FINAL MEMORANDUM

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DATE: June 18, 2012

TO: Brad Moore, Kennedy/Jenks Consultants

FROM: Brian Copeland, P.E.
Monica Leal, EIT

SUBJECT: **West Linn Land Use Application Traffic Memorandum** P11130-000

Introduction

This memorandum addresses the potential impacts to transportation facilities during construction of the Raw Water (RWP) and Finished Water Pipelines (FWP) project within West Linn, Oregon. An inventory of existing transportation conditions is provided for the study area, along with general strategies for accommodating access and traffic during construction of improvements. Figures 1 and 2 show the RWP and FWP pipeline alignments in West Linn. This memo does not address potential traffic impacts resulting from construction activities at the Lake Oswego Water Treatment Plant (WTP) along Kenthorpe Way. A subsequent memo, which will be submitted at a later date, will combine all impacts associated with the construction of the RWP, the FWP, and the WTP.

In addition to the plan provided in this document, the project team will work closely with the City of West Linn and The Oregon Department of Transportation (ODOT) to ensure that the project is constructed in the safest possible way and construction impacts are kept to a minimum.

Existing Transportation Conditions

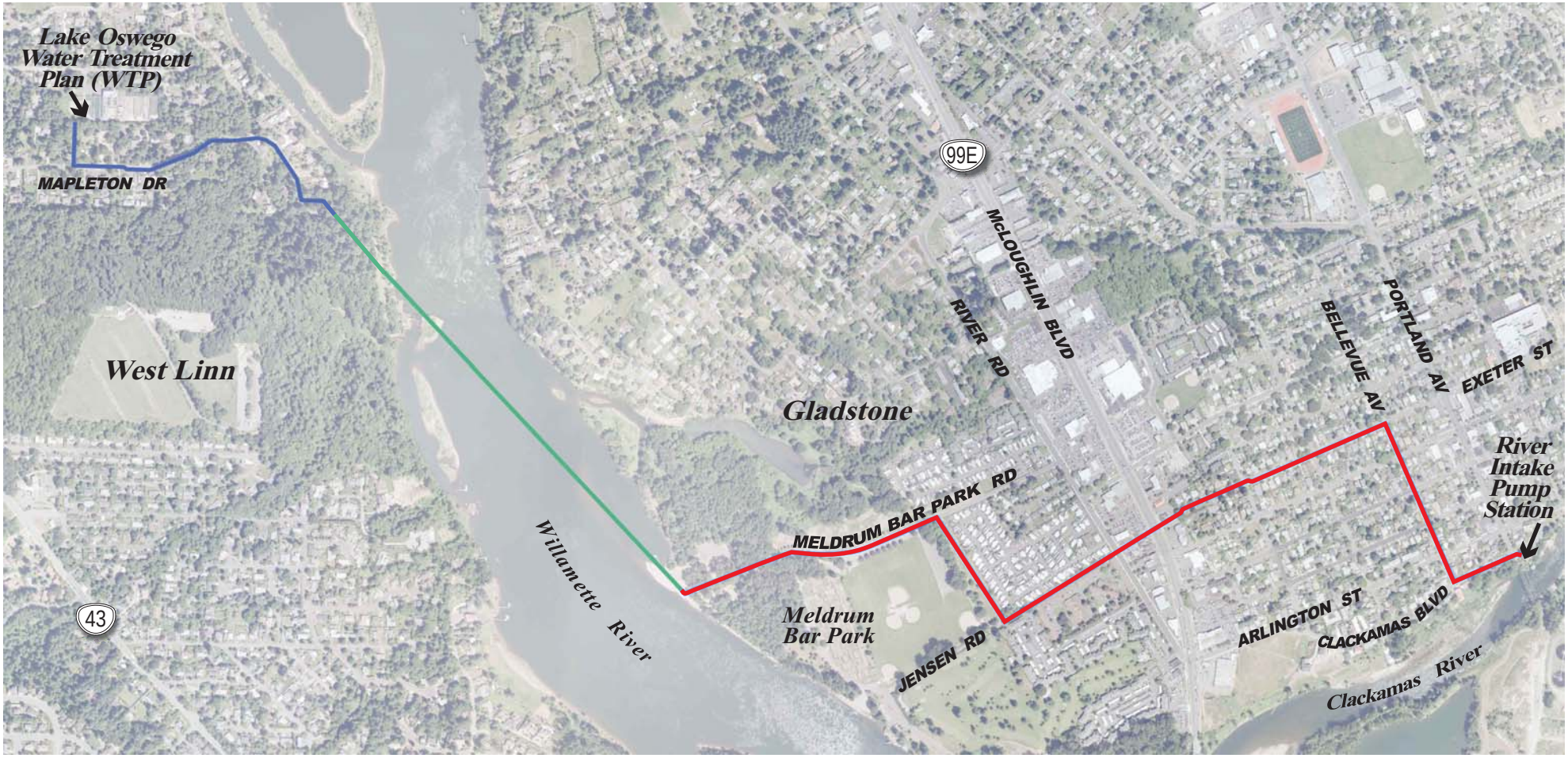
The inventory of existing transportation conditions includes traffic volumes, transportation network characteristics, and transit information for the roadways to be impacted by the construction of the RWP and FWP.

Existing Traffic Volumes

Twenty-four hour directional counts and as well as turn movement traffic counts were collected along OR43 and signalized intersections along OR43 to help assess construction impacts to the traveling public. Collection of new traffic data in West Linn was focused on OR43 since it is a higher-volume roadway where construction would impact a significant number of drivers.

New twenty-four hour counts were conducted at one location within West Linn:

- Highway 43 (OR43) north of Robinwood Way



LEGEND

- Schedule 1 South - Willamette River Crossing Alignment to River Intake Pump Station
- Schedule 1 North - Lake Oswego Water Treatment Plan (WTP) to Willamette River Crossing Alignment
- Schedule 2 - Willamette River Crossing Alignment

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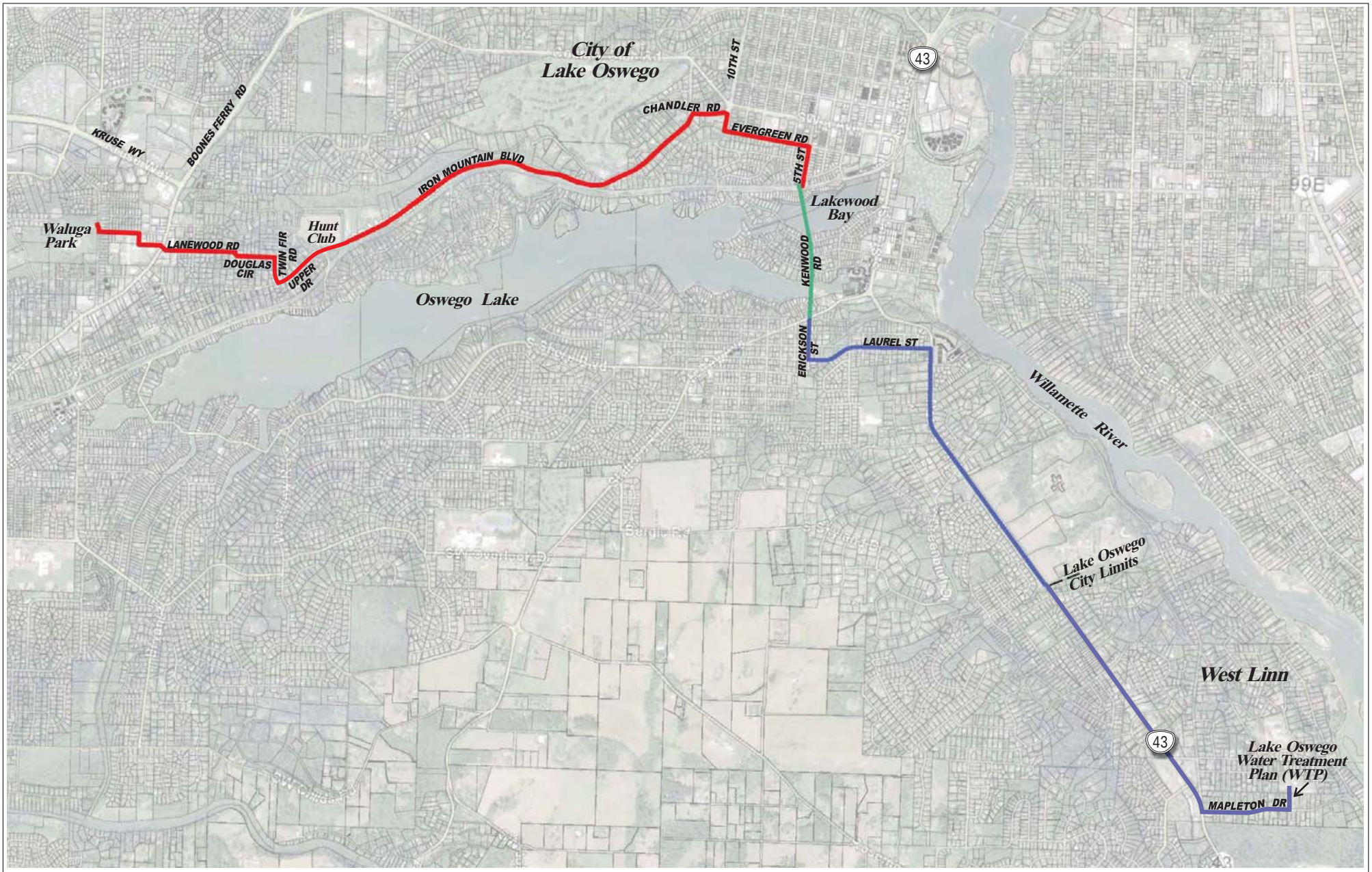
Figure 1

Raw Water Pipeline Construction Alignments



LEGEND

- Schedule 3 - Water Treatment Plan to Lakewood Bay
- Schedule 4 - Lakewood Bay Crossing
- Schedule 5 - Lakewood Bay to Waluga Reservoir 2 (Waluga Park)

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Figure 2

Construction Alignments Finished Water Pipe

In addition 24-hour traffic data was provided by the City of West Linn for Mapleton Drive and Kenthorpe Way. Figure 3 summarizes the twenty-four hour counts available for the entire alignment. Locations 1, 10, and 11 are within West Linn. Hourly volume profiles and complete traffic count data can be found in Appendix A.

