As shown in Figure 1, the study area includes ORE 11 (i.e. S Main Street) from SW/SE 14th Avenue to SW/SE 2nd Avenue, Mill Street from SE 3rd Avenue to SE 14th Avenue, and Columbia Street from SW 10th Avenue to SE 3rd Avenue. Figure 2 shows intersection control within the study area. There are no bike lanes within the project study area.

Table 1 shows the functional classification and cross-sectional characteristics of the roadways within study area roadways. The classifications reported are those from the 1999 TSP (David Evans & Associates, Inc. 1999) and the 1999 Oregon Highway Plan (OHP).

Table 1 Existing Roadway Characteristics

Roadway	Juris-diction	Classification	Cross-Section	Roadway Width	Posted Speed	Bike Lanes	Sidewalk	On-Street Parking
OR 11 – S Main Street	ODOT	Statewide Highway – ODOT	4 Lanes	65' – 70'	25 mph	No	Yes	Yes
		Arterial – City	4 Lanes	65' – 70'	25 mph	No	Yes	Yes
SE 14 th – 15 th Ave	City	Collector – City	2 Lanes	35' – 40'	25 mph	No	Yes	Yes
SE 9 th Avenue	City	Collector – City	2 Lanes	40'	25 mph	No	Yes	Yes
Columbia Street	City	Local Street – City	3 Lanes	32' – 36'	25 mph	No	Yes	Yes
Mill Street	City	Local Street – City	2 Lanes	30'	25 mph	No	Yes	Yes
Other Streets	City	Local Street – City	2 Lanes	30' – 40'	25 mph	No	Yes	Yes

Vehicle Operations

The Oregon Department of Transportation (ODOT) collected intersection turning movement counts (14-hour data) in November 2004, December 2004 and January 2005. The raw traffic volumes were balanced across the project study intersections to better reflect anticipated gains and/or losses in traffic as traffic flows from one end of Downtown to the other.

Per ODOT standards, this memo presents the analysis of “30th highest hour traffic volumes”. On an annual basis, hourly traffic counts will vary by month of the year, and week and day of the month. ODOT has historical data and seasonal factors for the majority of the roads throughout the state to convert a traffic count to its equivalent 30th highest hour volume. *Appendix A contains the raw, seasonally adjusted traffic counts and balancing analysis information.*

Figures 3 and 4 show the seasonally adjusted peak hour traffic volumes and resulting level of service for the weekday a.m. and p.m. peak hours, respectively. The level of service analysis was conducted according to 2000 Highway Capacity Manual procedures. The analysis was conducted based on a saturation flow rate of 1,800 vehicles per hour, as required by ODOT. ORE 11 within the study area is classified as a Statewide Highway in the 1999 OHP and as a STA according to the OTC. Accordingly, the volume to capacity ratio standard of a minor street approach to an

unsignalized intersection is equivalent to a district highway/local street standard of 0.95. At signalized intersections the volume to capacity ratio requirement for statewide highways within an STA is 0.90. *Appendix B includes the existing conditions level of service analysis calculation sheets.*

As shown in Figures 3 and 4, under the existing four-lane cross-section of ORE 11 from SW 14th Avenue to SW 2nd Avenue, all of the study intersection operate acceptably during both the weekday a.m. and p.m. peak hour periods. None of the study intersections were found to operate at high volume to capacity ratios.

Parking Supply and Demand

On-Street Parking

On-street parking supply by type, utilization, and block face was inventoried on Thursday, November 11, 2004, between 11:00 a.m. and 1:00 p.m. Figure 5 shows a summary of the parking supply inventory. In addition, this figure shows the utilization of these parking spaces on this typical weekday. Marked parallel parking spaces were observed between SW 8th Avenue and SW 12th Avenue. All other parking spaces are not marked, but available for parking.

For most Downtowns, parking demand is the highest during this mid-day period or just after lunchtime in the early afternoon. During the data collection period the highest parking demand was observed between SW 10th Avenue and SW 12th Avenue on ORE 11. The higher density of commercial establishments in the area contributes to the high parking demand. Otherwise on-street parking in downtown Milton-Freewater was well under capacity.

Off-Street Parking

Off-street parking data were collected on Friday, March 4, 2005, between 11:00 a.m. and 1:00 p.m. Figure 5 also shows the location of off-street public surface parking areas available in the study corridor. There are four off-street parking lots in the corridor. The northern most lot is located on the west side of ORE 11 between SW 5th Avenue and SE 5th Avenue, adjacent to an existing church. The lot is able to accommodate approximately 20 parking. The second off-street parking lot is located on the northeast quadrant of SE 7th Avenue/ORE 11 intersection and is able to accommodate approximately 10 parking spaces. The third public surface parking is located behind the City Hall and the Library between SW 7th Avenue and SW 8th Avenue, and is able to accommodate approximately 40 parking spaces. The old industrial mill site between SE 10th Avenue and SE 11th Avenue on SE Mill Street is the fourth off-street surface parking lot that can accommodate approximately 60 parking spaces. All the off-street parking spaces were well under utilized when the data was collected except the lot behind the City Hall, which was approximately 50% full.

The data collection effort also revealed several private retail/commercial businesses in the study area with dedicated parking spaces for the customer and employees. The majority of these lots are on the north end of the corridor, from SW 2nd Avenue to SW 6th Avenue, and a few others in the rest of town. A total of approximately 180 off-street business parking spaces are available in the study area. Of those, 130 off-street business parking spaces are located between SW 2nd

Avenue and SW 6th Avenue, 45 spaces are located between SE 7th Avenue and SE 8th Avenue and approximately 5 off-street business parking spaces are located from SE 8th Avenue to SE 14th Avenue. In the future, if parking demand increased dramatically, it is possible that the private business parking spaces could be integrated into the publicly available supply as part of an overall parking management plan for downtown Milton-Freewater.

Access

ODOT has access management policies to preserve mobility on State facilities. According to the 1999 Oregon Highway Plan, Oregon 11 through Downtown Milton-Freewater is classified as a statewide highway facility. Therefore according to ODOT access management policies there can be public access points (streets) every 550 feet. Private accesses points are discouraged.

According to the 1999 OHP, if a section of statewide highway is designated as Special Transportation Area (STA), as adopted for ORE 11 between SW 14th and SW 2nd, "direct street connections and shared on-street parking are encouraged" and "local auto, pedestrian, bicycle and transit movements to the area are generally given more importance than the through movement of traffic". In case of public roadway spacing, the existing city block or the city block spacing as identified in the local comprehensive plan is an accepted norm. For private driveways, minimum driveway spacing of 175 feet, measured from center to center on the same side of the roadway, is allowed.

Figure 6 shows the location of the existing accesses and their spacing in Downtown Milton-Freewater. As shown in the figure, majority of the existing accesses do not meet the ODOT access spacing standard for a STA. Nonetheless, due to the low traffic volume in the area, and historically low number of crashes, the existing accesses are anticipated to operate safely and acceptably.

As re-development within the STA occurs, the City of Milton-Freewater should plan to manage access points (i.e. consolidate and/or eliminate access points) to ORE 11 so that the ODOT STA access spacing standard is achieved. Optional access management strategies that could be considered with property redevelopment include:

- Eliminating multiple access points to one property;
- Implementing one shared access point to two or more properties;
- Modifying zoning requirements to avoid the need for on-site parking or circulation;
- Consolidating multiple properties to single lots for simplified access requirements; or
- Providing development benefits to property owners who eliminate their access point to ORE 11

Transit

There is no bus service in Downtown Milton-Freewater or service connecting Milton-Freewater and Walla Walla, Washington. One taxi service is available providing door-to-door transportation on request. Greyhound has recently discontinued its service in the area. There is one transit shelter on Ore 11 between SW 8th Avenue and SW 9th Avenue in Downtown Milton-Freewater, which is not in use.

Pedestrian and Bicycle Facilities

There are sidewalks on almost all streets in the study area except on the east side of Columbia Street from SW 6th Avenue to SW 7th Avenue. On SE 6th Avenue, partial sidewalk is present from S Main Street to the east end of the road.

Milton-Freewater staff indicated that most pedestrians cross ORE 11 at SW 8th, 9th, 10th and 12th Avenues in the downtown. The primary pedestrian generators in the downtown include: the library at SW 8th, Central Middle School on SW 2nd, and Grove Elementary School on SE 15th Avenue, and several churches along ORE 11 and in close proximity to the study area.

It is likely that the residents around Columbia Heights use the school crossing on SW 12th Avenue to travel to and from Grove Elementary School.

There are no striped bicycle lanes in Downtown Milton-Freewater.

Pedestrian and bicycle facilities should be integrated into Downtown design concepts to encourage people to walk or bike to the many possible activity areas (e.g. library, City Hall, Church, schools, parks, etc.) in Downtown.

Crash Conditions

The crash history of ORE 11 from SW 14th Avenue to SW 2nd Avenue was reviewed in an effort to identify potential intersection safety issues. Crash records were obtained from the Oregon Department of Transportation's Transportation Data Section for the five-year period from January 1, 1999 through December 31, 2003. Table 2 summarizes details of the crash history at the project study intersections.

Overall, between 1999 and 2003 there were 18 reported crashes on the corridor. The majority of crashes occurred at the intersections of ORE 11/ SW 2nd Avenue (four crashes in the five-year period), ORE 11/SW 4th (four crashes in the five-year period) Avenue and ORE 11/SW 12th Avenue (three crashes in the five-year period). There were no fatal crashes identified in the ODOT data set. The crashes are evenly distributed between those causing injury and those causing only property damage. Based on the review of the crash data, no reoccurring crash patterns were observed in the data and no safety concerns were identified for the study area. In addition, the crash rates for each intersection (crashes per million entering vehicles) are also shown in Table 2. These intersection crash rates are relatively low, and reveal no apparent problems.

For segments, ODOT maintains statewide data documenting crash rates per million vehicle miles by segment type. This data shows that for rural non-freeways the 2003 statewide average crash rate was 1.40 crashes per million vehicle miles. ORE 11 from SW 14th Avenue to SW 2nd Avenue is approximately 1.04 miles long; average daily traffic along this segment is approximately 11,000 vehicles per day. Given that there were 18 crashes between 1999 and 2003, the calculated crash rate is 0.86 crashes per million vehicle miles. This is below the statewide average and again does not reveal any high crash locations. *Appendix C includes the crash data provided by ODOT.*

Table 2 Summary of Intersection Crashes (1999-2003)

Intersection	Total	Collision Type				Severity			Peak-hour Volume	Crash Rate ³
		Rear End	Turning	Angle	Other ¹	PDO ²	Injury	Fatality		
ORE 11/SW 14 th Ave	1	1				1			1,090	0.05
ORE 11/SW 13 th Ave	0								1,175	0.00
ORE 11/SW 12 th Ave	3	1	2			2	1		1,235	0.13
ORE 11/SW 11 th Ave	1		1			1			1,235	0.04
ORE 11/SW 10 th Ave	1	1				1			1,250	0.04
ORE 11/SW 7 th Ave	1		1				1		1,220	0.04
ORE 11/SW 5 th Ave	2	1		1		1	1		1,300	0.08
ORE 11/SW 4 th Ave	4	2	2			1	3		1,305	0.17
ORE 11/SW 3 rd Ave	1		1				1		1,325	0.04
ORE 11/SW 2 nd Ave	4	2	1		1	2	2		1,600	0.14
Total	18	8	8	1	1	9	9	0		

¹ Other collision types include a collision with an animal, fixed object, mechanical failure, and other single-vehicle non-collisions.

² PDO represents "property damage only."

³ Crashes per million entering vehicles.

FUTURE CONDITIONS – NO CHANGE TO THE TRANSPORTATION SYSTEM

Traffic Volumes

The 2004 traffic volumes were forecast to 2025 conditions assuming a 1.6-percent per year growth factor. The factor was developed based on the review of the data obtained from the ODOT's permanent Automatic Traffic Recorder, Milton 30-021, located on ORE 11, 0.9 miles south of the Oregon-Washington state line (MP 34.46), ODOT Traffic Volume Tables, and the Milton-Freewater Transportation System Plan (TSP). This growth rate was compared to the traffic volumes and growth rates used in the 1999 TSP and the traffic volumes that were recently obtained by ODOT for this project. ODOT Transportation Planning Analysis Unit (TPAU) Staff have reviewed and approved this growth factor.

Vehicle Operations

Assuming no improvements to the existing transportation system in Downtown Milton-Freewater, forecast year 2025 traffic operations are shown in Figures 7 and 8 for weekday a.m. and p.m. peak hour periods, respectively. As shown in the figures, all of the intersections meet ODOT STA volume-to-capacity ratio standards. *See Appendix D.*

FUTURE CONDITIONS - OPTIONAL MODIFICATIONS TO ORE 11 THROUGH DOWNTOWN MILTON-FREEWATER

Recognizing that a goal of this project is to develop a transportation system that supports a "main-street" concept for downtown, three optional modifications to ORE 11 were identified:

- Convert ORE 11 to a three-lane facility;
- Maintain ORE 11 as a four-lane facility and provide curb extensions or median island at key intersections; or
- Change the alignment of ORE 11 at SW 14th and SW 2nd Avenues.

The following sections describe the alternatives and results of the transportation operation analysis. The options were considered separately, though potentially all could be integrated into the future plan.

As requested by ODOT, the results of the traffic operations analysis have been compared to standards outlined in the Oregon Highway Design Manual (HDM). ORE 11 in this area is classified as a Statewide Highway, and as a result of this project is becoming a Special Transportation Area. As outlined in Table 10-1 of the HDM, the volume to capacity ratio standard is at or less than 0.90 for the mainline. Further, according to Action 1F.1 bullet two of the Oregon Highway Plan, the stop-controlled approaches to the roadway must operate according to the District/Local Interest Road classification. Again, according to Table 10-1 of the Highway Design Manual, the stop-controlled approaches to the study intersections must operate at or less than a volume to capacity ratio of 0.95

Three-Lane Roadway Alternative

Two of the primary goals of the project are to reduce vehicular speeds and encourage non-motorized transportation in Downtown Milton-Freewater. Subject to many considerations, converting ORE 11 to a three-lane facility would provide more public space for pedestrian, bicycle and aesthetic use, and could slow travel speeds through downtown. Currently, ORE 11 is 65 feet wide in the study area. If the roadway were converted to a three-lane cross-section with two 12-foot travel lanes and one 14-foot center left-turn lane, approximately 27 feet would be available to accommodate 8-foot on-street parking and 5-foot bike lanes on both sides of the street.

The following documents the results of the traffic operations analysis assuming that ORE 11 from SW 14th to SW 2nd Avenue was converted to a three-lane facility. This analysis was conducted as a hypothetical situation in order to test the operational impacts of the conversion.

2004 Vehicle Operations as Three-Lane Roadway

Figures 9 and 10 show the near-term operational characteristics of the study intersection under a three-lane scenario. As shown in the figures, in the near term all the intersection would continue to operate under capacity during both the weekday a.m. and p.m. peak hour periods. See Appendix E.

2025 Vehicle Operations as Three-Lane Roadway

Figures 11 and 12 show the forecast year 2025 a.m. and p.m. peak hour traffic operations assuming ORE 11 through downtown Milton-Freewater were converted to a three-lane facility. As shown in the figures:

- During the weekday a.m. peak hour:
 - All intersections are forecast to operate according to ODOT HDM standards except the intersection of ORE 11/SW 14th Avenue. This intersection is forecast to operate with an a.m. peak hour v/c ratio of 0.95 – just meeting the ODOT standard for volume to capacity ratios within an STA. The three-lane alternative will include providing a separate left and right-turn lane at the westbound approach to the intersection. This will minimize vehicle queuing and delay at the intersection.
- During the weekday p.m. peak hour:
 - All intersections are forecast to operate acceptably except the intersections of SW 8th Avenue and SW 7th Avenue at ORE 11. The eastbound left turn movements will operate at-capacity during the weekday p.m. peak hour. Traffic signal warrants are not met at these locations, and with alternate routes available it is anticipated that motorists will divert to other intersections along ORE 11 to avoid delay. Modifying the alternative to allow two-stage gap acceptance would mitigate this condition.

These results reflect a conservative analysis that includes a relatively low peak hour factor based on existing conditions; seasonally adjusted volumes that are higher than currently observed peak hours, and conservatively balanced traffic volumes. Therefore it is likely that the intersections will operate better than reported here. Further with the downtown grid system, drivers will have options to use alternate routes to avoid delay if desired. Given this it is likely that if in the future drivers experience delay during peak hours, it will be for short periods of time. There will not likely be capacity issues causing excessive queuing. *See Appendix F.*

Advantages and Disadvantages

Advantages

A three-lane section through Downtown Milton-Freewater would:

- Reduce the travel speed in the area due to lower total pavement width;
- Enhance the safety of the roadway due to lower operational speed;
- Provide a more attractive cycling environment due to lower operational speed; and
- Provide additional public space for wider sidewalks and streetscape features.

Disadvantages

Potential disadvantages of converting to ORE 11 to a three-lane roadway include:

- Due to the reduction in speed, there is a potential for the traffic on ORE 11 to divert to parallel roadways in the area.
- There may be increases in traffic noise in the vicinity of the transition to the three-lane facility as motorists apply their brakes.

Curb Extensions and Median Islands Alternative

An alternative to changing ORE 11 from four lanes to three lanes would be maintaining the corridor cross-section and providing traffic calming features throughout the corridor. These features would decrease the crossing distance for pedestrians and provide visual cues for motorists to travel at slower speeds.

The most common method is to provide curb extensions to shadow on street parking. Alternatively, the travel lanes can be transitioned such that a median refuge island is created in the middle of the roadway for the pedestrians to use when crossing the roadway.

Vehicle Operations

Implementing traffic calming features would not impact vehicle capacity and therefore the system would operate as forecast in the 2025 no-build condition.

Advantages and Disadvantages

Advantages

The advantages of curb extenstions are:

- Enhance pedestrian environment
- Provide additional sidewalk space
- Inexpensive to implement
- Negligible impact on vehicular traffic operation

The advantages of median islands are:

- Provide refuge for pedestrian while crossing the roadway
- Relatively inexpensive to implement
- Negligible impact on vehicular traffic operation

Disadvantages

The disadvantages of curb extensions are:

- Will show less speed reduction benefits than changing the cross-section from a four-lane to three-lane road.
- Slight decrease in total parking supply.

The disadvantages of median islands are:

- Design of the roadway transition would be critical for good operation, and to ensure that vehicles do not drive over the median islands.
- Sidewalk space will not increase to enhance pedestrian environment.

Geometric Considerations Alternatives

The focus of this project has been on re-vitalizing the downtown core of Milton-Freewater – Ore 11 from SE 12th Avenue to SE 6th Avenue. As success is achieved, the City should consider possible additional gateway projects to further enhance the vibrancy of Downtown Milton-Freewater. For future reference, optional concepts are described below. Further detailed analysis of these concepts would be required prior to implementation.

ORE 11/SW 14th Avenue Intersection

The intersection of ORE 11/SW 14th Avenue serves as a gateway to Downtown Milton-Freewater. There is a relatively steep downgrade as ORE 11 approaches this intersection from the south. Just south of the intersection, the posted speed limit changes from 45 miles per hour to 25 miles per hour – although the roadway cross-section does not support this travel speed.

Modifying the intersection of SW 14th Avenue/ORE 11 to include either a roundabout, subject to right of way availability, or by re-aligning the horizontal curve to slow travel speeds are optional methods for reducing travel speeds in this area. Either option could serve as a gateway project for the community.

ORE 11/SW 2nd Avenue Intersection

This intersection also serves as a gateway to Downtown Milton-Freewater. The high skew and multiple streets coming together at this location require complex lane striping and signal phasing. As Milton-Freewater grows, possible modifications at this intersection should be considered to simplify traffic operations. Possible improvements include a modern roundabout, subject to right of way availability, or possible closure of streets and realignment of ORE 11.

RECOMMENDED PLAN

The recommended plan includes consolidating the number and types of land use zones within the STA. As an outcome, there will be more clarity and consistency in the types of development that will occur within the STA, and therefore the City will be more readily able to achieve their goal of a vibrant downtown. Further, the development allowed by the new zoning is of a density and nature consistent with current plans for growth in Downtown; therefore the annual growth factor of 1.6 percent per year that has been applied to the existing traffic volumes yields traffic volumes consistent with the proposed changes in zoning.

Figure 13 shows a schematic of the recommended future lane configurations on ORE 11 from SE 14th Avenue to SW 2nd Avenue. As shown ORE 11 would be converted to a three-lane facility from approximately SE 14th Avenue to SE 8th Avenue. North of SE 8th Avenue ORE 11 would remain a four-lane facility.

2004 Traffic Operations

Figures 14 and 15 show the forecast existing conditions a.m. and p.m. peak hour operating conditions under this plan. As shown all of the intersections will operate according to ODOT HDM standards for a STA. *See Appendix G.*

Figures 16 and 17 depict the forecast 2025 a.m. and p.m. peak hour traffic operating conditions assuming implementation of the recommended plan. In the future, with this plan implemented, it is forecast that all intersections will operate according to HDM standards. The intersection of SW 8th Avenue/ORE 11 has been modeled assuming ORE 11 is designed allowing for two-stage gap acceptance. *See Appendix H.*

Parking Conditions

The recommended plan maintains most on-street parking on ORE 11. Some parking spaces will be eliminated with construction of curb extensions. Currently there is ample parking in the study area. At this time, the City should not plan any change in parking management. As redevelopment occurs, City Staff should monitor on- and off-street parking utilization in Downtown to ensure that parking management policies are not required.

In the event that on-street parking utilization increases and exceeds 85-percent, parking management policies should be established to provide additional supply. While a detailed parking supply, demand and utilization analysis will be required if this occurs, possible parking management strategies include:

- Initiating and enforcing different parking duration limits in different areas of Downtown;
- Installing parking meters;
- Initiating neighborhood parking permit programs;
- Working with property owners to make private parking available to the public;
- Developing a city owned at-grade parking area.

Access Management

Under existing conditions, the spacing of access points to and from ORE 11 within the STA largely does not meet ODOT STA access spacing standards. As properties along the corridor redevelop, new properties are developed, or the City implements the recommended plan, the City will need to implement access management programs and policies to ultimately comply with ODOT standards. Possible access management strategies include:

- Eliminating multiple access points to one property;
- Implementing one shared access point to two or more properties;
- Modifying zoning requirements to avoid the need for on-site parking or circulation;

- Consolidating multiple properties to single lots for simplified access requirements; or
- Providing development benefits to property owners who eliminate their access point to ORE 11.

Queuing Conditions

Vehicle queuing conditions for the no-build and recommended alternative were analyzed and are summarized in Table 3. As shown in the table under existing conditions, p.m. peak hour vehicle queuing at the unsignalized intersections is limited to one to three vehicles at all locations. PM Peak hour vehicle queuing is longer at ORE 11/SW 2nd Avenue due to the traffic signal. However the access management at the westbound approach to this intersection allows for the vehicle queuing to occur without any other vehicle conflicts.

If the recommended plan were implemented under existing weekday p.m. peak hour traffic volumes, vehicle queuing at the unsignalized intersections with ORE 11 would change only at the ORE 11/8th Avenue intersection. Even at ORE11/8th Avenue, the queuing increased only from 25 to 50 feet.

Under the forecast 2025 *no-build* p.m. peak hour conditions, queues will be approximately twice the length of queues under existing conditions. However, queues are limited to no more than four cars for all unsignalized intersections. For ORE 11/SW 2nd Ave, PM Peak hour 95th percentile queues of around 200 feet are projected, and this is within the capacity of existing intersection storage.

With the *recommended plan implemented*, forecast 2025 p.m. peak hour vehicle queues will increase somewhat over the no-build case, but remain at or under four cars for all unsignalized intersections in the study area. Further, relative to the no-build conditions it is forecast the recommended plan would increase minor-street queuing by at most two vehicles (ORE 11/SW 7th). Because the recommended plan allows for two-stage gap acceptance at ORE 11/SW 8th Avenue, the forecast vehicle queue at this location would decrease relative to the forecast *no-build* condition. *The results of the analysis are included in Appendix I.*

Table 3 Vehicle Queuing Conditions

	2004 PM, 4-lanes		2004 PM Recommended Plan		2025 PM, 4-lanes		2025 PM Recommended Plan	
	Critical Minor Street Movement	Queue Length ¹	Critical Minor Street Movement	Queue Length	Critical Minor Street Movement	Queue Length	Critical Minor Street Movement	Queue Length
ORE 11 / SW 14th Ave.	WB RT	50	WB Shared	50	WB RT	100	WB Shared	100
ORE 11 / SW 12th Ave.	EB Shared	25	EB Shared	25	EB Shared	50	EB Shared	75
ORE 11 / SW 10th Ave.	EB Shared	25	EB Shared	50	EB Shared	75	EB Shared	100
ORE 11 / SW 9th Ave.	WB Shared	25	WB Shared	25	EB Shared	25	EB Shared	50
ORE 11 / SW 8th Ave.	EB Shared	50	EB Shared	50	EB Shared	100	EB Shared	50
ORE 11 / SW 7th Ave.	EB Shared	25	EB Shared	25	EB Shared	50	EB Shared	100
ORE 11 / SW 4th Ave.	WB Shared	25	WB Shared	25	EB Shared	25	EB Shared	25
ORE 11 / SW 2nd Ave.	WB Shared	150	WB LT	150	WB Shared	200	WB LT	200

¹ Queue lengths shown are in feet, and represent the 95th percentile length. 25 feet equals one car length.

Highway Segment Designations and Objectives (1999 Oregon Highway Plan, 2004 amended Policy 1B)

As Milton-Freewater proceeds with implementing the STA on ORE 11 between SW 14th and SW 2nd, the following material from the 1999 Oregon Highway Plan, 2004 amended Policy 1B should serve as a guide:

A Special Transportation Area (STA) is a designated district of compact development located on a state highway within an urban growth boundary in which the need for appropriate local access outweighs the considerations of highway mobility except on designated Freight Highways where through highway mobility has greater importance.

While traffic moves through an STA and automobiles may play an important role in accessing an STA, convenience of movement within an STA is focused upon pedestrian, bicycle and transit modes. STAs look like traditional "Main Streets" and are generally located on both sides of a state highway. The primary objective of an STA is to provide access to and circulation amongst community activities, businesses and residences and to accommodate pedestrian, bicycle and transit movement along and across the highway. Direct street connections and shared on-street parking are encouraged. Local auto, pedestrian, bicycle and transit

movements to the area are generally as important as the through movement of traffic. Traffic speeds are slow, generally 25 miles per hour or less.

Location. STAs can be located within urban growth boundaries on District, Regional and Statewide Highways but not on Interstates or Expressways. An existing central business or commercial district in an unincorporated community as defined by OAR 660-022-0010(10) that meets the definition of an STA may also be classified as an STA. Larger communities may have more than one STA.

While STAs may include some properties that are currently developed for auto-dependent uses (e.g., drive thru restaurants, gas stations, car washes), areas where the predominant land use pattern is auto-dependent uses are generally not appropriate for STA designation. STAs that include properties developed for auto-dependent uses should include planning and zoning that provides for redevelopment of the properties over time to uses consistent with STA implementation.

Planning and Development Guidance for STAs. STAs should be planned and developed to reflect the following kinds of characteristics:

- Buildings spaced close together and located adjacent to the street with little or no setback;
- Sidewalks with ample width located adjacent to the highway and the buildings;
- People who arrive by car or transit find it convenient to walk from place to place within the area;
- On-street parking, structured parking, or shared, general purpose parking lots which are located behind or to the side of buildings;
- Streets designed with a pedestrian orientation for the ease of crossing by pedestrians;
- Public road connections that correspond to the existing city block; private driveways directly accessing the highway are discouraged;
- Adjacent land uses that provide for compact, mixed-use development with buildings oriented to the street;
- A well-developed parallel and interconnected street network to facilitate local automobile, bicycle, transit and pedestrian circulation except where topography severely constrains the potential for street connections;
- Speeds that typically do not exceed 25 miles per hour;
- Plans and provisions for infill and redevelopment;

- Provision for well-developed transit stops including van/bus stops, bicycle and pedestrian facilities, and including street amenities that support these modes.

The Oregon Highway Plan recognizes that a significant amount of coordination and collaboration will occur between ODOT and Milton-Freewater in order to implement and achieve the goals of the STA.

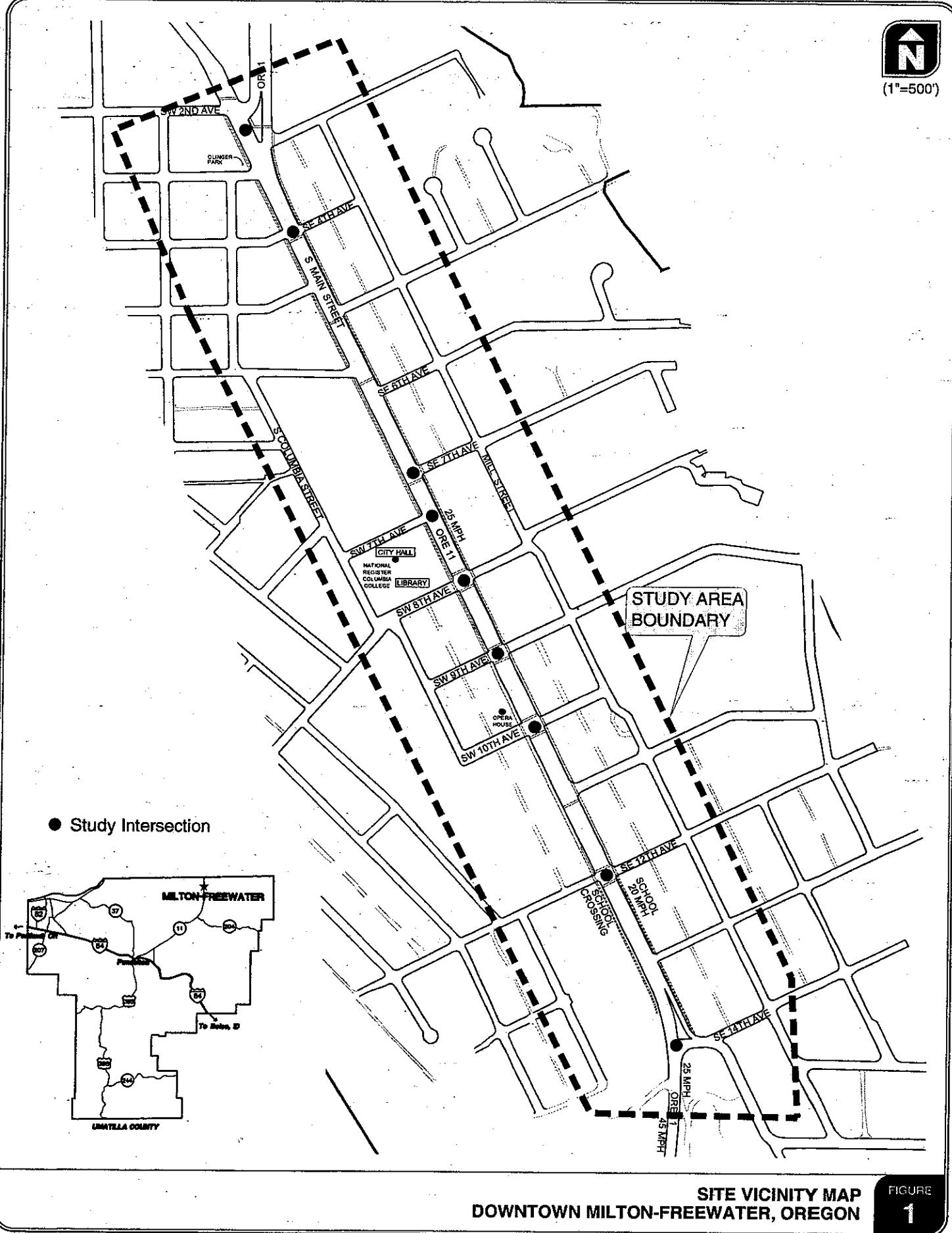
General Circulation

As the recommended plan is further refined, and detailed design/engineering begins, the following list of items should be considered as part of this process:

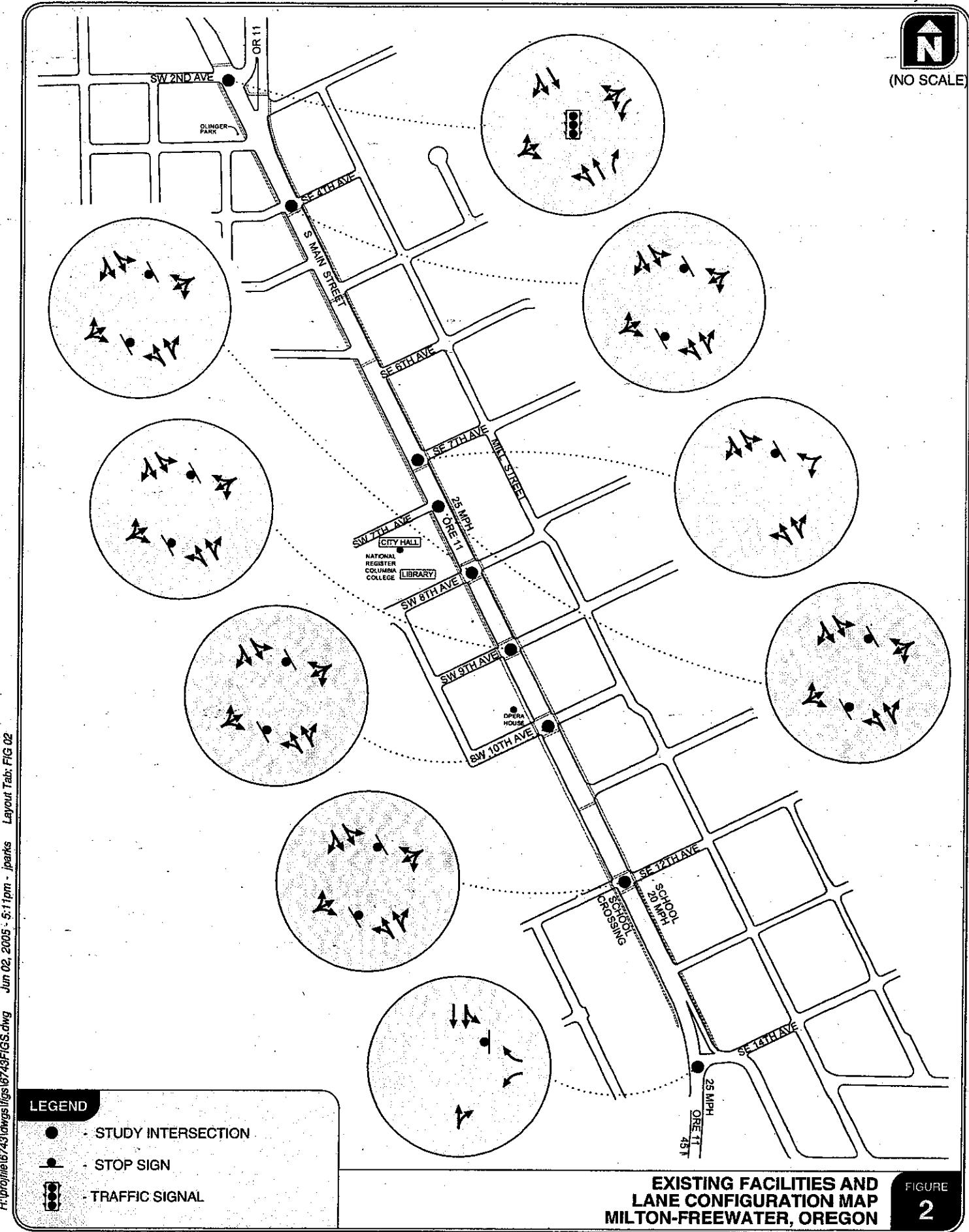
- Large Vehicle Access To Businesses In Downtown – Truck circulation to/from and within Downtown will be a consideration as detailed design begins. Considerations will include turning radii to and from businesses on ORE 11 and turning radii at intersections within the STA. The ODOT Highway Design Manual provides guidance on the standards for these features. The goal of the STA is to develop main street type access in downtown. This includes limiting the number of direct driveways onto and off-of ORE 11 and designing low speed turns at intersections. The design will not preclude large vehicles circulating within downtown. At corners, large vehicles may have to travel into the opposing lane on the minor street to complete the turn, or special design exceptions can be achieved with ODOT. Large vehicle direct access onto individual properties will become more constrained as downtown redevelops with STA compatible land uses; however designs can be developed to maintain access to specific properties.
- Travel Lane Widths – Under the proposed plan, there is ample space within the current right-of-way to maintain 12-foot travel lanes within the STA. A 12-foot travel lane is consistent with ORE 11 lane widths outside the STA. Therefore large vehicles accommodated on ORE 11 outside of Downtown will also be accommodated through Downtown. In the event that overload or oversize vehicles are traveling through Milton-Freewater standard ODOT requirements would have to be fulfilled.
- Loading Zones – Loading zones within the STA will also be identified as part of the detailed design. The location and number of the loading zones will be dependent on the distribution of businesses, and parking demand. The loading zone spaces can be permanent loading zone spaces, or they can be regular parking spaces during peak parking periods, and loading zone spaces during off-periods. As Downtown becomes more popular, it may be necessary to limit loading to specific off-peak hours (e.g. early in the morning).

Note this is an incomplete list of items that will be considered as part of the detailed design process. It has been presented in regards to specific questions raised as part of the project.

We trust that this report adequately addresses the transportation related questions for updating the City's Transportation System Plan and adopting the Special Transportation Area for ORE 11 from SW 14th to SW 2nd Avenue in Milton-Freewater. Should there be any additional questions, please contact us at 503-228-5230.





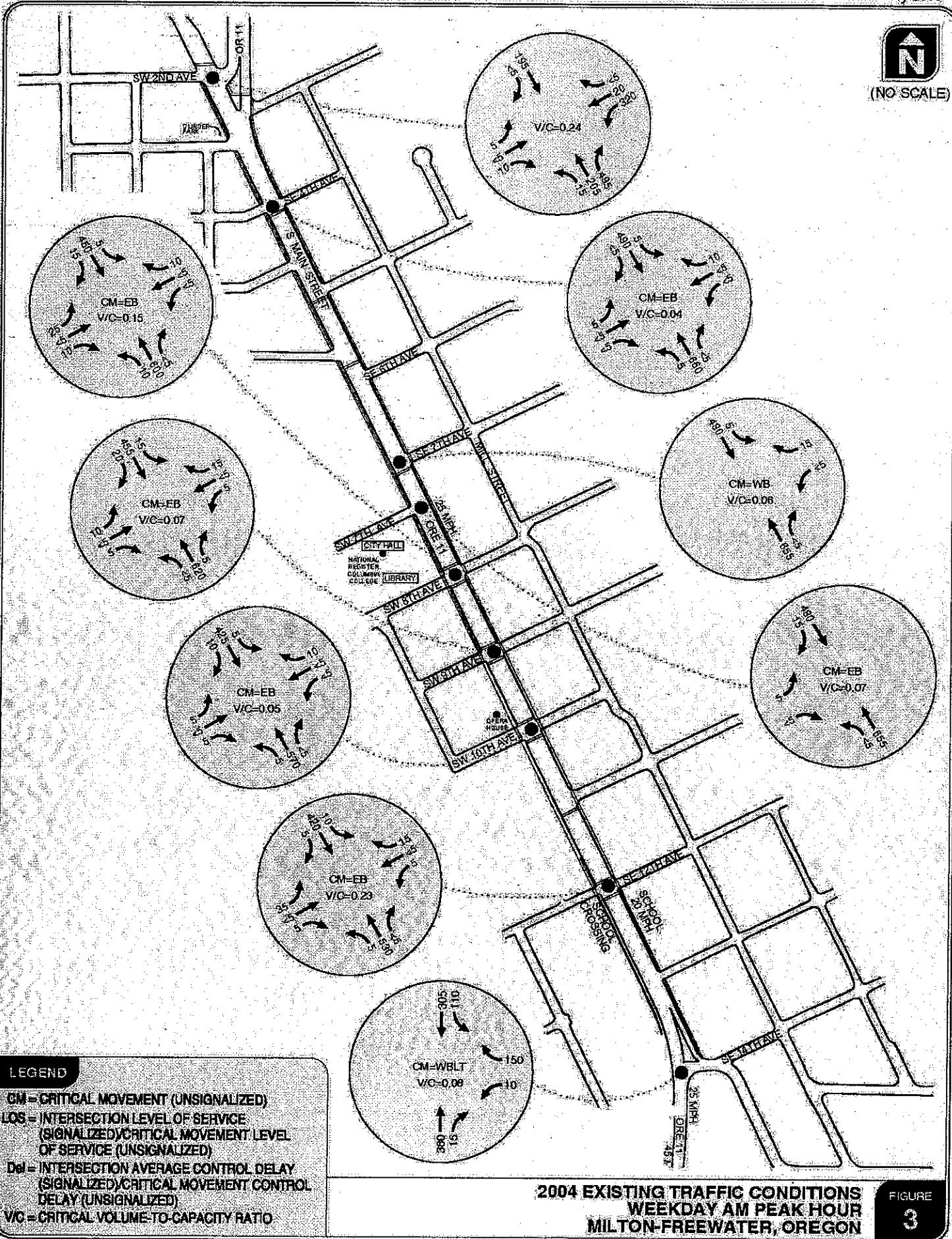
(NO SCALE)


EXISTING FACILITIES AND
LANE CONFIGURATION MAP
MILTON-FREEWATER, OREGON

FIGURE
2



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TRANSPORTATION PLANNING / TRAFFIC ENGINEERING

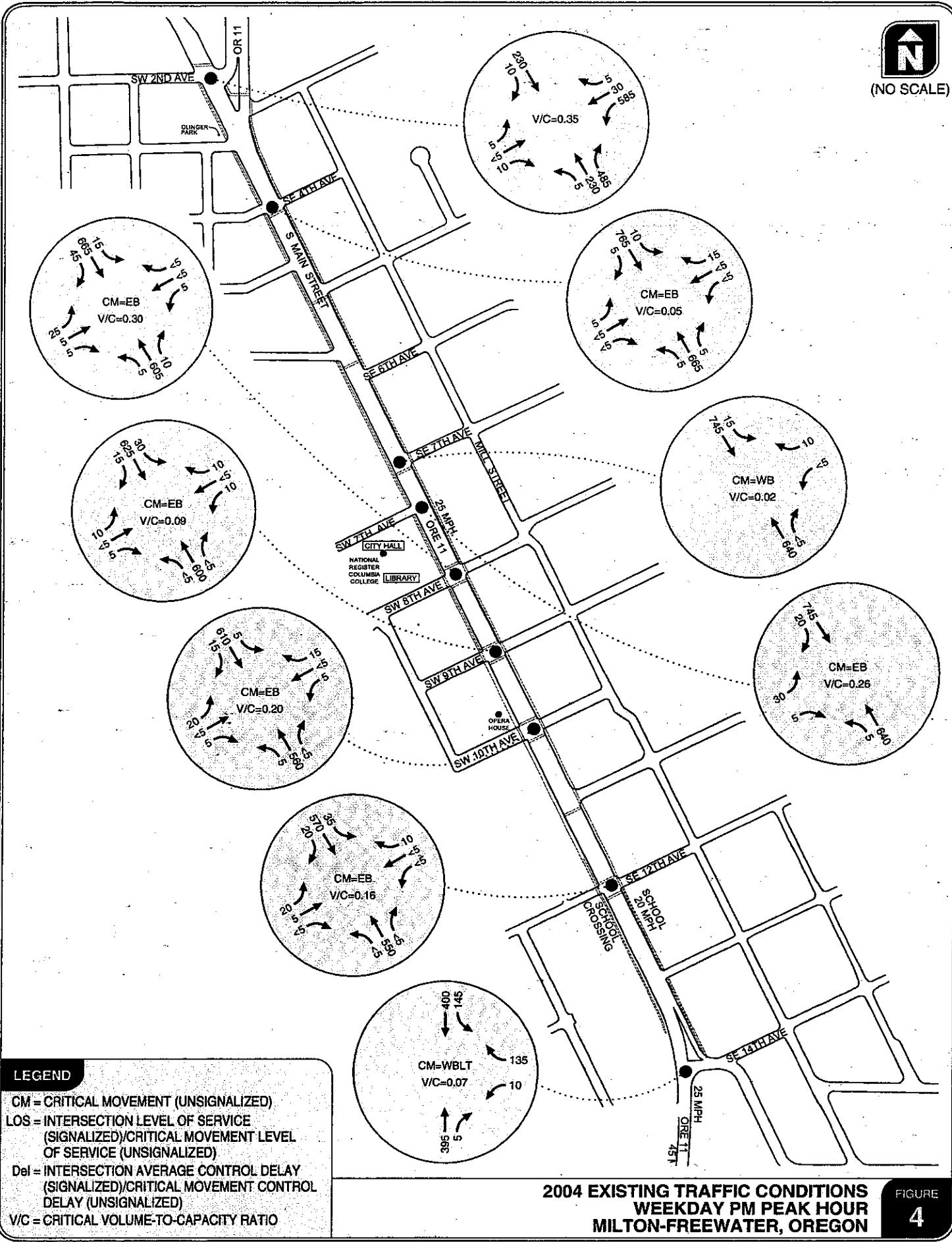


LEGEND

CM = CRITICAL MOVEMENT (UN SIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE
 (SIGNALIZED)/CRITICAL MOVEMENT LEVEL
 OF SERVICE (UN SIGNALIZED)
Dd = INTERSECTION AVERAGE CONTROL DELAY
 (SIGNALIZED)/CRITICAL MOVEMENT CONTROL
 DELAY (UN SIGNALIZED)
VC = CRITICAL VOLUME-TO-CAPACITY RATIO

**2004 EXISTING TRAFFIC CONDITIONS
WEEKDAY AM PEAK HOUR
MILTON-FREEWATER, OREGON**

FIGURE
3



LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)

**LOS = INTERSECTION LEVEL OF SERVICE
(SIGNALIZED)/CRITICAL MOVEMENT LEVEL
OF SERVICE (UNSIGNALIZED)**

**Def = INTERSECTION AVERAGE CONTROL DELAY
(SIGNALIZED)/CRITICAL MOVEMENT CONTROL
DELAY (UN SIGNALIZED)**

V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

**2004 EXISTING TRAFFIC CONDITIONS
WEEKDAY PM PEAK HOUR
MILTON-FREEWATER, OREGON**

**FIGURE
4**



(NO SCALE)

20 Spaces Available
0% Full

Unmarked
Parking

10 Spaces Available
0% Full

40 Spaces Available
50% Full

Marked
Parking

60 Spaces Available
0% Full

Unmarked
Parking

Unmarked
Parking

LEGEND

- SURFACE PARKING
- LOW PARKING UTILIZATION
- MEDIUM PARKING UTILIZATION
- HIGH PARKING UTILIZATION

PARKING INVENTORY AND UTILIZATION
MILTON-FREEWATER, OREGON

FIGURE

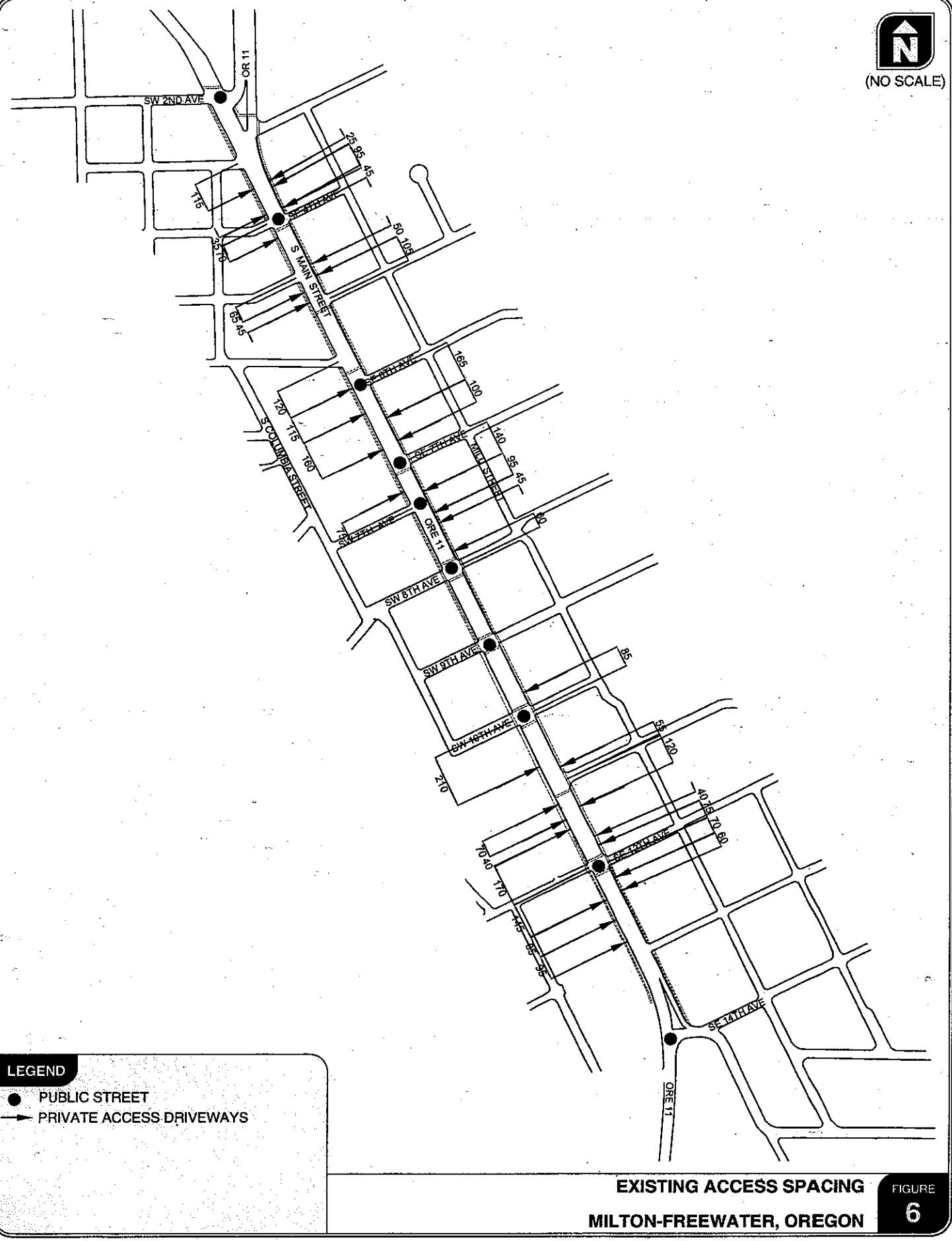
5



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(NO SCALE)



LEGEND

- PUBLIC STREET**
PRIVATE ACCESS DRIVEWAYS

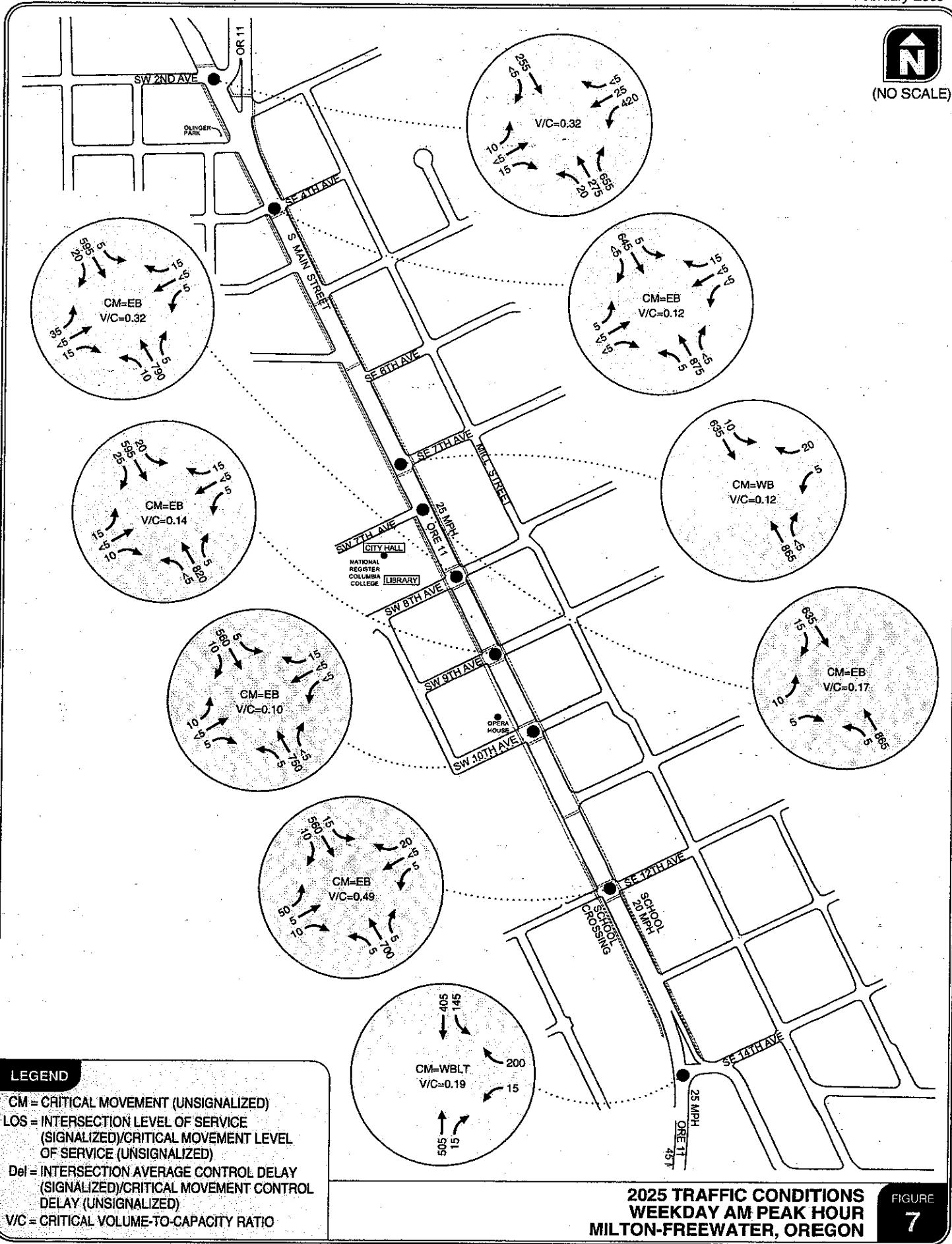
**EXISTING ACCESS SPACING
ULTON-FREEWATER, OREGON**

FIGURE

6



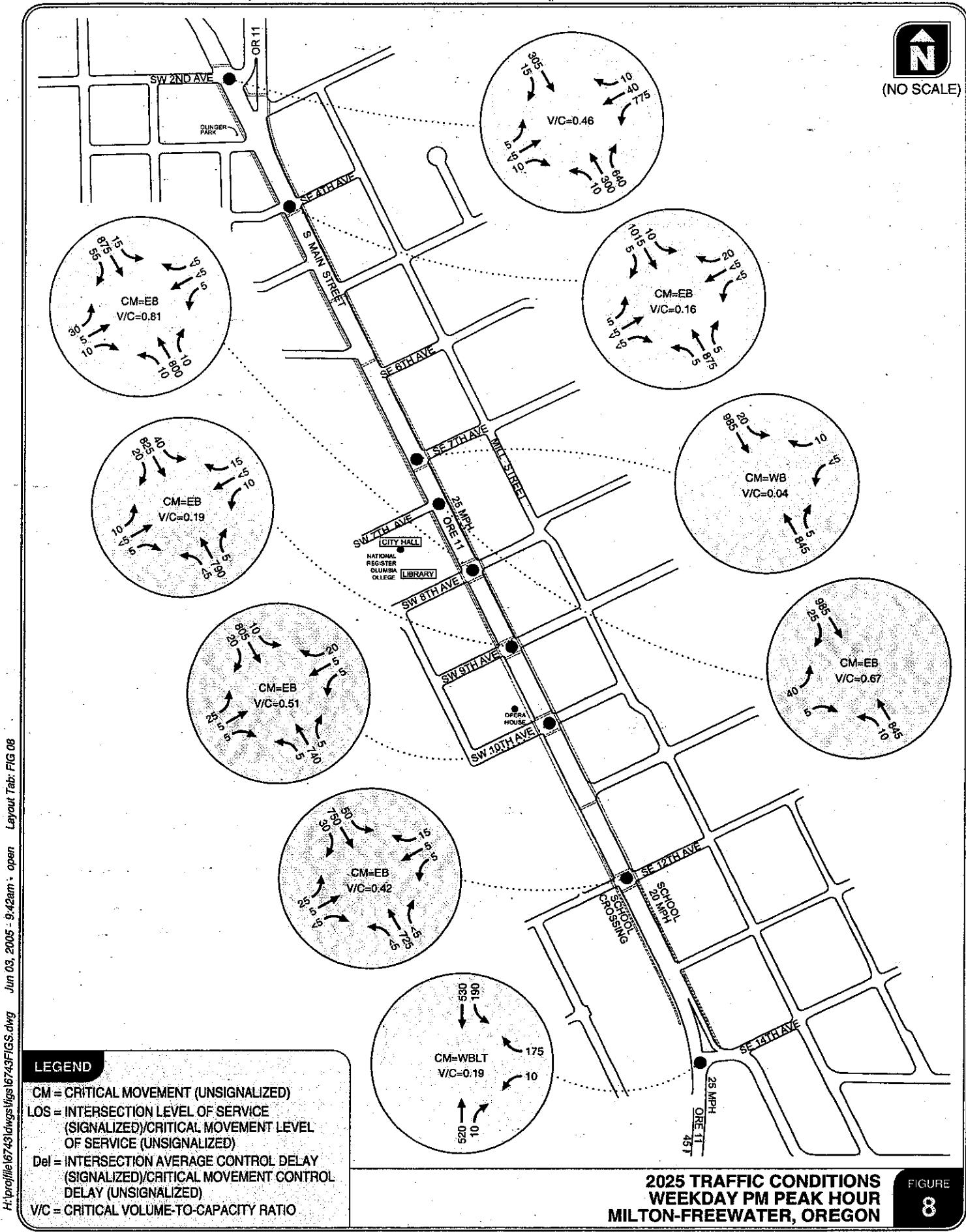
KITTELSON & ASSOCIATES, INC.
TRANSPORTATION PLANNING / TRAFFIC ENGINEERING



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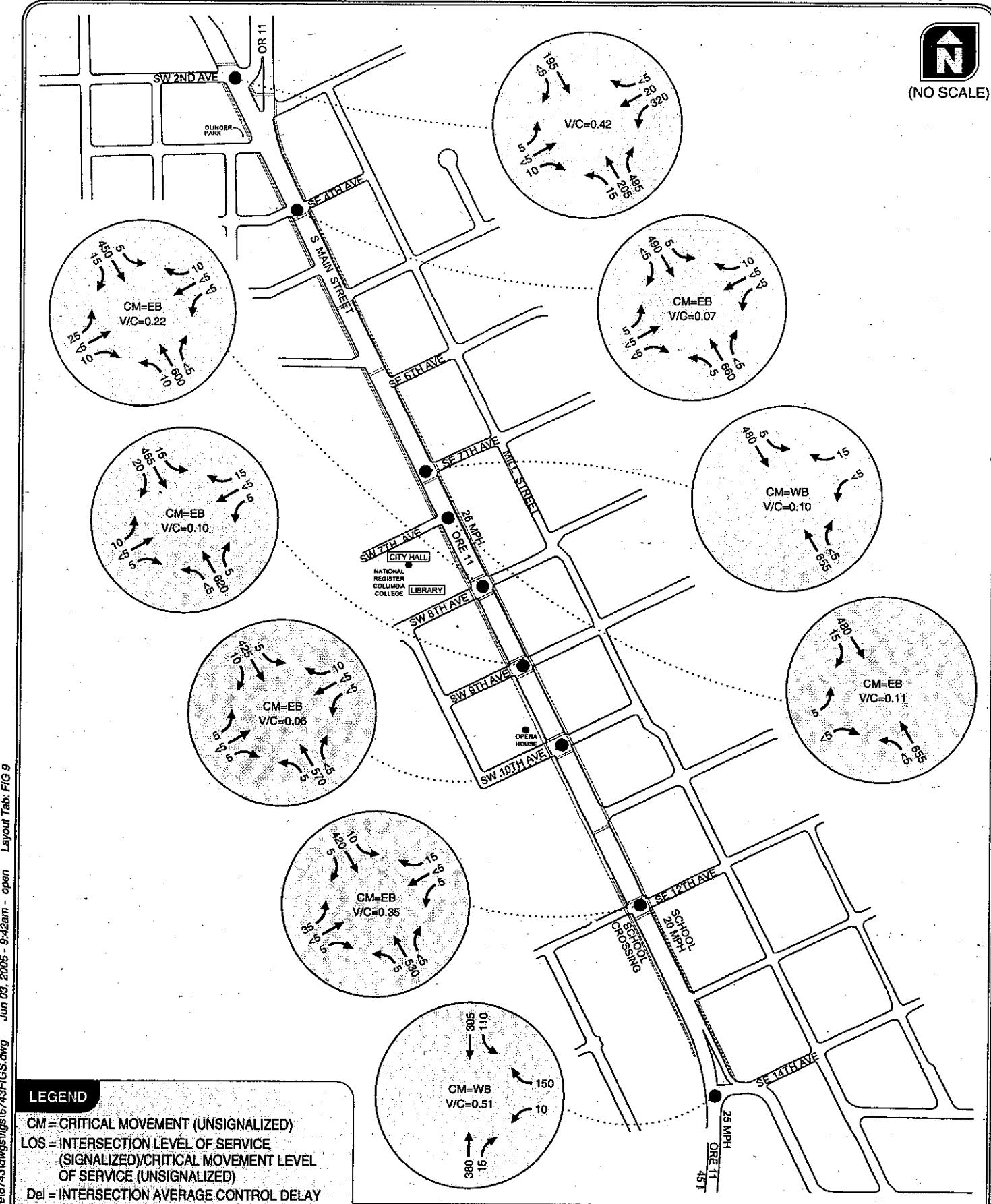


