



**Members:**

Mary Smith, Chair  
Betty Mumm, V. Chair  
Jonathan David  
Ronald Haas  
Betty Schaafsma  
Don Slack  
Nancy Walters  
Terry Wright

AGENDA

**TUESDAY, FEBRUARY 16, 2010**

6:00 pm

City of Oregon City

City Hall

**625 Center Street, Oregon City  
Commission Chambers**

I. CALL TO ORDER

II. ROLL CALL

III. APPROVAL OF MINUTES

**January 19, 2010 (Walters absent)**

IV. AGENDA ANALYSIS

V. BUSINESS

**A. Warner Milne Road Restriping Analysis (DKS Associates – Discussion)**

**B. Memorial on Holcomb Blvd. (Update)**

**C. Frontier Parkway Speeding (Update)**

**D. Committee Membership (Information – No applicants)**

**E. Beaver Creek Road School Zone (Update)**

**F. Flashing Light at South End and Warner Parrott Roads (Update)**

**G. “No Parking” on S. 2<sup>nd</sup> Street Adjacent to Stillhouse Pub (Update)**

**H. Division Street Potholes (Update)**

**I. TriMet Budget Cuts (Information)**

**J. Downtown Parking Committee (Update)**

**K. Transportation Construction Projects (Updates if Appropriate)**

**1. McLoughlin Boulevard Enhancement Project**

**2. Warner Milne Rd., Molalla Avenue to Beaver Creek Road**

**3. Holcomb Boulevard Pedestrian Improvements**

**4. Downtown Sidewalk Replacement Project**

**L. Don Slack Chamber Citizen of Year (Information)**

**M. Future Agenda Items**

VI. FUTURE AGENDA ITEMS

**A. Vehicles Parking on North Side of Pearl Street Adjacent to 221 Molalla**

VII. ADJOURNMENT

**Next Meeting:    *March 16, 2010 (third Tuesday)***

**Attachments:**

- 1)     Minutes for January 19, 2010
- 2)     Email on Stakeholders' Open house for Warner Milne Road
- 3)     Warner Milne Road Applicable City Policies Practices and Projects
- 4)     Warner Milne Road Traffic Analysis Summary
- 5)     Warner Milne Road Driveway Turn Movement Volumes
- 6)     Warner Milne Road Restriping Analysis
- 7)     Email Chain regarding Memorial Sign
- 8)     Email Chains regarding Frontier Parkway
- 9)     Email Chains regarding Beaver Creek Road School Speed Zone
- 10)    Email Chain regarding No Parking on S. 2<sup>nd</sup> Street
- 11)    Email Chain regarding Division Street Potholes
- 12)    TriMet Budget Cut Information
- 13)    The Oregonian Article on Don Slack

**City Staff:**

Nancy J.T. Kraushaar, City Engineer/Public Works Director  
Aleta Froman-Goodrich, Senior Project Engineer  
Jim Burch, Operations Street Supervisor  
Kathy Griffin, Administrative Support

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*Transportation Advisory Committee Web Site*  
<http://www.orcity.org/cityrecorder/transportation-advisory-committee>  
*Complete Agenda Packets and Minutes available*



## I. CALL TO ORDER

The Transportation Advisory Committee meeting of **Tuesday, January 19, 2010**, was called to order by Chair Smith at 6:01 PM in the Commission Chambers at Oregon City Hall, 625 Center Street, Oregon City, Oregon.

It was noted that the Transportation Advisory Committee would now be televised and available on line at <http://www.orcity.org/cityrecorder/meeting-agendas-minutes-and-videos>.

## II. ROLL CALL

Committee members present included Chair Mary Smith, Vice-Chair Betty Mumm, Ron Haas, Betty Schaafsma, Mary Smith, Don Slack, Terry Wright and Jonathan David. Nancy Walters was excused.

Staff members present included Aleta Froman-Goodrich, Senior Engineer and Kathy Griffin, Administrative Assistant.

## III. APPROVAL OF MINUTES

**Don Slack moved to approve the minutes of November 17, 2009. Betty Mumm seconded** the motion and it **carried** with Ron Haas, Betty Mumm, Betty Schaafsma, Mary Smith, Don Slack, Jonathan David and Terry Wright voting yes.

## IV. AGENDA ANALYSIS

**Janice Troxler** from the Park Place neighborhood testified that she was concerned with the memorial sign installed on the sharp left turn going up Holcomb Blvd from the Holcomb/Redland/Abernethy intersection. She said it was a memorial with a cross, a picture, documents, and flowers. She said she wasn't opposed to a simple cross, but felt that the large memorial was distracting on a portion of roadway that already had problems.

The TAC agreed to have staff look into regulations regarding memorial signs and get back to Ms. Troxler via a phone call.

No other changes were made to the agenda.

**V. BUSINESS**

**A. Committee Membership**

Jonathan David and Ron Haas were reappointed to the Transportation Advisory Committee until December 31, 2012. There is one vacancy as a result of the retirement of Bill Blanchard but the City Recorder has advertised the vacancy.

**B. Flashing Light at South End and Warner Parrott Roads**

Nancy Kraushaar will be making a presentation to the City Commission on the status of the flashing light. She has asked that a representative of TAC attend the meeting.

The TAC reaffirmed what they already did regarding the flashing light which was to follow the guidelines of the MUTCD. Betty Mumm agreed to be in attendance at the City Commission meeting.

**C. 2008 and 2009 TAC Annual Reports to the City Commission**

The reports were in the TAC's packet for information only.

**D. Beaver Creek Road School Zone**

Information was included in the packet regarding the school speed zone. The school district, the City, and the County were still working on a solution.

**E. Main Street/Agnes Street Intersection Configuration**

A copy of a conceptual drawing is in the packet at the request of TAC.

**F. Oregon City/West Linn Bridge Closure**

An update was included in the TAC's packet for information only.

**G. Bike Lanes on Warner Milne Road**

Aleta Froman-Goodrich reported that a transportation engineering study was being conducted to see if bike lanes were warranted on Warner Milne Road. There was enough roadway width to allow for a bike lane in each direction. The plans also included a pocket for a left-turn lane into Walgreens.

**H. Cracking on Cement Surfaces at the McLoughlin Promenade**

Information was included in the TAC's packet for information only.

**I. Transportation Construction Projects**

1. **McLoughlin Promenade**
2. **McLoughlin Boulevard Enhancement Project**
3. **Warner Milne Rd., Molalla Avenue to Beaver Creek Road**
4. **2009 Waterline Improvement Project**
5. **Holcomb Boulevard Pedestrian Improvements**
6. **Downtown Sidewalk Replacement Project**
7. **Intersection Improvements on Molalla Avenue at Beaver Creek Road**

Aleta Froman-Goodrich and Kathy Griffin gave project updates.

**J. Downtown Parking Committee**

Don Slack reported that there was no new information.

**K. Future Agenda Items**

The Committee asked for updates on:

1. The "no parking" area on S. 2<sup>nd</sup> Street adjacent to the Stillhouse Pub where vehicles continue to park
2. Vehicles parking on the north side of Pearl Street adjacent to the 221 Molalla building where the road had a double-yellow line
3. Large potholes on Division Street

**VI. ADJOURNMENT**

There being no further business, the meeting adjourned at approximately 7:00 p.m.

Respectfully Submitted,

Kathy Griffin  
Administrative Assistant

*A video recording of this meeting is available at  
<http://www.orcity.org/cityrecorder/meeting-agendas-minutes-and-videos>.*

## Kathy Griffin

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**Subject:** FW: FYI FW: Stakeholders' Open House - TAC - Restriping Bike Lanes Warner Milne Rd (Oregon City)  
**Attachments:** Stakeholders Open House\_Warner Milne Restriping\_02-25-10.pdf

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**From:** Aleta Froman-Goodrich  
**Sent:** Monday, February 08, 2010 3:16 PM  
**To:** Marek, Joe  
**Subject:** Stakeholders' Open House - TAC - Restriping Bike Lanes Warner Milne Rd (Oregon City)

Hello Joe,

The City of Oregon City Public Works staff is seeking stakeholder input and comments regarding the restriping of Warner Milne Road from Beaver Creek Road to Molalla Avenue with a road cross section of two travel lanes and two bike lanes rather than the past road cross section of two travel lanes and one center two-way left-turn lane (TWLTL).

We invite Stakeholders an opportunity to provide their input and written comments regarding the restriping of Warner Milne Road and attend either:

**Transportation Advisory Committee (TAC) Meeting  
on Tues, Feb 16, 2010, at 6:00 PM  
at City Hall – City Commission Chambers  
625 Center Street, Oregon City**

**OR attend the**

**STAKEHOLDERS' OPEN HOUSE,  
Thurs, Feb 25, 2010, from 4:30 PM to 6:30 PM  
at City Hall – City Commission Chambers,  
625 Center Street, Oregon City  
(see attached open house flyer)**

We value your input regarding the Warner Milne Rd restriping improvements. If you are unable to attend one of the above events, then please feel free to email me your comments for consideration for the final restriping recommendation.

Thank you,  
Aleta

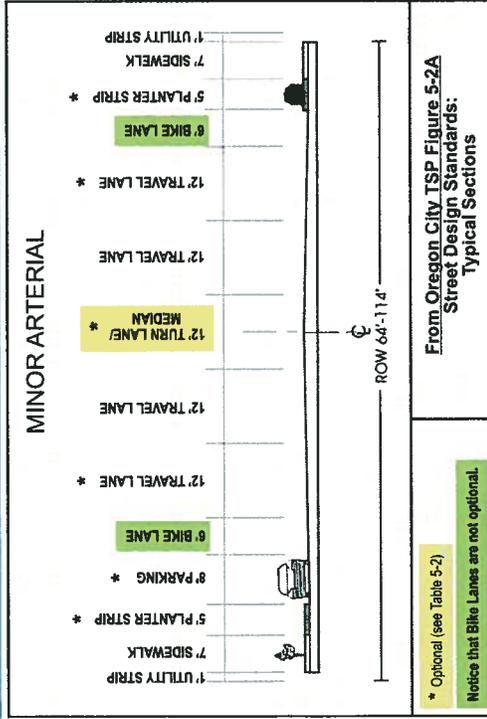
*Aleta Froman-Goodrich, P.E.  
Public Works Senior Project Engineer  
City of Oregon City  
PO Box 3040  
625 Center Street (NOTE: City Hall has moved to this location.)  
Oregon City, OR 97045-0304  
Phone: (503) 496-1570  
Fax: (503) 657-7892  
Email: [afromangoodrich@orc.org](mailto:afromangoodrich@orc.org)  
Think GREEN before you print.*



# WARNER MILNE ROAD

## Applicable City Policies, Practices, and Projects

### Warner Milne Road Cross-Section Standard



### Identified TSP Projects

No.	Location	Recommended Improvement	Estimated Cost	Priority Class
1994 Oregon City Bicycle Plan High Priority Projects				
B-6	Warner Milne Road: Linn Ave to Molalla Ave	Striped 5 to 6-foot bike lanes in both directions	\$10,150	3

### City and Regional Goals and Policies

#### City TSP Goal 1: Objective 2 and Metro RTP Goal 3: Objective 2

Provide an interconnected and accessible street system that minimizes vehicle-miles-traveled (10 % reduction in VMT per capita between the years 2000 and 2020).

#### City TSP Goal 1: Objective 4

Provide a well-defined and accessible bicycle network that links residential areas, major bicycle generators, employment centers, and the arterial and collector roadway network.

#### City TSP Goal 1: Objective 9

Ensure the multi-modal transportation system preserves, protects, and supports the environmental integrity of the Oregon City community.

#### Metro RTP Goal 3: Objective 1 (Travel Choices)

Achieve modal targets for increased walking, bicycling, use of transit and shared ride and reduced reliance on the automobile and drive alone trips.

#### Metro RTP Goal 6: Objective 2 (Clean Air)

Reduce transportation-related vehicle emissions to improve air quality.

#### Metro RTP Goal 7: Objective 1: (Active Living)

Provide safe, comfortable, and convenient transportation options that support active living and physical activity to meet daily needs and access services.

### Other Minor Arterials

City Roadway	Bike Lanes	Two-Way Left-Turn Lane
Abernethy Road	X	X
Holmes Lane	X	
Linn Avenue	X	
Meyers Road	X	
Redland Road	X	
South End Road	X	
Warner Parrot Road	X	
Washington Street	X	



# WARNER MILNE ROAD

## Traffic Analysis Summary

### Roadway Traffic Volumes

Data Recorded	24-Hour Tube Data (Weekday, July 2008, Prior to Construction)		Total
	Eastbound	Westbound	
Approximate Daily Traffic	3,850 vehicles	3,750 vehicles	7,600 vehicles
85 <sup>th</sup> Percentile Speed	33 mph	33 mph	33 mph
Approximate Daily Bicycle Volumes using Vehicular Travel Lane	65 bikes	70 bikes	135 bikes

#### Two Common Thresholds for Providing a Striped Bike Lane:

- Bi-directional traffic volumes greater than 3,000 daily vehicles
- Vehicular travel speeds are in excess of 25 mph.

**Warner Milne Road meets both thresholds**

### Driveway Analysis Results

#### Left-Turn Warrants

- No left-turn warrants are met at major driveways

#### Operating Conditions

- All driveways considered in this analysis operate at level of service (LOS) C or better regardless of whether TWLTL is provided

#### Collision Analysis for 2006 to 2008 (between Beaver Creek Rd and Molalla Ave, exclusive)

- Two collisions (both driveway related and resulted in injuries)
- Collision rate of 0.94 collisions per million vehicle-miles traveled (VMT)
- Statewide average collision rate was 2.64 collisions per VMT

### Analysis Summary

#### Two-Way Left-Turn Lane (TWLTL) Could be Helpful

- Typical TWLTL characteristics are present (i.e., arterial, no heavy concentrations of left-turning traffic, close spacing of driveways, lower travel speeds, and lower traffic volumes)
- No identified safety concerns when a TWLTL was previously provided

#### TWLTL is Not Necessary

- No left-turn warrants are met
- All driveways operate at level of service (LOS) C or better regardless of whether TWLTL is provided

#### Bike Lanes are More Important than TWLTL

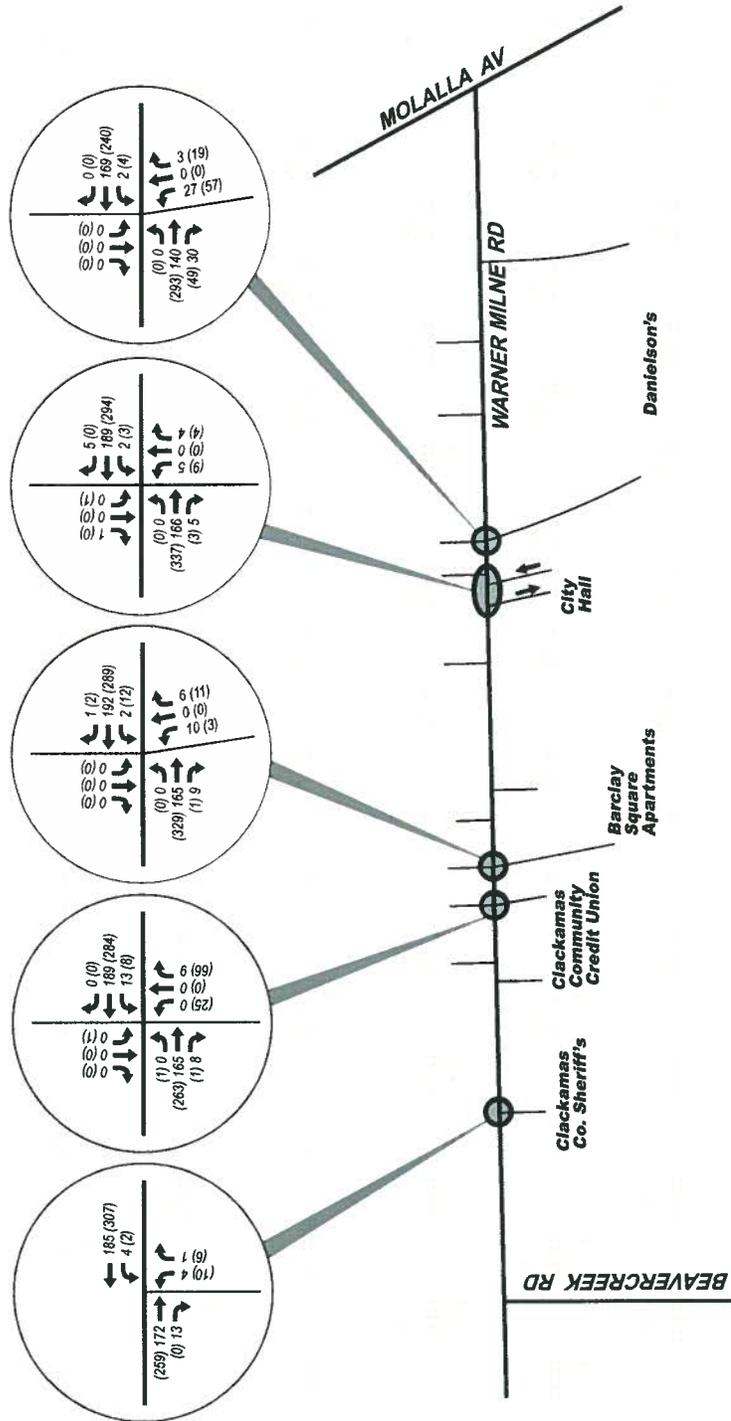
- Bike lanes are required on minor arterials in the City's TSP, while TWLTLs are optional
- Bike lanes help City better meet community goals identified in TSP
- Bike lanes previously identified as high priority bicycle system improvement project (TSP Project B-6)
- Typical bike lane threshold met (> 3,000 daily vehicles or > 25 mph)
- Existing demand for bicycle facilities (135 daily bicyclists)
- Other minor arterials throughout Oregon City provide bike lanes instead of TWLTLs

#### Future Considerations if Bike Lanes are Provided

- Before-and-after study should be performed to verify safety effects
- Easy to convert back to TWLTL if desired (only requires restriping)



# WARNER MILNE ROAD Driveway Turn Movement Volumes



**LEGEND**

- - Study Intersection
- ← AM (PM) - Peak Hour Traffic Volumes



**MEMORANDUM**

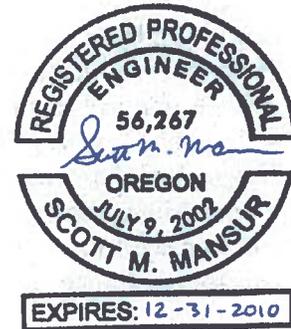
**TO:** Aleta Froman-Goodrich, P.E., City of Oregon City  
Nancy Kraushaar, P.E., City of Oregon City  
Erik Wahrgren, E.I.T., City of Oregon City

**FROM:** Peter Coffey, P.E., P.T.O.E.  
Scott Mansur, P.E., P.T.O.E. *Sm*  
Brad Coy, E.I.T.

**DATE:** January 29, 2010

**SUBJECT:** Warner Milne Road Restriping Analysis

P09155-000-000



This memorandum documents traffic analysis performed for the section of Warner Milne Road in Oregon City that is currently being repaved and restriped to determine whether the existing cross section should include either bike lanes or a center two-way left-turn lane (TWLTL). The City would like to make the final striping modifications as part of the improvement project that is currently under construction.

First, background information is documented and safety research findings relating to TWLTLs are presented. Then, the existing traffic volumes along Warner Milne Road are documented and analysis results are presented relating to intersection operations, left-turn lane warrants, and collision history. Following the analysis, a summary of findings relating to the two striping alternatives is provided.

**Background Information**

Warner Milne Road runs between Linn Avenue and Molalla Avenue in Oregon City (through a mixed use commercial/high density residential area<sup>1</sup>), is classified as a minor arterial, and has a speed limit of 30 miles per hour (mph). In the past, it has included a travel lane in either direction plus a center TWLTL. However, the Oregon City Transportation System Plan (TSP) identifies a high priority bicycle system improvement (Project B-6) on this section of Warner Milne Road that includes the striping of 5- to 6-foot wide bike lanes in both directions.<sup>2</sup> Because the curb-to-curb distance on Warner Milne Road is not sufficiently wide to include both bike lanes and a TWLTL, a decision must be made regarding which should be provided.

Currently, there is roadwork being performed on the eastern end of Warner Milne Road between Beaver Creek Road (also referred to as Kaen Avenue) and Molalla Avenue. The roadwork includes

<sup>1</sup> Adjacent zoning includes Mixed Use Corridor 1 (MUC-1), Mixed Use Employment (MUE), General Commercial (C), and Multi-Family Dwelling (R-2).

<sup>2</sup> Oregon City Transportation System Plan, Ordinance No. 01-1009, Adopted April 2001, Table 5-11, page 5-51; Project B-6 has an estimated cost of \$10,150.

the relocation of the Warner Milne Road approach to Molalla Avenue in order to align opposite Fox Lane. In addition, the curb-to-curb distance is being widened to accommodate three travel lanes (one in either direction plus an eastbound turn lane) as well as bike lanes in either direction. This widened cross section will extend approximately 350 feet from the intersection, at which point the bike lanes will end and Warner Milne Road will narrow to the existing curb-to-curb distance. The construction design plans show restriping a travel lane in either direction plus a center TWLTL along the rest of Warner Milne Road up until approximately 190 feet from Beaver Creek Road. The TWLTL striping will then end and a westbound left turn lane for the signalized Warner Milne Road/Beaver Creek Road intersection will be provided. This plan is consistent with the previous Warner Milne Road striping.

Due to the current roadwork on Warner Milne Road, now is an opportune moment to decide whether bike lanes should be provided instead of a TWLTL. One key reference for the city is the Oregon City TSP, which indicates that bike lanes are required on minor arterials while center turn lanes are optional.<sup>3</sup> Therefore, because Warner Milne Road is classified as a minor arterial, bike lanes would typically be a higher priority than a TWLTL.