New AM peak hour (7:00-9:00 AM) and PM peak hour (4:00 – 6:00 PM) vehicle turn movement counts were conducted at the following three signalized intersections within West Linn:

- OR43/Lazy River Drive
- OR43/Cedar Oak Drive
- OR43/Hidden Springs Road

Figure 4 shows the turn movement counts in the project area. Locations 1, 2 and 3 are within West Linn City limits. Complete traffic count data can be found in Appendix B.

Transportation Network

Transportation network characteristics include roadway jurisdiction, functional classification, Average Daily Traffic (ADT), posted speeds, number of travel lanes, roadway widths, and pedestrian and bicycle characteristics for the following five roadways within West Linn:

- Mapleton Drive
- OR43
- Kenthorpe Way
- Cedar Oak Drive
- Old River Road

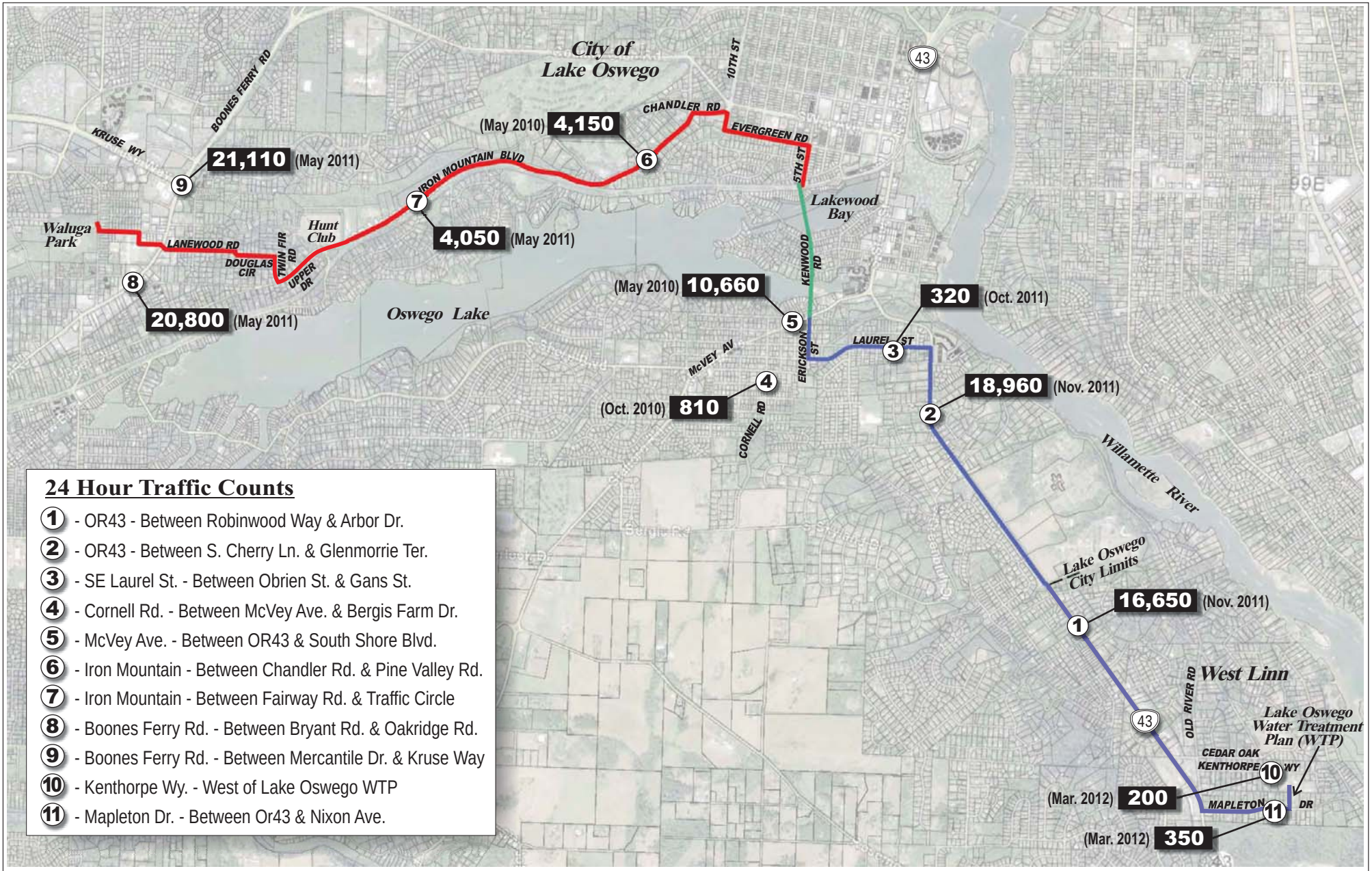
Table 1 shows a summary of the existing conditions for these roadways.

Proposed Access Strategies

Temporary traffic control strategies to be used during the RWP and FWP construction schedules have been evaluated in order to minimize traffic impacts during construction.

Pedestrian and Bicycle Accessibility

Pedestrians and bicycles shall be accommodated at all times around the temporary traffic control work zones. Accommodations for persons with disabilities and visual impairments shall be in accordance with the Americans with Disabilities Act (ADA) and Americans with Disabilities Act Accessibility Guidelines (ADAAG). Specific pedestrian and bicycle accessibility requirements are discussed below for Mapleton Drive and OR43. Figure 5 shows the overall pedestrian and bicycle circulation and access plan for construction on OR43 and Mapleton Drive. In general, since pedestrian and bicycle access will be maintained at all times, there will be no temporary or permanent impact to the present pedestrian and bicycle circulation in the area as a result of the project.



24 Hour Traffic Counts

1. OR43 - Between Robinwood Way & Arbor Dr.
2. OR43 - Between S. Cherry Ln. & Glenmorrie Ter.
3. SE Laurel St. - Between Obrien St. & Gans St.
4. Cornell Rd. - Between McVey Ave. & Bergis Farm Dr.
5. McVey Ave. - Between OR43 & South Shore Blvd.
6. Iron Mountain - Between Chandler Rd. & Pine Valley Rd.
7. Iron Mountain - Between Fairway Rd. & Traffic Circle
8. Boones Ferry Rd. - Between Bryant Rd. & Oakridge Rd.
9. Boones Ferry Rd. - Between Mercantile Dr. & Kruse Way
10. Kenthorpe Wy. - West of Lake Oswego WTP
11. Mapleton Dr. - Between Or43 & Nixon Ave.

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- Schedule 3 - Water Treatment Plan to Lakewood Bay
- Schedule 4 - Lakewood Bay Crossing
- Schedule 5 - Lakewood Bay to Waluga Reservoir 2 (Waluga Park)

(0) - Count Location & Number 00,000 (XXX) - 24 Hour Count Vehicle (Date)

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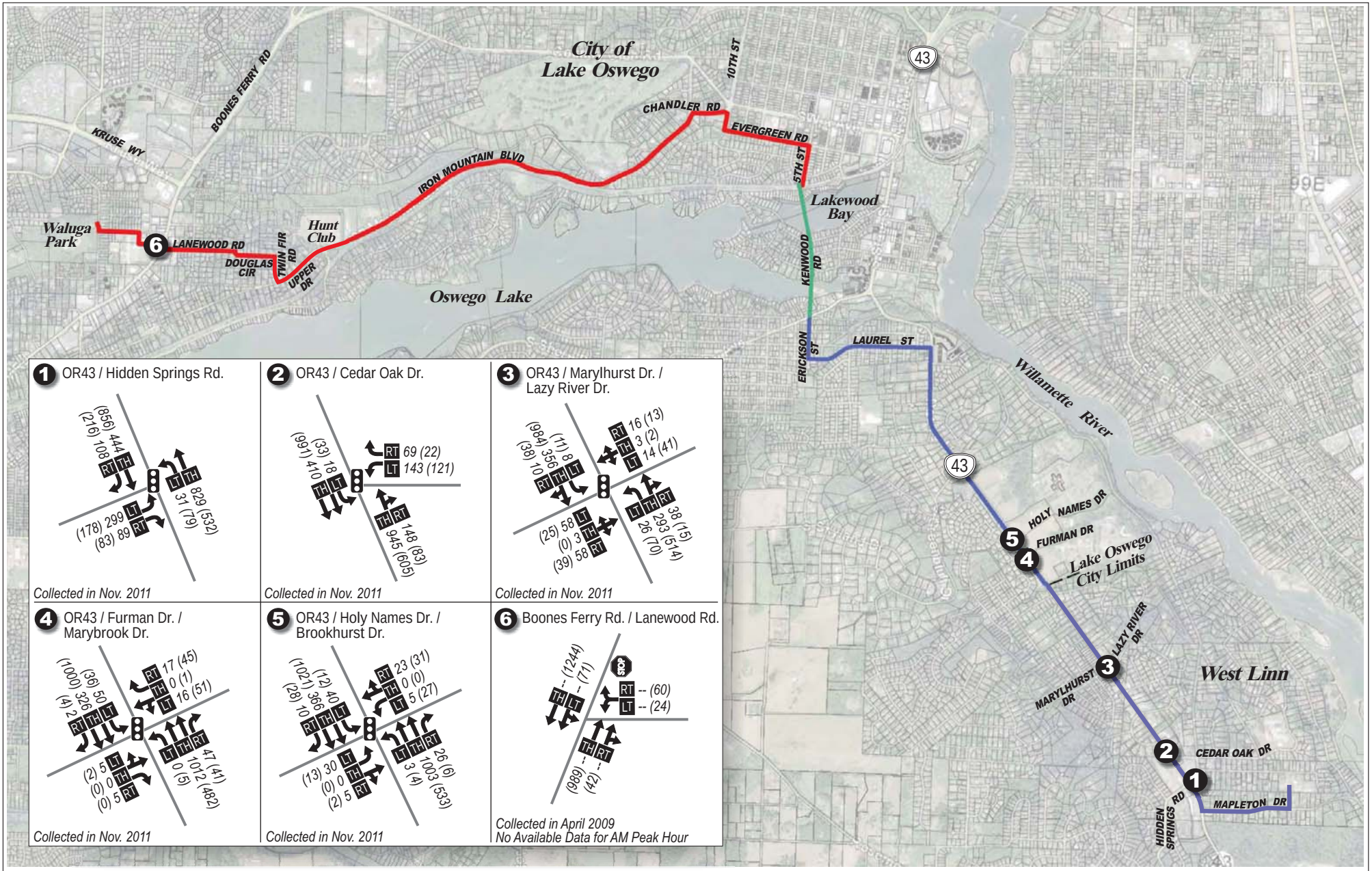
Figure 3