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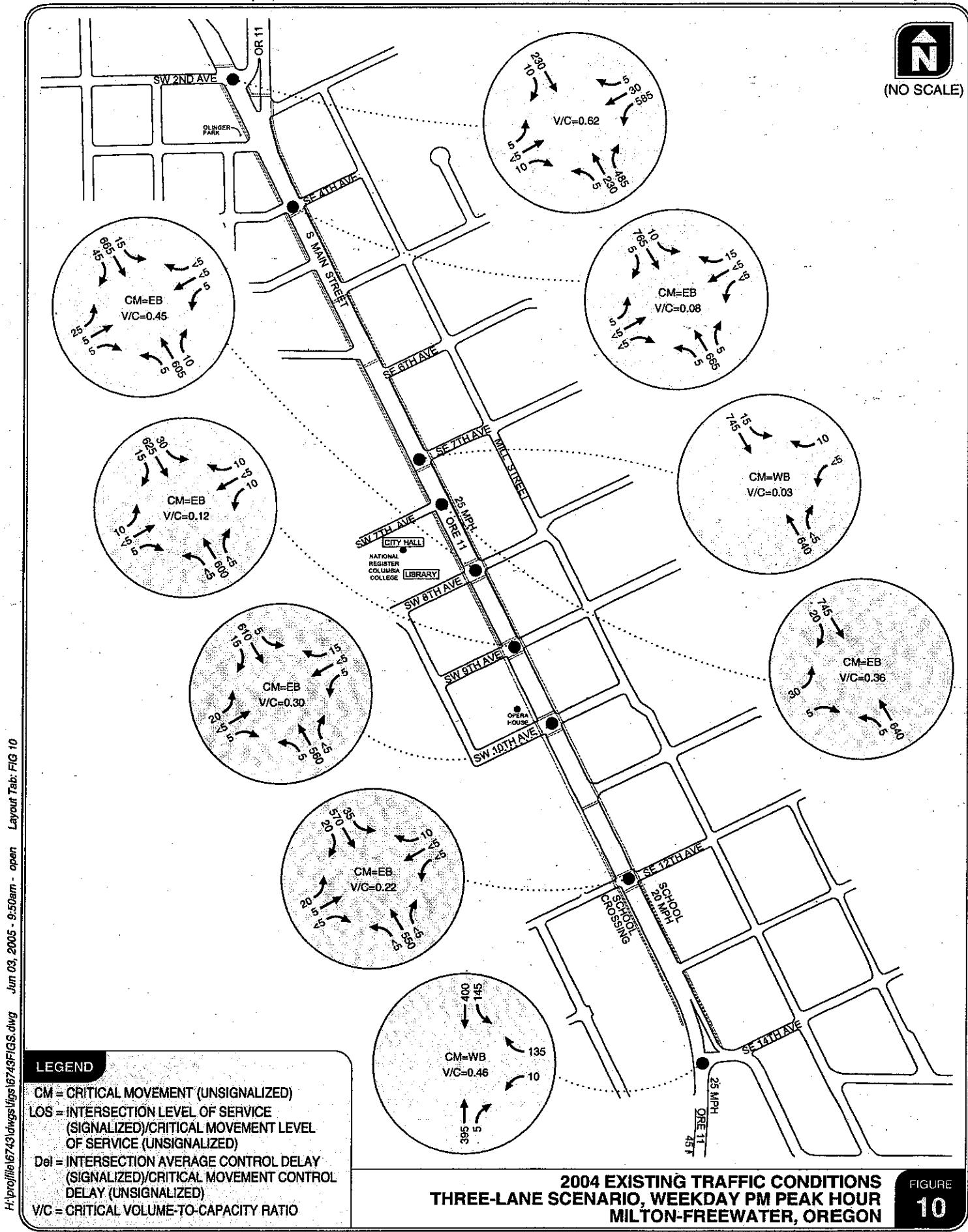
**LEGEND**

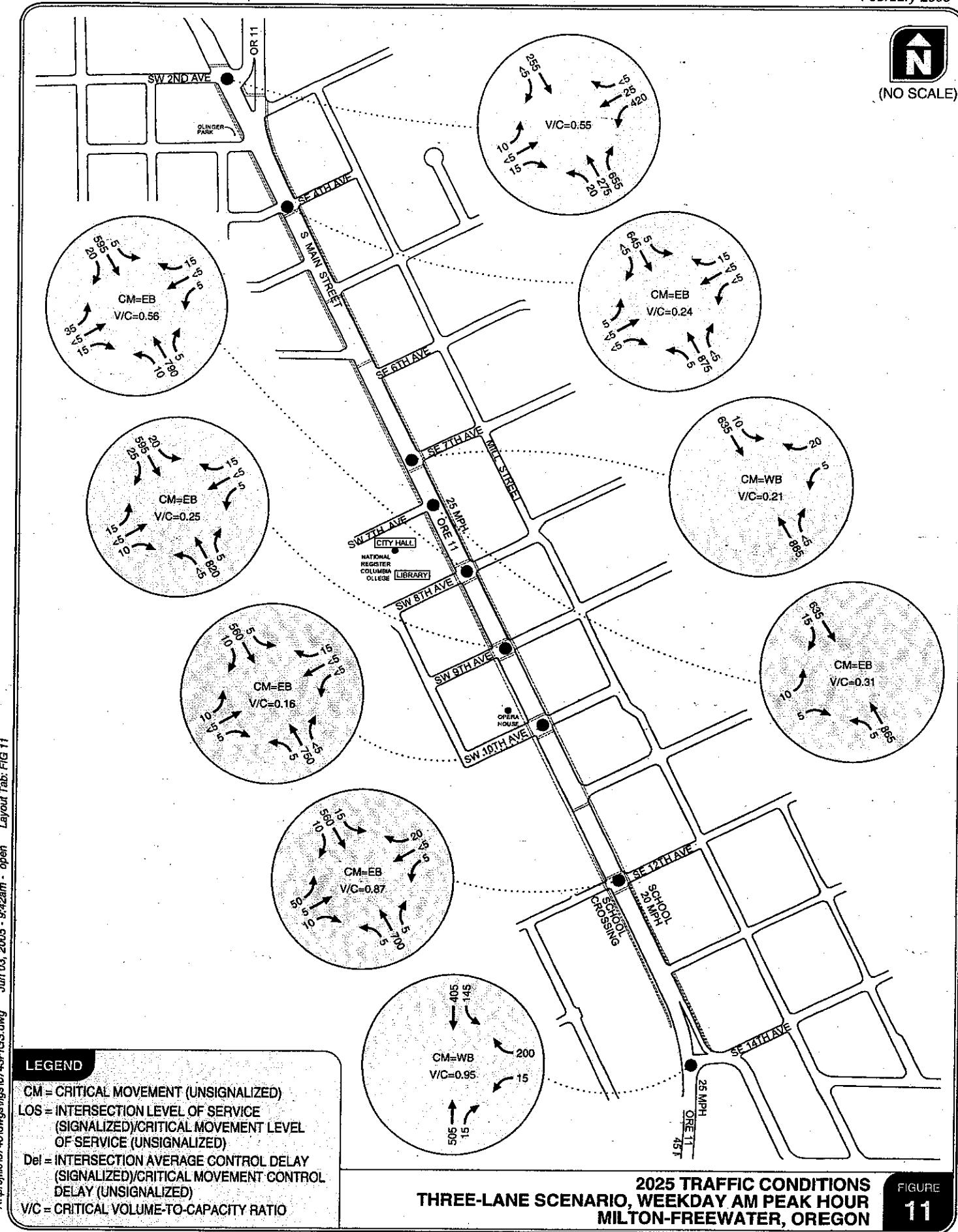
- CM = CRITICAL MOVEMENT (UNSIGNALED)**
- LOS = INTERSECTION LEVEL OF SERVICE
(SIGNALIZED)/CRITICAL MOVEMENT LEVEL
OF SERVICE (UNSIGNALED)**
- Del = INTERSECTION AVERAGE CONTROL DELAY
(SIGNALIZED)/CRITICAL MOVEMENT CONTROL
DELAY (UNSIGNALED)**
- V/C = CRITICAL VOLUME-TO-CAPACITY RATIO**

**2004 EXISTING TRAFFIC CONDITIONS
THREE-LANE SCENARIO, WEEKDAY AM PEAK HOUR
MILTON-FREEWATER, OREGON**

FIGURE

9

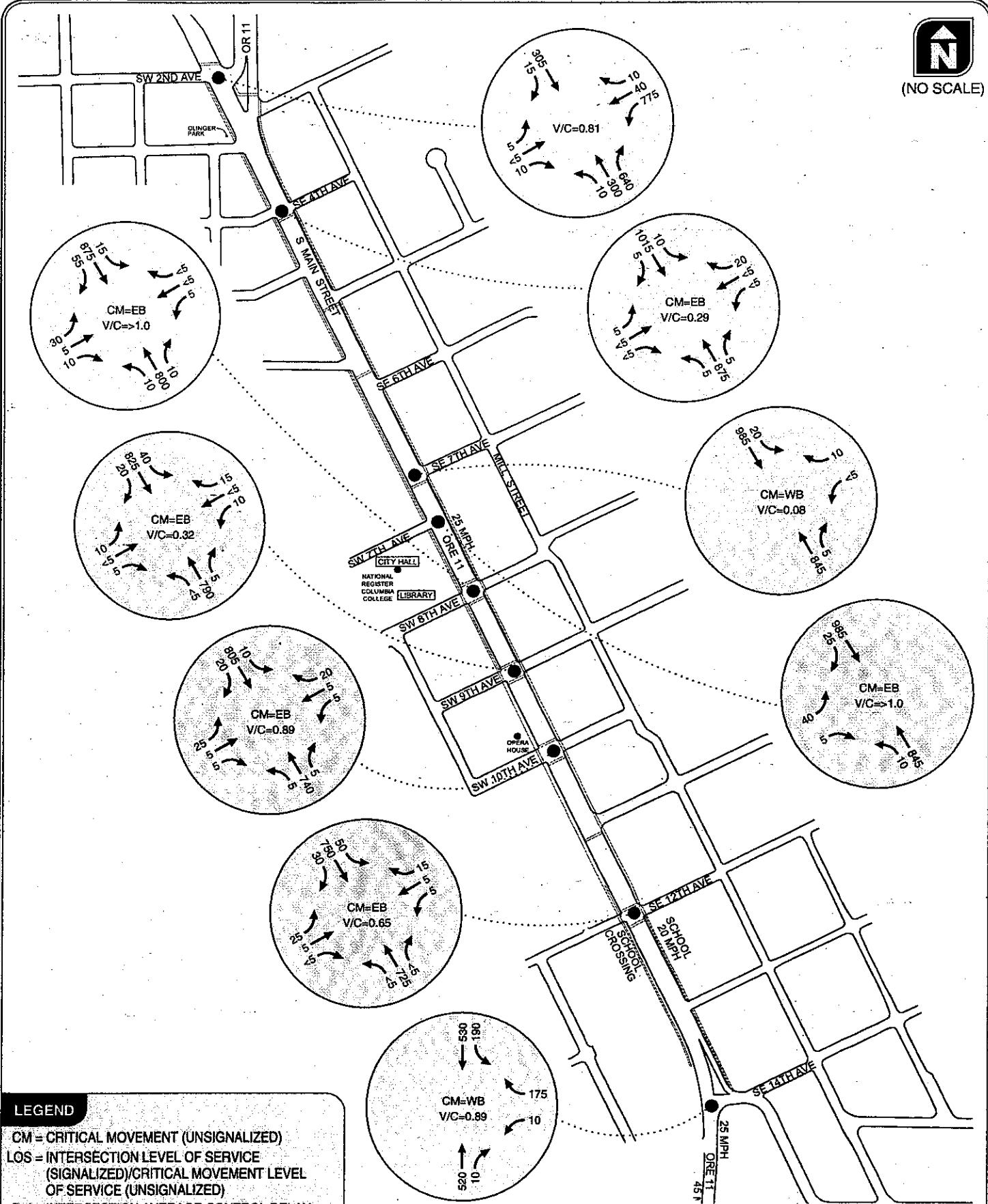






(NO SCALE)

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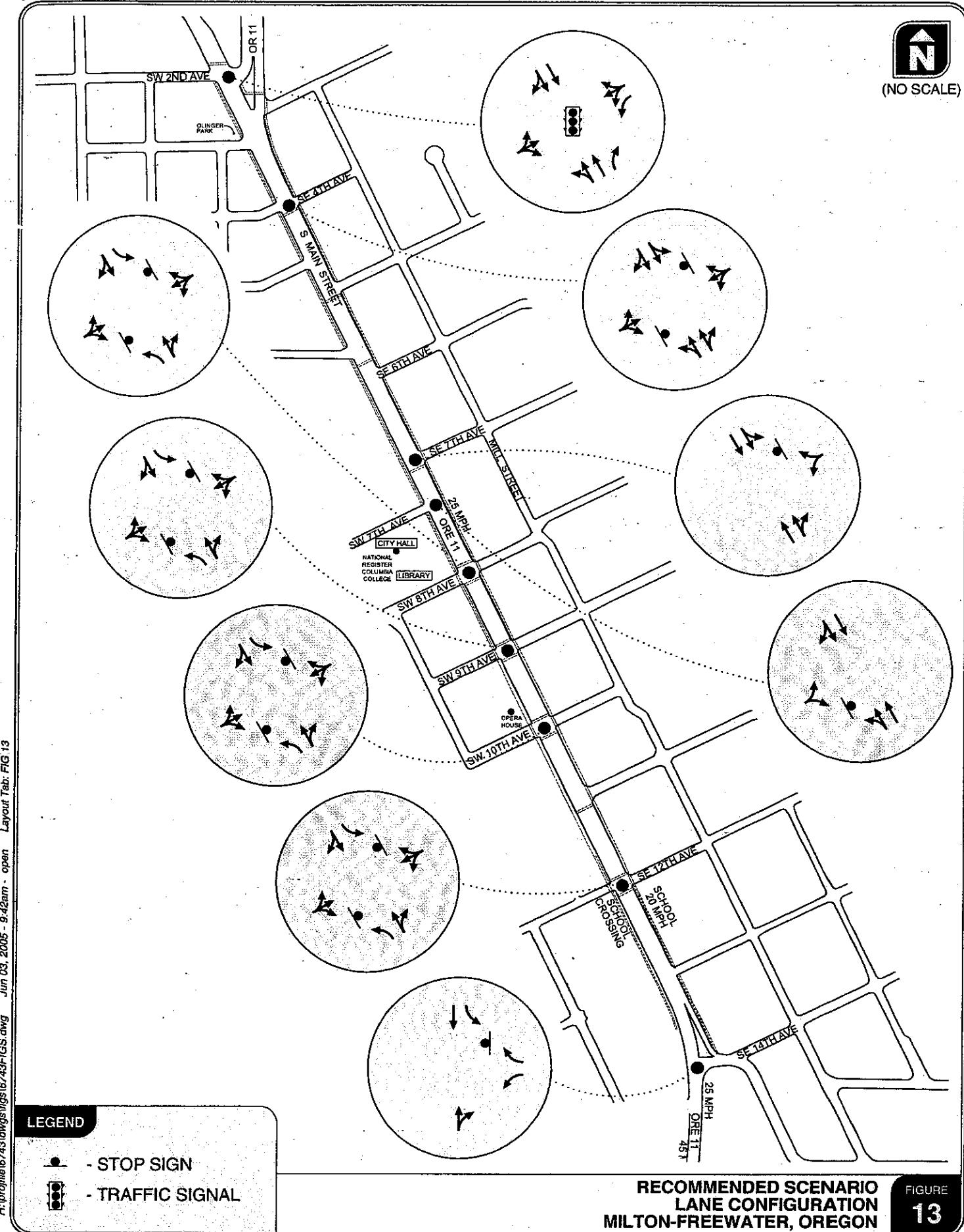


**2025 TRAFFIC CONDITIONS
THREE-LANE SCENARIO, WEEKDAY PM PEAK HOUR
MILTON-FREEWATER, OREGON**

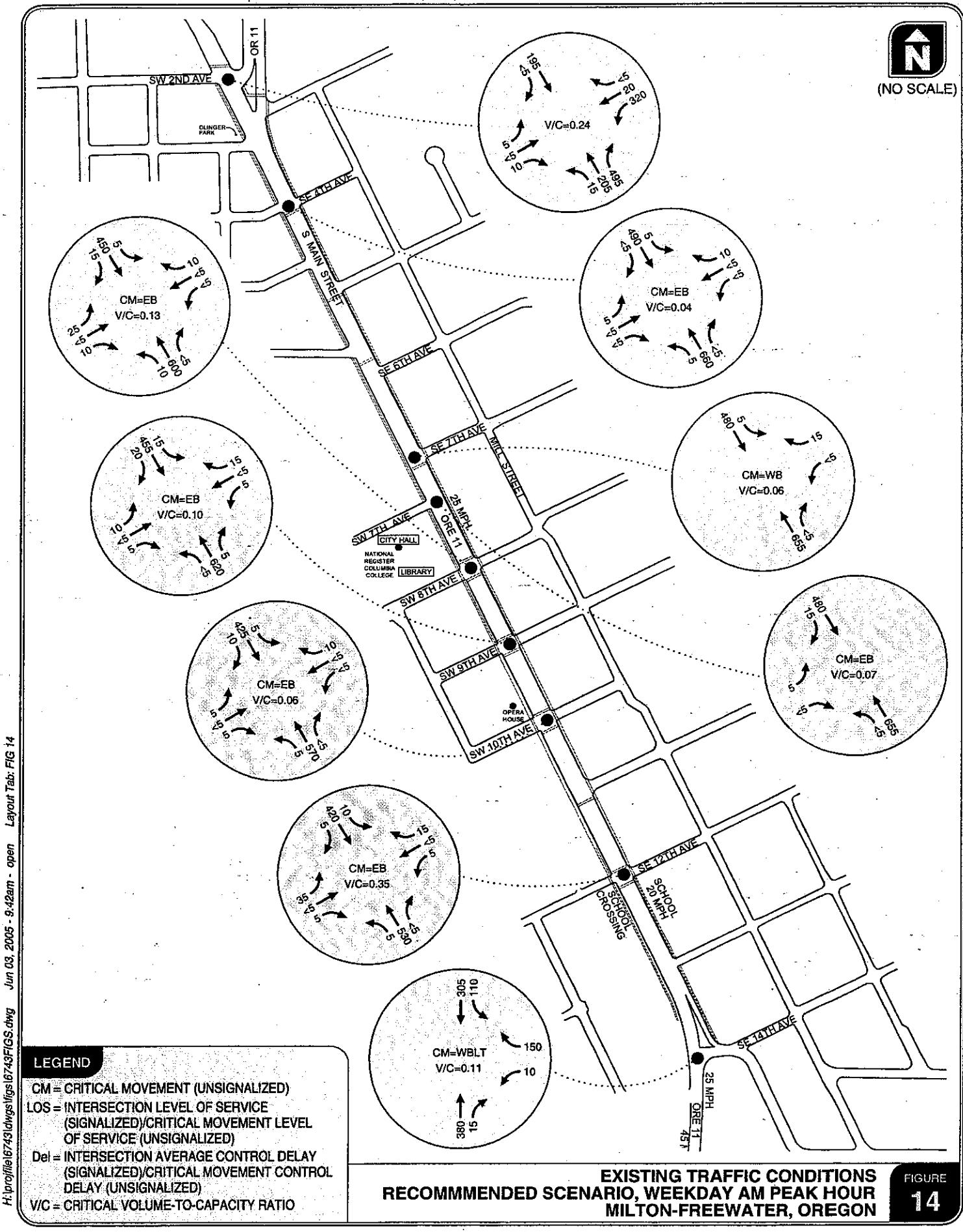
**FIGURE
12**



(NO SCALE)

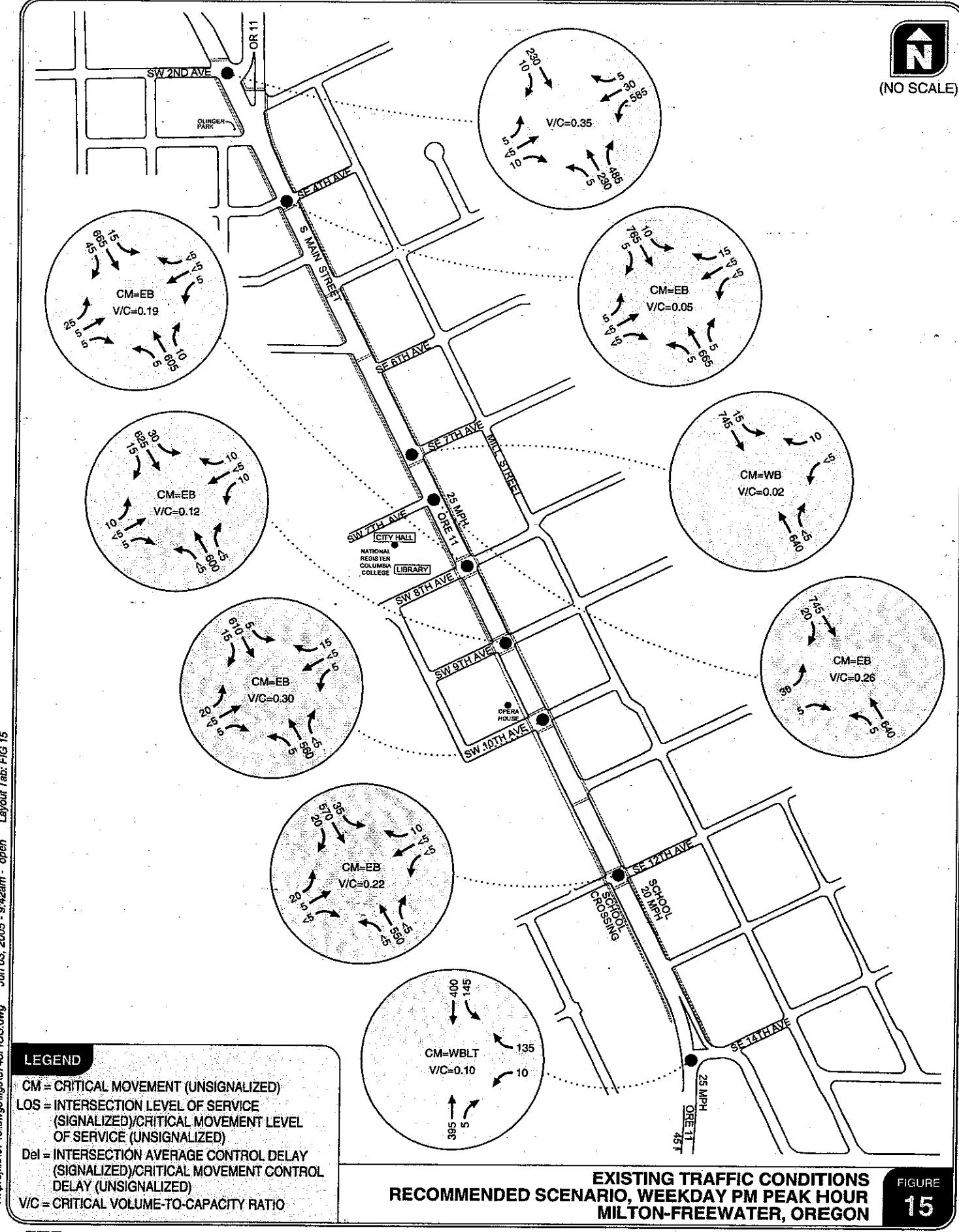


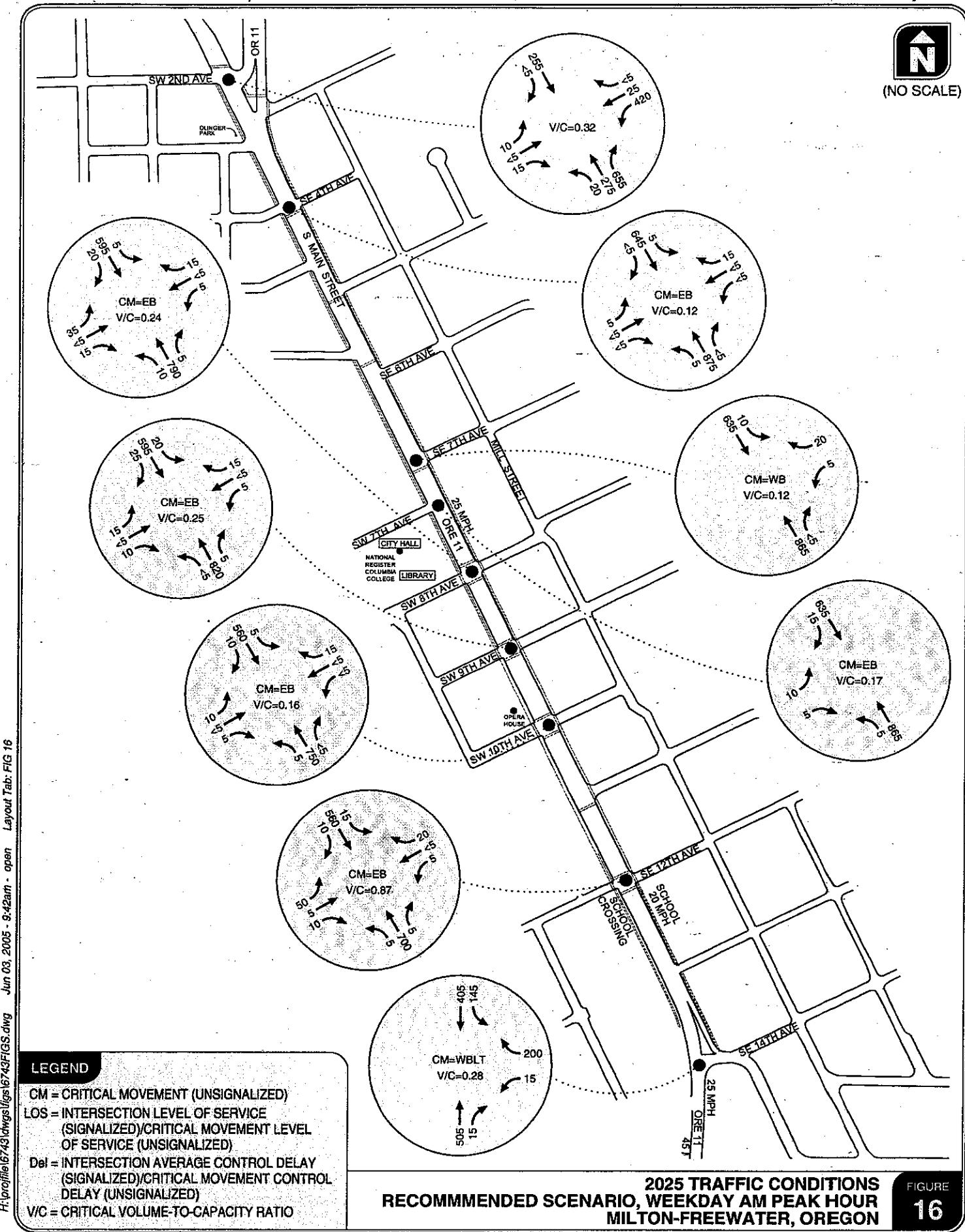
KITTELSO&N ASSOCIATES, INC.
TRANSPORTATION PLANNING / TRAFFIC ENGINEERING

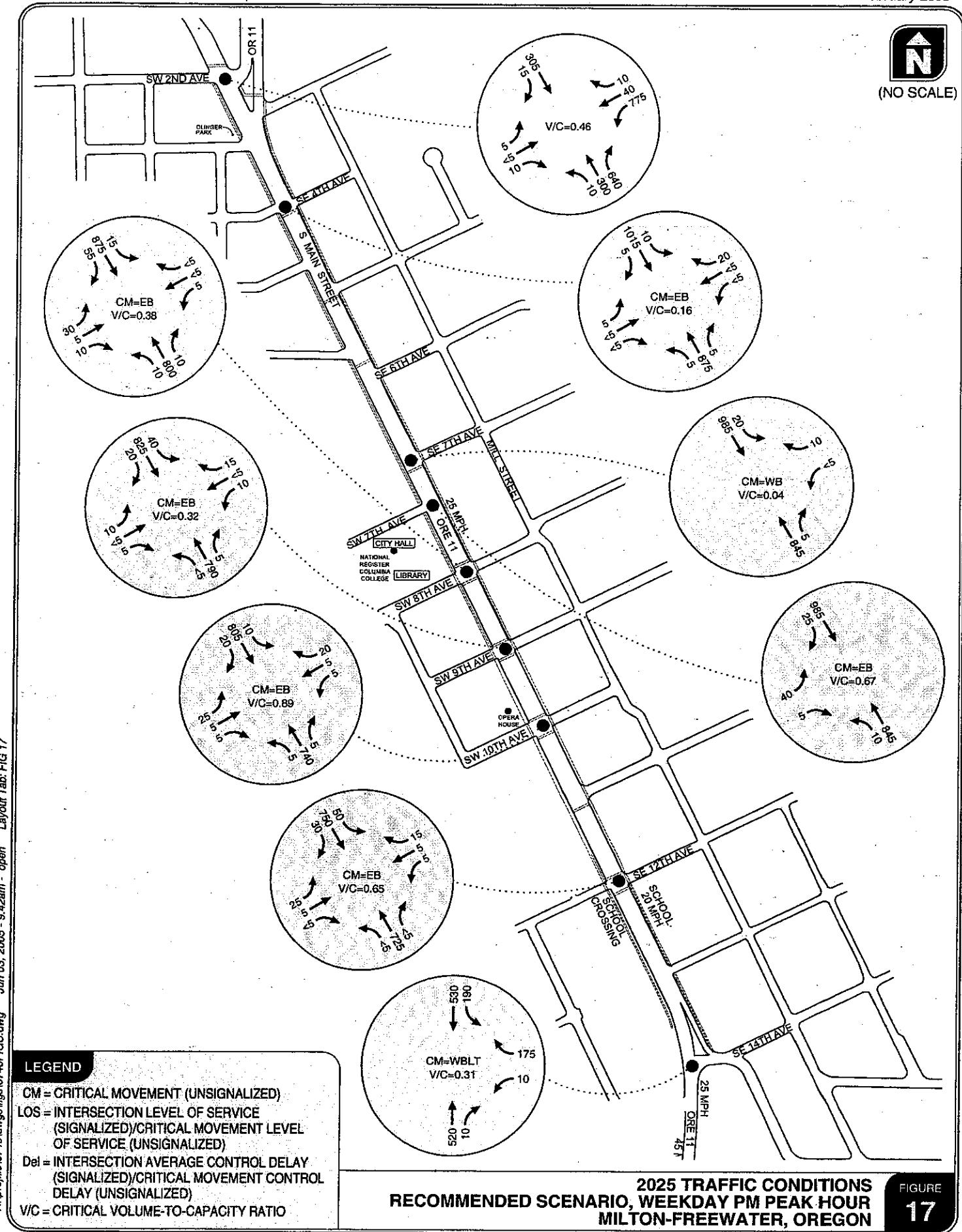




(NO SCALE)







Appendix A

Traffic Count Data

OR11at14th_Reduced.xls

TIME	SB			WB			NB			EB			Total	Hour Total	PHF
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT			
07:00-07:15A	67	28	16		1	1	88						201	860	
07:15-07:30A	35	9	18		3	0	61						126	872	0.70
07:30-07:45A	71	16	23		4	3	103						220	870	
07:45-08:00A	63	9	70		1	5	165						313	802	
08:00-08:15A	39	53	41		4	5	71						213	589	
08:15-08:30A	31	25	20		1	1	46						124		
08:30-08:45A	40	23	38		2	2	47						152		
08:45-09:00A	26	11	24		0	0	39						100		
AM PH Volumes	208	87	152	12	13	400							872		
04:00-04:15P	68	25	28		1	2	70						194	802	0.71
04:15-04:30P	109	56	35		1	0	80						281	796	
04:30-04:45P	62	25	24		3	3	46						163	652	
04:45-05:00P	61	22	16		3	1	61						164	632	
05:00-05:15P	78	39	12		1	2	56						188	639	
05:15-05:30P	40	22	28		3	0	44						137	610	
05:30-05:45P	61	26	14		1	0	41						143	589	
05:45-06:00P	54	31	16		2	0	68						171	494	
06:00-06:15P	49	45	24		3	1	37						159	406	
06:15-06:30P	45	21	18		2	4	26						116		
06:30-06:45P	12	11	5		1	1	18						48		
06:45-07:00P	26	19	17		1	0	20						83		
PM PH Volumes	300	128	103	8	6	257							802		

OR8 at S 12th Ave_Reduced.xls

TIME	SB			WB			NB			EB			Total	Hour Total	PHF
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT			
07:00-07:15A	0	61	1	1	0	1	1	55	0	2	0	3	125	616	0.86
07:15-07:30A	2	62	2	4	0	1	0	72	1	2	0	5	151		
07:30-07:45A	2	61	2	2	0	0	0	85	0	1	0	8	161		
07:45-08:00A	1	66	2	3	1	1	1	90	3	1	2	8	179		
AM PH Volumes	5	250	7	10	1	3	2	302	4	6	2	24	616		
04:00-04:15P	2	68	5	0	1	0	0	70	0	0	0	0	146	616	0.73
04:15-04:30P	6	109	4	2	1	1	0	80	0	0	2	6	211	614	
04:30-04:45P	1	63	9	2	0	1	0	45	0	0	0	1	122	493	
04:45-05:00P	4	60	5	2	0	0	0	61	1	0	1	3	137	471	
05:00-05:15P	3	78	1	3	0	0	0	57	0	0	1	1	144	471	
05:15-05:30P	1	41	2	0	1	1	0	42	0	0	0	2	90		
05:30-05:45P	3	55	1	0	0	0	0	39	0	1	1	0	100		
05:45-06:00P	6	52	1	0	0	0	0	68	1	2	0	7	137		
PM PH Volumes	13	300	23	6	2	2	0	256	1	0	3	10	616		

OR11at10th_Reduced.xls

TIME	SB			WB			NB			EB			Total	Hour Total	PHF
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT			
07:00-07:15A	0	82	1	0	0	0	0	69	2	2	0	0	156	860	
07:15-07:30A	0	79	1	1	0	0	0	128	2	1	0	0	212	872	
07:30-07:45A	3	62	0	3	0	1	0	81	1	1	0	1	153	870	
07:45-08:00A	3	96	1	4	1	0	0	125	0	2	0	1	233	802	
08:00-08:15A	1	98	2	2	0	0	1	111	2	3	0	3	223	589	
08:15-08:30A	0	72	0	0	0	0	0	87	0	1	0	0	160		
08:30-08:45A	0	43	0	0	0	1	0	112	0	0	0	1	157		
08:45-09:00A	0	54	0	1	0	1	0	101	0	0	0	0	157		
AM PH Volumes	7	335	4	10	1	1	1	445	5	7	0	5	821		
04:00-04:15P	4	106	0	0	1	1	2	88	1	0	0	3	206	802	
04:15-04:30P	3	95	3	3	0	1	0	110	0	2	0	5	222	796	
04:30-04:45P	5	112	2	2	0	0	1	110	0	4	1	8	245	652	
04:45-05:00P	4	116	3	4	0	4	0	84	1	0	0	3	219	632	
05:00-05:15P	5	125	1	5	2	1	1	94	2	0	0	6	242	639	
05:15-05:30P	3	171	1	4	0	0	0	141	2	0	1	0	323	610	
05:30-05:45P	0	58	0	0	0	0	0	47	0	0	0	1	106	589	
05:45-06:00P	1	53	0	0	1	0	0	69	0	0	0	3	127	494	
06:00-06:15P	3	111	0	0	0	0	2	54	4	1	0	2	177	406	
06:15-06:30P	2	102	0	0	0	0	0	71	0	0	0	3	178		
06:30-06:45P	1	88	1	1	0	1	0	71	1	0	0	4	168		
06:45-07:00P	1	47	1	2	0	1	1	56	0	1	0	1	111		
PM PH Volumes	17	524	7	15	2	5	2	429	5	4	2	17	1029		

OR11at9th RECOUNT Reduced.xls

OR11at8th_Reduced.xls

OR11at7th_Reduced.xls

TIME	SB			WB			NB			EB			Total	Hour Total	PHF
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT			
07:00-07:15A	3	72	0	2	0	0	0	91	0	1	0	1	170	785	0.66
07:15-07:30A	3	51	1	2	0	0	0	66	0	0	0	3	126		
07:30-07:45A	3	76	2	7	2	0	0	100	0	0	0	1	191		
07:45-08:00A	1	113	2	1	0	0	1	175	2	1	0	2	298		
AM PH Volumes	10	312	5	12	2	0	1	432	2	2	0	7	785		
04:00-04:15P	7	137	4	0	0	0	0	112	1	3	0	13	277	1023	0.86
04:15-04:30P	4	107	2	1	1	0	2	134	1	0	2	6	260	1019	
04:30-04:45P	3	148	2	2	0	0	0	136	1	0	1	6	299	985	
04:45-05:00P	2	105	5	4	0	0	0	67	3	0	0	1	187	876	
05:00-05:15P	1	157	0	5	0	0	0	108	0	0	0	2	273	905	
05:15-05:30P	3	126	2	3	0	0	1	87	2	1	0	1	226		
05:30-05:45P	2	105	6	1	0	0	0	71	1	0	0	4	190		
05:45-06:00P	5	111	4	3	0	0	1	89	0	0	0	3	216		
PM PH Volumes	16	497	13	7	1	0	2	449	6	3	3	26	1023		

OR8 at S 4th Ave_Reduced.xls

TIME	SB			WB			NB			EB			Total	Hour Total	PHF
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT			
07:00-07:15A	0	63	1	0	1	0	1	69	1	1	0	1	138	837	0.78
07:15-07:30A	0	76	1	4	0	1	0	114	1	0	0	1	198		
07:30-07:45A	1	87	0	1	0	0	0	140	1	0	0	1	231		
07:45-08:00A	0	119	2	3	0	0	0	145	0	0	0	1	270		
AM PH Volumes	1	345	4	8	1	1	1	468	3	1	0	4	837		
04:00-04:15P	1	156	0	4	1	0	0	136	1	0	0	2	301	1169	0.87
04:15-04:30P	2	180	3	2	0	0	0	148	2	0	0	0	337	1154	
04:30-04:45P	1	105	3	2	0	0	3	89	1	1	0	1	206	1111	
04:45-05:00P	0	173	1	2	0	0	0	148	0	0	0	1	325	1136	
05:00-05:15P	3	159	2	3	0	0	0	118	0	0	0	1	286	1109	
05:15-05:30P	1	173	5	1	0	1	0	113	0	0	0	0	294		
05:30-05:45P	2	130	2	2	0	0	0	94	0	1	0	0	231		
05:45-06:00P	0	157	1	1	0	0	5	130	4	0	0	0	298		
PM PH Volumes	4	614	7	10	1	0	3	521	4	1	0	4	1169		

OR11at2nd RECOUNT Reduced.xls

Appendix B

Existing Traffic Condition Analysis Worksheets

AM

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Page 1-1

Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Scenario Report

Scenario: AM
 Command: AM
 Volume: AM
 Geometry: EX
 Impact Fee: Default Impact Fee
 Trip Generation: Default Trip Generation
 Trip Distribution: Default Trip Distribution
 Paths: Default Paths
 Routes: Default Routes
 Configuration: Default Configuration

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base Del/ LOS Veh	Future Del/ LOS Veh	Change in D/V
#	C	C	
# 1 OR 11/ 14th Ave	C 16.9 0.000	C 16.9 0.000	+ 0.000 D/V
# 2 Main Street-OR11/ 12th Ave	C 24.2 0.000	C 24.2 0.000	+ 0.000 D/V
# 3 Main Street - OR 11/ 10th Ave	C 16.4 0.000	C 16.4 0.000	+ 0.000 D/V
# 4 Main Street - OR 11/ 9th Ave	C 18.2 0.000	C 18.2 0.000	+ 0.000 D/V
# 5 Main Street-OR11/ 8th Ave	C 19.7 0.000	C 19.7 0.000	+ 0.000 D/V
# 6 OR 11/7th Ave - Eastbound	C 24.5 0.000	C 24.5 0.000	+ 0.000 D/V
# 7 OR 11/7th Avenue - Westbound	B 14.0 0.000	B 14.0 0.000	+ 0.000 D/V
# 8 OR 11/ 4th Avenue	D 26.2 0.000	D 26.2 0.000	+ 0.000 D/V
# 9 Main Street/OR11/ 2nd Ave	C 20.4 0.239	C 20.4 0.239	+ 0.000 D/V

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 1 OR 11/ 14th Ave	??? / ???	No / No
# 2 Main Street-OR11/ 12th Ave	??? / ???	No / No
# 3 Main Street - OR 11/ 10th Ave	??? / ???	No / No
# 4 Main Street - OR.11/ 9th Ave	??? / ???	No / No
# 5 Main Street-OR11/ 8th Ave	??? / ???	No / No
# 6 OR 11/7th Ave - Eastbound	??? / ???	No / No
# 7 OR 11/7th Avenue - Westbound	??? / ???	No / No
# 8 OR 11/ 4th Avenue	??? / ???	No / No

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Delay Signal Warrant Report

 Intersection #1 OR 11/ 14th Ave.

 Future Volume Alternative: Peak Hour Warrant NOT Met

 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R
 Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
 Lanes: 0 0 0 1 0 0 1 1 0 0 0 0 0 0 0 1 0 0 0 1
 Final Vol.: 0 544 19 154 437 0 0 0 0 0 0 17 0 217
 ApproachDel: xxxxx xxxxx xxxxx 16.9

 Approach[Westbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=1.1]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=234]
 SUCCEED - Approach volume >= 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=1388]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 OR 11/ 14th Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

	North Bound	South Bound	East Bound	West Bound
Approach:	L - T - R	L - T - R	L - T - R	L - T - R
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 0 1 0	0 1 1 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 544 19	154 437 0	0 0 0 0	17 0 217

Major Street Volume: 1154
 Minor Approach Volume: 234
 Minor Approach Volume Threshold: 313

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #2 Main Street-OR11/ 12th Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

	North Bound	South Bound	East Bound	West Bound
Approach:	L - T - R	L - T - R	L - T - R	L - T - R
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
Final Vol.:	5 664 3	13 528 9	45 3 8	4 1 19
ApproachDel:	xxxxxx	xxxxxx	24.2	13.7

Approach[eastbound][lanes=1][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.4]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=55]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=1299]
 SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=24]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=1299]
 SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #2 Main Street-OR11/ 12th Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

	North Bound	South Bound	East Bound	West Bound
Approach:	L - T - R	L - T - R	L - T - R	L - T - R
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1! 0 0	0 0 1! 0 0
Final Vol.:	5 664	3 13	528 9 45	3 8 4 1 19

Major Street Volume: 1221
 Minor Approach Volume: 55
 Minor Approach Volume Threshold: 216

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #3 Main Street - OR 11/ 10th Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

	North Bound	South Bound	East Bound	West Bound
Approach:	L - T - R	L - T - R	L - T - R	L - T - R
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1! 0 0	0 0 1! 0 0
Final Vol.:	6 647	1	5 482	9 8 1 6

ApproachDel:	xxxxxx	xxxxxx	16.4	12.4
--------------	--------	--------	------	------

Approach[eastbound][lanes=1][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=15]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=4][total volume=1179]

SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=15]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=4][total volume=1179]

SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #3 Main Street - OR 11/ 10th Ave.

Future Volume Alternative: Peak Hour Warrant NOT Met

	North Bound	South Bound	East Bound	West Bound
Approach:	L - T - R	L - T - R	L - T - R	L - T - R
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 1 0	0 0 1 1 0
Final Vol.:	6 647	5 482	9 8 1	6 1 1 13

Major Street Volume: 1150
 Minor Approach Volume: 15
 Minor Approach Volume Threshold: 237

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #4 Main Street - OR 11/ 9th Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

	North Bound	South Bound	East Bound	West Bound
Approach:	L - T - R	L - T - R	L - T - R	L - T - R
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 1 0	0 0 1 1 0
Final Vol.:	1 681	5 16 497	21 12 1	7 4 1 14
ApproachDel:	xxxxxx	xxxxxx	18.2	14.6

Approach[eastbound][lanes=1][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=0.11]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=20]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=4][total volume=1262]

SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=20]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=4][total volume=1262]

SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #4: Main Street - OR 11/ 9th Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1! 0 0	0 0 1! 0 0
Final Vol.:	1 681	5 16 497	21 12 1	7 4 1 14

Major Street Volume: 1222
 Minor Approach Volume: 20
 Minor Approach Volume Threshold: 216

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #5 Main Street-OR11/ 8th Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1! 0 0	0 0 1! 0 0
Final Vol.:	9 682	2 3 512	17 28 1	13 2 1 14
ApproachDel:	xxxxxx	xxxxxx	19.7	13.5

Approach[eastbound][lanes=1][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.2]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=42]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=1285]
 SUCCEED - Total volume greater than or equal to 800 for intersection
 with four or more approaches.

Approach[westbound][lanes=1][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=17]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=1285]
 SUCCEED - Total volume greater than or equal to 800 for intersection
 with four or more approaches.

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #5 Main Street-OR11/ 8th Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1! 0 0	0 0 1! 0 0
Final Vol.:	9 682	2 3 512	17 28 1	13 2 1 14

Major Street Volume: 1226
 Minor Approach Volume: 42
 Minor Approach Volume Threshold: 215

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #6 OR 11/7th Ave - Eastbound

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1! 0 0	0 0 1! 0 0
Final Vol.:	3 937	0 0 688	19 10 1	3 0 0 0
ApproachDel:	xxxxxx	xxxxxx	24.5	xxxxxx

Approach[eastbound][lanes=1][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=14]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=1661]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #6 OR 11/7th Ave - Eastbound

Future Volume Alternative: Peak Hour Warrant NOT Met

	North Bound	South Bound	East Bound	West Bound
Approach:	L - T - R	L - T - R	L - T - R	L - T - R
Movement:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
Final Vol.:	3 937 0	0 688 19	10 1 3	0 0 0 0

Major Street Volume: 1646

Minor Approach Volume: 14

Minor Approach Volume Threshold: 113

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #7 OR 11/7th Avenue - Westbound

Future Volume Alternative: Peak Hour Warrant NOT Met

	North Bound	South Bound	East Bound	West Bound
Approach:	L - T - R	L - T - R	L - T - R	L - T - R
Movement:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 0 0 0	0 0 1 0 0
Final Vol.:	0 937 1	10 688 0	0 0 0 0	3 0 23
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	14.0

Approach[westbound][lanes=1][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=26]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=1662]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #7 OR 11/7th Avenue - Westbound

Future Volume Alternative: Peak Hour Warrant NOT Met

	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 0 0 0	0 0 1 0 0
Final Vol.:	0 937 1	10 688 0	0 0 0 0	3 0 23

Major Street Volume: 1636

Minor Approach Volume: 26

Minor Approach Volume Threshold: 115

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Delay Signal Warrant Report

Intersection #8 OR 11/ 4th Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
Final Vol.:	4 849 1	6 628 1	6 1 1	1 1 1 13
ApproachDel:	xxxxxx	xxxxxx	26.2	15.1

Approach[eastbound][lanes=1][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=9]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=4][total volume=1514]

SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=15]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=4][total volume=1514]

SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Kittelson & Associates, Inc. - Project # 6743
Milton-Freewater STA and TSP Update, Milton-Freewater, OR
2004 Existing Traffic Condition, Weeday AM Peak Hour

Peak Hour Volume Signal Warrant Report (Urban)

INTERSECTION #8 OR 117 4th Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T + R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
Final Vol.:	4 849	1 6 628	1 6 1	1 1 1 13

Major Street Volume: 1490

Major Street Volume:
Minor Approach Volume:

Minor Approach Volume Threshold: 147

AN

Kittelson & Associates, Inc. - Project # 6743
Milton-Freewater STA and TSP Update, Milton-Freewater, OR
2004 Existing Traffic Condition, Weeday AM Peak Hour

Level of Service Computation Report

Level of Service Computation Report
2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #1 DR 11/14th Ave

Average Delay (sec/veh)= 3.0 Worst Case Level Of Service: F 16.81

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Channel
Lanes:	0 0 1 1 0	0 1 1 0 0	0 0 0 0 0	1 0 0 0 1

Lanes:	0	0	0	1	0	0	1	1	0	0	0	0	1
Volume Module: >> Count Date: 1 Dec 2004 <<													
Base Vol:	0	323	13	108	259	0	0	0	0	12	0	152	
Growth Adj:	1.00	1.18	1.00	1.00	1.18	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Initial Bse:	0	381	13	108	306	0	0	0	0	12	0	152	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	
PHF Volume:	0	544	19	154	437	0	0	0	0	17	0	217	
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
Final Vol.:	0	544	19	154	437	0	0	0	0	17	0	217	

Critical Gap Module:

Critical Gap Module: Critical Gp:xxxxx xxxx xxxx 4.1 xxxx xxxx xxxx xxxx xxxx 6.4 xxxx 6.2
FollowUpTim:xxxxx xxxx xxxx 2.2 xxxx xxxx xxxx xxxx xxxx 3.5 xxxx 3.1

Capacity Module:

```

Capacity Module:
Cnflct Vol: xxxx xxxx XXXXX 563 xxxx XXXXX XXXX XXXX XXXXX 1081 xxxx 554
Potent Cap.: xxxx xxxx XXXXX 1008 xxxx XXXXX XXXX XXXX XXXXX 241 xxxx 532
Move Cap.: xxxx xxxx XXXXX 1008 xxxx XXXXX XXXX XXXX XXXXX 210 xxxx 532
Volume/Cap: XXXX XXXX 0.15 xxxx XXXX XXXX XXXX XXXX 0.08 xxxx 0.41

```

Level Of Service Module

```

Level of Service Metrics:
Queue:      XXXXX XXXX XXXXX   0.5 XXXX XXXXX XXXXX XXXXX XXXXX  0.3 XXXX 2.0
Stopped Del:XXXXXX XXXX XXXXX  9.2 XXXX XXXXX XXXXX XXXXX XXXXX 23.6 XXXX 16.3
LOS by Move: *   *   *   A   *   *   *   *   *   *   C   *   C
Movement:    LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: XXXX XXXX XXXXX XXXX XXXX
Shared Queue:XXXXXX XXXX XXXXX  0.5 XXXX XXXXX XXXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Shrd StpDel:XXXXXX XXXX XXXXX  9.2 XXXX XXXXX XXXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Shared LOS:   *   *   *   A   *   *   *   *   *   *   *   *   *   *
ApproachDel: XXXXXX           XXXXXX           XXXXXX           16.9
Approach LOS: *               *               *               C

```

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Main Street-OR11/ 12th Ave

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: CI 24.2

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1! 0 0	0 0 1! 0 0

Volume Module: >> Count Date: 7 Dec 2004 <<
Base Vol: 4 450 2 10 358 7 36 2 6 3 1 15
Growth Adj: 1.00 1.18 1.00 1.00 1.18 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 4 531 2 10 422 7 36 2 6 3 1 15
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80
PHF Volume: 5 664 3 13 528 9 45 3 8 4 1 19
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 5 664 3 13 528 9 45 3 8 4 1 19

Critical Gap Module:
Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.5 6.5 6.9 7.5 6.5 6.9
FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:
Cnflct Vol: 537 xxxx xxxx 666 xxxx xxxx 900 1234 268 965 1237 333
Potent Cap.: 1027 xxxx xxxx 919 xxxx xxxx 234 175 730 209 175 663
Move Cap.: 1027 xxxx xxxx 919 xxxx xxxx 222 172 730 202 171 663
Volume/Cap: 0.00 xxxx xxxx 0.01 xxxx xxxx 0.20 0.01 0.01 0.02 0.01 0.03

Level Of Service Module:
Queue: 0.0 xxxx xxxx 0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Stopped Del: 8.5 xxxx xxxx 9.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
LOS by Move: A * * A * * * * * * * * *
Movement: LT - LTR - RT
Shared Cap.: xxxx xxxx xxxx xxxx xxxx 242 xxxx xxxx 439 xxxx
SharedQueue: 0.0 xxxx xxxx 0.0 xxxx xxxx xxxx 0.9 xxxx xxxx 0.2 xxxx
Shrd StpDel: 8.5 xxxx xxxx 9.0 xxxx xxxx xxxx 24.2 xxxx xxxx 13.7 xxxx
Shared LOS: A * * A * * * C * * * B *
ApproachDel: XXXXXX XXXXXX 24.2 13.7
ApproachLOS: * * C B

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Main Street - DR 11/ 10th Ave

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: CI 16.4

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1! 0 0	0 0 1! 0 0

Volume Module: >> Count Date: 18 Nov 2004 <<
Base Vol: 5 495 1 4 369 8 7 1 5 1 1 11
Growth Adj: 1.00 1.15 1.00 1.00 1.15 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 5 569 1 4 424 8 7 1 5 1 1 11
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88
PHF Volume: 6 647 1 5 482 9 8 1 6 1 1 13
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 6 647 1 5 482 9 8 1 6 1 1 13

Critical Gap Module:
Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.5 6.5 6.9 7.5 6.5 6.9
FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:
Cnflct Vol: 491 xxxx xxxx 648 xxxx xxxx 831 1155 246 910 1159 324
Potent Cap.: 1068 xxxx xxxx 934 xxxx xxxx 262 195 755 230 194 672
Move Cap.: 1068 xxxx xxxx 934 xxxx xxxx 254 193 755 225 192 672
Volume/Cap: 0.01 xxxx xxxx 0.00 xxxx xxxx 0.03 0.01 0.01 0.01 0.01 0.02

Level Of Service Module:
Queue: 0.0 xxxx xxxx 0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Stopped Del: 8.4 xxxx xxxx 8.9 xxxx xxxx xxxx xxxx xxxx xxxx xxxx
LOS by Move: A * * A * * * * * * * * *
Movement: LT - LTR - RT
Shared Cap.: xxxx xxxx xxxx xxxx 330 xxxx xxxx 500 xxxx
SharedQueue: 0.0 xxxx xxxx 0.0 xxxx xxxx xxxx 0.1 xxxx xxxx 0.1 xxxx
Shrd StpDel: 8.4 xxxx xxxx 8.9 xxxx xxxx xxxx 16.4 xxxx xxxx 12.4 xxxx
Shared LOS: A * * A * * * C * * * B *
ApproachDel: XXXXXX XXXXXX 16.4 12.4
ApproachLOS: * * C B

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #4 Main Street - OR 11/ 9th Ave

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: CL 18.21

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:	>> Count Date:	22 Dec 2004 <<
Base Vol:	1 508	5 15 371 19 11 1 6 4 1 13
Growth Adj:	1.00 1.22	1.00 1.22 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:	1 620	5 15 453 19 11 1 6 4 1 13
User Adj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:	0.91 0.91	0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91
PHF Volume:	1 681	5 16 497 21 12 1 7 4 1 14
Reduc Vol:	0 0 0 0 0 0 0 0 0 0 0	
Final Vol.:	1 681	5 16 497 21 12 1 7 4 1 14

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.5 6.5	6.9 7.5 6.5	6.9
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5 4.0	3.3

Capacity Module:

Cnflct Vol:	518 xxxx xxxx	687 xxxx xxxx	884 1230	259 968 1237	343
Potent Cap.:	1044 xxxx xxxx	903 xxxx xxxx	240 176	740 208 175	653
Move Cap.:	1044 xxxx xxxx	903 xxxx xxxx	230 173	740 202 171	653
Volume/Cap:	0.00 xxxx xxxx	0.02 xxxx xxxx	0.05 0.01	0.01 0.02 0.01	0.02

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx		
Stopped Del:	8.5 xxxx xxxx	9.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx		
LOS by Move:	A * * A * * * * * * * *			
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx xxxx 292 xxxx xxxx 395 xxxx		
SharedQueue:	0.0 xxxx xxxx	0.1 xxxx xxxx xxxx 0.2 xxxx xxxx 0.2 xxxx		
Shrd StpDel:	8.5 xxxx xxxx	9.1 xxxx xxxx xxxx 18.2 xxxx xxxx 14.6 xxxx		
Shared LOS:	A * * A * * * C * * * B *			
ApproachDel:	xxxxxx	18.2	14.6	
ApproachLOS:	*	C	B	

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #5 Main Street-OR11/ 8th Ave

Average Delay (sec/veh): 0.9 Worst Case Level Of Services: CL 19.71

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:	>> Count Date:	29 Nov 2004 <<
----------------	----------------	----------------

Base Vol:	8 522	2 3 392 15 25 1 11 2 1 12
Growth Adj:	1.00 1.15	1.00 1.15 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:	8 600	2 3 451 15 25 1 11 2 1 12
User Adj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:	0.88 0.88	0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88
PHF Volume:	9 682	2 3 512 17 28 1 13 2 1 14
Reduc Vol:	0 0 0 0 0 0 0 0 0 0	
Final Vol.:	9 682	2 3 512 17 28 1 13 2 1 14

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.5 6.5	6.9 7.5 6.5	6.9
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5 4.0	3.3

Capacity Module:

Cnflct Vol:	529 xxxx xxxx	684 xxxx xxxx	887 1230	265 965 1238	342
Potent Cap.:	1034 xxxx xxxx	905 xxxx xxxx	238 176	734 209 174	654
Move Cap.:	1034 xxxx xxxx	905 xxxx xxxx	230 174	734 203 172	654
Volume/Cap:	0.01 xxxx xxxx	0.00 xxxx xxxx	0.12 0.01	0.02 0.01 0.01	0.02

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx		
Stopped Del:	8.5 xxxx xxxx	9.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx		
LOS by Move:	A * * A * * * * * * * *			
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx xxxx 286 xxxx xxxx 441 xxxx		
SharedQueue:	0.0 xxxx xxxx	0.0 xxxx xxxx xxxx 0.5 xxxx xxxx 0.1 xxxx		
Shrd StpDel:	8.5 xxxx xxxx	9.0 xxxx xxxx xxxx 19.7 xxxx xxxx 13.5 xxxx		
Shared LOS:	A * * A * * * C * * * B *			
ApproachDel:	xxxxxx	19.7	13.5	
ApproachLOS:	*	C	B	

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 OR 11/7th Ave - Eastbound

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: D [24.5]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:

Base Vol:	2 556	0	0 408	13	7	1	2	0	0	0
Growth Adj:	1.00 1.18	1.00	1.00 1.18	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00	1.00
Initial Bse:	2 656	0	0 481	13	7	1	2	0	0	0
User Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00	1.00
PHF Adj:	0.70 0.70	0.70	0.70 0.70	0.70	0.70 0.70	0.70	0.70 0.70	0.70	0.70	0.70
PHF Volume:	3 937	0	0 688	19	10	1	3	0	0	0
Reduc Vol:	0 0	0	0 0	0	0	0	0	0	0	0
Final Vol.:	3 937	0	0 688	19	10	1	3	0	0	0

Critical Gap Module:

Critical Gp:	4.1 xxxx	xxxxx	xxxxx	xxxxx	xxxxx	6.8	6.5	6.9	xxxxx	xxxxx	xxxxx
FollowUpTim:	2.2	xxxxx	xxxxx	xxxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxxx	xxxxx

Capacity Module:

Cnflct Vol:	706	xxxxx	xxxxx	xxxx	xxxx	xxxxx	1171	1640	353	xxxx	xxxx	xxxxx
Potent Cap.:	888	xxxxx	xxxxx	xxxx	xxxx	xxxxx	189	101	649	xxxx	xxxx	xxxxx
Move Cap.:	888	xxxxx	xxxxx	xxxx	xxxx	xxxxx	188	101	649	xxxx	xxxx	xxxxx
Volume/Cap:	0.00	xxxx	xxxx	xxxx	xxxx	xxxxx	0.05	0.01	0.00	xxxx	xxxx	xxxxx

Level Of Service Module:

Queue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxx	xxxx	xxxxx
Stopped Del:	9.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT											
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	199	xxxxx	xxxx	0	xxxxx		
SharedQueue:	0.0	xxxx	xxxxx	xxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxx		
Shrd StpDel:	9.1	xxxx	xxxxx	9.0	xxxx	xxxxx	xxxxx	24.5	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	A	*	*	A	*	*	*	C	*	*	*	*
ApproachDel:	xxxxxx		xxxxxx		24.5		xxxxxx		*			
ApproachLOS:	*		*		C		*					

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 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 OR 11/7th Avenue - Westbound

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: BT 14.01

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 0 0 0	0 0 1 0 0

Volume Module:

Base Vol:	0 556	1	7 408	0	0	0	0	2	0	16
Growth Adj:	1.00 1.18	1.00	1.00 1.18	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00	1.00
Initial Bse:	0 656	1	7 481	0	0	0	0	2	0	16
User Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00	1.00
PHF Adj:	0.70 0.70	0.70	0.70 0.70	0.70	0.70 0.70	0.70	0.70 0.70	0.70	0.70	0.70
PHF Volume:	0 937	1	10 688	0	0	0	0	3	0	23
Reduc Vol:	0 0	0	0 0	0	0	0	0	0	0	0
Final Vol.:	0 937	1	10 688	0	0	0	0	3	0	23

Critical Gap Module:

Critical Gp:	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	4.1	xxxxx	xxxxx	xxxxx	xxxxx	6.8	xxxx	6.9
FollowUpTim:	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	2.2	xxxxx	xxxxx	xxxxx	xxxxx	3.5	xxxx	3.3

Capacity Module:

Cnflct Vol:	xxxxx	xxxxx	xxxxx	939	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1302	xxxx	469
Potent Cap.:	xxxxx	xxxxx	xxxxx	726	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	155	xxxx	546
Move Cap.:	xxxxx	xxxxx	xxxxx	726	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	153	xxxx	546
Volume/Cap:	xxxxx	xxxxx	xxxxx	0.01	xxxx	xxxx	xxxxx	xxxx	xxxx	0.02	xxxx	0.04

Level Of Service Module:

Queue:	xxxxx	xxxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxxx	xxxxx	10.0	xxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxx	xxxxx
LOS by Move:	*	*	*	8	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT											
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	199	xxxxx	xxxx	0	xxxxx		
SharedQueue:	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxxx	xxxx	xxxxx		
Shrd StpDel:	9.1	xxxx	xxxxx	9.0	xxxx	xxxxx	xxxxx	24.5	xxxxx	xxxx	xxxx	xxxxx
Shared LOS:	A	*	*	A	*	*	*	C	*	*	*	*
ApproachDel:	xxxxxx		xxxxxx	24.5		xxxxxx		*				
ApproachLOS:	*		*	C		*		*				

Kittelson & Associates, Inc. - Project # 6743
Milton-Freewater STA and TSP Update, Milton-Freewater, OR
2004 Existing Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 OR 11/ 4th Avenue

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: DI 26.2

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
Rights: Include Include Include Include

Lanes: 0 1 0 1 0 0 1 0 1 0 0 0 11 0 0 0 0 1 0 0

Volume Module:

Base Vol:	3 576	1	5 426	1	5	1	1	1	1	1	10
Growth Adj:	1.00	1.15	1.00	1.00	1.15	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	3 662	1	5 490	1	5	1	1	1	1	1	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
PHF Volume:	4 849	1	6 628	1	6	1	1	1	1	1	13
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	4 849	1	6 628	1	6	1	1	1	1	1	13

Critical Gap Module:

Critical Gp:	4.1 xxxx	xxxxx	4.1 xxxx	xxxxx	7.5	6.5	6.9	7.5	6.5	6.9
--------------	----------	-------	----------	-------	-----	-----	-----	-----	-----	-----

FollowUpTim:	2.2 xxxx	xxxxx	2.2 xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
--------------	----------	-------	----------	-------	-----	-----	-----	-----	-----	-----

Capacity Module:

Cnflct Vol:	629 xxxx	xxxxx	851 xxxx	xxxxx	1074	1500	315	1185	1500	425	
Potent Cap.:	949 xxxx	xxxxx	784 xxxx	xxxxx	177	123	687	147	123	583	
Move Cap.:	949 xxxx	xxxxx	784 xxxx	xxxxx	170	122	687	144	122	583	
Volume/Cap:	0.00	xxxx	xxxx	0.01	xxxx	xxxx	0.04	0.01	0.00	0.01	0.02

Level Of Service Module:

Queue:	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxxx	
Stopped Del:	8.8	xxxx	xxxxx	9.6	xxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxxx	
LOS by Move:	A	*	*	A	*	*	*	*	*	*	
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	179	xxxxx	xxxx	371	xxxxx	
SharedQueue:	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx	0.2	xxxxx	xxxxx	0.1	xxxxx
Shrd StpDel:	8.8	xxxx	xxxxx	9.6	xxxx	xxxxx	xxxxx	26.2	xxxxx	xxxxx	
Shared LOS:	A	*	*	A	*	*	D	*	*	C	
ApproachDel:	xxxxxx		xxxxxx			26.2			15.1		
ApproachLOS:	*		*			D			C	*	

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2004 Existing Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Main Street/OR11/ 2nd Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.239
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 20.4
Optimal Cycle: 29 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Split Phase Split Phase
Rights: Ignore Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 0 1 1 0 1 0 0 1 1 0 0 0 0 1 0 1 0 0 0

Volume Module: >> Count Date: 30 Nov 2004 <<

Base Vol:	14 170	407	0 159	1	7	0	11	262	19.	1
-----------	--------	-----	-------	---	---	---	----	-----	-----	---

Growth Adj:	1.00	1.22	1.22	1.00	1.00	1.00	1.00	1.22	1.00	1.00
-------------	------	------	------	------	------	------	------	------	------	------

Initial Bse:	14 207	497	0 194	1	7	0	11	320	19.	1
--------------	--------	-----	-------	---	---	---	----	-----	-----	---

User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
-----------	------	------	------	------	------	------	------	------	------	------

PHF Adj:	0.90	0.90	0.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
----------	------	------	------	------	------	------	------	------	------	------

PHF Volume:	16 230	0	0 216	1	8	0	12	355	21.	1
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Reduc Vol:	0	0	0	0	0	0	0	0	0	0
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Reduced Vol:	16 230	0	0 216	1	8	0	12	355	21.	1
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PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
----------	------	------	------	------	------	------	------	------	------	------

Final Vol.:	16 230	0	0 216	1	8	0	12	355	21.	1
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Saturation Flow Module:

Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
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Adjustment:	0.87	0.87	1.00	1.00	0.93	0.93	0.88	1.00	0.88	0.94
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Lanes:	0.13	1.87	1.00	0.00	1.99	0.01	0.39	0.00	0.61	1.89
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Final Sat.:	198	2926	1800	0 3331	17	618	0	971	3182	178.
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Capacity Analysis Module:

Vol/Sat:	0.08	0.08	0.00	0.00	0.06	0.06	0.01	0.00	0.01	0.11
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Crit Moves:	****	****	****	****	****	****	****	****	****	****
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Green/Cycle:	0.33	0.33	0.00	0.00	0.33	0.33	0.05	0.00	0.05	0.50
--------------	------	------	------	------	------	------	------	------	------	------

Volume/Cap:	0.24	0.24	0.00	0.00	0.20	0.20	0.24	0.00	0.24	0.22
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Delay/Veh:	24.5	24.5	0.0	0.0	24.1	24.1	46.9	0.0	46.9	14.3
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User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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AdjDel/Veh:	24.5	24.5	0.0	0.0	24.1	24.1	46.9	0.0	46.9	14.3
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HCM2kAvg:	3	3	0	0	2	2	1	0	1	3
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PM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Conditions, Weekday PM Peak Hour

Scenario Report

Scenario:	PM
Command:	PM
Volume:	PM
Geometry:	EX
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Paths
Routes:	Default Routes
Configuration:	Default Configuration

PM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Conditions, Weekday PM Peak Hour

Impact Analysis Report
 Level Of Service

Intersection	Base LOS Veh	V/ C	Future LOS Veh	V/ C	Change in D/V
# 1 OR 11/ 14th Ave	C 16.3	0.000	C 16.3	0.000	+ 0.000 D/V
# 2 Main Street-OR11/ 12th Ave	D 31.6	0.000	D 31.6	0.000	+ 0.000 D/V
# 3 Main Street - OR 11/ 10th Ave	D 33.1	0.000	D 33.1	0.000	+ 0.000 D/V
# 4 Main Street - OR 11/ 9th Ave	C 24.6	0.000	C 24.6	0.000	+ 0.000 D/V
# 5 Main Street-OR11/ 8th Ave	E 42.0	0.000	E 42.0	0.000	+ 0.000 D/V
# 6 OR 11/7th Ave - Eastbound	D 34.6	0.000	D 34.6	0.000	+ 0.000 D/V
# 7 OR 11/7th Avenue - Westbound	B 12.4	0.000	B 12.4	0.000	+ 0.000 D/V
# 8 OR 11/ 4th Avenue	D 34.8	0.000	D 34.8	0.000	+ 0.000 D/V
# 9 Main Street/OR11/ 2nd Ave	B 19.6	0.345	B 19.6	0.345	+ 0.000 D/V

Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 OR 11/ 14th Ave

Average Delay (sec/veh): 3.4 Worst Case Level Of Service: CI 16.31

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Channel

Lanes:	0 0 0 1 0	0 1 1 0 0	0 0 0 0 0	1 0 0 0 1
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Volume Module: >> Count Date: 1 Dec 2004 <<

Base Vol:	0 333	6 145	339 0	0 0 0 8 0 134
Growth Adj:	1.00 1.18	1.00 1.00	1.00 1.18 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:	0 393	6 145	400 0	0 0 0 8 0 134
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:	0.71 0.71	0.71 0.71	0.71 0.71 0.71 0.71 0.71 0.71	0.71 0.71 0.71 0.71 0.71 0.71
PHF Volume:	0 553	8 204	563 0	0 0 0 11 0 189
Reduc Vol:	0 0	0 0	0 0 0 0 0 0	0 0 0 0 0 0
Final Vol.:	0 553	8 204	563 0	0 0 0 11 0 189

Critical Gap Module:

Critical Gp:xxxxx xxxx xxxx xxxx	4.1 xxxx xxxx xxxx xxxx xxxx	6.4 xxxx	6.2
FollowUpTim:xxxxx xxxx xxxx	2.2 xxxx xxxx xxxx xxxx xxxx	3.5 xxxx	3.3

Capacity Module:

Cnflict Vol: xxxx xxxx xxxx	562 xxxx xxxx xxxx xxxx xxxx	1248 xxxx	558
Potent Cap.: xxxx xxxx xxxx	1009 xxxx xxxx xxxx xxxx xxxx	191 xxxx	529
Move Cap.: xxxx xxxx xxxx	1009 xxxx xxxx xxxx xxxx xxxx	158 xxxx	529
Volume/Cap:	xxxx xxxx xxxx	0.20 xxxx xxxx xxxx xxxx	0.07 xxxx 0.36

Level Of Service Module:

Queue: xxxx xxxx xxxx	0.8 xxxx xxxx xxxx xxxx xxxx	0.2 xxxx	1.6
Stopped Del:xxxxx xxxx xxxx	9.5 xxxx xxxx xxxx xxxx xxxx	29.6 xxxx	15.5
LOS by Move: * * *	A * * * * *	D *	C
Movement: LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.: xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx
SharedQueue:xxxxx xxxx xxxx	0.8 xxxx xxxx xxxx xxxx xxxx	0.5 xxxx xxxx xxxx	0.2 xxxx
Shrd StpDel:xxxxx xxxx xxxx	9.5 xxxx xxxx xxxx xxxx xxxx	9.0 xxxx xxxx xxxx xxxx xxxx	16.0 xxxx
Shared LOS: * * *	A * * * * *	D *	C
ApproachDel: xxxxxx	xxxxxxxx	xxxxxxxx	16.3
ApproachLOS:	*	*	C

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 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Main Street-OR11/ 12th Ave

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: DI 31.61

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 1 0 0	0 0 1 1 0 0
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Volume Module: >> Count Date: 7 Dec 2004 <<

Base Vol:	1 466	1 37	482 21	18 3	1 2	2 2 11
Growth Adj:	1.00 1.18	1.00 1.00	1.00 1.18 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00		
Initial Bse:	1 550	1 37	569 21	18 3	1 2	2 2 11
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00		
PHF Adj:	0.86 0.86	0.86 0.86	0.86 0.86 0.86 0.86 0.86 0.86	0.86 0.86 0.86 0.86 0.86 0.86		
PHF Volume:	1 639	1 43	661 24	21 3	1 2	2 2 13
Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0 0 0
Final Vol.:	1 639	1 43	661 24	21 3	1 2	2 2 13

Critical Gap Module:

Critical Gp:xxxxx xxxx xxxx	4.1 xxxx xxxx xxxx xxxx	7.5 6.5	6.9 7.5 6.5 6.9
FollowUpTim:xxxxx xxxx xxxx	2.2 xxxx xxxx xxxx xxxx	3.5 4.0	3.3 3.5 4.0 3.3

Capacity Module:

Cnflict Vol: xxxx xxxx xxxx	686 xxxx xxxx	641 xxxx xxxx	1083 1402	343 1061 1414	320
Potent Cap.: xxxx xxxx xxxx	904 xxxx xxxx	940 xxxx xxxx	172 139	653 178 136	675
Move Cap.: xxxx xxxx xxxx	904 xxxx xxxx	940 xxxx xxxx	160 132	653 168 130	675
Volume/Cap:	0.00 xxxx xxxx	0.05 xxxx xxxx	0.13 0.03	0.00 0.01 0.02	0.02

Level Of Service Module:

Queue: 0.0 xxxx xxxx	0.1 xxxx xxxx	xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx
Stopped Del: 9.0 xxxx xxxx	9.0 xxxx xxxx	xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx
LOS by Move: A * * *	A * * * * *	D *	C	*	*
Movement: LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.: xxxx xxxx xxxx	xxxx xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx
SharedQueue:0.0 xxxx xxxx	0.1 xxxx xxxx	0.5 xxxx xxxx	0.2 xxxx	0.3 xxxx	0.4 xxxx
Shrd StpDel:9.0 xxxx xxxx	9.0 xxxx xxxx	31.6 xxxx xxxx	16.0 xxxx	14.1 xxxx	13.2 xxxx
Shared LOS: A * * *	A * * * * *	D *	C	*	*
ApproachDel: xxxxxx	xxxxxxxx	xxxxxxxx	16.3	31.6	16.0
ApproachLOS:	*	*	C	D	C

Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Main Street - OR 11/ 10th Ave

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: DE 33.1

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module: >> Count Date: 18 Nov 2004 <<

Base Vol:	5 488	2 7 531	17 19 2	4 5 2	17
Growth Adj:	1.00 1.15	1.00 1.15	1.00 1.00	1.00 1.00	1.00
Initial Bse:	5 561	2 7 611	17 19 2	4 5 2	17
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00
PHF Adj:	0.80 0.80	0.80 0.80	0.80 0.80	0.80 0.80	0.80
PHF Volume:	6 701	3 9 763	21 24 3	5 6 3	21
Reduc Vol:	0 0	0 0	0 0	0 0	0
Final Vol.:	6 701	3 9 763	21 24 3	5 6 3	21

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.5 6.5	6.9 7.5 6.5	6.9
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5 4.0	3.3

Capacity Module:

Cnflict Vol:	785 xxxx xxxx	704 xxxx xxxx	1156 1508	392 1116 1517	352
Potent Cap.:	830 xxxx xxxx	890 xxxx xxxx	152 120	607 162 118	644
Move Cap.:	830 xxxx xxxx	890 xxxx xxxx	142 118	607 156 116	644
Volume/Cap:	0.01 xxxx xxxx	0.01 xxxx xxxx	0.17 0.02	0.01 0.04 0.02	0.03

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxxx xxxx	xxxxx xxxx	xxxxx xxxx
Stopped Del:	9.4 xxxx xxxx	9.1 xxxx xxxx	xxxxx xxxx	xxxxx xxxx	xxxxx xxxx
LOS by Move:	A * *	A * * *	* * *	* * *	* * *
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 159	xxxxx xxxx	317 xxxx
SharedQueue:	0.0 xxxx xxxx	0.0 xxxx xxxx	0.7 xxxx	0.3 xxxx	0.3 xxxx
Shrd StpDel:	9.4 xxxx xxxx	9.1 xxxx xxxx	xxxxx 33.1	xxxxx xxxx	17.5 xxxx
Shared LOS:	A * *	A * * *	D * *	C *	C *
ApproachDel:	xxxxxx	xxxxxx	33.1	17.5	
ApproachLOS:	*	*	D	C	C

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 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Main Street - OR 11/ 9th Ave

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: CI 24.6

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module: >> Count Date: 22 Nov 2004 <<

Base Vol:	1 522	2 31 542	14 9	1 5 8	1 11
Growth Adj:	1.00 1.15	1.00 1.15	1.00 1.00	1.00 1.00	1.00 1.00
Initial Bse:	1 600	2 31 623	14 9	1 5 8	1 11
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
PHF Adj:	0.89 0.89	0.89 0.89	0.89 0.89	0.89 0.89	0.89 0.89
PHF Volume:	1 674	2 35 700	16 10	1 6 9	1 12
Reduc Vol:	0 0	0 0	0 0	0 0	0 0
Final Vol.:	1 674	2 35 700	16 10	1 6 9	1 12

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.5 6.5	6.9 7.5 6.5	6.9
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5 4.0	3.3

Capacity Module:

Cnflict Vol:	716 xxxx xxxx	677 xxxx xxxx	1118 1457	358 1098 1464	338
Potent Cap.:	880 xxxx xxxx	911 xxxx xxxx	162 129	638 167 127	657
Move Cap.:	880 xxxx xxxx	911 xxxx xxxx	153 123	638 160 122	657
Volume/Cap:	0.00 xxxx xxxx	0.04 xxxx xxxx	0.07 0.01	0.01 0.06 0.01	0.02

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxx xxxx	xxxxx xxxx	xxxxx xxxx
Stopped Del:	9.1 xxxx xxxx	9.1 xxxx xxxx	xxxxx xxxx	xxxxx xxxx	xxxxx xxxx
LOS by Move:	A * *	A * * *	* * *	* * *	* * *
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 200	xxxxx xxxx	266 xxxx
SharedQueue:	0.0 xxxx xxxx	0.1 xxxx xxxx	0.3 xxxx	0.3 xxxx	0.3 xxxx
Shrd StpDel:	9.1 xxxx xxxx	9.1 xxxx xxxx	xxxxx 24.6	xxxxx xxxx	19.8 xxxx
Shared LOS:	A * *	A * * *	D * *	C *	C *
ApproachDel:	xxxxxx	xxxxxx	24.6	19.8	
ApproachLOS:	*	*	D	C	C

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 2004 Existing Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Main Street-OR11/ 8th Ave

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: EL 42.0

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module: >> Count Date: 29 Nov 2004 <<

Base Vol:	6 527	9 13 578	43 24 3	6 3 1	1
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Growth Adj:	1.00 1.15	1.00 1.00 1.15	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00
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Initial Bse:	6 606	9 13 665	43 24 3	6 3 1	1
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User Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00
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PHF Adj:	0.81 0.81	0.81 0.81 0.81	0.81 0.81 0.81	0.81 0.81 0.81	0.81 0.81
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PHF Volume:	7 748	11 16 821	53 30 4	7 4 1	1
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Reduc Vol:	0 0	0 0 0	0 0 0	0 0 0	0 0 0
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Final Vol.:	7 748	11 16 821	53 30 4	7 4 1	1
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Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.5 6.5	6.9 7.5 6.5	6.9
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FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5 4.0	3.3
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Capacity Module:

Cnflict Vol:	874 xxxx xxxx	759 xxxx xxxx	1269 1653	437 1213 1674	380
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Potent Cap.:	768 xxxx xxxx	848 xxxx xxxx	125 97	568 138 95	618
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Move Cap.:	768 xxxx xxxx	848 xxxx xxxx	121 95	568 129 92	618
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Volume/Cap:	0.01 xxxx xxxx	0.02 xxxx xxxx	0.25 0.04	0.01 0.03 0.01	0.00
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Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx			
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Stopped Del:	9.7 xxxx xxxx	9.3 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx			
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LOS by Move:	A *	*	*	*	*
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Movement:	LT - LTR - RT				
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Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	137 xxxx xxxx	140 xxxx	
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SharedQueue:	0.0 xxxx xxxx	0.1 xxxx xxxx xxxx	1.2 xxxx xxxx	0.1 xxxx	
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Shrd StpDel:	9.7 xxxx xxxx	9.3 xxxx xxxx xxxx	42.0 xxxx xxxx	32.0 xxxx	
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Shared LOS:	A *	*	*	E *	*
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ApproachDel:	xxxxxx	xxxxxx	42.0	32.0	
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ApproachLOS:	*	*	E	D	*
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 2004 Existing Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 OR 11/7th Ave - Eastbound

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: DI 34.6

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module:

Base Vol:	6 544	0 0 631	20 31 3	3 0 0 0
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Growth Adj:	1.00 1.18	1.00 1.00 1.18	1.00 1.00 1.00	1.00 1.00 1.00
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Initial Bse:	6 642	0 0 745	20 31 3	3 0 0 0
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User Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
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PHF Adj:	0.86 0.86	0.86 0.86 0.86	0.86 0.86 0.86	0.86 0.86 0.86
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PHF Volume:	7 746	0 0 866	23 36 3	3 0 0 0
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Reduc Vol:	0 0	0 0 0	0 0 0	0 0 0
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Final Vol.:	7 746	0 0 866	23 36 3	3 0 0 0
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Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	xxxx xxxx xxxx	6.8 6.5	6.9 xxxx xxxx
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FollowUpTim:	2.2 xxxx xxxx	xxxx xxxx xxxx	3.5 4.0	3.3 xxxx xxxx
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Capacity Module:

Cnflict Vol.:	889 xxxx xxxx	xxxx xxxx xxxx	1265 1638	445 xxxx xxxx
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Potent Cap.:	758 xxxx xxxx	xxxx xxxx xxxx	164 102	567 xxxx xxxx
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Move Cap.:	758 xxxx xxxx	xxxx xxxx xxxx	163 101	567 xxxx xxxx
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Volume/Cap:	0.01 xxxx xxxx	xxxx xxxx xxxx	0.22 0.03	0.01 xxxx xxxx
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Level Of Service Module:

Queue:	0.0 xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx
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Stopped Del:	9.8 xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx
--------------	---------------	----------------	----------------	----------------

LOS by Move:	A *	*	*	*
--------------	-----	---	---	---

Movement:	LT - LTR - RT			
-----------	---------------	---------------	---------------	---------------

Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	164 xxxx xxxx	0 xxxx
--------------	----------------	----------------	---------------	--------

SharedQueue:	0.0 xxxx xxxx	0.1 xxxx xxxx	1.0 xxxx xxxx	xxxx xxxx xxxx
--------------	---------------	---------------	---------------	----------------

Shrd StpDel:	9.8 xxxx xxxx	9.0 xxxx xxxx	34.6 xxxx xxxx	xxxx xxxx xxxx
--------------	---------------	---------------	----------------	----------------

Shared LOS:	A *	*	*	*
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ApproachDel:	xxxxxx	xxxxxx	34.6	xxxxxx
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ApproachLOS:	*	*	D	*
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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 OR 11/7th Avenue - Westbound

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: BI 12.41

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	stop sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 0 0 0	0 0 1! 0 0
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Volume Module:

Base Vol:	0 544	2 17	631 0	0 0	0 1	0 0	9
Growth Adj:	1.00 1.18	1.00 1.18	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00
Initial Bse:	0 642	2 17	745 0	0 0	0 1	0 0	9
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00
PHF Adj:	0.86 0.86	0.86 0.86	0.86 0.86	0.86 0.86	0.86 0.86	0.86 0.86	0.86
PHF Volume:	0 746	2 20	866 0	0 0	0 1	0 0	10
Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0 0	0
Final Vol.:	0 746	2 20	866 0	0 0	0 1	0 0	10

Critical Gap Module:

Critical Gp:	xxxxxx xxxx xxxx	4.1 xxxx xxxx xxxx xxxx xxxx	6.8 xxxx	6.9
FollowUpTim:	xxxxxx xxxx xxxx	2.2 xxxx xxxx xxxx xxxx xxxx	3.5 xxxx	3.3

Capacity Module:

Cnflct Vol:	xxxx xxxx xxxx	749 xxxx xxxx xxxx xxxx xxxx	1220 xxxx	374
Potent Cap.:	xxxx xxxx xxxx	856 xxxx xxxx xxxx xxxx	175 xxxx	629
Move Cap.:	xxxx xxxx xxxx	856 xxxx xxxx xxxx xxxx	172 xxxx	629
Volume/Cap:	xxxx xxxx xxxx	0.02 xxxx xxxx xxxx xxxx	0.01 xxxx	0.02

Level Of Service Module:

Queue:	xxxxx xxxx xxxx	0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx	9.3 xxxx xxxx xxxx xxxx xxxx xxxx xxxx	A * * * * * * *
Stopped Del:	xxxxx xxxx xxxx	9.3 xxxx xxxx xxxx xxxx xxxx xxxx	9.3 xxxx xxxx xxxx xxxx xxxx xxxx	A * * * * * * *
LOS by Move:	* * *	A * * * * * * *	A * * * * * * *	A * * * * * * *
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx	497 xxxx	LT - LTR - RT
SharedQueue:	0.0 xxxx xxxx	0.1 xxxx xxxx	0.1 xxxx	LT - LTR - RT
Shrd StpDel:	9.0 xxxx xxxx	9.3 xxxx xxxx xxxx xxxx xxxx	12.4 xxxx	LT - LTR - RT
Shared LOS:	A * *	A * * * * * * *	B *	LT - LTR - RT
ApproachDel:	xxxxxx	xxxxxx	12.4	LT - LTR - RT
ApproachLOS:	*	*	B	LT - LTR - RT

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 OR 11/4th Avenue

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: DI 34.81

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 0 0 0	0 0 1! 0 0
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Volume Module:

Base Vol:	4 577	3 8	667 4	4 1	1 1 1 1 17
Growth Adj:	1.00 1.15	1.00 1.15	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
Initial Bse:	4 664	3 8	767 4	4 1	1 1 1 1 17
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.87 0.87	0.87 0.87	0.87 0.87	0.87 0.87	0.87 0.87 0.87 0.87
PHF Volume:	5 763	3 9	882 5	5 1	1 1 1 1 20
Reduc Vol:	0 0	0 0	0 0	0 0	0 0 0 0 0
Final Vol.:	5 763	3 9	882 5	5 1	1 1 1 1 20

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.5 6.5	6.9 7.5	6.5 6.9
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5	4.0 3.3

Capacity Module:

Cnflct Vol:	886 xxxx xxxx	766 xxxx xxxx	1293 1678	443 1233	1678 383
Potent Cap.:	760 xxxx xxxx	843 xxxx xxxx	122 96	568 135	96 621
Move Cap.:	760 xxxx xxxx	843 xxxx xxxx	116 94	568 132	94 621
Volume/Cap:	0.01 xxxx xxxx	0.01 xxxx xxxx	0.04 0.01	0.00 0.01	0.01 0.01 0.03

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx xxxx xxxx	9.3 xxxx xxxx xxxx xxxx	A * * * * * * *
Stopped Del:	9.8 xxxx xxxx	9.3 xxxx xxxx xxxx xxxx	9.3 xxxx xxxx xxxx xxxx	A * * * * * * *
LOS by Move:	A * * * * * * *	A * * * * * * *	A * * * * * * *	A * * * * * * *
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx	128 xxxx	417 xxxx
SharedQueue:	0.0 xxxx xxxx	0.0 xxxx xxxx	0.2 xxxx xxxx	0.2 xxxx
Shrd StpDel:	9.8 xxxx xxxx	9.3 xxxx xxxx xxxx xxxx	34.8 xxxx	14.1 xxxx
Shared LOS:	A * *	A * * * * * * *	D * * * * * * B *	A * * * * * * *
ApproachDel:	xxxxxx	xxxxxx	34.8	14.1
ApproachLOS:	*	*	D	B

Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2004 Existing Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Main Street/DR11/ 2nd Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.345
 Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 19.6
 Optimal Cycle: 33 Level Of Service: B

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Permitted	Permitted	Split Phase	Split Phase
Rights:	Ignore	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	0 1 1 0 1	0 0 1 1 0	0 0 1 0 0	1 0 1 0 0

Volume Module: >> Count Date: 30 Nov 2004 <<
Base Vol: 7 187 398 0 189 12 5 0 9 481 31 6
Growth Adj: 1.00 1.22 1.22 1.00 1.22 1.00 1.00 1.00 1.00 1.22 1.00 1.00
Initial Bse: 7 228 486 0 231 12 5 0 9 587 31 6
User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.92 0.92 0.00 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92
PHF Volume: 8 248 0 0 251 13 5 0 10 638 34 7
Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 8 248 0 0 251 13 5 0 10 638 34 7
PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol.: 8 248 0 0 251 13 5 0 10 638 34 7

Saturation Flow Module:
Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
Adjustment: 0.88 0.88 1.00 1.00 0.92 0.92 0.88 1.00 0.88 0.93 0.93 0.93
Lanes: 0.06 1.94 1.00 0.00 1.90 0.10 0.36 0.00 0.64 1.89 0.09 0.02
Final Sat.: 94 3073 1800 0 3164 165 565 0 1017 3177 158 31

Capacity Analysis Module:
Vol/Sat: 0.08 0.08 0.00 0.00 0.08 0.08 0.01 0.00 0.01 0.20 0.21 0.21
Crit Moves: ****
Green/Cycle: 0.23 0.23 0.00 0.00 0.23 0.23 0.03 0.00 0.03 0.62 0.62 0.62
Volume/Cap: 0.35 0.35 0.00 0.00 0.34 0.34 0.35 0.00 0.35 0.32 0.35 0.35
Delay/Veh: 32.2 32.2 0.0 0.0 32.1 32.1 52.4 0.0 52.4 9.2 9.4 9.4
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 32.2 32.2 0.0 0.0 32.1 32.1 52.4 0.0 52.4 9.2 9.4 9.4
HCM2kAvg: 4 4 0 0 4 4 1 0 1 5 6 6

Appendix C

Crash Data

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CONTINUOUS SYSTEM CRASH LISTING
 OR 11 (Route 11, Hwy 8) at SW 14th Avenue in Milton-Freewater
 1999 - 2003

COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN)					CRASH COLL V#	VEHICLE			AS G E EX RES LICNS LOC	MOVE FROM TO P# TYPE	PRTC INJ SVRTY	PED LOC ERROR	ACT
				INT-REL LEGS (#LANES)	OFFRD TRAF- CNTL	RNDBT SURF DRVWY	WTHR LIGHT	VEHICLE USE-TRLR OWNER TYPE		MOVE FROM TO							
/2001 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0	ORE-WASH HY 26.88 SW 14TH AVE	INTER N 06	CROSS N NONE	N N N	CLR DRY DAY	S-1STOP REAR PDO	1 PRVTE PSNGR CA	NONE 0 PRVTE PSNGR CA	STRGHT N S	1 DRV	NONE	35 M OR-Y OR<25	026	000		
								2 PRVTE PSNGR CA	NONE 0 STOP N S		1 DRV	NONE	24 M OR-Y OR<25	000	012		

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
OR 11 (Route 11, Hwy 8) at SW 12th Avenue in Milton-Freewater
1999 - 2003

COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCVN	INT-TYP (MEDIAN) INT-REL LEGS (#LANES)						OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	VEHICLE				AS G E EX RES	LICNS LOC	PED- LOC	ERROR	ACT		
				INT-REL CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	USE-TRLR OWNER TYPE				PRTC INJ TYPE SVRTY										
/2000 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0	S MAIN ST 30.01 SE 12TH AVE	INTER SW 06	CROSS STOP SIGN 0	N N N CLR DRY DAY	S-1STOP REAR PDO	1 NONE 0 PRVTE PSNGR CA	STRGHT SW NE													000 014 OR<25		
								2 NONE 0 PRVTE PSNGR CA	STOP SW NE													012	
/2002 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0	S MAIN ST 30.01 SE 12TH AVE	INTER CN 02	CROSS NONE 0	N N N CLR DRY DAY	O-1TURN TURN PDO	1 NONE 0 PRVTE PSNGR CA	STRGHT SE NW													000 000 OR<25		
								2 NONE 0 PRVTE PSNGR CA	TURN-L NW NE													004	
/2003 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0	MAIN ST 30.01 12TH AVE	INTER CN 02	CROSS NONE 0	N N N CLR DRY DAY	O-1TURN TURN INJ	1 NONE 0 PRVTE PSNGR CA	STRGHT SE NW													001 000 N-RES		
								2 NONE 0 PRVTE PSNGR CA	TURN-L NW NE													000 004 N-RES	

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CONTINUOUS SYSTEM CRASH LISTING
 OR 11 (Route 11, Hwy 8) at SW 11th Avenue in Milton-Freewater
 1999 - 2003

COUNTY	COMPNT	CONN #	RD CHAR	INT-TYP			CRASH	VEHICLE	MOVE	AS					
				(MEDIAN)	INT-REL	OFFRD					WTHR	OWNER	PRTC	INJ	G E
CITY	MLG TYP	FIRST STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	FROM	E X	RES	LOC	ERROR	ACT	
URBAN AREA	MILEPNT	SECOND STREET	LOCNTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V# TYPE	P#	TYPE	SVRTY			
/2003 UMATILLA	14		INTER	3-LEG	N	N	CLR	ANGL-OT	1 NONE 0	STRGHT					
MILTON-FREEWATER	0	S MAIN ST	CN		STOP SIGN	N	DRY	TURN	PRVTE	NW SE					001
MILT-FRE UA	0 30.07 SE	11TH AVE	04	0		N	DAY	PDO	PSNGR CA		1 DRV	NONE	87 M OR-Y	000	000
										OR<25					
									2 NONE 0	TURN-L					
									PRVTE	SW NW					011
									PSNGR CA		1 DRV	NONE	19 F OR-Y	028	000
										OR<25					

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CONTINUOUS SYSTEM CRASH LISTING
 OR 11 (Route 11, Hwy 8) at SW 10th Avenue in Milton-Freewater
 1999 - 2003

COUNTY CITY URBAN AREA	CLASS		RD CHAR DIRECT LOCTN	INT-TYP						VEHICLE						A S G E LICNS PED E X RES LOC	ERROR	ACT
	COMPNT	CONN #		(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	USE-TRLR	MOVE	PRTC	INJ						
	MLG TYP	FIRST STREET		LEGS	TRAF- #LANES)	RNDBT	SURF	COLL	OWNER	FROM	P#	TYPE	SVRTY					
MILEPNT	SECOND STREET	CNTL	DRVWY	LIGHT	SVRTY	V#	TO											
/2002 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0 30.13 SE' 10TH AVE	INTER N 06	CROSS NONE 0	N N N	CLR DRY DAY	S-1STOP REAR PDO	1 PRVTE PSNGR CA	None 0 NW SE PSNGR CA	STRGHT NW SE 1 DRV	None	74 F OR-Y OR>25	043	000					
							2 PRVTE PSNGR CA	STOP NW SE 1 DRV	None	54 M OTH-Y N-RES	000	011						

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
OR 11 (Route 11, Hwy 8) at SW 7th Avenue in Milton-Freewater
1999 - 2003

COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP FIRST STREET MILEPNT	CONN # SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) INT-REL OFFRD WTHR CRASH					V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	PRT PRTC	INJ TYPE	SVRTY	A S G E LICNS PED			ERROR	ACT
				LEGS (#LANES)	TRAF- CNTL	RNDBT DRVWY	SURF LIGHT	COLL SVRTY							E X RES LOC				
/2003 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0 30.30	MAIN ST 7TH AVE	INTER CN 02	3-LEG STOP SIGN 0	N N CLR N WET N DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA		TURN-L SW NW 1 DRV	None	61 F OR-Y OR<25	028	000	015				
							2	NONE 0 PRVTE PSNGR CA		TURN-L SE SW 1 DRV	INJC	27 F OR-Y OR<25		000	000				

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
OR 11 (Route 11, Hwy 8) at SW 5th Avenue in Milton-Freewater
1999 - 2003

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CONTINUOUS SYSTEM CRASH LISTING

OR 11 (Route 11, Hwy 8) at SW 4th Avenue in Milton-Freewater
1999 - 2003

COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCNT	INT-TYP (MEDIAN)			OFFRD RNBRT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE			MOVE FROM TO	PRTC P#	INJ TYPE	SVRTY	A S G E EX RES	LICNS LOC	PED ERROR	ACT
				LEGS (#LANES)	TRAF- CNTL						TYPE	PRVC	INJ								
/1999 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0	S MAIN ST 30.55 SW 4TH AVE	INTER SE 06	CROSS N 0	N NONE N N N	N CLR DRY DLIT	S-1STOP REAR INJ	1 PRVTE PSNGR CA	None 0 STRGHT SE NW					1 DRV	NONE	43 F OR-Y OR<25	043		000		
										2 PRVTE PSNGR CA	None 0 STOP SE NW			1 DRV	NONE	51 M OR-Y OR<25	000		011		
										2 PRVTE PSNGR CA	None 0 INJC	13 F									
/1999 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0	S MAIN ST 30.55 SE 4TH AVE	INTER SE 06	CROSS N 0	N NONE N N N	N CLR DRY DAY	S-1STOP REAR INJ	1 PRVTE PSNGR CA	None 0 STRGHT SE NW					1 DRV	INJC	41 F OR-Y OR>25	047		000		
										2 PRVTE PSNGR CA	None 0 STOP SE NW			1 DRV	INJC	41 F OR-Y OR<25	000		011		
/2000 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0	S MAIN ST 30.55 SE 4TH AVE	INTER CN 02	CROSS N 0	N NONE N N N	N CLR DRY DAY	O-1TURN TURN PDO	1 PRVTE PSNGR CA	None 0 TURN-L NW NE					1 DRV	NONE	25 M N-VAL N-RES	004		000		
										2 PRVTE PSNGR CA	None 0 STRGHT SE NW			1 DRV	NONE	20 F OR-Y OR<25	000		000		
/2001 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0	S MAIN ST 30.55 SW 4TH AVE	INTER CN 03	CROSS N STOP SIGN N N N	N N N N N	N CLD DRY DAY	BIKE TURN INJ		None 0 STRGHT NE SW	1 BIK	INJC	48 M							000	000	
										1 PRVTE PSNGR CA	None 0 TURN-L NW NE			1 DRV	NONE	65 M OTH-Y N-RES	027		000		

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CONTINUOUS SYSTEM CRASH LISTING
 OR 11 (Route 11, Hwy 8) at SW 3rd Avenue in Milton-Freewater
 1999 - 2003

COUNTY CITY URBAN AREA	CLASS		RD CHAR DIRECT LOCTN	INT-TYP				VEHICLE				A S G E LICNS PED E'X RES LOC	ERROR	ACT	
	COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET		(MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	USE-TRLR OWNER V# TYPE	MOVE FROM TO	PRTC PRVTE				INJ N S
/2001 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0	S MAIN ST 30.59 SW	INTER CN 03	3-LEG STOP SIGN 0	N CLR N DRY N DAY	ANGL-OT TURN INJ	1 NONE 0 PRVTE PSNGR CA	STRGHT N S	1 DRV	INJC	33 F OR-Y OR<25	000			
							2 NONE 0 PRVTE PSNGR CA	TURN-L W N	1 DRV	NONE	85 F OR-Y OR<25	021			

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CONTINUOUS SYSTEM CRASH LISTING
 OR 11 (Route 11, Hwy 8) at SW 2nd Avenue in Milton-Freewater
 1999 - 2003

COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS					OFFRD RNBRT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	VEHICLE USE-TRLR OWNER V# TYPE	MOVE FROM TO	PRTC P# TYPE	INJ SVRTY	A S G E LICNS PED E X RES LOC			ERROR	ACT	
				#LANES	CNTL	INT-REL	TRAF	DRV WY								INJ SVRTY	E X RES LOC				
/1999 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0	COLUMBIA ST S MAIN ST 30.64 S .MAIN ST	INTER NE 06	CROSS UNKNOWN 0	N N N	CLR DRY DAY	S-STRGH SS-O INJ	1	NONE PRVTE SEMI TOW	1	STRGHT NE SW									045	000
										2	NONE PRVTE PSNGR CA	0	STRGHT NE SW								000
/2002 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0	COLUMBIA ST S. MAIN ST. 30.64 S MAIN ST.	INTER NE 06	CROSS TRF SIGNAL 0	N N N	CLR DRY DAY	S-1STOP REAR INJ	1	NONE PRVTE PSNGR CA	0	STRGHT NE SW									043	000
										2	NONE PRVTE PSNGR CA	0	STOP NE SW								011
/2001 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0	COLUMBIA ST S MAIN ST 30.64 S MAIN ST	INTER SE 06	CROSS TRF SIGNAL 0	N N N	CLR DRY DAY	S-1STOP REAR PDO	1	NONE PRVTE PSNGR CA	0	STRGHT SE NW									026	000
										2	NONE PRVTE PSNGR CA	0	STOP SE NW								011
/2003 UMATILLA MILTON-FREEWATER MILT-FRE UA	14 0 0	COLUMBIA ST S MAIN ST 30.64 MAIN ST	INTER CN 04	CROSS TRF SIGNAL 0	N N N	CLD DRY DAY	S-OTHER TURN PDO	1	NONE PRVTE SEMI TOW	1	TURN-L NE SE									044	000
										2	NONE PRVTE PSNGR CA	0	TURN-L NE SE								000
										1	DRV INJC	68 M OR-Y OR<25	None	68 M OR-Y OR<25	None	63 F OR-Y OR<25	None	63 F OR-Y OR<25	000	000	

diagram	Long Description
ACTION	No action or non-warranted
DDDED	Skidded
OFF STOP VEH	Getting on or off stopped or parked vehicle
RHNG STR OBJ	Overhanging load struck another vehicle, etc.
SWED DOWN	Slowed down
SWING MANV	Avoiding maneuver
SWALLEL PKNG	Parallel parking
SWGLE PKNG	Angle parking
SWGR INTERFERED	Passenger interfering with driver
SWIN TRAF/ NO LFT	Stopped in traffic not waiting to make a left turn
SWFOR LFT TURN	Stopped because of left turn signal or waiting, etc.
SWWHILE TURNING	Stopped while executing a turn
SWCEED A/ STOPPING	Proceed after stopping for a stop sign/flashing red.
SWP/TURN ON RED	Turned on red after stopping
SWT CONTROL	Lost control of vehicle
SWFRM ALLEY/DRWY	Entering street or highway from alley or driveway
SWALLEY FROM RD	Entering alley or driveway from street or highway
SWOBJ BF/ENT	Before entering roadway, struck pedestrian, etc. on sidewalk or shoulder
SWVERLESS VEHICLE	Car ran away - no driver
SWOBJ PRIOR COL	Struck, or was struck by, vehicle or pedestrian in prior collision before acc. stabilized
SWICLE STALLED	Vehicle stalled
SW/R DEAD BF CRASH	Dead by unassociated cause
SWVER ASLEEP	Fatigued, sleepy, asleep
SWDED BY SUN	Driver blinded by sun
SWDED / HEADLIGHTS	Driver blinded by headlights
SWICAL ILLNESS	Physically ill
SWINGED OVER MEDIAN	Vehicle crossed, plunged over, or through median barrier
SWSUING OTHER VEH	Pursuing or attempting to stop another vehicle
SWISNG	Passing situation
SWKED OFF RD	Vehicle parked beyond curb or shoulder
SWCROSSED MED	Vehicle crossed earth or grass median
SWITER NO SIGNAL	Crossing at intersection - no traffic signal present
SWITER W/ SIGNAL	Crossing at intersection - traffic signal present
SWITER DIAGONAL	Crossing at intersection - diagonally
SWTWN INTER	Crossing between intersections
SWTRACTED	Driver's attention distracted
SWLK SHLDR W/TRAFF	Walking, running, riding, etc., on shoulder WITH traffic
SWLK SHLDR A/TRAFF	Walking, running, riding, etc., on shoulder FACING traffic
SWLK PAVE W/TRAFF	Walking, running, riding, etc., on pavement WITH traffic
SWLK PAVE A/TRAFF	Walking, running, riding, etc., on pavement FACING traffic
SWLYING IN RDWY	Playing in street or road
SWHWORK MV IN RD	Pushing or working on vehicle in road or on shoulder
SWRK ON ROAD	Working in roadway or along shoulder
SWND/LYING IN RD	Standing or lying in roadway
SWER FROM OFF ROAD	Entering / starting in traffic lane from off-road
SWER	Other action
SWKNOWN	Unknown action

Code	Description
DE APPLICABLE	No cause associated at this level
AST FOR COND	Speed too fast for conditions
I YIELD ROW	Did not yield right-of-way
D STOP SIGN	Passed stop sign or red flasher
GARD R-A-G	Disregarded R-A-G traffic signal.
E WRONG SIDE	Drove left of center on two-way road
PER PASSING	Improper overtaking
W TOO CLOSE	Followed too closely
PER TURN	Made improper turn
R DRUGS	Alcohol or Drug Involved
R DRIVE ERR	Other improper driving
DEFECT	Mechanical defect
O	Other (not improper driving)
NE CHANGE	Improper change of traffic lanes
PER PARKING	Vehicle improperly parked
DEFECTIVE STEERING	Defective steering mechanism
DEFECTIVE BRAKES	Inadequate or no brakes
SHIFTED	Vehicle lost load or load shifted
FAILURE	Tire Failure
OM VEHICLE	Phantom / Non-contact Vehicle
INATTENTION	Inattention

Description	Long Description
ERROR	No error
DE TURN	Wide turn
T CORNER	Cut corner on turn
BEY TRN	Failed to obey mandatory traffic turn signal, sign or lane markings
IN FNT TRAF	Left turn in front of oncoming traffic
IN PROHIB	Left turn where prohibited
RM WRNG LN	Turned from wrong lane
D WRONG LN	Turned into wrong lane
EG U-TURN	U-turned illegally
STOP	Improperly stopped in traffic lane
/FAIL SIG	Improper signal or failure to signal
BACKING	Backing improperly (Not parking)
PARKED	Improperly parked
STRT PARK	Improper start leaving parked position
STRT STOP	Improper start from stopped position
/NO LIGHTS	Improper or no lights (vehicle in traffic)
DIM LIGHTS	Failed to dim lights (until 4/1/97) / Inattention (after 4/1/97)
UNSAFE VEH	Driving unsafe vehicle (no other error apparent)
< MAN N/CLR	Entering, exiting parked position with insufficient clearance or other improper parking maneuver
RG DR SIG	Disregarded other driver's signal
RG TRF SIG	Disregarded traffic signal
RG STP SGN	Disregarded stop sign or flashing red
RG WRN SGN	Disregarded warning sign, flares or flashing amber
RG POL/FLG	Disregarded police officer or flagman
RG SIR/EMR	Disregarded siren or warning of emergency vehicle
RG RR SIG	Disregarded RR signal, RR sign, or RR flagman
VOID STP V	Failed to avoid stopped or parked vehicle ahead other than school bus
LD ROW BIK	Did not have right-of-way over pedalcyclist
R-O-W	Did not have right-of-way
LD ROW PED	Failed to yield right-of-way to pedestrian
IS ON CURVE	Passing on a curve
IS WRNG SID	Passing on the wrong side
IS TANGENT	Passing on straight road under unsafe conditions
IS STP4PED	Passed vehicle stopped at crosswalk for pedestrian
IS AT INTER	Passing at intersection
IS ON HILL	Passing on crest of hill
IS N/PASSNG	Passing in "No Passing" zone
IS ONC TRAF	Passing in front of oncoming traffic
FTING IN	Cutting in (two lanes - two way only)
WRONG SIDE	Driving on wrong side of the road
THRU MEDN	Driving through safety zone or over island
TP SCHLBUS	Failed to stop for school bus

LW TO CLOS	Following too closely (Must be on Officer's Report)
RD/DR WRNG	Straddling or driving on wrong lanes
'LANE CHG	Improper change of traffic lanes
NG WY/1 WA	Wrong way on one-way roadway (Vehicle is deliberately traveling on wrong side)
ASIC RULE	Driving too fast for conditions (Not excessive speed)
\ DOOR TRAF	Opened door into adjacent traffic lane
AINT SPEED	Citation issued for "Failure to maintain reasonable speed"
ESD	Excessive Speed
CKLSS DRVN	Reckless driving
RELSS DRVN	Careless driving
JT NO SGNL	Crossing at intersection – no traffic signal present
JT W/ SGNL	Crossing at intersection – traffic signal present
JT DIAGNL	Crossing at intersection - diagonally
TWN INTER	Crossing between intersections
SHLD W/TRAFF	Walking, running, riding, etc., on shoulder WITH traffic
SHLD A/TRAFF	Walking, running, riding, etc., on shoulder FACING traffic
'AVE W/TRAFF	Walking, running, riding, etc., on pavement WITH traffic
'AVE A/TRAFF	Walking, running, riding, etc., on pavement FACING traffic
LY IN RDWY	Playing in street or road
SH MV IN RD	Pushing or working on vehicle in road or on shoulder
RK IN RD	Working in roadway or along shoulder
NG IN RD	Standing or lying in roadway
RG POL/FLG	Disregarding Police (eluding)
AINT LANE	Failed to maintain lane
\ OFF RD	Ran off road
JUDGE CLR	Driver misjudged clearance
ERSTEER	Over Correcting
TTENTION	Inattention (4/1/1997)
ERLOAD	Overloading or improper loading of vehicle with cargo or passengers
A DISRG TCD	Unable to determine which driver disregarded traffic control device

Description	Long Description
!LL/JUMPED MV	Occupant fell, jumped or was ejected from moving vehicle
!NGR INTERFERED	Passenger interfered with driver
!ML INTERFERED	Animal or insect in vehicle interfered with driver
!D INVOLVED	Pedestrian involved (Non-pedestrian accident)
!BSEQUENT PED	"Sub-Ped": pedestrian injured subsequent to collision, etc.
!DALCYCLE INV	Tricycle-Bicycle involved
TCHHIKER	Hitchhiker (soliciting a ride)
!NGR TOWED	Passenger being towed or pushed on conveyance
!OFF STOP VEH	Getting on or off stopped or parked vehicle (occupants only)
!BSEQ OVERTURN	Overturned after first harmful event
!H BEING PUSHED	Vehicle being pushed
!H TOWED/TOWING	Vehicle towed or had been towing another vehicle
!RCED BY IMPACT	Vehicle forced by impact into another vehicle, pedalcyclist or pedestrian
/ SET IN MOTION	Vehicle set in motion by non-driver (child released brakes, etc.)
!LROAD ROW	At or on railroad right-of-way (not Light Rail)
GHT RAIL ROW	At or on Light-Rail right-of-way
!AIN HIT VEH	Train struck vehicle
!H HIT TRAIN	Vehicle struck train
!H HIT RR CAR	Vehicle struck railroad car on roadway
CKKNIFE	Jackknife; trailer or towed vehicle struck towing vehicle
!AILER O'TURN	Trailer or towed vehicle overturned
!LR CONN BROKE	Trailer connection broke
!TCHD TRLR STRKNG	Detached trailing object struck other vehicle, non-motorist, or object
DOOR OPN IN TRAF	Vehicle door opened into adjacent traffic lane
HEEL CAME OFF	Wheel came off
!OD FLEW UP	Hood flew up
!AD SHIFTED	Lost load, load moved or shifted
RE FAILURE	Tire Failure
!T	Pet: cat, dog and similar
!ESTOCK	Stock: cow, calf, bull, steer, sheep, etc.
!RSE	Horse, mule, or donkey
!RSE & RIDER	Horse and rider
!ME NO DEER/ELK	Wild animal, game (includes birds; not deer or elk)
!ER OR ELK	Deer or elk, wapiti
!IMAL-DRAWN VEH	Animal-drawn vehicle
JLVERT/MANHOLE	Culvert, open low or high manhole
!ACT CUSHION	Impact attenuator
!RKING METER	Parking meter
JRB	Curb (also narrow sidewalks on bridges)
!GLE BAR N/MED	Jiggle bars or traffic snake for channelization

JARDRAIL	Guard rail (not metal median barrier)
EDIAN BARRIER	Median barrier (raised or metal)
ALL	Retaining wall or tunnel wall
RIDGE RAIL	Bridge railing (on bridge and approach)
RIDGE ABUTMENT	Bridge abutment (approach ends)
RIDGE COLUMN	Bridge pillar or column (even though struck protective guard rail first)
RIDGE GIRDER	Bridge girder (horizontal structure overhead)
TAFFIC ISLAND	Traffic raised island
GORE	Gore
OLE-UNKNOWN	Pole – type unknown
OLE-UTILITY	Pole – power or telephone
OLE-ST LIGHT	Pole – street light only
OLE-TRAF SIGNAL	Pole – traffic signal and ped signal only
OLE-SIGN BRIDGE	Pole – sign bridge
TOP/YIELD SIGN	Stop or yield sign
HER SIGN	Other sign, including street signs
DRANT	Hydrant
ELINEATOR	Delineator or marker (reflector posts)
MILBOX	Mailbox
REE/STUMP	Tree, stump or shrubs
EGTN OVER RDWY	Tree branch or other vegetation overhead, etc.
BLE ACROSS RD	Wire or cable across or over the road
MP SIGN/BARR	Temporary sign or barricade in road, etc.
PRM SIGN/BARR	Permanent sign or barricade in/off road
IDE/ROCKS	Slides, rocks off or on road, falling rocks
REIGN OBJECT	Foreign obstruction/debris in road (not gravel)
QUIP WORKING	Equipment working in/off road
HER EQUIPMENT	Other equipment in or off road (includes parked trailer, boat)
MINTNCE EQUIP	Wrecker, street sweeper, snow plow or sanding equipment
HER WALL	Rock, brick or other solid wall
REGULAR PAVEMENT	Speed bump, other bump, pothold or pavement irregularity
VE IN	Bridge or road cave in
GH WATER	High Water
IOW BANK	Snow Bank
OLE/RDWY EDGE	Chuckhole in road, low or high shoulder at pavement edge
JT SLOPE/DITCH	Cut slope or ditch embankment
SI FRM OTHR VEH	Struck by rock or other object set in motion by other vehicle (incl. lost loads)
HER MOVING OBJ	Struck by other moving or flying object
SH OBSCURE VIEW	Vehicle obscured view
IG OBSCURE VIEW	Vegetation obscured view
OD OBSCURE VIEW	View obscured by fence, sign, phone booth, etc.
ND GUST	Wind Gust
MERSION	Vehicle immersed in body of water
RE/EXPLOSION	Fire or Explosion

OTHER	Accident related to another separate accident
VO WAY ONE SIDE	Two-way traffic on divided roadway all routed to one side
PHANTOM VEH	Other (phantom) non-contact vehicle (on PAR or report)
CELLPHONE-POLICE	Cell phone (on PAR or driver in use)
DL GRAD DR LIC	Teenage driver in violation of graduated license pgm
JY WIRE	Guy wire
ERM	Berm (earthen or gravel mound)
RAVEL IN RDWY	Gravel in roadway
IRUPT EDGE	Abrupt edge
CELLPHONE-WITNSS	Cell Phone use witnessed by other participant
JK FIX OBJ	Unknown type of fixed object
OTHER OBJ NOT FIXED	Other or unknown object, not fixed
PIGR OUTSIDE VEHICLE	Passenger riding on vehicle exterior
PINGR ON PEDALCYCLE	Passenger riding on pedalcycle
PNMOTOR WHEELCHAI	Pedestrian in non-motorized wheelchair
OTORIZED WHEELCHAI	Pedestrian in motorized wheelchair
N STR VEH	Non-motorist struck vehicle
CAR STRUCK VEH	Street Car/Trolley (on rails and/or overhead wire system) struck vehicle
SH STRUCK ST CAR	Vehicle struck Street Car/Trolley (on rails and/or overhead wire system)
STREET CAR ROW	At or on Street Car/Trolley right-of-way
ILDR GAVE	Shoulder gave way

Appendix D

2025 PM Peak No-Build Traffic Operations Analysis Worksheets

AM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Future Traffic Condition, Weeday AM Peak Hour

Scenario Report

Scenario:

AM

Command: AM
 Volume: AM
 Geometry: EX
 Impact Fee: Default Impact Fee
 Trip Generation: Default Trip Generation
 Trip Distribution: Default Trip Distribution
 Paths: Default Paths
 Routes: Default Routes
 Configuration: Default Configuration

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Future Traffic Condition, Weeday AM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base			Future			Change in
	Del/	V/	LOS	Del/	V/	LOS	
#	LOS	Veh	C	LOS	Veh	C	D/V
# 1 OR 11/ 14th Ave	D	30.7	0.000	D	30.7	0.000	+ 0.000 D/V
# 2 Main Street-OR11/ 12th Ave	F	51.9	0.000	F	51.9	0.000	+ 0.000 D/V
# 3 Main Street - OR 11/ 10th Ave	C	23.3	0.000	C	23.3	0.000	+ 0.000 D/V
# 4 Main Street - OR 11/ 9th Ave	D	28.0	0.000	D	28.0	0.000	+ 0.000 D/V
# 5 Main Street-OR11/ 8th Ave	D	33.9	0.000	D	33.9	0.000	+ 0.000 D/V
# 6 OR 11/7th Ave - Eastbound	E	44.1	0.000	E	44.1	0.000	+ 0.000 D/V
# 7 OR 11/7th Avenue - Westbound	C	18.9	0.000	C	18.9	0.000	+ 0.000 D/V
# 8 OR 11/ 4th Avenue	E	47.4	0.000	E	47.4	0.000	+ 0.000 D/V
# 9 Main Street/OR11/ 2nd Ave	C	21.1	0.316	C	21.1	0.316	+ 0.000 D/V

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Future Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #3 Main Street - OR 11/ 10th Ave

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: C [23.3]

Approach:	North Bound	South Bound	East Bound	West Bound
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Movement:	L - T - R	L - T - R	L - T - R	L - T - R
-----------	-----------	-----------	-----------	-----------

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
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Rights:	Include	Include	Include	Include
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Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module:	>> Count Date: 18 Nov 2004 <<
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Base Vol:	5 495	1 4 369	8 7	1 5	1 1	11
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Growth Adj:	1.32 1.52	1.32 1.32	1.52 1.32	1.32 1.32	1.32 1.32	1.32
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Initial Bse:	7 751	1 5 560	11 9	1 7	1 1	15
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User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00
-----------	-----------	-----------	-----------	-----------	-----------	------

PHF Adj:	0.88 0.88	0.88 0.88	0.88 0.88	0.88 0.88	0.88 0.88	0.88
----------	-----------	-----------	-----------	-----------	-----------	------

PHF Volume:	8 854	2 6 637	12 11	2 8	2 2	17
-------------	-------	---------	-------	-----	-----	----

Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0
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Final Vol.:	8 854	2 6 637	12 11	2 8	2 2	17
-------------	-------	---------	-------	-----	-----	----

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.5 6.5	6.9 7.5	6.5 6.9
--------------	---------------	---------------	---------	---------	---------

FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5	4.0 3.3
--------------	---------------	---------------	---------	---------	---------

Capacity Module:

Cnflct Vol:	649 xxxx xxxx	855 xxxx xxxx	1097 1525	324 1201	1530 428
-------------	---------------	---------------	-----------	----------	----------

Potent Cap.:	933 xxxx xxxx	780 xxxx xxxx	168 117	671 141	116 575
--------------	---------------	---------------	---------	---------	---------

Move Cap.:	933 xxxx xxxx	780 xxxx xxxx	159 115	671 136	114 575
------------	---------------	---------------	---------	---------	---------

Volume/Cap:	0.01 xxxx xxxx	0.01 xxxx xxxx	0.07 0.01	0.01 0.01	0.01 0.01	0.03
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Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
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Stopped Del:	8.9 xxxx xxxx	9.6 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
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LOS by Move:	A *	A *	*	*	*	*
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Movement:	LT - LTR - RT			
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Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 216 xxxx xxxx	369 xxxx
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SharedQueue:	0.0 xxxx xxxx	0.0 xxxx xxxx	0.3 xxxx xxxx	0.2 xxxx
--------------	---------------	---------------	---------------	----------

Shrd StpDel:	8.9 xxxx xxxx	9.6 xxxx xxxx	23.3 xxxx xxxx	15.3 xxxx
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Shared LOS:	A *	A *	*	C *	*	C *
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ApproachDel:	xxxxxx	xxxxxx	23.3	15.3
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ApproachLOS:	*	*	C	C
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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Future Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #4 Main Street - OR 11/ 9th Ave

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: D [28.0]

Approach:	North Bound	South Bound	East Bound	West Bound
-----------	-------------	-------------	------------	------------

Movement:	L - T - R	L - T - R	L - T - R	L - T - R
-----------	-----------	-----------	-----------	-----------

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
----------	--------------	--------------	-----------	-----------

Rights:	Include	Include	Include	Include
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Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module:	>> Count Date: 22 Dec 2004 <<
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Base Vol:	1 508	5 15 371	19 11	1 6	4 1	13
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Growth Adj:	1.32 1.61	1.32 1.32	1.32 1.61	1.32 1.32	1.32 1.32	1.32
-------------	-----------	-----------	-----------	-----------	-----------	------

Initial Bse:	1 818	7 20 597	25 15	1 8	5 1	17
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User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00
-----------	-----------	-----------	-----------	-----------	-----------	------

PHF Adj:	0.91 0.91	0.91 0.91	0.91 0.91	0.91 0.91	0.91 0.91	0.91
----------	-----------	-----------	-----------	-----------	-----------	------

PHF Volume:	1 899	7 22 657	28 16	1 9	6 1	19
-------------	-------	----------	-------	-----	-----	----

Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0
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Final Vol.:	1 899	7 22 657	28 16	1 9	6 1	19
-------------	-------	----------	-------	-----	-----	----

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.5 6.5	6.9 7.5	6.5 6.9
--------------	---------------	---------------	---------	---------	---------

FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5	4.0 3.3
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Capacity Module:

Cnflct Vol:	684 xxxx xxxx	906 xxxx xxxx	1167 1623	342 1278	1633 453
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Potent Cap.:	905 xxxx xxxx	747 xxxx xxxx	149 102	654 123	100 554
--------------	---------------	---------------	---------	---------	---------

Move Cap.:	905 xxxx xxxx	747 xxxx xxxx	139 98	654 117	97 554
------------	---------------	---------------	--------	---------	--------

Volume/Cap:	0.00 xxxx xxxx	0.03 xxxx xxxx	0.12 0.01	0.01 0.05	0.01 0.01	0.03
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Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx
--------	---------------	---------------	--------------------------------------

Stopped Del:	9.0 xxxx xxxx	10.0 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx
--------------	---------------	----------------	--------------------------------------

LOS by Move:	A *	A *	*	*	*	*
--------------	-----	-----	---	---	---	---

Movement:	LT - LTR - RT			
-----------	---------------	---------------	---------------	---------------

Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 216 xxxx xxxx	369 xxxx
--------------	----------------	----------------	--------------------	----------

SharedQueue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxxx xxxx xxxx	0.5 xxxx xxxx	0.3 xxxx
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Shrd StpDel:	9.0 xxxx xxxx	10.0 xxxx xxxx	xxxxxx xxxx xxxx	28.0 xxxx xxxx	20.0 xxxx
--------------	---------------	----------------	------------------	----------------	-----------

Shared LOS:	A *	A *	*	D *	*	C *
-------------	-----	-----	---	-----	---	-----

ApproachDel:	xxxxxx	xxxxxx	*	*	28.0	20.0
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ApproachLOS:	*	*	C	D	*	C
--------------	---	---	---	---	---	---

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Future Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Main Street-OR11/ 8th Ave.