A review of other minor arterials throughout the city also indicates that bike lanes are almost always provided instead of TWLTLs.<sup>4</sup> The following roadways are some examples (though in some instances there are unimproved roadway sections where there are neither bike lanes nor TWLTLs):

- Warner Parrot Road (which becomes Warner Milne Road at Linn Avenue)
- South End Road
- Linn Avenue
- Holmes Lane
- Meyers Road
- Redland Road
- Washington Street

As mentioned previously, land uses along this section of Warner Milne Road are mixed use employment, commercial, and high density residential. These land uses often attract bike trips as residents travel between their homes and retail/employment centers. Therefore, bike lanes would facilitate bike trips in the area. In addition, providing bike lanes adjacent to these land uses is consistent with the Oregon City TSP objective to “provide a well-defined and accessible bicycle network that links residential areas, major bicycle generators, employment centers, and the arterial and collector roadway network with one another.”<sup>5</sup>

In addition, as Oregon City continues to improve the connectivity of its bike lane network, it will encourage residents to use alternative transportation modes and contribute to a reduction in vehicle-miles traveled (VMT). The City has a goal identified in its TSP<sup>6</sup> to reduce per capita VMT by 10 percent between the years 2000 and 2020, and additional bike lanes can help the City move towards this goal. Furthermore, providing bike facilities (such as bike lanes) is a proactive and

<sup>3</sup> *Oregon City Transportation System Plan (TSP)*, Ordinance No. 01-1009, Adopted April 2001, Figure 5-2A (Street Design Standards: Typical Sections).

<sup>4</sup> One instance when there is a TWLTL provided on a minor arterial instead of bikes is Abernethy Road. However, there is a wider shoulder along much of this roadway that could provide some service to bicycles.

<sup>5</sup> *Oregon City TSP*, Ordinance No. 01-1009, Adopted April 2001, Goal 1: Objective 4, pg. 5-4.

<sup>6</sup> I.B.I.D., Goal 1: Objective 2, pg. 5-4.

economical approach to reducing greenhouse gas (GHG) emissions, which will help Oregon City to meet another TSP Goal, namely to “ensure the multi-modal transportation system preserves, protects, and supports the environmental integrity of the Oregon City community.”<sup>7</sup> Therefore, providing bike lanes instead of a TWLTL is more consistent with multiple objectives of the Oregon City TSP.

There are also regional goals that should be addressed because Oregon City is within Metro’s metropolitan planning boundaries. Metro is the federally mandated metropolitan planning organization designated by the governor to develop an overall transportation plan and to allocate federal funds for the region. In their *2035 Regional Transportation Plan*,<sup>8</sup> Metro has also identified various objectives that are associated with providing an increased number of bike lanes:

- **Objective 3.1: Travel Choices** – Achieve modal targets for increased walking, bicycling, use of transit and shared ride and reduced reliance on the automobile and drive alone trips.
- **Objective 3.2: Vehicle Miles of Travel** – Reduce vehicle miles traveled per capita.
- **Objective 6.2: Clean Air** – Reduce transportation-related vehicle emissions to improve air quality so that as growth occurs, the view of the Cascades and the Coast Range from within the region are maintained.
- **Objective 7.1: Active Living** – Provide safe, comfortable and convenient transportation options that support active living and physical activity to meet daily needs and access services.

If bike lanes were provided on Warner Milne Road instead of a TWLTL and no widening was performed, the bike lanes would be required to end approximately 190 feet east of Beaver Creek Road to allow for the westbound left turn lane at the Warner Milne Road/Beaver Creek Road intersection. This would leave a gap in the bicycle lane network starting at this location and extending west to Linn Avenue (where Warner Milne Road becomes Warner Parrot Road).

The main consideration for including a TWLTL instead of bike lanes is that this is what was previously provided and current construction plans include the restriping of a TWLTL instead of bike lanes. In addition, because certain operational and safety considerations (e.g., left-turn volumes, capacity needs, and recent collisions) can increase the importance of having a TWLTL, these were analyzed and are documented in this memorandum in order to assist City Staff in determining whether a TWLTL on Warner Milne Road is more important than bike lanes.

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<sup>7</sup> I.B.I.D., Goal 1: Objective 9, pg. 5-4.

<sup>8</sup> *2035 Regional Transportation Plan: Public Review Draft*, Metro, September 15, 2009; pgs.9 to 11

## **Safety Research**

Research was performed to document when bike lanes and/or a center two-way left-turn lane (TWLTL) are appropriate and how they can benefit roadway users. How these considerations relate to this segment of Warner Milne Road is discussed throughout this memorandum and overall findings are provided in the final summary section.

### **Bike Lanes**

Cyclists are important roadway users, and all roadways should be designed under the assumption that they will be used by cyclists.<sup>9</sup> In addition, because there are various methods that can be used to accommodate bicyclists, community goals (typically developed and documented in conjunction with transportation plans) are important in shaping how a bicycle network is developed.<sup>10</sup> Therefore, the Oregon City TSP is an important document to provide guidance for this decision.

Bicyclist safety is another important consideration when determining whether to install bike lanes. One emphasis area that has been identified for reducing the number and of severity of bicycle-related collisions is to provide safe roadway facilities for parallel travel. The most common method of doing so is to provide bicycle lanes.<sup>11</sup>

In recent years, bicycle travel has also become a more important alternative mode of transportation in the United States. A primary method that has been used to improve bicycle travel is to provide bike lanes. In fact, it has been recommended that “special efforts . . . be made to assure that a high quality network is provided with these lanes.”<sup>12</sup> While there are no definite rules for determining when a striped bike lane should be provided to accommodate bicycle traffic, two of the main considerations that are typically used across the world are roadway traffic volumes and travel speed. The most common thresholds are when there are more than 3,000 daily vehicles and/or vehicular travel speeds are in excess of 25 mph.<sup>13</sup> These thresholds are also documented in the Oregon City TSP.<sup>14</sup>

### **Center Two-Way Left-Turn Lanes (TWLTLs)**

Though it is best to remove left-turning traffic from through lanes whenever practical, the degree of importance of providing a turn lane is based on whether one is warranted. The two main warrant considerations are high traffic volumes and identified safety concerns.<sup>15</sup>

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<sup>9</sup> *Guide for the Development of Bicycle Facilities (1999)*, American Association of State Highway Transportation Officials (AASHTO), pg. 1.

<sup>10</sup> I.B.I.D., pg. 5.

<sup>11</sup> *Guidance for Implementation of the AASHTO Strategic Highway Safety Plan – Volume 18: A Guide for Reducing Collisions Involving Bicycles*, National Cooperative Highway Research Program (NCHRP) Report 500, 2008, pgs. V-49 to V-50.

<sup>12</sup> I.B.I.D., pg. 8.

<sup>13</sup> *Bicycle Facility Selection: A Comparison of Approaches*, prepared by Michael King for the Pedestrian and Bicycle Information Center Highway Safety Research Center, University of North Carolina – Chapel Hill

<sup>14</sup> *Oregon City Transportation System Plan*, Ordinance No. 01-1009, Adopted April 2001, pg. 5-48.

<sup>15</sup> *A Policy on Geometric Design of Highways and Streets (Fifth Edition, 2004)*, AASHTO, pg. 682.

Research data<sup>16</sup> also support the finding that having a TWLTL has been shown to be advantageous for the following reasons:

- There are less collisions, especially rear-ends; though, the greatest collision reduction benefits are experienced in rural rather than urban locations.<sup>17</sup>
- Travel times through a corridor are reduced because of less delay caused by turning vehicles.
- The roadway has improved capacity and can serve higher traffic volumes.
- Surveys of both drivers and owners of abutting properties have indicated that they typically prefer having TWLTLs in order to improve driveway access.

Not all roadways are good candidates for striping TWLTLs. The typical preferred use of a TWLTL is when the roadway has the following characteristics<sup>18</sup>:

- It is an arterial road with closely spaced, low-volume commercial driveways (i.e., no heavy concentrations of left-turning traffic).
- Travel speeds are relatively low (25 to 45 mph).
- Total roadway volumes are below about 24,000 daily vehicles (i.e., a lower-volume road).<sup>19</sup>

## Traffic Volumes

Because they are the basis of operational and warrant analysis, traffic volumes along Warner Milne Road were collected during the a.m. (7:00 to 9:00 a.m.) and p.m. (4:00 to 6:00 p.m.) peak periods at the following five driveways:

- Warner Milne Rd./Danielson's West Driveway
- Warner Milne Rd./City Hall Driveways
- Warner Milne Rd./Barclay Apartments Driveway
- Warner Milne Rd./Clackamas Credit Union Driveway
- Warner Milne Rd./Clackamas County Sheriff's Driveway

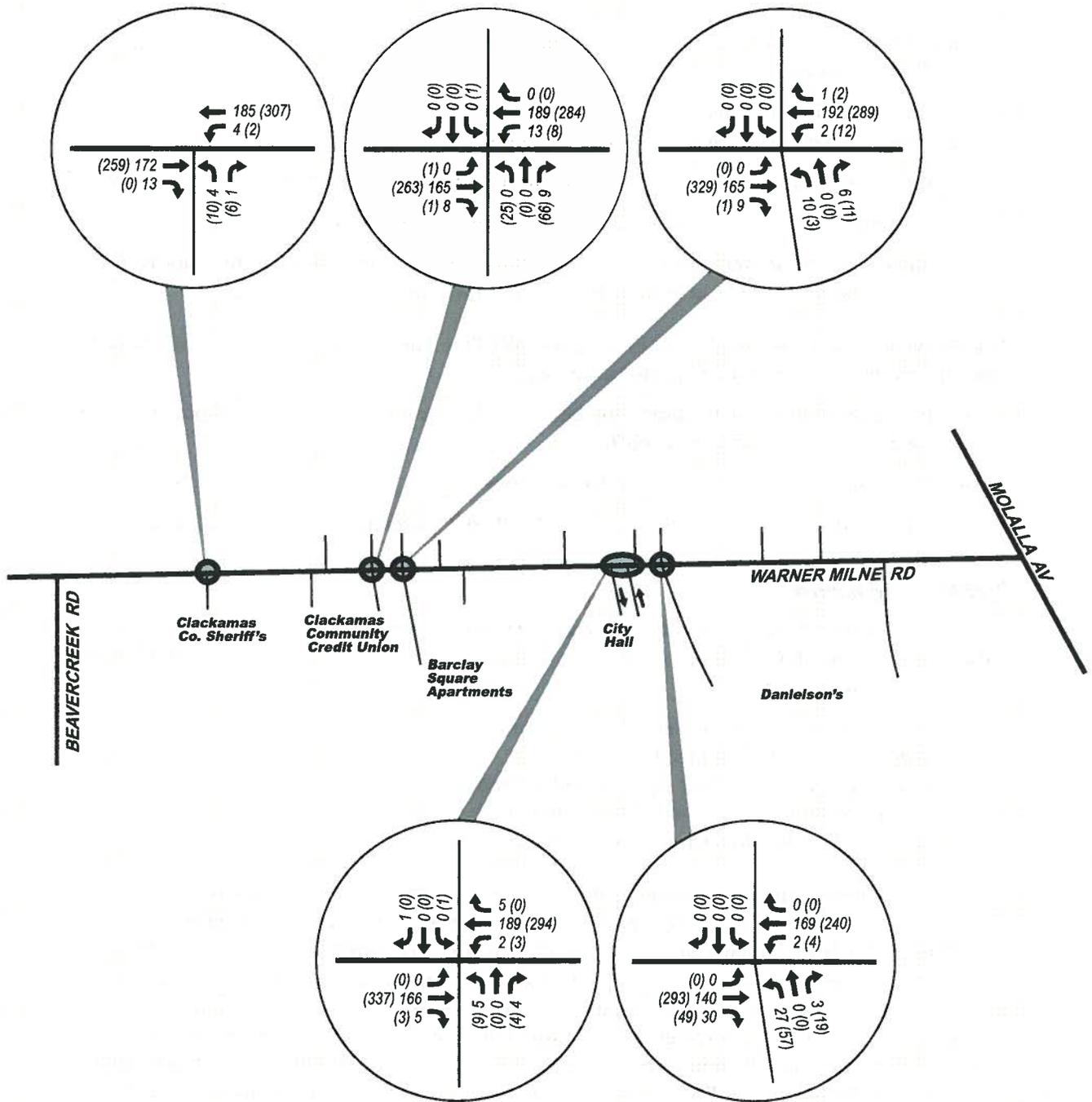
Only the vehicles entering and exiting the driveways were counted because the current construction allows for local access traffic but is a deterrent to through traffic. To estimate through traffic volumes on Warner Milne Road, recent traffic volumes counted prior to construction at the nearby Warner Milne Road/Molalla Avenue intersection were used, and balancing was performed. The resulting intersection volumes assumed for this analysis are shown in Figure 1 and detailed count information is provided in the appendix. A review of the left-turn volumes into the driveways shows there are no heavy concentrations of left-turning traffic at any of these driveways. For this fact and because of the close spacing of driveways, a TWLTL would be the preferred option for removing left turns from the through lanes.

<sup>16</sup> I.B.I.D., pg. 338.

<sup>17</sup> *Safety Evaluation of Center Two-Way Left-Turn Lanes on Two-Lane Roads*, Federal Highway Administration Tech Brief (FHWA-HRT-08-046), March 2008.

<sup>18</sup> *A Policy on Geometric Design of Highways and Streets (Fifth Edition, 2004)*, AASHTO, pgs. 338, 475.

<sup>19</sup> *Traffic Engineering Handbook (Sixth Edition, 2009)*, Institute of Traffic Engineers (ITE), pg. 465.



**LEGEND**

● - Study Intersection

← AM (PM) - Peak Hour Traffic Volumes

**DKS Associates**  
TRANSPORTATION SOLUTIONS

↑  
NO SCALE

**Figure 1**

**EXISTING A.M. AND P.M. PEAK HOUR DRIVEWAY VOLUMES**

A 24-hour tube count on Warner Milne Road between Beaver Creek Road and Molalla Avenue was also available and the measured traffic volumes and speeds are listed in Table 1. This data was collected prior to construction and indicates that bi-directional average daily traffic (ADT) volumes were approximately 7,600 vehicles and the 85<sup>th</sup> percentile travel speed was 33 mph, which is slightly higher than the 30-mph speed limit. Therefore, Warner Milne Road is a lower speed, lower volume roadway and would be a good candidate for a TWLTL. However, because volumes are greater than 3,000 daily vehicles and travel speeds are greater than 25 mph, it is also important to provide bike lanes on this roadway section.

There were also approximately 135 bikes using the vehicle travel lanes during the day (approximately two percent of total traffic) based on the traffic count data with approximately 20 of these occurring during the p.m. peak hour. Because these bicycles were counted with roadway tubes, it does not include any bicycles that may have been using the sidewalks. Therefore, there is significant existing demand for bicycle facilities on this roadway.

**Table 1: 24-Hour Warner Milne Tube Data (Weekday, July 2008, Prior to Construction)**

Data	By Direction of Travel		Total
	Eastbound	Westbound	
Approximate Daily Traffic Volume (including Bikes)	3,850 vehicles	3,750 vehicles	7,600 vehicles
85 <sup>th</sup> Percentile Speed	33 mph	33 mph	33 mph
Approximate Daily Bicycle Volumes using Vehicular Travel Lane	65 bikes	70 bikes	135 bikes

## Intersection Operations

Intersection traffic operations were analyzed for the five study area driveways both with and without a center two-way left-turn lane (TWLTL) in order to compare the operational difference between the two striping alternatives. The operating conditions were estimated for both the a.m. and p.m. peak hours using the traffic volumes discussed previously (see Figure 1).

The average delay, level of service (LOS), and volume to capacity (V/C) ratios were determined using *2000 Highway Capacity Manual* methodology<sup>20</sup> and are listed in Table 2. As shown, all driveways would operate at LOS C or better and meet the Oregon City LOS E operating standard for unsignalized intersections regardless of whether a center TWLTL is provided.<sup>21</sup> Therefore, there are no operating concerns that indicate a center turn lane is needed.

<sup>20</sup> *2000 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000.

<sup>21</sup> The TWLTL analysis assumes 2-stage gap acceptance where vehicles are able to pull out of the driveways and wait in the TWLTL before merging with traffic. The analysis assumes that TWLTL storage is available for one vehicle.

**Table 2: Driveway Operating Conditions (A.M. and P.M. Peak Hours)**

Driveway on Warner Milne Road	Operating Standard	With Center Turn Lane			No Center Turn Lane		
		Delay	LOS	V/C	Delay	LOS	V/C
<b>A.M. Peak Hour</b>							
Danielson's (west)	LOS E	10.4	A/B	0.13	10.9	A/B	0.17
City Hall	LOS E	9.4	A/A	0.13	9.4	A/A	0.15
Barclay Apartments	LOS E	10.6	A/B	0.14	11.2	A/B	0.17
Clackamas Credit Union	LOS E	10.3	A/B	0.14	10.7	A/B	0.17
Clackamas County Sheriff's	LOS E	10.8	A/B	0.12	11.4	A/B	0.15
<b>P.M. Peak Hour</b>							
Danielson's (west)	LOS E	11.0	A/B	0.19	11.8	A/B	0.25
City Hall	LOS E	13.2	A/B	0.18	15.9	A/C	0.22
Barclay Apartments	LOS E	10.8	A/B	0.21	11.4	A/B	0.28
Clackamas Credit Union	LOS E	12.6	A/B	0.21	15.0	A/B	0.29
Clackamas County Sheriff's	LOS E	12.3	A/B	0.21	14.0	A/B	0.28
Delay = Average Stopped Delay per Vehicle (sec) at Worst Movement (typically a minor movement)		V/C = Volume-to-Capacity Ratio of Worst Movement (typically a minor movement)					
LOS = Level of Service of Major Street/Minor Street		<b><u>Bold Underlined</u></b> values do not meet standards.					

### Left-Turn Lane Warrants

Left turn lane warrants were analyzed at the five study area driveways and are a good indicator of where left-turn lanes are needed because they take into account roadway characteristics that have been shown to influence both safety and capacity of left-turn movements (e.g., roadway volumes, speeds, expected traffic flow, and number of travel lanes). Table 3 provides the results of the warrant analysis based on methodologies provided by the Highway Research Board (HRB) and ODOT. As shown, no left-turn lane warrants using either method are met. Therefore, there are no turn lane volume concerns that indicate a center turn lane is needed.

**Table 3: Turn Lane Warrants (A.M. and P.M. Peak Hours)**

Driveway on Warner Milne Road	Movement	Turn Lane Warrants Met?	
		HRB (A.M./P.M.) <sup>a</sup>	ODOT (A.M./P.M.)
Danielson's (west)	Eastbound	No/No	No/No
	Westbound	No/No	No/No
City Hall	Eastbound	No/No	No/No
	Westbound	No/No	No/No
Barclay Apartments	Eastbound	No/No	No/No
	Westbound	No/No	No/No
Clackamas Credit Union	Eastbound	No/No	No/No
	Westbound	No/No	No/No
Clackamas County Sheriff's	Westbound	No/No	No/No

<sup>a</sup> HRB = Highway Research Board

## **Collision Analysis**

Collision analysis was performed for the segment of Warner Milne Road between Beaver Creek Road (also referred to as Kaen Avenue) and Molalla Avenue. Only those collisions not related to the Warner Milne Road/Beaver Creek Road and Warner Milne Road/Molalla Avenue intersections and their associated intersection approaches and turn lanes were considered. Therefore, the specific segment starts 190 feet east of Beaver Creek Road and ends 350 feet west of Molalla Avenue.

The collision history for this segment of road was obtained for the most recent three years (i.e., 2006 through 2008) from the ODOT Crash Analysis and Reporting Unit. The data indicate that there were no reported collisions involving pedestrians or bicyclists during these three years. Instead, this section of Warner Milne only had the following two reported collisions, though both incidents did result in injuries (the details were deducted from distance and error code information provided by ODOT):

- On April 28, 2006, an eastbound vehicle improperly turned left into the Oregon City Church of Christ back alley and was hit by a westbound through vehicle.
- On August 12, 2008, a vehicle exiting the Randji Denture Center did not yield to a westbound vehicle turning right into the driveway.

The average yearly collision rate for this segment of Warner Milne Road was calculated based on these two collisions (0.67 collisions per year), the daily traffic tube count reported previously in this memorandum (7,600 daily vehicles), and the estimated roadway length (1,360 feet or approximately one-quarter mile). The resulting collision rate is 0.94 collisions per million vehicle-miles traveled (VMT). This is lower than the statewide average of 2.49 collisions per million VMT for urban city minor arterial roadways for the same years (i.e., 2006 to 2008).<sup>22</sup> However, because this roadway section is less than one mile, small changes in assumptions can significantly change the results. Therefore, ODOT has indicated that a warning should accompany the estimated collision rate.<sup>23</sup>

The low collision rate for this segment of Warner Milne Road supports the conclusion that there were no significant safety concerns when a TWLTL was provided. Because TWLTLs improve safety, it is possible that if the TWLTL is removed, then safety may decrease and there may be an increase in collisions in the future. Therefore, if City Staff decide to stripe bike lanes instead of a TWLTL, it is recommended that a before-and-after safety study be performed as data is available in order to verify the safety effects.

## **Summary of Findings**

Warner Milne Road is currently being repaved and restriped between Beaver Creek Road (Kaen Avenue) and Molalla Avenue. Because the curb-to-curb distance is not wide enough to include both bike lanes and a center two-way left-turn lane (TWLTL), City Staff must make a decision regarding which should be provided.

<sup>22</sup> 2008 State Highway Crash Rate Tables, ODOT Crash Analysis and Reporting Unit, August 2009; Table II, pg. 7.

<sup>23</sup> Analysis Procedures Manual (APM), ODOT Transportation and Analysis Unit (TPAU), July 2009, pg. 5-2.

Below is a summary list of findings for the two alternatives based on the previously documented analysis to assist City Staff in their determination:

**Why a TWLTL may be helpful**

- This section of Warner Milne Road is a good candidate for a TWLTL because it has the desired characteristics (i.e., minor arterial classification, no heavy concentrations of left-turning traffic, close spacing of driveways, lower travel speeds, and lower traffic volumes).
- There were no identified safety concerns when a TWLTL was previously provided.

**Why a TWLTL is not necessary**

- There are no operating concerns that indicate a center turn lane is necessary (i.e., all intersections meet operating standards).
- There are no turn lane volume concerns that indicate a center turn lane is necessary (i.e., no turn lane warrants are met).
- Striping a TWLTL prevents the inclusion of bike lanes. This is inconsistent with the Oregon City TSP, which indicates that bike lanes are required on minor arterials while a center turn lane is optional.
- Other minor arterials throughout Oregon City provide bike lanes instead of TWLTLs.

**Why bike lanes are important**

- The Oregon City TSP indicates that bike lanes are required on minor arterials and that TWLTLs are optional. Providing bike lanes instead of a TWLTL is also consistent with Goal #1 (Multi-Modal Travel Options) of the Oregon City TSP. In particular, Objectives 2, 4, and 9 are better met by striping bike lanes.<sup>24</sup> Because the Oregon City TSP reflects community goals, it is an important document to provide guidance for this decision.
- The Oregon City TSP identifies the striping of 5- to 6-foot wide bike lanes in both directions as a high priority bicycle system improvement (Project B-6).
- There is existing demand for bicycle facilities. Tube counts prior to construction indicate that 135 daily bicyclists use the vehicle travel lanes on this section of Warner Milne Road.
- Safety research indicates that bike lanes should be provided because traffic volumes are greater than 3,000 daily vehicles and travel speeds are greater than 25 mph.