24 Hour Traffic Volumes



LEGEND

- Schedule 3 - Water Treatment Plan to Lakewood Bay
- Schedule 4 - Lakewood Bay Crossing
- Schedule 5 - Lakewood Bay to Waluga Reservoir 2 (Waluga Park)
- 0 - Study Intersection & Number
- Traffic Signal
- STOP - Stop Sign
- *AM (PM)* - Peak Hour Traffic Volume
- Lane Configuration
- LT TH RT - Volume Turn Movement (Left • Thru • Right)

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Figure 4

Turn Movement Counts AM/PM Peak Hour

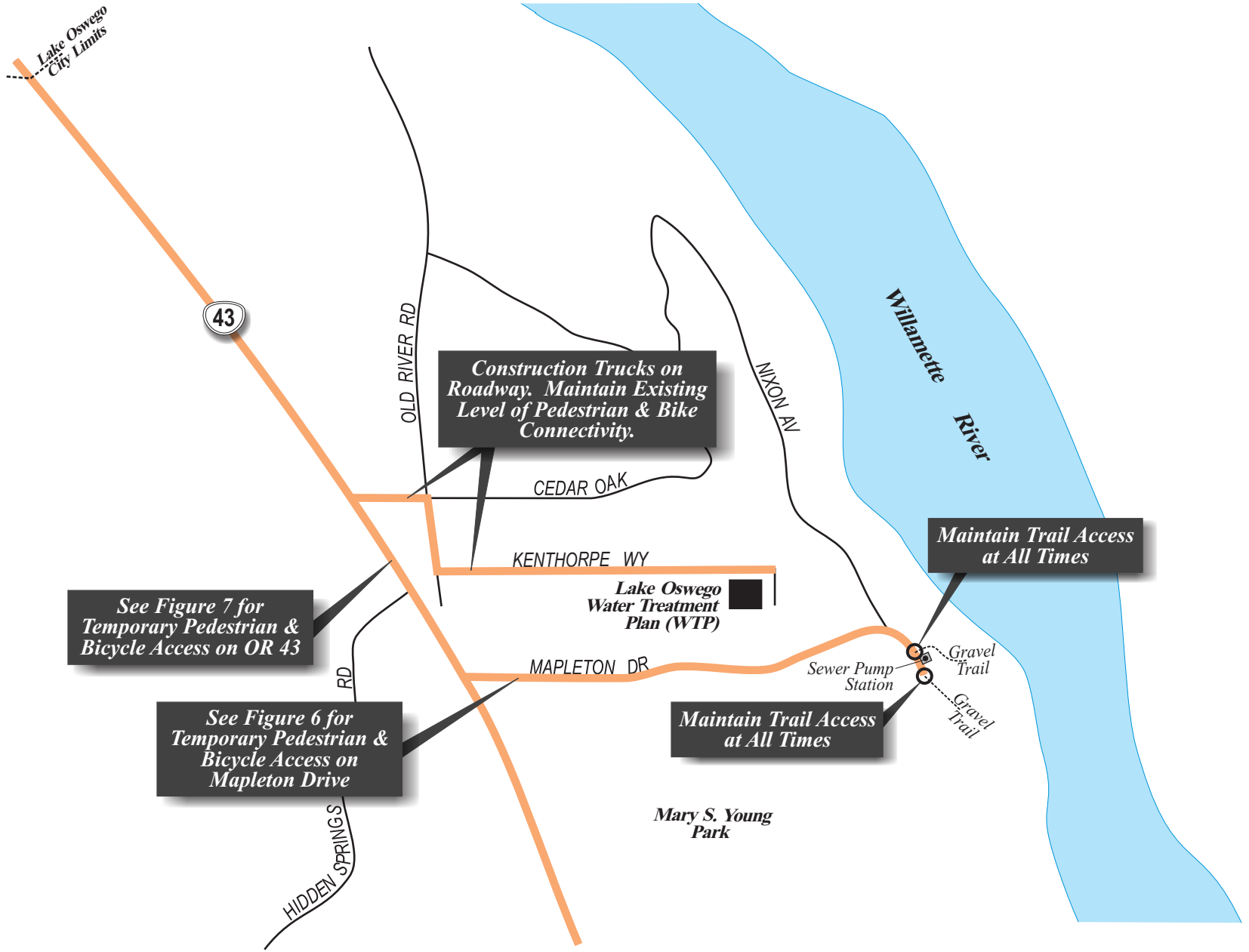
Table 1: Roadway Inventory Characteristics (West Linn)

Roadway	Roadway Jurisdiction	Functional Class.	Average Daily Traffic (ADT)	Posted Speed (mph)	Number of Travel Lanes	Approx. Lane Widths (feet)	Ex. Sidewalk	Ex. Bike Lanes
Mapleton Dr. (East of Water Treatment Plant)	West Linn	Collector/ Local [(1)(2)]	350	25	2 (one lane in each direction)	11	No	No
Mapleton Dr. (West of Water Treatment Plant)	West Linn	Collector [(1)]	350	25	2 (one lane in each direction)	11	No	No
OR43 - Lazy River Dr. to West Linn city limits	ODOT	Major Arterial/ Principal Arterial [(3)]	17,000 / 19,000 [(4)]	35	2 (one lane in each direction)	12	No	Yes
OR43 - Lazy River Dr. to Mapleton Dr.	ODOT	Major Arterial/ Principal Arterial [(3)]		35	3 (one lane in each direction and a center turn lane)	12	No	Yes
Kenthorpe Way	West Linn	Local Street	200	n/a	2 (one lane in each direction)	12	No	No
Cedar Oak Dr.	West Linn	Neighborhood Route/Collector[(5)]	n/a	25	2 (one lane in each direction)	12	Partial	No
Old River Rd.	West Linn	Local Street/Collector[(6)]	n/a	25	2 (one lane in each direction)	11	No	No

Notes:
[(1)] *Source: West Linn Transportation System Plan, October 2008*
[(2)] *Mapleton is classified as a collector between OR43 and Nixon Ave and as a local street south of Nixon Ave.*
[(3)] *OR43 is classified as a principal arterial by the City of West Linn and the Oregon Department of Transportation (ODOT), and as a major arterial by the City of Lake Oswego. Sources: West Linn Transportation System Plan (October 2008), City of Lake Oswego Transportation System Plan (June 1997), and Multnomah County Functional Classification Map, Oregon Department of Transportation (2009)*
[(4)] *Approx. 17,000 vehicles were recorded north of Robinwood Way and 19,000 north of S Cherry Lane (See Figure 3)*
[(5)] *Cedar Oak Drive is classified as a collector west of Old River Road, and as a neighborhood route east of Old River Road*
[(6)] *Old River Road is classified as a collector north of Cedar Oak Drive and as a local street south of Cedar Oak Drive*

Mapleton Drive

Pedestrians and bicycles shall be safely accommodated around the work zone on Mapleton Drive at all times. Pedestrian and bicycle access will be provided via a dedicated five foot wide temporary pathway that will be separated from the construction work zone by traffic channelizing devices, such as drums, tubular markers, or cones. Channelizing devices will be placed at a safe distance, no less than five feet, from working construction equipment and will be adequately marked to ensure the safety of pedestrians and bicycle riders. For open-cut



LEGEND

- Roadways to be Impacted by Construction or Construction Traffic

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Figure 5

Pedestrian & Bicycle Circulation & Access Plan

construction along Mapleton Drive (between OR43 and Mary S. Young State Park), the temporary pathway will move with the construction work area at a minimum approximate rate of 50 feet per day and will have a maximum length of 150 feet. For horizontal directional drilling (HDD) pipeline construction staging near Mary S. Young State Park, pedestrian access into Mary S. Young State Park will be maintained from the end of Mapleton Drive throughout the construction period. Figure 6 shows a typical concept for providing temporary pedestrian and bicycle access around the work zones on Mapleton Drive.

Highway 43 (OR43)