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: D [33.9]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
--------	-----------	-----------	-----------	-----------

Volume Module: >> Count Date: 29 Nov 2004 <<

Base Vol.: 8 522 2 3 392 15 25 1 11 2 1 12

Growth Adj: 1.32 1.52 1.32 1.32 1.52 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 11 792 3 4 595 20 33 1 15 3 1 16

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88

PHF Volume: 12 900 3 5 676 23 38 2 17 3 2 18

Reduc Vol.: 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 12 900 3 5 676 23 38 2 17 3 2 18

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.5 6.5 6.9 7.5 6.5 6.9

FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Cnflct Vol: 699 xxxx xxxx 903 xxxx xxxx 1171 1624 349 1274 1634 452

Potent Cap.: 894 xxxx xxxx 748 xxxx xxxx 148 102 647 124 100 555

Move Cap.: 894 xxxx xxxx 748 xxxx xxxx 139 100 647 118 98 555

Volume/Cap: 0.01 xxxx xxxx 0.01 xxxx xxxx 0.27 0.02 0.03 0.03 0.02 0.03

Level Of Service Module:

Queue: 0.0 xxxx xxxx 0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 9.1 xxxx xxxx 9.8 xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: A * * A * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx 179 xxxx xxxx 307 xxxx

SharedQueue: 0.0 xxxx xxxx 0.0 xxxx xxxx xxxx 1.2 xxxx xxxx 0.2 xxxx

Shrd StpDel: 9.1 xxxx xxxx 9.8 xxxx xxxx xxxx 33.9 xxxx xxxx 17.6 xxxx

Shared LOS: A * * A * * * * D * * C *

ApproachDel: xxxx * * * * 33.9 17.6

D C

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Future Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 OR 11/7th Ave - Eastbound

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: E [44.1]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
--------	-----------	-----------	-----------	-----------

Volume Module:

Base Vol.: 2 556 0 0 408 13 7 1 2 0 0 0 0

Growth Adj: 1.32 1.56 1.32 1.32 1.56 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 3 866 0 0 636 17 9 1 3 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70

PHF Volume: 4 1237 0 0 908 25 13 2 4 0 0 0 0

Reduc Vol.: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 4 1237 0 0 908 25 13 2 4 0 0 0 0

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx xxxx xxxx xxxx 6.8 6.5 6.9 xxxx xxxx xxxx

FollowUpTim: 2.2 xxxx xxxx xxxx xxxx xxxx 3.5 4.0 3.3 xxxx xxxx xxxx

Capacity Module:

Cnflct Vol: 932 xxxx xxxx xxxx xxxx xxxx 1546 2165 466 xxxx xxxx xxxx

Potent Cap.: 730 xxxx xxxx xxxx xxxx xxxx 107 48 549 xxxx xxxx xxxx

Move Cap.: 730 xxxx xxxx xxxx xxxx xxxx 107 48 549 xxxx xxxx xxxx

Volume/Cap: 0.01 xxxx xxxx 0.01 xxxx xxxx 0.12 0.04 0.01 xxxx xxxx xxxx

Level Of Service Module:

Queue: 0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 10.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: A * * * * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx 111 xxxx xxxx 0 xxxx

SharedQueue: 0.0 xxxx xxxx 0.0 xxxx xxxx 0.6 xxxx xxxx xxxx xxxx

Shrd StpDel: 10.0 xxxx xxxx 9.0 xxxx xxxx 44.1 xxxx xxxx xxxx xxxx

Shared LOS: A * * A * * * * E * * * * * *

ApproachDel: xxxx * * * * 44.1 xxxx *

ApproachLOS: E *

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Future Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 OR 11/7th Avenue - Westbound

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: CT 18.91

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 1 0 1 0 0 1 0 1 0 0 0 0 0 0 0 0 1 0 0

Volume Module:

Base Vol: 0 556 1 7 408 0 0 0 0 2 0 16

Growth Adj: 1.32 1.56 1.32 1.32 1.56 1.32 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 1.0 866 1 9 636 0 0 0 0 3 0 21

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70

PHF Volume: 0 1237 2 13 908 0 0 0 0 4 0 30

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 0 1237 2 13 908 0 0 0 0 4 0 30

Critical Gap Module:

Critical Gp:xxxxx xxxx xxxx 4.1 xxxx xxxx xxxx xxxx xxxx 6.8 xxxx 6.9

FollowUpTim:xxxxx xxxx xxxx 2.2 xxxx xxxx xxxx xxxx xxxx 3.5 xxxx 3.3

Capacity Module:

Cnflct Vol: xxxx xxxx xxxx 1239 xxxx xxxx xxxx xxxx xxxx 1718 xxxx 620

Potent Cap.: xxxx xxxx xxxx 558 xxxx xxxx xxxx xxxx xxxx 82 xxxx 436

Move Cap.: xxxx xxxx xxxx 558 xxxx xxxx xxxx xxxx xxxx 81 xxxx 436

Volume/Cap: xxxx xxxx xxxx 0.02 xxxx xxxx xxxx xxxx xxxx 0.05 xxxx 0.07

Level Of Service Module:

Queue: xxxx xxxx xxxx 0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del:xxxxx xxxx xxxx 11.6 xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: * * * B * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 293 xxxx

SharedQueue: 0.0 xxxx xxxx 0.1 xxxx xxxx xxxx xxxx xxxx xxxx 0.4 xxxx

Shrd StpDel: 9.0 xxxx xxxx 11.6 xxxx xxxx xxxx xxxx xxxx xxxx 18.9 xxxx

Shared LOS: A * * B * * * * * * C *

ApproachDel: xxxx xxxx

ApproachLOS: * * * * *

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Future Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 OR 11/ 4th Avenue

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: E 47.41

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 1 0 1 0 0 1 0 1 0 0 0 1 0 0 0 0 1 0 0

Volume Module:

Base Vol: 3 576 1 5 426 1 5 1 1 1 1 1 1 10

Growth Adj: 1.32 1.52 1.32 1.32 1.52 1.32 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 4 874 1 7 647 1 7 1 1 1 1 1 1 13

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.78 0.78 0.78 0.78 0.78 0.78 0.78 0.78 0.78 0.78 0.78 0.78

PHF Volume: 5 1121 2 8 829 2 8 2 2 2 2 2 2 17

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 5 1121 2 8 829 2 8 2 2 2 2 2 2 17

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.5 6.5 6.9 7.5 6.5 6.9

FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Cnflct Vol: 831 xxxx xxxx 1123 xxxx xxxx 1418 1980 415 1564 1980 561

Potent Cap.: 797 xxxx xxxx 618 xxxx xxxx 99 62 592 77 62 476

Move Cap.: 797 xxxx xxxx 618 xxxx xxxx 92 61 592 74 61 476

Volume/Cap: 0.01 xxxx xxxx 0.01 xxxx xxxx 0.09 0.03 0.00 0.02 0.03 0.04

Level Of Service Module:

Queue: 0.0 xxxx xxxx 0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 9.5 xxxx xxxx 10.9 xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: A * * B * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 236 xxxx

SharedQueue: 0.0 xxxx xxxx 0.0 xxxx xxxx xxxx xxxx 0.4 xxxx 0.3 xxxx

Shrd StpDel: 9.5 xxxx xxxx 10.9 xxxx xxxx 47.4 xxxx 21.7 xxxx

Shared LOS: A * * B * * * * * * C *

ApproachDel: xxxx xxxx

ApproachLOS: * * * * *

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Future Traffic Condition, Weeday AM Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Main Street/OR11/ 2nd Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.316
 Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 21.1
 Optimal Cycle: 32 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted			Permitted			Split Phase			Split Phase		
	Rights:	Ignore	Include	Include	Ignore	Include	Include	Ignore	Include	Include	Ignore	Include
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	1	1	0	1	0	0	0	1	0	1	0

Volume Module: >> Count Date: 30 Nov 2004 <<

Base Vol:	14	170	407	0	159	1	7	0	11	262	19	1
Growth Adj:	1.32	1.61	1.61	1.32	1.61	1.32	1.32	1.32	1.32	1.61	1.32	1.32
Initial Bse:	18	274	655	0	256	1	9	0	15	422	25	1
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	21	304	0	0	285	1	10	0	16	469	28	1
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	304	0	0	285	1	10	0	16	469	28	1
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	21	304	0	0	285	1	10	0	16	469	28	1

Saturation Flow Module:

Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.86	0.86	1.00	1.00	0.93	0.93	0.88	1.00	0.88	0.94	0.94
Lanes:	0.13	1.87	1.00	0.00	1.99	0.01	0.39	0.00	0.61	1.89	0.10
Final Sat.:	196	2898	1800	0	3331	17	618	0	971	3182	178

Capacity Analysis Module:

Vol/Sat:	0.10	0.10	0.00	0.00	0.09	0.09	0.02	0.00	0.02	0.15	0.16	0.16
Crit Moves:	****						****			****		
Green/Cycle:	0.33	0.33	0.00	0.00	0.33	0.33	0.05	0.00	0.05	0.50	0.50	0.50
Volume/Cap:	0.32	0.32	0.00	0.00	0.26	0.26	0.32	0.00	0.32	0.30	0.32	0.32
Delay/Veh:	25.1	25.1	0.0	0.0	24.5	24.5	47.8	0.0	47.8	15.0	15.2	15.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	25.1	25.1	0.0	0.0	24.5	24.5	47.8	0.0	47.8	15.0	15.2	15.2
HCM2kAvg:	4	4	0	0	3	3	1	0	1	5	5	5

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Total Traffic Conditions, Weekday PM Peak Hour

Scenario Report

Scenario: PM
 Command: PM
 Volume: PM
 Geometry: EX
 Impact Fee: Default Impact Fee
 Trip Generation: Default Trip Generation
 Trip Distribution: Default Trip Distribution
 Paths: Default Paths
 Routes: Default Routes
 Configuration: Default Configuration

PM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Total Traffic Conditions, Weekday PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS Veh	Future LOS Veh	Change in C
# 1 OR 11/ 14th Ave	D 27.5 0.000	D 27.5 0.000	+ 0.000 D/V
# 2 Main Street-OR11/ 12th Ave	F 73.7 0.000	F 73.7 0.000	+ 0.000 D/V
# 3 Main Street - OR 11/ 10th Ave	F 88.3 0.000	F 88.3 0.000	+ 0.000 D/V
# 4 Main Street - OR 11/ 9th Ave	E 46.7 0.000	E 46.7 0.000	+ 0.000 D/V
# 5 Main Street-OR11/ 8th Ave	F 162.9 0.000	F 162.9 0.000	+ 0.000 D/V
# 6 OR 11/7th Ave - Eastbound	F 102.4 0.000	F 102.4 0.000	+ 0.000 D/V
# 7 OR 11/7th Avenue - Westbound	C 15.4 0.000	C 15.4 0.000	+ 0.000 D/V
# 8 OR 11/ 4th Avenue	F 74.5 0.000	F 74.5 0.000	+ 0.000 D/V
# 9 Main Street/OR11/ 2nd Ave	C 20.6 0.456	C 20.6 0.456	+ 0.000 D/V

Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Total Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Main Street - OR 11/ 10th Ave

Average Delay (sec/veh): 2.4 Worst Case Level Of Service: F [88.3]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
--------	-----------	-----------	-----------	-----------

Volume Module: >> Count Date: 18 Nov 2004 <<

Base Vol: 5 488 2 7 531 17 19 2 4 5 2 17

Growth Adj: 1.32 1.52 1.32 1.32 1.52 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 7 741 3 9 806 22 25 3 5 7 3 22

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80

PHF Volume: 8 926 3 12 1008 28 31 3 7 8 3 28

Reducut Vol: 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 8 926 3 12 1008 28 31 3 7 8 3 28

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.5 6.5 6.9 7.5 6.5 6.9

FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Cnflict Vol: 1036 xxxx xxxx 929 xxxx xxxx 1526 1990 518 1473 2003 465

Potent Cap.: 667 xxxx xxxx 732 xxxx xxxx 81 60 503 88 59 544

Move Cap.: 667 xxxx xxxx 732 xxxx xxxx 72 58 503 82 57 544

Volume/Cap: 0.01 xxxx xxxx 0.02 xxxx xxxx 0.44 0.06 0.01 0.10 0.06 0.05

Level Of Service Module:

Queue: 0.0 xxxx xxxx 0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 10.5 xxxx xxxx 10.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: B * * A * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx 81 xxxx xxxx 188 xxxx

SharedQueue: 0.0 xxxx xxxx 0.0 xxxx xxxx xxxx 2.2 xxxx xxxx 0.8 xxxx

Shrd StpDel: 10.5 xxxx xxxx 10.0 xxxx xxxx xxxx 88.3 xxxx xxxx 29.1 xxxx

Shared LOS: B * * A * * * F * * * D *

ApproachDel: xxxx xxxx 88.3 29.1

ApproachLOS: * F D

Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Total Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Main Street - OR 11/ 9th Ave

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: E [46.7]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
--------	-----------	-----------	-----------	-----------

Volume Module: >> Count Date: 22 Nov 2004 <<

Base Vol: 1 522 2 31 542 14 9 1 5 8 1 11

Growth Adj: 1.32 1.52 1.32 1.32 1.52 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 1 792 3 41 823 18 12 1 7 11 1 15

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89

PHF Volume: 1 890 3 46 924 21 13 1 7 12 1 16

Reducut Vol: 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 1 890 3 46 924 21 13 1 7 12 1 16

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.5 6.5 6.9 7.5 6.5 6.9

FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Cnflict Vol: 945 xxxx xxxx 893 xxxx xxxx 1476 1923 473 1450 1932 447

Potent Cap.: 722 xxxx xxxx 755 xxxx xxxx 88 66 538 92 65 559

Move Cap.: 722 xxxx xxxx 755 xxxx xxxx 80 62 538 85 61 559

Volume/Cap: 0.00 xxxx xxxx 0.06 xxxx xxxx 0.17 0.02 0.01 0.14 0.02 0.03

Level Of Service Module:

Queue: 0.0 xxxx xxxx 0.2 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 10.0 xxxx xxxx 10.1 xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: A * * B * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx 108 xxxx xxxx 153 xxxx

SharedQueue: 0.0 xxxx xxxx 0.2 xxxx xxxx xxxx 0.7 xxxx xxxx 0.7 xxxx

Shrd StpDel: 10.0 xxxx xxxx 10.1 xxxx xxxx xxxx 46.7 xxxx xxxx 34.1 xxxx

Shared LOS: A * * B * * * E * * * D *

ApproachDel: xxxx xxxx 46.7 34.1

ApproachLOS: * E D

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Kittelson & Associates, Inc. - Project # 6743
Milton-Freewater STA and TSP Update, Milton-Freewater, OR
2025 Total Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #5 Main Street-OR11/ Bth Ave

Average Delay (sec/veh): 4.3 **Worst Case Level Of Service:** F1162.9

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 1 0	0 0 1 1 0

Volume Module: >>	Count	Date:	29 Nov 2004 <<								
Base Vol:	6	527	9	13	578	43	24	3	6	3	1
Growth Adj:	1.32	1.52	1.32	1.32	1.52	1.32	1.32	1.32	1.32	1.32	1.32
Initial Bse:	.8	800	12	17	877	57	32	4	8	4	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
PHF Volume:	10	988	15	21	1083	70	39	5	10	5	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	10	988	15	21	1083	70	39	5	10	5	2

Critical Gap Module:
Critical Gp: 4.1 xxxx XXXXX 4.1 xxxx XXXXX 7.5 6.5 6.9 7.5 6.5 6.
FollowUpTim: 2.2 xxxx XXXXX 2.2 xxxx XXXXX 3.5 4.0 3.3 3.5 4.0 3.

Capacity Module:												
Cnflct Vol:	1153	xxxx	xxxxx	1002	xxxx	xxxxx	1675	2182	577	1601	2210	50
Potent Cap.:	602	xxxx	xxxxx	687	xxxx	xxxxx	62	45	460	71	44	51
Move Cap.:	602	xxxx	xxxxx	687	xxxx	xxxxx	58	43	460	61	41	51
Volume/Cap:	0.02	xxxx	xxxx	0.03	xxxx	xxxx	0.67	0.11	0.02	0.08	0.04	0.01

Level Of Service Module:											
Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxx								
Stopped Del:	11.1 xxxx xxxx	10.4 xxxx xxxx	xxxxx								
LOS by Move:	B * *	B * *	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxxx	xxxxx	xxxxx	67	xxxxx	xxxxx	66	xxxxx	xxxxx
SharedQueue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxx	xxxxx	xxxxx	3.8	xxxxx	xxxxx	0.4	xxxxx	xxxxx
Shrd StpDel:	11.1 xxxx xxxx	10.4 xxxx xxxx	xxxxx	xxxxx	xxxxx	163	xxxxx	xxxxx	66.6	xxxxx	xxxxx
Shared LOS:	B * *	B * *	*	*	F	*	*	*	F	*	*
ApproachDel:	xxxxxx	xxxxxx				162.9					66.6
ApproachLQS:	*	*				E					E

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Kittelson & Associates, Inc. - Project # 6743
Milton-Freewater STA and TSP Update, Milton-Freewater, OR
2025 Total Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

intersection #6 OR 11/7th Ave - Eastbound

Average Delay (sec/veh): 2.7 Worst Case Level of Service: F102.41

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign										
Rights:	Include			Include			Include			Include										
Lanes:	0	1	0	1	0	0	1	0	1	0	0	0	1	!	0	0	0	1	!	0

Volume Module:												
Base Vol:	6	544	0	0	631	20	31	3	3	0	0	0
Growth Adj:	1.32	1.56	1.32	1.32	1.56	1.32	1.32	1.32	1.32	1.32	1.32	1.32
Initial Bse:	8	847	0	0	983	26	41	4	4	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
PHF Volume:	9	985	0	0	1143	31	48	5	5	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	9	985	0	0	1143	31	48	5	5	0	0	0

Critical Gap Module:
Critical Gp: 4.1 xxxx xxxx xxxx xxxx xxxx 6.8 6.5 6.9 xxxx xxxx xxxx
FollowUpTim: 2.2 xxxx xxxx xxxx xxxx xxxx 3.5 4.0 3.3 xxxx xxxx xxxx

```

Level Of Service Module:
Queue:      0.0 XXXX XXXXX XXXXX XXXXX XXXXX XXXXX XXXX XXXXX XXXXX XXXX XXXX XXXX
Stopped Del: 11.2 XXXX XXXXX XXXXX XXXX XXXXX XXXXX XXXX XXXXX XXXXX XXXX XXXX XXXX
LOS by Move: B * * * * * * * * * * * * *
Movement:    LT - LTR - RT   LT - LTR - RT   LT - LTR - RT   LT - LTR - RT
Shared Cap.: XXXX XXXX XXXXX XXXX XXXX XXXXX XXXX 87 XXXXX XXXX 0 XXXX
Shared Dueue: 0.0 XXXX XXXXX 0.0 XXXX XXXXX XXXXX 3.1 XXXXX XXXXX XXXX XXXX
Shrd StpDel: 11.2 XXXX XXXXX 9.0 XXXX XXXXX XXXXX 102 XXXXX XXXXX XXXX XXXX
Shared LOS:   B * * A * * * * F * * * * *
ApproachDel: XXXXXX XXXXXX 102.4 XXXXXX
Approach LOS: * * * * E * * *

```

Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Total Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 OR 11/7th Avenue - Westbound

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C [15.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 0 0 0	0 0 1 0 0
--------	-----------	-----------	-----------	-----------

Volume Module:

Base Vol:	0 544	2 17	631 0	0 0	0 0	1 0	0 9
Growth Adj:	1.32 1.56	1.32 1.32	1.56 1.32	1.32 1.32	1.32 1.32	1.32 1.32	1.32 1.32
Initial Bse:	0 847	3 22	983 0	0 0	0 0	1 0	0 12
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
PHF Adj:	0.86 0.86	0.86 0.86	0.86 0.86	0.86 0.86	0.86 0.86	0.86 0.86	0.86 0.86
PHF Volume:	0 985	3 26	1143 0	0 0	0 0	2 0	0 14
Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Final Vol.:	0 985	3 26	1143 0	0 0	0 0	2 0	0 14

Critical Gap Module:

Critical Gp:	xxxxxx xxxx xxxx	4.1 xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	6.8 xxxx	6.9
FollowUpTim:	xxxxxx xxxx xxxx	2.2 xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	3.5 xxxx	3.3

Capacity Module:

Cnflict Vol:	xxxxx xxxx xxxx	988 xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx	1610 xxxx	494
Potent Cap.:	xxxxx xxxx xxxx	695 xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx	97 xxxx	526
Move Cap.:	xxxxx xxxx xxxx	695 xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx	94 xxxx	526
Volume/Cap.:	xxxxx xxxx xxxx	0.04 xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx	0.02 xxxx	0.03

Level Of Service Module:

Queue:	xxxxx xxxx xxxx	0.1 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx
Stopped Del:	xxxxx xxxx xxxx	10.4 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx
LOS by Move:	*	*	*	*	*	*
Movement:	LT - LTR - RT					
Shared Cap.:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	361 xxxx	xxxxx
SharedQueue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	0.1 xxxx	xxxxx
Shrd StpDel:	9.0 xxxx xxxx	10.4 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	15.4 xxxx	xxxxx
Shared LOS:	A *	B *	*	*	*	*
ApproachDel:	xxxxxx	xxxxxx	xxxxxx		15.4	
ApproachLOS:	*	*	*	*	C	*

Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Total Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 OR 11/ 4th Avenue

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: F [74.5]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 0 0 0	0 0 1 0 0
--------	-----------	-----------	-----------	-----------

Volume Module:

Base Vol:	4 577	3 8	667 4	4 1	1 1	1 1	17
Growth Adj:	1.32 1.52	1.32 1.32	1.52 1.32	1.32 1.32	1.32 1.32	1.32 1.32	1.32 1.32
Initial Bse:	5 876	4 11	1013 5	5 5	1 1	1 1	22
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
PHF Adj:	0.87 0.87	0.87 0.87	0.87 0.87	0.87 0.87	0.87 0.87	0.87 0.87	0.87 0.87
PHF Volume:	6 1007	5 12	1164 6	6 6	2 2	2 2	26
Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Final Vol.:	6 1007	5 12	1164 6	6 6	2 2	2 2	26

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.5 6.5	6.9 7.5	6.5 6.9	
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5	4.0 4.0	3.3

Capacity Module:

Cnflict Vol:	1170 xxxx xxxx	1011 xxxx xxxx	1707 2215	585 1628	2215 506
Potent Cap.:	593 xxxx xxxx	681 xxxx xxxx	60 44	459 69	44 517
Move Cap.:	593 xxxx xxxx	681 xxxx xxxx	54 43	459 65	43 517
Volume/Cap.:	0.01 xxxx xxxx	0.02 xxxx xxxx	0.11 0.04	0.00 0.02	0.04 0.05

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx
Stopped Del:	11.1 xxxx xxxx	10.4 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx
LOS by Move:	B *	B *	*	*	*	*
Movement:	LT - LTR - RT					
Shared Cap.:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	61 xxxx	266 xxxx
SharedQueue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	0.5 xxxx	0.4 xxxx
Shrd StpDel:	11.1 xxxx xxxx	10.4 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	74.5 xxxx	20.2 xxxx
Shared LOS:	B *	B *	*	*	F *	*
ApproachDel:	xxxxxx	xxxxxx	xxxxxx		74.5	20.2
ApproachLOS:	*	*	*	*	F	C

PM

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Kittelson & Associates, Inc. - Project # 6743
 Milton-Freewater STA and TSP Update, Milton-Freewater, OR
 2025 Total Traffic Conditions, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Main Street/OR11/ 2nd Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.456
 Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 20.6
 Optimal Cycle: 38 Level Of Service: C

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Split Phase	Split Phase
Rights:	Ignore	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	0 1 1 0 1	0 0 1 1 0	0 0 1 1 0 0	1 0 1 1 0 0

Volume Module: >> Count Date: 30 Nov 2004 <<
 Base Vol: 7 187 398 0 189 12 5 0 9 481 31 6
 Growth Adj: 1.32 1.61 1.61 1.32 1.61 1.32 1.32 1.32 1.32 1.61 1.32 1.32
 Initial Bse: 9 301 641 0 304 16 7 0 12 775 41 8
 User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.92 0.92 0.00 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92
 PHF Volume: 10 327 0 0 331 17 7 0 13 842 44 9
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Reduced Vol: 10 327 0 0 331 17 7 0 13 842 44 9
 PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 Final Vol.: 10 327 0 0 331 17 7 0 13 842 44 9

Saturation Flow Module:
 Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800
 Adjustment: 0.88 0.88 1.00 1.00 0.92 0.92 0.88 1.00 0.88 0.93 0.93 0.93
 Lanes: 0.06 1.94 1.00 0.00 1.90 0.10 0.36 0.00 0.64 1.89 0.09 0.02
 Final Sat.: 94 3060 1800 0 3164 165 565 0 1017 3177 158 31

Capacity Analysis Module:
 Vol/Sat: 0.11 0.11 0.00 0.00 0.10 0.10 0.01 0.00 0.01 0.26 0.28 0.28
 Crit Moves: ****
 Green/Cycle: 0.23 0.23 0.00 0.00 0.23 0.23 0.03 0.00 0.03 0.62 0.62 0.62
 Volume/Cap: 0.46 0.46 0.00 0.00 0.45 0.45 0.46 0.00 0.46 0.43 0.46 0.46
 Delay/Veh: 36.2 33.3 0.0 0.0 33.1 33.1 55.2 0.0 55.2 10.1 10.3 10.3
 User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 AdjDel/Veh: 36.2 33.3 0.0 0.0 33.1 33.1 55.2 0.0 55.2 10.1 10.3 10.3
 HCM2kAvg: 5 5 0 0 5 5 1 0 1 7 8 8

Appendix E

2004 Traffic Operations Analysis Worksheets – Three-Lane Option

AM-3Lane

Thu Jun 2, 2005 14:57:10

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Kittelson & Associates, Inc. - Project #6743
 Milton-Freewater STA and TSP Update - Milton-Freewater, OR
 2004 Three-Lane Traffic Condition, Weekday AM Peak Hour

Scenario Report

Scenario: AM-3Lane
 Command: AM-3Lane
 Volume: AM
 Geometry: 3-lane
 Impact Fee: Default Impact Fee
 Trip Generation: Default Trip Generation
 Trip Distribution: Default Trip Distribution
 Paths: Default Paths
 Routes: Default Routes
 Configuration: Default Configuration

AM-3Lane

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Kittelson & Associates, Inc. - Project #6743
 Milton-Freewater STA and TSP Update - Milton-Freewater, OR
 2004 Three-Lane Traffic Condition, Weekday AM Peak Hour

Impact Analysis Report Level Of Service

Intersection	Base LOS Veh	Future LOS Veh	Change in D/V
	C 20.9 0.000	C 20.9 0.000	+ 0.000 D/V
# 1 OR 11/ 14th Ave	E 38.4 0.000	E 38.4 0.000	+ 0.000 D/V
# 3 Main Street - OR 11/ 10th Ave	C 21.4 0.000	C 21.4 0.000	+ 0.000 D/V
# 4 Main Street - OR 11/ 9th Ave	D 25.2 0.000	D 25.2 0.000	+ 0.000 D/V
# 5 Main Street-OR11/ 8th Ave	D 29.3 0.000	D 29.3 0.000	+ 0.000 D/V
# 6 OR 11/7th Ave - Eastbound	E 36.3 0.000	E 36.3 0.000	+ 0.000 D/V
# 7 OR 11/7th Avenue - Westbound	C 20.0 0.000	C 20.0 0.000	+ 0.000 D/V
# 8 OR 11/ 4th Avenue	E 40.1 0.000	E 40.1 0.000	+ 0.000 D/V
# 9 Main Street/OR11/ 2nd Ave	C 21.7 0.417	C 21.7 0.417	+ 0.000 D/V

Kittelson & Associates, Inc. - Project #6743
 Milton-Freewater STA and TSP Update - Milton-Freewater, OR
 2004 Three-Lane Traffic Condition, Weekday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 OR 11/ 14th Ave

Average Delay (sec/veh): 4.6 Worst Case Level Of Service: C [20.9]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 0 0 1 0	1 0 1 0 0	0 0 0 0 0	0 0 1 0 0

Volume Module: >> Count Date: 1 Dec 2004 <<

Base Vol:	0 323	13 108	259 0	0 0 0 0	12 0	152
Growth Adj:	1.00 1.18	1.00 1.00	1.18 1.00	1.00 1.00	1.00 1.00	1.00
Initial Bse:	0 381	13 108	306 0	0 0 0	12 0	152
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00
PHF Adj:	0.70 0.70	0.70 0.70	0.70 0.70	0.70 0.70	0.70 0.70	0.70
PHF Volume:	0 544	19 154	437 0	0 0 0	17 0	217
Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0
Final Vol.:	0 544	19 154	437 0	0 0 0	17 0	217

Critical Gap Module:

Critical Gp:	xxxxxx xxxx xxxx	4.1 xxxx xxxx	xxxxxx xxxx xxxx	6.4 xxxx	6.2
FollowUpTim:	xxxxxx xxxx xxxx	2.2 xxxx xxxx	xxxxxx xxxx xxxx	3.5 xxxx	3.3

Capacity Module:

Cnflct Vol:	xxxx xxxx xxxx	563 xxxx xxxx	xxxx xxxx xxxx	1299 xxxx	554
Potent Cap.:	xxxx xxxx xxxx	1008 xxxx xxxx	xxxx xxxx xxxx	180 xxxx	536
Move Cap.:	xxxx xxxx xxxx	1008 xxxx xxxx	xxxx xxxx xxxx	159 xxxx	536
Volume/Cap.:	xxxx xxxx	0.15 xxxx xxxx	xxxx xxxx xxxx	0.11 xxxx	0.41

Level Of Service Module:

Queue:	xxxxxx xxxx xxxx	0.5 xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxx xxxx xxxx
Stopped Del:	xxxxxx xxxx xxxx	9.2 xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxx xxxx xxxx
LOS by Move:	*	*	A *	*	*
Movement:	LT - LTR - RT	LT - LTR - RT			
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx	457 xxxx	xxxx
SharedQueue:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	2.9 xxxx
Shrd StpDel:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	20.9 xxxx
Shared LOS:	*	*	*	*	*
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	20.9	
ApproachLOS:	*	*	*	C	*

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 Milton-Freewater STA and TSP Update - Milton-Freewater, OR
 2004 Three-Lane Traffic Condition, Weekday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Main Street-OR11/ 12th Ave

Average Delay (sec/veh): 2.1 Worst Case Level Of Service: E [38.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module: >> Count Date: 7 Dec 2004 <<

Base Vol:	4 450	2 10 358	7 36	2 6	3 1 15
Growth Adj:	1.00 1.18	1.00 1.00	1.18 1.00	1.00 1.00	1.00 1.00 1.00 1.00
Initial Bse:	4 531	2 10 422	7 36	2 6	3 1 15
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.80 0.80	0.80 0.80	0.80 0.80	0.80 0.80	0.80 0.80 0.80 0.80
PHF Volume:	5 664	3 13 528	9 45	3 8	4 1 19
Reduc Vol:	0 0	0 0	0 0	0 0	0 0 0 0
Final Vol.:	5 664	3 13 528	9 45	3 8	4 1 19

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5	6.2 7.1 6.5	6.2
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5 4.0	3.3

Capacity Module:

Cnflct Vol:	537 xxxx xxxx	666 xxxx xxxx	1242 1234	532 1237 1237	665
Potent Cap.:	1031 xxxx xxxx	923 xxxx xxxx	153 178	551 154 177	464
Move Cap.:	1031 xxxx xxxx	923 xxxx xxxx	144 175	551 148 174	464
Volume/Cap.:	0.00 xxxx xxxx	0.01 xxxx xxxx	0.31 0.01	0.01 0.03 0.01	0.04

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxx xxxx xxxx
Stopped Del:	8.5 xxxx xxxx	9.0 xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxx xxxx xxxx
LOS by Move:	A *	A *	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT			
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx	161 xxxx	326 xxxx
SharedQueue:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	1.4 xxxx	0.2 xxxx
Shrd StpDel:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	38.4 xxxx	16.9 xxxx
Shared LOS:	*	*	*	*	*
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	E	*
ApproachLOS:	*	*	*	E	C

Kittelson & Associates, Inc. - Project #6743
 Milton-Freewater STA and TSP Update - Milton-Freewater, OR
 2004 Three-Lane Traffic Condition, Weekday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #3 Main Street - OR 11/ 10th Ave

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: C [21.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module: >> Count Date: 18 Nov 2004 <<

Base Vol:	5 495	1 4 369	8 7 1	5 1 1	1 1 11
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Growth Adj:	1.00 1.15	1.00 1.15	1.00 1.00	1.00 1.00	1.00 1.00
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Initial Bse:	5 569	1 4 424	8 7 1	5 1 1	1 1 11
--------------	-------	---------	-------	-------	--------

User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
-----------	-----------	-----------	-----------	-----------	-----------

PHF Adj:	0.88 0.88	0.88 0.88	0.88 0.88	0.88 0.88	0.88 0.88
----------	-----------	-----------	-----------	-----------	-----------

PHF Volume:	6 647	1 5 482	9 8 1	6 1 1	1 1 13
-------------	-------	---------	-------	-------	--------

Reduc Vol:	0 0	0 0	0 0	0 0	0 0
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Final Vol.:	6 647	1 5 482	9 8 1	6 1 1	1 1 13
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Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5	6.2 7.1	6.5 6.2
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FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5	4.0 3.3
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Capacity Module:

Cnflct Vol:	491 xxxx xxxx	648 xxxx xxxx	1161 1155	487 1158	1159 647
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Potent Cap.:	1072 xxxx xxxx	938 xxxx xxxx	174 198	585 175	197 474
--------------	----------------	---------------	---------	---------	---------

Move Cap.:	1072 xxxx xxxx	938 xxxx xxxx	167 196	585 171	195 474
------------	----------------	---------------	---------	---------	---------

Volume/Cap:	0.01 xxxx xxxx	0.00 xxxx xxxx	0.05 0.01	0.01 0.01	0.01 0.03
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Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	XXXXXX XXXXX	XXXXXX XXXXX	XXXX XXXXX
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Stopped Del:	8.4 xxxx xxxx	8.9 xxxx xxxx	XXXXXX XXXXX	XXXXXX XXXXX	XXXX XXXXX
--------------	---------------	---------------	--------------	--------------	------------

LOS by Move:	A * * A *	* * * * *	* * * * *	* * * * *
--------------	-----------	-----------	-----------	-----------

Movement:	LT - LTR - RT			
-----------	---------------	---------------	---------------	---------------

Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 234	xxxx 381	xxxx xxxx
--------------	----------------	----------------	----------	----------	-----------

SharedQueue:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 0.2	xxxx xxxx	0.1 xxxx
--------------	----------------	----------------	----------	-----------	----------

Shrd StpDel:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx 21.4	xxxxxx xxxx	14.8 xxxx
--------------	------------------	------------------	-------------	-------------	-----------

Shared LOS:	*	*	*	*	*
-------------	---	---	---	---	---

ApproachDel:	xxxxxx	xxxxxx	21.4	14.8	
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ApproachLOS:	*	*	C	B	*
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Kittelson & Associates, Inc. - Project #6743
 Milton-Freewater STA and TSP Update - Milton-Freewater, OR
 2004 Three-Lane Traffic Condition, Weekday AM Peak Hour

Level Of Service Computation Report

2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #4 Main Street - OR 11/ 9th Ave

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: D [25.2]

Approach:	North Bound	South Bound	East Bound	West Bound
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Movement:	L - T - R	L - T - R	L - T - R	L - T - R
-----------	-----------	-----------	-----------	-----------

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
----------	--------------	--------------	-----------	-----------

Rights:	Include	Include	Include	Include
---------	---------	---------	---------	---------

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
--------	-----------	-----------	-----------	-----------

Volume Module: >> Count Date: 22 Dec 2004 <<

Base Vol:	1 508	5 15 371	19 11 1	6 4 1	13
-----------	-------	----------	---------	-------	----

Growth Adj:	1.00 1.22	1.00 1.22	1.00 1.00	1.00 1.00	1.00 1.00
-------------	-----------	-----------	-----------	-----------	-----------

Initial Bse:	1 620	5 15 453	19 11 1	6 4 1	13
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User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
-----------	-----------	-----------	-----------	-----------	-----------

PHF Adj:	0.91 0.91	0.91 0.91	0.91 0.91	0.91 0.91	0.91 0.91
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PHF Volume:	1 681	5 16 497	21 12 1	7 4 1	14
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Reduc Vol:	0 0	0 0	0 0	0 0	0 0
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Final Vol.:	1 681	5 16 497	21 12 1	7 4 1	14
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Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5	6.2 7.1	6.5 6.2
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FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5	4.0 3.3
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Capacity Module:

Cnflct Vol:	518 xxxx xxxx	687 xxxx xxxx	1234 1230	508 1231	1237 684
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Potent Cap.:	1048 xxxx xxxx	907 xxxx xxxx	155 179	569 156	177 452
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Move Cap.:	1048 xxxx xxxx	907 xxxx xxxx	147 176	569 151	174 452
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Volume/Cap:	0.00 xxxx xxxx	0.02 xxxx xxxx	0.08 0.01	0.01 0.03	0.01 0.03
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Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx	XXXXXX XXXXX	XXXXXX XXXXX	XXXX XXXXX
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Stopped Del:	8.4 xxxx xxxx	9.0 xxxx xxxx	XXXXXX XXXXX	XXXXXX XXXXX	XXXX XXXXX
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LOS by Move:	A * * A *	* * * * *	* * * * *	* * * * *
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Movement:	LT - LTR - RT			
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Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 234	xxxx 381	xxxx xxxx
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SharedQueue:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 0.2	xxxx xxxx	0.1 xxxx
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Shrd StpDel:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx 21.4	xxxxxx xxxx	14.8 xxxx
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Shared LOS:	*	*	*	*	*
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ApproachDel:	xxxxxx	xxxxxx	21.4	14.8	
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ApproachLOS:	*	*	C	B	*
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Kittelson & Associates, Inc. - Project #6743
 Milton-Freewater STA and TSP Update - Milton-Freewater, OR
 2004 Three-Lane Traffic Condition, Weekday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Main Street-DR117 Bth Ave.

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: D1 29.31

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module: >> Count Date: 29 Nov 2004 <<

Base Vol:	8 522	2 3 392	15 25	1 11 2	1 1 12
Growth Adj:	1.00 1.15	1.00 1.15	1.00 1.00	1.00 1.00	1.00 1.00
Initial Bse:	8 600	2 3 451	15 25	1 11 2	1 1 12
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
PHF Adj:	0.88 0.88	0.88 0.88	0.88 0.88	0.88 0.88	0.88 0.88
PHF Volume:	9 682	2 3 512	17 28	1 13 2	1 1 14
Reduc Vol:	0 0	0 0	0 0	0 0	0 0
Final Vol.:	9 682	2 3 512	17 28	1 13 2	1 1 14

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5	6.2 7.1 6.5	6.2
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5 4.0	3.3

Capacity Module:

Cnflct Vol:	529 xxxx xxxx	684 xxxx xxxx	1236 1230	521 1236 1238	683
Potent Cap.:	1038 xxxx xxxx	909 xxxx xxxx	154 179	560 154 177	453
Move Cap.:	1038 xxxx xxxx	909 xxxx xxxx	147 177	560 149 175	453
Volume/Cap:	0.01 xxxx xxxx	0.00 xxxx xxxx	0.19 0.01	0.02 0.02 0.01	0.03

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx
Stopped Del:	8.5 xxxx xxxx	9.0 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx
LOS by Move:	A *	A *	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 190 xxxx	xxxx 328 xxxx	xxxx xxxx
Shared Queue:	xxxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx 0.8	xxxxx xxxx 0.2	xxxxx xxxx
Shrd StpDel:	xxxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx 29.3 xxxx	xxxxx 16.6 xxxx	xxxxx xxxx
Shared LOS:	*	*	*	*	*
ApproachDel:	xxxxxx	xxxxxx	29.3	16.6	
ApproachLOS:	*	*	D	C	*

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 2004 Three-Lane Traffic Condition, Weekday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 DR 11/7th Ave. Eastbound

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: E(36.3)

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:

Base Vol:	2 556	0 0	408 13	7 1 2 0 0 0
Growth Adj:	1.00 1.18	1.00 1.18	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:	2 656	0 0	481 13	7 1 2 0 0 0
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:	0.70 0.70	0.70 0.70	0.70 0.70	0.70 0.70 0.70 0.70 0.70 0.70
PHF Volume:	3 937	0 0	688 19	10 1 3 0 0 0
Reduc Vol:	0 0	0 0	0 0	0 0 0 0 0 0
Final Vol.:	3 937	0 0	688 19	10 1 3 0 0 0

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	6.4 6.5 6.2	xxxxxx xxxx xxxx
FollowUpTim:	2.2 xxxx xxxx	xxxxxx xxxx xxxx	3.5 4.0	3.3	xxxxxx xxxx xxxx

Capacity Module:

Cnflct Vol:	706 xxxx xxxx	xxxx xxxx xxxx	1640 1640	697 xxxx xxxx xxxx
Potent Cap.:	892 xxxx xxxx	xxxx xxxx xxxx	111 101	444 xxxx xxxx xxxx
Move Cap.:	892 xxxx xxxx	xxxx xxxx xxxx	111 101	444 xxxx xxxx xxxx
Volume/Cap:	0.00 xxxx xxxx	xxxx xxxx xxxx	0.09 0.01	0.01 xxxx xxxx xxxx

Level Of Service Module:

Queue:	0.0 xxxx xxxx	xxxxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx
Stopped Del:	9.0 xxxx xxxx	xxxxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx
LOS by Move:	A *	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 129 xxxx	xxxx 0 xxxx
Shared Queue:	xxxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx xxxx	0.4 xxxx xxxx xxxx xxxx
Shrd StpDel:	xxxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx 36.3 xxxx	xxxxx xxxx xxxx xxxx
Shared LOS:	*	*	*	*
ApproachDel:	xxxxxx	xxxxxx	36.3	xxxxxx
ApproachLOS:	*	*	E	*

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 OR 11/7th Avenue - Westbound

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: CI 20.01

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:

Base Vol:	0 556	1 7 408	0 0 0 0	2 0 16
Growth Adj:	1.00 1.18	1.00 1.18	1.00 1.00	1.00 1.00 1.00
Initial Bse:	0 656	1 7 481	0 0 0 0	2 0 16
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.70 0.70	0.70 0.70	0.70 0.70	0.70 0.70 0.70
PHF Volume:	0 937	1 10 688	0 0 0 0	3 0 23
Reduc Vol:	0 0	0 0	0 0 0 0	0 0 0 0
Final Vol.:	0 937	1 10 688	0 0 0 0	3 0 23

Critical Gap Module:

Critical Gp:	xxxxxx xxxx xxxx	4.1 xxxx xxxx xxxx xxxx xxxx	6.4 xxxx	6.2
FollowUpTim:	xxxxxx xxxx xxxx	2.2 xxxx xxxx xxxx xxxx	3.5 xxxx	3.3

Capacity Module:

Cnflct Vol:	xxxx xxxx xxxx	939 xxxx xxxx	xxxx xxxx xxxx	1646 xxxx	938
Potent Cap.:	xxxx xxxx xxxx	730 xxxx xxxx	xxxx xxxx xxxx	111 xxxx	323
Move Cap.:	xxxx xxxx xxxx	730 xxxx xxxx	xxxx xxxx xxxx	109 xxxx	323
Volume/Cap:	xxxx xxxx xxxx	0.01 xxxx xxxx	xxxx xxxx xxxx	0.03 xxxx	0.07

Level Of Service Module:

Queue:	xxxxxx xxxx xxxx	0.0 xxxx xxxx	xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx
Stopped Del:	xxxxxx xxxx xxxx	10.0 xxxx xxxx	xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx
LOS by Move:	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 0 xxxx xxxx	266 xxxx
SharedQueue:	xxxxxx xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx xxxx	0.3 xxxx
Shrd StpDel:	xxxxxx xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx xxxx	20.0 xxxx
Shared LOS:	*	*	*	*
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	20.0
ApproachLOS:	*	*	*	C *

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 OR 11/ 4th Avenue

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: EI 40.11

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:

Base Vol:	3 576	1 5 426	1 5 1	1 1 1 1 10
Growth Adj:	1.00 1.15	1.00 1.15	1.00 1.00	1.00 1.00 1.00 1.00
Initial Bse:	3 662	1 5 490	1 5 1	1 1 1 1 10
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.78 0.78	0.78 0.78	0.78 0.78	0.78 0.78 0.78 0.78
PHF Volume:	4 849	1 6 628	1 6 1	1 1 1 1 13
Reduc Vol:	0 0	0 0	0 0	0 0 0 0 0
Final Vol.:	4 849	1 6 628	1 6 1	1 1 1 1 13

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5	6.2 7.1 6.5 6.2
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5 4.0 3.3

Capacity Module:

Cnflct Vol:	629 xxxx xxxx	851 xxxx xxxx	1506 1500	629 1500 1500 850
Potent Cap.:	953 xxxx xxxx	788 xxxx xxxx	100 123	486 101 123 363
Move Cap.:	953 xxxx xxxx	788 xxxx xxxx	95 122	486 99 122 363
Volume/Cap:	0.00 xxxx xxxx	0.01 xxxx xxxx	0.07 0.01	0.00 0.01 0.01 0.04

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx xxxx xxxx	xxxx xxxx xxxx
Stopped Del:	8.8 xxxx xxxx	9.6 xxxx xxxx xxxx xxxx	xxxx xxxx xxxx
LOS by Move:	A *	A *	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	112 xxxx
SharedQueue:	xxxxxx xxxx xxxx	xxxx xxxx xxxx	0.3 xxxx
Shrd StpDel:	xxxxxx xxxx xxxx	xxxx xxxx xxxx	40.1 xxxx
Shared LOS:	*	*	E *
ApproachDel:	xxxxxx	xxxxxx	40.1
ApproachLOS:	*	*	E C *

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 2004 Three-Lane Traffic Condition, Weekday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Operations Method (Base Volume, Alternative)

Intersection #9 Main Street/OR11/..2nd Ave.

Cycle (sec): 100 Critical Vol./Cap. (X): 0.417
 Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 21.7
 Optimal Cycle: 36 Level Of Service: C

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Permitted	Permitted	Split Phase	Split Phase
Rights:	Ignore	Include	Include	Include

Min. Green:	0	0	0	0	0	0	0	0	0	0	0		
Lanes:	0	1	0	0	1	0	0	0	1	0	0	1	0

Volume Module: >> Count Date: 30 Nov 2004 <<

Base Vol:	14	170	407	0	159	1	7	0	11	262	19	1
Growth Adj:	1.00	1.22	1.22	1.00	1.22	1.00	1.00	1.00	1.00	1.22	1.00	1.00
Initial Bse:	14	207	497	0	194	1	7	0	11	320	19	1
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	16	230	0	0	216	1	8	0	12	355	21	1
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	16	230	0	0	216	1	8	0	12	355	21	1
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	16	230	0	0	216	1	8	0	12	355	21	1

Saturation Flow Module:

Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Adjustment:	0.96	0.96	1.00	1.00	0.98	0.98	0.88	1.00	0.88	0.93	0.97	0.97
Lanes:	0.06	0.94	1.00	0.00	0.99	0.01	0.39	0.00	0.61	1.00	0.95	0.05
Final Sat.:	109	1618	1800	0	1753	9	618	0	971	1676	1664	88

Capacity Analysis Module:

Vol/Sat:	0.14	0.14	0.00	0.00	0.12	0.12	0.01	0.00	0.01	0.21	0.01	0.01
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****
Green/Cycle:	0.34	0.34	0.00	0.00	0.34	0.34	0.03	0.00	0.03	0.51	0.51	0.51
Volume/Cap:	0.42	0.42	0.00	0.00	0.36	0.36	0.42	0.00	0.42	0.42	0.02	0.02
Delay/Veh:	25.8	25.8	0.0	0.0	25.1	25.1	53.4	0.0	53.4	15.7	12.3	12.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	25.8	25.8	0.0	0.0	25.1	25.1	53.4	0.0	53.4	15.7	12.3	12.3
HCM2KAvg:	6	6	0	0	5	5	1	0	1	7	0	0

PM-3Lane

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Kittelson & Associates, Inc. Project # 6743
 Milton-Freewater STP and TSP Update Plan, Milton-Freewater, OR
 2004 Three-Lane Traffic Condition, Weekday PM Peak Hour

Scenario Report

Scenario: PM-3Lane
 Command: PM-3Lane
 Volume: PM
 Geometry: 3-lane
 Impact Fee: Default Impact Fee
 Trip Generation: Default Trip Generation
 Trip Distribution: Default Trip Distribution
 Paths: Default Paths
 Routes: Default Routes
 Configuration: Default Configuration

PM-3Lane

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Kittelson & Associates, Inc. Project # 6743
 Milton-Freewater STP and TSP Update Plan, Milton-Freewater, OR
 2004 Three-Lane Traffic Condition, Weekday PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base Del/ LOS Veh	Future Del/ LOS Veh	Change in
#	C	C	
# 1 OR 11/ 14th Ave	C 19.9 0.000	C 19.9 0.000	+ 0.000 D/V
# 2 Main Street-OR11/ 12th Ave	E 44.8 0.000	E 44.8 0.000	+ 0.000 D/V
# 3 Main Street - OR 11/ 10th Ave	F 52.4 0.000	F 52.4 0.000	+ 0.000 D/V
# 4 Main Street - OR 11/ 9th Ave	D 34.6 0.000	D 34.6 0.000	+ 0.000 D/V
# 5 Main Street-OR11/ 8th Ave	F 72.1 0.000	F 72.1 0.000	+ 0.000 D/V
# 6 OR 11/7th Ave - Eastbound	F 53.0 0.000	F 53.0 0.000	+ 0.000 D/V
# 7 OR 11/7th Avenue - Westbound	C 16.6 0.000	C 16.6 0.000	+ 0.000 D/V
# 8 OR 11/ 4th Avenue	F 51.1 0.000	F 51.1 0.000	+ 0.000 D/V
# 9 Main Street/OR11/ 2nd Ave	C 23.5 0.615	C 23.5 0.615	+ 0.000 D/V

Kittelson & Associates, Inc. Project # 6743
 Milton-Freewater STP and TSP Update Plan, Milton-Freewater, OR
 2004 Three-Lane Traffic Condition, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #1 OR 11/ 14th Ave

Average Delay (sec/veh): 3.9 Worst Case Level Of Service: CI 19.9

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 0 0 1 0	1 0 1 0 0	0 0 0 0 0	0 0 1 0 0
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Volume Module: >> Count Date: 1 Dec 2004 <<

Base Vol:	0 333 6 145 339 0 0 0 0 8 0 134
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Growth Adj:	1.00 1.18 1.00 1.00 1.18 1.00 1.00 1.00 1.00 1.00 1.00 1.00
-------------	---

Initial Bse:	0 393 6 145 400 0 0 0 0 8 0 134
--------------	---------------------------------

User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
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PHF Adj:	0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71
----------	---

PHF Volume:	0 553 8 204 563 0 0 0 0 11 0 189
-------------	----------------------------------

Reduc Vol:	0 0 0 0 0 0 0 0 0 0 0 0
------------	-------------------------

Final Vol:	0 553 8 204 563 0 0 0 0 11 0 189
------------	----------------------------------

Critical Gap Module:

Critical Gp:	xxxxxx xxxx xxxx 4.1 xxxx xxxx xxxx xxxx xxxx 6.4 xxxx 6.2
--------------	--

FollowUpTim:	xxxxxx xxxx xxxx 2.2 xxxx xxxx xxxx xxxx xxxx 3.5 xxxx 3.3
--------------	--

Capacity Module:

Cnflct Vol:	xxxxxx xxxx xxxx 562 xxxx xxxx xxxx xxxx xxxx 1530 xxxx 558
-------------	---

Potent Cap.:	xxxxxx xxxx xxxx 1009 xxxx xxxx xxxx xxxx xxxx 130 xxxx 533
--------------	---

Move Cap.:	xxxxxx xxxx xxxx 1009 xxxx xxxx xxxx xxxx xxxx 110 xxxx 533
------------	---

Volume/Cap:	xxxxxx xxxx 0.20 xxxx xxxx xxxx xxxx xxxx 0.10 xxxx 0.35
-------------	--

Level Of Service Module:

Queue:	xxxxxx xxxx xxxx 0.8 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
--------	--

Stopped Del:	xxxxxx xxxx xxxx 9.5 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
--------------	--

LOS by Move:	* * * A * * * * * * * * * *
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Movement:	LT - LTR - RT
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Shared Cap.:	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 438 xxxx
--------------	--

Shared Queue:	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 2.3 xxxx
---------------	---

Shrd StpDel:	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 19.9 xxxx
--------------	---

Shared LOS:	* * * * * * * * * * C * *
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ApproachDel:	xxxxxx xxxx * 19.9
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ApproachLOS:	*
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 Milton-Freewater STP and TSP Update Plan, Milton-Freewater, OR
 2004 Three-Lane Traffic Condition, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #2 Main Street-OR11/ 12th Ave

Average Delay (sec/veh): 3.3 Worst Case Level Of Services EI 44.8

Approach:	North Bound	South Bound	East Bound	West Bound
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Movement:	L - T - R	L - T - R	L - T - R	L - T - R
-----------	-----------	-----------	-----------	-----------

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
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Rights:	Include	Include	Include	Include
---------	---------	---------	---------	---------

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module: >> Count Date: 7 Dec 2004 <<

Base Vol:	1 466 1 37 482 21 18 3 1 2 2 11
-----------	---------------------------------

Growth Adj:	1.00 1.18 1.00 1.00 1.18 1.00 1.00 1.00 1.00 1.00 1.00
-------------	--

Initial Bse:	1 550 1 37 569 21 18 3 1 2 2 11
--------------	---------------------------------

User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
-----------	--

PHF Adj:	0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86
----------	--

PHF Volume:	1 639 1 43 661 24 21 3 1 2 2 13
-------------	---------------------------------

Reduc Vol:	0 0 0 0 0 0 0 0 0 0 0
------------	-----------------------

Final Vol.:	1 639 1 43 661 24 21 3 1 2 2 13
-------------	---------------------------------

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx 4.1 xxxx xxxx 7.1 6.5 6.2 7.1 6.5 6.2
--------------	---

FollowUpTim:	2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3
--------------	---

Capacity Module:

Cnflct Vol:	686 xxxx xxxx 641 xxxx xxxx 1409 1402 674 1404 1414 640
-------------	---

Potent Cap.:	908 xxxx xxxx 944 xxxx xxxx 117 141 458 118 139 479
--------------	---

Move Cap.:	908 xxxx xxxx 944 xxxx xxxx 109 135 458 111 132 479
------------	---

Volume/Cap:	0.00 xxxx xxxx 0.05 xxxx xxxx 0.19 0.03 0.00 0.02 0.02 0.03
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Level Of Service Module:

Queue:	0.0 xxxx xxxx 0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx
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Stopped Del:	9.0 xxxx xxxx 9.0 xxxx xxxx xxxx xxxx xxxx xxxx
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LOS by Move:	A * * * A * * * * * * * *
--------------	---------------------------

Movement:	LT - LTR - RT
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Shared Cap.:	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 116 xxxx 268 xxxx
--------------	---

Shared Queue:	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 0.8 xxxx 0.2 xxxx
---------------	---

Shrd StpDel:	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 44.8 xxxx 19.4 xxxx
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Shared LOS:	* * * * * * * * * * E * * * * C *
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ApproachDel:	xxxxxx * 44.8
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ApproachLOS:	*
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Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Main Street - OR 11/ 10th Ave

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: F [52.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:	>> Count Date: 18 Nov 2004 <<									
Base Vol:	5 488	2 7 531	17 19	2 4	5 2	17				
Growth Adj:	1.00 1.15	1.00 1.15	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00				
Initial Bse:	5 561	2 7 611	17 19	2 4	5 2	17				
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00				
PHF Adj:	0.80 0.80	0.80 0.80	0.80 0.80	0.80 0.80	0.80 0.80	0.80 0.80				
PHF Volume:	6 701	3 9 763	21 24	3 5	6 3	21				
Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0 0				
Final Vol.:	6 701	3 9 763	21 24	3 5	6 3	21				

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5	6.2 7.1	6.5 6.2		
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5	4.0 3.3		

Capacity Module:

Cnflict Vol:	785 xxxx xxxx	704 xxxx xxxx	1519 1508	774 1510	1517 703		
Potent Cap.:	834 xxxx xxxx	894 xxxx xxxx	98 122	402 100	120 441		
Move Cap.:	834 xxxx xxxx	894 xxxx xxxx	91 120	402 96	118 441		
Volume/Cap:	0.01 xxxx xxxx	0.01 xxxx xxxx	0.26 0.02	0.01 0.07	0.02 0.05		

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx				
Stopped Del:	9.3 xxxx xxxx	9.1 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx				
LOS by Move:	A * * A	* * * *	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT			
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 106 xxxx	xxxx 223 xxxx			
SharedQueue:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 1.1 xxxx	xxxx 0.5 xxxx			
Shrd StpDel:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxxx 52.4 xxxx	xxxxx 23.7 xxxx			
Shared LOS:	* * * * *	* * * * *	F	*	C	*	
ApproachDel:	XXXXXX	XXXXXX	52.4	23.7			
ApproachLOS:	*	*	F	C			

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Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Main Street - OR 11/ 9th Ave

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: D [34.6]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:	>> Count Date: 22 Nov 2004 <<									
Base Vol:	1 522	2 31 542	14 9	1 5	8 1	11				
Growth Adj:	1.00 1.15	1.00 1.15	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00				
Initial Bse:	1 600	2 31 623	14 9	1 5	8 1	11				
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00				
PHF Adj:	0.89 0.89	0.89 0.89	0.89 0.89	0.89 0.89	0.89 0.89	0.89 0.89				
PHF Volume:	1 674	2 35 700	16 10	1 6	9 1	12				
Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0 0				
Final Vol.:	1 674	2 35 700	16 10	1 6	9 1	12				

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5	6.2 7.1	6.5 6.2		
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5	4.0 3.3		

Capacity Module:

Cnflict Vol:	716 xxxx xxxx	677 xxxx xxxx	1462 1457	708 1459	1464 676		
Potent Cap.:	885 xxxx xxxx	915 xxxx xxxx	108 131	438 108	130 457		
Move Cap.:	885 xxxx xxxx	915 xxxx xxxx	101 126	438 103	125 457		
Volume/Cap:	0.00 xxxx xxxx	0.04 xxxx xxxx	0.10 0.01	0.01 0.09	0.01 0.03		

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx				
Stopped Del:	9.1 xxxx xxxx	9.1 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx				
LOS by Move:	A * * A	* * * *	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT			
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 106 xxxx	xxxx 223 xxxx			
SharedQueue:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 1.1 xxxx	xxxx 0.5 xxxx			
Shrd StpDel:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxxx 52.4 xxxx	xxxxx 23.7 xxxx			
Shared LOS:	* * * * *	* * * * *	F	*	C	*	
ApproachDel:	XXXXXX	XXXXXX	52.4	23.7			
ApproachLOS:	*	*	F	C			

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Main Street-OR11/ 8th Ave

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: F (72.1)

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module:	>> Count Date: 29 Nov 2004 <<
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Base Vol:	6 527 9 13 578 43 24 3 6 3 1 1
-----------	--------------------------------

Growth Adj:	1.00 1.15 1.00 1.00 1.15 1.00 1.00 1.00 1.00 1.00 1.00
-------------	--

Initial Bse:	6 606 9 13 665 43 24 3 6 3 1 1
--------------	--------------------------------

User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
-----------	--

PHF Adj:	0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81
----------	--

PHF Volume:	7 748 11 16 821 53 30 4 7 4 1 1
-------------	---------------------------------

Reduc Vol:	0 0 0 0 0 0 0 0 0 0 0
------------	-----------------------

Final Vol.:	7 748 11 16 821 53 30 4 7 4 1 1
-------------	---------------------------------

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx 4.1 xxxx xxxx 7.1 6.5 6.2 7.1 6.5 6.2
--------------	---

FollowUpTim:	2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3
--------------	---

Capacity Module:

Cnflict Vol:	874 xxxx xxxx 759 xxxx xxxx 1649 1653 847 1653 1674 754
--------------	---

Potent Cap.:	772 xxxx xxxx 852 xxxx xxxx 80 99 365 79 96 413
--------------	---

Move Cap.:	772 xxxx xxxx 852 xxxx xxxx 77 97 365 74 94 413
------------	---

Volume/Cap:	0.01 xxxx xxxx 0.02 xxxx xxxx 0.38 0.04 0.02 0.05 0.01 0.00
-------------	---

Level Of Service Module:

Queue:	0.0 xxxx xxxx 0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
--------	---

Stopped Del:	9.7 xxxx xxxx 9.3 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
--------------	---

LOS by Move:	A * * A * * * * * * * *
--------------	-------------------------

Movement:	LT - LTR - RT
-----------	---

Shared Cap.:	xxxx xxxx xxxx xxxx xxxx xxxx 92 xxxx xxxx 93 xxxx
--------------	--

SharedQueue:	xxxx xxxx xxxx xxxx xxxx xxxx 1.9 xxxx xxxx 0.2 xxxx
--------------	--

Shrd StpDel:	xxxx xxxx xxxx xxxx xxxx xxxx 72.1 xxxx xxxx 46.4 xxxx
--------------	--

Shared LOS:	* * * * * * F * * * E *
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ApproachDel:	xxxxxx xxxx 72.1 46.4
--------------	-----------------------

ApproachLOS:	* * F E
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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 OR 11/7th Ave - Eastbound