**Potential considerations should a TWLTL not be provided**

- Striping bike lanes prevents the inclusion of a TWLTL. Therefore, if a TWLTL is not provided, it is recommended that a before-and-after safety study be performed as data is available in order to verify the safety effects.

Let us know if you have any questions or comments.

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<sup>24</sup> Oregon City TSP, Ordinance No. 01-1009, Adopted April 2001, Goal 1: Objectives 2, 4, & 9, pg. 5-4.

## **Appendix**

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**Traffic Counts – AM Peak Hour**

**Traffic Counts – PM Peak Hour**

**Traffic Counts – 24-Hour Tube Data**

**Level of Service Descriptions**

**HCM Analysis – With Turn Lanes**

**HCM Analysis – Without Turn Lanes**

**Turn Lane Warrants**

**ODOT Collision Data**

## **Traffic Counts – AM Peak Hour**

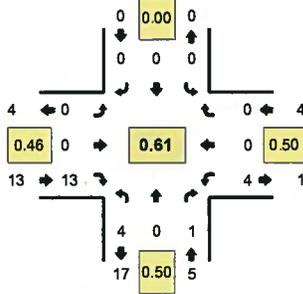
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Type of peak hour being reported: Intersection Peak

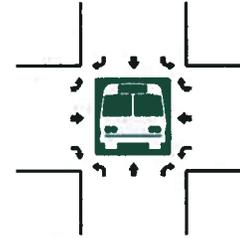
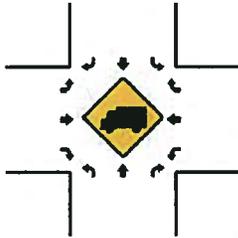
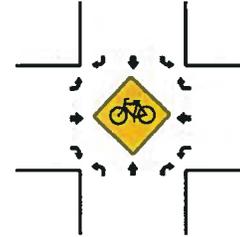
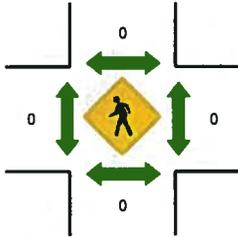
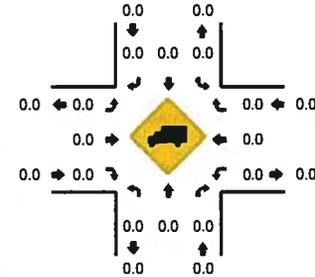
Method for determining peak hour: Total Entering Volume

**LOCATION:** Clackamas County Sheriff's Dwy -- Warner Milne Rd  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10470309  
**DATE:** 12/16/2009



**Peak-Hour: 7:15 AM -- 8:15 AM**  
**Peak 15-Min: 7:15 AM -- 7:30 AM**



5-Min Count Period Beginning At	Clackamas County Sheriff's Dwy (Northbound)				Clackamas County Sheriff's Dwy (Southbound)				Warner Milne Rd (Eastbound)				Warner Milne Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:05 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
7:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	3
7:20 AM	0	0	1	0	0	0	0	0	0	0	3	0	1	0	0	0	5	5
7:25 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	2
7:35 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	2
7:40 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
7:50 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:55 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	19
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	20
8:05 AM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	21
8:10 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	22
8:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	21
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
8:25 AM	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	3	18
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	17
8:35 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	16
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
8:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	15
8:50 AM	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	3	17
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	0	4	0	0	0	0	0	0	0	28	0	4	0	0	0	36	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

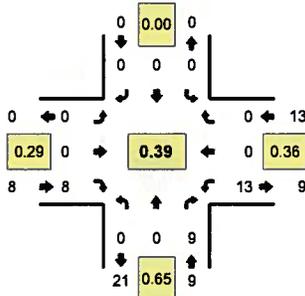
Comments: Need to be able to get traffic from both sides

Type of peak hour being reported: Intersection Peak

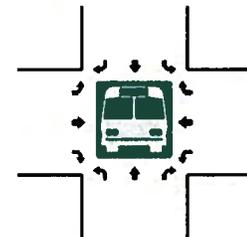
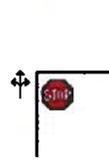
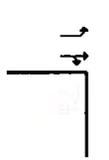
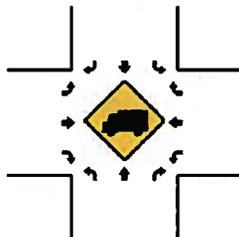
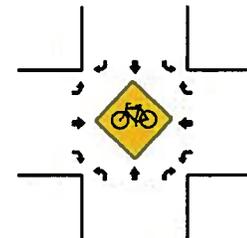
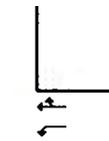
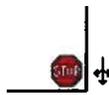
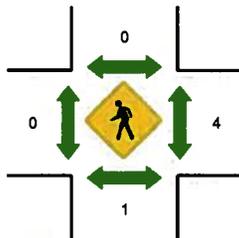
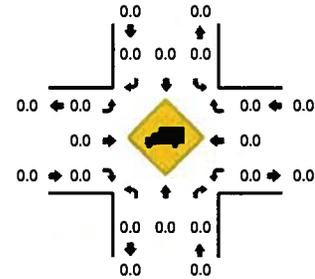
Method for determining peak hour: Total Entering Volume

**LOCATION:** Clackamas Credit Union Dwy – Warner Milne Rd  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10470307  
**DATE:** 12/16/2009



**Peak-Hour: 7:55 AM -- 8:55 AM**  
**Peak 15-Min: 8:25 AM -- 8:40 AM**



5-Min Count Period Beginning At	Clackamas Credit Union Dwy (Northbound)				Clackamas Credit Union Dwy (Southbound)				Warner Milne Rd (Eastbound)				Warner Milne Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:05 AM	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	4	
7:10 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:20 AM	2	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	4	
7:25 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
7:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
7:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:40 AM	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:55 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	17
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
8:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
8:10 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	12
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
8:20 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	9
8:25 AM	0	0	0	0	0	0	0	0	0	0	3	0	5	0	0	0	8	16
8:30 AM	0	0	3	0	0	0	0	0	0	0	2	0	3	0	0	0	8	22
8:35 AM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	3	25
8:40 AM	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	3	26
8:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	3	29
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	30
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	0	16	0	0	0	0	0	0	0	28	0	32	0	0	0	76	
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0	
Pedestrians									0				8				8	
Bicycles																		
Railroad																		
Stopped Buses																		

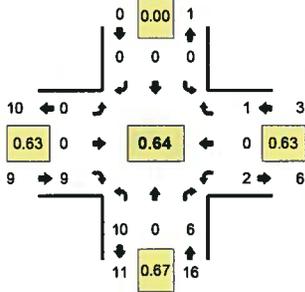
Comments: Need to be able to get traffic from both sides

Type of peak hour being reported: Intersection Peak

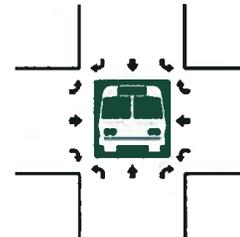
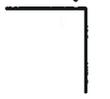
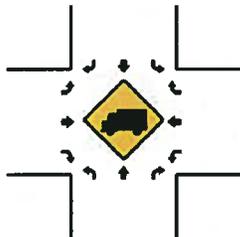
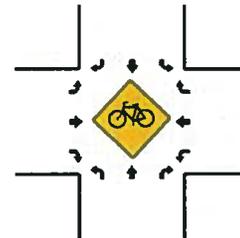
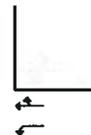
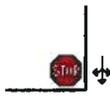
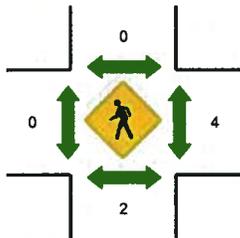
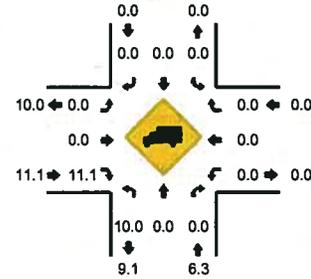
Method for determining peak hour: Total Entering Volume

**LOCATION:** Barclay Apartments Dwy -- Warner Milne Rd  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10470305  
**DATE:** 12/16/2009



**Peak-Hour: 7:40 AM -- 8:40 AM**  
**Peak 15-Min: 7:45 AM -- 8:00 AM**



5-Min Count Period Beginning At	Barclay Apartments Dwy (Northbound)				Barclay Apartments Dwy (Southbound)				Warner Milne Rd (Eastbound)				Warner Milne Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:10 AM	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:25 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
7:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:40 AM	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
7:45 AM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
7:50 AM	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4
7:55 AM	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	4
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2
8:05 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:10 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:20 AM	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	4
8:25 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3
8:35 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:40 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	20	0	4	0	0	0	0	0	0	0	16	0	0	0	4	0	0	44
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians		0				0				0				4				4
Bicycles																		
Railroad																		
Stopped Buses																		

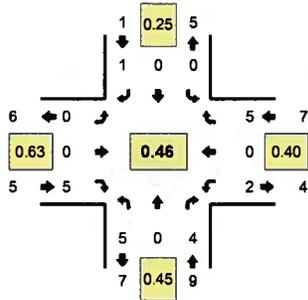
Comments: Need to be able to get traffic from both sides

Type of peak hour being reported: Intersection Peak

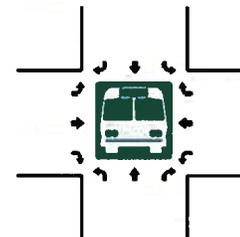
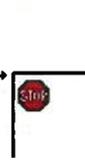
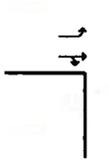
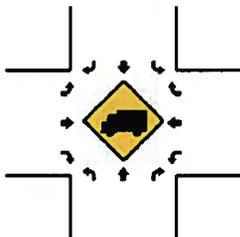
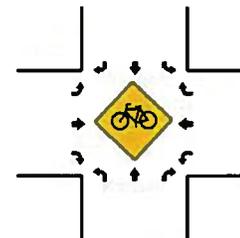
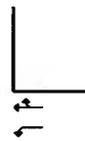
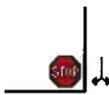
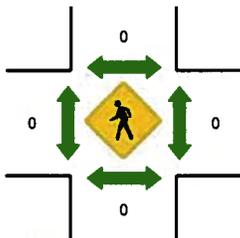
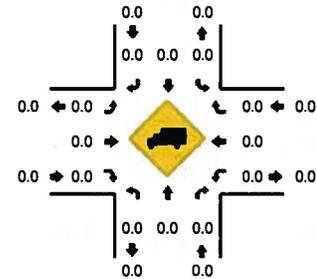
Method for determining peak hour: Total Entering Volume

**LOCATION:** City Hall Driveway – Warner Milne Rd  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10470303  
**DATE:** 12/16/2009



**Peak-Hour: 7:10 AM -- 8:10 AM**  
**Peak 15-Min: 7:35 AM -- 7:50 AM**



5-Min Count Period Beginning At	City Hall Driveway (Northbound)				City Hall Driveway (Southbound)				Warner Milne Rd (Eastbound)				Warner Milne Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1		
7:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:10 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
7:15 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	3		
7:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:25 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:35 AM	2	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	6		
7:40 AM	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2		
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	4		
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:55 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	21	
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	21	
8:05 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	22	
8:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	21	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	
8:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	6	
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	12	0	8	0	0	0	0	0	0	0	8	0	8	0	12	0	48		
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0		
Pedestrians																			
Bicycles																			
Railroad																			
Stopped Buses																			

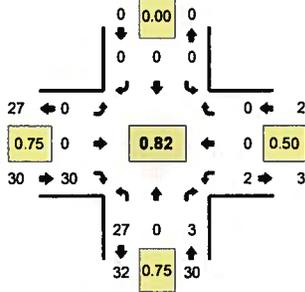
*Comments:* Need to be able to get traffic from both sides

Type of peak hour being reported: Intersection Peak

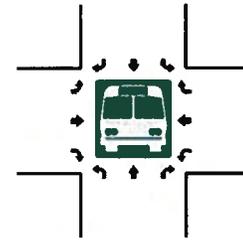
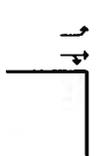
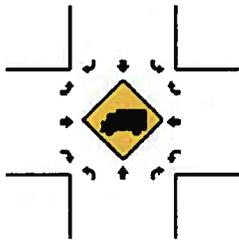
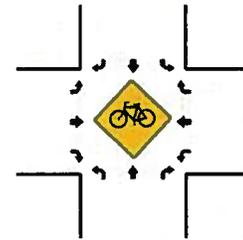
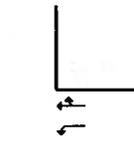
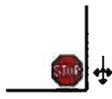
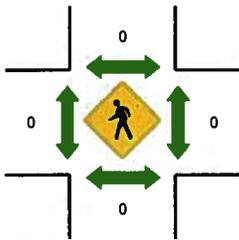
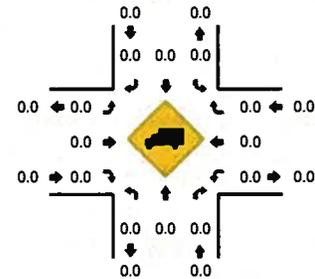
Method for determining peak hour: Total Entering Volume

**LOCATION:** Danielson's West Dwy -- Warner Milne Rd  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10470301  
**DATE:** 12/16/2009



**Peak-Hour: 7:50 AM -- 8:50 AM**  
**Peak 15-Min: 7:50 AM -- 8:05 AM**



5-Min Count Period Beginning At	Danielson's West Dwy (Northbound)				Danielson's West Dwy (Southbound)				Warner Milne Rd (Eastbound)				Warner Milne Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	3	
7:05 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:10 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	
7:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	
7:20 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
7:25 AM	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	
7:30 AM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	
7:35 AM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	3	
7:40 AM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2	
7:45 AM	1	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	5	
7:50 AM	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5	
7:55 AM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	7	36
8:00 AM	4	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	7	40
8:05 AM	2	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	5	44
8:10 AM	2	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	6	48
8:15 AM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	48
8:20 AM	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	50
8:25 AM	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	50
8:30 AM	1	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	5	53
8:35 AM	1	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	5	55
8:40 AM	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	57
8:45 AM	4	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	10	62
8:50 AM	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	4	61
8:55 AM	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	5	59
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	32	0	4	0	0	0	0	0	0	0	36	0	4	0	0	0	76	
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0	
Pedestrians			0				0				0				0		0	
Bicycles																		
Railroad																		
Stopped Buses																		

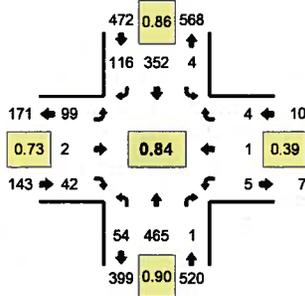
*Comments:* Need to be able to get traffic from both sides

Type of peak hour being reported: Intersection Peak

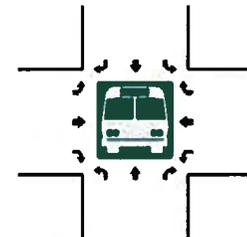
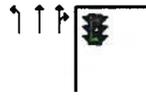
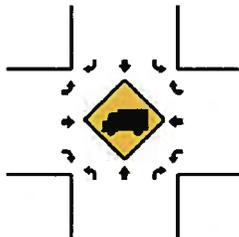
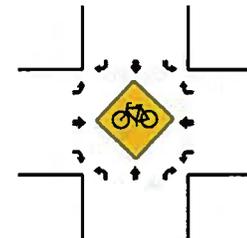
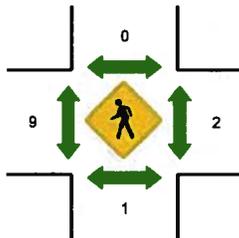
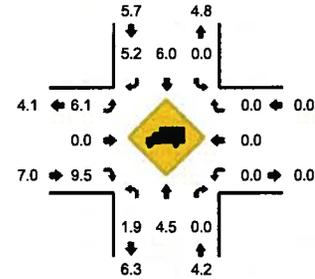
Method for determining peak hour: Total Entering Volume

**LOCATION:** Molalla Ave -- Warner Milne Rd  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10371903  
**DATE:** 7/23/2008



**Peak-Hour: 8:00 AM -- 9:00 AM**  
**Peak 15-Min: 8:40 AM -- 8:55 AM**



5-Min Count Period Beginning At	Molalla Ave (Northbound)				Molalla Ave (Southbound)				Warner Milne Rd (Eastbound)				Warner Milne Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	30	0	0	0	13	3	0	6	0	3	0	0	0	0	0	59	
7:05 AM	3	29	0	0	0	13	2	0	6	0	2	0	0	0	0	0	55	
7:10 AM	4	29	0	0	0	15	2	0	6	0	1	0	0	0	0	0	57	
7:15 AM	1	35	0	0	0	15	3	0	3	0	4	0	0	0	0	0	61	
7:20 AM	2	40	0	0	0	19	5	0	9	0	5	0	0	0	0	0	80	
7:25 AM	5	35	0	0	0	21	4	0	5	1	3	0	2	0	1	0	77	
7:30 AM	2	30	0	0	0	14	2	0	3	0	8	0	0	0	0	0	59	
7:35 AM	3	34	0	0	0	17	5	0	7	0	5	0	0	0	0	0	71	
7:40 AM	2	56	0	0	1	26	8	0	13	0	4	0	0	0	0	0	110	
7:45 AM	1	34	0	0	2	23	4	0	5	1	6	0	0	0	2	0	78	
7:50 AM	4	55	0	0	0	24	9	0	16	0	5	0	1	0	0	0	114	
7:55 AM	4	44	0	0	1	24	10	0	6	0	1	0	0	0	0	0	90	911
8:00 AM	3	34	1	0	0	35	16	0	4	0	1	0	0	0	1	0	95	947
8:05 AM	2	34	0	0	0	28	8	0	6	0	4	0	0	0	0	0	82	974
8:10 AM	4	35	0	0	0	19	10	0	8	0	4	0	0	0	0	0	80	997
8:15 AM	3	44	0	0	0	21	9	0	11	0	4	0	0	0	0	0	92	1028
8:20 AM	3	38	0	0	1	35	15	0	2	0	4	0	0	0	0	0	98	1046
8:25 AM	6	33	0	0	0	22	6	0	9	0	7	0	0	0	0	0	83	1052
8:30 AM	3	31	0	0	0	32	5	0	9	0	1	0	3	1	0	0	85	1078
8:35 AM	3	49	0	0	0	17	8	0	4	0	3	0	1	0	0	0	85	1092
8:40 AM	12	42	0	0	1	35	12	0	9	1	3	0	1	0	1	0	117	1099
8:45 AM	4	36	0	0	0	29	9	0	11	1	3	0	0	0	2	0	95	1116
8:50 AM	3	56	0	0	1	40	11	0	15	0	4	0	0	0	0	0	130	1132
8:55 AM	8	33	0	0	1	39	7	0	11	0	4	0	0	0	0	0	103	1145
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	76	538	0	0	8	416	128	0	140	8	40	0	4	0	12	0	1368	
Heavy Trucks	0	20	0	0	0	12	8	0	4	0	0	0	0	0	0	0	44	
Pedestrians	0	0	0	0	0	0	0	0	28	0	0	0	0	0	0	0	28	
Bicycles																		
Railroad																		
Stopped Buses																		

Comments:

## **Traffic Counts – PM Peak Hour**

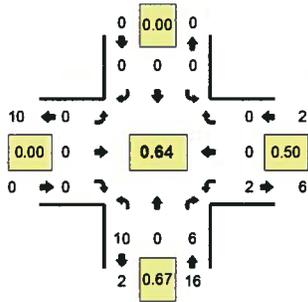
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Type of peak hour being reported: Intersection Peak

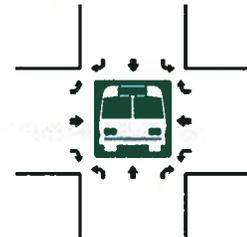
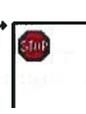
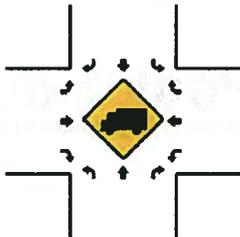
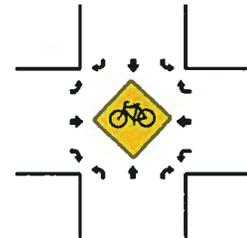
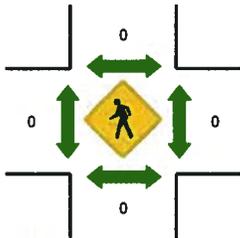
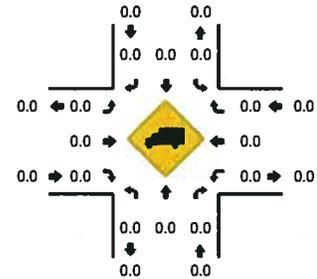
Method for determining peak hour: Total Entering Volume

**LOCATION:** Clackamas County Sheriff's Dwy -- Warner Milne Rd  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10470310  
**DATE:** 12/16/2009



**Peak-Hour: 4:05 PM -- 5:05 PM**  
**Peak 15-Min: 4:50 PM -- 5:05 PM**



5-Min Count Period Beginning At	Clackamas County Sheriff's Dwy (Northbound)				Clackamas County Sheriff's Dwy (Southbound)				Warner Milne Rd (Eastbound)				Warner Milne Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
4:05 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	
4:10 PM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:20 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
4:25 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
4:30 PM	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
4:35 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
4:40 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:50 PM	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
5:00 PM	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4	18
5:05 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	17
5:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
5:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
5:50 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	12	0	12	0	0	0	0	0	0	0	0	0	4	0	0	0	28	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians			0				0				0				0		0	
Bicycles																		
Railroad																		
Stopped Buses																		

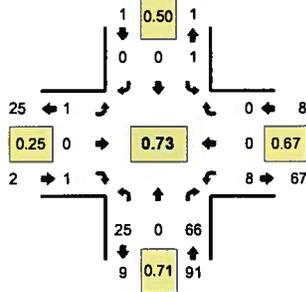
*Comments:* Need to be able to get traffic from both sides