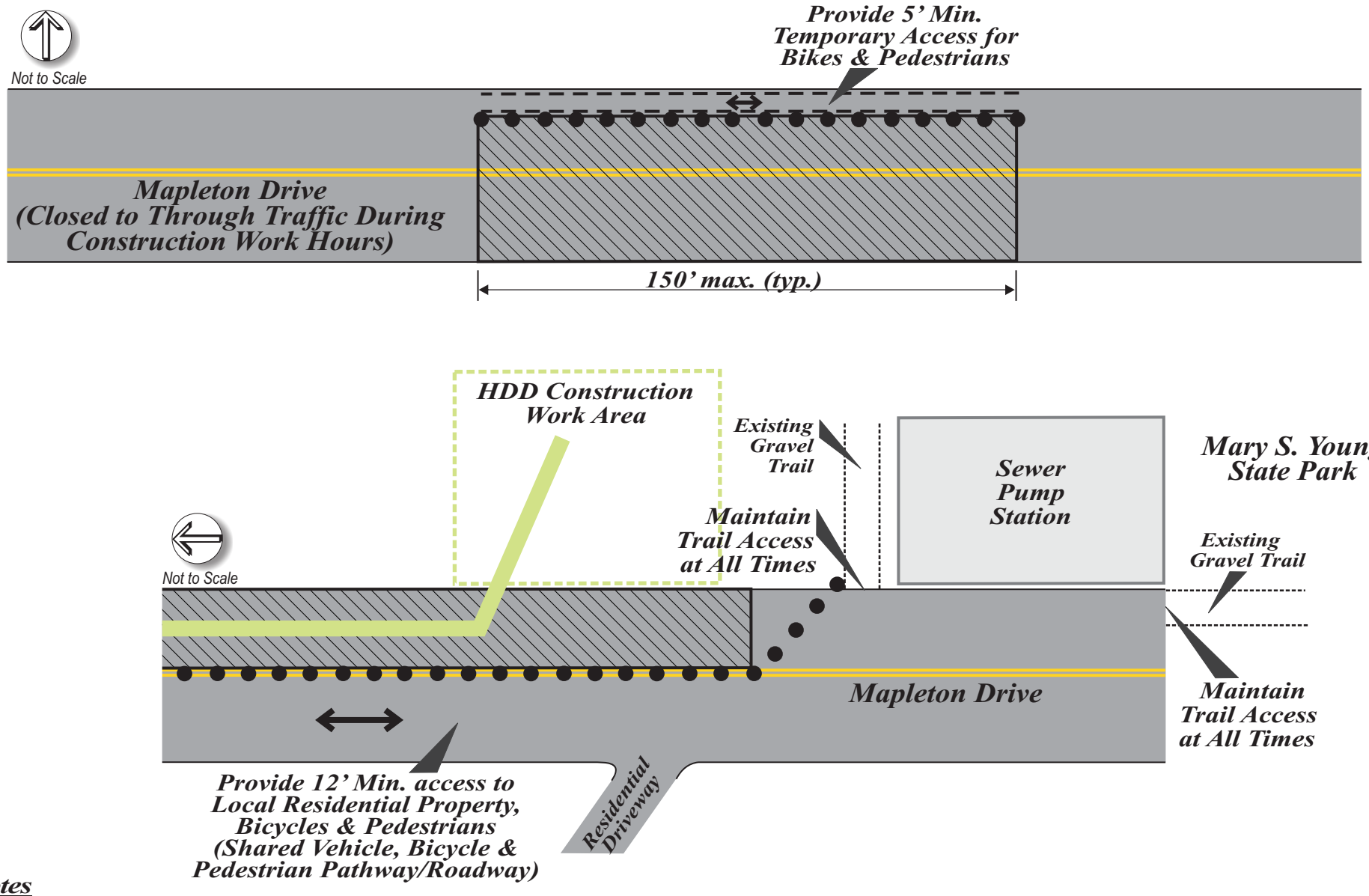
Pedestrians and bicycles shall be safely accommodated around the work zone on OR43 at all times. Pedestrian access will be provided via a dedicated 5 foot wide temporary pathway that will be separated from the construction work zone by a traffic channelizing devices such as drums, tubular markers, or cones. Channelizing devices will be placed at a safe distance, no less than 5 feet, from working construction equipment and will be adequately marked to ensure a safe pathway. In locations where pedestrian access is infeasible on one side of the roadway, a marked pedestrian detour at the nearest signalized intersection will cross to the other side of the street where a safe pathway around the construction zone can be provided. For construction along OR43, the temporary pathway will move with the construction work area at a minimum approximate rate of 50 feet per day and will have a maximum length of 200 feet. Figure 7 shows a typical concept for providing temporary pedestrian and bicycle access around the work zone on OR43. Bicycle access will be maintained within a flagged and shared bike/vehicle lane. Access for pedestrians and bicycles shall be provided around the work zone on OR43 per ODOT standard specifications (Section 00220).

Transit and School Bus Access

Transit service within the project limits is provided by TriMet. Only one TriMet bus route will be impacted by the RWP and FWP construction within West Linn as noted below:

> *TriMet Route Number 35* travels through West Linn and Lake Oswego along OR43, connecting the Oregon City Transit Center with downtown Portland. There are multiple bus stops and shelters along OR43. It operates between approximately 4:30 AM and 1:30 AM during weekdays and between 5:30 AM and 1:30 AM during weekends. Average bus headways range between 13 and 60 minutes.

Impacts to Tri-Met Route 35 are expected to be minor. Specific impacts to individual bus stops will be identified during the design phase and will be coordinated with TriMet. The contractor will be required to temporarily relocate bus stops in impacted areas as directed by Tri-Met. The construction team will notify Tri-Met at least 3 weeks prior to construction at each bus stop to coordinate closure and installation of a temporary bus stop. Additionally, transit impacts resulting from the FWP along OR43 will only occur at night between 8 p.m. and 5 a.m. due to work hour constraints dictated by ODOT. An inventory of the existing bus stops and shelters that may be impacted during construction is included in Appendix C.



Notes

1. *Temporary pedestrian access shall be wheelchair accessible at all times.*

LEGEND

- Work Zone
- Channelizing Devices
- RWP Alignment (HDD Entry)

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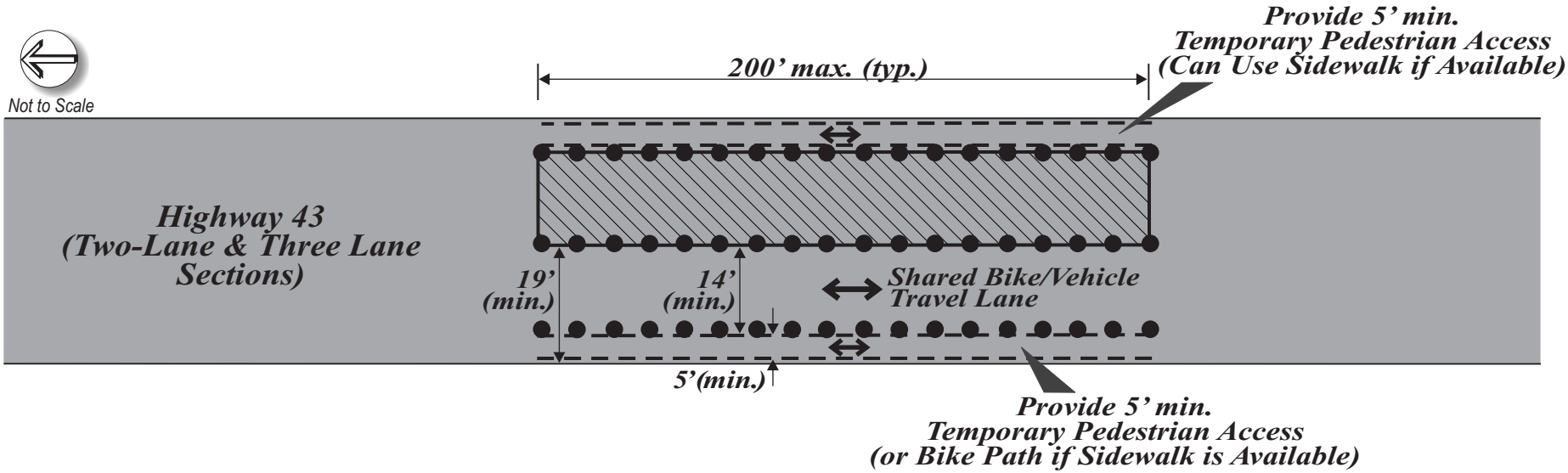
Figure 6

Typical Concept
Temporary Pedestrian/Bike Access
Mapleton Drive



Notes

1. *Temporary pedestrian access shall be wheelchair accessible at all times.*
2. *If sidewalks are available, maintain sidewalks at all times.*

LEGEND

- Work Zone
- Channelizing Devices

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Figure 7

Typical Concept
Temporary Pedestrian/Bike Access
Highway 43

Although there are several school bus routes along OR43, construction work on OR43 will only occur between the hours of 8 p.m. and 5 a.m. and the contractor will be required to restore the work zone within the roadway and surrounding area to normal conditions prior to re-opening roadways. Therefore, it is anticipated that will be no impacts to school bus routes on OR43. The following three schools with bus routes along OR 43 have a stop at the intersection of OR43/Mapleton Drive: Cedar Oak Primary, Rosemont Ridge Middle, and West Linn High. Contractor will be required to maintain this bus stop at all times during hours of school bus operation.

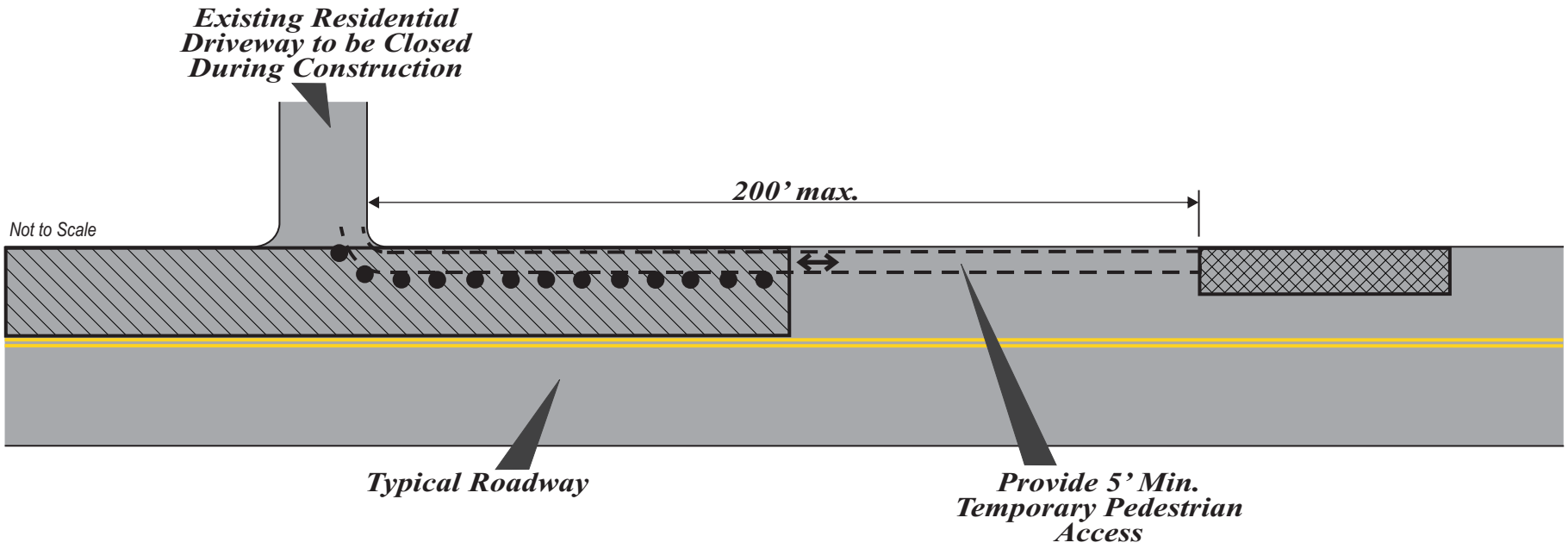
Residential and Commercial Driveway Access

Construction of the pipelines along Mapleton Drive and OR43 will result in short-term temporary access impacts to residential driveways. Along the pipeline alignment, there are 51 affected residential driveways along Mapleton Drive and 20 affected residential driveways along OR43. The maximum length of the open-cut construction zone will be 150 feet along Mapleton Drive and 200 feet along OR43 and will move at approximately 50 feet a day. Due to the nature of the construction zone, there may be instances during construction work hours that a resident will not be able to access his or her driveway. Figure 8 shows a typical short-term closure for a residential driveway.