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: F (53.0)

Approach:	North Bound	South Bound	East Bound	West Bound
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Movement:	L - T - R L - T - R L - T - R L - T - R
-----------	---

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
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Rights:	Include	Include	Include	Include
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Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module:

Base Vol:	6 544 0 0 631 20 31 3 3 0 0 0
-----------	-------------------------------

Growth Adj:	1.00 1.18 1.00 1.00 1.18 1.00 1.00 1.00 1.00 1.00 1.00
-------------	--

Initial Bse:	6 642 0 0 745 20 31 3 3 0 0 0
--------------	-------------------------------

User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
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PHF Adj:	0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86
----------	--

PHF Volume:	7 746 0 0 866 23 36 3 3 0 0 0
-------------	-------------------------------

Reduc Vol:	0 0 0 0 0 0 0 0 0 0 0
------------	-----------------------

Final Vol.:	7 746 0 0 866 23 36 3 3 0 0 0
-------------	-------------------------------

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx xxxx xxxx xxxx 6.4 6.5 6.2 xxxx xxxx xxxx
--------------	---

FollowUpTim:	2.2 xxxx xxxx xxxx xxxx xxxx 3.5 4.0 3.3 xxxx xxxx xxxx
--------------	---

Capacity Module:

Cnflict Vol:	889 xxxx xxxx xxxx xxxx xxxx 1638 1638 877 xxxx xxxx xxxx
--------------	---

Potent Cap.:	762 xxxx xxxx xxxx xxxx xxxx 112 102 350 xxxx xxxx xxxx
--------------	---

Move Cap.:	762 xxxx xxxx xxxx xxxx xxxx 111 101 350 xxxx xxxx xxxx
------------	---

Volume/Cap:	0.01 xxxx xxxx xxxx xxxx xxxx 0.32 0.03 0.01 xxxx xxxx xxxx
-------------	---

Level Of Service Module:

Queue:	0.0 xxxx
--------	---

Stopped Del:	9.8 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
--------------	--

LOS by Move:	A * * * * * * * * * * * *
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Movement:	LT - LTR - RT
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Shared Cap.:	xxxx xxxx xxxx xxxx xxxx xxxx 117 xxxx xxxx 0 xxxx
--------------	--

SharedQueue:	xxxx xxxx xxxx xxxx xxxx xxxx 1.5 xxxx xxxx xxxx xxxx
--------------	---

Shrd StpDel:	xxxx xxxx xxxx xxxx xxxx xxxx 53.0 xxxx xxxx xxxx xxxx
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Shared LOS:	* * * * * * F * * * * *
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ApproachDel:	xxxxxx xxxx 53.0 xxxxxx
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ApproachLOS:	* * F *
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Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 OR 11/7th Avenue - Westbound

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: CI 16.61

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 1 0 0 1 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0

Volume Module:

Base Vol: 0 544 2 17 631 0 0 0 0 1 0 9

Growth Adj: 1.00 1.18 1.00 1.00 1.18 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 642 2 17 745 0 0 0 0 1 0 9

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86

PHF Volume: 0 746 2 20 866 0 0 0 0 1 0 10

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 0 746 2 20 866 0 0 0 0 1 0 10

Critical Gap Module:

Critical Gp:xxxxxx xxxx xxxx 4.1 xxxx xxxx xxxx xxxx xxxx 6.4 xxxx 6.2

FollowUpTim:xxxxxx xxxx xxxx 2.2 xxxx xxxx xxxx xxxx xxxx 3.5 xxxx 3.3

Capacity Module:

Cnflct Vol: xxxx xxxx xxxx 749 xxxx xxxx xxxx xxxx xxxx 1653 xxxx 748

Potent Cap.: xxxx xxxx xxxx 860 xxxx xxxx xxxx xxxx xxxx 109 xxxx 416

Move Cap.: xxxx xxxx xxxx 860 xxxx xxxx xxxx xxxx xxxx 108 xxxx 416

Volume/Cap: xxxx xxxx xxxx 0.02 xxxx xxxx xxxx xxxx 0.01 xxxx 0.03

Level Of Service Module:

Queue: xxxx xxxx xxxx 0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del:xxxxxx xxxx xxxx 9.3 xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: * * * A * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx 0 xxxx xxxx 323 xxxx

SharedQueue:xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 0.1 xxxx

Shrd StpDel:xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 16.6 xxxx

Shared LOS: * * * * * * * * * * C *

ApproachDel: XXXXX XXXXX XXXXX 16.6

ApproachLOS: * * * * * * * * * * C *

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Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 OR 11/ 4th Avenue

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: FL 51.11

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 1 0 0 1 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0

Volume Module:

Base Vol: 4 577 3 8 667 4 4 1 1 1 1 1 1 1 1 17

Growth Adj: 1.00 1.15 1.00 1.00 1.15 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 4 664 3 8 767 4 4 1 1 1 1 1 1 1 1 17

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87

PHF Volume: 5 763 3 9 882 5 5 1 1 1 1 1 1 1 20

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 5 763 3 9 882 5 5 1 1 1 1 1 1 1 1 20

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.1 6.5 6.2 7.1 6.5 6.2

FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Cnflct Vol: 886 xxxx xxxx 766 xxxx xxxx 1686 1678 884 1677 1678 764

Potent Cap.: 764 xxxx xxxx 847 xxxx xxxx 75 96 347 76 96 407

Move Cap.: 764 xxxx xxxx 847 xxxx xxxx 70 94 347 74 94 407

Volume/Cap: 0.01 xxxx xxxx 0.01 xxxx xxxx 0.07 0.01 0.00 0.02 0.01 0.05

Level Of Service Module:

Queue: 0.0 xxxx xxxx 0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 9.7 xxxx xxxx 9.3 xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: A * * * A * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx 85 xxxx xxxx 289 xxxx

SharedQueue:xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx 0.3 xxxx xxxx 0.2 xxxx

Shrd StpDel:xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx 51.1 xxxx xxxx 18.5 xxxx

Shared LOS: * * * * * * * * * * F * * * C *

ApproachDel: XXXXX XXXXX XXXXX 51.1

ApproachLOS: * * * * * * * * * * C *

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Level Of Service Computation Report
 2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Main Street/OR11/ 2nd Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.615
 Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 23.5
 Optimal Cycle: 50 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Split Phase Split Phase
 Rights: Ignore Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 0 1 0 0 1 0 0 0 1 0 0 0 1 0 0 1 0 0 1 0

Volume Module: >> Count Date: 30 Nov 2004 <<

Base Vol: 7 187 398 0 189 12 5 0 9 481 31 6

Growth Adj: 1.00 1.22 1.22 1.00 1.22 1.00 1.00 1.00 1.00 1.22 1.00 1.00

Initial Bse: 7 228 486 0 231 12 5 0 9 587 31 6

User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.92 0.92 0.00 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92

PHF Volume: 8 248 0 0 251 13 5 0 10 638 34 7

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 8 248 0 0 251 13 5 0 10 638 34 7

PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 8 248 0 0 251 13 5 0 10 638 34 7

Saturation Flow Module:

Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800

Adjustment: 0.97 0.97 1.00 1.00 0.97 0.97 0.88 1.00 0.88 0.93 0.96 0.96

Lanes: 0.03 0.97 1.00 0.00 0.95 0.05 0.36 0.00 0.64 1.00 0.84 0.16

Final Sat.: 52 1694 1800 0 1665 87 565 0 1017 1676 1442 279

Capacity Analysis Module:

Vol/Sat: 0.15 0.15 0.00 0.00 0.15 0.15 0.01 0.00 0.01 0.38 0.02 0.02

Crit Moves: **** **** ****

Green/Cycle: 0.24 0.24 0.00 0.00 0.24 0.24 0.02 0.00 0.02 0.62 0.62 0.62

Volume/Cap: 0.60 0.60 0.00 0.00 0.61 0.61 0.61 0.00 0.61 0.61 0.04 0.04

Delay/Veh: 35.7 35.7 0.0 0.0 36.2 36.2 87.2 0.0 87.2 12.8 7.4 7.4

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 35.7 35.7 0.0 0.0 36.2 36.2 87.2 0.0 87.2 12.8 7.4 7.4

HCM2KAvg: 8 8 0 0 8 8 1 0 1 13 0 0

Appendix F

2025 Traffic Operations Analysis Worksheets – Three-Lane Option

Kittelson & Associates, Inc. Project #6743
 Milton-Freewater STP and TSP Update - Milton-Freewater, OR
 2025 Three-Lane Alternative, Weekday PM Peak Hour

Scenario Report

Scenario:	AM-3Lane
Command:	AM-3Lane
Volume:	AM
Geometry:	3-lane
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Paths
Routes:	Default Routes
Configuration:	Default Configuration

Kittelson & Associates, Inc. Project #6743
 Milton-Freewater STP and TSP Update - Milton-Freewater, OR
 2025 Three-Lane Alternative, Weekday PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base Del/ LOS Veh	Future V/ C	Future Del/ LOS Veh	Change in D/V
# 1 OR 11/ 14th Ave	F 74.5 0.000	F 74.5 0.000	+ 0.000 D/V	
# 2 Main Street-OR11/ 12th Ave	F 152.9 0.000	F 152.9 0.000	+ 0.000 D/V	
# 3 Main Street - OR 11/ 10th Ave	E 36.4 0.000	E 36.4 0.000	+ 0.000 D/V	
# 4 Main Street - OR 11/ 9th Ave	E 49.5 0.000	E 49.5 0.000	+ 0.000 D/V	
# 5 Main Street-OR11/ 8th Ave	F 76.8 0.000	F 76.8 0.000	+ 0.000 D/V	
# 6 OR 11/7th Ave - Eastbound	F 86.4 0.000	F 86.4 0.000	+ 0.000 D/V	
# 7 OR 11/7th Avenue - Westbound	D 33.7 0.000	D 33.7 0.000	+ 0.000 D/V	
# 8 OR 11/ 4th Avenue	F 97.8 0.000	F 97.8 0.000	+ 0.000 D/V	
# 9 Main Street/OR11/ 2nd Ave	C 23.6 0.552	C 23.6 0.552	+ 0.000 D/V	

Kittelson & Associates, Inc. Project #6743
Milton-Freewater STP and TSP Update - Milton-Freewater, OR
2025 Three-Lane Alternative, Weekday PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 OR 117/ 14th Ave

Average Delay (sec/veh): 13.7 Worst Case Level Of Service: F [74.5]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 0 0 1 0	1 0 1 0 0	0 0 0 0 0	0 0 1 0 0
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Volume Module: >> Count Date: 1 Dec 2004 <<

Base Vol: 0 323 13 108 259 0 0 0 0 12 0 152

Growth Adj: 1.32 1.56 1.32 1.32 1.56 1.32 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 0 503 17 143 403 0 0 0 0 16 0 201

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70

PHF Volume: 0 719 25 204 576 0 0 0 0 23 0 287

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 0 719 25 204 576 0 0 0 0 23 0 287

Critical Gap Module:

Critical Gp:xxxxx xxxx xxxx 4.1 xxxx xxxx xxxx xxxx xxxx 6.4 xxxx 6.2

FollowUptim:xxxxx xxxx xxxx 2.2 xxxx xxxx xxxx xxxx 3.5 xxxx 3.3

Capacity Module:

Cnflct Vol: xxxx xxxx xxxx 743 xxxx xxxx xxxx xxxx xxxx 1715 xxxx 731

Potent Cap.: xxxx xxxx xxxx 864 xxxx xxxx xxxx xxxx xxxx 100 xxxx 425

Move Cap.: xxxx xxxx xxxx 864 xxxx xxxx xxxx xxxx xxxx .82 xxxx 425

Volume/Cap: xxxx xxxx xxxx 0.24 xxxx xxxx xxxx xxxx xxxx 0.28 xxxx 0.67

Level Of Service Module:

Queue: xxxx xxxx xxxx 0.9 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del:xxxxx xxxx xxxx 10.4 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: * * * * B * * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 326 xxxx

SharedQueue:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 9.8 xxxx

Shrd StpDel:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 74.5 xxxx

Shared LOS: * * * * * * * * * * F *

ApproachDel: xxxx * * * * * * * * * * 74.5

ApproachLOS: * * * * * * * * * * F

Kittelson & Associates, Inc. Project #6743
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2025 Three-Lane Alternative, Weekday PM Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Main Street-OR11/ 12th Ave

Average Delay (sec/veh): 7.1 Worst Case Level Of Service: F [152.9]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
--------	-----------	-----------	-----------	-----------

Volume Module: >> Count Date: 7 Dec 2004 <<

Base Vol: 4 450 2 10 358 7 36 2 6 3 1 15

Growth Adj: 1.32 1.56 1.32 1.32 1.56 1.32 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 5 701 3 13 558 9 48 3 8 4 1 20

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80

PHF Volume: 7 876 3 17 697 12 59 3 10 5 2 25

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 7 876 3 17 697 12 59 3 10 5 2 25

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.1 6.5 6.2 7.1 6.5 6.2

FollowUptim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Cnflct Vol: 709 xxxx xxxx 879 xxxx xxxx 1640 1628 703 1633 1633 878

Potent Cap.: 890 xxxx xxxx 768 xxxx xxxx 81 103 441 82 102 350

Move Cap.: 890 xxxx xxxx 768 xxxx xxxx 73 100 441 76 99 350

Volume/Cap: 0.01 xxxx xxxx 0.02 xxxx xxxx 0.82 0.03 0.02 0.06 0.02 0.07

Level Of Service Module:

Queue: 0.0 xxxx xxxx 0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 9.1 xxxx xxxx 9.8 xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: A * * A * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx xxxx 83 xxxx 206 xxxx

SharedQueue:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx 4.6 xxxx xxxx 0.5 xxxx

Shrd StpDel:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx 153,xxxx xxxx 25.6 xxxx

Shared LOS: * * * * * * * * * * F *

ApproachDel: xxxx * * * * * * * * * * 152.9

ApproachLOS: * * * * * * * * * * F

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 Milton-Freewater STP and TSP Update - Milton-Freewater, OR
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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Main Street - OR 11/ 10th Ave

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: E[36.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
--------	-----------	-----------	-----------	-----------

Volume Module: >> Count Date: 18 Nov 2004 <<

Base Vol:	5 495	1 4 369	8 7 1	5 1 1	1 1 11
Growth Adj:	1.32 1.52	1.32 1.32 1.52	1.32 1.32 1.32	1.32 1.32 1.32	1.32 1.32 1.32
Initial Bse:	7 751	1 5 560	11 9 1	7 1 1	1 1 15
User Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.88 0.88	0.88 0.88 0.88	0.88 0.88 0.88	0.88 0.88 0.88	0.88 0.88 0.88
PHF Volume:	8 854	2 6 637	12 11 2	8 2 2	2 17
Reduc Vol:	0 0	0 0 0	0 0 0	0 0 0	0 0 0
Final Vol.:	8 854	2 6 637	12 11 2	8 2 2	2 17

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5	6.2 7.1	6.5 6.2
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5	4.0 3.3

Capacity Module:

Cnflct Vol:	649 xxxx xxxx	855 xxxx xxxx	1533 1525	643 1529	1530 855
Potent Cap.:	937 xxxx xxxx	785 xxxx xxxx	96 119	477 97	118 361
Move Cap.:	937 xxxx xxxx	785 xxxx xxxx	90 117	477 93	116 361
Volume/Cap.:	0.01 xxxx xxxx	0.01 xxxx xxxx	0.12 0.01	0.02 0.02	0.01 0.05

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx	
Stopped Del:	8.9 xxxx xxxx	9.6 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx	
LOS by Move:	A * *	A * *	* * *	* * *	* *
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared.Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 134 xxxx	xxxx 261 xxxx	xxxx xxxx
SharedQueue:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 0.5 xxxx	xxxx 0.2 xxxx	xxxx xxxx
Shrd StpDel:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 36.4 xxxx	xxxx 19.9 xxxx	xxxx xxxx
Shared LOS:	* * *	* * *	* E *	* C *	*
ApproachDel:	xxxxxx	xxxxxx	36.4	19.9	
ApproachLOS:	*	*	E	C	

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Main Street - OR 11/ 9th Ave

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: E[49.5]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module: >> Count Date: 22 Dec 2004 <<

Base Vol:	1 508	5 15 371	19 11 1	6 4 1	13
Growth Adj:	1.32 1.61	1.32 1.32 1.61	1.32 1.32 1.32	1.32 1.32 1.32	1.32 1.32 1.32
Initial Bse:	1 818	.7 20 597	25 15 1	8 5 1	17
User Adj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.91 0.91	0.91 0.91 0.91	0.91 0.91 0.91	0.91 0.91 0.91	0.91 0.91 0.91
PHF Volume:	1 899	7 22 657	28 16 1	9 6 1	19
Reduc Vol:	0 0	0 0 0	0 0 0	0 0 0	0 0 0
Final Vol.:	1 899	7 22 657	28 16 1	9 6 1	19

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5	6.2 7.1	6.5 6.2
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5	4.0 3.3

Capacity Module:

Cnflct Vol:	684 xxxx xxxx	906 xxxx xxxx	1630 1623	670 1624	1633 903
Potent Cap.:	909 xxxx xxxx	751 xxxx xxxx	82 104	460 83	102 339
Move Cap.:	909 xxxx xxxx	751 xxxx xxxx	75 101	460 79	99 339
Volume/Cap.:	0.00 xxxx xxxx	0.03 xxxx xxxx	0.21 0.01	0.02 0.07	0.01 0.06

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx	
Stopped Del:	9.0 xxxx xxxx	9.9 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx	
LOS by Move:	A * *	A * *	* * *	* * *	
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	
Shared.Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 106 xxxx	xxxx 181 xxxx	xxxx xxxx
SharedQueue:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 0.9 xxxx	xxxx 0.5 xxxx	xxxx xxxx
Shrd StpDel:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 49.5 xxxx	xxxx 28.2 xxxx	xxxx xxxx
Shared LOS:	* * *	* * *	* E *	* C *	*
ApproachDel:	xxxxxx	xxxxxx	49.5	28.2	
ApproachLOS:	*	*	E	D	

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Main Street-OR11/ 8th Ave

Average Delay (sec/veh): 2.9 Worst Case Level Of Service: F [76.8]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module: >> Count Date: 29 Nov 2004 <<

Base Vol:	8 522	2 3 392	15 25	1 11 2 1	12
Growth Adj:	1.32 1.52	1.32 1.32	1.32 1.32	1.32 1.32 1.32	1.32
Initial Bse:	11 792	3 4 595	20 33	1 15 3 1	16
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00	1.00
PHF Adj:	0.88 0.88	0.88 0.88	0.88 0.88	0.88 0.88 0.88	0.88
PHF Volume:	12 900	3 5 676	23 38	2 17 3 2	18
Reduc Vol:	0 0	0 0	0 0	0 0 0 0	0
Final Vol.:	12 900	3 5 676	23 38	2 17 3 2	18

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5	6.2 7.1 6.5	6.2
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5 4.0	3.3

Capacity Module:

Conflict Vol:	699 xxxx xxxx	903 xxxx xxxx	1632 1624	687 1631 1634	902
Potent Cap.:	898 xxxx xxxx	753 xxxx xxxx	82 104	450 82 102	339
Move Cap.:	898 xxxx xxxx	753 xxxx xxxx	76 102	450 77 100	339
Volume/Cap:	0.01 xxxx xxxx	0.01 xxxx xxxx	0.50 0.01	0.04 0.04 0.01	0.05

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx
Stopped Del:	9.1 xxxx xxxx	9.8 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx
LOS by Move:	A * * *	A * * *	* * * *	* * * *	* * * *
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 101 xxxx xxxx	210 xxxx	xxxx xxxx xxxx
SharedQueue:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxxx 2.5 xxxx xxxx	0.4 xxxx	xxxx xxxx xxxx
Shrd StpDel:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxxx 76.8 xxxx xxxx	24.1 xxxx	xxxx xxxx xxxx
Shared LOS:	* * * *	* * * *	F * * *	C *	*
ApproachDel:	xxxxxx	xxxxxx	76.8	24.1	
ApproachLOS:	*	*	F	C	*

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Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 OR 11/7th Ave - Eastbound

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: F [86.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:

Base Vol:	2 556	0	0 408	13 7 1	2 0 0 0	0
Growth Adj:	1.32 1.56	1.32	1.32 1.56	1.32 1.32 1.32	1.32 1.32 1.32	1.32
Initial Bse:	3 866	0	0 636	17 9 1	3 0 0	0
User Adj:	1.00 1.00	1.00	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00
PHF Adj:	0.70 0.70	0.70	0.70 0.70	0.70 0.70 0.70	0.70 0.70 0.70	0.70
PHF Volume:	4 1237	0	0 908	25 13 2	4 0 0	0
Reduc Vol:	0 0	0	0 0	0 0 0	0 0 0	0
Final Vol.:	4 1237	0	0 908	25 13 2	4 0 0	0

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	6.4 6.5	6.2 xxxx xxxx	xxxxxx xxxx
FollowUpTim:	2.2 xxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	3.5 4.0	3.3 xxxx xxxx	xxxxxx xxxx

Capacity Module:

Conflict Vol:	932 xxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	2165 2165	920 xxxx xxxx	xxxxxx xxxx
Potent Cap.:	734 xxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	53 48	331 xxxx xxxx	xxxxxx xxxx
Move Cap.:	734 xxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	52 48	331 xxxx xxxx	xxxxxx xxxx
Volume/Cap:	0.01 xxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	0.25 0.04	0.01 xxxx xxxx	xxxxxx xxxx

Level Of Service Module:

Queue:	0.0 xxxx xxxx	xxxxxx xxxx	xxxxxx xxxx xxxx xxxx	xxxxxx xxxx xxxx xxxx	xxxxxx xxxx xxxx xxxx	xxxxxx xxxx xxxx xxxx
Stopped Del:	9.9 xxxx xxxx	xxxxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx
LOS by Move:	A * * *	A * * *	* * * *	* * * *	* * * *	* * * *
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 101 xxxx xxxx	62 xxxx xxxx	0 xxxx	xxxx xxxx xxxx
SharedQueue:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxxx 2.5 xxxx xxxx	0.4 xxxx	xxxx xxxx xxxx	xxxxxx xxxx
Shrd StpDel:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxxx 76.8 xxxx xxxx	24.1 xxxx	xxxx xxxx xxxx	xxxxxx xxxx
Shared LOS:	* * * *	* * * *	F * * *	C *	*	*
ApproachDel:	xxxxxx	xxxxxx	76.8	24.1		
ApproachLOS:	*	*	F	C	*	*

AM-3Lane

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Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 OR 11/7th Avenue - Westbound

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: D [33.7]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:

Base Vol:	0 556	1 7 408	0 0 0 0	2 0 0 16
Growth Adj:	1.32 1.56	1.32 1.56	1.32 1.32	1.32 1.32 1.32
Initial Bse:	0 866	1 9 636	0 0 0 0	3 0 21
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.70 0.70	0.70 0.70	0.70 0.70	0.70 0.70 0.70
PHF Volume:	0 1237	2 13 908	0 0 0 0	4 0 30
Reduc Vol:	0 0	0 0	0 0 0 0	0 0 0 0
Final Vol.:	0 1237	2 13 908	0 0 0 0	4 0 30

Critical Gap Module:

Critical Gp:xxxxx xxxx xxxx:	4.1 xxxx xxxx xxxx xxxx xxxx	6.4 xxxx 6.2
FollowUpTim:xxxxx xxxx xxxx:	2.2 xxxx xxxx xxxx xxxx xxxx	3.5 xxxx 3.3

Capacity Module:

Cnflct Vol: xxxx xxxx xxxx	1239 xxxx xxxx	xxxx xxxx xxxx	2172 xxxx 1238
Potent Cap.: xxxx xxxx xxxx	562 xxxx xxxx	xxxx xxxx xxxx	52 xxxx 216
Move Cap.: xxxx xxxx xxxx	562 xxxx xxxx	xxxx xxxx xxxx	51 xxxx 216
Volume/Cap: xxxx xxxx xxxx	0.02 xxxx xxxx	xxxx xxxx xxxx	0.07 xxxx 0.14

Level Of Service Module:

Queue: xxxx xxxx xxxx	0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Stopped Del:xxxxx xxxx xxxx	11.6 xxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx xxxx
LOS by Move: * * *	B * * *	* * * * *
Movement: LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.: xxxx xxxx xxxx	xxxx xxxx xxxx	0 xxxx xxxx 159 xxxx
SharedQueue:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx	0.8 xxxx
Shrd StpDel:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx xxxx xxxx	33.7 xxxx
Shared LOS: * * * *	* * * *	* * * D *
ApproachDel: xxxxx	xxxxxx	xxxxxx
ApproachLOS:	*	*

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Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 OR 11/ 4th Avenue

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: F [97.8]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:

Base Vol:	3 576	1 5 426	1 5 1 1 1 1 1 10
Growth Adj:	1.32 1.52	1.32 1.32 1.32 1.32 1.32 1.32 1.32 1.32	
Initial Bse:	4 874	1 7 647	1 7 1 1 1 1 1 13
User Adj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
PHF Adj:	0.78 0.78	0.78 0.78 0.78 0.78 0.78 0.78 0.78 0.78	
PHF Volume:	5 1121	2 8 829	2 8 2 2 2 2 2 17
Reduc Vol:	0 0	0 0	0 0 0 0 0 0 0 0
Final Vol.:	5 1121	2 8 829	2 8 2 2 2 2 2 17

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5 6.2 7.1 6.5 6.2
FollowUpTim: 2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Cnflct Vol: 831 xxxx xxxx	1123 xxxx xxxx	1988 1980 830 1981 1980 1122
Potent Cap.: 801 xxxx xxxx	622 xxxx xxxx	46 62 373 47 62 253
Move Cap.: 801 xxxx xxxx	622 xxxx xxxx	41 61 373 45 61 253
Volume/Cap: 0.01 xxxx xxxx	0.01 xxxx xxxx	0.20 0.03 0.00 0.04 0.03 0.07

Level Of Service Module:

Queue: 0.0 xxxx xxxx	0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Stopped Del: 9.5 xxxx xxxx	10.9 xxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx xxxx
LOS by Move: A * * *	B * * *	* * * * *
Movement: LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.: xxxx xxxx xxxx	xxxx xxxx xxxx	50 xxxx xxxx 153 xxxx
SharedQueue:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx xxxx	0.8 xxxx xxxx 0.4 xxxx
Shrd StpDel:xxxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx	97.8 xxxx xxxx 32.0 xxxx
Shared LOS: * * * *	* * * *	* F * * D *
ApproachDel: xxxxx	xxxxxx	97.8
ApproachLOS:	*	F D

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Level Of Service Computation Report
 2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Main Street/OR11/ 2nd Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.552
 Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 23.6
 Optimal Cycle: 44 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted	Permitted	Split Phase	Split Phase
Rights:	Ignore	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	0 1 0 0 1	0 0 0 1 0	0 0 1 0 0	1 0 0 1 0

Volume Module: >> Count Date: 30 Nov 2004 <<

Base Vol:	14	170	407	0	159	1	7	0	11	262	19	1
Growth Adj:	1.32	1.61	1.61	1.32	1.61	1.32	1.32	1.32	1.32	1.61	1.32	1.32
Initial Bse:	18	274	655	0	256	1	9	0	15	422	25	1
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	21	304	0	0	285	1	10	0	16	469	28	1
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	304	0	0	285	1	10	0	16	469	28	1
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	21	304	0	0	285	1	10	0	16	469	28	1

Saturation Flow Module:

Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.95	0.95	1.00	1.00	0.98	0.98	0.88	1.00	0.88	0.93	0.97	0.97
Lanes:	0.06	0.94	1.00	0.00	0.99	0.01	0.39	0.00	0.61	1.00	0.95	0.05
Final Sat.:	108	1606	1800	0	1753	9	618	0	971	1676	1664	88

Capacity Analysis Module:

Vol/Sat:	0.19	0.19	0.00	0.00	0.16	0.16	0.02	0.00	0.02	0.28	0.02	0.02
Crit Moves:	****						****	****				
Green/Cycle:	0.34	0.34	0.00	0.00	0.34	0.34	0.03	0.00	0.03	0.51	0.51	0.51
Volume/Cap:	0.55	0.55	0.00	0.00	0.47	0.47	0.55	0.00	0.55	0.55	0.03	0.03
Delay/Veh:	27.8	27.8	0.0	0.0	26.3	26.3	61.0	0.0	61.0	17.7	12.4	12.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.8	27.8	0.0	0.0	26.3	26.3	61.0	0.0	61.0	17.7	12.4	12.4
HCM2kAvg:	9	9	0	0	7	7	2	0	2	11	0	0

PM-3Lane

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 Milton-Freewater STP and TSP Update - Milton-Freewater, OR
 2025 Three-Lane Alternative, Weekday PM Peak Hou

Scenario Report

Scenario: PM-3Lane

Command: PM-3Lane

Volume: PM

Geometry: 3-lane

Impact Fee: Default Impact Fee

Trip Generation: Default Trip Generation

Trip Distribution: Default Trip Distribution

Paths: Default Paths

Routes: Default Routes

Configuration: Default Configuration

PM-3Lane

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Impact Analysis Report
Level Of Service

Intersection	Base LOS Veh	Future LOS Veh	Change in C
# 1 OR 11/ 14th Ave	F 66.9 0.000	F 66.9 0.000	+ 0.000 D/V
# 2 Main Street-OR11/ 12th Ave	F 150.4 0.000	F 150.4 0.000	+ 0.000 D/V
# 3 Main Street - OR 11/ 10th Ave	F 237.8 0.000	F 237.8 0.000	+ 0.000 D/V
# 4 Main Street - OR 11/ 9th Ave	F 86.8 0.000	F 86.8 0.000	+ 0.000 D/V
# .5 Main Street-OR11/ 8th Ave	F 442.6 0.000	F 442.6 0.000	+ 0.000 D/V
# 6 OR 11/7th Ave - Eastbound	F 250.8 0.000	F 250.8 0.000	+ 0.000 D/V
# 7 OR 11/7th Avenue - Westbound	C 24.4 0.000	C 24.4 0.000	+ 0.000 D/V
# 8 OR 11/ 4th Avenue	F 144.3 0.000	F 144.3 0.000	+ 0.000 D/V
# 9 Main Street/OR11/ 2nd Ave	C 31.9 0.811	C 31.9 0.811	+ 0.000 D/V

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 Milton-Freewater STP and TSP Update - Milton-Freewater, OR
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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 OR 11/ 14th Ave

Average Delay (sec/veh): 10.2 Worst Case Level Of Service: F [66.9]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 0 0 1 0	1 0 1 0 0	0 0 0 0 0	0 0 1 0 0
--------	-----------	-----------	-----------	-----------

Volume Module: >> Count Date: 1 Dec 2004 <<
 Base Vol: 0 333 6 145 339 0 0 0 0 8 0 134
 Growth Adj: 1.32 1.56 1.32 1.32 1.56 1.32 1.32 1.32 1.32 1.32 1.32 1.32
 Initial Bse: 0 519 8 191 528 0 0 0 0 11 0 177
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71
 PHF Volume: 0 731 11 270 744 0 0 0 0 15 0 249
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Final Vol.: 0 731 11 270 744 0 0 0 0 15 0 249

Critical Gap Module:
 Critical Gp:xxxxx xxxx xxxx 4.1 xxxx xxxx xxxx xxxx xxxx 6.4 xxxx 6.2
 FollowUpTim:xxxxx xxxx xxxx 2.2 xxxx xxxx xxxx xxxx 3.5 xxxx 3.3

Capacity Module:
 Cnflct Vol: xxxx xxxx xxxx 742 xxxx xxxx xxxx xxxx xxxx xxxx 2019 xxxx 736
 Potent Cap.: xxxx xxxx xxxx 865 xxxx xxxx xxxx xxxx xxxx 65 xxxx 422
 Move Cap.: xxxx xxxx xxxx 865 xxxx xxxx xxxx xxxx xxxx 49 xxxx 422
 Volume/Cap: xxxx xxxx xxxx 0.31 xxxx xxxx xxxx xxxx xxxx 0.30 xxxx 0.59

Level Of Service Module:
 Queue: xxxx xxxx xxxx 1.3 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
 Stopped Del:xxxxx xxxx xxxx 11.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
 LOS by Move: * * * B * * * * * * * * * * * * * * *
 Movement: LT - LTR - RT
 Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 296 xxxx
 SharedQueue:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 8.2 xxxx
 Shrd StpDel:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 66.9 xxxx
 Shared LOS: * * * * * * * * * * * * F * * * * * * * * *
 ApproachDel: xxxx *
 ApproachLOS: *

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Main Street-OR11/ 12th Ave

Average Delay (sec/veh): 3.4 Worst Case Level Of Service: F [150.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
--------	-----------	-----------	-----------	-----------

Volume Module: >> Count Date: 7 Dec 2004 <<
 Base Vol: 1 466 1 37 482 21 18 3 1 2 2 11
 Growth Adj: 1.32 1.56 1.32 1.32 1.56 1.32 1.32 1.32 1.32 1.32 1.32 1.32
 Initial Bse: 1 726 1 49 751 28 24 4 1 3 3 15
 User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
 PHF Adj: 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86
 PHF Volume: 2 844 2 57 873 32 28 5 2 3 3 17
 Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
 Final Vol.: 2 844 2 57 873 32 28 5 2 3 3 17

Critical Gap Module:
 Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.1 6.5 6.2 7.1 6.5 6.2
 FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:
 Cnflct Vol: 905 xxxx xxxx 846 xxxx xxxx 1860 1851 889 1854 1867 845
 Potent Cap.: 751 xxxx xxxx 791 xxxx xxxx 57 75 345 57 73 366
 Move Cap.: 751 xxxx xxxx 791 xxxx xxxx 49 69 345 51 68 366
 Volume/Cap: 0.00 xxxx xxxx 0.07 xxxx xxxx 0.56 0.07 0.00 0.06 0.05 0.05

Level Of Service Module:
 Queue: 0.0 xxxx xxxx 0.2 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
 Stopped Del: 9.8 xxxx xxxx 9.9 xxxx xxxx xxxx xxxx xxxx xxxx xxxx
 LOS by Move: A * * A * * * * * * * * * * * * * * *
 Movement: LT - LTR - RT
 Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx 54 xxxx 152 xxxx
 SharedQueue:xxxxx xxxx xxxx xxxx xxxx xxxx 2.5 xxxx 0.5 xxxx
 Shrd StpDel:xxxxx xxxx xxxx xxxx xxxx xxxx 150 xxxx 32.8 xxxx
 Shared LOS: * * * * * * * * * * * * F * * * * * * D *
 ApproachDel: xxxx *
 ApproachLOS: *

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Level Of Service Computation Report

2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #3 Main Street - OR 11/ 10th Ave

Average Delay (sec/veh): 5.8 Worst Case Level Of Service: F(237.8)

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:	>> Count Date:	18 Nov 2004 <<	
Base Vol:	5 488	2 7 531	17 19 2 4 5 2 17
Growth Adj:	1.32 1.52 1.52	1.32 1.52 1.32	1.32 1.32 1.32 1.32 1.32
Initial Bse:	7 741	3 9 806	22 25 3 5 7 3 22
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00
PHF Adj:	0.80 0.80 0.80	0.80 0.80 0.80	0.80 0.80 0.80 0.80 0.80
PHF Volume:	8 926	3 12 1008	28 31 3 7 8 3 28
Reduc Vol:	0 0 0	0 0 0	0 0 0 0 0 0 0
Final Vol.:	8 926	3 12 1008	28 31 3 7 8 3 28

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5 6.2	7.1 6.5 6.2
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5 4.0 3.3

Capacity Module:

Cnflct Vol:	1036 xxxx xxxx	929 xxxx xxxx	2005 1990	1022 1994	2003 928
Potent Cap.:	671 xxxx xxxx	736 xxxx xxxx	45 61	289 46	60 328
Move Cap.:	671 xxxx xxxx	736 xxxx xxxx	38 60	289 42	59 328
Volume/Cap.:	0.01 xxxx xxxx	0.02 xxxx xxxx	0.82 0.06	0.02 0.20	0.06 0.09

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	XXXXXX XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX
Stopped Del:	10.4 xxxx xxxx	10.0 xxxx xxxx	XXXXXX XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX
LOS by Move:	B *	A *	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 46 xxxx xxxx 117 xxxx
SharedQueue:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx 3.6 xxxx xxxx 1.3 xxxx
Shrd StpDel:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx 238 xxxx xxxx 50.9 xxxx
Shared LOS:	*	*	*
ApproachDel:	XXXXXX	XXXXXX	237.8 50.9
ApproachLOS:	*	*	F F

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Level Of Service Computation Report

2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #4 Main Street - OR 11/ 9th Ave

Average Delay (sec/veh): 2.2 Worst Case Level Of Service: F(86.8)

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:	>> Count Date:	22 Nov 2004 <<
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Base Vol:	1 522	2 31 542	14 9 1 5 8 1 11
Growth Adj:	1.32 1.52 1.32	1.32 1.52 1.32	1.32 1.32 1.32 1.32 1.32 1.32 1.32
Initial Bse:	1 792	3 41 823	18 12 1 7 11 1 15
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:	0.89 0.89 0.89	0.89 0.89 0.89	0.89 0.89 0.89 0.89 0.89 0.89 0.89
PHF Volume:	1 890	3 46 924	21 13 1 7 12 1 16
Reduc Vol:	0 0 0	0 0 0	0 0 0 0 0 0 0
Final Vol.:	1 890	3 46 924	21 13 1 7 12 1 16

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5 6.2	7.1 6.5 6.2
--------------	---------------	---------------	-------------	-------------

Capacity Module:							
Cnflct Vol:	945 xxxx xxxx	893 xxxx xxxx	1930 1923	935 1926	1932 892		
Potent Cap.:	726 xxxx xxxx	759 xxxx xxxx	51 68	325 51	67 344		
Move Cap.:	726 xxxx xxxx	759 xxxx xxxx	45 63	325 47	63 344		
Volume/Cap.:	0.00 xxxx xxxx	0.06 xxxx xxxx	0.30 0.02	0.02 0.25	0.02 0.05		

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.2 xxxx xxxx	XXXXXX XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX
Stopped Del:	10.0 xxxx xxxx	10.0 xxxx xxxx	XXXXXX XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX XXXXX
LOS by Move:	A *	B *	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 65 xxxx xxxx 91 xxxx
SharedQueue:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx 1.3 xxxx xxxx 1.2 xxxx
Shrd StpDel:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx 86.8 xxxx xxxx 62.6 xxxx
Shared LOS:	*	*	*
ApproachDel:	XXXXXX	XXXXXX	86.8 62.6
ApproachLOS:	*	*	F F

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Main Street-OR11/ 8th Ave

Average Delay (sec/veh): 11.2 Worst Case Level Of Service: F[442.6]

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
 Rights: Include Include Include Include

Lanes: 1 0 0 1 0 1 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0

Volume Module: >> Count Date: 29 Nov 2004 <<

Base Vol: 6 527 9 13 578 43 24 3 6 3 1 1

Growth Adj: 1.32 1.52 1.32 1.32 1.52 1.32 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 8 800 12 17 877 57 32 4 8 4 1 1

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81

PHF Volume: 10 988 15 21 1083 70 39 5 10 5 2 2

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 10 988 15 21 1083 70 39 5 10 5 2 2

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.1 6.5 6.2 7.1 6.5 6.2

FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Cnflct Vol: 1153 xxxx xxxx 1002 xxxx xxxx 2177 2182 1118 2182 2210 995

Potent Cap.: 606 xxxx xxxx 691 xxxx xxxx 34 47 254 33 45 300

Move Cap.: 606 xxxx xxxx 691 xxxx xxxx 32 44 254 28 43 300

Volume/Cap: 0.02 xxxx xxxx 0.03 xxxx xxxx 1.24 0.11 0.04 0.17 0.04 0.01

Level Of Service Module:

Queue: 0.0 xxxx xxxx 0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 11.0 xxxx xxxx 10.4 xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: B * * B * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx 39 xxxx xxxx 38 xxxx

SharedQueue:xxxx xxxx xxxx xxxx xxxx xxxx 5.5 xxxx xxxx 0.7 xxxx

Shrd StpDel:xxxx xxxx xxxx xxxx xxxx xxxx 443 xxxx xxxx 125 xxxx

Shared LOS: * * * * * * F * * * F *

ApproachDel: XXXXX XXXXX 442.6 124.6

ApproachLOS: * * * * * * F * * * F *

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Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 OR 11/7th Ave - Eastbound

Average Delay (sec/veh): 6.4 Worst Case Level Of Service: F[250.8]

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
 Rights: Include Include Include Include

Lanes: 1 0 0 1 0 1 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0

Volume Module:

Base Vol: 6 544 0 0 631 20 31 3 3 0 0 0

Growth Adj: 1.32 1.56 1.32 1.32 1.56 1.32 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 8 847 0 0 983 26 41 4 4 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86

PHF Volume: 9 985 0 0 1143 31 48 5 5 0 0 0

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 9 985 0 0 1143 31 48 5 5 0 0 0

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 6.4 6.5 6.2 xxxx xxxx xxxx

FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 xxxx xxxx xxxx

Capacity Module:

Cnflct Vol: 1174 xxxx xxxx xxxx xxxx xxxx 2162 2162 1158 xxxx xxxx xxxx

Potent Cap.: 595 xxxx xxxx xxxx xxxx xxxx 53 48 241 xxxx xxxx xxxx

Move Cap.: 595 xxxx xxxx xxxx xxxx xxxx 52 47 241 xxxx xxxx xxxx

Volume/Cap: 0.02 xxxx xxxx xxxx xxxx xxxx 0.91 0.10 0.02 xxxx xxxx xxxx

Level Of Service Module:

Queue: 0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 11.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: B * * * * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx 55 xxxx xxxx 0 xxxx

SharedQueue:xxxx xxxx xxxx xxxx xxxx xxxx 4.7 xxxx xxxx xxxx xxxx

Shrd StpDel:xxxx xxxx xxxx xxxx xxxx xxxx 251 xxxx xxxx xxxx xxxx

Shared LOS: * * * * * * F * * * F *

ApproachDel: XXXXX XXXXX 250.8 XXXXX

ApproachLOS: * * * * * * F * * * F *

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 OR 11/7th Avenue - Westbound

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: C [24.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:

Base Vol:	0 544	2 17	631 0	0 0	0 1	0 0	9
Growth Adj:	1.32 1.56	1.32 1.56	1.32 1.32	1.32 1.32	1.32 1.32	1.32 1.32	1.32
Initial Bse:	0 847	3 22	983 0	0 0	0 1	0 0	12
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00
PHF Adj:	0.86 0.86	0.86 0.86	0.86 0.86	0.86 0.86	0.86 0.86	0.86 0.86	0.86
PHF Volume:	0 985	3 26	1143 0	0 0	0 2	0 0	14
Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0 0	0
Final Vol.:	0 985	3 26	1143 0	0 0	0 2	0 0	14

Critical Gap Module:

Critical Gp:	xxxxxx xxxx xxxx	4.1 xxxx xxxx xxxx xxxx xxxx	6.4 xxxx	6.2
FollowUpTim:	xxxxxx xxxx xxxx	2.2 xxxx xxxx xxxx xxxx xxxx	3.5 xxxx	3.3

Capacity Module:

Cnflict Vol:	xxxx xxxx xxxx	988 xxxx xxxx xxxx xxxx xxxx	2182 xxxx	987
Potent Cap.:	xxxx xxxx xxxx	699 xxxx xxxx xxxx xxxx xxxx	51 xxxx	303
Move Cap.:	xxxx xxxx xxxx	699 xxxx xxxx xxxx xxxx xxxx	50 xxxx	303
Volume/Cap:	xxxx xxxx xxxx	0.04 xxxx xxxx xxxx xxxx xxxx	0.03 xxxx	0.05

Level Of Service Module:

Queue:	xxxxx xxxx xxxx	0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxxx xxxx xxxx xxxx xxxx xxxx
Stopped Del:	xxxxx xxxx xxxx	10.3 xxxx xxxx xxxx xxxx xxxx xxxx	xxxxx xxxx xxxx xxxx xxxx
LOS by Move:	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	0 xxxx xxxx
SharedQueue:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx
Shrd StpDel:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx
Shared LOS:	*	*	*
ApproachDel:	xxxxxx	xxxxxx	xxxxxx
ApproachLOS:	*	*	*

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 OR 11/ 4th Avenue

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: F [144.3]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module:

Base Vol:	4 577	3 8	667 4	4 1	1 1	1 1	17
Growth Adj:	1.32 1.52	1.32 1.52	1.32 1.32	1.32 1.32	1.32 1.32	1.32 1.32	1.32
Initial Bse:	5 876	4 11	1013 5	5 1	1 1	1 1	22
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00
PHF Adj:	0.87 0.87	0.87 0.87	0.87 0.87	0.87 0.87	0.87 0.87	0.87 0.87	0.87
PHF Volume:	6 1007	5 12	1164 6	6 2	2 2	2 2	26
Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0 0	0
Final Vol.:	6 1007	5 12	1164 6	6 2	2 2	2 2	26

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5	6.2	7.1 6.5	6.2
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3	3.5 4.0	3.3

Capacity Module:

Cnflict Vol:	1170 xxxx xxxx	1011 xxxx xxxx	2226 2215	1167	2214 2215	1009
Potent Cap.:	597 xxxx xxxx	685 xxxx xxxx	31 44	238	32 44	294
Move Cap.:	597 xxxx xxxx	685 xxxx xxxx	27 43	238	30 43	294
Volume/Cap:	0.01 xxxx xxxx	0.02 xxxx xxxx	0.22 0.04	0.01	0.05 0.04	0.09

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx xxxx xxxx	xxxxx xxxx xxxx xxxx xxxx
Stopped Del:	11.1 xxxx xxxx	10.3 xxxx xxxx xxxx xxxx	xxxxx xxxx xxxx xxxx xxxx
LOS by Move:	B *	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	0 xxxx xxxx
SharedQueue:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx
Shrd StpDel:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx
Shared LOS:	*	*	*
ApproachDel:	xxxxxx	xxxxxx	xxxxxx
ApproachLOS:	*	*	*

Kittelson & Associates, Inc. #6743
 Milton-Freewater STP and TSP Update - Milton-Freewater, OR
 2025 Three-Lane Alternative, Weekday PM Peak Hou

Level Of Service Computation Report
 2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Main Street/OR11/ 2nd Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.811
 Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 31.9
 Optimal Cycle: 80 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Split Phase Split Phase
 Rights: Ignore Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Lanes: 0 1 0 0 1 0 0 0 1 0 0 0 1 0 0 1 0

Volume Module: >> Count Date: 30 Nov 2004 <<

Base Vol:	7	187	398	0	189	12	5	0	9	481	31	6
Growth Adj:	1.32	1.61	1.61	1.32	1.61	1.32	1.32	1.32	1.32	1.61	1.32	1.32
Initial Bse:	9	301	641	0	304	16	7	0	12	775	41	8
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	10	327	0	0	331	17	7	0	13	842	44	9
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	327	0	0	331	17	7	0	13	842	44	9
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	10	327	0	0	331	17	7	0	13	842	44	9

Saturation Flow Module:

Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.97	0.97	1.00	1.00	0.97	0.97	0.88	1.00	0.88	0.93	0.96	0.96
Lanes:	0.03	0.97	1.00	0.00	0.95	0.05	0.36	0.00	0.64	1.00	0.84	0.16
Final Sat.:	52	1696	1800	0	1665	87	565	0	1017	1676	1442	279

Capacity Analysis Module:

Vol/Sat:	0.19	0.19	0.00	0.00	0.20	0.20	0.01	0.00	0.01	0.50	0.03	0.03
Crit Moves:	*****											
Green/Cycle:	0.24	0.24	0.00	0.00	0.24	0.24	0.02	0.00	0.02	0.62	0.62	0.62
Volume/Cap:	0.79	0.79	0.00	0.00	0.81	0.81	0.81	0.00	0.81	0.81	0.05	0.05
Delay/Veh:	44.7	44.7	0.0	0.0	46.7	46.7	149.1	0.0	149.1	19.5	7.5	7.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	44.7	44.7	0.0	0.0	46.7	46.7	149.1	0.0	149.1	19.5	7.5	7.5
HCM2KAvg:	12	12	0	0	12	12	2	0	2	23	1	1

Appendix G

2004 Traffic Operations Analysis Worksheets – Recommended Plan

Kittelson & Associates, Inc. Project #6743
 Milton-Freewater STP and TSP Update - Milton-Freewater, OR
 2004 Recommended Three-Lane Alternative, Weekday AM Peak Hour

Scenario Report
Scenario: AM-3Lane-Reco
Command: AM-3Lane-Reco
Volume: AM
Geometry: 3-lane-Reco
Impact Fee: Default Impact Fee
Trip Generation: Default Trip Generation
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Default Configuration

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 Milton-Freewater STP and TSP Update - Milton-Freewater, OR
 2004 Recommended Three-Lane Alternative, Weekday AM Peak Hour

Impact Analysis Report
 Level Of Service

Intersection	Base LOS Veh	Future LOS Veh	Change in V/C
# 1 OR 11/ 14th Ave	C 17.3 0.000	C 17.3 0.000	+ 0.000 D/V
# 2 Main Street-OR11/ 12th Ave	E 38.4 0.000	E 38.4 0.000	+ 0.000 D/V
# 3 Main Street - OR 11/ 10th Ave	C 21.4 0.000	C 21.4 0.000	+ 0.000 D/V
# 4 Main Street - OR 11/ 9th Ave	D 25.2 0.000	D 25.2 0.000	+ 0.000 D/V
# 5 Main Street-OR11/ 8th Ave	C 17.7 0.000	C 17.7 0.000	+ 0.000 D/V
# 6 OR 11/7th Ave - Eastbound	C 24.5 0.000	C 24.5 0.000	+ 0.000 D/V
# 7 OR 11/7th Avenue - Westbound	B 14.0 0.000	B 14.0 0.000	+ 0.000 D/V
# 8 OR 11/ 4th Avenue	D 26.2 0.000	D 26.2 0.000	+ 0.000 D/V
# 9 Main Street/OR11/ 2nd Ave	C 20.4 0.239	C 20.4 0.239	+ 0.000 D/V

Kittelson & Associates, Inc. Project #6743
Milton-Freewater STP and TSP Update - Milton-Freewater, OR
2004 Recommended Three-Lane Alternative, Weekday AM Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 OR 11/ 14th Ave

Average Delay (sec/veh): 3.9 Worst Case Level Of Service: EI 17.31

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 0 0 1 0	1 0 1 0 0	0 0 0 0 0	1 0 0 0 1
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Volume Module: >> Count Date: 1 Dec 2004 <<

Base Vol: 0 323 13 108 259 0 0 0 0 12 0 152

Growth Adj: 1.00 1.18 1.00 1.00 1.18 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 381 13 108 306 0 0 0 0 12 0 152

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70

PHF Volume: 0 544 19 154 437 0 0 0 0 17 0 217

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol: 0 544 19 154 437 0 0 0 0 17 0 217

Critical Gap Module:

Critical Gp:xxxxx xxxx xxxx 4.1 xxxx xxxx xxxx xxxx xxxx 6.4 xxxx 6.2

FollowUpTim:xxxxx xxxx xxxx 2.2 xxxx xxxx xxxx xxxx xxxx 3.5 xxxx 3.3

Capacity Module:

Cnflct Vol: xxxx xxxx xxxx 563 xxxx xxxx xxxx xxxx xxxx 1299 xxxx 554

Potent Cap.: xxxx xxxx xxxx 1008 xxxx xxxx xxxx xxxx xxxx 180 xxxx 536

Move Cap.: xxxx xxxx xxxx 1008 xxxx xxxx xxxx xxxx xxxx 159 xxxx 536

Volume/Cap: xxxx xxxx xxxx 0.15 xxxx xxxx xxxx xxxx xxxx 0.11 xxxx 0.41

Level Of Service Module:

Queue: xxxx xxxx xxxx 0.5 xxxx xxxx xxxx xxxx xxxx 0.4 xxxx 1.9

Stopped Del:xxxxx xxxx xxxx 9.2 xxxx xxxx xxxx xxxx xxxx 30.4 xxxx 16.2

LOS by Move: * * * A * * * * * D * C

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx

SharedQueue:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shrd StpDel:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shared LOS: * * * * * * * * * * * *

ApproachDel: xxxxx xxxxx 17.3

ApproachLOS: * C

Kittelson & Associates, Inc. Project #6743

Milton-Freewater STP and TSP Update - Milton-Freewater, OR
2004 Recommended Three-Lane Alternative, Weekday AM Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Main Street-OR11/ 12th Ave

Average Delay (sec/veh): 2.1 Worst Case Level Of Service: EI 38.41

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module: >> Count Date: 7 Dec 2004 <<

Base Vol: 4 450 2 10 358 7 36 2 6 3 1 15

Growth Adj: 1.00 1.18 1.00 1.00 1.18 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 4 531 2 10 422 7 36 2 6 3 1 15

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80

PHF Volume: 5 664 3 13 528 9 45 3 8 4 1 19

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol: 5 664 3 13 528 9 45 3 8 4 1 19

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.1 6.5 6.2 7.1 6.5 6.2

FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Cnflct Vol: 537 xxxx xxxx 666 xxxx xxxx 1242 1234 532 1237 1237 665

Potent Cap.: 1031 xxxx xxxx 923 xxxx xxxx 153 178 551 154 177 464

Move Cap.: 1031 xxxx xxxx 923 xxxx xxxx 144 175 551 148 174 464

Volume/Cap: 0.00 xxxx xxxx 0.01 xxxx xxxx 0.31 0.01 0.01 0.03 0.01 0.04

Level Of Service Module:

Queue: 0.0 xxxx xxxx 0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 8.5 xxxx xxxx 9.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: A * * A * * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

SharedQueue:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shrd StpDel:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shared LOS: * * * * * * * * * * * *

ApproachDel: xxxxx xxxxx 38.4

ApproachLOS: * C

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 Milton-Freewater STP and TSP Update - Milton-Freewater, OR
 2004 Recommended Three-Lane Alternative, Weekday AM Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Main Street - OR 11/ 10th Ave

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: C [21.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1! 0 0	0 0 1! 0 0
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Volume Module: >> Count Date: 18 Nov 2004 <<

Base Vol:	5 495	1 4 369	8 7	1 5	1 1	11
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Growth Adj:	1.00 1.15	1.00 1.00	1.15 1.00	1.00 1.00	1.00 1.00	1.00 1.00
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Initial Bse:	5 569	1 4 424	8 7	1 5	1 1	11
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User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
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PHF Adj:	0.88 0.88	0.88 0.88	0.88 0.88	0.88 0.88	0.88 0.88	0.88 0.88
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PHF Volume:	6 647	1 5 482	9 8	1 6	1 1	13
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Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0
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Final Vol:	6 647	1 5 482	9 8	1 6	1 1	13
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Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5	6.2	7.1 6.5	6.2
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FollowUpTm:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3	3.5 4.0	3.3
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Capacity Module:

Cnflct Vol:	491 xxxx xxxx	648 xxxx xxxx	1161 1155	487	1158 1159	647
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Potent Cap.:	1072 xxxx xxxx	938 xxxx xxxx	174 198	585	175 197	474
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Move Cap.:	1072 xxxx xxxx	938 xxxx xxxx	167 196	585	171 195	474
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Volume/Cap.:	0.01 xxxx xxxx	0.00 xxxx xxxx	0.05 0.01	0.01	0.01 0.01	0.03
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Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	xxxxxx xxxx
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Stopped Del:	8.4 xxxx xxxx	8.9 xxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	xxxxxx xxxx
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LOS by Move:	A *	A *	*	*	*	*
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Movement:	LT - LTR - RT					
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Shared Cap.:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx	234	xxxxxx xxxx	381 xxxx
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SharedQueue:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx	0.2	xxxxxx xxxx	0.1 xxxx
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Shrd StpDel:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx	21.4	xxxxxx xxxx	14.8 xxxx
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Shared LOS:	*	*	*	*	*	*
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ApproachDel:	xxxxxx	xxxxxx	21.4	14.8		
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ApproachLOS:	*	*	C	C	B	*
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Milton-Freewater STP and TSP Update - Milton-Freewater, OR
 2004 Recommended Three-Lane Alternative, Weekday AM Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Main Street - OR 11/ 9th Ave

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: D [25.2]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1! 0 0	0 0 1! 0 0
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Volume Module: >> Count Date: 22 Dec 2004 <<

Base Vol:	1 508	5 15 371	19 11	1 6	4 1	13
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Growth Adj:	1.00 1.22	1.00 1.00	1.00 1.22	1.00 1.00	1.00 1.00	1.00 1.00
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Initial Bse:	1 620	5 15 453	19 11	1 6	4 1	13
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User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
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PHF Adj:	0.91 0.91	0.91 0.91	0.91 0.91	0.91 0.91	0.91 0.91	0.91 0.91
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PHF Volume:	1 681	5 16 497	21 12	1 7	4 1	14
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Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0
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Final Vol:	1 681	5 16 497	21 12	1 7	4 1	14
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Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5	6.2	7.1 6.5	6.2
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FollowUpTm:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3	3.5 4.0	3.3
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Capacity Module:

Cnflct Vol:	518 xxxx xxxx	687 xxxx xxxx	1234 1230	508	1231 1237	684
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Potent Cap.:	1048 xxxx xxxx	907 xxxx xxxx	155 179	569	156 177	452
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Move Cap.:	1048 xxxx xxxx	907 xxxx xxxx	147 176	569	151 174	452
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Volume/Cap.:	0.00 xxxx xxxx	0.02 xxxx xxxx	0.08 0.01	0.01	0.03 0.01	0.03
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Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	xxxxxx xxxx
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Stopped Del:	8.4 xxxx xxxx	9.0 xxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	xxxxxx xxxx	xxxxxx xxxx
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LOS by Move:	A *	A *	*	*	*	*
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Movement:	LT - LTR - RT					
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Shared Cap.:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx	234	xxxxxx xxxx	381 xxxx
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SharedQueue:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx	0.2	xxxxxx xxxx	0.1 xxxx
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Shrd StpDel:	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx	21.4	xxxxxx xxxx	14.8 xxxx
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Shared LOS:	*	*	*	*	*	*
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ApproachDel:	xxxxxx	xxxxxx	21.4	14.8		
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ApproachLOS:	*	*	C	C	B	*
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 2004 Recommended Three-Lane Alternative, Weekday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Main Street-OR11/ 8th Ave

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: CI 17.71

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 1 0 0 1 0 1 0 0 0 1 0 0 0 0 1 0 0 0

Volume Module: >> Count Date: 29 Nov 2004 <<

Base Vol: 8 522 2 3 392 15 25 1 11 2 1 12

Growth Adj: 1.00 1.15 1.00 1.00 1.15 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 8 600 2 3 451 15 25 1 11 2 1 12

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88

PHF Volume: 9 682 2 3 512 17 28 1 13 2 1 14

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 9 682 2 3 512 17 28 1 13 2 1 14

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.1 6.5 6.2 7.1 6.5 6.2

FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Conflict Vol: 529 xxxx xxxx 684 xxxx xxxx 1236 1230 521 1236 1238 683

Potent Cap.: 1038 xxxx xxxx 909 xxxx xxxx 154 179 560 154 177 453

Move Cap.: 1038 xxxx xxxx 909 xxxx xxxx 147 177 560 149 175 453

Total Cap: xxxx xxxx xxxx xxxx xxxx 277 298 xxxx 280 296 xxxx

Volume/Cap: 0.01 xxxx xxxx 0.00 xxxx xxxx 0.10 0.00 0.02 0.01 0.00 0.03

Level Of Service Module:

Queue: 0.0 xxxx xxxx 0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 8.5 xxxx xxxx 9.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: A * * * A * * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx 326 xxxx xxxx 405 xxxx

SharedQueue:xxxx xxxx xxxx xxxx xxxx xxxx 0.4 xxxx xxxx 0.1 xxxx

Shrd StpDel:xxxx xxxx xxxx xxxx xxxx xxxx 17.7 xxxx xxxx 14.3 xxxx

Shared LOS: * * * * * * C * * * B *

ApproachDel: xxxxx xxxxx 17.7 14.3

ApproachLOS: * C B

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Milton-Freewater STP and TSP Update - Milton-Freewater, OR
 2004 Recommended Three-Lane Alternative, Weekday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 OR 11/7th Ave - Eastbound

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: CI 24.51

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 1 0 1 0 0 1 0 0 0 1 0 0 0 1 0 0 0

Volume Module:

Base Vol: 2 556 0 0 408 13 7 1 2 0 0 0 0

Growth Adj: 1.00 1.18 1.00 1.00 1.18 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 2 656 0 0 481 13 7 1 2 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70

PHF Volume: 3 937 0 0 688 19 10 1 3 0 0 0 0

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 3 937 0 0 688 19 10 1 3 0 0 0 0

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx xxxx xxxx xxxx 6.8 6.5 6.9 xxxx xxxx xxxx

FollowUpTim: 2.2 xxxx xxxx xxxx xxxx xxxx 3.5 4.0 3.3 xxxx xxxx xxxx

Capacity Module:

Conflict Vol: 706 xxxx xxxx xxxx xxxx xxxx 1171 1640 353 xxxx xxxx xxxx

Potent Cap.: 888 xxxx xxxx xxxx xxxx xxxx 189 101 649 xxxx xxxx xxxx

Move Cap.: 888 xxxx xxxx xxxx xxxx xxxx 188 101 649 xxxx xxxx xxxx

Volume/Cap: 0.00 xxxx xxxx xxxx xxxx 0.05 0.01 0.00 xxxx xxxx xxxx

Level Of Service Module:

Queue: 0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 9.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: A * * * * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx 199 xxxx xxxx 0 xxxx

SharedQueue: 0.0 xxxx xxxx 0.0 xxxx xxxx 0.2 xxxx xxxx xxxx xxxx

Shrd StpDel: 9.1 xxxx xxxx 9.0 xxxx xxxx 24.5 xxxx xxxx xxxx xxxx

Shared LOS: A * * * C * * * * * *

ApproachDel: xxxxx 24.5 xxxx

ApproachLOS: * C *

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Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 OR 11/7th Avenue - Westbound