Type of peak hour being reported: Intersection Peak

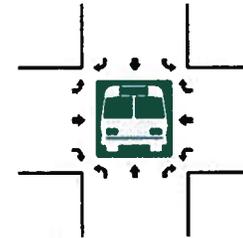
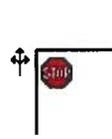
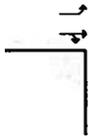
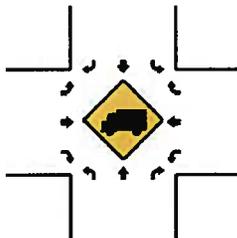
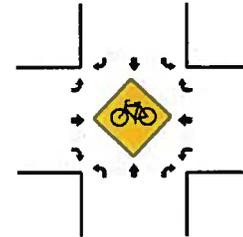
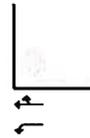
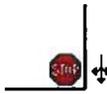
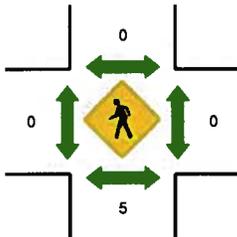
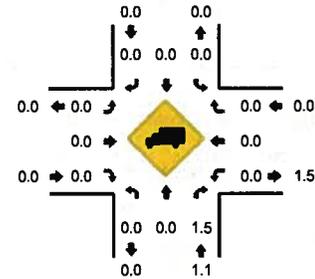
Method for determining peak hour: Total Entering Volume

**LOCATION:** Clackamas Credit Union Dwy -- Warner Milne Rd  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10470308  
**DATE:** 12/16/2009



**Peak-Hour: 4:00 PM -- 5:00 PM**  
**Peak 15-Min: 4:00 PM -- 4:15 PM**



5-Min Count Period Beginning At	Clackamas Credit Union Dwy (Northbound)				Clackamas Credit Union Dwy (Southbound)				Warner Milne Rd (Eastbound)				Warner Milne Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	0	7	0	0	0	0	0	0	0	0	0	1	0	0	0	10	
4:05 PM	2	0	10	0	0	0	0	0	0	0	0	0	1	0	0	0	13	
4:10 PM	2	0	9	0	0	0	0	0	0	0	0	0	1	0	0	0	12	
4:15 PM	2	0	6	0	0	0	0	0	0	0	0	0	1	0	0	0	9	
4:20 PM	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
4:25 PM	1	0	5	0	0	0	0	0	0	0	0	0	1	0	0	0	7	
4:30 PM	2	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
4:35 PM	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
4:40 PM	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	7	
4:45 PM	4	0	5	0	0	0	0	0	0	0	0	0	2	0	0	0	11	
4:50 PM	3	0	3	0	1	0	0	0	1	0	1	0	1	0	0	0	10	
4:55 PM	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	6	102
5:00 PM	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	95
5:05 PM	1	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	5	87
5:10 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	78
5:15 PM	1	0	3	0	0	0	0	0	0	0	0	0	2	0	0	0	6	75
5:20 PM	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	3	75
5:25 PM	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4	72
5:30 PM	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9	73
5:35 PM	2	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	8	75
5:40 PM	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4	72
5:45 PM	1	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	4	65
5:50 PM	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	4	59
5:55 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	55
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	24	0	104	0	0	0	0	0	0	0	0	0	12	0	0	0	140	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians		0				0					0			0			0	
Bicycles																		
Railroad																		
Stopped Buses																		

*Comments:* Need to be able to get traffic from both sides



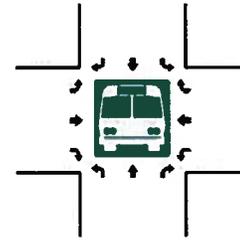
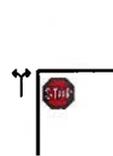
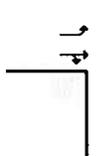
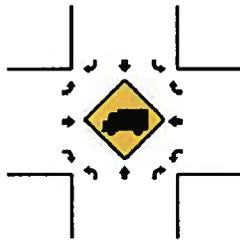
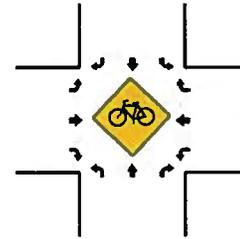
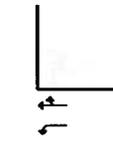
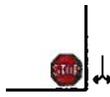
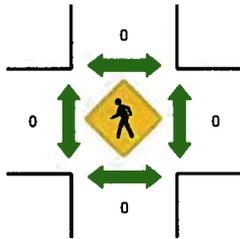
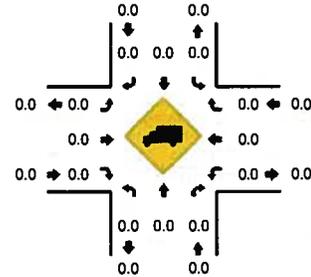
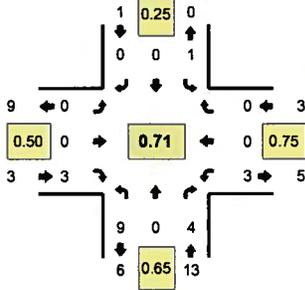
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** City Hall Dwy -- Warner Milne Rd  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10470304  
**DATE:** 12/16/2009

**Peak-Hour: 4:30 PM -- 5:30 PM**  
**Peak 15-Min: 4:55 PM -- 5:10 PM**



5-Min Count Period Beginning At	City Hall Dwy (Northbound)				City Hall Dwy (Southbound)				Warner Milne Rd (Eastbound)				Warner Milne Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:10 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
4:20 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:25 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:35 PM	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3
4:40 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:55 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
5:00 PM	2	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4
5:05 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:10 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
5:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:25 PM	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:35 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:40 PM	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	12	0	8	0	0	0	0	0	0	0	0	4	0	4	0	0	0	28
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians		0				0					0				0			0
Bicycles																		
Railroad																		
Stopped Buses																		

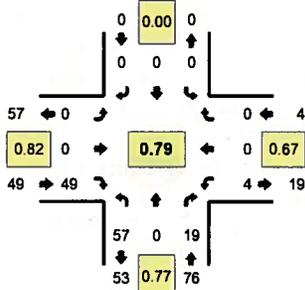
Comments: Need to be able to get traffic from both sides

Type of peak hour being reported: Intersection Peak

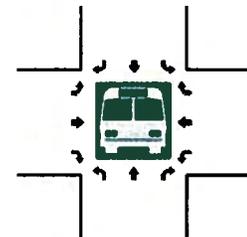
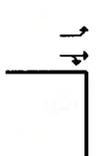
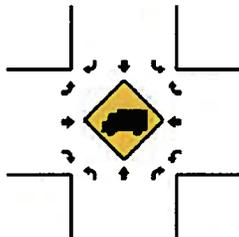
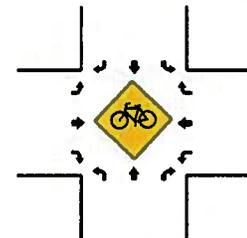
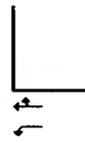
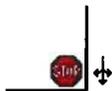
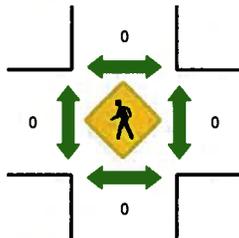
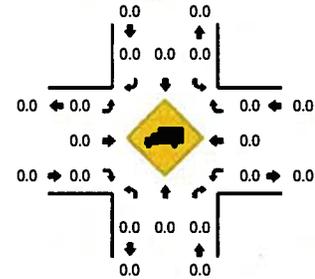
Method for determining peak hour: Total Entering Volume

**LOCATION:** Danielson's West Dwy -- Warner Milne Rd  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10470302  
**DATE:** 12/16/2009



**Peak-Hour: 4:00 PM -- 5:00 PM**  
**Peak 15-Min: 4:45 PM -- 5:00 PM**



5-Min Count Period Beginning At	Danielson's West Dwy (Northbound)				Danielson's West Dwy (Southbound)				Warner Milne Rd (Eastbound)				Warner Milne Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	0	2	0	0	0	0	0	0	0	3	0	0	0	0	0	9	
4:05 PM	6	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	11	
4:10 PM	1	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	7	
4:15 PM	3	0	2	0	0	0	0	0	0	0	4	0	0	0	0	0	9	
4:20 PM	5	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	7	
4:25 PM	5	0	1	0	0	0	0	0	0	0	3	0	1	0	0	0	10	
4:30 PM	6	0	5	0	0	0	0	0	0	0	3	0	1	0	0	0	15	
4:35 PM	5	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	11	
4:40 PM	2	0	2	0	0	0	0	0	0	0	4	0	1	0	0	0	9	
4:45 PM	8	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	12	
4:50 PM	7	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	11	
4:55 PM	5	0	3	0	0	0	0	0	0	0	9	0	1	0	0	0	18	129
5:00 PM	4	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	6	126
5:05 PM	2	0	2	0	0	0	0	0	0	0	4	0	1	0	0	0	9	124
5:10 PM	5	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	9	126
5:15 PM	4	0	1	0	0	0	0	0	0	0	2	0	2	0	0	0	9	126
5:20 PM	4	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	7	126
5:25 PM	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5	121
5:30 PM	5	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	8	114
5:35 PM	5	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	9	112
5:40 PM	1	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	5	108
5:45 PM	5	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	8	104
5:50 PM	5	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	14	107
5:55 PM	5	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	9	98
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	80	0	20	0	0	0	0	0	0	0	60	0	4	0	0	0	164	
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0	
Pedestrians	0				0				0				0				0	
Bicycles																		
Railroad																		
Stopped Buses																		

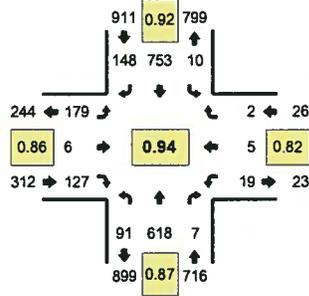
Comments: Need to be able to get traffic from both sides

Type of peak hour being reported: Intersection Peak

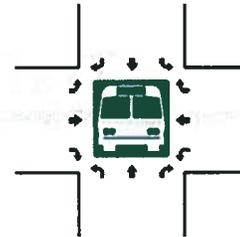
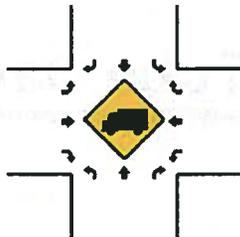
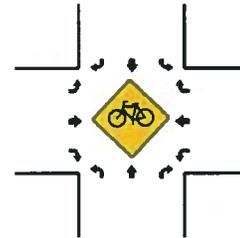
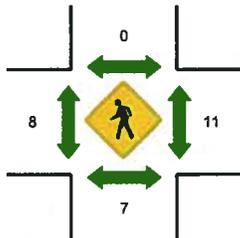
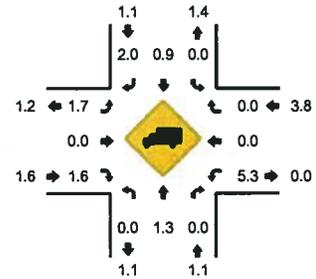
Method for determining peak hour: Total Entering Volume

**LOCATION:** Molalla Ave -- Warner Milne Rd  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10371904  
**DATE:** 7/23/2008



**Peak-Hour: 4:55 PM -- 5:55 PM**  
**Peak 15-Min: 5:05 PM -- 5:20 PM**



5-Min Count Period Beginning At	Molalla Ave (Northbound)				Molalla Ave (Southbound)				Warner Milne Rd (Eastbound)				Warner Milne Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	11	50	2	0	2	65	16	0	17	0	10	0	2	0	2	0	177	
4:05 PM	4	75	0	0	2	69	13	0	10	1	11	0	1	0	0	0	186	
4:10 PM	6	41	1	0	2	65	13	0	13	0	11	0	2	1	0	0	155	
4:15 PM	13	41	0	0	1	48	14	0	14	2	17	0	2	1	0	0	153	
4:20 PM	8	38	1	0	0	67	18	0	15	0	10	0	0	1	0	0	158	
4:25 PM	6	50	0	0	1	65	18	0	8	2	7	0	2	2	1	0	162	
4:30 PM	14	33	1	0	1	55	12	0	10	2	9	0	1	2	0	0	140	
4:35 PM	9	57	0	0	0	50	12	0	15	1	12	0	2	1	0	0	159	
4:40 PM	17	50	0	0	0	48	7	0	12	2	14	0	4	0	0	0	154	
4:45 PM	5	36	1	0	1	54	11	0	24	1	15	0	2	1	0	0	151	
4:50 PM	9	48	2	0	1	54	22	0	2	1	18	0	2	1	1	0	161	
4:55 PM	8	51	1	0	1	54	19	0	14	0	6	0	2	0	0	0	156	1912
5:00 PM	4	53	0	0	0	63	8	0	8	0	14	0	0	0	0	0	150	1885
5:05 PM	6	46	2	0	0	77	13	0	32	1	11	0	1	1	2	0	192	1891
5:10 PM	17	56	0	0	1	59	13	0	17	1	9	0	3	0	0	0	176	1912
5:15 PM	10	65	0	0	1	47	15	0	12	0	0	0	1	1	0	0	152	1911
5:20 PM	8	52	1	0	1	68	16	0	19	2	14	0	0	0	0	0	181	1934
5:25 PM	6	48	1	0	0	69	8	0	9	0	10	0	2	1	0	0	154	1926
5:30 PM	13	42	0	0	1	47	10	0	17	0	18	0	3	0	0	0	151	1937
5:35 PM	4	58	1	0	1	64	8	0	9	0	8	0	1	1	0	0	155	1933
5:40 PM	3	59	0	0	1	78	15	0	14	1	9	0	1	0	0	0	181	1960
5:45 PM	7	43	0	0	1	56	12	0	8	1	16	0	5	0	0	0	149	1958
5:50 PM	5	45	1	0	2	71	11	0	20	0	12	0	0	1	0	0	168	1965
5:55 PM	7	44	0	0	0	65	3	0	8	0	9	0	1	0	0	0	137	1946
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	132	668	8	0	8	732	164	0	244	8	80	0	20	8	8	0	2080	
Heavy Trucks	0	4	0		0	4	4		0	0	0		0	0	0		12	
Pedestrians		8				0				8				24			40	
Bicycles																		
Railroad																		
Stopped Buses																		

Comments

## **Traffic Counts – 24-Hour Tube Data**

Location	Time	Count	Direction
Warner Milne Road	00:00-01:00	120	Northbound
Warner Milne Road	01:00-02:00	110	Northbound
Warner Milne Road	02:00-03:00	100	Northbound
Warner Milne Road	03:00-04:00	90	Northbound
Warner Milne Road	04:00-05:00	80	Northbound
Warner Milne Road	05:00-06:00	70	Northbound
Warner Milne Road	06:00-07:00	60	Northbound
Warner Milne Road	07:00-08:00	50	Northbound
Warner Milne Road	08:00-09:00	40	Northbound
Warner Milne Road	09:00-10:00	30	Northbound
Warner Milne Road	10:00-11:00	20	Northbound
Warner Milne Road	11:00-12:00	15	Northbound
Warner Milne Road	12:00-13:00	10	Northbound
Warner Milne Road	13:00-14:00	15	Northbound
Warner Milne Road	14:00-15:00	20	Northbound
Warner Milne Road	15:00-16:00	25	Northbound
Warner Milne Road	16:00-17:00	30	Northbound
Warner Milne Road	17:00-18:00	35	Northbound
Warner Milne Road	18:00-19:00	40	Northbound
Warner Milne Road	19:00-20:00	45	Northbound
Warner Milne Road	20:00-21:00	50	Northbound
Warner Milne Road	21:00-22:00	55	Northbound
Warner Milne Road	22:00-23:00	60	Northbound
Warner Milne Road	23:00-00:00	65	Northbound

**LOCATION:** Warner Milne Rd btwn Molalla & Beavercreek  
**SPECIFIC LOCATION:** 0 ft from  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10371905  
**DIRECTION:** EB  
**DATE:** Jul 23 2008 - Jul 23 2008

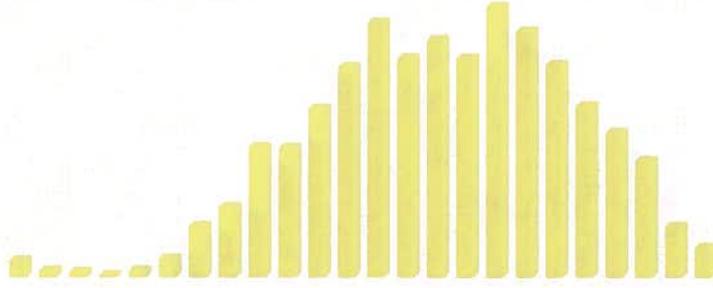
Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM	12	12	12	12	12	12			12	
1:00 AM	5	5	5	5	5	5			5	
2:00 AM	10	10	10	10	10	10			10	
3:00 AM	6	6	6	6	6	6			6	
4:00 AM	11	11	11	11	11	11			11	
5:00 AM	33	33	33	33	33	33			33	
6:00 AM	82	82	82	82	82	82			82	
7:00 AM	161	161	161	161	161	161			161	
8:00 AM	163	163	163	163	163	163			163	
9:00 AM	221	221	221	221	221	221			221	
10:00 AM	240	240	240	240	240	240			240	
11:00 AM	290	290	290	290	290	290			290	
12:00 PM	314	314	314	314	314	314			314	
1:00 PM	278	278	278	278	278	278			278	
2:00 PM	290	290	290	290	290	290			290	
3:00 PM	313	313	313	313	313	313			313	
4:00 PM	342	342	342	342	342	342			342	
5:00 PM	332	332	332	332	332	332			332	
6:00 PM	261	261	261	261	261	261			261	
7:00 PM	177	177	177	177	177	177			177	
8:00 PM	144	144	144	144	144	144			144	
9:00 PM	86	86	86	86	86	86			86	
10:00 PM	56	56	56	56	56	56			56	
11:00 PM	31	31	31	31	31	31			31	
<b>Day Total</b>	<b>3858</b>	<b>3858</b>	<b>3858</b>	<b>3858</b>	<b>3858</b>	<b>3858</b>			<b>3858</b>	
<b>% Weekday Average</b>	100.0%		100.0%		100.0%					
<b>% Week Average</b>	100.0%		100.0%		100.0%					
<b>AM Peak Volume</b>	11:00 AM		11:00 AM		11:00 AM				11:00 AM	
	290		290		290				290	
<b>PM Peak Volume</b>	4:00 PM		4:00 PM		4:00 PM				4:00 PM	
	342		342		342				342	

Comments:

LOCATION:  
SPECIFIC LOCATION:  
CITY/STATE:

QC JOB #:  
DIRECTION:

DATE:



% Weekday  
Average 100.0%  
% Week  
Average 100.0%  
AM Peak  
Volume 11:00 AM 263  
PM Peak  
Volume 4:00 PM 339

Comments

Notes: Peak Hour: 11:00 AM - 1:00 PM

**LOCATION:** Warner Milne Rd btwn Molalla & Beavercreek  
**SPECIFIC LOCATION:** 0 ft from  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10371905  
**DIRECTION:** EB

**DATE:** Jul 23 2008 - Jul 23 2008

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM	12	12	12			12			12	
1:00 AM	5	5	5			5			5	
2:00 AM	10	10	10			10			10	
3:00 AM	6	6	6			6			6	
4:00 AM	11	11	11			11			11	
5:00 AM	33	33	33			33			33	
6:00 AM	82	82	82			82			82	
7:00 AM	161	161	161			161			161	
8:00 AM	163	163	163			163			163	
9:00 AM	221	221	221			221			221	
10:00 AM	240	240	240			240			240	
11:00 AM	290	290	290			290			290	
12:00 PM	314	314	314			314			314	
1:00 PM	278	278	278			278			278	
2:00 PM	290	290	290			290			290	
3:00 PM	313	313	313			313			313	
4:00 PM	342	342	342			342			342	
5:00 PM	332	332	332			332			332	
6:00 PM	261	261	261			261			261	
7:00 PM	177	177	177			177			177	
8:00 PM	144	144	144			144			144	
9:00 PM	86	86	86			86			86	
10:00 PM	56	56	56			56			56	
11:00 PM	31	31	31			31			31	
<b>Day Total</b>	3858			3858			3858			

% Weekday Average	100.0%									
% Week Average	100.0%					100.0%				
AM Peak Volume	11:00 AM	290				11:00 AM	290		11:00 AM	290
PM Peak Volume	4:00 PM	342				4:00 PM	342		4:00 PM	342

**Comments:**

**LOCATION:** Warner Milne Rd btwn Molalla & Beaver Creek  
**SPECIFIC LOCATION:** 0 ft from  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10371905  
**DIRECTION:** WB  
**DATE:** Jul 23 2008 - Jul 23 2008

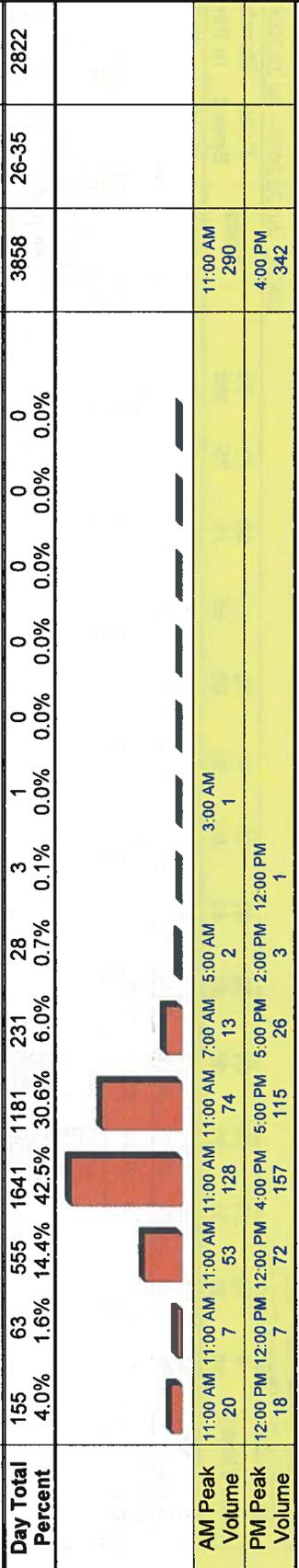
Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM	21	21	21	21	21	21			21	
1:00 AM	8	8	8	8	8	8			8	
2:00 AM	6	6	6	6	6	6			6	
3:00 AM	2	2	2	2	2	2			2	
4:00 AM	8	8	8	8	8	8			8	
5:00 AM	23	23	23	23	23	23			23	
6:00 AM	64	64	64	64	64	64			64	
7:00 AM	88	88	88	88	88	88			88	
8:00 AM	163	163	163	163	163	163			163	
9:00 AM	162	162	162	162	162	162			162	
10:00 AM	211	211	211	211	211	211			211	
11:00 AM	263	263	263	263	263	263			263	
12:00 PM	319	319	319	319	319	319			319	
1:00 PM	274	274	274	274	274	274			274	
2:00 PM	297	297	297	297	297	297			297	
3:00 PM	274	274	274	274	274	274			274	
4:00 PM	339	339	339	339	339	339			339	
5:00 PM	308	308	308	308	308	308			308	
6:00 PM	266	266	266	266	266	266			266	
7:00 PM	214	214	214	214	214	214			214	
8:00 PM	181	181	181	181	181	181			181	
9:00 PM	146	146	146	146	146	146			146	
10:00 PM	63	63	63	63	63	63			63	
11:00 PM	37	37	37	37	37	37			37	
<b>Day Total</b>	<b>3737</b>	<b>3737</b>	<b>3737</b>	<b>3737</b>	<b>3737</b>	<b>3737</b>			<b>3737</b>	
<b>% Weekday Average</b>	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%				
<b>% Week Average</b>	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%				
<b>AM Peak Volume</b>	11:00 AM 263			11:00 AM 263						
<b>PM Peak Volume</b>	4:00 PM 339			4:00 PM 339						
<i>Comments:</i>										