A residential driveway closure shall be limited to a maximum of one work shift (7 a.m. to 7 p.m. on Mapleton Drive, 8 p.m. to 5 a.m. on OR43) at a time. The contractor will be required to provide a designated parking area for any residents that are affected by a temporary driveway closure. The contractor will be required to provide a temporary, wheelchair-accessible pedestrian access between the closed driveway and the designated parking area during construction hours. The temporary pedestrian access shall be wheelchair accessible. Outside of construction hours, full access to all resident driveways will be restored.

There are 24 commercial driveways along the pipeline alignment on OR43 in West Linn. A detailed inventory of commercial driveways along OR43 within the project limits can be found in Appendix D. This inventory lists the number of driveways that access each business or shopping center and the hours of operation for each business accessed via the driveway. Businesses or shopping centers with multiple access driveways or a access driveway from a side street will not need any additional coordination, as the construction zone will only impact one driveway at a time and side street access will be maintained at all times.

Of the businesses that only have one access driveway on OR43, only two could be potentially impacted by the pipeline construction as a result of the 8 p.m. to 5 a.m. construction hours required by ODOT. These two businesses are Bugerville and Philadelphia's Steaks, which close at 11 p.m. and 9 p.m., respectively. The contractor will be required to maintain constant access to these two driveways during the period that the construction work hours will overlap the business hours (8 p.m. to 11 p.m. for Burgerville and 8 p.m. to 9 p.m. for Philadelphia's Steaks). Temporary pedestrian access as discussed previously will be provided to all businesses along OR43 between the hours of 8 pm to 5 am. Outside of construction hours, full access to all commercial driveways will be restored.



Notes

1. *Temporary pedestrian access shall be wheelchair accessible at all times.*
2. *Driveway closure shall be limited to one work shift.*

LEGEND

- Work Zone
- Designated Parking Area for Residents
- Channelizing Devices

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Figure 8

Typical Short-Term Residential Driveway Closure

Emergency Vehicle Access

The contractor will be required to provide 12-foot wide minimum emergency access at all times to all residential and commercial property through the construction work zone. The contractor will be required to immediately move construction equipment and materials to create a suitable access through the work zone for emergency vehicles that will enable emergency response to any driveway or property within or beyond the work zone. Figure 9 shows a typical schematic of how emergency access would be provided through the construction work zone.

The contractor will be required to coordinate on a regular basis with Tualatin Valley Fire & Rescue (TVF&R) to ensure that, in the case of an emergency, emergency vehicle response times are kept to a minimum. The contractor will be required to notify TVF&R on a daily basis regarding all construction activities on Mapleton Drive and OR43. Additionally, a TVF&R representative will be invited to weekly progress meetings to ensure further coordination and communication throughout construction.

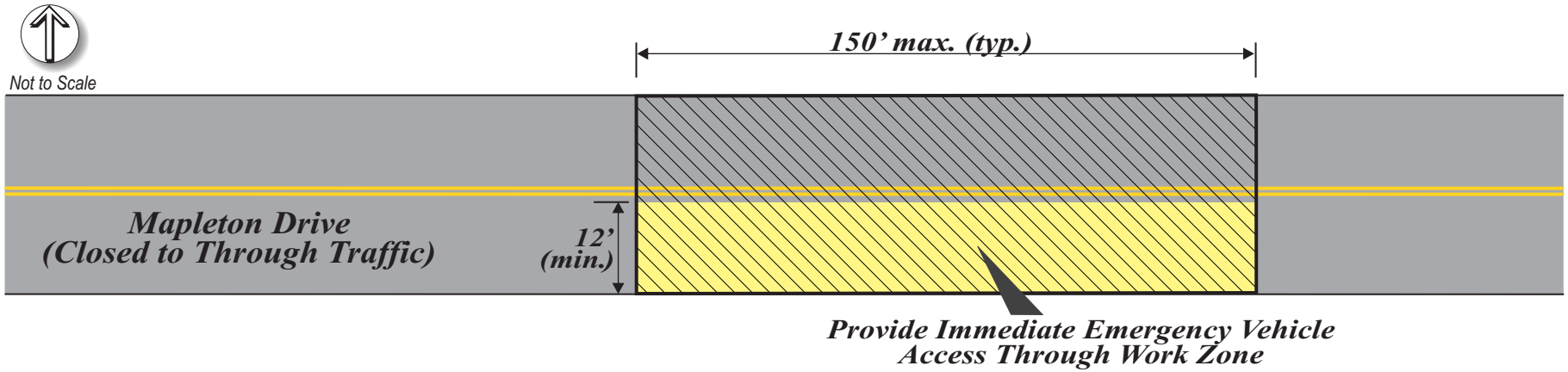
Proposed Traffic Control Strategies

Construction Haul Routes

Two construction haul routes will be utilized for all construction activities on Mapleton Drive and OR43. The goal for both of these construction haul routes is to minimize truck trip impacts to residential neighborhoods within the City of West Linn and to provide the best access for construction access to and from the construction area. A more detailed discussion of truck trip volume is provided in the Construction Management Plan submitted as part of this application. Estimated truck volumes resulting from construction activities are included in Table 2. As shown in this table, a maximum of six hourly one-way truck trips (three in each direction) are anticipated at any one time during construction. Refer to the Construction Management Plan for a detailed discussion of truck trip generation for each work area.

OR43 South

Traffic to the construction site will be routed from I-205 to OR43 northbound to the construction area on OR43 or Mapleton Drive. Construction traffic from the site will be routed from the construction area on OR43 or Mapleton Drive via OR43 southbound to I-205. In an effort to minimize the potential for construction traffic backups on Mapleton Drive and OR43, left turns at the unsignalized intersection of Mapleton and OR43 will be prohibited for all construction related traffic. This left turn restriction will apply to construction traffic entering Mapleton Drive from OR43 and traffic exiting Mapleton Drive onto OR43. Southbound construction traffic from Mapleton Drive will be required to utilize a temporary access road through the Lake Oswego WTP property to access Kenthorpe Way, Old River Road, and Cedar Oak Drive where traffic will turn left onto OR43 via the signalized intersection at OR43 and Cedar Oak Drive. This haul route is shown in Figure 10.



Notes

1. *Provide access to emergency vehicles immediately adjacent to any affected property within the work zone area.*

LEGEND

- Work Zone

- Emergency Vehicle Access Area

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Figure 9

Typical Concept Mapleton Drive Temporary Emergency Vehicle Access

Table 2. RWP and FWP Truck Trip Volume by Work Area [1]

Phase	Truck Trips per Hour [2]	Typical Work Hours	Anticipated Start Date	Anticipated End Date
HDD construction (via Mapleton Drive) – Normal Operation	2	7 a.m. to 7 p.m.	March 2014	October 2014
HDD construction (via Mapleton Drive) – Pullback Operation	6	NA [3]	NA [3]	NA [3]
Open-cut construction on Mapleton Drive	6	7 a.m. to 7 p.m.	November 2014	March 2015
Open-cut construction on Highway 43	8	8 p.m. to 5 a.m.	June 2014	August 2015

[1] *Additional truck volume will result from WTP construction activities which are not included in this table*
[2] *All reported truck trips are one-way trips*
[3] *HDD pullback operation will occur within one day. Refer to the Construction Management Plan for a detailed discussion of the HDD pullback operation*

OR43 to Stafford Road

Traffic to the construction site will be routed from I-205 to OR43 northbound to the construction area on OR43 or Mapleton Drive. In an effort to minimize the potential for construction traffic backups on Mapleton Drive and OR43, left turns at the unsignalized intersection of Mapleton and OR43 will be prohibited for all construction related traffic. This left turn restriction will apply to construction traffic entering Mapleton Drive from OR43 and traffic exiting Mapleton Drive onto OR43. Construction traffic from the site will be routed from the construction area on OR43 or Mapleton Drive via OR43 northbound to McVey Avenue and then Stafford Road to I-205. This haul route is shown in Figure 11.

Truck traffic will utilize both haul routes described above depending on coordination and construction activities. Truck movements entering and exiting Mapleton Drive at OR43 will be restricted to right turns only to minimize impacts to local residents and the surrounding transportation network. The maximum truck trip volume noted in Table 2 of six one-way trips per hour would have negligible impact on vehicle delays and queues along Mapleton Road, Cedar Oaks Drive and OR43.