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: B [14.0]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module:

Base Vol:	0 556	1 7	408	0 0 0 0 0	2 0	0 16
Growth Adj:	1.00 1.18	1.00 1.00	1.00 1.18	1.00 1.00	1.00 1.00	1.00 1.00
Initial Bse:	0 656	1 7	481	0 0 0 0 0	2 0	0 16
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
PHF Adj:	0.70 0.70	0.70 0.70	0.70 0.70	0.70 0.70	0.70 0.70	0.70 0.70
PHF Volume:	0 937	1 10	688	0 0 0 0 0	3 0	0 23
Reduc Vol:	0 0	0 0	0 0	0 0 0 0 0	0 0	0 0
Final Vol.:	0 937	1 10	688	0 0 0 0 0	3 0	0 23

Critical Gap Module:

Critical Gp:	xxxxxx xxxx xxxx	4.1 xxxx xxxx xxxx xxxx xxxx	6.8 xxxx	6.9
FollowUpTim:	xxxxxx xxxx xxxx	2.2 xxxx xxxx xxxx xxxx xxxx	3.5 xxxx	3.3

Capacity Module:

Conflict Vol:	xxxx xxxx xxxx	939 xxxx xxxx	xxxx xxxx xxxx	1302 xxxx	469
Potent Cap.:	xxxx xxxx xxxx	726 xxxx xxxx	xxxx xxxx xxxx	155 xxxx	546
Move Cap.:	xxxx xxxx xxxx	726 xxxx xxxx	xxxx xxxx xxxx	153 xxxx	546
Volume/Cap:	xxxx xxxx xxxx	0.01 xxxx xxxx	xxxx xxxx xxxx	0.02 xxxx	0.04

Level Of Service Module:

Queue:	xxxxxx xxxx xxxx	0.0 xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx
Stopped Del:	xxxxxx xxxx xxxx	10.0 xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx
LOS by Move:	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 0 xxxx xxxx	425 xxxx	xxxx xxxx xxxx
SharedQueue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxx xxxx xxxx	0.2 xxxx	xxxx xxxx
Shrd StpDel:	9.0 xxxx xxxx	10.0 xxxx xxxx	xxxx xxxx xxxx	14.0 xxxx	xxxx xxxx
Shared LOS:	A *	B *	*	*	B *
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	14.0	
ApproachLOS:	*	*	*	B	

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Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 OR 11/ 4th Avenue

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: D [26.2]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module:

Base Vol:	3 576	1 5	426	1 5	1 1 1 1 10
Growth Adj:	1.00 1.15	1.00 1.00	1.00 1.15	1.00 1.00	1.00 1.00 1.00 1.00
Initial Bse:	3 662	1 5	490	1 5	1 1 1 1 10
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.78 0.78	0.78 0.78	0.78 0.78	0.78 0.78	0.78 0.78 0.78 0.78
PHF Volume:	4 849	1 6	628	1 6	1 1 1 1 13
Reduc Vol:	0 0	0 0	0 0	0 0	0 0 0 0 0
Final Vol.:	4 849	1 6	628	1 6	1 1 1 1 13

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.5	6.5	6.9	7.5	6.5	6.9
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5	4.0	3.3	3.5	4.0	3.3

Capacity Module:

Conflict Vol:	629 xxxx xxxx	851 xxxx xxxx	1074	1500	315	1185	1500	425
Potent Cap.:	949 xxxx xxxx	784 xxxx xxxx	177	123	687	147	123	583
Move Cap.:	949 xxxx xxxx	784 xxxx xxxx	170	122	687	144	122	583
Volume/Cap:	0.00 xxxx xxxx	0.01 xxxx xxxx	0.04	0.01	0.00	0.01	0.01	0.02

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx			
Stopped Del:	8.8 xxxx xxxx	9.6 xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx	xxxxxx xxxx xxxx			
LOS by Move:	A *	A *	*	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT			
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 179 xxxx xxxx	xxxx 371 xxxx	xxxx xxxx xxxx			
SharedQueue:	0.0 xxxx xxxx	0.0 xxxx xxxx	0.2 xxxx xxxx	0.1 xxxx	xxxx xxxx			
Shrd StpDel:	8.8 xxxx xxxx	9.6 xxxx xxxx	26.2 xxxx xxxx	15.1 xxxx	xxxx xxxx			
Shared LOS:	A *	B *	*	*	D *	*	C *	
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	26.2			15.1	
ApproachLOS:	*	*	*	*	D		C	

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Level Of Service Computation Report
 2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Main Street/OR11/ 2nd Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.239
 Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 20.4
 Optimal Cycle: 29 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted Ignore	Permitted Include	Split Phase Include	Split Phase Include
Rights:				
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	0 1 1 0 1	0 0 1 1 0	0 0 1! 0 0	1 0 1! 0 0

Volume Module: >> Count Date: 30 Nov 2004 <<

Base Vol:	14	170	407	0	159	1	7	0	11	262	19	1
Growth Adj:	1.00	1.22	1.22	1.00	1.22	1.00	1.00	1.00	1.00	1.22	1.00	1.00
Initial Bse:	14	207	497	0	194	1	7	0	11	320	19	1
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	16	230	0	0	216	1	8	0	12	355	21	1
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	16	230	0	0	216	1	8	0	12	355	21	1
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	16	230	0	0	216	1	8	0	12	355	21	1

Saturation Flow Module:

Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.87	0.87	1.00	1.00	0.93	0.93	0.88	1.00	0.88	0.94	0.94	0.94
Lanes:	0.13	1.87	1.00	0.00	1.99	0.01	0.39	0.00	0.61	1.89	0.10	0.01
Final Sat.:	198	2926	1800	0	3331	17	618	0	971	3182	178	9

Capacity Analysis Module:

Vol/Sat:	0.08	0.08	0.00	0.00	0.06	0.06	0.01	0.00	0.01	0.11	0.12	0.12
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****

Green/Cycle:	0.33	0.33	0.00	0.00	0.33	0.33	0.05	0.00	0.05	0.50	0.50	0.50
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Volume/Cap:	0.24	0.24	0.00	0.00	0.20	0.20	0.24	0.00	0.24	0.22	0.24	0.24
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Delay/Veh:	24.5	24.5	0.0	0.0	24.1	24.1	46.9	0.0	46.9	14.3	14.4	14.4
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User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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AdjDel/Veh:	24.5	24.5	0.0	0.0	24.1	24.1	46.9	0.0	46.9	14.3	14.4	14.4
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HCM2KAvg:	3	3	0	0	2	2	1	0	1	3	4	4
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Scenario Report

Scenario: PM-3Lane-Reco
 Command: PM-3Lane-Reco
 Volume: PM
 Geometry: 3-Lane-Reco
 Impact Fee: Default Impact Fee
 Trip Generation: Default Trip Generation
 Trip Distribution: Default Trip Distribution
 Paths: Default Paths
 Routes: Default Routes
 Configuration: Default Configuration

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Impact Analysis Report
Level Of Service

Intersection	Base Del/ LOS Veh	V/ C	Future Del/ LOS Veh	V/ C	Change in
# 1 OR 11/ 14th Ave	C 16.9	0.000	C 16.9	0.000	+ 0.000 D/V
# 2 Main Street-OR11/ 12th Ave	E 44.8	0.000	E 44.8	0.000	+ 0.000 D/V
# 3 Main Street - OR 11/ 10th Ave	F 52.4	0.000	F 52.4	0.000	+ 0.000 D/V
# 4 Main Street - OR 11/ 9th Ave	D 34.6	0.000	D 34.6	0.000	+ 0.000 D/V
# 5 Main Street-OR11/ 8th Ave	D 25.4	0.000	D 25.4	0.000	+ 0.000 D/V
# 6 OR 11/7th Ave - Eastbound	D 34.6	0.000	D 34.6	0.000	+ 0.000 D/V
# 7 OR 11/7th Avenue - Westbound	B 12.4	0.000	B 12.4	0.000	+ 0.000 D/V
# 8 OR 11/ 4th Avenue	D 34.8	0.000	D 34.8	0.000	+ 0.000 D/V
# 9 Main Street/OR11/ 2nd Ave	B 19.6	0.345	B 19.6	0.345	+ 0.000 D/V

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Level Of Service Computation Report
 2000 HCM Unsignedized Method (Base Volume Alternative)

Intersection #3 Main Street - OR 11/ 10th Ave

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: F [52.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module: >> Count Date: 18 Nov 2004 <<

Base Vol:	5 488	2 7 531	17 19 2 4 5 2 17
Growth Adj:	1.00 1.15 1.00	1.00 1.15 1.00	1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:	5 561	2 7 611	17 19 2 4 5 2 17
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00
PHF Adj:	0.80 0.80 0.80	0.80 0.80 0.80	0.80 0.80 0.80 0.80 0.80
PHF Volume:	6 701	3 9 763	21 24 3 5 6 3 21
Reduc Vol:	0 0	0 0	0 0 0 0 0 0 0
Final Vol.:	6 701	3 9 763	21 24 3 5 6 3 21

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5 6.2 7.1 6.5 6.2
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Conflict Vol:	785 xxxx xxxx	704 xxxx xxxx	1519 1508 774 1510 1517 703
Potent Cap.:	834 xxxx xxxx	894 xxxx xxxx	98 122 402 100 120 441
Move Cap.:	834 xxxx xxxx	894 xxxx xxxx	91 120 402 96 118 441
Volume/Cap:	0.01 xxxx xxxx	0.01 xxxx xxxx	0.26 0.02 0.01 0.07 0.02 0.05

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx
Stopped Del:	9.3 xxxx xxxx	9.1 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx
LOS by Move:	A * * A * * * * * * * *	A * * * * * * * * * *	
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	106 xxxx xxxx 223 xxxx
SharedQueue:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	1.1 xxxx xxxx 0.5 xxxx
Shrd StpDel:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	52.4 xxxx xxxx 23.7 xxxx
Shared LOS:	* * * * * * * * F * * * C *	A * * * * * * * * D * * * D *	
ApproachDel:	XXXXXX	XXXXXX	52.4 23.7
ApproachLOS:	*	*	F C

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Level Of Service Computation Report
 2000 HCM Unsignedized Method (Base Volume Alternative)

Intersection #4 Main Street - OR 11/ 9th Ave

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: DI [34.6]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0

Volume Module: >> Count Date: 22 Nov 2004 <<

Base Vol:	1 522	2 31 542	14 9 1 5 8 1 11
Growth Adj:	1.00 1.15 1.00	1.00 1.15 1.00	1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:	1 600	2 31 623	14 9 1 5 8 1 11
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00
PHF Adj:	0.89 0.89 0.89	0.89 0.89 0.89	0.89 0.89 0.89 0.89 0.89 0.89
PHF Volume:	1 674	2 35 700	16 10 1 6 9 1 12
Reduc Vol:	0 0	0 0	0 0 0 0 0 0 0
Final Vol.:	1 674	2 35 700	16 10 1 6 9 1 12

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5 6.2 7.1 6.5 6.2
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Conflict Vol:	716 xxxx xxxx	677 xxxx xxxx	1462 1457 708 1459 1464 676
Potent Cap.:	885 xxxx xxxx	915 xxxx xxxx	108 131 438 108 130 457
Move Cap.:	885 xxxx xxxx	915 xxxx xxxx	101 126 438 103 125 457
Volume/Cap:	0.00 xxxx xxxx	0.04 xxxx xxxx	0.10 0.01 0.01 0.09 0.01 0.03

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx
Stopped Del:	9.1 xxxx xxxx	9.1 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx
LOS by Move:	A * * A * * * * * * * *	A * * * * * * * * * *	
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	138 xxxx xxxx 182 xxxx
SharedQueue:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	0.4 xxxx xxxx 0.4 xxxx
Shrd StpDel:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	34.6 xxxx xxxx 27.5 xxxx
Shared LOS:	* * * * * * * * D * * * D *	A * * * * * * * * D * * * D *	
ApproachDel:	XXXXXX	XXXXXX	34.6 27.5
ApproachLOS:	*	*	D D

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Main Street-OR11/ 8th Ave

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: D [25.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module: >> Count Date: 29 Nov 2004 <<

Base Vol:	6 527	9 13	578 43	24 3	6 3	1 1
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Growth Adj:	1.00 1.15	1.00 1.15	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
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Initial Bse:	6 606	9 13	665 43	24 3	6 3	1 1
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User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
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PHF Adj:	0.81 0.81	0.81 0.81	0.81 0.81	0.81 0.81	0.81 0.81	0.81 0.81
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PHF Volume:	7 748	11 16	821 53	30 4	7 4	1 1
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Reduct Vol:	0 0	0 0	0 0	0 0	0 0	0 0
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Final Vol.:	7 748	11 16	821 53	30 4	7 4	1 1
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Critical Gap Module:

Critical Gp:	4.1 xxxx	xxxx	xxxx	7.1 6.5	6.2 7.1	6.5 6.2
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FollowUpTim:	2.2 xxxx	xxxx	xxxx	3.5 4.0	3.3 3.5	4.0 3.3
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Capacity Module:

Cnflct Vol:	874	xxxx	xxxx	759	xxxx	xxxx	1649	1653	847	1653	1674	754
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Potent Cap.:	772	xxxx	xxxx	852	xxxx	xxxx	80	99	365	79	96	413
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Move Cap.:	772	xxxx	xxxx	852	xxxx	xxxx	77	97	365	74	94	413
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Total Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	197	215	xxxx	194	213	xxxx
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Volume/Cap.:	0.01	xxxx	xxxx	0.02	xxxx	xxxx	0.15	0.02	0.02	0.02	0.01	0.00
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Level Of Service Module:

Queue:	0.0	xxxx	xxxx	0.1	xxxx							
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Stopped Del:	9.7	xxxx	xxxx	9.3	xxxx							
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LOS by Move:	A *	*	*	A *	*	*	*	*	*	*	*	*
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Movement:	LT - LTR - RT						
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Shared Cap.:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	217	xxxxxx	xxxx	221	xxxxxx
--------------	------	------	------	------	------	------	-----	--------	------	-----	--------

SharedQueue:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.7	xxxxxx	xxxx	0.1	xxxxxx
--------------	------	------	------	------	------	------	-----	--------	------	-----	--------

Shrd StpDel:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	25.4	xxxxxx	xxxx	21.7	xxxxxx
--------------	------	------	------	------	------	------	------	--------	------	------	--------

Shared LOS:	*	*	*	*	*	*	D	*	*	C	*
-------------	---	---	---	---	---	---	---	---	---	---	---

ApproachDel:	xxxxxx	xxxxxx	*	25.4	21.7	
--------------	--------	--------	---	------	------	--

ApproachLOS:	*	*	*	D	C	
--------------	---	---	---	---	---	--

Kittelson & Associates, Inc. Project #6743
Milton-Freewater STP and TSP Update - Milton-Freewater, OR
2004 Recommended Three-Lane Alternative, Weekday PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 OR 11/7th Ave - Eastbound

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: D [34.6]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
--------	-----------	-----------	-----------	-----------

Volume Module:

Base Vol:	6 544	0	0 631	20	31	3	3	0	0	0
-----------	-------	---	-------	----	----	---	---	---	---	---

Growth Adj:	1.00 1.18	1.00	1.00 1.18	1.00	1.00 1.00	1.00	1.00	1.00	1.00	1.00
-------------	-----------	------	-----------	------	-----------	------	------	------	------	------

Initial Bse:	6 642	0	0 745	20	31	3	3	0	0	0
--------------	-------	---	-------	----	----	---	---	---	---	---

User Adj:	1.00 1.00	1.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00	1.00	1.00	1.00
-----------	-----------	------	-----------	------	-----------	------	------	------	------	------

PHF Adj:	0.86 0.86	0.86	0.86 0.86	0.86	0.86 0.86	0.86	0.86	0.86	0.86	0.86
----------	-----------	------	-----------	------	-----------	------	------	------	------	------

PHF Volume:	7 746	0	0 866	23	36	3	3	0	0	0
-------------	-------	---	-------	----	----	---	---	---	---	---

Reduct Vol:	0 0	0	0 0	0	0	0	0	0	0	0
-------------	-----	---	-----	---	---	---	---	---	---	---

Final Vol.:	7 746	0	0 866	23	36	3	3	0	0	0
-------------	-------	---	-------	----	----	---	---	---	---	---

Critical Gap Module:

Critical Gp:	4.1 xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	6.8	6.5	6.9	xxxxxx	xxxx	xxxx
--------------	----------	------	------	------	------	------	-----	-----	-----	--------	------	------

FollowUpTim:	2.2 xxxx	xxxx	xxxx	3.5	4.0	3.3	3.5	4.0	3.3	xxxxxx	xxxx	xxxx
--------------	----------	------	------	-----	-----	-----	-----	-----	-----	--------	------	------

Capacity Module:

Cnflct Vol:	889	xxxx	xxxx	xxxx	xxxx	xxxx	1265	1638	445	xxxx	xxxx	xxxx
-------------	-----	------	------	------	------	------	------	------	-----	------	------	------

Potent Cap.:	758	xxxx	xxxx	xxxx	xxxx	xxxx	164	102	567	xxxx	xxxx	xxxx
--------------	-----	------	------	------	------	------	-----	-----	-----	------	------	------

Move Cap.:	758	xxxx	xxxx	xxxx	xxxx	xxxx	163	101	567	xxxx	xxxx	xxxx
------------	-----	------	------	------	------	------	-----	-----	-----	------	------	------

Volume/Cap.:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	0.22	0.03	0.01	xxxx	xxxx	xxxx
--------------	------	------	------	------	------	------	------	------	------	------	------	------

Level Of Service Module:

Queue:	0.0	xxxx										
--------	-----	------	------	------	------	------	------	------	------	------	------	------

Stopped Del:	9.8	xxxx										
--------------	-----	------	------	------	------	------	------	------	------	------	------	------

LOS by Move:	A *	*	*	*	*	*	*	*	*	*	*	*
--------------	-----	---	---	---	---	---	---	---	---	---	---	---

Movement:	LT - LTR - RT						
-----------	---------------	---------------	---------------	---------------	---------------	---------------	---------------

Shared Cap.:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	164	xxxxx	xxxx	0	xxxx
--------------	------	------	------	------	------	------	-----	-------	------	---	------

SharedQueue:	0.0	xxxx	xxxx	xxxx	xxxx	xxxx	0.0	xxxx	xxxx	1.0	xxxxx	xxxx
--------------	-----	------	------	------	------	------	-----	------	------	-----	-------	------

Shrd StpDel:	9.8	xxxx	xxxx	xxxx	xxxx	xxxx	9.0	xxxx	xxxx	34.6	xxxxx	xxxx
--------------	-----	------	------	------	------	------	-----	------	------	------	-------	------

Shared LOS:	A *	*	*	*	*	*	D	*	*	*	*	*
-------------	-----	---	---	---	---	---	---	---	---	---	---	---

ApproachDel:	xxxxxx	*	xxxxxx	*	*	*	D	*	*	34.6	xxxxxx
--------------	--------	---	--------	---	---	---	---	---	---	------	--------

ApproachLOS:	*	*	*	*	*	*	D	*	*	*	*
--------------	---	---	---	---	---	---	---	---	---	---	---

Kittelson & Associates, Inc. Project #6743
 Milton-Freewater STP and TSP Update - Milton-Freewater, OR
 2004 Recommended Three-Lane Alternative, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #7 OR 11/7th Avenue - Westbound

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: B [12.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1! 0 0	0 0 1! 0 0

Volume Module:

Base Vol:	0 544	2 17 631	0 0 0	0 1 0	0 9
Growth Adj:	1.00 1.18 1.00	1.00 1.18 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	0 642	2 17 745	0 0 0	0 1 0	0 9
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.86 0.86 0.86	0.86 0.86 0.86	0.86 0.86 0.86	0.86 0.86 0.86	0.86 0.86 0.86
PHF Volume:	0 746	2 20 866	0 0 0	0 1 0	0 10
Reduc Vol:	0 0	0 0 0	0 0 0	0 0 0	0 0
Final Vol.:	0 746	2 20 866	0 0 0	0 1 0	0 10

Critical Gap Module:

Critical Gp:xxxxx xxxx xxxx	4.1 xxxx xxxx xxxx xxxx xxxx	6.8 xxxx 6.9
FollowUpTim:xxxxx xxxx xxxx	2.2 xxxx xxxx xxxx xxxx xxxx	3.5 xxxx 3.3

Capacity Module:

Cnflict Vol: xxxx xxxx xxxx	749 xxxx xxxx xxxx xxxx xxxx	1220 xxxx 374
Potent Cap.: xxxx xxxx xxxx	856 xxxx xxxx xxxx xxxx xxxx	175 xxxx 629
Move Cap.: xxxx xxxx xxxx	856 xxxx xxxx xxxx xxxx xxxx	172 xxxx 629
Volume/Cap: xxxx xxxx xxxx	0.02 xxxx xxxx xxxx xxxx	0.01 xxxx 0.02

Level Of Service Module:

Queue: xxxx xxxx xxxx	0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx	0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Stopped Del:xxxxx xxxx xxxx	9.3 xxxx xxxx xxxx xxxx xxxx xxxx xxxx	9.3 xxxx xxxx xxxx xxxx xxxx xxxx xxxx
LOS by Move: * * * A * * * * * * * *	A * * * * * * * * * * * *	A * * * * * * * * * * * *
Movement: LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.: xxxx xxxx xxxx	xxxx xxxx xxxx xxxx 0 xxxx xxxx	497 xxxx
SharedQueue: 0.0 xxxx xxxx	0.1 xxxx xxxx xxxx xxxx xxxx xxxx	0.1 xxxx
Shrd StpDel: 9.0 xxxx xxxx	9.3 xxxx xxxx xxxx xxxx xxxx xxxx	12.4 xxxx
Shared LOS: A * * A * * * * * * * B *	A * * * * * * * * * * * B	A * * * * * * * * * * * B
ApproachDel: xxxxxx	xxxxxx	xxxxxx
ApproachLOS:	*	*

Kittelson & Associates, Inc. Project #6743
 Milton-Freewater STP and TSP Update - Milton-Freewater, OR
 2004 Recommended Three-Lane Alternative, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #8 OR 11/ 4th Avenue

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: D [34.8]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1! 0 0	0 0 1! 0 0

Volume Module:

Base Vol:	4 577	3 8 667	4 4 1	1 1 1 1 17
Growth Adj:	1.00 1.15 1.00	1.00 1.15 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
Initial Bse:	4 664	3 8 767	4 4 1	1 1 1 1 17
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.87 0.87 0.87	0.87 0.87 0.87	0.87 0.87 0.87	0.87 0.87 0.87 0.87
PHF Volume:	5 763	3 9 882	5 5 1	1 1 1 1 20
Reduc Vol:	0 0	0 0 0	0 0 0	0 0 0 0
Final Vol.:	5 765	3 9 882	5 5 1	1 1 1 1 20

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx	4.1 xxxx xxxx	7.5' 6.5	6.9 7.5 6.5 6.9
FollowUpTim: 2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5 4.0 3.3

Capacity Module:

Cnflict Vol: 886 xxxx xxxx	766 xxxx xxxx	1293 1678	443 1233 1678 383
Potent Cap.: 760 xxxx xxxx	843 xxxx xxxx	122 96	568 135 96 621
Move Cap.: 760 xxxx xxxx	843 xxxx xxxx	116 94	568 132 94 621
Volume/Cap: 0.01 xxxx xxxx	0.01 xxxx xxxx	0.04 0.01	0.00 0.01 0.01 0.03

Level Of Service Module:

queue: 0.0 xxxx xxxx	0.0 xxxx xxxx	xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Stopped Del: 9.8 xxxx xxxx	9.3 xxxx xxxx	xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
LOS by Move: A * * A * * * * * * * *	A * * * * * * * * * * * B	A * * * * * * * * * * * B
Movement: LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.: xxxx xxxx xxxx	xxxx xxxx xxxx xxxx 128 xxxx	417 xxxx
SharedQueue: 0.0 xxxx xxxx	0.0 xxxx xxxx	0.2 xxxx xxxx 0.2 xxxx
Shrd StpDel: 9.8 xxxx xxxx	9.3 xxxx xxxx	34.8 xxxx xxxx 14.1 xxxx
Shared LOS: A * * A * * * * * * * B *	A * * * * * * * * * * * B	A * * * * * * * * * * * B
ApproachDel: xxxxxx	xxxxxx	xxxxxx
ApproachLOS:	*	*

Kittelson & Associates, Inc. Project #6743
 Milton-Freewater STP and TSP Update - Milton-Freewater, OR
 2004 Recommended Three-Lane Alternative, Weekday PM Peak Hour

Level Of Service Computation Report
 2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Main Street/OR11/ 2nd Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.345
 Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 19.6
 Optimal Cycle: 33 Level Of Service: B

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Split Phase Split Phase
 Rights: Ignore Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 0 1 1 0 1 0 0 1 1 0 0 0 0 1 0 1 0 0

Volume Module: >> Count Date: 30 Nov 2004 <<

Base Vol: 7 187 398 0 189 12 5 0 9 481 31 6

Growth Adj: 1.00 1.22 1.22 1.00 1.22 1.00 1.00 1.00 1.00 1.22 1.00 1.00

Initial Bse: 7 228 486 0 231 12 5 0 9 587 31 6

User Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.92 0.92 0.00 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92

PHF Volume: 8 248 0 0 251 13 5 0 10 638 34 7

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 8 248 0 0 251 13 5 0 10 638 34 7

PCE Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 8 248 0 0 251 13 5 0 10 638 34 7

Saturation Flow Module:

Sat/Lane: 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800

Adjustment: 0.88 0.88 1.00 1.00 0.92 0.92 0.88 1.00 0.88 0.93 0.93 0.93

Lanes: 0.06 1.94 1.00 0.00 1.90 0.10 0.36 0.00 0.64 1.89 0.09 0.02

Final Sat.: 94 3073 1800 0 3164 165 565 0 1017 3177 158 31

Capacity Analysis Module:

Vol/Sat: 0.08 0.08 0.00 0.00 0.08 0.08 0.01 0.00 0.01 0.20 0.21 0.21

Crit Moves: ****

Green/Cycle: 0.23 0.23 0.00 0.00 0.23 0.23 0.03 0.00 0.03 0.62 0.62 0.62

Volume/Cap: 0.35 0.35 0.00 0.00 0.34 0.34 0.35 0.00 0.35 0.32 0.35 0.35

Delay/Veh: 32.2 32.2 0.0 0.0 32.1 32.1 52.4 0.0 52.4 9.2 9.4 9.4

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 32.2 32.2 0.0 0.0 32.1 32.1 52.4 0.0 52.4 9.2 9.4 9.4

HCM2kAvg: 4 4 0 0 4 4 1 0 1 5 6 6

Appendix H

2025 Traffic Operations Analysis Worksheets – Recommended Plan

AM-3Lane-Reco

Thu Jun 2, 2005 14:55:20

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Kittelson & Associates, Inc. - Project #6743
 Milton-Freewater STA and TSP Update - Milton-Freewater, OR
 2025 Recommended Three-Lane Traffic Condition, Weekday AM Peak Hour

Scenario Report
Scenario: AM-3Lane-Reco

Command: AM-3Lane-Reco
Volume: AM
Geometry: 3-lane-Reco
Impact Fee: Default Impact Fee
Trip Generation: Default Trip Generation
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Default Configuration

AM-3Lane-Reco

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Kittelson & Associates, Inc. - Project #6743
 Milton-Freewater STA and TSP Update - Milton-Freewater, OR
 2025 Recommended Three-Lane Traffic Condition, Weekday AM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base Del/ LOS Veh	Future Del/ LOS Veh	Change in C
# 1 OR 11/ 14th Ave	D 31.9 0.000	D 31.9 0.000	+ 0.000 D/V
# 2 Main Street-OR11/ 12th Ave	F 152.9 0.000	F 152.9 0.000	+ 0.000 D/V
# 3 Main Street - OR 11/ 10th Ave	E 36.4 0.000	E 36.4 0.000	+ 0.000 D/V
# 4 Main Street - OR 11/ 9th Ave	E 49.5 0.000	E 49.5 0.000	+ 0.000 D/V
# 5 Main Street-OR11/ 8th Ave	D 25.2 0.000	D 25.2 0.000	+ 0.000 D/V
# 6 OR 11/7th Ave - Eastbound	E 44.1 0.000	E 44.1 0.000	+ 0.000 D/V
# 7 OR 11/7th Avenue - Westbound	C 18.9 0.000	C 18.9 0.000	+ 0.000 D/V
# 8 OR 11/ 4th Avenue	E 47.4 0.000	E 47.4 0.000	+ 0.000 D/V
# 9 Main Street/OR11/ 2nd Ave	C 21.1 0.316	C 21.1 0.316	+ 0.000 D/V

Kittelson & Associates, Inc. - Project #6743
 Milton-Freewater STA and TSP Update - Milton-Freewater, OR
 2025 Recommended Three-Lane Traffic Condition, Weekday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #1 OR 11/ 14th Ave

Average Delay (sec/veh): 6.5 Worst Case Level Of Service: DL 31.91

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 0 0 1 0 1 0 1 0 0 0 0 0 1 0 0 0 1

Volume Module: >> Count Date: 1 Dec 2004 <<

Base Vol: 0 323 13 108 259 0 0 0 0 12 0 152

Growth Adj: 1.32 1.56 1.32 1.32 1.56 1.32 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 0 503 17 143 403 0 0 0 0 16 0 201

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70

PHF Volume: 0 719 25 204 576 0 0 0 0 23 0 287

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 0 719 25 204 576 0 0 0 0 23 0 287

Critical Gap Module:

Critical Gp:xxxxx xxxx xxxx 4.1 xxxx xxxx xxxx xxxx xxxx 6.4 xxxx 6.2

FollowUpTim:xxxxx xxxx xxxx 2.2 xxxx xxxx xxxx xxxx 3.5 xxxx 3.3

Capacity Module:

Cnflct Vol: xxxx xxxx xxxx 743 xxxx xxxx xxxx xxxx xxxx 1715 xxxx 731

Potent Cap.: xxxx xxxx xxxx 864 xxxx xxxx xxxx xxxx xxxx 100 xxxx 425

Move Cap.: xxxx xxxx xxxx 864 xxxx xxxx xxxx xxxx xxxx 82 xxxx 425

Volume/Cap: xxxx xxxx xxxx 0.24 xxxx xxxx xxxx xxxx 0.28 xxxx 0.67

Level Of Service Module:

Queue: xxxx xxxx xxxx 0.9 xxxx xxxx xxxx xxxx xxxx 1.0 xxxx 4.9

Stopped Del:xxxxx xxxx xxxx 10.4 xxxx xxxx xxxx xxxx xxxx 64.8 xxxx 29.3

LOS by Move: * * * * * * * * * * F * D

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx

SharedQueue:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shrd StpDel:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shared LOS: * * * * * * * * * * F * *

ApproachDel: xxxxx * * * * * * * * * * 31.9

ApproachLOS: * * * * * * * * * * D

Kittelson & Associates, Inc. - Project #6743
 Milton-Freewater STA and TSP Update - Milton-Freewater, OR
 2025 Recommended Three-Lane Traffic Condition, Weekday AM Peak Hour

Level Of Service Computation Report

2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #2 Main Street-OR11/ 12th Ave

Average Delay (sec/veh): 7.1 Worst Case Level Of Service: F[52.9]

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 1 0 0 1 0 1 0 1 0 0 1 0 0 0 1 0 0 0 0

Volume Module: >> Count Date: 7 Dec 2004 <<

Base Vol: 4 450 2 10 358 7 36 2 6 3 1 15

Growth Adj: 1.32 1.56 1.32 1.32 1.56 1.32 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 5 701 3 13 558 9 48 3 8 4 1 20

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80

PHF Volume: 7 876 3 17 697 12 59 3 10 5 2 25

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 7 876 3 17 697 12 59 3 10 5 2 25

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.1 6.5 6.2 7.1 6.5 6.2

FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Cnflct Vol: 709 xxxx xxxx 879 xxxx xxxx 1640 1628 703 1633 1633 878

Potent Cap.: 890 xxxx xxxx 768 xxxx xxxx 81 103 441 82 102 350

Move Cap.: 890 xxxx xxxx 768 xxxx xxxx 73 100 441 76 99 350

Volume/Cap: 0.01 xxxx xxxx 0.02 xxxx xxxx 0.82 0.03 0.02 0.06 0.02 0.07

Level Of Service Module:

Queue: 0.0 xxxx xxxx 0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 9.1 xxxx xxxx 9.8 xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: A * * * * * * * * * * F * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

SharedQueue:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shrd StpDel:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shared LOS: * * * * * * * * * * F * *

ApproachDel: xxxxx * * * * * * * * * * 152.9

ApproachLOS: * * * * * * * * * * D

Kittelson & Associates, Inc. - Project #6743
 Milton-Freewater STA and TSP Update - Milton-Freewater, OR
 2025 Recommended Three-Lane Traffic Condition, Weekday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Main Street - OR 11/ 10th Ave

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: E [36.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
--------	-----------	-----------	-----------	-----------

Volume Module: >> Count Date: 18 Nov 2004 <<

Base Vol:	5 495	1 4 369	8 7 1	5 1 1 1 11
Growth Adj:	1.32 1.52	1.32 1.52	1.32 1.32	1.32 1.32 1.32 1.32
Initial Bse:	7 751	1 5 560	11 9 1	7 1 1 1 15
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.88 0.88	0.88 0.88	0.88 0.88	0.88 0.88 0.88 0.88
PHF Volume:	8 854	2 6 637	12 11 2	8 2 2 2 17
Reduct Vol:	0 0	0 0	0 0	0 0 0 0 0
Final Vol.:	8 854	2 6 637	12 11 2	8 2 2 2 17

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5 6.2	7.1 6.5 6.2
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 4.0

Capacity Module:

Cnflict Vol:	649 xxxx xxxx	855 xxxx xxxx	1533 1525	643 1529 1530 855
Potent Cap.:	937 xxxx xxxx	785 xxxx xxxx	96 119	477 97 118 361
Move Cap.:	937 xxxx xxxx	785 xxxx xxxx	90 117	477 93 116 361
Volume/Cap:	0.01 xxxx xxxx	0.01 xxxx xxxx	0.12 0.01	0.02 0.02 0.01 0.05

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx	
Stopped Del:	8.9 xxxx xxxx	9.6 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx	
LOS by Move:	A * * A	* * * *	* * * *	* * * *
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxx 134 xxxx xxxx	261 xxxx
SharedQueue:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx 0.5 xxxx xxxx	0.2 xxxx
Shrd StpDel:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx 36.4 xxxx xxxx	19.9 xxxx
Shared LOS:	* * * * *	* * * *	E * * *	C *
ApproachDel:	xxxxxx	xxxxxx	36.4	19.9
ApproachLOS:	*	*	E	C

Kittelson & Associates, Inc. - Project #6743
 Milton-Freewater STA and TSP Update - Milton-Freewater, OR
 2025 Recommended Three-Lane Traffic Condition, Weekday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Main Street - OR 11/ 9th Ave

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: E [49.5]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module: >> Count Date: 22 Dec 2004 <<

Base Vol:	1 508	5 15 371	19 11 1	6 4 1 13
Growth Adj:	1.32 1.61	1.32 1.61	1.32 1.32	1.32 1.32 1.32 1.32
Initial Bse:	1 818	7 20 597	25 15 1	8 5 1 17
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.91 0.91	0.91 0.91	0.91 0.91	0.91 0.91 0.91 0.91
PHF Volume:	1 899	7 22 657	28 16 1	9 6 1 19
Reduc Vol:	0 0	0 0	0 0	0 0 0 0
Final Vol.:	1 899	7 22 657	28 16 1	9 6 1 19

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5 6.2	7.1 6.5 6.2
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 4.0

Capacity Module:

Cnflict Vol:	684 xxxx xxxx	906 xxxx xxxx	1630 1623	670 1624 1633 903
Potent Cap.:	909 xxxx xxxx	751 xxxx xxxx	82 104	460 83 102 339
Move Cap.:	909 xxxx xxxx	751 xxxx xxxx	75 101	460 79 99 339
Volume/Cap:	0.00 xxxx xxxx	0.03 xxxx xxxx	0.21 0.01	0.02 0.07 0.01 0.06

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxxx xxxx xxxx
Stopped Del:	9.0 xxxx xxxx	9.9 xxxx xxxx	xxxxxx xxxx xxxx
LOS by Move:	A * * A	* * * *	* * * *
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxx 106 xxxx xxxx
SharedQueue:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx 0.9 xxxx xxxx
Shrd StpDel:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx 49.5 xxxx xxxx
Shared LOS:	* * * * *	* * * *	E * * * D *
ApproachDel:	xxxxxx	xxxxxx	49.5
ApproachLOS:	*	*	E

Kittelson & Associates, Inc. - Project #6743
 Miton-Freewater STA and TSP Update - Milton-Freewater, OR
 2025 Recommended Three-Lane Traffic Condition, Weekday AM Peak Hour

Level Of Service Computation Report
 2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #5 Main Street-OR11/ 8th Ave

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: D [25.2]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module: >> Count Date: 29 Nov 2004 <<

Base Vol:	8 522	2 3 392	15 25 1 11 2 1 12
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Growth Adj:	1.32 1.52	1.32 1.52	1.32 1.32 1.32 1.32 1.32 1.32
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Initial Bse:	11 792	3 4 595	20 33 1 15 3 1 16
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User Adj:	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
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PHF Adj:	0.88 0.88	0.88 0.88	0.88 0.88 0.88 0.88 0.88 0.88
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PHF Volume:	12 900	3 5 676	23 38 2 17 3 2 18
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Reduc Vol:	0 0	0 0	0 0 0 0 0 0 0
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Final Vol:	12 900	3 5 676	23 38 2 17 3 2 18
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Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5 6.2 7.1 6.5 6.2
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FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0 3.3 3.5 4.0 3.3
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Capacity Module:

Cnflict Vol:	699 xxxx xxxx	903 xxxx xxxx	1632 1624 687 1631 1634 902
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Potent Cap.:	898 xxxx xxxx	753 xxxx xxxx	82 104 450 82 102 339
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Move Cap.:	898 xxxx xxxx	753 xxxx xxxx	76 102 450 77 100 339
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Total Cap:	xxxx xxxx xxxx	xxxx xxxx xxxx	193 221 xxxx 197 219 xxxx
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Volume/Cap:	0.01 xxxx xxxx	0.01 xxxx xxxx	0.19 0.01 0.04 0.02 0.01 0.05
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Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxx xxxx xxxx xxxx xxxx xxxx xxxx
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Stopped Del:	9.1 xxxx xxxx	9.8 xxxx xxxx	xxxx xxxx xxxx xxxx xxxx xxxx xxxx
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LOS by Move:	A * * A * * *	*	* * * * * *
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Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
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Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 233 xxxx xxxx 299 xxxx
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SharedQueue:	xxxx xxxx xxxx	xxxx xxxx xxxx	0.9 xxxx xxxx 0.2 xxxx
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Shrd StpDel:	xxxx xxxx xxxx	xxxx xxxx xxxx	25.2 xxxx xxxx 18.0 xxxx
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Shared LOS:	*	*	*	*	*	*
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ApproachDel:	xxxxxx	xxxxxx	25.2	18.0
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ApproachLOS:	*	*	D	*	*	C
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Level Of Service Computation Report
 2000 HCM Unsigned Method (Base Volume Alternative)

Intersection #6 OR 11/7th Ave - Eastbound

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: E [44.1]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module:

Base Vol:	2 556	0 0 408	13 7 1 2 0 0 0
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Growth Adj:	1.32 1.56	1.32 1.32 1.32 1.32 1.32 1.32
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Initial Bse:	3 866	0 0 636	17 9 1 3 0 0 0
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User Adj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
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PHF Adj:	0.70 0.70	0.70 0.70 0.70 0.70 0.70 0.70
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PHF Volume:	4 1237	0 0 908	25 13 2 4 0 0 0
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Reduc Vol:	0 0	0 0	0 0 0 0 0 0 0
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Final Vol:	4 1237	0 0 908	25 13 2 4 0 0 0
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Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	xxxx xxxx xxxx xxxx xxxx	6.8 6.5 6.9 xxxx xxxx xxxx
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FollowUpTim:	2.2 xxxx xxxx	xxxx xxxx xxxx xxxx	3.5 4.0 3.3 xxxx xxxx
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Capacity Module:

Cnflict Vol:	932 xxxx xxxx	xxxx xxxx xxxx	1546 2165 466 xxxx xxxx
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Potent Cap.:	730 xxxx xxxx	xxxx xxxx xxxx	107 48 549 xxxx xxxx
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Move Cap.:	730 xxxx xxxx	xxxx xxxx xxxx	107 48 549 xxxx xxxx
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Volume/Cap:	0.01 xxxx xxxx	xxxx xxxx xxxx	0.12 0.04 0.01 xxxx xxxx
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Level Of Service Module:

Queue:	0.0 xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx
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Stopped Del:	10.0 xxxx xxxx	xxxx xxxx xxxx	xxxx xxxx xxxx xxxx xxxx
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LOS by Move:	A * * A * * *	*	* * * * * *
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Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
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Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 111 xxxx xxxx 0 xxxx
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SharedQueue:	0.0 xxxx xxxx	0.0 xxxx xxxx	0.6 xxxx xxxx xxxx xxxx
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Shrd StpDel:	10.0 xxxx xxxx	9.0 xxxx xxxx xxxx	44.1 xxxx xxxx xxxx xxxx
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Shared LOS:	A * * A * * *	E * * * * *
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ApproachDel:	xxxxxx	xxxxxx	44.1 xxxx
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ApproachLOS:	*	*	E *
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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 OR 11/7th Avenue - Westbound

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: CI 18.9

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 1 0 0
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Volume Module:

Base Vol:	0 556	1 7	408 0	0 0 0 2 0 16
Growth Adj:	1.32 1.56	1.32 1.56	1.32 1.32	1.32 1.32 1.32 1.32
Initial Bse:	0 866	1 9	636 0	0 0 0 3 0 21
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	0.70 0.70	0.70 0.70	0.70 0.70	0.70 0.70 0.70 0.70
PHF Volume:	0 1237	2 13	908 0	0 0 0 4 0 30
Reduc Vol:	0 0	0 0	0 0	0 0 0 0 0 0
Final Vol:	0 1237	2 13	908 0	0 0 0 4 0 30

Critical Gap Module:

Critical Gp:	xxxxxx xxxx xxxx 4.1 xxxx xxxx xxxx xxxx xxxx	xxxxx xxxx xxxx 6.8 xxxx 6.9
FollowUpTim:	xxxxxx xxxx xxxx 2.2 xxxx xxxx xxxx xxxx	xxxxx xxxx 3.5 xxxx 3.3

Capacity Module:

CnFLICT Vol:	xxxx xxxx xxxx 1239 xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx 1718 xxxx 620
Potent Cap.:	xxxx xxxx xxxx 558 xxxx xxxx xxxx xxxx	xxxx xxxx xxxx 82 xxxx 436
Move Cap.:	xxxx xxxx xxxx 558 xxxx xxxx xxxx xxxx	xxxx xxxx xxxx 81 xxxx 436
Volume/Cap.:	xxxx xxxx xxxx 0.02 xxxx xxxx	xxxx xxxx xxxx 0.05 xxxx 0.07

Level Of Service Module:

Queue:	xxxxxx xxxx xxxx 0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxxxx xxxx xxxx 11.6 xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Stopped Del:	xxxxxx xxxx xxxx 11.6 xxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxxxx xxxx xxxx 0 xxxx xxxx 293 xxxx
LOS by Move:	* * *	B * * * * * * * * *
Movement:	LT - LTR - RT	LT - LTR - RT LT - LTR - RT
Shared Cap.:	xxxx	xxxx xxxx xxxx 0.1 xxxx xxxx xxxx xxxx xxxx xxxx
SharedQueue:	0.0 xxxx xxxx	0.1 xxxx xxxx xxxx xxxx xxxx xxxx 0.4 xxxx
Shrd StpDel:	9.0 xxxx xxxx	11.6 xxxx xxxx xxxx xxxx xxxx xxxx 18.9 xxxx
Shared LOS:	A * * B * * * * * * * C *	
ApproachDel:	xxxxxx	xxxxxx 18.9
ApproachLOS:	*	*

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 OR 11/ 4th Avenue

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: EL 47.4

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module:

Base Vol:	3 576	1 5 426	1 5 1 1 1 1 10
Growth Adj:	1.32 1.52	1.32 1.32 1.32 1.32 1.32 1.32	
Initial Bse:	4 874	1 7 647	1 7 1 1 1 1 13
User Adj:	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00	
PHF Adj:	0.78 0.78	0.78 0.78 0.78 0.78 0.78 0.78 0.78	
PHF Volume:	5 1121	2 8 829	2 8 2 2 2 2 17
Reduc Vol:	0 0	0 0 0 0 0 0 0	
Final Vol:	5 1121	2 8 829	2 8 2 2 2 2 17

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx 7.5 6.5 6.9 7.5 6.5 6.9
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

CnFLICT Vol:	831 xxxx xxxx	1123 xxxx xxxx 1418 1980 415 1564 1980 561
Potent Cap.:	797 xxxx xxxx	618 xxxx xxxx 99 62 592 77 62 476
Move Cap.:	797 xxxx xxxx	618 xxxx xxxx 92 61 592 74 61 476
Volume/Cap.:	0.01 xxxx xxxx	0.01 xxxx xxxx 0.09 0.03 0.00 0.02 0.03 0.04

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Stopped Del:	9.5 xxxx xxxx	10.9 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
LOS by Move:	A * * B * * * * * * * * *	
Movement:	LT - LTR - RT	LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx 0.1 xxxx xxxx 97 xxxx xxxx 236 xxxx
SharedQueue:	0.0 xxxx xxxx	0.0 xxxx xxxx xxxx 0.4 xxxx xxxx 0.3 xxxx
Shrd StpDel:	9.5 xxxx xxxx	10.9 xxxx xxxx xxxx 47.4 xxxx xxxx 21.7 xxxx
Shared LOS:	A * * B * * * * * * * C *	
ApproachDel:	xxxxxx	xxxxxx 47.4
ApproachLOS:	*	E * * * C *

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Level Of Service Computation Report
 2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Main Street/OR11/ 2nd Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.316
 Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 21.1
 Optimal Cycle: 32 Level Of Service: C

Approach:	North Bound		South Bound		East Bound		West Bound	
	L	T	R	L	T	R	L	T
Control:	Permitted		Permitted		Split Phase		Split Phase	
Rights:	Ignore		Include		Include		Include	
Min. Green:	0	0	0	0	0	0	0	0
Lanes:	0	1	1	0	1	1	0	0
Videos:	0	1	1	0	1	1	0	0

Volume Module:	Count		Date:	30 Nov 2004		<<					
	Base Vol.	Growth Adj.		Initial Bse.	User Adj.	PHF Adj.	Reduced Vol.	PCE Adj.	MLF Adj.	Final Vol.	
14	170	407	0	159	1	7	0	11	262	19	1
1.32	1.61	1.61	1.32	1.61	1.32	1.32	1.32	1.32	1.61	1.32	1.32
18	274	655	0	256	1	9	0	15	422	25	1
1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.90	0.90	0.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
21	304	0	0	285	1	10	0	16	469	28	1
0	0	0	0	0	0	0	0	0	0	0	0
21	304	0	0	285	1	10	0	16	469	28	1
1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
21	304	0	0	285	1	10	0	16	469	28	1

Saturation Flow Module:	Sat/Lane											
	Adjustment:	Lanes:	Final Sat.:	1800	1800	1800	1800	1800	1800	1800	1800	1800
0.86	0.86	1.00	1.00	0.93	0.93	0.88	1.00	0.88	0.94	0.94	0.94	
0.13	1.87	1.00	0.00	1.99	0.01	0.39	0.00	0.61	1.89	0.10	0.01	
196	2898	1800	0	3331	17	618	0	971	3182	178	9	

Capacity Analysis Module:	Vol/Sat:												
	Crit Moves:	****	0.10	0.10	0.00	0.00	0.09	0.09	0.02	0.00	0.02	0.15	0.16
Green/Cycle:	0.33	0.33	0.00	0.00	0.33	0.33	0.05	0.00	0.05	0.50	0.50	0.50	0.50
Volume/Cap:	0.32	0.32	0.00	0.00	0.26	0.26	0.32	0.00	0.32	0.30	0.32	0.32	0.32
Delay/Veh:	25.1	25.1	0.0	0.0	24.5	24.5	47.8	0.0	47.8	15.0	15.2	15.2	15.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj/Del/Veh:	25.1	25.1	0.0	0.0	24.5	24.5	47.8	0.0	47.8	15.0	15.2	15.2	15.2
HCM2kAvg:	4	4	0	0	3	3	1	0	1	5	5	5	5

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Scenario Report
Scenario: PM-3Lane-Reco

Command: PM-3Lane-Reco
Volume: PM
Geometry: 3-lane-Reco
Impact Fee: Default Impact Fee
Trip Generation: Default Trip Generation
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Default Configuration

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Impact Analysis Report
Level Of Service

Intersection	Base Del/ LOS Veh	Future Del/ LOS Veh	Change in C
# 1 OR 11/ 14th Ave	D 29.7 0.000	D 29.7 0.000	+ 0.000 D/V
# 2 Main Street-OR11/ 12th Ave	F 150.4 0.000	F 150.4 0.000	+ 0.000 D/V
# 3 Main Street - OR 11/ 10th Ave	F 237.8 0.000	F 237.8 0.000	+ 0.000 D/V
# 4 Main Street - OR 11/ 9th Ave	F 86.8 0.000	F 86.8 0.000	+ 0.000 D/V
# 5 Main Street-OR11/ 8th Ave	E 45.4 0.000	E 45.4 0.000	+ 0.000 D/V
# 6 OR 11/7th Ave - Eastbound	F 102.4 0.000	F 102.4 0.000	+ 0.000 D/V
# 7 OR 11/7th Avenue - Westbound	C 15.4 0.000	C 15.4 0.000	+ 0.000 D/V
# 8 OR 11/ 4th Avenue	F 74.5 0.000	F 74.5 0.000	+ 0.000 D/V
# 9 Main Street/OR11/ 2nd Ave	C 20.6 0.456	C 20.6 0.456	+ 0.000 D/V

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 OR 11/ 14th Ave

Average Delay (sec/veh): 5.4 Worst Case Level Of Service: D [29.7]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
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Rights:	Include	Include	Include	Include
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Lanes:	0 0 0 1 0	1 0 1 0 0	0 0 0 0 0	1 0 0 0 1
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Volume Module:	>> Count Date: 1 Dec 2004 <<
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Base Vol:	0 333 6 145 339 0 0 0 0 8 0 134
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Growth Adj:	1.32 1.56 1.32 1.32 1.56 1.32 1.32 1.32 1.32 1.32 1.32 1.32
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Initial Bse:	0 519 8 191 528 0 0 0 0 11 0 177
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User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
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PHF Adj:	0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71
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PHF Volume:	0 731 11 270 744 0 0 0 0 15 0 249
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Reduc Vol:	0 0 0 0 0 0 0 0 0 0 0 0
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Final Vol.:	0 731 11 270 744 0 0 0 0 15 0 249
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Critical Gap Module:

Critical Gp:xxxxx xxxx xxxx 4.1 xxxx xxxx xxxx xxxx xxxx 6.4 xxxx 6.2

FollowUpTim:xxxxx xxxx xxxx 2.2 xxxx xxxx xxxx xxxx 3.5 xxxx 3.3
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Capacity Module:

Cnflct Vol: xxxx xxxx xxxx 742 xxxx xxxx xxxx xxxx xxxx 2019 xxxx 736

Potent Cap.: xxxx xxxx xxxx 865 xxxx xxxx xxxx xxxx xxxx 65 xxxx 422
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Move Cap.: xxxx xxxx xxxx 865 xxxx xxxx xxxx xxxx xxxx 49 xxxx 422
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Volume/Cap: xxxx xxxx xxxx 0.31 xxxx xxxx xxxx xxxx 0.30 xxxx 0.59
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Level Of Service Module:

Queue: xxxx xxxx xxxx 1.3 xxxx xxxx xxxx xxxx xxxx 1.0 xxxx 3.7

Stopped Del:xxxxx xxxx xxxx 11.0 xxxx xxxx xxxx xxxx xxxx 107.1 xxxx 25.1

LOS by Move: * * * B * * * * * F * D

Movement: LT - LTR - RT

Shared Cap.: xxxx

SharedQueue:xxxxx xxxx

Shrd StpDel:xxxxx xxxx

Shared LOS: * * * * * * * * * * * *

ApproachDel: xxxx * * * * * * * * * * * *

ApproachLOS: * * * * * * * * * * * *

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Main Street-OR11/ 12th Ave

Average Delay (sec/veh): 3.4 Worst Case Level Of Service: F [150.4]

Approach:	North Bound	South Bound	East Bound	West Bound
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Movement:	L - T - R	L - T - R	L - T - R	L - T - R
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Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
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Rights:	Include	Include	Include	Include
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Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module:	>> Count Date: 7 Dec 2004 <<
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Base Vol:	1 466 1 37 482 21 18 3 1 2 2 11
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Growth Adj:	1.32 1.56 1.32 1.32 1.56 1.32 1.32 1.32 1.32 1.32 1.32 1.32
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Initial Bse:	1 726 1 49 751 28 24 4 1 3 3 15
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User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
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PHF Adj:	0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86
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PHF Volume:	2 844 2 57 873 32 28 5 2 3 3 17
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Reduc Vol:	0 0 0 0 0 0 0 0 0 0 0 0
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Final Vol.:	2 844 2 57 873 32 28 5 2 3 3 17
-------------	---------------------------------

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx 7.1 6.5 6.2 7.1 6.5 6.2
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FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3
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Capacity Module:

Cnflct Vol: 905 xxxx xxxx 846 xxxx xxxx 1860 1851 889 1854 1867 845

Potent Cap.: 751 xxxx xxxx 791 xxxx xxxx 57 75 345 57 73 366
--

Move Cap.: 751 xxxx xxxx 791 xxxx xxxx 49 69 345 51 68 366
--

Volume/Cap: 0.00 xxxx xxxx 0.07 xxxx xxxx 0.56 0.07 0.00 0.06 0.05 0.05

Level Of Service Module:

Queue: 0.0 xxxx xxxx 0.2 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 9.8 xxxx xxxx 9.9 xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: A * * * A * * * * * * * * * * * *
--

Movement: LT - LTR - RT

Shared Cap.: xxxx
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SharedQueue:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shrd StpDel:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shared LOS: * * * * * * * * * * * *

ApproachDel: xxxx * * * * * * * * * * * *

ApproachLOS: * * * * * * * * * * * *

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Main Street - OR 11/ 10th Ave

Average Delay (sec/veh): 5.8 Worst Case Level Of Service: F[257.8]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module: >> Count Date: 18 Nov 2004 <<

Base Vol:	5 488	2 7 531	17 19 2 4 5 2 17
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Growth Adj:	1.32 1.52	1.32 1.52	1.32 1.32 1.32 1.32 1.32 1.32
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Initial Bse:	7 741	3 9 806	22 25 3 5 7 3 22
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User Adj:	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
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PHF Adj:	0.80 0.80	0.80 0.80	0.80 0.80 0.80 0.80 0.80 0.80
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PHF Volume:	8 926	3 12 1008	28 31 3 7 8 3 28
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Reduc Vol:	0 0	0 0	0 0 0 0 0 0 0
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Final Vol.:	8 926	3 12 1008	28 31 3 7 8 3 28
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Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5 6.2 7.1 6.5 6.2
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FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0 3.3 3.5 4.0 3.3
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Capacity Module:

Cnflct Vol:	1036 xxxx xxxx	929 xxxx xxxx	2005 1990 1022 1994 2003 928
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Potent Cap.:	671 xxxx xxxx	736 xxxx xxxx	45 61 289 46 60 328
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Move Cap.:	671 xxxx xxxx	736 xxxx xxxx	38 60 289 42 59 328
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Volume/Cap:	0.01 xxxx xxxx	0.02 xxxx xxxx	0.82 0.06 0.02 0.20 0.06 0.09
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Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.0 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx
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Stopped Del:	10.4 xxxx xxxx	10.0 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx
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LOS by Move:	8 * * A * *	* * * * * * * *
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Movement:	LT - LTR - RT			
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Shared Cap.:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxx 46 xxxx xxxx 117 xxxx
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SharedQueue:	xxxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx 3.6 xxxx xxxx 1.3 xxxx
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Shrd StpDel:	xxxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx 238 xxxx xxxx 50.9 xxxx
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Shared LOS:	* * * * *	* F * * * F *
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ApproachDel:	XXXXXX	XXXXXX	237.8	50.9
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ApproachLOS:	*	F		F
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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Main Street - OR 11/ 9th Ave

Average Delay (sec/veh): 2.2 Worst Case Level Of Service: F[86.8]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module: >> Count Date: 22 Nov 2004 <<

Base Vol:	1 522	2 31 542	14 9 1 5 8 1 11
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Growth Adj:	1.32 1.52	1.32 1.32	1.32 1.32 1.32 1.32 1.32 1.32
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Initial Bse:	1 792	3 41 823	18 12 1 7 11 1 15
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User Adj:	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00
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PHF Adj:	0.89 0.89	0.89 0.89	0.89 0.89 0.89 0.89 0.89 0.89
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PHF Volume:	1 890	3 46 924	21 13 1 7 12 1 16
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Reduc Vol:	0 0	0 0	0 0 0 0 0 0
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Final Vol.:	1 890	3 46 924	21 13 1 7 12 1 16
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Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.1 6.5 6.2 7.1 6.5 6.2
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FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0 3.3 3.5 4.0 3.3
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Capacity Module:

Cnflct Vol:	945 xxxx xxxx	893 xxxx xxxx	1930 1923 935 1926 1932 892
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Potent Cap.:	726 xxxx xxxx	759 xxxx xxxx	51 68 325 51 67 344
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Move Cap.:	726 xxxx xxxx	759 xxxx xxxx	45 63 325 47 63 344
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Volume/Cap:	0.00 xxxx xxxx	0.06 xxxx xxxx	0.30 0.02 0.02 0.25 0.02 0.05
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Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.2 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx
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Stopped Del:	10.0 xxxx xxxx	10.0 xxxx xxxx	xxxxxx xxxx xxxx xxxx xxxx xxxx
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LOS by Move:	A * *	B * * * * * * * *
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Movement:	LT - LTR - RT			
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Shared Cap.:	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxx 65 xxxx xxxx 91 xxxx
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SharedQueue:	xxxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx 1.3 xxxx xxxx 1.2 xxxx
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Shrd StpDel:	xxxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx 86.8 xxxx xxxx 62.6 xxxx
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Shared LOS:	* * * * *	* * * * * F * * * F * *
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ApproachDel:	XXXXXX	XXXXXX	86.8	62.6
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ApproachLOS:	*	F	F
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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Main Street-OR11/ 8th Ave.