Type of report: Tube Count - Speed Data

**LOCATION:** Warner Milne Rd btwn Molalla & Beaver Creek  
**SPECIFIC LOCATION:** 0 ft from  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10371905  
**DIRECTION:** EB  
**DATE:** Jul 23 2008

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace	Number in Pace
12:00 AM	0	0	1	4	6	1	0	0	0	0	0	0	0	0	12	26-35	10
1:00 AM	1	0	1	2	1	0	0	0	0	0	0	0	0	0	5	26-35	3
2:00 AM	0	1	3	6	0	0	0	0	0	0	0	0	0	0	10	21-30	9
3:00 AM	0	0	0	1	3	0	1	0	1	0	0	0	0	0	6	26-35	4
4:00 AM	0	0	2	3	4	2	0	0	0	0	0	0	0	0	11	26-35	7
5:00 AM	0	0	7	7	11	6	2	0	0	0	0	0	0	0	33	26-35	18
6:00 AM	3	0	8	31	31	8	1	0	0	0	0	0	0	0	82	26-35	61
7:00 AM	11	5	13	63	55	13	1	0	0	0	0	0	0	0	161	26-35	118
8:00 AM	3	5	24	59	60	11	1	0	0	0	0	0	0	0	163	26-35	119
9:00 AM	5	6	37	100	65	8	0	0	0	0	0	0	0	0	221	26-35	165
10:00 AM	10	2	52	114	47	13	2	0	0	0	0	0	0	0	240	21-30	165
11:00 AM	20	7	53	128	74	8	0	0	0	0	0	0	0	0	290	26-35	202
12:00 PM	18	7	72	147	61	6	2	1	0	0	0	0	0	0	314	21-30	218
1:00 PM	11	3	48	126	77	11	2	0	0	0	0	0	0	0	278	26-35	203
2:00 PM	14	5	44	128	87	9	3	0	0	0	0	0	0	0	290	26-35	215
3:00 PM	11	3	53	140	90	15	1	0	0	0	0	0	0	0	313	26-35	230
4:00 PM	17	4	47	157	99	17	1	0	0	0	0	0	0	0	342	26-35	255
5:00 PM	15	4	45	126	115	26	1	0	0	0	0	0	0	0	332	26-35	241
6:00 PM	7	3	18	109	99	23	2	0	0	0	0	0	0	0	261	26-35	207
7:00 PM	3	3	6	80	67	16	2	0	0	0	0	0	0	0	177	26-35	146
8:00 PM	4	1	9	55	58	15	2	0	0	0	0	0	0	0	144	26-35	113
9:00 PM	2	2	6	32	35	7	2	0	0	0	0	0	0	0	86	26-35	67
10:00 PM	0	2	4	14	24	9	2	1	0	0	0	0	0	0	56	26-35	38
11:00 PM	0	0	2	9	12	7	0	1	0	0	0	0	0	0	31	26-35	21
<b>Day Total</b>	155	63	555	1641	1181	231	28	3	1	0	0	0	0	0	3858	26-35	2822
<b>Percent</b>	4.0%	1.6%	14.4%	42.5%	30.6%	6.0%	0.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			



**Comments:**

**SUMMARY - Tube Count - Speed Data**

Type of report: Tube Count - Speed Data

LOCATION: Warner Milne Rd btwn Molalla & Beavercreek		QC JOB #: 10371905															
SPECIFIC LOCATION: 0 ft from		DIRECTION: EB															
CITY/STATE: Oregon City, OR		DATE: Jul 23 2008 - Jul 23 2008															
Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	3858	26-35	2822
Grand Total	155	63	555	1641	1181	231	28	3	1	0	0	0	0	0			
Percent	4.0%	1.6%	14.4%	42.5%	30.6%	6.0%	0.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Cumulative Percent	4.0%	5.7%	20.0%	62.6%	93.2%	99.2%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			
<b>85th Percentile: 33 MPH</b> <b>Mean Speed(Average): 28 MPH</b> <b>Median: 28 MPH</b> <b>Mode: 28 MPH</b>																	
Comments:																	

Report generated on 12/29/2009 10:08 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Speed Data

**LOCATION:** Warner Milne Rd btwn Molalla & Beaver Creek  
**SPECIFIC LOCATION:** 0 ft from  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10371905  
**DIRECTION:** WB  
**DATE:** Jul 23 2008

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
12:00 AM	0	0	3	9	8	1	0	0	0	0	0	0	0	0	21	26-35	16
1:00 AM	0	1	2	4	1	0	0	0	0	0	0	0	0	0	8	21-30	6
2:00 AM	0	0	0	2	3	0	1	0	0	0	0	0	0	0	6	26-35	5
3:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	26-35	2
4:00 AM	2	1	1	1	3	0	0	0	0	0	0	0	0	0	8	26-35	4
5:00 AM	0	1	1	12	6	3	0	0	0	0	0	0	0	0	23	26-35	18
6:00 AM	2	0	2	21	32	5	2	0	0	0	0	0	0	0	64	26-35	52
7:00 AM	5	0	12	30	32	7	2	0	0	0	0	0	0	0	88	26-35	62
8:00 AM	5	4	19	69	54	11	1	0	0	0	0	0	0	0	163	26-35	123
9:00 AM	5	6	10	84	49	8	0	0	0	0	0	0	0	0	162	26-35	132
10:00 AM	10	2	25	97	68	9	0	0	0	0	0	0	0	0	211	26-35	165
11:00 AM	9	2	39	122	81	8	1	1	0	0	0	0	0	0	263	26-35	203
12:00 PM	17	5	43	124	110	15	4	1	0	0	0	0	0	0	319	26-35	233
1:00 PM	7	7	38	116	92	14	0	0	0	0	0	0	0	0	274	26-35	208
2:00 PM	10	4	31	133	102	16	1	0	0	0	0	0	0	0	297	26-35	235
3:00 PM	15	1	13	135	90	20	0	0	0	0	0	0	0	0	274	26-35	225
4:00 PM	14	3	20	146	134	21	1	0	0	0	0	0	0	0	339	26-35	280
5:00 PM	8	1	12	111	140	33	3	0	0	0	0	0	0	0	308	26-35	251
6:00 PM	14	2	10	100	122	16	2	0	0	0	0	0	0	0	266	26-35	221
7:00 PM	4	2	11	96	93	7	1	0	0	0	0	0	0	0	214	26-35	189
8:00 PM	7	6	14	83	63	8	0	0	0	0	0	0	0	0	181	26-35	146
9:00 PM	0	0	18	73	44	8	3	0	0	0	0	0	0	0	146	26-35	117
10:00 PM	0	1	10	26	24	0	2	0	0	0	0	0	0	0	63	26-35	50
11:00 PM	0	1	6	16	10	2	2	0	0	0	0	0	0	0	37	26-35	26
<b>Day Total</b>	134	50	340	1611	1362	212	24	4	0	0	0	0	0	0	3737	26-35	2973
<b>Percent</b>	3.6%	1.3%	9.1%	43.1%	36.4%	5.7%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

AM Peak Volume	PM Peak Volume
10:00 AM 9:00 AM 11:00 AM 11:00 AM 8:00 AM 6:00 AM 11:00 AM 10 6 39 122 81 11 2 1	11:00 AM 4:00 PM 12:00 PM 10:00 PM 263 339

**Comments:**

**SUMMARY - Tube Count - Speed Data**

Type of report: Tube Count - Speed Data

**LOCATION:** Warner Milne Rd btwn Molalla & Beavercreek  
**SPECIFIC LOCATION:** 0 ft from  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10371905  
**DIRECTION:** WB  
**DATE:** Jul 23 2008 - Jul 23 2008

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	3737	26-35	2973
Grand Total	134	50	340	1611	1362	212	24	4	0	0	0	0	0	0			
Percent	3.6%	1.3%	9.1%	43.1%	36.4%	5.7%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Cumulative Percent	3.6%	4.9%	14.0%	57.1%	93.6%	99.3%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%			



**85th Percentile:** 33 MPH  
**Mean Speed(Average):** 28 MPH  
**Median:** 29 MPH  
**Mode:** 28 MPH

*Comments:*

Report generated on 12/29/2009 10:08 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Vehicle Classification Data

**LOCATION:** Warner Milne Rd btwn Molalla & Beavercreek  
**SPECIFIC LOCATION:** 0 ft from  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10371905  
**DIRECTION:** EB  
**DATE:** Jul 23 2008

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	0	10	1	0	1	0	0	0	0	0	0	0	0	0	12
1:00 AM	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
2:00 AM	0	9	1	0	0	0	0	0	0	0	0	0	0	0	10
3:00 AM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
4:00 AM	0	8	2	0	1	0	0	0	0	0	0	0	0	0	11
5:00 AM	0	23	7	0	2	1	0	0	0	0	0	0	0	0	33
6:00 AM	2	53	21	0	3	0	0	0	0	0	0	0	0	3	82
7:00 AM	1	109	31	0	7	0	0	3	0	0	0	1	0	9	161
8:00 AM	2	108	37	0	11	0	0	3	0	0	0	0	0	2	163
9:00 AM	5	150	51	0	10	0	0	0	0	0	0	0	0	5	221
10:00 AM	6	150	62	1	10	0	0	1	0	0	0	0	0	10	240
11:00 AM	7	190	59	4	11	2	0	1	0	0	0	0	0	16	290
12:00 PM	7	218	61	0	10	0	0	0	0	0	0	0	0	18	314
1:00 PM	4	188	60	0	12	2	0	0	0	0	0	0	1	11	278
2:00 PM	4	205	45	0	17	2	0	2	0	0	0	0	0	15	290
3:00 PM	6	209	70	0	12	2	0	0	0	0	0	0	0	12	313
4:00 PM	2	246	62	1	11	2	0	1	0	0	0	0	0	17	342
5:00 PM	4	243	61	1	6	0	0	1	0	0	0	0	0	16	332
6:00 PM	8	193	42	0	7	3	0	0	0	0	0	0	0	8	261
7:00 PM	3	126	35	0	8	0	0	0	0	0	0	0	0	5	177
8:00 PM	1	107	19	1	11	0	0	1	0	0	0	0	0	4	144
9:00 PM	1	63	16	0	3	0	0	1	0	0	0	0	0	2	86
10:00 PM	0	46	9	0	1	0	0	0	0	0	0	0	0	0	56
11:00 PM	0	24	7	0	0	0	0	0	0	0	0	0	0	0	31
<b>Day Total</b>	<b>63</b>	<b>2687</b>	<b>761</b>	<b>8</b>	<b>154</b>	<b>14</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>153</b>	<b>3858</b>
<b>Percent</b>	<b>1.6%</b>	<b>69.6%</b>	<b>19.7%</b>	<b>0.2%</b>	<b>4.0%</b>	<b>0.4%</b>	<b>0.0%</b>	<b>0.4%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>4.0%</b>	
<b>AM Peak Volume</b>	7	190	62	4	11	2	0	3	0	0	0	1	0	16	290
<b>PM Peak Volume</b>	8	246	70	1	17	3	0	2	0	0	0	1	0	18	342

Report generated on 12/29/2009 10:08 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

**SUMMARY - Tube Count - Vehicle Classification Data**

Type of report: Tube Count - Vehicle Classification Data  
**LOCATION:** Warner Milne Rd btwn Molalla & Beaver Creek  
**SPECIFIC LOCATION:** 0 ft from  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10371905  
**DIRECTION:** EB  
**DATE:** Jul 23 2008 - Jul 23 2008

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
Grand Total	63	2687	761	8	154	14	0	16	0	0	0	1	1	153	3858
Percent	1.6%	69.8%	19.7%	0.2%	4.0%	0.4%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	

Comments:

Report generated on 12/29/2009 10:08 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



Type of report: Tube Count - Vehicle Classification Data

**LOCATION:** Warner Milne Rd btwn Molalla & Beavercreek  
**SPECIFIC LOCATION:** 0 ft from  
**CITY/STATE:** Oregon City, OR

**QC JOB #:** 10371905  
**DIRECTION:** WB  
**DATE:** Jul 23 2008

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
12:00 AM	1	15	4	0	1	0	0	0	0	0	0	0	0	0	21
1:00 AM	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
2:00 AM	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
3:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
4:00 AM	1	4	1	0	0	1	0	0	0	0	0	0	0	1	8
5:00 AM	1	16	2	0	0	3	0	0	1	0	0	0	0	0	23
6:00 AM	1	41	15	0	3	1	0	1	0	0	0	0	0	2	64
7:00 AM	4	52	18	1	5	0	0	2	1	0	0	0	0	5	88
8:00 AM	0	112	36	0	9	1	0	0	0	0	0	0	0	5	163
9:00 AM	2	113	29	1	8	3	0	0	0	0	0	0	0	6	162
10:00 AM	5	145	40	0	8	0	0	1	0	0	0	0	0	12	211
11:00 AM	7	174	50	3	13	3	0	2	0	0	0	0	0	11	263
12:00 PM	5	215	67	1	12	3	0	1	0	0	0	0	0	15	319
1:00 PM	2	195	60	0	8	2	0	0	0	0	0	0	0	7	274
2:00 PM	6	205	56	0	16	2	0	2	0	0	0	0	0	10	297
3:00 PM	7	187	47	0	14	1	0	2	1	0	0	0	0	15	274
4:00 PM	7	236	63	0	20	0	0	1	0	0	0	0	0	12	339
5:00 PM	5	231	55	0	6	2	0	0	0	0	0	0	0	9	308
6:00 PM	11	189	46	0	6	0	0	0	0	0	0	0	0	14	266
7:00 PM	3	162	37	0	6	1	0	0	0	0	0	0	0	5	214
8:00 PM	2	130	31	0	10	1	0	0	0	0	0	0	0	7	181
9:00 PM	0	117	25	1	3	0	0	0	0	0	0	0	0	0	146
10:00 PM	0	50	12	0	1	0	0	0	0	0	0	0	0	0	63
11:00 PM	0	31	6	0	0	0	0	0	0	0	0	0	0	0	37
<b>Day Total</b>	70	2634	702	7	149	24	0	12	3	0	0	0	0	136	3737
<b>Percent</b>	1.9%	70.5%	18.8%	0.2%	4.0%	0.6%	0.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	3.6%	
<b>AM Peak Volume</b>	7	174	50	3	13	3	0	2	1	0	0	0	0	12	263
<b>PM Peak Volume</b>	11	236	67	1	20	3	0	2	1	0	0	0	0	15	339
<i>Comments</i>															

**SUMMARY - Tube Count - Vehicle Classification Data**

Type of report: Tube Count - Vehicle Classification Data  
**LOCATION:** Warner Milne Rd btwn Molalla & Beaver Creek  
**SPECIFIC LOCATION:** 0 ft from  
**CITY/STATE:** Oregon City, OR  
**QC JOB #:** 10371905  
**DIRECTION:** WB  
**DATE:** Jul 23 2008 - Jul 23 2008

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle		5 Axle		>6 Axle		Total
								Double	Multi	Double	Multi	Double	Multi	
Grand Total	70	2634	702	7	149	24	0	12	3	0	0	0	0	3737
Percent	1.9%	70.5%	18.8%	0.2%	4.0%	0.6%	0.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	3.6%

*Comments*

Report generated on 12/29/2009 10:08 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



The level of service is a measure of the quality of the transportation system. It is a subjective measure that is used to describe the quality of the transportation system. The level of service is a measure of the quality of the transportation system. It is a subjective measure that is used to describe the quality of the transportation system.

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## **Level of Service Descriptions**

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## TRAFFIC LEVELS OF SERVICE

Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of *level of service* has been developed to subjectively describe traffic performance. Level of service can be measured at intersections and along key roadway segments.

Level of service categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is generally diminished in their vicinities. Levels of Service A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. Level of service D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. Most urban communities set level of service D as the minimum acceptable level of service for peak hour operation and plan for level of service C or better for all other times of the day. The *Highway Capacity Manual* provides level of service calculation methodology for both intersections and arterials.<sup>1</sup> The following two sections provide interpretations of the analysis approaches.

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<sup>1</sup> 2000 *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000, Chapters 16 and 17.

## UNSIGNALIZED INTERSECTIONS (Two-Way Stop Controlled)

Unsignalized intersection level of service is reported for the major street and minor street (generally, left turn movements). The method assesses available and critical gaps in the traffic stream which make it possible for side street traffic to enter the main street flow. The *2000 Highway Capacity Manual* describes the detailed methodology. It is not unusual for an intersection to experience level of service E or F conditions for the minor street left turn movement. It should be understood that, often, a poor level of service is experienced by only a few vehicles and the intersection as a whole operates acceptably.

Unsignalized intersection levels of service are described in the following table.

Level of Service	Expected Delay	(Sec/Veh)
A	Little or no delay	0-10.0
B	Short traffic delay	>10.1-15.0
C	Average traffic delays	>15.1-25.0
D	Long traffic delays	>25.1-35.0
E	Very long traffic delays	>35.1-50.0
F	Extreme delays potentially affecting other traffic movements in the intersection	> 50

Source: 2000 *Highway Capacity Manual*. Transportation Research Board Washington, D.C.

## SIGNALIZED INTERSECTIONS

For signalized intersections, level of service is evaluated based upon average vehicle delay experienced by vehicles entering an intersection. Control delay (or signal delay) includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In previous versions of this chapter of the HCM (1994 and earlier), delay included only stopped delay. As delay increases, the level of service decreases. Calculations for signalized and unsignalized intersections are different due to the variation in traffic control. The *2000 Highway Capacity Manual* provides the basis for these calculations.

Level of Service	Delay (secs.)	Description
A	$\leq 10.00$	<b>Free Flow/Insignificant Delays:</b> No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Most vehicles do not stop at all. Progression is extremely favorable and most vehicles arrive during the green phase.
B	10.1-20.0	<b>Stable Operation/Minimal Delays:</b> An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles. This level generally occurs with good progression, short cycle lengths, or both.
C	20.1-35.0	<b>Stable Operation/Acceptable Delays:</b> Major approach phases fully utilized. Most drivers feel somewhat restricted. Higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, and the number of vehicles stopping is significant.
D	35.1-55.0	<b>Approaching Unstable/Tolerable Delays:</b> The influence of congestion becomes more noticeable. Drivers may have to wait through more than one red signal indication. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. The proportion of vehicles not stopping declines, and individual cycle failures are noticeable.
E	55.1-80.0	<b>Unstable Operation/Significant Delays:</b> Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are a frequent occurrence.
F	$\geq 80.0$	<b>Forced Flow/Excessive Delays:</b> Represents jammed conditions. Queues may block upstream intersections. This level occurs when arrival flow rates exceed intersection capacity, and is considered to be unacceptable to most drivers. Poor progression, long cycle lengths, and v/c ratios approaching 1.0 may contribute to these high delay levels.

Source: *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C.