Mapleton Drive Traffic Control Plan

Full roadway closures will be needed between the Lake Oswego Water Plant and Nixon Avenue during construction work hours. The Mapleton Drive roadway will be open and cleared of construction equipment and materials outside of construction work hours. During construction work hours, an alternative detour route will be provided for through traffic. A potential detour route is shown in Figure 12. East of Nixon Avenue, single-lane closures with

LEGEND

- From I-205 to Construction Area
- From Construction Area to I-205
- Signalized Intersection
- Prohibit Left Turn

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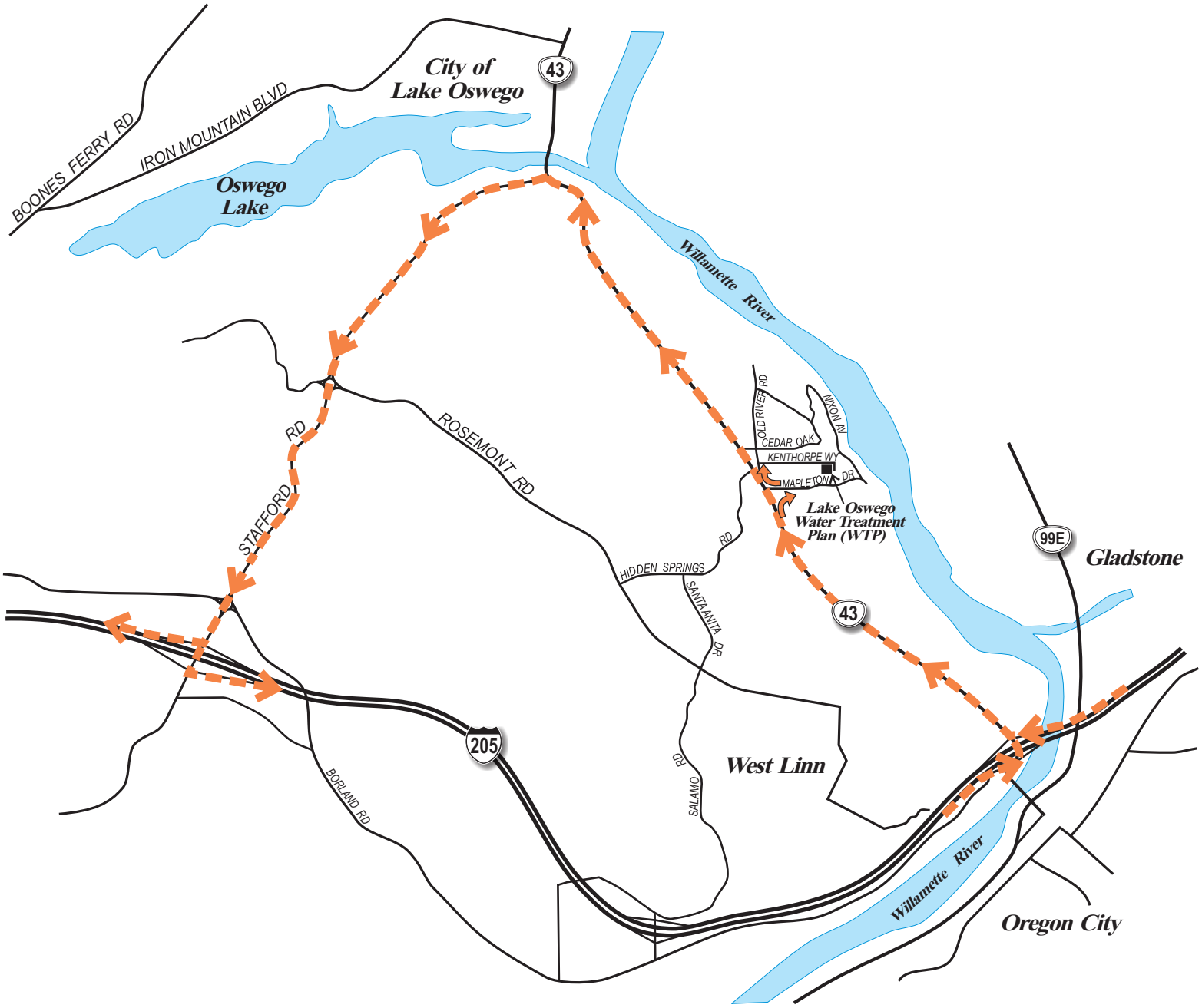
Figure 10

Construction Haul Route OR43 South



LEGEND

- To/From Construction Site

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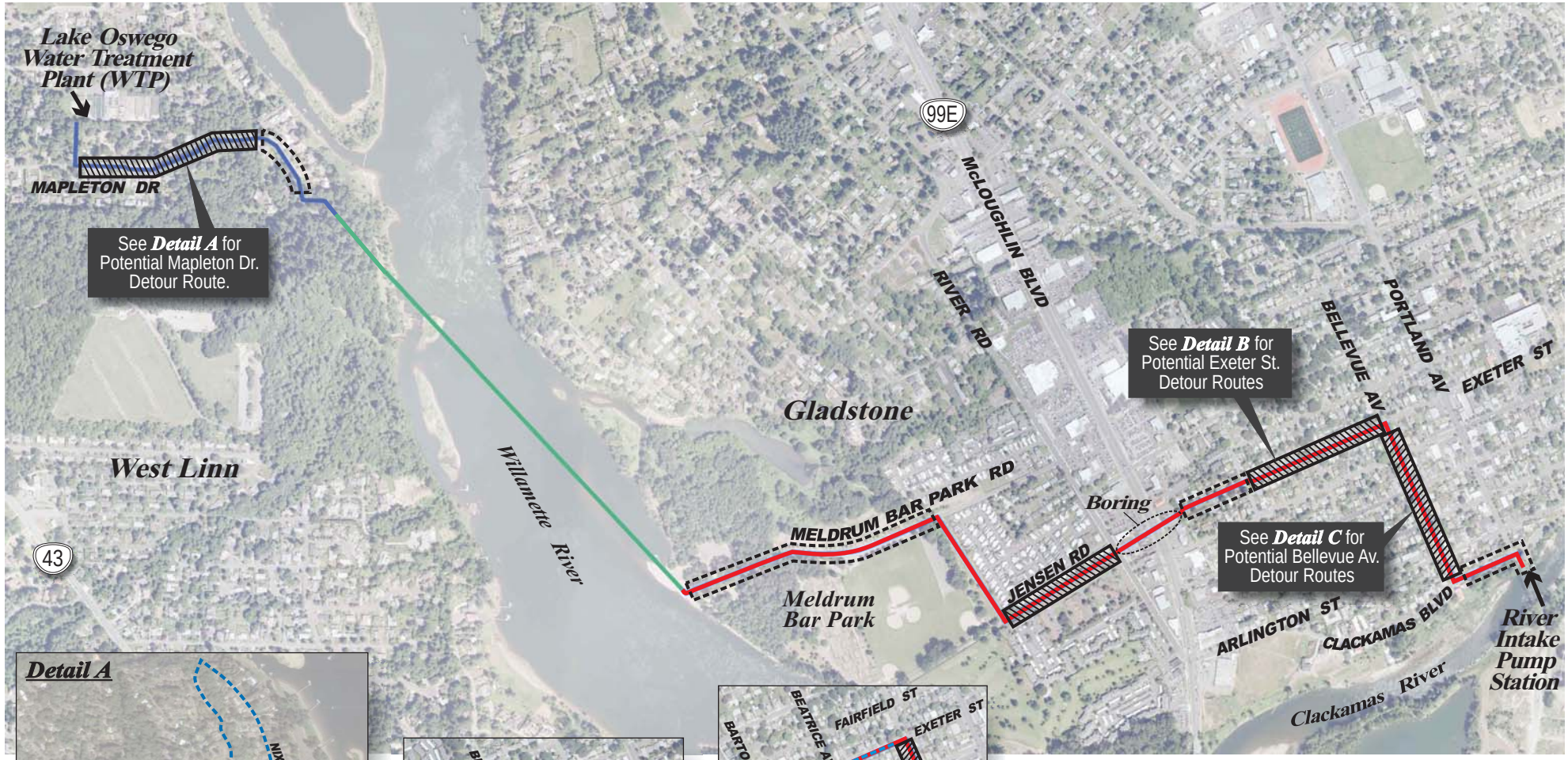
Figure 11

Construction Haul Route OR43 to Stafford Road



Details are Not to Scale

LEGEND

- Schedule 1 South - Willamette River Crossing Alignment to River Intake Pump Station
- Schedule 1 North - Lake Oswego Water Treatment Plan (WTP) to Willamette River Crossing Alignment
- Schedule 2 - Willamette River Crossing Alignment
- Full Roadway Closure (local access only, emergency vehicle access at all times)
- Single Lane Closures with Flaggers
- Potential Detour Route

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Figure 12

Proposed Traffic Control Strategies RWP Schedules 1 & 2

will be required due to a lack of feasible detour routes for this section of roadway. Full roadway closures will be needed between OR43 and the Lake Oswego Water Treatment Plant. During this time, an alternative detour route will be used for through traffic. A potential detour route is shown in Figure 13. Traffic control plans will be submitted to the City of West Linn and ODOT for review and approval prior to the start of construction.

Highway 43 (OR43) Traffic Control Plan

ODOT has provided a directive to limit work to nighttime hours along OR43 to 8 p.m. to 5 a.m. For reference, the letter from ODOT which includes this directive can be found in Appendix E. 24-hour traffic volume profiles conducted along OR43 can be found in Appendix A.

Nighttime work provides the following advantages:

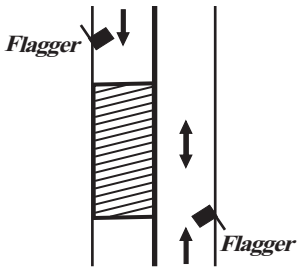
- Traffic volumes are lower during nighttime hours. Therefore, lane closures can be accommodated with less impact to the operation of the facility.
- In general, access and egress activity to abutting properties will be lower during nighttime hours.
- Reduces potential conflicts with pedestrians, bicycles, and transit.
- A longer continuous working shift can be achieved during nighttime hours, resulting in reduced overall construction duration and associated impacts to the facility within West Linn.

Temporary lighting for nighttime work will be provided for construction activities, traffic control areas, flagger stations, and approaches. Lighting will be provided per Section 00225 of the Oregon Standard Specifications for Construction.

Along OR 43, there is one dead end street (Lazy River Drive, milepost 8.43) and one street with no direct secondary access (Hidden Springs Road, milepost 8.90). The contractor will be required to provide 24 hour, 7-days/week access to these streets. Traffic signals impacted by the construction work zone will be turned off at the initiation of each construction work shift and returned to service at completion of each construction work shift. These intersections will be controlled by flaggers when not in operation. Coordination with ODOT Traffic Roadway Section will be required.

Temporary Traffic Control Strategies were evaluated for the two-lane, three-lane, and five-lane roadway cross sections along OR43. Since this is an ODOT facility, ODOT will need to review and approve any proposed lane closure restrictions. Early communication and coordination with ODOT Motor Carrier Transportation Division (MCTD) is required to avoid conflicts with the trucking industry. Access for emergency vehicles shall be provided at all times.