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: E[45.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	1 0 0 1 0	1 0 0 1 0	0 0 11 0 0	0 0 11 0 0
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Volume Module: >> Count Date: 29 Nov 2004 <<

Base Vol: 6 527 9 13 578 43 24 3 6 3 1 1

Growth Adj: 1.32 1.52 1.32 1.32 1.52 1.32 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 8 800 12 17 877 57 32 4 8 4 1 1

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81

PHF Volume: 10 988 15 21 1083 70 39 5 10 5 2 2

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol: 10 988 15 21 1083 70 39 5 10 5 2 2

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx 4.1 xxxx xxxx 7.1 6.5 6.2 7.1 6.5 6.2

FollowUpTim: 2.2 xxxx xxxx 2.2 xxxx xxxx 3.5 4.0 3.3 3.5 4.0 3.3

Capacity Module:

Cnflict Vol: 1153 xxxx xxxx 1002 xxxx xxxx 2177 2182 1118 2182 2210 995

Potent Cap.: 606 xxxx xxxx 691 xxxx xxxx 34 47 254 33 45 300

Move Cap.: 606 xxxx xxxx 691 xxxx xxxx 32 44 254 28 43 300

Total Cap: xxxx xxxx xxxx xxxx xxxx 127 146 xxxx 122 144 xxxx

Volume/Cap: 0.02 xxxx xxxx 0.03 xxxx xxxx 0.31 0.03 0.04 0.04 0.01 0.01

Level Of Service Module:

Queue: 0.0 xxxx xxxx 0.1 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 11.0 xxxx xxxx 10.4 xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: B * * B * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx 141 xxxx xxxx 144 xxxx

SharedQueue: xxxx xxxx xxxx xxxx xxxx 1.6 xxxx xxxx 0.2 xxxx

Shrd StpDel:xxxxx xxxx xxxx xxxx xxxx xxxx 45.4 xxxx xxxx 31.5 xxxx

Shared LOS: * * * * * * * E * * * D * *

ApproachDel: xxxxx XXXXX 45.4 31.5

ApproachLOS: * * * * * * * E * * * D * *

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 OR 11/7th Ave - Eastbound

Average Delay (sec/veh): 2.7 Worst Case Level Of Service: E[102.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 11 0 0	0 0 11 0 0
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Volume Module:

Base Vol: 6 544 0 0 631 20 31 3 3 0 0

Growth Adj: 1.32 1.56 1.32 1.32 1.56 1.32 1.32 1.32 1.32 1.32 1.32 1.32

Initial Bse: 8 847 0 0 983 26 41 4 4 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86 0.86

PHF Volume: 9 985 0 0 1143 31 48 5 5 0 0

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol: 9 985 0 0 1143 31 48 5 5 0 0

Critical Gap Module:

Critical Gp: 4.1 xxxx xxxx xxxx xxxx xxxx 6.8 6.5 6.9 xxxx xxxx xxxx xxxx

FollowUpTim: 2.2 xxxx xxxx xxxx xxxx xxxx 3.5 4.0 3.3 xxxx xxxx xxxx xxxx

Capacity Module:

Cnflict Vol: 1174 xxxx xxxx xxxx xxxx xxxx 1669 2162 587 xxxx xxxx xxxx

Potent Cap.: 591 xxxx xxxx xxxx xxxx xxxx 89 48 458 xxxx xxxx xxxx

Move Cap.: 591 xxxx xxxx xxxx xxxx xxxx 88 47 458 xxxx xxxx xxxx

Volume/Cap: 0.02 xxxx xxxx xxxx xxxx 0.54 0.10 0.01 xxxx xxxx xxxx

Level Of Service Module:

Queue: 0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del: 11.2 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: B * * * * * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx xxxx xxxx xxxx xxxx 87 xxxx xxxx 0 xxxx

SharedQueue: 0.0 xxxx xxxx xxxx xxxx 3.1 xxxx xxxx xxxx xxxx

Shrd StpDel: 11.2 xxxx xxxx 9.0 xxxx xxxx xxxx 102 xxxx xxxx xxxx

Shared LOS: B * * A * * F * * * * *

ApproachDel: XXXXX * * * * * * * * * * * * *

ApproachLOS: * * * * * * * * * * * * *

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Level Of Service Computation Report
 2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #7 OR 11/7th Avenue - Westbound

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[15.4]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module:

Base Vol:	0 544	2 17	631 0	0 0	0 1	0 0	9
Growth Adj:	1.32 1.56	1.32 1.56	1.32 1.32	1.32 1.32	1.32 1.32	1.32 1.32	1.32
Initial Bse:	0 847	3 22	983 0	0 0	0 1	0 0	12
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00
PHF Adj:	0.86 0.86	0.86 0.86	0.86 0.86	0.86 0.86	0.86 0.86	0.86 0.86	0.86
PHF Volume:	0 985	3 26	1143 0	0 0	0 2	0 0	14
Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0 0	0
Final Vol:	0 985	3 26	1143 0	0 0	0 2	0 0	14

Critical Gap Module:

Critical Gp:	xxxxxx xxxx xxxx	4.1 xxxx xxxx	xxxxxx xxxx xxxx	6.8 xxxx	6.9
FollowUpTim:	xxxxxx xxxx xxxx	2.2 xxxx xxxx	xxxxxx xxxx xxxx	3.5 xxxx	3.3

Capacity Module:

Cnflict Vol:	xxxx xxxx xxxx	988 xxxx xxxx	xxxx xxxx xxxx	1610 xxxx	494
Potent Cap.:	xxxx xxxx xxxx	695 xxxx xxxx	xxxx xxxx xxxx	97 xxxx	526
Move Cap.:	xxxx xxxx xxxx	695 xxxx xxxx	xxxx xxxx xxxx	94 xxxx	526
Volume/Cap:	xxxx xxxx xxxx	0.04 xxxx xxxx	xxxx xxxx xxxx	0.02 xxxx	0.03

Level Of Service Module:

Queue:	xxxxx xxxx xxxx	0.1 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx
Stopped Del:	xxxxx xxxx xxxx	10.4 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx
LOS by Move:	*	*	B *	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 0 xxxx	xxxx 361 xxxx	xxxx xxxx xxxx
SharedQueue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	0.1 xxxx xxxx
Shrd StpDel:	9.0 xxxx xxxx	10.4 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	15.4 xxxx
Shared LOS:	A *	B *	*	*	C *
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	15.4	
ApproachLOS:	*	*	*	*	C

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Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 OR 11/ 4th Avenue

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: F[74.5]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include

Lanes:	0 1 0 1 0	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0
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Volume Module:

Base Vol:	4 577	3 8	667 4	4 1	1 1	1 1	17
Growth Adj:	1.32 1.52	1.32 1.32	1.32 1.52	1.32 1.32	1.32 1.32	1.32 1.32	1.32
Initial Bse:	5 876	4 11	1013 5	5 5	1 1	1 1	22
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00
PHF Adj:	0.87 0.87	0.87 0.87	0.87 0.87	0.87 0.87	0.87 0.87	0.87 0.87	0.87
PHF Volume:	6 1007	5 12	1164 6	6 6	2 2	2 2	26
Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0 0	0
Final Vol:	6 1007	5 12	1164 6	6 6	2 2	2 2	26

Critical Gap Module:

Critical Gp:	4.1 xxxx xxxx	4.1 xxxx xxxx	7.5 6.5	6.9 7.5	6.5 6.9	6.9
FollowUpTim:	2.2 xxxx xxxx	2.2 xxxx xxxx	3.5 4.0	3.3 3.5	4.0 4.0	3.3

Capacity Module:

Cnflict Vol:	1170 xxxx xxxx	1011 xxxx xxxx	1707 2215	585 1628	2215 506
Potent Cap.:	593 xxxx xxxx	681 xxxx xxxx	60 44	459 69	44 517
Move Cap.:	593 xxxx xxxx	681 xxxx xxxx	54 43	459 65	43 517
Volume/Cap:	0.01 xxxx xxxx	0.02 xxxx xxxx	0.11 0.04	0.00 0.02	0.04 0.05

Level Of Service Module:

Queue:	0.0 xxxx xxxx	0.1 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx
Stopped Del:	11.1 xxxx xxxx	10.4 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx
LOS by Move:	B *	*	B *	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx xxxx xxxx	xxxx xxxx xxxx	xxxx 61 xxxx	xxxx 266 xxxx	xxxx xxxx xxxx
SharedQueue:	0.1 xxxx xxxx	0.1 xxxx xxxx	xxxxx xxxx xxxx	xxxxx xxxx xxxx	0.4 xxxx
Shrd StpDel:	11.1 xxxx xxxx	10.4 xxxx xxxx	xxxxx xxxx xxxx	74.5 xxxx xxxx	20.2 xxxx
Shared LOS:	B *	*	F *	*	C *
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	74.5	20.2
ApproachLOS:	*	*	F	*	C

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Level Of Service Computation Report,
 2000 HCM Operations Method (Base Volume Alternative)

Intersection #9 Main Street/OR11/ 2nd Ave

Cycle (sec): 100 Critical Vol./Cap. (X): 0.456
 Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 20.6
 Optimal Cycle: 38 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Permitted	Permitted	Split Phase	Split Phase
Rights:	Ignore	Include	Include	Include
Min. Green:	2 1 1	2 1 1	2 1 1	2 1 1
Lanes:	0 1 1 0 1	0 0 1 1 0	0 0 1 1 0 0	1 0 1 1 0 0

Volume Module: >> Count Date: 30 Nov 2004 <<

Base Vol:	7 187	398	0 189	12	5 0	9	481	31	6
Growth Adj:	1.32 1.61	1.61	1.32 1.61	1.32	1.32 1.32	1.32	1.61	1.32	1.32
Initial Bse:	9 301	641	0 304	16	7 0	12	775	41	8
User Adj:	1.00 1.00	0.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92 0.92	0.00	0.92 0.92	0.92	0.92 0.92	0.92	0.92	0.92	0.92
PHF Volume:	10 327	0 0	331 17	7 0	13	842	44	9	
Reduc Vol:	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	
Reduced Vol:	10 327	0 0	331 17	7 0	13	842	44	9	
PCE Adj:	1.00 1.00	0.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00 1.00	0.00	1.00 1.00	1.00	1.00 1.00	1.00	1.00	1.00	1.00
Final Vol.:	10 327	0 0	331 17	7 0	13	842	44	9	

Saturation Flow Module:

Sat/Lane:	1800 1800	1800 1800	1800 1800	1800 1800	1800 1800	1800 1800	1800 1800	1800 1800	1800 1800
Adjustment:	0.88 0.88	1.00 1.00	0.92 0.92	0.92 0.92	0.88 1.00	0.88 0.93	0.93 0.93	0.93 0.93	0.93 0.93
Lanes:	0.06 1.94	1.00 0.00	1.90 0.10	0.10 0.36	0.00 0.64	0.64 1.89	0.09 0.09	0.02 0.02	0.02 0.02
Final Sat.:	94 3060	1800 0	3164 165	565 0	1017 3177	3177 158	31		

Capacity Analysis Module:

Vol/Sat:	0.11 0.11	0.00 0.00	0.10 0.10	0.01 0.00	0.01 0.26	0.28 0.28	0.28 ****
Crit Moves:	****	****	****	****	****	****	****
Green/Cycle:	0.23 0.23	0.00 0.00	0.23 0.23	0.03 0.00	0.03 0.62	0.62 0.62	0.62
Volume/Cap:	0.46 0.46	0.00 0.00	0.45 0.45	0.46 0.00	0.46 0.43	0.46 0.46	0.46
Delay/Veh:	33.3 33.3	0.0 0.0	33.1 33.1	55.2 0.0	55.2 10.1	10.1 10.3	10.3
User DelAdj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00
AdjDel/Veh:	33.3 33.3	0.0 0.0	33.1 33.1	55.2 0.0	55.2 10.1	10.1 10.3	10.3
HCM2KAvg:	5 5	0 0	5 5	1 0	1 7	7 8	8

Appendix I

Queuing Analysis Results

Project Name: Milton-Freewater STA and TSP update
 Project #: 6743
 Analysis Scenario: Existing Conditions
 Analysis Period: 0.25 (peak 15 minute analysis)
 Analyst: JRP
 Date: June 2, 2005

V = flow rate for movement
 C = capacity of movement
 Q = 95th percentile queue (veh)
 S = storage need (ft)

of Int: 8
 Veh. Length (ft): 25

* Queue length calculated using Equation (17-37) presented in *Highway Capacity Manual 2005*

	EB Shared	WB Shared	WB RT	WB LT
ORE 11/ SW 14th Ave.	C Q S		189 529 1.6 50	11 158 0.2 25
ORE 11/ SW 12th Ave.	25 C Q S	17 344 0.2 25		
ORE 11/ SW 10th Ave.	32 C Q S	30 317 0.3 25		
ORE 11/ SW 9th Ave.	17 C Q S	22 266 0.3 25		
ORE 11/ SW 8th Ave.	41 C Q S	6 140 0.1 25		
ORE 11/ SW 7th Ave.	42 C Q S			
ORE 11/ SW 4th Ave.	7 C Q S	22 486 0.1 25		

Project Name: Milton-Freewater STA and TSP update
 Project #: 6743
 Analysis Scenario: 2004 Conditions - Three Lanes
 Analysis Period: 0.25 (peak 15 minute analysis)
 Analyst: JRP
 Date: June 2, 2005

of Int: 8
 Veh. Length (ft): 25

* Queue length calculated using Equation (17-37) presented in *Highway Capacity Manual 200*

V = flow rate for movement
 C = capacity of movement
 Q = 95th percentile queue (veh)
 S = storage need (ft)

	EB Shared	WB Shared	WB RT	WB LT
ORE 11/ SW 14th Ave.	C Q S		189 533 1.6 50	11 110 0.3 25
ORE 11/ SW 12th Ave.	C Q S	25 116 0.8 25	17 268 0.2 25	
ORE 11/ SW 10th Ave.	C Q S	32 106 1.2 50	30 223 0.5 25	
ORE 11/ SW 9th Ave.	C Q S	17 138 0.4 25	22 182 0.4 25	
ORE 11/ SW 8th Ave.	C Q S	41 92 1.9 50	6 93 0.2 25	
ORE 11/ SW 7th Ave.	C Q S	42 164 1.0 25		
ORE 11/ SW 4th Ave.	C Q S	7 119 0.2 25	22 352 0.2 25	

Project Name:	Milton-Freewater STA and TSP update
Project #:	6743
Analysis Scenario:	2025 Conditions - Four Lanes
Analysis Period:	0.25 (peak 15 minute analysis)
Analyst:	JRP
Date:	June 2, 2005

V = flow rate for movement

C = capacity of movement

Q = 95th percentile queue (veh)

S = storage need (ft)

of Int: 8
Veh. Length (ft): 25

* Queue length calculated using Equation (17-37) presented in *Highway Capacity Manual 200*

	EB Shared	WB Shared	WB RT	WB LT
ORE 11/ SW 14th Ave.	C		249	15
	Q		419	78
	S		3.7	0.7
			100	25
ORE 11/ SW 12th Ave.		35	23	
	C	84	209	
	Q	1.7	0.4	
	S	50	25	
ORE 11/ SW 10th Ave.		41	39	
	C	81	188	
	Q	2.2	0.8	
	S	75	25	
ORE 11/ SW 9th Ave.		21	29	
	C	108	153	
	Q	0.7	0.7	
	S	25	25	
ORE 11/ SW 8th Ave.		54	9	
	C	67	66	
	Q	3.8	0.4	
	S	100	25	
ORE 11/ SW 7th Ave.		58		
	C	129		
	Q	2.0		
	S	50		
ORE 11/ SW 4th Ave.		10	30	
	C	90	341	
	Q	0.4	0.3	
	S	25	25	

Project Name: Milton-Freewater STA and TSP update
 Project #: 6743
 Analysis Scenario: 2025 Conditions - Three Lanes
 Analysis Period: 0.25 (peak 15 minute analysis)
 Analyst: JRP
 Date: June 2, 2005

V = flow rate for movement
 C = capacity of movement
 Q = 95th percentile queue (veh)
 S = storage need (ft)

of Int: 7
 Veh. Length (ft): 25

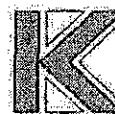
* Queue length calculated using Equation (17-37) presented in *Highway Capacity Manual 2000*

	EB Shared	WB Shared	WB RT	WB LT
ORE 11/ SW 14th Ave.	C		249	15
	Q		422	49
	S		3.7	1.1
			100	50
ORE 11/ SW 12th Ave.	C	35	23	
	Q	54	152	
	S	2.6	0.5	
		75	25	
ORE 11/ SW 10th Ave.	C	41	39	
	Q	46	117	
	S	3.6	1.3	
		100	50	
ORE 11/ SW 9th Ave.	C	21	29	
	Q	65	91	
	S	1.2	1.2	
		50	50	
ORE 11/ SW 8th Ave.	C	54	9	
	Q	141	144	
	S	1.6	0.2	
		50	25	
ORE 11/ SW 7th Ave.	C	58		
	Q	87		
	S	3.2		
		100		
ORE 11/ SW 4th Ave.	C	10	30	
	Q	61	266	
	S	0.5	0.4	
		25	25	

SIGNALIZED QUEUE ANALYSIS

Project Name:
Project Number:
Analyst:
Date:
Filename:

Malton-Freeewater STA and TSP update
5743
JRP
6/2/2005
H:\profile\5743\excel\Sig Queue2025\Four.xls|SIGQUEUE



KITTELSON & ASSOCIATES, INC.
610 SW Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230
Fax: (503) 273-8169

Intersection:
Conditions (yr, alt., etc.):

ORE 10/SW 2nd Ave
2004 Four Lane

GENERAL INPUT PARAMETERS:

Cycle Length:	100 sec
Confidence Level (C.L.):	95%
Storage length/vehicle:	25 feet

APPROACH/MOVEMENT							
#1 NB/LT	#2 NBTH/LT	#3 SB/LT	#4 SBTH/LT	#5 EB/LT	#6 EB-Shared	#7 WB-Shared	#8
INPUT PARAMETERS:							
Volume (pre-PHF) (vph):	256		264		15	879	
G/C for movement:	0.24		0.24		0.02	0.62	
Number of lanes:	2		2		1	2	
CALCULATIONS:							
Length of red interval (sec):	76.0		76.0		98.0	38.0	
Average total queue (veh):	5.4		5.6		0.4	7.2	
Maximum total queue (veh):	9		10		2	12	
Total queue length (feet):	225		250		50	300	
Required storage/lane (feet):	125		125		50	150	
PERMITTED LEFT TURNS:							
Opposing volume (pre-PHF):							
Opposing sat. flow rate:							
CALCULATIONS:							
Opposing flow ratio (Yo):							
Unblocked G/C:							
Effective red interval (sec):							
Average total queue (veh):							
Maximum total queue (veh):							
Total queue length (feet):							
Required storage/lane (feet):							

METHODOLOGY AND FORMULAS USED:

$$\text{Length of red interval} = (1 + \frac{1}{G/C}) \times \text{Cycle length}$$

$$\text{Queue length} = \text{Maximum queue} \times \text{Storage length per vehicle}$$

$$\text{Average queue/line} = \text{Volume} \times \text{Red Interval} / 3600$$

$$\text{Required storage per lane} = \text{Queue length} / \text{Number of lanes}, \text{rounded up to the next highest integer value}$$

Maximum queue: Random arrival/Constant service

Opposing flow ratio (Yo): Opposing volume/volume of opposing red flow rate

Random arrivals behave according to a Poisson distribution.

$$\text{Unblocked G/C (u/G/C)} = (y/C - Yo)(1 - Yo)$$

There is a probability equal to the confidence level (e.g. 95%)

that the queue formed during each red interval will be less than

or equal to the maximum queue

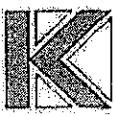
$$(Prob. of arrival > N) = e^{-\lambda t} \times e^{-\lambda t} \times \lambda^N / N! \quad (\text{Poisson distribution})$$

$$(Prob. of arrival > N) = 1 - \text{Sum of probabilities for } N=1, 2, \dots, N-1$$

$$\text{Max } N = \text{Highest } N \text{ such that the sum of probabilities is } (1 - \text{confidence level})$$

SIGNALIZED QUEUE ANALYSIS

Project Name:
Milwaukie-Portland STA and TSP Update
Project Number:
6143
Analyst:
JPF
Date:
6/2/2005
Filename:
<http://pdx.oregonstate.edu/~Sig/Queue2005For.xls#QUEUE>



KITTELSON & ASSOCIATES, INC.
610 SW Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230
Fax: (503) 273-8169

Intersection:
ORE 117 SW 2nd Ave
Conditions (yr, alt., etc.):
2004 (Three Lane)

GENERAL INPUT PARAMETERS:

Cycle Length:	100 sec
Confidence Level (C.L.):	95%
Storage length/vehicle:	25 feet

APPROACH/MOVEMENT								
#1 NBLT	#2 NBTHL	#3 SBST	#4 SBTHRT	#5 EBLT	#6 EB Shared	#7 WB Shared	#8 WBHT	
INPUT PARAMETERS:								
Volume (pre-PHF) (vph):	250			264		15	379	
G/C for movement:	0.24			0.24		0.02	0.62	
Number of lanes:	1			1		1	2	
CALCULATIONS:								
Length of red interval (sec):		76.0		76.0		98.0	38.0	
Average total queue (veh):	5.4		5.6		0.4		7.2	
Maximum total queue (veh):	9		10		2		12	
Total queue length (feet):	225		250		50		300	
Required storage/lane (feet):	225		250		50		150	
PERMITTED LEFT TURNS:								
Opposing volume (pre-PHF):								
Opposing sat. flow rate:								
CALCULATIONS:								
Opposing flow ratio (γ_0):								
Unblocked G/C:								
Effective red interval (sec):								
Average total queue (veh):								
Maximum total queue (veh):								
Total queue length (feet):								
Required storage/lane (feet):								

METHODOLOGY AND FORMULAS USED:

$$\text{Length of red interval} = \left(1 - \frac{\text{Cycle Length}}{\text{Opposing Saturation Flow}}\right) \times \text{Cycle Length}$$

$$\text{Average total queue} = \text{Queue length} / \text{Red Interval}$$

Maximum queue: Random arrival/Constant service

Random arrivals behave according to a Poisson distribution.

There is a probability equal to the confidence level desired (e.g. 95%)

that the queue formed during such a red interval will be less than,

or equal to the maximum queue.

$$\text{Queue length} = \text{Maximum queue} \times \text{Storage length per vehicle}$$

$$\text{Required storage per lane} = \text{Queue length} / \text{Number of lanes}, \text{ rounded up to the next highest whole vehicle.}$$

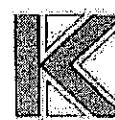
$$\text{Opposing flow ratio } \gamma_0 = \text{Opposing volume vs / Opposing sat. flow rate}$$

$$\text{Unblocked G/C} = \text{G/C} - \gamma_0 \cdot \text{G/C} = \gamma_0 / (1 - \gamma_0)$$

$$\begin{aligned} \text{Probability of } N > N_{\text{req}} &= \text{Prob}(N \geq N_{\text{req}}) = 1 - \text{Prob}(N \leq N_{\text{req}}) \\ \text{Prob}(N \leq N_{\text{req}}) &= 1 - \text{Sum of probabilities for Vehicles } 0, 1, \dots, N_{\text{req}} \\ \text{Max } N &\text{ such that the sum probabilities} > 1 - \text{confidence level} \end{aligned}$$

SIGNALIZED QUEUE ANALYSIS

Project Name: Milton Freewater STA and TSP Update
 Project Number: 6743
 Analyst: JRP
 Date: 6/2/2005
 Filename: H:\proj\6743\ex\01\Sig Queue2005\Fcar.xls\SIGQUEUE



KITTELSON & ASSOCIATES, INC.
 610 SW Alder, Suite 700
 Portland, Oregon 97205
 (503) 228-5230
 Fax: (503) 273-8169

Intersection: GRE 117 SW 2nd Ave
 Conditions (yr, alt., etc.): 2025 Four-lane

GENERAL INPUT PARAMETERS:

Cycle Length:	100 sec
Confidence Level (C.L.):	95%
Storage length/vehicle:	25 feet

INPUT PARAMETERS:

Volume (pre-PHF) (vph):
 G/C for movement:
 Number of lanes:

CALCULATIONS:

Length of red interval (sec):
 Average total queue (veh):
 Maximum total queue (veh):
 Total queue length (feet):
 Required storage/lane (feet):

PERMITTED LEFT TURNS:

Opposing volume (pre-PHF):
 Opposing sat. flow rate:

CALCULATIONS:

Opposing flow ratio (γ_0):
 Unblocked G/C:
 Effective red interval (sec):
 Average total queue (veh):
 Maximum total queue (veh):
 Total queue length (feet):
 Required storage/lane (feet):

APPROACH/MOVEMENT								
#1	#2	#3	#4	#5	#6	#7	#8	
NBLT	NETHALT	SBLT	SBTH/RT	EBLT	EB-Shared	WB-Shared	WBTH/RT	
		337	245		20	895		
	0.24	0.24	0.24		0.02	0.62		
	2	2	2		1	2		
		76.0	76.0		98.0	38.0		
		7.1	7.3		0.5	9.4		
		12	12		2	15		
		300	300		50	375		
		150	150		50	200		

METHODOLOGY AND FORMULAS USED:

Length of red interval = $(1 - G/C) \cdot \text{Cycle length}$

Average queue/lane = Volume / Red Interval / 3600

Maximum queue: Random arrival/Constant service

Random arrivals between according to a Poisson distribution

There is a probability equal to the confidence level desired (e.g. 95%)

that the queue formed during each red interval will be less than or equal to the maximum queue.

Opposing volume / Maximum queue * Storage length per vehicle

Opposing storage per lane * Opposing volume / Number of lanes, rounded up to the next highest whole vehicle

Opposing flow rate = Opposing volume / Red Interval / 3600

Unblocked G/C ($g_u C$) = $(gC - \gamma_0)(1 - \gamma_0)$

$P(\text{no. arrivals} = N) = (\text{Red Interval} N)^{\text{exp}(-N)} / N!$ (the Poisson distribution)

$P(\text{no. arrivals} \leq N) = 1 - P(\text{no. arrivals} < N + 1) = 1 - e^{-N}$

Max N = Highest N such that the sum of probabilities $> (1 - \text{confidence level})$

SIGNALIZED QUEUE ANALYSIS

Project Name:
Project Number:
Analyst:
Date:
Filename:

Milton-Fremont STA and TSP Update
5743
JBP
6/2/2005
H:\profile\5743\excel\Sig Queue2025Four.xls|SIGQUEUE

KITTELSON & ASSOCIATES, INC.
610 SW Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230
Fax: (503) 273-8169

Intersection:
Conditions (yr., alt., etc.):

ORE 11/SW 2nd Ave.
2025 three lane

GENERAL INPUT PARAMETERS:

Cycle Length:	100 sec
Confidence Level (C.L.):	95%
Storage length/vehicle:	25 feet

INPUT PARAMETERS:

Volume (pre-PHF) (vph):
G/C for movement:
Number of lanes:

CALCULATIONS:

Length of red interval (sec):
Average total queue (veh):
Maximum total queue (veh):
Total queue length (feet):
Required storage/lane (feet):

PERMITTED LEFT TURNS:

Opposing volume (pre-PHF):
Opposing sat. flow rate:

CALCULATIONS:

Opposing flow ratio (Yo):
Unblocked G/C:
Effective red interval (sec):
Average total queue (veh):
Maximum total queue (veh):
Total queue length (feet):
Required storage/lane (feet):

APPROACH/MOVEMENT							
#1	#2	#3	#4	#5	#6	#7	#8
NBLT	NBTMFT	SBET	SBTHRT	EBLT	EB:Shared	WBET	WBTHRT
		337	348		20	695	
	0.24	0.24	0.24		0.02	0.62	
		1	1		1	2	
		76.0	76.0		98.0	38.0	
		7.1	7.3		0.5	9.4	
		12	12		2	15	
		300	300		50	375	
		300	300		50	200	

METHODOLOGY AND FORMULAS USED:

$$\text{Length of red interval} = (1 - \text{G/C}) * \text{Cycle length}$$

$$\text{Queue length} = \text{Maximum queue} * \text{Storage length per vehicle}$$

$$\text{Average queue/lane} = \text{Volume} * \text{Red interval} / 3600$$

$$\text{Required storage per lane} = \text{Queue length} / \text{Number of lanes, rounded up to the next highest whole vehicle}$$

Maximum queue: Random arrival/constant service

Random arrivals follow according to a Poisson distribution

There is a probability equal to the confidence level required (e.g. 95%)

That the queue formed during each red interval will be less than or equal to the maximum queue.

Or equal to the maximum queue.

Opposing flow ratio Yo = opposing volume / opposing sat. flow rate sOp

$$(\text{Prob. of arrival} < N) = (\text{Red interval} * \text{cycle}) / N! \text{ (the Poisson distribution)}$$

$$\text{Prob. of arrival} < N = 1 - \text{Sum of probabilities for vehicles } 0, 1, \dots, N$$

$$\text{Max N} = \text{Highest N such that the sum of probabilities} < 1 \text{ (confidence level)}$$

$$\text{Unblocked G/C (g/C)} = (\text{g/C} - \text{Yo}) / (1 - \text{Yo})$$

Memorandum



17355 SW Boones Ferry Rd
Lake Oswego, OR 97035
Phone (503) 635-3618
Fax (503) 635-5395

To: Milton Freewater Client
From: Kay Van Sickel, Kate Schwarzler
Copies: Milton-Freewater TAC
Date: June 6, 2005
Subject: Funding Memorandum
Project #: 12679

Funding Options

The Milton-Freewater streetscape improvement project can be funded by a variety of sources, including urban renewal funds and Community Development Block Grant (CDBG) grants and other federal and state program which are identified in this memo. Federal funds for transportation and infrastructure improvements are derived through the Economic Development Administration (EDA), the Housing and Urban Development Administration (HUD), and through the US Department of Transportation, Federal Transportation Administration (FTA). Access to federal grants is typically obtained through county or state governmental bodies, such As the Oregon Economic Development Department and Oregon Department of Transportation.

State funding, financing, and technical assistance are provided through Oregon Economic Development (OEDD), Oregon Department of Transportation (ODOT) and other programs. The following matrix provides a comprehensive list of funding "possibilities" available for consideration on the streetscape project.

Funding Source / Contact	Program Description
Grants	
Transportation Enhancement Program Contact: Pat Rogers Fisher 503-986-3528	<p>The Transportation Enhancement program provides federal highway funds for projects that strengthen the cultural, aesthetic, or environmental value of our transportation system. The funds are available for twelve "transportation enhancement activities" specifically identified in the Transportation Equity Act for the 21st Century (TEA-21). These activities fall into four main groups:</p> <ul style="list-style-type: none"> • Pedestrian and Bicycle Projects • Historic Preservation related to surface transportation • Landscaping and Scenic Beautification • Environmental Mitigation (highway runoff and wildlife protection only) <p>The intent of the program is to fund special or additional activities not normally required on a highway or transportation project. So far, Oregon has funded more than 150 projects for a total of \$63 million.</p> <p>Transportation Enhancement or "TE" projects are selected through a competitive process. The funds are provided through reimbursement, not grants. Participation requires matching funds from the project sponsor, at a minimum of 10.27%. Applications are accepted only from public agencies. Private organizations may apply in partnership with a local, state or federal agency, or Indian tribe. All projects must have a direct relationship to surface transportation. (\$ of grant awards: vary)</p>
Pedestrian and Bicycle Improvement Grant Program Contact: Michael Rónkin, (503) 986-3555	<p>www.odot.state.or.us/techserv/engineer/pdu/enhancement/program%20information/enhanceoct02.htm</p> <p>ODOT's Bicycle and Pedestrian Program administers two grant programs to assist in the development of walking and bicycling improvements: local grants and Small-Scale Urban Highway Pedestrian Improvement programs. For both these grants, cities that have adopted plans with identified project will be in the best position. Grant funds for highways, county roads and local streets where improvements are needed for bicycle and pedestrians and/or bicyclists. Eligible project types include: ADA upgrades; completing short sections of missing sidewalks or bike lanes; street crossing improvements; intersection improvements; and minor widening for bike lanes or shoulders. Grant awards up to \$100,000 based on past trends.</p> <p>http://www.odot.state.or.us/techserv/bikewalk/funding.htm</p>

Funding Source / Contact	Program Description
21st Century Community Fund	The 21 st Century Community Fund leverages existing revenues from both the Oregon Lottery and transportation funds to invest in affordable housing, transportation, water, sewer, and main streets. This fund specifically targets rural and economically distressed communities, providing funding for passenger rail and connecting buses, elderly and disabled transit services, access and right-of-way purchase, and improvements to the local street network.
Oregon Special Public Works Fund	The Special Public Works Fund, through OECDD, distributes grant and loan assistance from the Oregon Lottery for economic development projects in communities throughout the state. To be awarded funds, a project must support businesses wishing to relocate, expand, or remain in Oregon. SPWF awards can be used for improvement, expansion, and new construction of transportation facilities. The SPWF emphasizes loans to assure that funds will return to the state over time for reinvestment in other local economic development projects.
Oregon Transportation Infrastructure Bank	The Oregon Transportation Infrastructure Bank is a project financing tool for Oregon communities to help meet need for transportation system maintenance and improvements. As a project financing tool, the OTIB works much like a private bank. It provides project loans and a range of credit enhancement services to help finance eligible transportation projects. Eligible projects are projects that meet federal-aid highway criteria or meet the definition of a transit capital project. The OTIB has approved loans varying in size from \$170,000 to \$5 million.
Economic Development Administration Community Development Block Grants	Construction and/or improvement of a wide variety of facilities and infrastructure that will primarily benefit low-moderate income persons. Grants and loans for projects that benefit low and moderate income households. Section 108 loans can leverage \$1m or more but have strict procurement rules. Eligible project types typically include infrastructure and in particular ADA and pedestrian accessibility improvements. (\$ of grant awards: vary)
Oregon Community Block Grant Program Contact: Michelle Bilberry 503.986.0142	Grants for infrastructure improvements needed to support a business that will create or retain permanent jobs, the majority of which will be made available to low and moderate income workers. For public infrastructure projects, the ratio is one job per \$20,000 invested. (\$ of grant awards: vary) http://www.econ.state.or.us/cdbg.htm
Immediate Opportunity Grant Program	The Oregon Economic and Community Development Department (OECDD) and ODOT administer a program designed to assist local and regional economic development. The primary factors in determining eligible projects for the immediate Opportunity Fund Program are improvement of public roads, inclusion of an economic development-related project of regional significance, creation or retention of primary employment, and ability to provide local funds (50/50) to match grant. The maximum amount of any grant under the program is \$500,000.

Funding Source / Contact	Program Description
USDA Grants	Grants and loans for rural infrastructure along with loans to distressed communities. (\$ of grant awards: vary) /www.rurdev.usda.gov/rd/nofas/index.html
Urban Forestry Grants	The Oregon Department of Forestry's Urban and Community Forestry Unit supports the stewardship of Oregon's urban and community forests. Through the Urban Forestry activities, on-site technical and financial assistance is available for communities, nonprofit groups, and civic organizations who want to plant and maintain trees within their urban areas, especially street trees.
ODOT Special City Allotment (SCA) Programs	The Legislature mandated \$1 million in state gas taxes to be distributed annually among cities with populations of less than 5,000. ODOT sets the distribution and dollar amount by agreement with the League of Oregon Cities. Half of the funds come from the cities' share of gas tax revenues and the half comes from ODOT's share of the State Highway Fund. Locals can receive \$25,000, one-half the maximum grant amount, up front, with final payment due upon completion of the project. Payments are included in the expenditure budget for Local Government in the Highway Program. (Note: A similar program exists for small counties. However, funds are transferred directly and are not contained as a budget expenditure.) http://www.odot.state.or.us/lgs/funding.html
Low Interest Loans	
Oregon Transportation Infrastructure Bank Contact: Paul O. Cormier (503)986-3921	The OTIB is a statewide revolving available to port districts to fund long-term (up to 30-years) low interest loans designed to promote innovative transportation funding solutions. Project must be Federal-Aid eligible (this may require re-designation of access road to achieve appropriate status). Eligible costs include engineering, environmental permitting, right-of-way, construction and project management. http://www.oregon.gov/ODOT/CS/FS/otib.shtml
Special Public Works Fund Contact: Tom Meek 503-986-0134	The Special Public Works Fund program provides funding for the infrastructure that supports job creation in Oregon. Loans and grants are made to eligible public entities for the purpose of studying, designing and building public infrastructure that leads to job creation or retention. The 2001 Legislative Assembly expanded the program to help municipalities cope with financial loss associated with natural disasters. For emergency projects eligible municipalities can apply for funding to meet the match required to receive federal funds.

Funding Source / Contact	Program Description
	http://www.econ.state.or.us/spwf.htm
USDA Loans	<p>Grants and loans for rural infrastructure along with loans to distressed communities.</p> <p>http://www.rurdev.usda.gov/rd/nofas/index.html</p>
Local	
Local Capital Improvement Program	<p>City can fund public facilities using general funds or dedicated revenues. However, this is not usually applicable, since general funds are usually "over committed" by various city services.</p>
Local Property Tax Levies	<p>City can fund roads, schools, parks, and other facilities through voter-approved referendums, subject to Oregon law. Typically the <u>primary revenue source</u> for local governments to upgrade public infrastructure. Property taxes go into general fund operations and are not used in most Oregon cities for street improvements or maintenance. Not usually a viable of funding for single projects that cost less than \$2,000,000.</p>
Gas Tax Revenues	<p>In Oregon, the state collects gas taxes, vehicle registration fees, overweight and overheight fines, and truck taxes and returns a portion of the revenues to cities and counties. Oregon cities typically use their state gas tax allocation to fund street construction and maintenance. However, <u>these funds can be used to make any transportation-related improvements only within the public right-of-way, including sidewalks, intersection upgrades for pedestrians and bicycle lanes.</u></p>
Local System Development Charges	<p>Development impact fees, directly related to the proportional share of capital costs. Becoming an increasingly popular way to <u>fund public works</u> infrastructure needed for new development. Applicable to sewer and water systems.</p>
Transportation System Development Charges (SDC)	<p>A transportation system development charge or traffic impact fee can be charged to new development to pay for infrastructure improvements needed to serve new development. Cities throughout Oregon <u>use transportation system development charges or impact fees to assist in funding traffic improvements related to the development.</u></p>
Reimbursement District or Zone of Benefit District	<p>Public or private entities that build road systems can be compensated by future property owners at a proportional rate, as development occurs. Usually limited to private construction of roads, this mechanism <u>can be useful for public/private developments</u></p>
Advanced Financing Agreements	<p>Private entities that build public facilities can be compensated by the city as development occurs. Limited to private construction of public facilities, this mechanism is useful for public/private developments.</p>

Funding Source / Contact	Program Description
Local Improvement District (LID)	LIDs can be formed by petition and subsequent legislative action under Oregon Law. They are often used to finance public infrastructure (roads, sidewalks, bikeways, sewer, water, etc.) using guaranteed payments from affected properties with a lien placed on those properties until the LID share is paid off. They typically require at least 51% of affected properties to approve the LID.
Urban Renewal District	Urban Renewal Districts can be formed by legislative action under Oregon law (with acknowledgment of an Urban Renewal Plan). Project financing is secured through dedication of increases in tax increment revenues in the affected district. Within an Urban Renewal District boundary, property taxes are collected at a rate that is frozen at the time of creation. Increases in the property taxes create the increment financing and are earmarked for special capital improvement projects within the district. The City of Milton-Freewater currently has an Urban Renewal District.
Economic Improvement District	An Economic Improvement District is a funding mechanism where the assessments are based on property assessment values or are a simple fee on property. EIDs cannot fund capital improvement projects, but they generally fund smaller projects and programs that can complement larger downtown improvements. EIDs are limited to a five-year duration and can be renewed.
Business Improvement District	A Business Improvement District works much the same as an EID, except that the assessments are paid by business owners rather than property owners. BIDs cannot pay for capital improvements, but may fund smaller projects and programs that support other downtown improvements. A BID can have a time limit, or can be perpetual.
General Obligation Bonds (G.O. Bonds)	Bonds are often sold by a municipal government to fund transportation (or other types) of improvements, and are repaid with property tax revenue generated by that local government. Under Measure 50, voters must approve G.O. bond sales with at least a 50 percent voter turnout. Cities all over the state use this method to finance the construction of transportation improvements. For smaller jurisdictions, underwriting costs can become a high percentage of the total financing cost for bond issues. "Bond Pools" such as those associated with the Oregon Infrastructure Bank (see above) assists small jurisdictions by pooling together several small bond issues, thereby achieving economies of scale with lower financing costs.
Revenue Bonds	Revenue Bonds include bonds sold by a city and repaid from an enterprise fund that has a steady revenue stream such as a water or sewer fund. Revenue bonds are typically sold to fund improvements in the system which is producing the revenue. Revenue bonds are a common means to fund large high cost capital improvements with a long useful life. A water or sewage treatment plant are examples where high construction cost over a short period makes it difficult to pay for the project with operating funds. However, the long-term revenue stream from user revenues makes the sale of bonds a viable alternative, with the cost of the facility spread over a long time period.
	Other

Funding Source / Contact	Program Description
Meyer Memorial Trust	<p>In rare instances, foundations or trusts may award grants to help fund civic improvements, including roads, parks and civic buildings. The largest share of the dollars the Trust awards each year is made under the General Purpose Grants program. General Purpose Grants support projects related to arts and humanities, education, health, social welfare, community development, the environment and a variety of other activities. Proposals may be submitted at any time under this program, and there are no limitations on the size or duration of these grants</p> <p>Applicants normally have tax exemption under Section 501(c)(3) of the Internal Revenue Code, and have been determined not to be a "private foundation" under Section 509(a) of the code. The Trust also awards grants to applicants that have federal tax exemption under other designations, such as public schools and government entities.</p> <p>http://www.mmt.org</p>
Private Donations	<p>Donations from individuals or corporations can be collected from cities or 501(c)3 profits to be used for various elements of public street improvements, such as paving (bricks), landscaping and benches.</p>

Site Furnishings

The section below contains information regarding proposed site furnishings (photos are also attached to this memo). The City of Milton-Freewater should continue to use the street lights and tree grates that were selected on prior projects to provide continuity throughout the city.

- Benches: Manufactured by Keystone Ridge Designs (1-800-284-8208), model numbers RE24, RE26, RE28, RE14, RE16, and RE18. Benches, both with backs and without, come in a range of lengths to best suit the specific site placement. Benches can be ordered in a range of colors and can incorporate logos.
- Litter Receptacle: Manufactured by Keystone Ridge Designs (1-800-284-8208), model numbers RE3-22, RE3-32, and RE3-38. The litter receptacle is from the same series as the bench for a coordinated look. The round receptacle was chosen and comes in three different sizes. Litter receptacles can be ordered in a range of colors and can incorporate logos.
- Bicycle Rack: Manufactured by Keystone Ridge Designs (1-800-284-8208), model numbers SN01-3, SN03-5, SN05-7, and SN07-9. The bike rack comes in a variety of lengths to fit specific site applications. Bike racks can be ordered in a range of colors.

- Drinking Fountain: Manufactured by Murdock Fountains (1-800-45-DRINK), model 1776 Old Style.

BENCH | The READING Series



READING

Reading bench with back is covered by patent no. des. 376,771. All other reading pieces are Exclusive to Design Time.

\$760

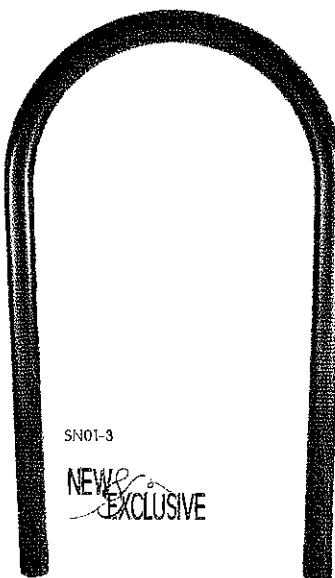
RE24	Reading bench with back 4'	\$510
RE26	Reading bench with back 6'	\$590
RE28	Reading bench with back 8'	\$710
RE14	Reading flat bench 4'	\$440
RE16	Reading flat bench 6'	\$500
RE18	Reading flat bench 8'	\$580
RE2CU6	Reading curved bench with back 6'	\$1215
RE2CU8	Reading curved bench with back 8'	\$1400
RE24-6	Reading flat bench with back	\$5690
RE4-6	Reading flat free bench	\$5890
RE3-22	Reading litter receptacle 22 gal.	\$555
RE3-32	Reading litter receptacle 32 gal.	\$595
RE3-38	Reading litter receptacle 38 gal. NEW EXCLUSIVE	\$745
RE3SQ-32	Reading square litter receptacle 32 gal.	\$305
RE3SQ-38	Reading square litter receptacle 38 gal. NEW EXCLUSIVE	\$355

See KeySelector™ menu system on page 47 for standard features, specifications and options.

BIKE RACKS

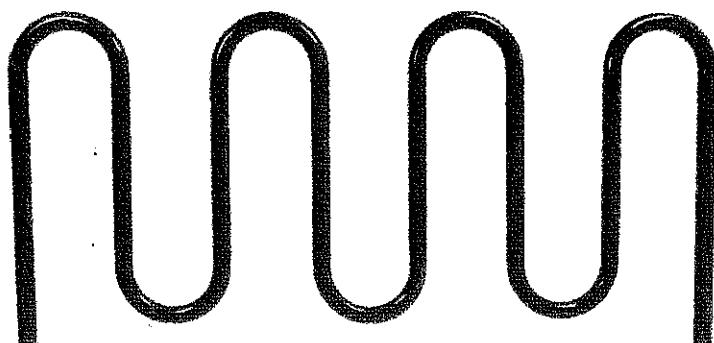


KEYSELEADER™



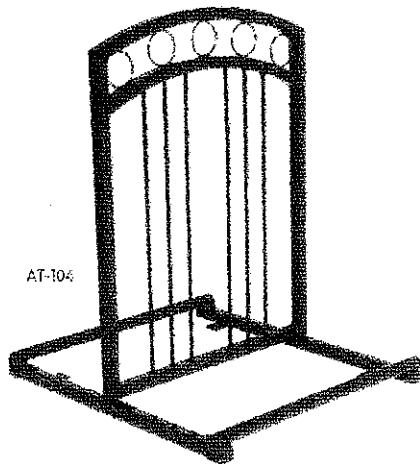
SN01-3

NEW
EXCLUSIVE



SN07-9

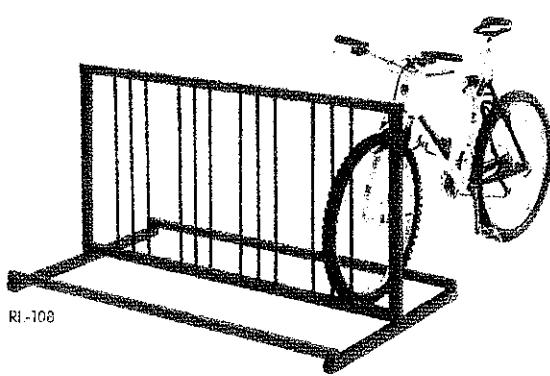
NEW
EXCLUSIVE



AT-104



P-105



RI-108

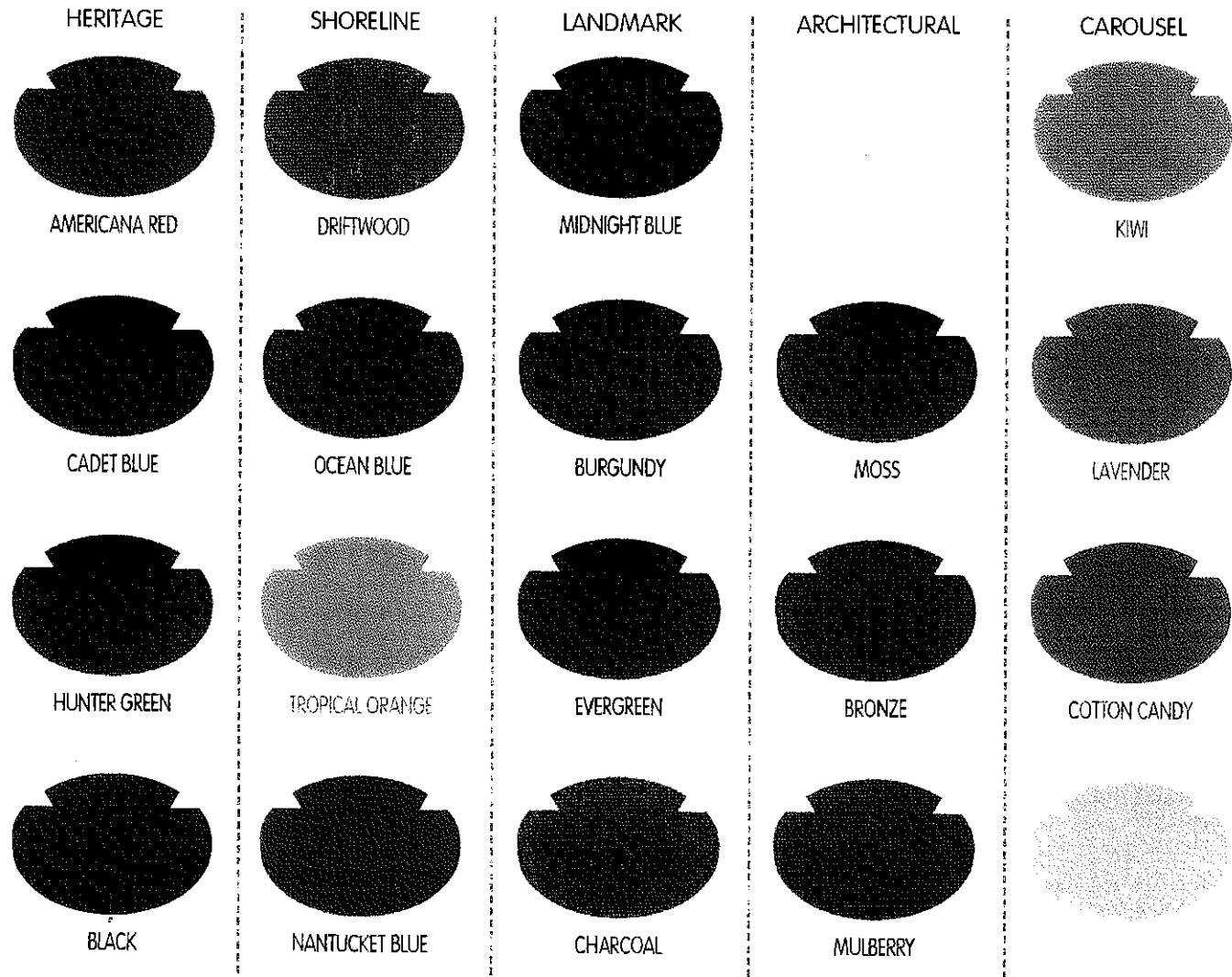
BIKE RACKS

Bike racks are exclusive by design™.

AT-104	Atlanta bike rack capacity 4	\$375
AT-108	Atlanta bike rack capacity 8	\$675
P-105	Ullman bike rack capacity 5	\$350
RI-104	Reading bike rack capacity 4	\$335
RI-106-1	Reading one-sided bike rack capacity 6	\$495
RI-108	Reading bike rack capacity 8	\$435
SN01-3	Sonance one loop bike rack capacity 3	\$215
SN03-5	Sonance three loop bike rack capacity 5	\$425
SN05-7	Sonance five loop bike rack capacity 7	\$495
SN07-9	Sonance seven loop bike rack capacity 9	\$560

See the Keyseleader™ menu system on page 47 for standard features, specifications and options.

KEYSHIELD® Standard Powder Coat Colors



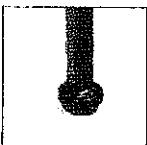
Colors may vary slightly due to printing processes. An additional 160 custom colors and color matching are available upon request. Colors and metal sample available upon request.



SUPPORT OPTION:
Notched



SUPPORT OPTION:
Star anchor anchoring



SUPPORT OPTION:
Glide



SUPPORT OPTION:
Elevated leg



SUPPORT OPTION:
Adjustable leg

CORIAN®



Corian® is a DuPont registered trademark for its
surfacing material. Only DuPont makes Corian®.

sunbrella®

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3MTM. All rights reserved.

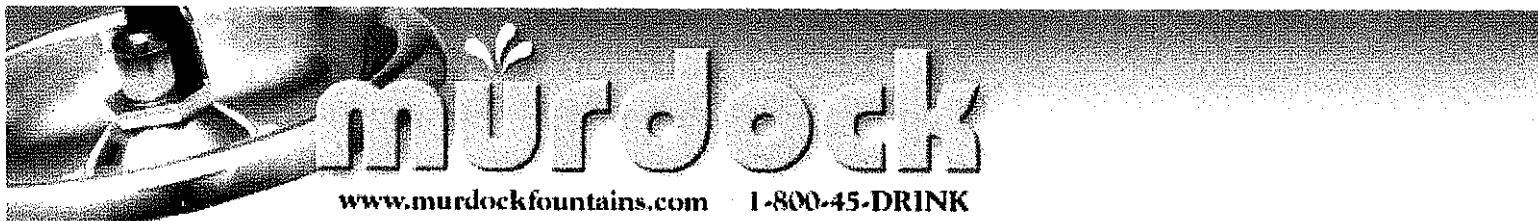
KEYSHIELD® Metal Finish

The KEYSHIELD® finish protects each piece of furniture from chipping, cracking, UVA damage and provides unparalleled corrosion resistance. KEYSHIELD® is a strength, durability and quality - our assurance of armored excellence. Steel products are finished with a two-coat powder coating process applied to a 7-15 mil thickness. Surface preparation includes sandblasting to a white finish to remove all surface contaminants, the ultimate degree in powder coat preparation. The raw product then receives a corrosion-inhibiting phosphating coating, per TIC-99 method I, prior to the application of the powder coating. The first coat applied to the substrate is zinc rich epoxy powder paint used exclusively on sunbrella leg parts. The second coat is a colored polyester powder coating. Both coats are electrostatically applied and oven cured according to powder coating manufacturing specifications to create a smooth, satin-like finish. The result of this two-coat process is an optimum non-porous film that defines the Keystone Ridge Design stamp of quality. Keyshield® is a registered trademark of Keystone Ridge Designs, Inc.

Hardware

Keystone Ridge Designs, Inc. utilizes high-quality hardware standard assembly hardware where applicable. Anchoring hardware, durability specialization required for each installation, is not supplied.





Home
Historical
Fountains
Flush Boxes
Hydrants
Safe Water

Specifications
Auto CAD
Parts
News-Special
Catalog
Q & A



[■ Specifications.pdf](#) [◆ Parts.pdf](#) [● AutoCad.dwg\(download\)](#)

The anti-freezing, pedal operated **1776 Old Style** is a Murdock original design. With a decorative cast iron pedestal and brass polished bowl and bubbler, this fountain is the choice for historic parks or theme settings, and quite popular with streetscapes.

Murdock, Inc.
2488 River Road
Cincinnati, Ohio 45204

Voice: 513.471.7700
Fax: 513.471.3299
E-mail: info@murdockfountains.com

\$ 1500 . 00

Overall, the goals of the STA are to increase the vibrancy of Downtown Milton-Freewater, reduce vehicle travel speeds, increase pedestrian safety, and encourage non-auto modes of transportation.

Preferred Redevelopment Option

Convert Main Street to a three lane facility through the Downtown and Civic Districts.

This option combines converting Main Street to a three-lane facility through the Downtown and Civic Districts while keeping the remaining corridor four lanes and improving it with traffic calming features.

Alternate Redevelopment Option Two

Convert Main Street to a three lane facility.

This option converts the entire length of Main Street to a three-lane facility to slow traffic and provide more public space for pedestrians, bicycles and aesthetic uses.

Alternate Redevelopment Option Three

Maintain Main Street as a four-lane facility and provide curb extensions at key intersections.

This option maintains the existing street cross section while providing additional traffic calming measures throughout the corridor. These features would decrease the crossing distance for pedestrians by providing visual cues for motorists to travel at slower speeds. Curb extensions, street trees, visual cues, light poles, and safer crossing conditions would be implemented.

Traffic Operations

Preferred Redevelopment Option: Convert Main Street to a three lane facility through the Downtown and Civic Districts.

Additional study needs to be performed on this option, but the initial study suggests that it will accommodate the traffic load and the intersections would operate at a normal level.

The City of Umatilla has been discussed as a comparable example. It similarly incorporates two travel lanes with a median and center turn lane through the downtown area. Traffic counts between the two cities are slightly different, but within a comparable range. The City of Milton-Freewater experiences 10,400-13,400 ADT while the City of Umatilla experience between 7,900-9,800 ADT.

Option Two: Convert Main Street to a three lane facility.

According to the report provided by Kittelson & Associates, Inc., with the three lane scenario, all the intersections would continue to operate under capacity during both the weekday a.m. and p.m. peak hour periods.

Option Three: Maintain Main Street as a four-lane facility and provide curb extensions at key intersections.

Implementing traffic calming features would not impact vehicle capacity and therefore the system would operate as forecast in the no-build conditions outlined in the Kittelson & Associates, Inc. report.

Traffic Signals

The City will likely need a strong advocate to get a pedestrian activated crossing signal placed in the Main Street corridor. ODOT may or may not approve a pedestrian activated crossing signal due to traffic volumes that would not reach the threshold for requiring one.

A full traffic signal will likely be hard to justify to ODOT. The community would likely need to close side streets to drive up traffic volumes enough to warrant a signal. For example, if a signal was placed at the intersection of 9th and Main, 8th and 10th streets would need to be closed. Initially it seems unlikely that ODOT would approve a full signal based on existing traffic volumes.

If the City decides to pay for and install an un-warranted traffic or crossing signal, it is likely that they would be required to be responsible for any liabilities (i.e. a pedestrian gets hit in the crosswalk).

Public infrastructure

Parking

It is essential to provide on-street parking in front of businesses in the Downtown and Civic Districts. The higher density of commercial establishments in the area contributes to the high parking demand. For most downtowns, the parking demand is highest during the mid-day period or just after lunchtime in the early afternoon. Public off-street parking is available in the study area and is provided in four off-street parking lots in the corridor. These four lots provide approximately 130 parking spots for public use.

In addition, several private retail/commercial businesses in the study area have dedicated parking spaces for customers and employees. The majority of these lots are found at the north end of the corridor and supply approximately 180 business off-street parking spaces.

In the future, if parking demand increases dramatically, it is possible that the private business parking spaces could be integrated into the public supply as part of an overall parking management plan for downtown.

Access

According to the 1999 OHP, if a section of statewide highway is designated as Special Transportation Area (STA), as planned for ORE 11 through Milton-Freewater, "direct street connections and shared on-street parking are encouraged" and "local auto, pedestrian, bicycle, and transit movement to the area are generally given more importance than the through movement of traffic." In case of public roadway spacing, the existing city block or the city block spacing as identified in the local comprehensive plan is an accepted norm. For private driveways, minimum driveway spacing of 175 feet, measured from center to center on the same side of the roadway is allowed.

A majority of the existing accesses do not meet the ODOT access spacing standard for an STA. Nonetheless, due to the low traffic volume in the area, and historically low number of crashes, the existing accesses are anticipated to operate safely and acceptably. Any future development in the corridor should be encouraged to meet the spacing standard and ensure that proposed driveways operate safely.

Bicycle Facilities

There are currently no striped bicycle lanes through the study area. At the first Public Open House residents voiced strongly that they did think it was appropriate to have striped bike lanes on Main Street. However, there are a few people in support of having bike lanes, striped or un-striped, as part of Main Street.

The existing Right-Of-Way does not have enough room to accommodate the existing four lanes of traffic, parking on both sides of the street and a striped bike lane the entire length of the corridor. Residents were unwilling to give up parking in order to provide bicycle lanes.

The proposed three lane configuration has enough room to accommodate travel lanes, parking on both sides of the street and marked bicycle lanes. However, residents again voiced at the first Public Open House that they did not want bike lanes on Main Street. In all cases they would prefer that bike routes be designated on parallel streets to Main Street, such as Columbia Street and Mill Street.

At the second Open House citizens again voted against incorporating striped bike lanes on Main Street. In addition to safety concerns due to possible conflicts with large trucks, the preferred option incorporates four lanes of traffic which does not allow enough room to also have bike lanes.

Transit

Milton-Freewater recently started bus service again that provides local connection throughout Milton-Freewater as well as connections to Walla Walla. Proposed improvements should accommodate bus facilities and plan for future expansion of the transit system.

Land uses, types, and densities.

The existing land uses, types, and densities found along Main Street are as follows:

Residential Low Density (R-1)

As seen on Figure 1.1, the R-1 zoning district is located on one block on Main Street, just north of City Hall. The intent of R-1 is to provide for larger, more secluded, home site with a maximum of four units per acre.

Residential High Density (R-3)

As seen on Figure 1.1, the R-3 zoning district is located mostly on southern Main Street. The intent of R-3 is to provide the widest range of housing alternatives including multi-family units. A maximum density of 26 units per acre is permitted.

Residential Office (R-O)

As seen on Figure 1.1, the R-O zoning district is located on Main Street, mostly between 7th and 9th Avenues. This zoning district is intended to encourage a compatible mix of residential development and small private or public offices.

The intent of R-O is to allow a mix of office and residential uses while still maintaining the residential character of the neighborhood. This balance must be achieved with all proposals. R-O zone is only allowed when abutted by a commercial zone, 75% of the lots are developed, and at least 50% of the uses are nonconforming in a Residential zone.

Retail and Service Commercial (C-1)

As seen on Figure 1.1, the C-1 zoning district is located on Main Street, in northern Milton-Freewater and between 9th and 13th Avenues. This zoning district is intended to provide for general retail and light service commercial uses such as hair salons, restaurants, and supermarkets.

General Commercial (C-2)

As seen on Figure 1.1, the C-2 zoning district is located on Main Street, between 9th and 11th Avenues. This zoning district provides for commercial services such as auto repair and building supply outlets. The uses in this zone involve heavier traffic than C-1 uses.

Public Lands (PL)

As seen on Figure 1.1, the PL zoning district includes City Hall and the Library on Main Street. The public lands zone provides for a full range of structures, services, and land uses provided by public agencies on publicly-owned land. A Site Plan Review process is used to determine some code requirements.

The following is an existing land use that is not found directly adjacent to Main Street, but is found within the study area:

Residential Medium Density (R-2)

As seen on Figure 1.1, the R-2 zoning district is located on residential streets, a block off Main Street. The intent of R-2 is to provide a greater range of housing types and densities than R-1, while maintaining the character of a single-family neighborhood. Up to 16 units per acre are permitted in R-2.

Impact to codes and policies

The impact to codes and policies is explained in detail in the Zoning Code and TSP Amendments memorandum.

Private or public development projects in the downtown

The Opera House has great potential for becoming a landmark for the downtown area of Milton-Freewater. There are several other buildings listed on the Historic Register in the area and a historic "focus" could be developed as a point of interest for visitors. The historic focus could help draw tourism spending which would in turn support commercial as well as arts, entertainment and recreation and accommodations and food service. The City should develop programs to assist owners and operators of these shops to upgrade their facilities through coordinated efforts which are sensitive to the historic and architectural values.

During the second Open House citizens responded favorably to allowing the residential areas in the Gateway Zones adjacent to Main Street to be allowed to operate home-based businesses. In order for the downtown area to draw more business, flexibility should be given to the corridor to allow businesses to develop while still retaining the unique residential setting.

In addition, lots for potential redevelopment have been identified. Some of the lots are vacant and are ready for redevelopment while other lots are more appropriate for future redevelopment opportunities after their current land use changes.

Potential environmental issues

No potential environmental issues have been discovered at this point of the study that would impact this project.

Preliminary Cost Estimates

Preliminary draft cost estimates are included as part of this report. They are an initial look at the costs and should be used for planning purposes only.



Memo

17355 SW Boones Ferry Road
Lake Oswego, OR 97035
Phone (503) 635-3618
Fax (503) 635-5395

Project: Milton-Freewater
Project No.: 12679
Date: March 28, 2005
From: Kate Schwarzler
Regarding: SHPO Information

According to the State Historic Preservation Office (SHPO), the Opera Building located at the corner of SW 10th Avenue and Main Street does not appear to have any documentation or review regarding placement of the building on the National Register of Historic Places or the State Inventory.

In order to get a building listed, the City would need to contact SHPO and ask for a Preliminary eligibility Evaluation packet. This packet explains the process and has a preliminary information form that needs to be filled out and submitted to SHPO. After the form has been submitted, National Register staff will provide an opinion regarding the potential for the property to meet the National Register eligibility criteria.