## **HCM Analysis – With Turn Lanes**

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HCM Unsignalized Intersection Capacity Analysis  
 1: Warner Milne Rd & Clackamas Co. Sheriff

Warner Milne Restriping Study  
 Existing A.M. - Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBR
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%	0%
Volume (veh/h)	172	13	4	185	4	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	205	15	5	220	5	1	1
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type						TW/TL	1
Median storage (veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	220			220		442	212
vC1, stage 1 conf vol						212	
vC2, stage 2 conf vol						230	
vCu, unblocked vol	220			220		442	212
IC, single (s)	4.1			4.1		6.4	6.2
IC, 2 stage (s)						5.4	
IF (s)	2.2			2.2		3.5	3.3
p0 queue free %	100			100		99	100
cM capacity (veh/h)	1361			1361		636	833
Direction, Lane #	EB 1	WB 1	NB 1	WB 2	NB 2	NB 1	NB 1
Volume Total	220	5	220	6			
Volume Left	0	5	0	5			
Volume Right	15	0	0	1			
cSH	1700	1361	1700	667			
Volume to Capacity	0.13	0.00	0.13	0.01			
Queue Length 95th (ft)	0	0	0	1			
Control Delay (s)	0.0	7.7	0.0	10.4			
Lane LOS	A	A	A	B			
Approach Delay (s)	0.0	0.2		10.4			
Approach LOS		B		B			
Intersection Summary							
Average Delay	0.2						
Intersection Capacity Utilization	20.4%						
ICU Level of Service	A						
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis  
 2: Warner Milne Rd & Clackamas Credit Union

Warner Milne Restriping Study  
 Existing A.M. - Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBR
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%	0%
Volume (veh/h)	0	165	8	13	189	0	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	196	10	15	225	0	0
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type						TW/TL	1
Median storage (veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	226			206		457	458
vC1, stage 1 conf vol						201	201
vC2, stage 2 conf vol						256	257
vCu, unblocked vol	226			206		457	458
IC, single (s)	4.1			4.1		7.1	6.5
IC, 2 stage (s)						6.1	5.5
IF (s)	2.2			2.2		3.5	4.0
p0 queue free %	100			99		100	100
cM capacity (veh/h)	1353			1377		586	551
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 1	NB 1
Volume Total	0	206	15	225	11	0	0
Volume Left	0	0	15	0	0	0	0
Volume Right	0	10	0	0	11	0	0
cSH	1700	1700	1377	1700	838	1700	1700
Volume to Capacity	0.00	0.12	0.01	0.13	0.01	0.00	0.00
Queue Length 95th (ft)	0	0	1	0	1	0	0
Control Delay (s)	0.0	0.0	7.6	0.0	9.4	0.0	0.0
Lane LOS	A	A	A	A	A	A	A
Approach Delay (s)	0.0	0.5		9.4	0.0		
Approach LOS		A		A			
Intersection Summary							
Average Delay	0.5						
Intersection Capacity Utilization	22.7%						
ICU Level of Service	A						
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis  
 3: Warner Milne Rd & Barclay Apts  
 Existing A.M. - Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Free			Free			Stop			Stop		
Sign Control	0%			0%			0%			0%		
Grade	0											
Volume (veh/h)	0	165	9	2	192	1	10	0	6	0	0	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	196	11	2	229	1	12	0	7	0	0	0
Pedestrians	4											
Lane Width (ft)	12.0											
Walking Speed (ft/s)	4.0											
Percent Blockage	0											
Right turn flare (veh)	0											
Median type	TWM.TL											
Median storage (veh)	1											
Upstream signal (ft)	1270											
pX, platoon unblocked	0											
vC, conflicting volume	232	207	207	435	438	206	444	443	231	231	236	236
vC1, stage 1 conf vol	232	207	207	435	438	206	444	443	231	231	236	236
vC2, stage 2 conf vol	4.1	4.1	4.1	7.2	6.5	6.2	7.1	6.5	6.2	4.1	4.1	4.1
vCu, unblocked vol	2.2	2.2	2.2	3.6	4.0	3.3	3.5	4.0	3.3	2.2	2.2	2.2
IC, single (s)	100	100	100	98	100	99	100	100	100	100	100	100
IC, 2 stage (s)	1346	1376	1376	585	565	837	592	562	812	562	562	812
ICF (\$)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
p0 queue free %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
p0 queue free (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
cM capacity (veh/h)	0	207	2	230	19	0	0	0	0	0	0	0
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 1	SB 1					
Volume Total	0	207	2	230	19	0	0	0	0	0	0	0
Volume Left	0	0	0	0	0	0	0	0	0	0	0	0
Volume Right	0	11	0	1	0	1	0	0	0	0	0	0
cSH	1700	1700	1376	1700	659	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.12	0.00	0.14	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	7.6	0.0	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A	B	A	B	A	A	A	A	A	A	A
Approach Delay (s)	0.0	0.1	10.6	0.0	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Approach LOS	B	B	A	A	B	A	A	A	A	A	A	A
Intersection Summary												
Average Delay	0.5											
Intersection Capacity Utilization	22.1%											
ICU Level of Service	A											
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
 4: Warner Milne Rd & City Hall  
 Existing A.M. - Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Free			Free			Stop			Stop		
Sign Control	0%			0%			0%			0%		
Grade	0											
Volume (veh/h)	0	166	5	2	189	5	5	0	4	0	0	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	198	6	2	225	6	6	0	5	0	0	0
Pedestrians	4											
Lane Width (ft)	12.0											
Walking Speed (ft/s)	4.0											
Percent Blockage	0											
Right turn flare (veh)	0											
Median type	TWM.TL											
Median storage (veh)	1											
Upstream signal (ft)	864											
pX, platoon unblocked	0											
vC, conflicting volume	231	204	204	432	436	201	435	436	228	231	233	233
vC1, stage 1 conf vol	231	204	204	432	436	201	435	436	228	231	233	233
vC2, stage 2 conf vol	4.1	4.1	4.1	7.1	6.5	6.2	7.1	6.5	6.2	4.1	4.1	4.1
vCu, unblocked vol	2.2	2.2	2.2	3.5	4.0	3.3	3.5	4.0	3.3	2.2	2.2	2.2
IC, single (s)	100	100	100	99	100	99	100	100	100	100	100	100
IC, 2 stage (s)	1349	1390	1390	605	566	845	601	566	816	566	566	816
ICF (\$)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
p0 queue free %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
p0 queue free (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
cM capacity (veh/h)	0	204	2	231	11	0	0	0	0	0	0	0
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 1	SB 1					
Volume Total	0	204	2	231	11	0	0	0	0	0	0	0
Volume Left	0	0	0	0	0	0	0	0	0	0	0	0
Volume Right	0	6	0	6	5	1	0	0	0	0	0	0
cSH	1700	1700	1390	1700	692	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.12	0.00	0.14	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	7.6	0.0	10.3	9.4	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A	B	A	B	A	A	A	A	A	A	A
Approach Delay (s)	0.0	0.1	10.3	0.0	10.3	9.4	0.0	0.0	0.0	0.0	0.0	0.0
Approach LOS	B	B	A	A	B	A	A	A	A	A	A	A
Intersection Summary												
Average Delay	0.3											
Intersection Capacity Utilization	22.8%											
ICU Level of Service	A											
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis Warner Milne Restriping Study  
 Existing A.M. - Turn Lanes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Volume (veh/h)	0	140	30	2	169	0	27	0	3	0	0	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (yph)	0	167	36	2	201	0	32	0	4	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	201			202			390		185	376	408	201
vC1, stage 1 conf vol							185		185	206	206	
vC2, stage 2 conf vol							206		206	170	202	
vCu, unblocked vol	201			202			390		185	376	408	201
tC, 2 stage (s)	4.1			4.1			7.1		6.5	7.1	6.5	6.2
tC, 2 stage (s)	2.2			2.2			6.1		5.5	6.1	5.5	
po queue free %	100			100			3.5		4.0	3.3	3.5	4.0
cW capacity (veh/h)	1383			1382			95		100	100	100	100
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1		SB 1			
Volume Total	0	202	2	201	32	4	0		0			
Volume Left	0	0	2	0	32	0	0		0			
Volume Right	0	36	0	0	0	4	0		0			
cSH	1700	1700	1382	1700	631	863	1700					
Volume to Capacity	0.00	0.12	0.00	0.12	0.05	0.00	0.00					
Queue Length 95th (ft)	0	0	0	0	4	0	0		0			
Control Delay (s)	0.0	0.0	7.6	0.0	11.0	9.2	0.0		0.0			
Lane LOS	A	A	B	A	B	A	A		A			
Approach Delay (s)	0.0	0.1	10.8	0.0								
Approach LOS		B		B								

Intersection Summary		
Average Delay	0.9	
Intersection Capacity Utilization	19.7%	ICU Level of Service A
Analysis Period (min)	15	

HCM Unsignalized Intersection Capacity Analysis  
 1: Warner Milne Rd & Clackamas Co. Sheriff

HCM Unsignalized Intersection Capacity Analysis  
 2: Warner Milne Rd & Clackamas Credit Union

Warner Milne Restriping Study  
 Existing P.M. - Turn Lanes

Warner Milne Restriping Study  
 Existing P.M. - Turn Lanes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	Free	Free	Free	Stop	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%
Grade	0	2	307	10	6	6
Volume (veh/h)	259	0	2	307	10	6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	276	0	2	327	11	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
VC, conflicting volume	276				606	276
VC1, stage 1 conf vol					276	
VC2, stage 2 conf vol					331	
vCU, unblocked vol	276				606	276
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)	5.4				5.4	
tF (\$) )	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1299				554	768
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	276	2	327	17		
Volume Left	0	0	0	11		
Volume Right	0	0	0	6		
cSH	1700	1299	1700	619		
Volume to Capacity	0.16	0.00	0.19	0.03		
Queue Length 95th (ft)	0	0	0	2		
Control Delay (s)	0.0	7.8	0.0	11.0		
Lane LOS	A	A	A	B		
Approach Delay (s)	0.0	0.1		11.0		
Approach LOS		B		B		
<b>Intersection Summary</b>						
Average Delay			0.3			
Intersection Capacity Utilization			27.1%		ICU Level of Service A	
Analysis Period (min)			15			

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Grade	0	1	8	284	0	25	0	66	1	0	0	
Volume (veh/h)	263	1	8	284	0	25	0	66	1	0	0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Hourly flow rate (vph)	280	1	9	302	0	27	0	70	1	0	0	
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
VC, conflicting volume	307					602	607	280	676	607	307	
VC1, stage 1 conf vol						282	282		324	324		
VC2, stage 2 conf vol						319	324		352	283		
vCU, unblocked vol	307					602	607	280	676	607	307	
tC, single (s)	4.1					7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)	2.2					6.1	5.5	4.0	6.1	5.5	4.0	
tF (\$) )	100					95	100	91	100	100	100	
p0 queue free %	100					95	100	91	100	100	100	
cM capacity (veh/h)	1260					511	489	759	441	487	734	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 1	NB 2	SB 1	SB 2	SB 1	
Volume Total	1	281	9	302	97	1						
Volume Left	1	0	0	0	27	1						
Volume Right	0	1	0	0	70	0						
cSH	1260	1700	1293	1700	669	441						
Volume to Capacity	0.00	0.17	0.01	0.18	0.14	0.00						
Queue Length 95th (ft)	0	0	0	0	13	0						
Control Delay (s)	7.9	0.0	7.8	0.0	11.3	13.2						
Lane LOS	A	A	A	A	B	B						
Approach Delay (s)	0.0	0.2			11.3	13.2						
Approach LOS		B			B	B						
<b>Intersection Summary</b>												
Average Delay				1.7								
Intersection Capacity Utilization				27.7%						ICU Level of Service A		
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis  
 3: Warner Milne Rd & Barclay Apts  
 Warner Milne Restriping Study  
 Existing P.M. - Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Volume (veh/h)	0	329	1	12	289	2	3	0	11	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	350	1	13	307	2	3	0	12	0	0
Pedestrians											3
Lane Width (ft)											12.0
Walking Speed (ft/s)											4.0
Percent Blockage											0
Right turn flare (veh)											0
Median type											TW/TL
Upstream signal (ft)											1
pX, platoon unblocked											1270
vC, conflicting volume	313			351			684	689	351	699	688
vC1, stage 1 cont vol							351	351		337	337
vC2, stage 2 cont vol							333	338		362	351
vCu, unblocked vol	313			351			684	689	351	699	688
IC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5
IC, 2 stage (s)							6.1	5.5		6.1	5.5
IF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			99			99	100	98	100	100
cM capacity (veh/h)	1256			1175			473	457	697	457	455
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2			
Volume Total	0	351	13	310	15	0	0	0	0	0	0
Volume Left	0	0	13	0	3	0	0	0	0	0	0
Volume Right	0	1	0	2	12	0	0	0	0	0	0
cSH	1700	1700	1175	1700	633	1700					
Volume to Capacity	0.00	0.21	0.01	0.18	0.02	0.00					
Queue Length 95th (ft)	0	0	1	0	2	0					
Control Delay (s)	0.0	0.0	8.1	0.0	10.8	0.0					
Lane LOS	A	A	B	A	B	A					
Approach Delay (s)	0.0	0.3	10.8	0.0							
Approach LOS	B	B	A	A							
<b>Intersection Summary</b>											
Average Delay	0.4										
Intersection Capacity Utilization	28.3%										
ICU Level of Service	A										
Analysis Period (min)	15										

HCM Unsignalized Intersection Capacity Analysis  
 4: Warner Milne Rd & City Hall  
 Warner Milne Restriping Study  
 Existing P.M. - Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Volume (veh/h)	0	337	3	3	294	0	9	0	4	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	359	3	3	313	0	10	0	4	1	0
Pedestrians											0
Lane Width (ft)											12.0
Walking Speed (ft/s)											4.0
Percent Blockage											0
Right turn flare (veh)											0
Median type											TW/TL
Upstream signal (ft)											1
pX, platoon unblocked											864
vC, conflicting volume	313			362			679	679	360	682	681
vC1, stage 1 cont vol							360	360		319	319
vC2, stage 2 cont vol							319	319		363	362
vCu, unblocked vol	313			362			679	679	360	682	681
IC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5
IC, 2 stage (s)							6.1	5.5		6.1	5.5
IF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			100			98	100	99	100	100
cM capacity (veh/h)	1259			1208			477	464	689	473	463
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2			
Volume Total	0	362	3	313	14	1	0	0	0	0	0
Volume Left	0	0	3	0	10	1	0	0	0	0	0
Volume Right	0	3	0	0	4	0	0	0	0	0	0
cSH	1700	1700	1208	1700	527	473					
Volume to Capacity	0.00	0.21	0.00	0.18	0.03	0.00					
Queue Length 95th (ft)	0	0	0	0	2	0					
Control Delay (s)	0.0	0.0	8.0	0.0	12.0	12.6					
Lane LOS	A	A	B	A	B	B					
Approach Delay (s)	0.0	0.1	12.0	0.0							
Approach LOS	B	B	A	A							
<b>Intersection Summary</b>											
Average Delay	0.3										
Intersection Capacity Utilization	28.9%										
ICU Level of Service	A										
Analysis Period (min)	15										

HCM Unsignalized Intersection Capacity Analysis Warner Milne Restriping Study  
 5. Warner Milne Rd & Danielson's Existing P.M. - Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	0	293	49	4	240	0	57	0	19	0	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	312	52	4	255	0	61	0	20	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	255			364			602	602	338	586	628	255
vC1, stage 1 cont vol							338	338		264	264	
vC2, stage 2 cont vol							264	264		332	364	
vCu, unblocked vol	255			364			602	602	338	596	628	255
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5	6.1	6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			88	100	97	100	100	100
cM capacity (veh/h)	1321			1206			512	493	709	503	481	788
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1					
Volume Total	0	364	4	255	61	20	0					
Volume Left	0	0	4	0	61	0	0					
Volume Right	0	52	0	0	0	20	0					
cSH	1700	1700	1206	1700	512	709	1700					
Volume to Capacity	0.00	0.21	0.00	0.15	0.12	0.03	0.00					
Queue Length 95th (ft)	0	0	0	0	10	2	0					
Control Delay (s)	0.0	0.0	8.0	0.0	13.0	10.2	0.0					
Lane LOS	A	A	B	B	B	B	A					
Approach Delay (s)	0.0	0.1			12.3	0.0						
Approach LOS		B			B	A						
Intersection Summary												
Average Delay	1.5											
Intersection Capacity Utilization	29.4%											
ICU Level of Service	A											
Analysis Period (min)	15											

## **HCM Analysis – Without Turn Lanes**

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HCM Unsignalized Intersection Capacity Analysis  
 1: Warner Milne Rd & Clackamas Co. Sheriff

HCM Unsignalized Intersection Capacity Analysis  
 2: Warner Milne Rd & Clackamas Credit Union

Warner Milne Restriping Study  
 Existing A.M. - No Turn Lanes

Warner Milne Restriping Study  
 Existing A.M. - No Turn Lanes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	Free	Free	Free	Free	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%
Grade	0	0	0	0	0	0
Volume (veh/h)	172	13	4	185	4	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	205	15	5	220	5	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	220			442	212	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	220			442	212	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	100			99	100	
cM capacity (veh/h)	1361			574	833	
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	220	225	6			
Volume Left	0	5	5			
Volume Right	15	0	1			
cSH	1700	1361	612			
Volume to Capacity	0.13	0.00	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.2	10.9			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	0.2	10.9			
Approach LOS	B	B	B			
Intersection Summary						
Average Delay				0.2		
Intersection Capacity Utilization				23.7%		A
Analysis Period (min)				15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT	SBR
Lane Configurations	Free	Free	Free	Free	Stop	Stop			
Sign Control	0%	0%	0%	0%	0%	0%			
Grade	0	0	0	0	0	0			
Volume (veh/h)	165	8	13	189	0	0	9	0	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	196	10	15	225	0	0	11	0
Pedestrians									
Lane Width (ft)									
Walking Speed (ft/s)									
Percent Blockage									
Right turn flare (veh)									
Median type									
Median storage (veh)									
Upstream signal (ft)									
pX, platoon unblocked									
vC, conflicting volume	226			206	457	458	205	473	463
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol	226			206	457	458	205	473	463
tC, single (s)	4.1			4.1	7.1	6.5	6.2	7.1	6.5
tC, 2 stage (s)									
tF (s)	2.2			2.2	3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			99	100	100	99	100	100
cM capacity (veh/h)	1353			1377	512	496	838	492	493
Direction, Lane #	EB 1	WB 1	NB 1	SB 1					
Volume Total	206	240	11	0					
Volume Left	0	15	0	0					
Volume Right	10	0	11	0					
cSH	1353	1377	838	1700					
Volume to Capacity	0.00	0.01	0.01	0.00					
Queue Length 95th (ft)	0	1	1	0					
Control Delay (s)	0.0	0.6	9.4	0.0					
Lane LOS	A	A	A	A					
Approach Delay (s)	0.0	0.6	9.4	0.0					
Approach LOS	A	A	A	A					
Intersection Summary									
Average Delay					0.5				
Intersection Capacity Utilization					33.0%				A
Analysis Period (min)					15				

HCM Unsignalized Intersection Capacity Analysis  
3: Warner Milne Rd & Barclay Apts

Warner Milne Restriping Study  
Existing A.M. - No Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Free			Free			Stop			Stop		
Sign Control	0%			0%			0%			0%		
Grade	0%											
Volume (veh/h)	0	165	9	2	192	1	10	0	6	0	0	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	196	11	2	229	1	12	0	7	0	0	0
Pedestrians	4											
Lane Width (ft)	12.0											
Walking Speed (ft/s)	4.0											
Percent Blockage	0											
Right turn flare (veh)	None											
Median type	None											
Median storage (veh)	1270											
Upstream signal (ft)	232											
pX, platoon unblocked	207											
vC, conflicting volume	436											
vC1, stage 1 conf vol	438											
vC2, stage 2 conf vol	206											
vCu, unblocked vol	449											
IC, single (s)	4.1											
IC, 2 stage (s)	7.2											
IF (s)	6.5											
pf queue free %	6.2											
p0 queue free %	3.6											
pm capacity (veh/h)	4.0											
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	EB 1	WB 1	NB 1	SB 1	EB 1	WB 1	NB 1	SB 1
Volume Total	207	232	19	0	207	232	19	0	207	232	19	0
Volume Left	0	2	12	0	0	2	12	0	0	0	2	12
Volume Right	11	1	7	0	11	1	7	0	11	1	7	0
cSH	1346	1376	603	1700	1346	1376	603	1700	1346	1376	603	1700
Volume to Capacity	0.00	0.00	0.03	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03	0.00
Queue Length 95th (ft)	0											
Control Delay (s)	0.0											
Lane LOS	A											
Approach Delay (s)	0.0											
Approach LOS	B											
<b>Intersection Summary</b>												
Average Delay	0.5											
Intersection Capacity Utilization	23.7%											
ICU Level of Service	A											
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
4: Warner Milne Rd & City Hall

Warner Milne Restriping Study  
Existing A.M. - No Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Free			Free			Stop			Stop		
Sign Control	0%			0%			0%			0%		
Grade	0%											
Volume (veh/h)	0	166	5	2	189	5	5	0	4	0	0	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	198	6	2	225	6	6	0	5	0	0	1
Pedestrians	0											
Lane Width (ft)	12.0											
Walking Speed (ft/s)	4.0											
Percent Blockage	0											
Right turn flare (veh)	None											
Median type	None											
Median storage (veh)	864											
Upstream signal (ft)	231											
pX, platoon unblocked	204											
vC, conflicting volume	435											
vC1, stage 1 conf vol	436											
vC2, stage 2 conf vol	201											
vCu, unblocked vol	438											
IC, single (s)	4.1											
IC, 2 stage (s)	7.1											
IF (s)	6.5											
pf queue free %	6.2											
p0 queue free %	2.2											
pm capacity (veh/h)	4.0											
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	EB 1	WB 1	NB 1	SB 1	EB 1	WB 1	NB 1	SB 1
Volume Total	204	233	11	1	204	233	11	1	204	233	11	1
Volume Left	0	2	6	0	0	2	6	0	0	0	2	6
Volume Right	6	6	5	1	6	6	5	1	6	6	5	1
cSH	1349	1380	638	816	1349	1380	638	816	1349	1380	638	816
Volume to Capacity	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00
Queue Length 95th (ft)	0											
Control Delay (s)	0.0											
Lane LOS	A											
Approach Delay (s)	0.0											
Approach LOS	B											
<b>Intersection Summary</b>												
Average Delay	0.3											
Intersection Capacity Utilization	24.4%											
ICU Level of Service	A											
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis Warner Milne Restriping Study  
 5: Warner Milne Rd & Danielson's Existing A.M. - No Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↔			↔		
Sign Control	Free			Free			Stop			Stop		
Grade	0%											
Volume (veh/h)	0	140	30	2	169	0	27	0	3	0	0	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	167	36	2	201	0	32	0	4	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percant Blockage												
Right turn flare (veh)												
Median type	None											
Median storage (veh)												
Upstream signal (ft)	754											
pX, platoon unblocked												
vC, conflicting volume	201			202			390	390	185	394	408	201
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCU, unblocked vol	201			202			390	390	185	394	408	201
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			94	100	100	100	100	100
cM capacity (veh/h)	1383			1382			572	547	863	566	535	845
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	202	204	32	4	0							
Volume Left	0	2	32	0	0							
Volume Right	36	0	0	4	0							
cSH	1383	1382	572	863	1700							
Volume to Capacity	0.00	0.00	0.06	0.00	0.00							
Queue Length 95th (ft)	0	0	4	0	0							
Control Delay (s)	0.0	0.1	11.7	9.2	0.0							
Lane LOS	A	B	A	A	A							
Approach Delay (s)	0.0	0.1	11.4	0.0	0.0							
Approach LOS	B	B	A	A	A							
Intersection Summary												
Average Delay	1.0											
Intersection Capacity Utilization	21.1%											
ICU Level of Service	A											
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
 1. Warner Milne Rd & Clackamas Co. Sheriff

Warner Milne Restriping Study  
 Existing P.M. - No Turn Lanes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	Free	Free	Free	Free	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%
Grade	259	0	2	307	10	6
Volume (veh/h)	0.94	0.94	0.94	0.94	0.94	0.94
Peak Hour Factor	276	0	2	327	11	6
Hourly flow rate (vph)						
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	276				606	276
vC1, stage 1 conf vol						
vC2, stage 2 conf vol	276				606	276
vCu, unblocked vol	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1299				462	768
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	276	329	17			
Volume Left	0	2	11			
Volume Right	0	0	6			
cSH	1700	1299	544			
Volume to Capacity	0.16	0.00	0.03			
Queue Length 95th (ft)	0	0	2			
Control Delay (s)	0.0	0.1	11.8			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	0.1	11.8			
Approach LOS	B	B	B			
<b>Intersection Summary</b>						
Average Delay	0.4					
Intersection Capacity Utilization	28.7%					
ICU Level of Service	A					
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
 2. Warner Milne Rd & Clackamas Credit Union