Detail A
OR 43 Two-Lane Cross Section



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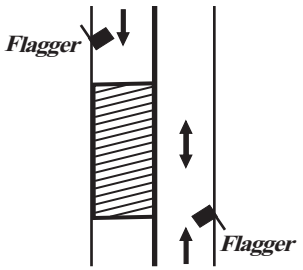
Detail B
OR 43 Three-Lane Cross Section



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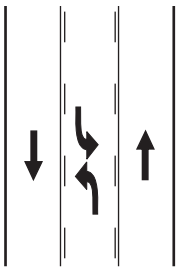
Detail C
OR 43 Five-Lane Cross Section



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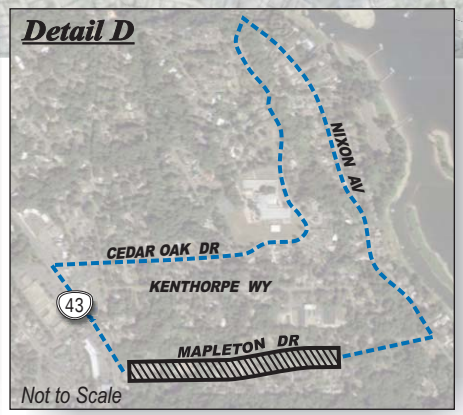
Detail D



Not to Scale

LEGEND

- Schedule 3
- Signalized Intersection
- Full Roadway Closure (local access only, emergency vehicle access at all times)
- OR 43 Two-Lane Cross Section ***(See Detail A)***
- OR 43 Three-Lane Cross Section ***(See Detail B)***
- OR 43 Five-Lane Cross Section ***(See Detail C)***

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Figure 13

Proposed Traffic Control Strategies FWP Schedule 3

Nighttime temporary traffic control strategies along OR43 for the two roadway cross sections with West Linn are shown in Figure 13 and are described below.

- ***Two-Lane Cross Section:*** For the FWP installation, single-lane closures with flaggers will be required along the sections of roadway with two travel lanes. Left and right turns can be prohibited at intersections if alternative routes are available.
- ***Three-Lane Cross Section:*** Along the three-lane roadway cross section, single-lane closures with flaggers will be utilized for construction. Left and right turns can be prohibited at intersections if alternative routes are available. For work at signalized intersections, one of the following strategies will be needed:
  - Turn off traffic signal and provide flaggers at intersections
  - Provide temporary modifications to signals to accommodate traffic

Contractor will need to notify ODOT prior to any temporary modifications to traffic signal operation.

Conclusion

This memorandum addresses the potential impacts to transportation facilities during construction of the RWP and FWP projects within West Linn, Oregon. The plan presented in this memorandum will minimize access and traffic-related impacts resulting from the construction of these pipelines. Specific considerations have been made to maintain pedestrian and bicycle circulation and access, transit and school access, residential and commercial property driveway access, and emergency vehicle access during construction. Traffic control strategies are presented that will minimize construction-related traffic impacts and ensure that the pipeline projects will be constructed as efficiently and safely as possible. TVFR and ODOT have been consulted in developing this plan and are in agreement that the methods presented in this memorandum are consistent with current emergency response and temporary traffic control protocol.

Appendix

Appendix A – 24-Hour Counts/Hourly Traffic Volume Profiles

Appendix B – Turn Movement Counts

Appendix C – Existing TriMet Bus Stops and Shelters

Appendix D – Existing Commercial and Residential Driveways along OR43

Appendix E – Letter from ODOT (April 3, 2012)

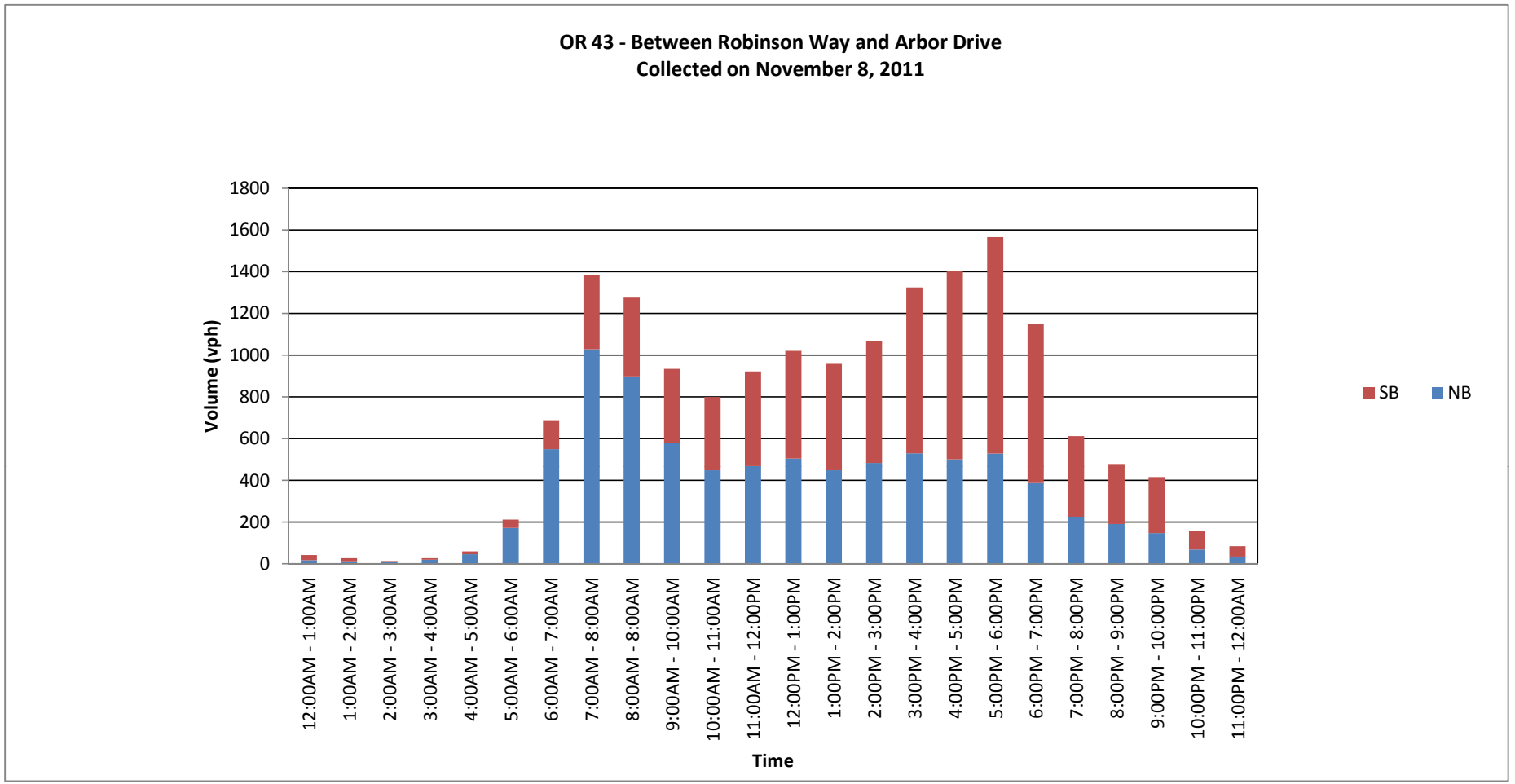
Appendix A – 24-Hour Counts/Hourly Traffic Volume Profiles

All Traffic Data Services, Inc.
15105 SE 17th St. Vancouver, WA. 98683
503-833-2740

Site Code: 7
Hwy 43 N-O Robinwood Way

Start Time	08-Nov-11 Tue	NB	SB	Total
12:00 AM		17	25	42
01:00		13	14	27
02:00		8	6	14
03:00		20	8	28
04:00		46	14	60
05:00		172	40	212
06:00		550	138	688
07:00		**1028**	356	**1384**
08:00		898	377	1275
09:00		580	354	934
10:00		448	352	800
11:00		468	**454**	922
12:00 PM		504	516	1020
01:00		448	510	958
02:00		483	583	1066
03:00		**530**	794	1324
04:00		501	902	1403
05:00		528	**1037**	**1565**
06:00		387	763	1150
07:00		226	386	612
08:00		191	287	478
09:00		147	269	416
10:00		69	89	158
11:00		35	50	85
Total		8297	8324	16621
Percent		49.9%	50.1%	
AM Peak		07:00	11:00	07:00
Vol.		1028	454	1384
PM Peak		15:00	17:00	17:00
Vol.		530	1037	1565
Grand Total		8297	8324	16621
Percent		49.9%	50.1%	

ADT ADT 24,714 AADT 24,714


OR 43 - Between Robinson Way and Arbor Drive
Collected on November 8, 2011
Volume (vph)
1800
1600
1400
1200
1000
800
600
400
200
0
12:00AM - 1:00AM
1:00AM - 2:00AM
2:00AM - 3:00AM
3:00AM - 4:00AM
4:00AM - 5:00AM
5:00AM - 6:00AM
6:00AM - 7:00AM
7:00AM - 8:00AM
8:00AM - 8:00AM
9:00AM - 10:00AM
10:00AM - 11:00AM
11:00AM - 12:00PM
12:00PM - 1:00PM
1:00PM - 2:00PM
2:00PM - 3:00PM
3:00PM - 4:00PM
4:00PM - 5:00PM
5:00PM - 6:00PM
6:00PM - 7:00PM
7:00PM - 8:00PM
8:00PM - 9:00PM
9:00PM - 10:00PM
10:00PM - 11:00PM
11:00PM - 12:00AM
Time
SB
NB

City of West Linn Traffic Study

Hi-Starr ID#: 4280

Begin Date: 03/06/12 Time: 2:00PM End Date: 03/06/12 Time: 2:00 PM

Street: 4160 Kenthorpe Way

Lane Direction: W. Bound Total Hours: 48

Posted Speed: 25

Report

Total Volume: 210 Daily Average: 105

Speed	Volume
0-19	42
20-24	87
25-29	51
30-34	19
35-39	10
40-44	0
45-49	1
50-54	0

Average Speed: 24 MPH

85 Percentile: 29.94 MPH

Nu-Metrics Traffic Analyzer Study
Computer Generated Summary Report
City: West Linn
Street: Kenthorpe Way 4160

A study of vehicle traffic was conducted with HI-STAR unit number 4280. The study was done in the W. Bound lane on Kenthorpe Way 4160 in West Linn, OR in Clackamas county. The study began on 03/06/2012 at 02:00 PM and concluded on 03/08/2012 at 02:00 PM, lasting a total of 48 hours. Data was recorded in 15 minute time periods. The total recorded volume of traffic showed 212 vehicles passed through the location with a peak volume of 7 on 03/08/2012 at 12:45 PM and a minimum volume of 0 on 03/06/2012 at 02:00 PM. The AADT Count for this study was 106.