Streetscape improvements will need to be coordinated with SHPO prior to and during the engineering phase of the projects. Improvements, depending on the nature of the changes, which do not fit with the historical character or history of Milton-Freewater may impact decisions to be able to create a Historic District in the future. Proposed changes should be as unobtrusive as possible. For example:

- Don't exaggerate bump outs with planters or trees at the corners;
- Brick pavers may be more appropriate than concrete on sidewalks;
- Trees shouldn't obscure buildings (and should be consistent with trees that were there historically, if possible).

Future projects may require the City to go through a review process with SHPO. The City can contact SHPO prior to the start of any future projects to coordinate.

- Kirk Ranzetta (503) 986-0678
- Sarah Jalving (503) 986-0679.

Additional information has been attached to this memo, including:

1. Outline of the process to nominate property for the National Register.
2. National Register Benefits and Restrictions.
3. Historic Survey and Inventory database information.

[Text-Only Site](#)[State Directory](#)[Agencies A-Z](#)[Accessibility](#)**OREGON**[Business](#)[Education](#)[Human Services](#)[Natural Resources](#)[Public Safety](#)[Re](#)

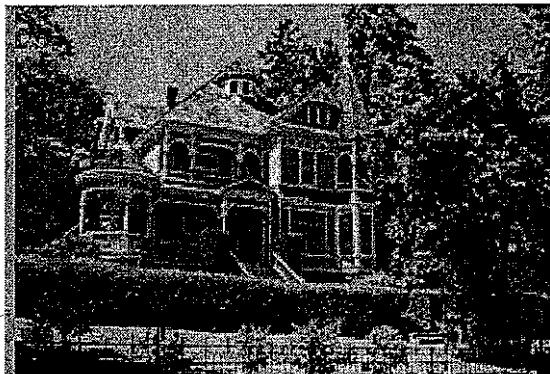
Oregon Parks and Recreation Department: Heritage Conservation: National Register

[Departments](#)[Divisions](#)[Offices](#)[Commissions](#)

National Register of Historic Places

How do I list a property?

Anyone can nominate an historic property to the [National Register of Historic Places](#). However, if the property is privately owned, consent from the property owner is required before the property can be officially listed. In the case of a historic district, a majority of property owners must object in order to stop a listing. Owner consent is not required to list public property, however, we urge anyone who is interested in listing a public property to work closely and collaboratively through the nomination process with the public entity that owns the property.



A successful nomination process can take up to one year from first inquiry. We advise people to allow 100-150 hours to prepare the actual nomination form. The SHPO maintains a list of consultants who research and prepare National Register nominations professionally.

7-Step National Register Nomination Process

1. Contact SHPO

If you are interested in nominating a property for listing in the National Register, the first step is to request the Preliminary Eligibility Evaluation packet by calling 503-986-0672. This packet includes a form that asks for descriptive and historical information about your property. You should complete this form and include some color snapshots of the property's interior and exterior, then return the form and photographs back to us. After evaluating your information, the National Register staff in this office will provide you with a professional opinion about the property's potential for meeting the National Register eligibility criteria.

2. Obtain Bulletins, Forms, and SHPO Supplementary Information

If the property appears to be potentially eligible for listing, we will respond by sending you: **A**) a sample nomination form and National Register Bulletins #15 ("How to Apply the National Register Criteria for Evaluation") and #16A ("How to Complete the National Register Registration Form"). These indispensable bulletins serve as the primary instructions and guidance material for preparing a nomination, a document that must conform to a highly specialized format. (The Oregon SHPO urges nomination preparers to read these bulletins in their entirety before beginning a nomination); and **B**) the Oregon SHPO Supplementary Information form, which clarifies and adds to the federal instructions, but does not replace them. Please note that this supplementary information supplants the state's former technical guide for preparing nominations.

The National Register website has many additional bulletins that you may find helpful. The National Register Registration Form and continuation sheets can also be retrieved from the National Register website; however, the Oregon SHPO provides an preformatted nomination form available in MS Word for your use that you may find easier to work with.

3. Prepare Form

There are many sources that will yield historical information about your property. The process for obtaining that information may differ from jurisdiction to jurisdiction. For information on researching historic properties, you can obtain National Register Bulletin # 39 from at the National Register web site.

A National Register nomination essentially consists of a four-page form and continuation sheets, photographs, and maps. You will find the data necessary to complete the form in National Register

Bulletin #16A ("How to Complete the National Register Registration Form"). A narrative architectural description and a narrative statement of significance follow the form on continuation sheets, and comprise the heart of a nomination. The statement of significance must be completed based on solid research and documentation. The Oregon SHPO strongly encourages the use of footnotes or endnotes when preparing the document.

4. Prepare Photographs

National Register Bulletin #16A ("How to Complete the National Register Registration Form") has explicit instructions about the photographic requirements of a National Register nomination form. The instructions must be followed exactly. In addition, be sure to consult the SHPO's National Supplementary Information on photographs for critical information and clarification on film, paper, processing, and labeling. The National Register has a bulletin on how to take better photographs for nominations.

5. Submit Nomination to the Oregon SHPO

Deadline dates for the submission of nomination materials correspond to the meetings held each year by the State Advisory Committee on Historic Preservation (SACHP). Nomination submission deadlines are as follows: **November 1** for the February meeting, **March 1** for the June meeting, **July 1** for the October meeting. Check the above SACHP link to obtain information on scheduled meeting dates.

Nominations must be received in our office on hard copy no later than the deadline date. Materials we receive by or on the deadline will be considered the final draft submission by the preparer. Partially completed nominations, or placeholders will not be accepted. Materials postmarked on the deadline date will not be accepted.

A nomination may not be scheduled for SACHP review until it is considered adequate to the documentation standards set forth by National Register Bulletin # 16A and the Oregon SHPO Supplementary Instructions. Our staff may request revisions to the nomination document before placing a nomination on the agenda for an upcoming meeting. Preparers are advised that the SACHP may request additional revisions after it has heard the nomination.

6. Make Revisions

When the SACHP approves a nomination, or approves it with conditions, the preparer may be asked to make minor corrections or additions to the document after the meeting. Once those revisions are completed, the nomination is sent back to the SHPO, where staff finalizes the document and ships it to Washington, D.C. office of the National Register. The National Register staff in Washington has 45 days to review the document and either approve or reject the property for listing in the National Register.

7. Receive Notification

Our office is notified of the decision by the Keeper of the National Register between 45 and 60 days after the date that we send the nomination to Washington. Property owners and interested parties are immediately notified of the outcome by a mailing from the SHPO.

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National Register of Historic Places

Results of listing

National Register Benefits and Restrictions

The National Register program is a federal program administered at the state level by the State Historic Preservation Office (SHPO). The regulation of National Register-listed properties in Oregon takes place at the local level. The following benefits and restrictions apply to National Register-listed properties:



Benefits

- **Recognition** Owners may want receive an official certificate of designation and/or purchase an official plaque that can be placed on the building. Both of these are optional.
- **Eligibility for federal tax credit** The SHPO administers a federal tax credit program that can save building owners twenty percent of the cost of rehabilitating their National Register-listed commercial, industrial, or rental residential building. Requirements include submitting a short application form and performing only work that meets appropriate rehabilitation standards. Because tax aspects outlined above are complex, individuals should consult legal counsel, an accountant or the appropriate local Internal Revenue Service office for assistance in determining the tax consequences of the above provisions.
- **Consideration in planning for federal projects** Section 106 of the National Historic Preservation Act of 1966 requires that federal agencies allow for the Advisory Council on Historic Preservation to have an opportunity to comment on all federally licensed, permitted or funded projects affecting historic properties listed in the National Register. The Section 106 Review and Compliance Program is administered by the SHPO.
- **Oregon tax incentive** The Special Assessment for Historic Properties tax incentive program allows owners of properties listed in the National Register of Historic Places to have a "freeze" placed on the assessed value of the property for a 15-year period. The program is designed to assist property owners in the preservation of historic resources. State law establishes a requirement for a public open house once a year, the installation of a property identification plaque, and the option for commercial property owners to apply for an additional 15-year "freeze."
- **Building code leniency** Under Section 3403.5 of the Uniform Building Code/Oregon Structural Specialty Code, National Register properties, and other certified historic buildings, are eligible to be considered for waivers of certain normal code requirements in the interest of preserving the integrity of the property.
- **Grants** Competitive "Preserving Oregon" historic rehabilitation grants are available through the Heritage Conservation Division for properties listed in the National Register of Historic Places.

Restrictions

- **Local Government Protection** No restrictions are imposed by the State of Oregon or the federal government. However, state law does require local governments to offer some level of protection to National Register properties. Properties listed in the National Register of Historic Places are subject to protection under authority of Oregon Revised Statutes 197.772 and Oregon Administrative Rules 660-23-200 relating to historic resources and Statewide Land Use Planning Goal 5. Local jurisdictions (county or city) regulate National-Register-listed properties per their local ordinances, which means restrictions will vary from jurisdiction to jurisdiction. Contact your

local planning bureau to determine the level of regulation in your community.

Special Provisions

Private property owners may object to the listing of their property by sending a notarized letter to that effect to the SHPO prior to final review. Public entities are not allowed to prevent the listing of their properties. In the case of a historic district, a majority of property owners must object in order to stop a nomination. Individual property owners within a historic district may not "opt out" if the majority of owners have not objected. National-Register-listed historic districts, just like individually listed buildings, are subject to whatever local regulations apply (as described above).

Commenting on National Register Nominations

If you wish to comment on the nomination of a property to the National Register, please send your comments to the State Historic Preservation Office before the forthcoming meeting of the State Advisory Committee on Historic Preservation. A copy of the nomination is available from the SHPO upon request.

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Survey and Inventory

Maintaining a statewide inventory of Oregon's historic and archaeological properties is one of the responsibilities of the State Historic Preservation Office as mandated by the National Historic Preservation Act of 1966 and Amendments. The surveys that contribute to this inventory provide important support to citizens, local governments, and federal and state agencies for identifying and protecting Oregon's cultural heritage resources.



Historic Survey and Inventory

A database called the Oregon Historic Inventory contains documents and electronic data from three survey methodologies:

- Historic surveys are conducted by historic preservation professionals often assisted by preservation graduate students or local volunteers. Neighborhood groups, local governments, and state or federal agencies may initiate surveys. Historic surveys are a fundable activity under SHPO's Certified Local Government Grant Program.
- The National Register of Historic Places adds information to the Oregon Historic Inventory from data collected on National Register nomination forms required for the National Register Program.
- The Section 106 Review and Compliance surveys add information to the Oregon Historic Inventory from data collected on forms required for the Section 106 Review and Compliance Program.

The Oregon Historic Inventory is available for research purposes at the SHPO office. To review or conduct research in the Inventory, please make an appointment with SHPO staff by calling 503-986-0672. Simple questions may be answered via telephone. The database is currently undergoing revisions and will be available on this website when completed.

Please note that archaeological survey records and data are housed separately and not integrated into the Oregon Historic Inventory database. See the Archaeological Survey and Inventory section near the bottom of this page.

Contact

Kimberly Dunn, Historic Survey Coordinator
Phone: (503) 986-0670
Fax: (503) 986-0793
E-mail: kimberly.dunn@state.or.us

Historic Survey Publications & Forms

- Historic Survey Program Instruction Manual [[RTF 59 KB](#)] [[PDF 66 KB](#)]
- Historic Survey Instruction Manual Appendices [[RTF 666 KB](#)] [[PDF 107 KB](#)]
- Historic Resource Survey Form [[RTF 93 KB](#)] [[RTF 14 KB](#)]
- Historic Resource Survey Form Continuation Sheets [[RTF 13 KB](#)] [[PDF 10 KB](#)]
- Cover Sheet and Form for Resource Groups or Clusters [[RTF 23KB](#)] [[PDF 11KB](#)]

- Instructions for the Historic Resource Survey Form [RTF 36 KB] [PDF 49 KB]

Archaeological Survey and Inventory

Archaeological surveys are conducted by professional archaeologists and must be done according to the State of Oregon Archaeological Survey and Reporting Standards (see publication below).

All identified archaeological sites (both prehistoric and historic) and isolated finds need to be recorded on Oregon SHPO Archaeological Services' forms. These surveys and site forms must be completed to comply with the federal Section 106 compliance requirements as well as research conducted by universities, private consultants (see publication below), or Tribal archaeologists.

All survey documents are inventoried by the SHPO, and data is added to the archaeological database. Information on known archaeological sites is not available to the general public. Qualified archaeological researchers may make an appointment to search the archaeological files with the SHPO Archaeologist.

Contact

Dennis Griffin, Archaeologist

Phone: (503) 986-0674

Fax: (503) 986-0793

E-mail: dennis.griffin@state.or.us

Archaeological Survey Publications

- State of Oregon Archaeological Survey and Reporting Standards [PDF 151 KB]



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Memorandum



17355 SW Boones Ferry Rd
Lake Oswego, OR 97035
Phone (503) 635-3618
Fax (503) 635-5395

To: Milton Freewater Client
From: Jodie Vice, Todd Chase and Charlotte Larson
Copies:
Date: June 30, 2005
Subject: Economic and Existing Code Analysis
Project #: 12679

INTRODUCTION

This memorandum describes demographic, economic and regulatory conditions within the downtown Milton-Freewater area. This assessment of economic opportunities and constraints takes into account historical growth trends and future projections for market-supportable development and business growth potential.

Work completed by Otak included:

- Conducting a survey among local stakeholders to confirm downtown development and transportation issues, opportunities and constraints;
- Performing a demographic, economic and market assessment to understand downtown development potential for retail, commercial and tourist-related development; and
- Documenting preliminary regulatory issues and local comprehensive plan amendments that would likely be required to optimize development and redevelopment potential in downtown Milton-Freewater.

ECONOMIC ANALYSIS

Local Economic Setting

The Milton-Freewater economy revolves primarily around the regional agricultural-base which includes productive orchards, irrigated row crops and dry land wheat, pea and bean production. Related spin-off industries include food handling, processing, packaging, and shipping. Milton-Freewater's access to Interstate Highway 84, US Route 395, rail and water terminals enables regional agricultural goods to be efficiently shipped nationally, and exported to many countries around the world.

According to the Milton-Freewater Comprehensive Plan, "employment in the agricultural sector has historically been very volatile with most employees laid-off for several months during the

winter and early spring. This problem has eased considerably in recent years as more types of fruit have been introduced which expand the harvest season. Installation of new storage facilities and new processing lines has also allowed local packers and processors to extend employment seasons up to nine or ten months. This has naturally helped to stabilize income and settlement patterns of those employed in harvesting and processing."

Milton Freewater is located ten miles from the shopping districts of Walla Walla, WA (population 48,000). According to the local comprehensive plan, "Milton Freewater retailers lose a large percentage of the local shopping dollar to Walla Walla as residents make the short trip to access larger selection and volume pricing." This situation is accredited with inhibiting growth of the commercial sector particularly in areas as clothing, small and medium household appliances and dry goods.

The sales tax differential between Oregon and Washington provides some benefits to Milton-Freewater commercial businesses as Washington shoppers tend to make large purchases such as major household appliances, electronics and furnishings in Oregon.

Downtown Milton Freewater, like many older downtown locations in the United States has suffered from the development of large format retail centers that tend to be owned by national chains. According to the local comprehensive plan, "owing to its origin as two separate and competing towns, the City has two separate downtown sites, the south being old Milton and the north being old Freewater. The gap between these areas is becoming less of a difficulty as Main Street and Broadway Avenue slowly but perceptibly develop as a commercial entity between the two old downtowns."

The local comprehensive plan recognizes the role of commercial retail strip development along Hwy. 11, north of Main Street. The comprehensive plan indicates that "this commercial area has largely developed since expansion of the highway in 1973. Again, Broadway is developing as a desirable commercial link between this area and the Main Street development."

According to a survey of businesses, most commercial development along Highway 11 appears to be less than 20 years of age and in relatively good physical condition. There also appears to be several infill and redevelopment opportunities within the corridor. The following is a list of local businesses relevant to the study area at the time of the study:

Name	Address
Rite Aid Pharmacies	105 SW 2nd Ave
Nita's Valley Properties Inc	311 S Main
Mike's 2-Way Radio Service	321 S Main
Subway	322 S Main
Dennis Wallen Tax	405 S Main
McDonalds	406 S Main
Conoco Gas/Our Country Market	421 S Main
First Christian Church	518 S Main
Gildersleeve House	604 S Main
Presbyterian Church Grace	703 S Main
7th Day Adventist Church	713 S Main

U-Haul	725 S Main
Century 21 Seaquist & Associates	725 S Main
Keylock Security Storage	725 S Main
George Herbert Photography	801 S Main
Umatilla County Mental Health	808 S Main
Umatilla County Mental Health	810 S Main
Wesley United Methodist Church	816 S Main
Munselle-Rhodes Funeral Home	902 S Main
Sub Shop #38	4 SE 9th
CashCo	903 S Main
Headlines Styling Salon	905 1/2 S Main
Video Superstore	907 S Main
Hot Shots	907 1/2 S Main
LaMona's Ladies Apparel	909 S Main
Atty Millarr, A. Andy	920 S Main
Chevrolet Parts & Service	1003 S Main
Milton-Freewater Bar & Grill	1004 S Main
Liquor Store	1006 S Main
Carpet Warehouse	1008 S Main
Kennedy Mobile Vet	1016 S Main
Chiropractor Turner, Mark F.	1018 S Main
Premier Physical Therapy	1020 S Main
Tortilleria La Calandria	1105 S Main
Car Company	1112 S Main
M & C Machining & Manufacturing	1114 S Main
Zip Trip	1121 S Main
School's Community Credit Union	1221 S Main
Trails West RV Park & Campground	1420 S Main
Star Press	1510 S Main
Gordy Plastics	1530 S Main
Ironhorses	1560 S Main
Humbert Septic Service	1560 S Main
Tree Top Inc.	1565 S Main

The local comprehensive plan recognizes the importance of redeveloping the two downtowns. The plan states that "a pressing commercial need is for redevelopment and upgrading of the two old downtowns. Major revitalization has taken place in the south and north districts. These efforts have helped to bring new businesses and shoppers to the areas. It is vital that other store owners and operators continue the trend started by these projects so that everyone can benefit from increased shopping activity in the community. The city has provided technical help to shopkeepers and the Chamber of Commerce to initiate and assist these efforts. This will remain a high priority."

COMPREHENSIVE PLAN POLICY

Local economic development policies are intended to provide guidance to communities that are considering local initiatives to spur economic growth. The City of Milton Freewater's Comprehensive Plan identified the following economic development policies and conclusions, including:

- Milton Freewater will continue to update and improve its Economic Development Plan.
- The need for commercial lands will be met through the redevelopment potential of 12 acres identified in the buildable lands needs analysis.
- Milton Freewater will encourage efficient use of its commercial lands through the implementation of ordinances to share accesses and maximize parking.
- The proximity of grain from the wheat lands to the south and fruit from the orchard lands to the north appear to present good opportunities for secondary processing of these raw materials into forms such as pies and frozen specialty foods.
- Over-reliance on the orchard district north of the city can result in serious economic hardship in the event of major crop failure from weather or disease. While remaining heavily involved in agriculture, the economy needs to diversify to lower the risk inherent on a limited industrial base.
- Wall Walla and Milton Freewater retail sectors have strengths which can be used to the benefit of both. Cooperative promotion and marketing of the Walla Walla Valley should be a joint effort of both communities.
- The City will continue efforts to assist owners and operators of these shops to upgrade their facilities through coordinated efforts which area sensitive to the historic and architectural values.

MARKET OVERVIEW

Milton Freewater is located in Umatilla County at the southeastern edge of the Columbia River Basin in northeastern Oregon. The City has a population of 6,500 and is located on State Highway 11. The City is located 8 miles south of the Oregon/Washington border. The City has two established downtowns, reflecting the historical towns of Milton and Freewater. Milton is on the south side of the City and Freewater to the north. Outside downtown, commercial development extends along the Highway 11 corridor.

Population

According the US Census Bureau, Milton Freewater's population consisted of 6,470 people residing in 2,504 dwellings during year 2000, up 17% percent from 1990. In comparison, Umatilla County's population consisted of 70,548 people in year 2000, up 19 percent from 1990. Approximately 9 percent of Umatilla County's population resides in Milton Freewater, as indicated on Table 1.

Table 1. Population Trends, 1990, 2000 & 2002

	1990	2000	2004*	% Change 1990-2000	% Change 2000-2004
Milton Freewater	5,553	6,470	6,500	16.9%	0.46%
Umatilla County	59,249	70,548	72,250	19.1%	2.4%

Oregon	2,842,321	3,421,399	3,582,600	20.4%	4.7%	
United States	248,709,873	261,421,906		13.1%	--	

Source: US Census for 1990 and 2000.

* Source: Center for Population Research, Portland State University

According to the Oregon Office of Economic Analysis (2004 population forecast), the Umatilla County population is projected to increase to 90,660 by year 2025. This increase of 18,410, or 25 percent, is slightly below the projected state increase of 29 percent.

Households

There were approximately 2,504 dwelling units counted by the US Census in Milton Freewater during year 2000, which indicates an 11% growth since 1990, as indicated in Table 2. The total housing stock in Umatilla County increased by 14 percent during the 10-year period between 1990 and 2000.

In 2000, the average household size in Milton Freewater was 2.77 people per dwelling compared with 2.67 for Umatilla County and 2.51 for the state of Oregon.

Milton Freewater and Umatilla County both have a greater propensity of owner households than renter households. Tenancy in Milton Freewater was estimated at 62% owner and 38% renter households, compared to statewide tenancy of 64% owner and 36% renter households.

Table 2. Household Trends, 1990 & 2000

1990	Total Hsg Units	Vacant Units	Vacancy Rate
	2,254	155	6.8%
Umatilla County	24,333	2,313	9.5%
Oregon	1,193,567	90,254	7.5%
United States	102,263,678	10,316,268	10.1%
2000	Total Hsg Units	Vacant Units	Vacancy Rate
Milton Freewater	2,504	267	10.6%
Morrow County	27,676	2,481	8.9%
Oregon	1,452,709	118,986	8.2%
United States	115,904,641	10,424,540	8.9%

Source: US Census for 1990 and 2000.

Income

Both Milton Freewater and Umatilla County's income levels are well below state and national averages. The median household income level in Milton Freewater was \$28,365 in 1999, which is 44 percent less than the statewide median household income level of \$40,916. See Table 3.

From 1990 to 2000, Milton Freewater's per capita income fell from 63 percent of the national average to 60 percent. Approximately 929 people in Milton Freewater were classified as "living at or below poverty" during 1999 (15% of the population).

Table 3. Income Trends. 1990 & 2000

1990	Median Household Income	Per Capita Income	Percent of National Average
Milton Freewater	\$18,759	\$9,130	63.31%
Umatilla County	\$22,791	\$11,178	77.52%
Oregon	\$27,250	\$13,418	93.05%
United States	\$30,056	\$14,420	
2000	Median Household Income	Per Capita Income	Percent of National Average
Milton Freewater	\$28,685	\$13,101	60.69%
Umatilla County	\$36,249	\$16,410	76.02%
Oregon	\$40,916	\$20,940	97.00%
United States	\$41,994	\$21,587	

Source: US Census

Employment

The civilian labor force includes primary employee candidates, between the ages of 16 and 65. As indicated in Table 4, Milton Freewater has experienced little employment growth since 1990, while Umatilla County's labor force expanded by over 100% (16,650 people). High unemployment continues to plague Oregon, particularly in rural counties. In January 2005, the Oregon Labor Market Information System reported that 10.9% percent of Umatilla County was unemployed, compared to 7.1 percent for state of Oregon and 5.5 percent for the nation.

Table 4. Labor Market Summary

	1990	2000	January 2003*	Annual Change 1990-2000
Milton Freewater				
Population 16 and over	4,156	4,551		40
In Labor Force	2,571	2,817		25
Civilian Labor Force	2,571	2,810		24
Employed	2,417	2,408		-1
Unemployed	154	402		25
Unemployment Rate	5.99%	14.31%		
Umatilla County				
Population 16 and over	28,016	53,222		2,521
In Labor Force	27,984	33,621		564
Civilian Labor Force	25,612	33,598		799
Employed	14,414	31,068		1,665
Unemployed	1,326	2,530		120
Umatilla County Unemployment Rate	5.18%	7.53%	10.9%	
Oregon Unemployment Rate	6.20%	6.47%	7.10%	
United States Unemployment Rate	6.31%	5.77%	5.50%	

Source: US Census

*Source: Oregon Labor Market Information System

Leading employers in Region 12 (Umatilla and Morrow Counties), as of the fourth quarter of 2003, are summarized in Table 5. Major employers in the region specialize in grain and agricultural packaging, shipping and processing. Super-regional warehousing and distribution activities, by Wal-Mart and Union Pacific occur in light of the convenient interstate and rail access located near Hermiston. Major health services, retail and government operations also act as important employers.

Table 5. Major Local and Regional Employers

Location	Product/Service	Employees
Milton Freewater (Umatilla County)		
Sykes Enterprises, Inc	Customer Support Call Center	400
Milton Freewater Unified School District	Education	220
Oregon Coalition of Child Development	Child care	106
E. Brown and Sons Inc.	Apples	80
City of Milton-Freewater	Government	70
Hermiston Area (Umatilla County)		
Wal-Mart	Distribution	1,000
JR Simplot	Food Products	850
Lamb Weston	Potato Products	500
Marlette Homes	Manufactured Homes	460
Hermiston Foods	Frozen Foods	450
Pendleton Area (Umatilla County)		
St. Anthony's Hospital	Public Hospital	280
Keystone RV Company	Travel Trailers	245
Fleetwood Travel Trailers	Travel Trailers	142
Pendleton Flour Mills	Flour	80
Hill Meat Company	Food Packaging	80
Umatilla Area (Umatilla County)		
Two Rivers Correctional Institution	Correctional Facility	500
JM Manufacturing, Inc	Polyvinyl Chloride Pipes	76
Gilroy Food	Dehydrated Onions	55
Boise Cascade	Wood Chips	20
Oregon Rustic	Pine Furniture Manufacturing	19
Heppner City (Morrow County)		
Morrow County Government	Government	120
Morrow County Health District	Government	110
Morrow County School District	Education	67
Bank of Eastern Oregon	Financial Services	20
Heppner Ranger District	Federal Government	N/A
Boardman Area (Port of Morrow)		
Lamb Weston	Potato Products	450
Watts Brothers Repackaging Facility	Distribution	95
Logan International	Distribution	120
Oregon Potato Company	Potato Products	110

Location	Product/Service	Employees
Boardman Foods	Fresh pack onions	100
Tillamook Cheese Processing Plant	Dairy Processing	60
Cascade Specialties	Distribution	70
Port of Morrow	Port Facilities Management	40
PGE Coal Fire Plant and Coyote Springs Co-Gen. Plant	Electrical Power	113

As indicated in Table 6, the leading job sectors in Umatilla Counties include government (7,890 jobs), retail trade (6,370 jobs) and services (5,920 jobs).

Table 6. Umatilla and Morrow County Job Distribution, 2002

Employment Sector (Non-farm payroll)	2002
Manufacturing	5,020
Construction and Mining	1,470
Transportation and Utilities	2,660
Wholesale Trade	1,090
Retail Trade	6,370
Finance, Insurance and Real Estate	930
Services	5,920
Government	7,890
Total	31,350

Within Region 12, Umatilla County has seen the bulk of the employment growth. According to the Unified Workforce Plan for Morrow Umatilla Region 12 Workforce Investment Board, Umatilla County added 1,490 non-farm jobs in 1998, more than other county outside a metropolitan area. Morrow County finished in fifth place in 1998 by adding 130 non-farm jobs to total 3,060 on an annual basis.

According to the Oregon Employment Department, total Region 12 employment was estimated at 31,350 in 2002, up 295 jobs from 2000. Long-term trends in non-agricultural employment for Region 12 point towards robust employment expansion in the retail trade; finance, insurance and real estate; and services; moderate growth in wholesale and government job sectors; and little growth for manufacturing, construction, mining, and transportation and utilities. Overall employment is expected to expand to 33,720 by 2012, an increase of 2,370 from 2002, as indicated in Table 7.

The Oregon Employment Department anticipates a continued shift in industrial job growth for Region 12 over the next 10 years—from lumber, wood and food products to miscellaneous durable and non-durable goods. The total amount of industrial jobs are projected to remain at 5,020 in Region 12, as job losses in are lumber, wood and food products are countered by job gains in other industrial sectors.

Table 7. Employment in Morrow and Umatilla Counties (Region 12)

Employment Sector (Non-farm payroll)	2002	2012 Projection	2002-2012 Change	2002-2012 % Change	Annual Change 2002-2012
Manufacturing	5,020	5,020	-	0%	--
Construction and Mining	1,470	1,230	(240)	-16.3%	(24)
Transportation and Utilities	2,660	2,200	(460)	-17.3%	(46)
Wholesale Trade	1,090	1,270	180	16.5%	18
Retail Trade	6,370	7,340	970	15.2%	97
Finance, Insurance and Real Estate	930	1,090	160	17.2%	16
Services	5,920	7,290	1,370	23.1%	137
Government	7,890	8,310	420	5.3%	42
Total	31,350	33,720	2,370	7.7%	237

Residential Demand

The demand for new housing in Milton Freewater will be a function of local population levels, household size, income and area amenities, such as schools and cost of living.

Future housing demand in the County is expected to remain steady, with a projected 8,836 new dwellings needed over the next 20 years, as indicated in Table 8. This equates to average annual housing absorption of 400 units per year over the planning period.

If we assume there to be a competitive vacant supply of buildable land and/or redevelopment sites in Milton Freewater (and adequate public water and sewer facilities), Milton Freewater could capture between 10% and 15% of the future County housing demand. This equates to between 884 and 1,325 dwelling units over 20 years. It is possible that downtown Milton Freewater could accommodate some of this demand through a combination of upper-level redevelopment, infill development with limited opportunities for new construction.

Table 8. Projected Housing Demand in Umatilla County and Milton Freewater

	2004	2025
County Population	72,250	90,660
Estimated Population in Group Quarters*	3,324	4,170
Population in Households	68,927	86,490
Estimated Average Household Size	2.60	2.50
Estimated Households	26,510	34,596
Change in New Households		8,086
Move Up / Replacement Demand (1% of housing stock)		346
Vacancy Rate 5%		404
Projected Change in Housing Demand for County		8,836
Projected Change in Housing Demand for Milton-Freewater (Low Growth Scenario @10% capture)		884
Projected Change in Housing Demand for Milton-Freewater (High Growth Scenario @15% capture)		1,325

*Based on 2000 allocation of group quarters = .3% of population

Source: US Census and Office of Economic Analysis; analysis by Otak, Inc.

Commercial Demand

Future retail development potential depends on the ability for local retail establishments to “capture” existing and future household buying power. Table 9 summarizes the projected household buying power for Milton Freewater.

Table 9. Aggregate Income Levels in Milton Freewater, 2000 - 2025

2000 Pop*	6,470
Proj. 2025 Pop**	11,333
Est. 2000 Per Capita Income*	\$13,101
Proj. 2025 Per Capita Income***	\$16,376
Est. 2000 Aggregate Income	\$84,763,470
Proj. 2025 Aggregate Income	\$185,592,041
Change in Aggregate Income (2000 – 2025)	\$100,828,571

*Source: US Census

**Derived from State of Oregon Umatilla County Population Projection of 90,660; assumes Milton Freewater capture rate of 12.5%.

*** Assumes annual growth of .5%

An analysis of retail spending for Umatilla County demonstrates the retail sales inflow/outflow for the county. As indicated on Table 10, approximately 56% of retail buying power currently flows into the County from places outside the area (particularly from Washington State residents). Umatilla County residents currently spend an estimated \$130.8 million on retail purchases and county retail establishments take in approximately \$300 million on retail sales.

Table 10. Existing Retail Buying Power, Umatilla County, 2000* (thousands)

Store Group	2000 Retail Sales at County Retail Establishments	2000 Retail Expenditures by County Residents	Estimated Existing Retail Inflow/ (Outflow)
Total Retail Sales	\$993,122	\$485,073	\$508,049
Food and Beverage Stores	\$160,356	\$96,088	\$64,268
Food Service and Drinking Establishments	\$78,356	\$57,885	\$20,471
General Merchandise	\$186,217	\$63,673	\$122,544
Furniture and Home Furnishing and Electronic Appliances	\$27,572	\$25,469	\$2,103
Motor Vehicle and Parts Dealers	\$237,284	\$111,138	\$126,146
Other	\$303,337	\$130,819	\$172,518

Source: *Sales and Marketing Management, Survey of Buying Power. Analysis by Otak, Inc.*

The method used to estimate retail sales inflow/outflow follows the following steps: (1) estimate current retail sales by store group for county retail establishments using information from the U.S. Census of Retail Trade, or Sales and Marketing Management; (2) estimate the current level of supportable retail demand from local households by calculating aggregate gross income in the area and factoring that by average allocation of household income by retail expenditure (using information from the US Census and the US Consumer Expenditure Survey); and (3) subtract local retail expenditures from retail sales at local establishments to determine if there is a retail inflow or outflow.

The potential for new retail development in Milton Freewater will be supported by local households and related buying income, along with the potential to intercept tourism spending “inflow” and “outflow” from Washington State residents making tax free purchases in Oregon. Over the long-term, if Milton Freewater were to capture 10% of future growth in county retail expenditures, Milton Freewater could support approximately 145,000 square feet of new or rehabilitated commercial space, as indicated in Table 11. This amount of projected retail demand translates into approximately 3 to 5 net buildable acres, and up to 7 gross acres.

Table 11. Milton Freewater Retail Buying Power and Supportable Land Needs, 2005 to 2025

Store Group	Distribution of Local Income Retail Expenditures	2025 Retail Sales from County Residents	2000-2025 Retail Sales Growth Potential	Milton Freewater Proj. 10% Capture Rate	Supportable Sq. Ft. @ \$225 Annual Sales/Sq.Ft.	Supportable Building Sq. Ft. at .2 FAR*	Supportable Acreage (Net)
Food and Beverage Stores	8.3%	\$109,023	\$12,935	\$1,293,471	5,749	28,744	0.66
Food Service and Drinking Establishments	5.0%	\$65,677	\$7,792	\$79,199	3,463	17,316	0.40
General Merchandise	5.5%	\$72,244	\$8,571	\$857,119	3,809	19,047	0.44
Furniture and Home Furnishing and Electronic Appliances	2.2%	\$28,898	\$3,428	\$342,848	1,524	7,619	0.17
Motor Vehicle and Parts Dealers	9.6%	\$126,099	\$14,961	\$1,496,063	6,649	33,246	0.75
Other/Misc.	11.3%	\$148,429	\$17,610	\$1,760,991	7,827	39,133	0.90
Total	41.9%	\$550,370	\$65,297	\$6,529,691	29,021	145,104	3.31

Analysis by Otak, Inc., *FAR = Floor area ratio; the amount of land area to building floor area.

For downtown Milton Freewater, the most favorable retail growth potential appears to be within the miscellaneous retail, and food and beverages categories. However, some general merchandise will also be supported by increased retail sales. The other/miscellaneous category could possibly include a modest-sized lodging facility and/or an additional independent bed-and-breakfast, which could potentially be added to support regional visitation trends.

Tourism and visitation spending plays an important role in supporting commercial development in Umatilla County and is accredited for supporting 1,720 jobs. As shown in Table 12, total-direct spending has more than doubled between 1991 and 2003 – increasing to over \$103 million per year. The fastest growing segments that were supported by tourism spending over the 1991-2003 time period included “arts, entertainment and recreation” and “accommodations and food service”.

Table 12. Umatilla County Travel and Tourism Impacts, 1991-2003**

	1991	1998	1999	2000	2001	2002	2003	% Change '91-'03
Total Direct Travel Spending (\$Millions)								
Visitor Spending at Destination	42.4	74.2	80.4	91.4	90.7	96.3	102.3	141%
Other Travel*	0.6	1.0	1.1	1.2	1.1	1.1	0.7	17%
Total Direct Spending	43.1	75.2	81.5	92.5	91.8	97.3	103.0	139%
Visitor Spending by Type of Traveler Accommodation (\$Million)								
Hotel, Motel	16.6	28.7	31.8	37.6	36.5	41.1	43.9	164%
Private Campground	7.2	9.4	9.8	10.6	10.8	10.6	11.4	58%
Public Campground	2.0	2.2	2.3	2.4	2.5	2.5	2.6	30%
Private Home	6.6	8.1	8.7	9.8	10.0	9.6	10.3	56%
Vacation Home	1.4	3.1	3.5	4.2	4.3	4.3	4.6	229%
Day Travel	8.6	22.7	24.2	26.8	26.5	28.1	29.5	243%
Spending at Destination	42.4	74.2	80.4	91.4	90.7	96.3	102.3	141%
Visitor Spending by Commodity Purchased (\$Million)								
Accommodations	7.0	11.2	12.1	13.4	13.1	14.9	15.0	114%
Food & Beverage Services	8.6	15.3	16.2	17.7	17.7	19.7	20.6	140%
Food Stores	4.1	6.2	6.6	7.1	7.2	7.7	8.1	98%
Ground Tran. & Motor Fuel	12.6	14.0	16.3	21.1	20.8	19.0	23.1	83%
Arts, Entertainment & Recreation	2.9	17.7	18.8	20.8	20.6	22.9	23.7	717%
Retail Sales	7.0	9.4	10.0	10.8	10.8	11.7	11.7	67%
Air Transportation (visitor only)	0.2	0.4	0.4	0.5	0.5	0.4	0.2	0%
Spending at Destination	42.4	74.2	80.4	91.4	90.7	96.3	102.3	141%
Industry Earnings Generated by Travel Spending (\$Million)								
Accommodations & Food Service	6.6	11.4	12.2	13.3	13.2	14.9	15.4	133%
Arts, Entertainment & Recreation	0.8	4.7	5.0	5.5	5.4	6.0	6.2	675%
Retail**	2.0	2.8	3.0	3.2	3.2	3.2	3.5	75%
Auto Rental & other ground tran	a	0.1	0.1	0.1	0.1	0.1	0.1	-
Air Transportation (visitor only)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0%
Other Travel*	0.3	0.4	0.5	0.5	0.5	0.5	0.4	33%
Total Direct Earnings	9.8	19.4	20.8	22.7	22.6	24.8	25.6	161%
Industry Employment Generated by Travel Spending (Jobs)								
Accommodations & Food Service	580	760	800	850	840	930	930	60%
Arts, Entertainment & Recreation	110	550	540	570	590	620	580	427%
Retail**	160	170	180	190	180	180	190	19%
Auto Rental & other ground tran	b	b	b	b	10	10	10	-
Air Transportation (visitor only)	0	0	0	0	0	0	0	-
Other Travel*	20	20	20	20	20	20	10	-50%
Total Direct Employment	970	1,520	1,550	1,604	1,630	1,750	1,720	77%
Tax Receipts Generated by Travel Spending (\$Millions)								
Local Tax Receipts	0.3	0.6	0.6	0.7	0.7	0.7	0.7	133%
State Tax Receipts	2.0	2.9	3.0	3.3	3.3	3.3	3.4	70%
Total Direct Tax Receipts	2.4	3.5	3.6	4.0	4.0	4.0	4.2	75%

**Source: Dean Runyan Associates

Details may not add to totals due to rounding.

*Other Travel includes resident air travel and travel agency services. **Retail includes gasoline.

Less than \$50,000 in spending, earnings or tax receipts = 'a'. Less than 5 employees = 'b'.

Office Demand

The future outlook for office job growth and land needs are forecasted to show an improvement over the next 10 years. According to the Oregon Employment Department, total Region 12 (Umatilla and Morrow Counties) employment is expected to expand to 33,720 by 2012, an increase of 2,370 jobs from 2002. If this trend continues for the subsequent 10-year period, total job growth in Region 12 will increase to 36,250.

The demand for office space in downtown Milton Freewater depends on growth in employment in the competitive market region and changes in household formations and work location preferences. As households get older, demand for professional services, such as medical, legal and financial services tends to rise. Other factors, such as availability and price of land/buildings, telecommunications and internet access also play into location decisions.

For this analysis, we have assumed office growth to be on par with household growth potential. As shown in Table 14, Umatilla County's share of Region 12 growth is expected to be approximately 80-90% of Region 12 growth, and Milton Freewater would likely capture approximately 12 percent of Umatilla County's growth. This amount of office demand would require approximately 60,000 square feet of building area, which would require approximately 6 net buildable acres of land area—assuming off-street parking is provided.

Table 13. Umatilla County Job Distribution, January 2005

Employment Sectors (Nonfarm payroll)	Umatilla County 2005	Morrow County 2005	Total Region 12 2005	Estimated Umatilla County Share of Regional Growth
Manufacturing	3,340	800	4,140	81%
Construction and Mining	870	80	950	92%
Transportation and Utilities	3,070	330	3,400	90%
Wholesale Trade	580	190	770	75%
Retail Trade	3,050	220	3,270	93%
Finance, Insurance and Real Estate	930	120	1,020	88%
Services	7,410	300	7,710	96%
Government	7,310	800	8,110	90%
Total	26,530	2,840	29,370	90%

Source: Oregon Employment Department

Table 14. Office Development Potential, Milton Freewater, 2002 to 2022

Employment Sectors (Non-farm payroll)	Proj. Jobs Region 12 2002-2022*	Umatilla Co. Capture Rate	Umatilla County Jobs	Milton Free Water Capture Rate	Milton Free Water Total Jobs	Office Job Factor	Office Jobs**	Supportable Gross Building Floor Area Req. (SF)***	Supportable Acreage (Net)
Finance, Insurance and Real Estate	348	80%	64	12%	33	0.9	30	7,507	0.69
Services	3,057	80%	548	12%	293	0.6	176	44,021	4.04
Government	862	80%	168	12%	83	0.6	50	12,418	1.14
Total	4,267		780		409		256	63,946	5.87

In the short-term (years 1-5), this commercial demand in downtown Milton Freewater could likely be accommodated in existing vacant or underutilized downtown buildings. In the longer-term, it is likely that some of the commercial office growth would require new buildings on vacant or redevelopment parcels.

SUMMARY OF MARKET FINDINGS

This analysis of market demand provides findings regarding local and regional growth trends and the existing vacant land in the Milton Freewater. Key findings contained in this memorandum are summarized in the following paragraphs.

- **Moderate population and employment growth is forecast for Milton Freewater during the next 20 years.**
- **With adequate public facilities such as health care and schools, Milton Freewater's population is projected to expand from 6,500 people today to nearly 10,000 people by year 2020.** This modest growth is expected to require at least 1,155 dwelling units.
- **Downtown Milton Freewater could compete within the region as a viable residential, retail and office location.** In the short-term, existing vacant and underutilized buildings can address office and most retail demand.
- **Steady growth in county wide tourism spending combined with moderate growth in local buying power hold promising potential for existing and new commercial, retail and lodging establishments.**
- **Redevelopment incentives should be considered to optimize long-term downtown development potential.** Local land use and fiscal policies may be considered to leverage additional private investment within downtown. Strategies may include limited tax abatement, formation of an urban renewal district, reduced parking requirements, and establishment of a foreign enterprise zone.
- **Main Street design treatments such as new sidewalks, landscaping, public art, and pedestrian amenities along with shared public parking lots can also help to re-energize downtown development potential.**

EXISTING CODE ANALYSIS

Introduction

The Milton-Freewater Zoning Code was established to "enhance the quality of life and protect the health, safety, and enhance the general welfare of the citizens of the City of Milton-Freewater." Milton-Freewater has established seven zoning districts. The study area for the Special Transportation Plan (STP) and Transportation System Plan Update (Plan) encompasses Oregon State Highway 11, also known as Main Street, from 2nd Avenue to 14th Avenue including one block east and one block west of Highway 11. There are seven zoning districts within the study. These include: Residential Low Density (R-1), Residential Medium Density (R-2), Residential High Density (R-3), Residential Office (R-O), Retail and Service Commercial (C-1), General Commercial (C-2), and Public Lands (PL). Figure 1.1 shows a map of the study area with the zoning districts. This memorandum is an analysis of the existing zoning code requirements for each district in the study area.

Residential Low Density (R-1)

As seen on Figure 1.1, the R-1 zoning district is located on one block on Main Street, just north of City Hall. The intent of R-1 is to provide for larger, more secluded, home site with a maximum of four units per acre.

Zoning Requirements

Use	Permitted	Minimum Lot Size	Minimum Yard Requirements	Height	Lot Coverage
Single-family	Permitted	10,000 SF	Front: 22 ft, Side: 12 ft; Rear: 22 ft	Max: 28 Ft	50% - structural
City governmental structure	Permitted		Front: 22 ft, Side: 22 feet, Rear: 22	Same	Same
Home Occupation	Permitted		Same	Same	Same
Manufactured House on individual lots	Permitted		Same	Same	Same
Church	Conditional	10,000 SF	Same	Same	Same
Planned unit development	Conditional		Same	Same	Same
School	Conditional		Same		
Golf Course, community center	Conditional	10,000 SF	Same	Same	Same

Residential Medium Density (R-2)

As seen on Figure 1.1, the R-2 zoning district is located on residential streets, a block off Main Street. The intent of R-2 is to provide a greater range of housing types and densities than R-1, while maintaining the character of a single-family neighborhood. Up to 16 units per acre are permitted in R-2.

Zoning Requirements

Use	Permitted	Minimum Lot Size	Minimum Yard Requirements	Height	Lot Coverage
Single-family	Permitted	7,500 SF	Front: 22 ft, Side: 6 ft one side – min of 16 ft combined, Rear: 18 ft	Max: 35 Ft	50% - structural
Duplex	Permitted	10,000 SF	Front: 22 ft, Side: 22 feet, Rear: 22	Same	Same
City governmental structure	Permitted		Same	Same	Same
Home Occupation	Permitted		Same	Same	Same
Manufactured House on individual lots	Permitted		Same	Same	Same
Church	Conditional	10,000 SF	Same	Same	Same
Boarding room	Conditional	9,000 SF	Same	Same	Same
Planned unit development	Conditional		Same	Same	Same
School/child care	Conditional	9,000 SF	Same	Same	Same
Golf Course, community center	Conditional	10,000 SF	Same	Same	Same
Density bonus – 8 additional units per acre	Conditional	2,700 SF/unit	Same	Same	Same

Residential High Density (R-3)

As seen on Figure 1.1, the R-3 zoning district is located mostly on southern Main Street. The intent of R-3 is to provide the widest range of housing alternatives including multi-family units. A maximum density of 26 units per acre is permitted.

Zoning Requirements

Use	Permitted	Minimum Lot Size	Minimum Yard Requirements	Height	Lot Coverage
Single-family	Permitted	5,000 SF	Front: 22 ft, Side: 6 ft one side – min of 14 ft combined, Rear: 16 ft	Max: 35 Ft	45% - structural; 80% - impervious
Duplex	Permitted	7,500 SF	Same as above	Same	Same
Boarding room	Conditional	7,000 SF	Front: 22 ft, Side: 12 feet, Rear: 22	Same	Same
Child care facility	Conditional	9,000 SF	Same as above	Same	Same
Church	Site plan review	10,000 SF	Same as above	Same	Same
Community center	Site plan review	10,000 SF	Same as above	Same	Same
Manufactured park	Conditional	3,500 SF per home site		Same	Same
Nursing Home	Conditional	2,500 SF per bed or unity	Front: 22 ft, Side: 12 feet, Rear: 22	Same	Same
Multi-family	Site plan review	6,000 SF for 1 st unit, 1,500 SF per additional	Same as above	Same	Same

Residential Office (R-O)

As seen on Figure 1.1, the R-O zoning district is located on Main Street, mostly between 7th and 9th Avenues. This zoning district is intended to encourage a compatible mix of residential development and small private or public offices.

Zoning Requirements

Use	Permitted	Minimum Lot Size	Minimum Yard Requirements	Height	Lot Coverage
Single-family	Permitted	6,000 SF	Front: 22 ft, Side: 6 ft one side – min of 14 ft combined, Rear: 16 ft	Max: 35 Ft	60% - structural; 80% - impervious
Duplex	Permitted	7,500 SF	Same as above	Same	Same
Modular home	Permitted			Same	Same
City government structure	Permitted			Same	Same
Offices	Site plan review	6,000 SF	Determined by site plan review	Same	Same
Boarding room	Site plan review	9,000 SF	Front: 22 ft, Side: 12 feet, Rear: 22	Same	Same
Child care facility	Conditional	9,000 SF	Same as above	Same	Same
Church	Site plan review	10,000 SF	Same as above	Same	Same
Community center	Site plan review	10,000 SF	Same as above	Same	Same
Manufactured housing	Permitted	3,500 SF per home site		Same	Same
Nursing Home	Conditional	2,500 SF per bed or unity	Front: 22 ft, Side: 12 feet, Rear: 22	Same	Same
Multi-family	Site plan review	6,000 SF for 1 st unit, 1,500 SF per additional	Same as above	Same	Same
Single-family converted to office	Conditional			Same	Same

Other Requirements

The intent of R-O is to allow a mix of office and residential uses while still maintaining the residential character of the neighborhood. This balance must be achieved with all proposals. R-O zone is only allowed when abutted by a commercial zone, 75% of the lots are developed, and at least 50% of the uses are nonconforming in a Residential zone.

Retail and Service Commercial (C-1)

As seen on Figure 1.1, the C-1 zoning district is located on Main Street, in northern Milton-Freewater and between 9th and 13th Avenues. This zoning district is intended to provide for general retail and light service commercial uses such as hair salons, restaurants, and supermarkets.

Zoning Requirements

Use	Permitted	Minimum Lot Size	Minimum Yard Requirements	Height	Lot Coverage
Upkeep, repair, and replacement of existing uses in C-2	Permitted	Varies	Based on site plan review	Max 35 feet within 150 feet of residential zone, max. 45 feet if greater than 150 feet	50% - structural; 75% - impervious

Upkeep, repair, and replacement of existing of residential structures	Permitted	6,000 SF	Front: 22 ft, Side: 6 ft one side – min of 14 ft combined, Rear: 16 ft	from residential zone	50% structural; 75% impervious
Public utilities	Permitted	Varies	Based on site plan review	Same	50% structural; 75% impervious
Retail trade	Site plan review	Varies	Same	Same	Site plan review
Office/school	Site plan review	Varies	Same	Same	Same
Financial institute	Site plan review	Varies	Same	Same	Same
Personal business	Site plan review	Varies	Same	Same	Same
Commercial amusement	Site plan review	Varies	Same	Same	Same
Church	Site plan review	Varies	Same	Same	Same
Dwelling units		Varies	Same	Same	Same
Fuel service station	Conditional	Varies	Same	Same	Same
Auto repair	Conditional	Varies	Same	Same	Same
Restaurant w/outdoor seating	Conditional	Varies	Same	Same	Same
Enclosed storage	Conditional	Varies	Same	Same	Same
Commercial use not listed above	Conditional	Varies	Same	Same	Same

General Commercial (C-2)

As seen on Figure 1.1, the C-2 zoning district is located on Main Street, between 9th and 11th Avenues.

This zoning district provides for commercial services such as auto repair and building supply outlets.

The uses in this zone involve heavier traffic than C-1 uses.

Zoning Requirements

Use	Permitted	Minimum Lot Size	Minimum Yard Requirements	Height	Lot Coverage
Upkeep, repair, and replacement of existing uses in C-1	Permitted	Varies	Based on site plan review	Max 35 feet within 150 feet of residential zone, max. 45 feet if greater than 150 feet from residential zone	50% - structural; 75% - impervious
Upkeep, repair, and replacement of existing of residential structures	Permitted	6,000 SF	Front: 22 ft, Side: 6 ft one side – min of 14 ft combined, Rear: 16 ft	Same	Same
Public utilities	Permitted	Varies	Based on site plan review	Same	Same
Retail trade	Site plan review	Varies	Same	Same	Same
Office/school	Site plan review	Varies	Same	Same	Same
Financial institute	Site plan review	Varies	Same	Same	Same
Personal business	Site plan review	Varies	Same	Same	Same
Commercial amusement	Site plan review	Varies	Same	Same	Same
Church	Site plan review	Varies	Same	Same	Same

Dwelling units	Site plan review	Varies	Same	Same	Same
Auto repair	Site plan review	Varies	Same	Same	Same
Lumber yard	Site plan review	Varies	Same	Same	Same
Service commercial	Site plan review	Varies	Same	Same	Same
Fuel service station	Conditional	Varies	Same	Same	Same
Restaurant w/outdoor seating	Conditional	Varies	Same	Same	Same
Enclosed storage	Conditional	Varies	Same	Same	Same
Commercial use not listed above	Conditional	Varies	Same	Same	Same

Public Lands (PL)

As seen on Figure 1.1, the PL zoning district includes City Hall and the Library on Main Street. The public lands zone provides for a full range of structures, services, and land uses provided by public agencies on publicly-owned land. A Site Plan Review process is used to determine some code requirements.

Zoning Requirements

Use	Permitted	Minimum Lot Size	Minimum Yard Requirements	Height	Lot Coverage
Public utilities	Permitted	Site plan review	Based another zone	Site plan review	Site plan review
Government structure	Site plan review	Same	Same	Same	Same
Public schools	Site plan review	Same	Same	Same	Same
Golf course	Site plan review	Same	Same	Same	Same

Parking Requirements

Parking is required for each use in a zoning district. The following are the off-street parking requirements by use.

Use	Parking Spaces
Residential – Single family	1 per unit
Residential – Multi-family	3 per each 2 units
Residential – Boarding house	80% guest capacity + management
Hotel	1 per room
Commercial – Retail store	1 per 400 SF
Commercial – Repair shop	1 per 600 SF
Commercial – Bank/office	1 per 500 SF
Commercial – Medical clinic	1 per 300SF + 1 per 2 employees
Commercial – Restaurant	1 per 200 SF
Commercial – Wholesale	1 per 500 SF + 1 per employee
Institutional – Nursing home	1 per 2 beds or 1 per residential unit
Institutional – Child care	2 per teacher
Institutional – Elem. school	2 per classroom
Church	1 per 5 seats or 1 per 10 feet of bench

Other Requirements

Additional parking may be required through Site Plan Review. When mixed uses occupy a structure, the total requirements for off-street parking shall be the sum of the various uses.

Bicycle Parking

A minimum of two bicycle parking spaces per use is required. One of those spaces shall be sheltered. For multi-family residences of four dwelling or more, at least one parking space per unit is required. All public and commercial parking lots shall provide a minimum of one bicycle parking space per 10 vehicle spaces. In the downtown study area, one bicycling parking space shall be required per use. Parking can be clustered for six bicycles. One cluster per block is required. Inverted "U" style bicycle parking rack is recommended. Bicycle parking must not interfere with the pedestrian walkway. A minimum of 5 feet of pedestrian space is required.

Site Plan Review Process

The site plan review process is used to determine compliance with the intent and specific development standards set in the zoning code. Specific requirements are needed for the site plan review process. Specific requirements related to transportation include:

- Pedestrian circulation shall be provided in new commercial, office, and multi-family residential developments.
- New commercial buildings shall be oriented towards the street, near or at the setback line.
- Off-street parking shall be located on the side or behind buildings.
- All site plans shall clearly show how the site's internal pedestrian and bicycle facilities connect with existing external or planned facilities.

Site and Design Standards

The site and design standards apply to all new development on Main Street between the south city limits and SE 3rd. These standards also apply to existing developments if exterior remodeling or expansion occurs. The intent of this section is to:

- Improve the quality of appearance of commercial and industrial development in Milton-Freewater.
- Ensure development is compatible with adjacent development
- Promote streetscapes that are with the desired character of the zoning districts
- Encourage crime prevention
- Increase opportunities for alternative transportation modes.
- Promote safe, attractive, and functional pedestrian circulation systems in commercial areas.

Standard	Requirement
Exterior walls	25% of wall area facing a street must have treatment with 15% being glass.
Exterior walls	Building frontages greater than 100 feet in length shall have off-sets or distinct changes in the building façade.
Landscaping	15% of site shall be landscaped. 80% should be live plant material, 20% may be natural features.
Off-street parking	Perimeter landscaping of 4-feet required in all parking areas.
Exterior lighting	Lighting shall have minimal adverse effects on adjacent residential properties.

Supplementary Provisions

Chapter 5 of the Zoning Code includes supplementary provisions for Access Management and Connectivity. These provisions apply to Main Street. They include:

- Shared parking is permitted and a reduction of required spaces if peak demands do not occur at the same time.
- One-way driveways should have a minimum of 10 feet in width.
- Two-ways driveways shall have a minimum of 10 feet and maximum of 12 feet in width.

MAIN STREET EVALUATION WORKSHEET SUMMARY

	GOOD	FAIR	POOR
COMFORT AND IMAGES			
• Clean, well maintained	1	11	3
• Feels safe		11	2
• Human scale	1	9	2
• Attractiveness		5	8
• Places to sit			15
VISUAL AND PHYSICAL ACCESS			
• Identifies downtown	1	8	5
• "Walkable"	3	9	2
• Connection to adjacent buildings and neighborhood	1	7	5
USES AND ACTIVITIES			
• Variety of things to do	1	6	7
• Attractive to different ages		6	8
• Fun		4	11
• Special/unique	1	3	11
• Has local character and uses	1	6	7
SOCIAL			
• Social interaction (talking, holding hands, kissing)	1	3	10
• People in groups		5	9
• Sense of place		5	9

COMMENTS FROM WALKING TOUR

A. What do you like best?

1. The well maintained old buildings
2. City Hall/Library district is very nice
3. Historic buildings although some are run down
4. La Mona's dress shop.. The old library could be a nice gathering place if decorated attractively from the outside.
5. The potential to have a nice area that will make people want to stop and shop.
6. At north end of the District – City Hall/Library – old library
7. There is a lot of potential -- defiantly room for improvement. Historical buildings – street is wide so there is room for reconfiguring the way it all works.
8. Commercial not retail, more retail to South Columbia, leave hwy 11 a highway
9. The old library building
10. Accessibility and friendly shop personnel.
11. The older buildings.

12. Areas where there are grass and trees.
13. Parking strips in some areas and wide sidewalks
14. Many different shops in small area
15. Not on foggy days, but other times we see open views, emphasize views. Like ringing church bells.

B. List three improvements that could be done right away and that wouldn't cost a lot of money?

1. Trees, project sidewalks into street and stop light, and clean up or remove old buildings
2. Develop a South main business organization, work toward capitalizing on Walla Walla's tourist direction – give the wine tour folks a reason to come here, and more greenway in bare districts.
3. Establish seasonal hanging flowers, establish tree network, and abate abandoned/run down structures.
4. Put planters on hanging baskets on streets on both sides of city hall, paint outsides of business buildings with a theme so they are noticed, and suggest that even parking lot fence be decorated on other types of fence to be more attractive
5. Paint buildings, make store windows more appealing, and add more buildings to Historic designations.
6. Explore possibilities for visual improvement of security fencing at Sallee Chevrolet, ask land owner/tenant to remove stored vehicles and trailer from old service station immediately south of Sallee Chevrolet, and pedestrian signals at 12th and 8th.
7. Tree planting in commercial areas, outside seating, and bulb outs and perhaps traffic lights at corners
8. Stop lights 9th Street, improve buildings, and landscape.
9. Adding vegetation to the southern most part of south main, benches, and tap into the developing wine culture.
10. Pedestrian cross walks and plantings along Sallee's fence
11. Awnings, trees and flowers, and fix sidewalks
12. Street lights – flashing crosswalks, rounded out corners to make pedestrians more visible to traffic, landscaping to beautify downtown
13. Re-striping to three lanes, create "walls" as discussed on tour, and pocket park or plaza adding seating areas throughout
14. Repaint crosswalks to send better message, ID crosswalks and require traffic to stop, add benches, and consider one traffic light near center.
15. Trucks carrying dirt, etc. should be covered, lots of benches, and people need things to watch, create a traffic circle

C. What changes would you make in the long term that would have the biggest impact?

1. Buildings with retail on street level with apartments above, sidewalk dining.
2. Move away from parallel parking to allow more cars in busy areas (between 10th and 12th for example). Incentives to improve building fronts and give more of a "district" flavor. Streetlamps/hanging flower baskets/main street theme signs.
3. Traffic control services and new antique street lighting system.

4. Could the truck route be re-routed to one of the other streets so there isn't so much noisy traffic. The block south of trip zip could be a mini mall with small attractive shops that would attract tourists.
5. New sidewalks with bulb outs, trees and benches, old fashioned street lights, re-do store fronts like Dayton, WA so they portray a sense of consistency, and add brick raises to street crossings.
6. Pedestrian crossing signals (retain four lanes but shorter crossing length by width of parallel parking zone on each side of street and ????? street trees).
7. Incentives for business owners to improve the store fronts – and restore historic buildings. New street lighting – whatever we need to do to slow traffic down and make main street more pedestrian friendly and safe.
8. Stop lights and street beautification
9. Developing a real town theme, frogs may not cut it, this should be expanded on to involve something that people are actually interested in. Perhaps a beer and frog leg restaurant or a frog museum, etc. The problem is M-F doesn't have much in the way of frogs. If people actually stopped here because there is a neon frog on the water tank I think they would expect something more.
10. The Carnegie building needs to be used. Chamber of Commerce? Small coffee shop, gift shop with unique local products – a gathering place for locals plus a welcome for travelers.
11. Truck only by pass and stop sign at south of town.
12. Common theme and design for downtown area that sets it apart.
13. Redevelopment of historic as well as newer buildings, bulb out for pedestrians, and lit pedestrians crosswalk (lights inserted in pavement)
14. Move to unify store fronts if only in paint or color combo and curb extensions.
15. By pass for trucks, create boulevard: wide trees (right kind of trees) awnings, keep line of sight openness, consumer shops – for strolling. Checker board (fixed) talks, cycling path, small theater, ARTV center.