Warner Milne Restriping Study  
 Existing P.M. - No Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	1	263	1	8	284	0	25	0	66	1	0	0
Volume (veh/h)	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Peak Hour Factor	1	280	1	9	302	0	27	0	70	1	0	0
Hourly flow rate (vph)												
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	307						602	607	280	677	607	307
vC1, stage 1 conf vol												
vC2, stage 2 conf vol	307						602	607	280	677	607	307
vCu, unblocked vol	4.1						7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2						3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100						94	100	91	100	100	100
cM capacity (veh/h)	1260						411	409	759	331	409	734
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	282	311	97	1								
Volume Left	1	9	27	1								
Volume Right	1	0	70	0								
cSH	1260	1293	616	331								
Volume to Capacity	0.00	0.01	0.16	0.00								
Queue Length 95th (ft)	0	0	14	0								
Control Delay (s)	0.0	0.3	11.9	15.9								
Lane LOS	A	A	B	C								
Approach Delay (s)	0.0	0.3	11.9	15.9								
Approach LOS	B	B	C	C								
<b>Intersection Summary</b>												
Average Delay	1.8											
Intersection Capacity Utilization	33.8%											
ICU Level of Service	A											
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
 3: Warner Milne Rd & Barclay Apts  
 Existing P.M. - No Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	Free			Free			Stop			Stop			
Sign Control	0%			0%			0%			0%			
Grade	0												
Volume (veh/h)	0	329	1	12	289	2	3	0	11	0	0	0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Hourly flow rate (vph)	0	350	1	13	307	2	3	0	12	0	0	0	
Pedestrians	3												
Lane Width (ft)	12.0												
Walking Speed (ft/s)	4.0												
Percent Blockage	0												
Right turn flare (veh)	None												
Median type	None												
Median storage (veh)	None												
Upstream signal (ft)	1270												
pX, platoon unblocked	None												
VC, conflicting volume	313	351			685			689			688		
VC1, stage 1 conf vol	312												
VC2, stage 2 conf vol	312												
vCU, unblocked vol	313	351			685			689			688		
tC, single (s)	4.1	4.2			7.1			6.5			7.1		
tC, 2 stage (s)	6.2												
tF (s)	2.2	2.3			3.5			4.0			3.3		
p0 queue free %	100	99			100			98			100		
cM capacity (veh/h)	1256	1175			361			366			347		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	EB 1	WB 1	NB 1	SB 1	EB 1	WB 1	NB 1	SB 1	
Volume Total	351	322	15	0	685	689	351	699	688	688	312	312	
Volume Left	0	13	3	0	685	689	351	699	688	312	312	312	
Volume Right	1	2	12	0	7.1	6.5	6.2	7.1	6.5	6.2	7.1	6.5	
cSH	1256	1175	582	1700	361	366	697	347	367	347	367	732	
Volume to Capacity	0.00	0.01	0.03	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	
Queue Length 95th (ft)	0	1	2	0	0.0	0.4	11.4	0.0	0.0	0.4	11.4	0.0	
Control Delay (s)	0.0	0.4	11.4	0.0	0.0	0.4	11.4	0.0	0.0	0.4	11.4	0.0	
Lane LOS	A	B	A	A	A	B	A	A	A	B	A	A	
Approach Delay (s)	0.0	0.4	11.4	0.0	0.0	0.4	11.4	0.0	0.0	0.4	11.4	0.0	
Approach LOS	B	A	A	A	B	A	A	A	A	B	A	A	
Intersection Summary													
Average Delay	0.4												
Intersection Capacity Utilization	36.5%			ICU Level of Service			A			A			
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis  
 4: Warner Milne Rd & City Hall  
 Existing P.M. - No Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	Free			Free			Stop			Stop			
Sign Control	0%			0%			0%			0%			
Grade	0												
Volume (veh/h)	0	337	3	3	294	0	9	0	4	1	0	0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Hourly flow rate (vph)	0	359	3	3	313	0	10	0	4	1	0	0	
Pedestrians	0												
Lane Width (ft)	12.0												
Walking Speed (ft/s)	4.0												
Percent Blockage	0												
Right turn flare (veh)	None												
Median type	None												
Median storage (veh)	None												
Upstream signal (ft)	864												
pX, platoon unblocked	None												
VC, conflicting volume	313	362			679			679			684		
VC1, stage 1 conf vol	313												
VC2, stage 2 conf vol	313												
vCU, unblocked vol	313	362			679			679			684		
tC, single (s)	4.1	4.1			7.1			6.5			6.2		
tC, 2 stage (s)	6.2												
tF (s)	2.2	2.2			3.5			4.0			3.3		
p0 queue free %	100	100			97			100			100		
cM capacity (veh/h)	1259	1208			367			375			689		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	EB 1	WB 1	NB 1	SB 1	EB 1	WB 1	NB 1	SB 1	
Volume Total	362	316	14	1	679	679	360	684	681	681	313	313	
Volume Left	0	3	10	1	679	679	360	684	681	681	313	313	
Volume Right	3	0	4	0	7.1	6.5	6.2	7.1	6.5	6.2	7.1	6.5	
cSH	1259	1208	429	363	367	375	689	363	374	732	732	732	
Volume to Capacity	0.00	0.00	0.03	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	
Queue Length 95th (ft)	0	0	2	0	0.0	0.1	13.7	15.0	0.0	0.1	13.7	15.0	
Control Delay (s)	0.0	0.1	13.7	15.0	0.0	0.1	13.7	15.0	0.0	0.1	13.7	15.0	
Lane LOS	A	B	B	B	A	B	B	B	A	B	B	B	
Approach Delay (s)	0.0	0.1	13.7	15.0	0.0	0.1	13.7	15.0	0.0	0.1	13.7	15.0	
Approach LOS	B	A	B	B	B	A	B	B	A	B	B	B	
Intersection Summary													
Average Delay	0.3												
Intersection Capacity Utilization	28.9%			ICU Level of Service			A			A			
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis Warner Milne Restriping Study  
 Existing P.M. - No Turn Lanes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↔			↔		
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Volume (veh/h)	0	293	49	4	240	0	57	0	19	0	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	312	52	4	255	0	61	0	20	0	0	0
Pedestrians	0											
Lane Width (ft)	11											
Walking Speed (ft/s)	4.0											
Percent Blockage	0											
Right turn flare (veh)	None											
Median type	None											
Median storage (veh)	None											
Upstream signal (ft)	754											
pX, platoon unblocked	0											
vC, conflicting volume	255	364		602		602	602	338	622	628	628	255
vC1, stage 1 conf vol	0											
vC2, stage 2 conf vol	0											
vCU, unblocked vol	255	364		602		602	602	338	622	628	628	255
IC, single (s)	4.1	4.1		7.1		7.1	6.5	6.2	7.1	6.5	6.2	6.2
IC, 2 stage (s)	2.2	2.2		3.5		3.5	4.0	3.3	3.5	4.0	3.3	3.3
p0 queue free %	100	100		85		100	100	97	100	100	100	100
cM capacity (veh/h)	1321	1206		414		415	709	390	401	401	788	788
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	364	260	61	20	0							
Volume Left	0	4	61	0	0							
Volume Right	52	0	0	20	0							
cSH	1321	1206	414	709	1700							
Volume to Capacity	0.00	0.00	0.15	0.03	0.00							
Queue Length 95th (ft)	0	0	13	2	0							
Control Delay (s)	0.0	0.2	15.2	10.2	0.0							
Lane LOS	A	C	B	A	A							
Approach Delay (s)	0.0	0.2	14.0	0.0	0.0							
Approach LOS	B	B	A	A	A							
Intersection Summary												
Average Delay	1.7											
Intersection Capacity Utilization	29.4%											
ICU Level of Service	A											
Analysis Period (min)	15											

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## Turn Lane Warrants

# Left Turn Lane Warrant Analysis

Project: Oregon City Warner Milne Restriping Study

## A.M. Peak Hour

Intersection	Approach (NB,SB,EB,WB)	Number of Advancing Lanes	Number of Opposing Lanes	Volume Advancing (Va)	LT Vol	LT %	Volume Opposing (Vo)	Warrant Factor	5% Warrant Va	Va Warrant Threshold	HRB Warrant Met?	ODOT Criteria Met?	Max. Est. Queue	Storage Length (ft)
Clackamas County Sheriff's Dwy -- Warner Milne Rd	WB	1	1	189	4	2%	185	1.51	646	979	No	No	374	1
Clackamas Credit Union Dwy -- Warner Milne Rd	EB	1	1	173	0	0%	189	N/A	646	N/A	N/A	No	362	0
Clackamas Credit Union Dwy -- Warner Milne Rd	WB	1	1	202	13	6%	173	0.89	657	584	No	No	375	2
Barclay Apartments Dwy -- Warner Milne Rd	EB	1	1	174	0	0%	193	N/A	643	N/A	N/A	No	367	0
Barclay Apartments Dwy -- Warner Milne Rd	WB	1	1	195	2	1%	174	2.16	657	1422	No	No	369	0
City Hall Driveway -- Warner Milne Rd	EB	1	1	171	0	0%	194	N/A	643	N/A	N/A	No	365	0
City Hall Driveway -- Warner Milne Rd	WB	1	1	196	2	1%	171	2.17	657	1425	No	No	367	0
Danielson's West Dwy -- Warner Milne Rd	EB	1	1	170	0	0%	169	N/A	661	N/A	N/A	No	339	0
Danielson's West Dwy -- Warner Milne Rd	WB	1	1	171	2	1%	170	2.03	657	1332	No	No	341	0

## P.M. Peak Hour

Intersection	Approach (NB,SB,EB,WB)	Number of Advancing Lanes	Number of Opposing Lanes	Volume Advancing (Va)	LT Vol	LT %	Volume Opposing (Vo)	Warrant Factor	5% Warrant Va	Va Warrant Threshold	HRB Warrant Met?	ODOT Criteria Met?	Max. Est. Queue	Storage Length (ft)
Clackamas County Sheriff's Dwy -- Warner Milne Rd	WB	1	1	309	2	1%	259	2.72	598	1625	No	No	568	0
Clackamas Credit Union Dwy -- Warner Milne Rd	EB	1	1	265	1	0%	284	3.55	581	2086	No	No	549	0
Clackamas Credit Union Dwy -- Warner Milne Rd	WB	1	1	292	8	3%	264	1.34	595	794	No	No	556	2
Barclay Apartments Dwy -- Warner Milne Rd	EB	1	1	330	0	0%	291	N/A	575	N/A	N/A	No	621	0
Barclay Apartments Dwy -- Warner Milne Rd	WB	1	1	303	12	4%	330	1.12	550	614	No	No	633	2
City Hall Dwy -- Warner Milne Rd	EB	1	1	340	0	0%	294	N/A	575	N/A	N/A	No	634	0
City Hall Dwy -- Warner Milne Rd	WB	1	1	297	3	1%	340	2.18	543	1184	No	No	637	1
Danielson's West Dwy -- Warner Milne Rd	EB	2	2	342	0	0%	240	N/A	608	N/A	N/A	No	291	0
Danielson's West Dwy -- Warner Milne Rd	WB	2	2	244	4	2%	342	1.72	543	933	No	No	293	1

ODOT LEFT TURN CRITERIA IS BASED ON THE 8-13-03 LEFT TURN CRITERIA

# **ODOT Collision Data**

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Oregon City Warner-Milne\_ODOT Collision Data (Extracted)

General Data			Street Names		From Intersection				Vehicle 1			Vehicle 2			Comment		
Crash ID	Serial #	Crash Date	1st Street	2nd Street	Crash Severity	Weather	Road Surface	Light	Cause 1	Vehicle Type	Vehicle Movement	From - To	Vehicle Type	Vehicle Movement	From - To	Vehicle Action	Comment
1295983	3051	8/12/2008	WARNER-MILNE	KAEN RD	INJ	CLEAR	DRY	DAYLIGHT	NO YIELD	PSNGR CAR	TURN-R	E to N	PSNGR CAR	EXT DWY			Entering Randji Denture Center (across from credit union)
1194581	1711	4/28/2006	WARNER-MILNE	MOLALLA AVE	INJ	CLEAR	DRY	DAYLIGHT	IMPROPER TURN	PSNGR CAR	STRGHT	E to W	PSNGR CAR	TURN-L	W to N	ENTR DWY	Just west of Molalla/Warner Milne intersection (EBL into driveway, hit by WBT)

## Kathy Griffin

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**From:** Tony Konkol  
**Sent:** Tuesday, February 02, 2010 2:30 PM  
**To:** Nancy Busch; Nancy Kraushaar  
**Cc:** Scott Archer; Kathy Griffin; Aleta Froman-Goodrich; Bill Kabeiseman  
**Subject:** RE: TAC - Remove Memorial Sign

I discussed this issue with Larry this afternoon, he recommended that we contact the family to discuss an alternative location for the memorial and if that is not an option, we should probably bring it to the attention of the commission. I will follow up and see if I can identify the family. Please do not take further action until I get back to you.

Thanks,  
Tony

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**From:** Tony Konkol  
**Sent:** Monday, February 01, 2010 9:37 AM  
**To:** Nancy Busch; Nancy Kraushaar  
**Cc:** Scott Archer; Kathy Griffin; Aleta Froman-Goodrich; Bill Kabeiseman  
**Subject:** RE: TAC - Remove Memorial Sign

Morning,

The memorial is located at the sharp left turn as you are going up Holcomb Blvd from the Holcomb, Redland, Abernethy intersection. The picture, flowers, etc. are leaning against the guard rail, probably 3 feet wide by 2 feet tall. The definition of a sign is included below, which would appear to include: other thing that is designed to inform or attract the attention of the public.

"Sign" means any sign, display message, emblem, device, figure, painting, drawing, placard, poster, billboard or other thing that is designed, used or intended for advertising purposes or to inform or attract the attention of the public, and the term includes the sign structure, display surface and all other component parts of a sign; when dimensions of a sign are specified, the term includes panels and frames; and the term includes both sides of a sign of specified dimensions or display surface area.

The memorial is located in the Holcomb ROW, which would be regulated by a ROW permit and under the prohibited sign section of the OCMC (17.28.050) there is the following:

- I. A sign erected or maintained on public property or within the public right-of-way without permission of the public body having jurisdiction;

There is no reference in the sign code to memorials or how they are handled and I am not aware of a policy statement or how this was addressed in the past. I don't recall having this concern raised before with planning.

Tony

---

**From:** Nancy Busch  
**Sent:** Monday, February 01, 2010 9:21 AM  
**To:** Nancy Kraushaar  
**Cc:** Scott Archer; Kathy Griffin; Tony Konkol; Aleta Froman-Goodrich  
**Subject:** RE: TAC - Remove Memorial Sign

All signs/items in the ROW are prohibited, technically that is. Without having looked at the issue first, I don't believe a memorial can be addressed as a sign but can be addressed through the jurisdiction of the

row. Should the family come forward, the commission may still let them have the memorial. The TAC should probably weigh in with their opinion and get the commission on board in advance.



**Nancy Busch**  
[nbusch@orccity.org](mailto:nbusch@orccity.org)  
**Code Enforcement Manager**  
PO Box 3040  
320 Warner Milne Rd.  
Oregon City, Oregon 97045  
503-496-1571 Direct phone  
503-657-0891 City phone  
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**Website:** [www.orccity.org](http://www.orccity.org)

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**From:** Nancy Kraushaar  
**Sent:** Friday, January 29, 2010 5:37 PM  
**To:** Nancy Busch  
**Cc:** Scott Archer; Kathy Griffin; Tony Konkol; Aleta Froman-Goodrich  
**Subject:** FW: TAC - Remove Memorial Sign

Do you know of any regulations we have regarding such memorials? I think we should allow them for a short time and then require their removal. Touchy subject, but, in my opinion, not a good or appropriate permanent right-of-way fixture. -Nancy

---

**From:** Kathy Griffin  
**Sent:** Friday, January 29, 2010 5:08 PM  
**To:** Nancy Kraushaar; Tony Konkol  
**Cc:** Aleta Froman-Goodrich  
**Subject:** FW: TAC - Remove Memorial Sign

Janice Troxler from the Park Place neighborhood attended the TAC meeting last week and brought up a concern about the memorial sign (I believe) at the intersection of Holcomb/Redland/Abernethy. She said that there is a cross, a picture, documents, and flowers. She felt that it was distracting on a portion of roadway that already had problems. Are there any codes or regulations regarding this? I think she was okay with a simple cross, but she felt the "memorial" was an "(un)attractive nuisance".



**Kathy Griffin**  
**Administrative Assistant**  
**Public Works Department**  
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Oregon City, Oregon 97045  
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[www.orccity.org](http://www.orccity.org)

---

**From:** Aleta Froman-Goodrich  
**Sent:** Friday, January 29, 2010 3:49 PM  
**To:** Kathy Griffin  
**Subject:** TAC - Remove Memorial Sign

Kathy,

Is someone looking into this request made by Janice Troxler?

Let me know if I need to talk to Planning on this or other?

Thanks,  
Aleta

*Aleta Froman-Goodrich, P.E.  
Public Works Senior Project Engineer  
City of Oregon City  
PO Box 3040  
625 Center Street (NOTE: City Hall has moved to this location.)  
Oregon City, OR 97045-0304  
Phone: (503) 496-1570  
Fax: (503) 657-7892  
Email: [afromangoodrich@orc.org](mailto:afromangoodrich@orc.org)  
Think **GREEN** before you print.*

*Public Records Law Disclosure  
This e-mail is a public record of the City of Oregon City and is subject to public disclosure unless exempt from disclosure under Oregon Public Records Law. This email is subject to the State Retention Schedule.*

## Kathy Griffin

---

**From:** Marek, Joe [joem@co.clackamas.or.us]  
**Sent:** Wednesday, January 27, 2010 5:20 PM  
**To:** Nancy Kraushaar; John M. Lewis  
**Cc:** Jim Burch; Kathy Griffin; Bezner, Mike; Gilmour, Cam  
**Subject:** RE: Attached Image

Greetings,

I've had some internal discussions regarding our current situation on Beavercreek Road near Oregon City High School. I need to understand more about the issues surrounding the decision to install a school zone flasher in front of the high school. If one of you could contact me with that information, that would be great.

As of right now, I won't approve the speed zone change and ODOT may want to reconsider their decision give the content of your November 24, 2009 letter that accompanied the investigation when it was sent to ODOT.

In addition, my discussions with the OC transportation person revealed that the issues around the school were not related to kids walking, but related to traffic operations. The County has looked at the traffic signal at Meyers Road and discovered some items that needed repair that affects the operations of the signal and the City is working with DKS to evaluate this intersection on a broader level.

So, at this point given the information that I have, I don't believe a flasher is an appropriate traffic control device to install on this County road given the intent of the State law.

Please provide me some more background so we can chart a path forward.

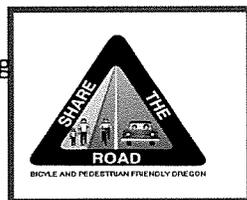
Thanks

Joe

---

**Joseph F. Marek, PE, PTOE**  
**Traffic Engineering Supervisor**  
**Engineering Division**

Clackamas County DTD  
Development Services Building  
150 Beavercreek Road  
Oregon City, OR 97045  
Tele: 503.742.4705  
Fax: 503.742.4659  
email: [joem@co.clackamas.or.us](mailto:joem@co.clackamas.or.us)  
web: [www.clackamas.us](http://www.clackamas.us)  
travel: [www.clackamas.us/travel](http://www.clackamas.us/travel)  
Twitter: ClackamasTravel



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**Traffic Safety Starts with YOU**

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---

**From:** Nancy Kraushaar [mailto:nkraushaar@ci.oregon-city.or.us]  
**Sent:** Monday, January 25, 2010 6:21 PM  
**To:** John M. Lewis

**Cc:** Jim Burch; Kathy Griffin; Marek, Joe

**Subject:** RE: Attached Image

John: We need to send a letter supporting the reduced speed zone. The letter should convey our support and that unlike we reported in the previous letter we sent them, the school speed zone may not be removed; the school speed zone signage likely will be replaced with signage with a flashing light. Attached is your previous letter – unfortunately it included an automatic date so it is not clear when it was originally dated (argh – the automatic date command should be outlawed).

Kathy: Can you draft a letter? Thank you. -Nancy

---

**From:** John M. Lewis

**Sent:** Monday, January 25, 2010 1:13 PM

**To:** Nancy Kraushaar

**Cc:** Jim Burch; Kathy Griffin; joem@co.clackamas.or.us

**Subject:** FW: Attached Image

Nancy it looks like the state has acknowledged the county's speed zone investigation supports a reduced speed on Beaver Creek Road. We need to provide a written response by 4/9/10. How would you to proceed?

---

**From:** admin@orcitey.org [mailto:admin@orcitey.org]

**Sent:** Monday, January 25, 2010 9:36 AM

**To:** John M. Lewis

**Subject:** Attached Image

---

[Spam](#)

[Not spam](#)

[Forget previous vote](#)

## Kathy Griffin

---

**From:** Nancy Kraushaar  
**Sent:** Wednesday, January 20, 2010 8:40 PM  
**To:** Kathy Griffin  
**Subject:** FW: Beavercreek Road Speed Zone Report

Do you have our letter to ODOT? -Nancy

---

**From:** Marek, Joe [mailto:joem@co.clackamas.or.us]  
**Sent:** Tuesday, January 19, 2010 2:28 PM  
**To:** Nancy Kraushaar; Bezner, Mike  
**Cc:** Kathy Griffin; John M. Lewis; Jim Burch; Bezner, Mike  
**Subject:** RE: Beavercreek Road Speed Zone Report

Nancy,

The UGMA states that the City is to maintain/install traffic control devices on County roads in the City except “energized traffic signals”, which I’m thinking a flasher would be classified as. The IGA should probably be a 3- party.

As far as the speed zone is concerned, the request was predicated upon removal of the 20 zone as outlined on your 11/24/09 letter to me. Since the 85<sup>th</sup> percentile speed was 48 mph, there is no real reason to lower it, but ODOT considered the benefit of the removal of the 20 at all times. I’m not sure they will be in agreement with the speed zone request if there will be a flasher.

I suggest you revise your November 24<sup>th</sup> letter and I will send it in to ODOT and see what they think. I can’t tell you at this point whether we will support this proposal or not. I need to have some internal discussions and will let you know soon.

Would you like our specifications for a school flasher or will you be operating and maintaining it?

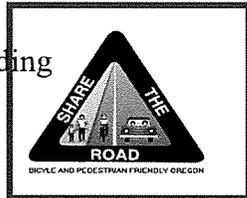
Thanks

Joe

---

**Joseph F. Marek, PE, PTOE**  
**Traffic Engineering Supervisor**  
**Engineering Division**

Clackamas County DTD  
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travel: [www.clackamas.us/travel](http://www.clackamas.us/travel)  
Twitter: ClackamasTravel

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**Traffic Safety Starts with YOU**

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---

**From:** Nancy Kraushaar [mailto:nkraushaar@ci.oregon-city.or.us]  
**Sent:** Friday, January 15, 2010 4:24 PM  
**To:** Marek, Joe; Bezner, Mike  
**Cc:** Kathy Griffin; John M. Lewis; Jim Burch  
**Subject:** RE: Beavercreek Road Speed Zone Report

Joe: We intend to complete the Meyers Road evaluation. If we would need an IGA with you, then it might make sense for the school district to have the IGA with you rather than the City.

John or Mike: Do you have the UGMA? -Nancy

---

**From:** Marek, Joe [mailto:joem@co.clackamas.or.us]  
**Sent:** Friday, January 15, 2010 7:44 AM  
**To:** Nancy Kraushaar; Bezner, Mike  
**Cc:** Kathy Griffin; John M. Lewis; Jim Burch  
**Subject:** RE: Beavercreek Road Speed Zone Report

Nancy,  
We should discuss this. I was not aware of this and would not have sent the speed zone investigation in knowing this. What happened with the operations evaluation at Meyers Road since that seems to be the real problem? The conditions that we discussed around the speed zone change was centered around removal of the school zone 20 signing, not the addition of a flasher. Fundamentally, there may be a traffic operations problem around the Meyers Road signal which should be addressed.

Also, you need to check your UGMA with us because you may may need an IGA with us in order to install the flasher since, as I recall, it's considered an energized signal.

Please update me.

Thanks

Joe

---

Joseph F. Marek, PE, PTOE  
Traffic Engineering Supervisor  
Clackamas County  
Department of Transportation and Development  
150 Beavercreek Road  
Oregon City, OR 97045  
Tele: 503-742-4705

---

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---

**From:** Nancy Kraushaar [mailto:nkraushaar@ci.oregon-city.or.us]  
**Sent:** Thursday, January 14, 2010 6:46 PM  
**To:** Marek, Joe  
**Cc:** Kathy Griffin; John M. Lewis; Jim Burch  
**Subject:** RE: Beavercreek Road Speed Zone Report

Hello, Joe:

I cannot recall where we left our communication before the holidays. Did I let everyone know that city staff were instructed to work with the school district to develop an IGA that outlines the responsibilities of construction and O&M of a OCSD-funded programmable flashing school speed zone assembly?

The City is supposed to draft the IGA. Along with that we agreed to modify the non-school zone regulated speed limit as described in your speed zone report.

A very important item is whether or not the County can get on board with the programmable flashing assembly if the district pays for it.

We have not had time to develop a draft IGA. It is on our list of things to do. Would you happen to have an example IGA for this type of arrangement?

Thank you. -Nancy

---

**From:** Marek, Joe [mailto:joem@co.clackamas.or.us]  
**Sent:** Thursday, January 14, 2010 8:34 AM  
**To:** Nancy Kraushaar; John M. Lewis; Jim Burch  
**Subject:** FW: Beaver Creek Road Speed Zone Report

Greetings,  
ODOT will be sending you a request for concurrence. How are we doing with the HS?  
Thanks  
Joe

---

**From:** COREY Debby L [mailto:Debby.L.COREY@odot.state.or.us]  
**Sent:** Thursday, January 14, 2010 8:25 AM  
**To:** Marek, Joe; Douglas, Dalton  
**Subject:** Beaver Creek Road Speed Zone Report

Hi, Joe and Dalton. Jerry had sent in a speed zone investigation on Beaver Creek Road in November. It was misplaced in our Region 1 office for a while and we just received it here in Salem last week. Ed has now approved the recommendation and we will send the report to the City of Oregon City for their concurrence. I apologize for the length of time it's taken to get this one processed.  
From now on, you can send your speed zone reports directly to my office, not to the Portland Region 1 office. That will help shorten the response time.  
About the Beaver Creek Road report, I revised the report (not the recommendation) to correct some errors (that are critical to our understanding and processing the report). I also added info to the map and corrected the road name for Glen Oak Road. Dalton, comparing what Jerry initialing submitted and the two corrected documents might be a good learning tool. If you have any questions, let me know.

<<Beaver Creek Rd Copy of Rpt.pdf>>

<<Beaver Creek\_map.pdf>>

Debby Corey  
Traffic Investigations Coordinator  
ODOT Traffic-Roadway Section  
355 Capitol Street NE, 5th Floor  
Salem, OR 97301-3871

## Kathy Griffin

---

**From:** Jim Burch  
**Sent:** Friday, January 29, 2010 9:58 AM  
**To:** Kathy Griffin  
**Cc:** 'M Dale'; John M. Lewis; Nancy Kraushaar  
**Subject:** RE: Frontier Parkway

Kathy,

Not that I am aware of, I have seen children at play signs...however if my fear would be that if we sought to install these type of signs everywhere children were at "play" we would incur a huge cost and be constantly putting up and taking down these signs.

I will keep this location in mind for the Radar locations.



Jim Burch  
Street Operations Supervisor  
City of Oregon City Public Works  
[jburch@ci.oregon-city.or.us](mailto:jburch@ci.oregon-city.or.us)  
503-657-8241 phone  
503-793-1628 Cell

---

**From:** Kathy Griffin  
**Sent:** Friday, January 29, 2010 9:10 AM  
**To:** Jim Burch  
**Cc:** M Dale; John M. Lewis; Nancy Kraushaar  
**Subject:** RE: Frontier Parkway

Jim,

Do we have such a "Traffic Calming Device" list or is there a web site? Also, can you put Frontier Parkway on the list again to get the rotating speed radar sign? Thank you!



Kathy Griffin  
Administrative Assistant  
Public Works Department  
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[kgriffin@ci.oregon-city.or.us](mailto:kgriffin@ci.oregon-city.or.us)  
[www.orcity.org](http://www.orcity.org)

---

**From:** M Dale [mailto:thedalefamily6@yahoo.com]  
**Sent:** Thursday, January 28, 2010 11:59 AM  
**To:** Kathy Griffin  
**Subject:** Frontier Parkway

Kathy, Is there a list of possible traffic managing or calming devices that the city has written down? I'm interested in 'children at play' signs, etc.. Also, are the rotating speed radar signs planned to be reinstalled on Frontier Parkway at some future date?

Thanks, Matt Dale 13166 Frontier Parkway.

## **Kathy Griffin**

---

**From:** Jason Frazier  
**Sent:** Friday, January 29, 2010 4:06 PM  
**To:** thedalefamily6@yahoo.com  
**Cc:** Nancy Kraushaar; Kathy Griffin; Jim Burch  
**Subject:** Frontier Parkway

Mr. Dale,

The City of Oregon City understands the frustrations of having drivers exceed the speed limits through neighborhoods and is open to all reasonable traffic calming solutions to improve the safety of your neighborhood.

The City must first conduct a speed study to get an accurate picture of the speeds and where the speeds are the fastest. We have already conducted thorough speed studies in July of 2007 and November of 2008 with results showing a maximum 85% speed of 29 MPH and average speeds below the posted speed limit of 25 MPH.

When I get a break in my schedule I will set up another speed study in the location that showed the fastest historical speeds. Setting up a speed study is time consuming and costs the City money for the use of the tubes and the labor to set it up. But we want to keep the neighborhoods safe, so we will see what the speed study shows and look at solutions for reasonable traffic calming devices.

Thank you,

### **Jason Frazier**

Engineering Technician III  
City of Oregon City  
phone: 503.496.1567  
fax: 503.657.6629  
email: [jfrazier@orccity.org](mailto:jfrazier@orccity.org)

## Kathy Griffin

---

**From:** Nancy Kraushaar  
**Sent:** Monday, January 25, 2010 5:58 PM  
**To:** Nancy Busch; John M. Lewis  
**Cc:** Kathy Griffin; Jim Burch  
**Subject:** RE: Two Street Items Brought up at TAC Meeting Last Night

Sounds good to me. -Nancy

---

**From:** Nancy Busch  
**Sent:** Monday, January 25, 2010 4:18 PM  
**To:** John M. Lewis; Nancy Kraushaar  
**Cc:** Kathy Griffin; Jim Burch  
**Subject:** RE: Two Street Items Brought up at TAC Meeting Last Night

I'll speak with them and follow up with some enforcement a few days afterwards. Let me know if you have something different in mind.



Nancy Busch  
[nbusch@orccity.org](mailto:nbusch@orccity.org)  
Code Enforcement Manager  
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---

**From:** John M. Lewis  
**Sent:** Monday, January 25, 2010 4:09 PM  
**To:** Nancy Kraushaar  
**Cc:** Nancy Busch; Kathy Griffin; Jim Burch  
**Subject:** RE: Two Street Items Brought up at TAC Meeting Last Night

This is a safety issue. I'm 95 % certain that if there were an accident, the parked vehicle operator would be liable rather than the City but if there is a record of knowledge without a response I'm guessing we would have some liability.

I don't recall if our stripping has been refreshed in awhile (Jim we need to refresh the striping if its needed) but that's no excuse for the disregard for the no parking signs. The no on street parking needs to be enforced, especially on Friday and Saturday nights. We don't need a third sign.

I can also notify C-Com when I notice it at night or on the weekends. I just hate to bother them over a parking issue. I think a code enforcement conversation during the regular work week might help or at least be a neighborly thing to do for the restaurant before we start writing tickets.

---

**From:** Nancy Kraushaar  
**Sent:** Wednesday, January 20, 2010 11:33 AM  
**To:** Jim Burch  
**Cc:** John M. Lewis; Nancy Busch; Kathy Griffin  
**Subject:** RE: Two Street Items Brought up at TAC Meeting Last Night

I agree that this is an enforcement issue. One way to solve the problem is to have Parking work a "busy" night and issue some tickets. However, the first question I would want answered is, is this a safety issue? -Nancy

---

**From:** Jim Burch  
**Sent:** Wednesday, January 20, 2010 10:27 AM  
**To:** Kathy Griffin  
**Cc:** Nancy Kraushaar; John M. Lewis  
**Subject:** RE: Two Street Items Brought up at TAC Meeting Last Night

I have seen this issue, and have seen cars parked right next to the no parking signs. As you know there is not much parking in their lot. I am pretty sure that one more sign won't stop people from parking there, it is signed well and the signs are very visible. People have to walk right past them, or drive next to them to park there!

We can put as many signs along that stretch as John or Nancy want, however whether at night or not... I contend that folks know that its no parking, a driver would have to drive (at a slow speed) right past the first sign to park in the middle!

I just need some direction.



Jim Burch  
Street Operations Supervisor  
City of Oregon City Public Works  
[jburch@ci.oregon-city.or.us](mailto:jburch@ci.oregon-city.or.us)  
503-657-8241 phone  
503-793-1628 Cell

---

**From:** Kathy Griffin  
**Sent:** Wednesday, January 20, 2010 10:13 AM  
**To:** Jim Burch  
**Cc:** Nancy Kraushaar; John M. Lewis  
**Subject:** Two Street Items Brought up at TAC Meeting Last Night

The following items were brought up last night by the TAC and could be handled by the Street crew:

- 1) Division Street Potholes. Betty Mumm said the potholes are once again really bad on Division. She asked if you could go down the road and get the worst of them.
- 2) "No Parking" on 2<sup>nd</sup> Street in front of The Stillhouse (old Art's Café). Yes, there are two signs, one on each end of the parking area saying no parking with directional arrows. However, on busy Friday and Saturday nights, Betty Schaafsma says three cars always fit in on the parking area between the two Stillhouse driveways (which is a travel lane). She wants to know if you will put one more "No Parking" sign in the middle of this island so it is clear at night when no enforcement is around that no parking is allowed. I know you will say this is an enforcement issue, but it is not being enforced. Betty has brought this up at least three times.

## Kathy Griffin

---

**From:** Jim Burch  
**Sent:** Monday, February 01, 2010 3:56 PM  
**To:** Kathy Griffin  
**Cc:** Nancy Kraushaar; John M. Lewis; Aleta Froman-Goodrich  
**Subject:** RE: Two Street Items Brought up at TAC Meeting Last Night

We have patched this section several times, it keeps unraveling!! ☹.... The issue is that the cold mix we have used doesn't last long with the heavy traffic, and its almost too thin to patch with hot mix. This area in the corner needs to be ground out a few inches deep and patched in a more permanent manner. The problem is that it's the wrong time of year for that type of fix.

For now we will keep patching what we can until a more permanent solution can be achieved.



Jim Burch  
Street Operations Supervisor  
City of Oregon City Public Works  
[jburch@ci.oregon-city.or.us](mailto:jburch@ci.oregon-city.or.us)  
503-657-8241 phone  
503-793-1628 Cell

---

**From:** Kathy Griffin  
**Sent:** Monday, February 01, 2010 1:01 PM  
**To:** Jim Burch  
**Cc:** Nancy Kraushaar; John M. Lewis; Aleta Froman-Goodrich  
**Subject:** RE: Two Street Items Brought up at TAC Meeting Last Night

. . . . and issue no. 1 below, potholes on Division; what shall we tell the TAC?

---

**From:** Jim Burch  
**Sent:** Wednesday, January 20, 2010 10:27 AM  
**To:** Kathy Griffin  
**Cc:** Nancy Kraushaar; John M. Lewis  
**Subject:** RE: Two Street Items Brought up at TAC Meeting Last Night

I have seen this issue, and have seen cars parked right next to the no parking signs. As you know there is not much parking in their lot. I am pretty sure that one more sign won't stop people from parking there, it is signed well and the signs are very visible. People have to walk right past them, or drive next to them to part there!

We can put as many signs along that stretch as John or Nancy want, however whether at night or not... I contend that folks know that its no parking, a driver would have to drive (at a slow speed) right past the first sign to park in the middle!

I just need some direction.



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---

**From:** Kathy Griffin  
**Sent:** Wednesday, January 20, 2010 10:13 AM  
**To:** Jim Burch  
**Cc:** Nancy Kraushaar; John M. Lewis  
**Subject:** Two Street Items Brought up at TAC Meeting Last Night

The following items were brought up last night by the TAC and could be handled by the Street crew:

- 1) Division Street Potholes. Betty Mumm said the potholes are once again really bad on Division. She asked if you could go down the road and get the worst of them.
- 2) "No Parking" on 2<sup>nd</sup> Street in front of The Stillhouse (old Art's Café). Yes, there are two signs, one on each end of the parking area saying no parking with directional arrows. However, on busy Friday and Saturday nights, Betty Schaafsma says three cars always fit in on the parking area between the two Stillhouse driveways (which is a travel lane). She wants to know if you will put one more "No Parking" sign in the middle of this island so it is clear at night when no enforcement is around that no parking is allowed. I know you will say this is an enforcement issue, but it is not being enforced. Betty has brought this up at least three times.

Thank you!



Kathy Griffin  
Administrative Assistant  
Public Works Department  
City of Oregon City  
PO Box 3040  
625 Center Street  
Oregon City, Oregon 97045  
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[kgriffin@ci.oregon-city.or.us](mailto:kgriffin@ci.oregon-city.or.us)  
[www.orcity.org](http://www.orcity.org)

## Kathy Griffin

---

**From:** Kathy Griffin  
**Sent:** Monday, February 08, 2010 1:28 PM  
**To:** Alisa Finnegan; Bob Cullison; Chris Taylor; Chuck Carter; Dan Drentlaw; David Knoll; David Wimmer; Debbie Dodd; Denise Kai; Eli Deberry; Eric Hand; Fran Shafer; Guy Sperb; James Band; Jim Burch; Jim Loeffler; John M. Lewis; Kathy Griffin; Kathy Wiseman; Larry Patterson; Larry Potter; Lisa Nunes; Lynda Ackerson; Maureen Cole; Mike Conrad; Nancy Busch; Nancy Ide; Nancy Kraushaar; Rochelle Parsch; Roma Paulson; Scott Archer; Sharon Coughlin; Teri Bankhead; Tony Konkol; Alice Norris; Doug Neeley; Rocky Smith, Jr.; James Nicita; Daphne Wuest  
**Cc:** Lloyd Purdy; Betty Mumm; Betty Schaafsma; donslack5@msn.com; Jonathan David; mary.c.smith@state.or.us; Nancy Walters; Ron Haas; Terry Wright  
**Subject:** FYI on Future TriMet Route Cuts

Nancy got a phone call today from TriMet advising of future cuts in service and asked that the information be distributed; here it is.

Tom Mills at TriMet (503.962.4883) said that a Press Release would be coming out tomorrow about a budget deficit they are once again facing. The last deficit they had was \$31M (two years ago?) and they addressed \$9M of that through service cuts including the elimination of Route 153, South End Road.

Now, they have a budget deficit of \$20M and they will be addressing \$8M of that through service cuts. Bus lines changes affecting the Oregon City Transit Center include the elimination of line 154-Willamette (<http://trimet.org/schedules/r154.htm>) that serves West Linn. Also, the frequency of routes 33-McLoughlin (<http://trimet.org/schedules/r033.htm>) and 32-Oatfield (<http://trimet.org/schedules/r032.htm>) will be adjusted. They will also be eliminating Saturday service on route 32.

TriMet will be holding four open houses to talk to the public including one in Oregon City at the Pioneer Community Center on Wednesday, February 24 from 4:30 PM to 6:30 PM. They are also looking at having two public hearings yet to be set.

Because there was some concern by citizens when route 153 was cut, can you please forward this information on to anyone you feel may be interested? Thank you!



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## TriMet could raise fares 5 cents, cut four bus lines in Portland area

By Helen Jung, The Oregonian

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Olivia Bucks/The Oregonian

TriMet proposes cuts, fare increase to meet a budget shortfall.

**TriMet** proposes raising fares by 5 cents and discontinuing four bus lines to help fill an expected \$27 million shortfall for the budget year starting July 1.

The agency said lower-than-expected revenue from payroll taxes -- which account for 55 percent of its operating revenue -- and decreased passenger revenue were driving the shortfall. But the agency also said some expenses, such as health care costs and cost-of-living-increases for its union workforce were projected to increase for the 2011 fiscal year.

The agency is also proposing a 5 percent cut in administrative expenses as well as a salary and hiring freeze.

The four bus lines the agency may shut down are considered to have low ridership or serve areas where alternative service is available. The lines are:

- No. 27 - Market/Main
- No. 65 - Marquam Hill/Barbur
- No. 154 - Willamette
- No. 157 - Happy Valley

Both the fare increase and dropping the four bus lines would go in effect in September.

TriMet also said it plans to reduce some or all weekend service on three other low-ridership lines:

- No 32 - Oatfield (cut Saturday service)
- No. 45 - Garden Home (cut Sunday service)
- No. 80-Kane/Troutdale (both Saturday and Sunday)

The agency would also run 24 bus lines less frequently, increasing the waiting time between buses by two to

10 minutes on weekdays. Other lines would also see longer wait times on weekends.

TriMet said it would start accepting public comments on the proposed fare increase and bus changes today through Friday April 23. For information on how to comment or to find out about upcoming public hearings, **click here**.

In February last year, TriMet announced its first service cuts in more than a decade. It initially proposed cutting 12 bus lines and cutting service on many others, but the agency instead cut four bus lines and trimmed frequency and weekend service on other bus lines and **MAX light rail**.

Those service cuts were implemented in **September**.

In **November**, it cut service again, reducing frequency of service during off-peak times on 18 bus lines.

For more information, check tomorrow's Oregonian.

-- **Helen Jung**

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# CITIES | OREGON CITY

## School holds regional dance competition

The Spotlight Dance Cup 2010 Regional Competition will be this weekend at Oregon City High School, 19761 S. Beaver-creek Road.

Dancers of all ages will compete for thousands of dollars in cash, scholarships, trophies and prizes.

The event is scheduled from 7 to 10:45 p.m. Friday, 7 a.m. to 11 p.m. Saturday and 7 a.m. to 10:45 p.m. Sunday.

Winning entries from each region will be eligible to compete for titles at the National Championship Finals. Details: spotlightevents.com or 208-939-2015.

— Vickie Kavanagh

## College reps will visit community college

The representatives of more than 30 four-year colleges and universities will visit Clackamas Community College on Monday for the annual Transfer Day.

Representatives will be available to answer questions about transfer options from 10 a.m. to 1 p.m. in the Gregory Forum, 19600 Molalla Ave. For details, visit [depts.clackamas.edu/advising](http://depts.clackamas.edu/advising) or call Miguel Cardenas at 503-594-3175.

— Vickie Kavanagh

## List of city manager applicants is pared

Oregon City is a step closer to having a new city manager.

More than 50 people applied to replace Larry Patterson, who is retiring at the end of March. City commissioners winnowed the list to about a half-dozen people.

They hope to schedule meetings with finalists the week of Feb. 22. At that point, candidates will meet department heads and community leaders.

— Colin Miner

## Community projects, tourism get funding

Oregon City has \$150,000 to

fund community and tourism projects. The money comes from two programs: \$50,000 from the Oregon City Civic Improvement Trust and \$100,000 from the Oregon City Metro Enhancement Committee.

The trust was started in 1982 and distributes money from hotel and motel taxes to projects that promote tourism in Oregon City. Applications must be received by 3 p.m. March 2.

The enhancement committee gets money from a surcharge collected at the Metro South Transfer Station and funds community-oriented projects. Applications must be received by 3 p.m. May 5.

Information and applications for both programs are available online at [orcity.org](http://orcity.org). Contact Michele Beneville for more information, 503-496-1542.

— Colin Miner

## Don Slack is chamber citizen of the year

The Oregon City Chamber of Commerce honored Don Slack, the chairman of the city's urban renewal commission and president of the Board of Directors of Main Street Oregon City, as citizen of the year.

More than 240 people attended the annual dinner.

Other awards went to: Benchmade Knife Co., business of the year; Pam Bloom of B & B Leasing, business-person of the year. Rookie of the year honors went to Ryan Smith, Aaron Breniman and Maria Boettcher, owners of The Verdict Bar & Grill and The Caufield House.

Chamber Executive Director Amber Holveck was honored as the chamber humanitarian.

— Colin Miner

## Pair to be curators of local historic house

Oregon City has reached the framework of an agreement that will keep a local couple involved with running the historic Ermatinger House.

Marge and Rolla Harding, who have looked after the house for 15 years on a volunteer basis, will continue as volunteers but also be given the title of "curator," giving them more standing as they represent the museum and Oregon City.

The house, the oldest in Oregon City and the third-oldest in the state, was built in 1845 for Francis Ermatinger, an employee of the Hudson's Bay Company,

— Colin Miner



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