SPEED

Chart 1 lists the values of the speed bins and the total traffic volume for each bin.

Chart 1

0 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 >
0	8	34	87	51	19	10	0	1	0	1	0	0	0	0

At least half of the vehicles were traveling in the 20 - 24 mph range or a lower speed. The average speed for all classified vehicles was 24 mph with 38.8 percent exceeding the posted speed of 25 mph. The HI-STAR found 0.47 percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 20 mph and the 85th percentile was 29.94 mph.

CLASSIFICATION

Chart 2 lists the values of the eight classification bins and the total traffic volume accumulated for each bin.

Chart 2

0 to 20	21 to 27	28 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 >
202	8	1	0	0	0	0	0

Most of the vehicles classified during the study were Passenger Cars. The number of Passenger Cars in the study was 210 which represents 99.50 percent of the total classified vehicles. The number of Small Trucks in the study was 1 which represents 0.50 percent of the total classified vehicles. The number of Trucks/Buses in the study was 0 which represents 0.00 percent of the total classified vehicles. The number of Tractor Trailers in the study was 0 which represents 0.00 percent of the total classified vehicles.

HEADWAY

During the peak time period, on 03/08/2012 at 12:45 PM the average headway between the vehicles was 112.5 seconds. The slowest traffic period was on 03/06/2012 at 02:00 PM. During this slowest period, the average headway was 900.0 seconds.

WEATHER

The roadway surface temperature over the period of the study varied between 33 and 83 degrees Fahrenheit. The HI-STAR determined that the roadway surface was Dry 100.00 percent of the time.

City of West Linn Traffic Study

Hi-Starr ID#: 388

Begin Date: 03/06/12 Time: 2:00PM End Date: 03/06/12 Time: 2:00 PM

Street: 4160 Kenthorpe Way

Lane Direction: E. Bound Total Hours: 48

Posted Speed: 25

Report

Total Volume: 187 Daily Average: 94

Speed	Volume
0-19	32
20-24	66
25-29	56
30-34	18
35-39	4
40-44	6
45-49	4
50-54	1

Average Speed: 26 MPH

85 Percentile: 31.85 MPH

Nu-Metrics Traffic Analyzer Study
Computer Generated Summary Report
City: West Linn
Street: Kenthorpe Way 4160

A study of vehicle traffic was conducted with HI-STAR unit number 4316. The study was done in the E. Bound lane on Kenthorpe Way 4160 in West Linn, OR in Clackamas county. The study began on 03/06/2012 at 02:00 PM and concluded on 03/08/2012 at 02:00 PM, lasting a total of 48 hours. Data was recorded in 15 minute time periods. The total recorded volume of traffic showed 190 vehicles passed through the location with a peak volume of 6 on 03/08/2012 at 08:30 AM and a minimum volume of 0 on 03/06/2012 at 02:00 PM. The AADT Count for this study was 95.

SPEED

Chart 1 lists the values of the speed bins and the total traffic volume for each bin.

Chart 1

0 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 >
0	6	26	66	56	18	4	6	4	1	0	1	0	1	0

At least half of the vehicles were traveling in the 20 - 24 mph range or a lower speed. The average speed for all classified vehicles was 26 mph with 48.1 percent exceeding the posted speed of 25 mph. The HI-STAR found 1.06 percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 20 mph and the 85th percentile was 31.85 mph.

CLASSIFICATION

Chart 2 lists the values of the eight classification bins and the total traffic volume accumulated for each bin.

Chart 2

0 to 20	21 to 27	28 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 >
172	10	3	3	1	0	0	0

Most of the vehicles classified during the study were Passenger Cars. The number of Passenger Cars in the study was 182 which represents 96.30 percent of the total classified vehicles. The number of Small Trucks in the study was 3 which represents 1.60 percent of the total classified vehicles. The number of Trucks/Buses in the study was 3 which represents 1.60 percent of the total classified vehicles. The number of Tractor Trailers in the study was 1 which represents 0.50 percent of the total classified vehicles.

HEADWAY

During the peak time period, on 03/08/2012 at 08:30 AM the average headway between the vehicles was 128.57 seconds. The slowest traffic period was on 03/06/2012 at 02:00 PM. During this slowest period, the average headway was 900.0 seconds.

WEATHER

The roadway surface temperature over the period of the study varied between 33 and 76 degrees Fahrenheit. The HI-STAR determined that the roadway surface was Dry 100.00 percent of the time.

City of West Linn Traffic Study

Hi-Starr ID#: 388

Begin Date: 03/06/12 Time: 2:00PM End Date: 03/06/12 Time: 2:00 PM

Street: 4191 Mapleton DR

Lane Direction: E. Bound Total Hours: 48

Posted Speed: 25

Report

Total Volume: 319 Daily Average: 160

Speed	Volume
0-19	67
20-24	108
25-29	94
30-34	29
35-39	10
40-44	3
45-49	4
50-54	4

Average Speed: 27 MPH

85 Percentile: 32.42 MPH

Nu-Metrics Traffic Analyzer Study
Computer Generated Summary Report
City: West Linn
Street: Mapleton DR

A study of vehicle traffic was conducted with HI-STAR unit number 388. The study was done in the E. Bound lane on Mapleton DR in West Linn, OR in Clackamas county. The study began on 03/06/2012 at 02:00 PM and concluded on 03/08/2012 at 02:00 PM, lasting a total of 48 hours. Data was recorded in 15 minute time periods. The total recorded volume of traffic showed 334 vehicles passed through the location with a peak volume of 9 on 03/06/2012 at 05:30 PM and a minimum volume of 0 on 03/06/2012 at 09:15 PM. The AADT Count for this study was 167.

SPEED

Chart 1 lists the values of the speed bins and the total traffic volume for each bin.

Chart 1

0 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 >
0	16	51	108	94	29	10	3	4	4	0	3	2	3	6

At least half of the vehicles were traveling in the 20 - 24 mph range or a lower speed. The average speed for all classified vehicles was 27 mph with 47.4 percent exceeding the posted speed of 25 mph. The HI-STAR found 4.20 percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 20 mph and the 85th percentile was 32.42 mph.

CLASSIFICATION

Chart 2 lists the values of the eight classification bins and the total traffic volume accumulated for each bin.

Chart 2

0 to 20	21 to 27	28 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 >
304	17	7	3	2	0	0	0

Most of the vehicles classified during the study were Passenger Cars. The number of Passenger Cars in the study was 321 which represents 96.40 percent of the total classified vehicles. The number of Small Trucks in the study was 7 which represents 2.10 percent of the total classified vehicles. The number of Trucks/Buses in the study was 3 which represents 0.90 percent of the total classified vehicles. The number of Tractor Trailers in the study was 2 which represents 0.60 percent of the total classified vehicles.

HEADWAY

During the peak time period, on 03/06/2012 at 05:30 PM the average headway between the vehicles was 90.0 seconds. The slowest traffic period was on 03/06/2012 at 09:15 PM. During this slowest period, the average headway was 900.0 seconds.

WEATHER

The roadway surface temperature over the period of the study varied between 31 and 76 degrees Fahrenheit. The HI-STAR determined that the roadway surface was Dry 100.00 percent of the time.

City of West Linn Traffic Study

Hi-Starr ID#: 3884

Begin Date: 03/06/12 Time: 2:00PM End Date: 03/06/12 Time: 2:00 PM

Street: 4191 Mapleton DR

Lane Direction: W. Bound Total Hours: 48

Posted Speed: 25

Report

Total Volume: 362 Daily Average: 181

Speed	Volume
0-19	56
20-24	103
25-29	131
30-34	56
35-39	14
40-44	0
45-49	2
50-54	0

Average Speed: 26 MPH

85 Percentile: 31.73 MPH

Nu-Metrics Traffic Analyzer Study
Computer Generated Summary Report
City: West Linn
Street: Mapleton DR 4191

A study of vehicle traffic was conducted with HI-STAR unit number 3884. The study was done in the W. Bound lane on Mapleton DR 4191 in West Linn, OR in Clackamas county. The study began on 03/06/2012 at 02:00 PM and concluded on 03/08/2012 at 02:00 PM, lasting a total of 48 hours. Data was recorded in 15 minute time periods. The total recorded volume of traffic showed 366 vehicles passed through the location with a peak volume of 10 on 03/08/2012 at 07:45 AM and a minimum volume of 0 on 03/06/2012 at 02:00 PM. The AADT Count for this study was 183.

SPEED

Chart 1 lists the values of the speed bins and the total traffic volume for each bin.

Chart 1

0 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 >
0	16	40	103	131	56	14	0	2	0	1	0	1	0	0

At least half of the vehicles were traveling in the 25 - 29 mph range or a lower speed. The average speed for all classified vehicles was 26 mph with 56.3 percent exceeding the posted speed of 25 mph. The HI-STAR found 0.55 percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 25 mph and the 85th percentile was 31.73 mph.

CLASSIFICATION

Chart 2 lists the values of the eight classification bins and the total traffic volume accumulated for each bin.

Chart 2

0 to 20	21 to 27	28 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 >
339	16	9	0	0	0	0	0

Most of the vehicles classified during the study were Passenger Cars. The number of Passenger Cars in the study was 355 which represents 97.50 percent of the total classified vehicles. The number of Small Trucks in the study was 9 which represents 2.50 percent of the total classified vehicles. The number of Trucks/Buses in the study was 0 which represents 0.00 percent of the total classified vehicles. The number of Tractor Trailers in the study was 0 which represents 0.00 percent of the total classified vehicles.

HEADWAY

During the peak time period, on 03/08/2012 at 07:45 AM the average headway between the vehicles was 81.82 seconds. The slowest traffic period was on 03/06/2012 at 02:00 PM. During this slowest period, the average headway was 900.0 seconds.

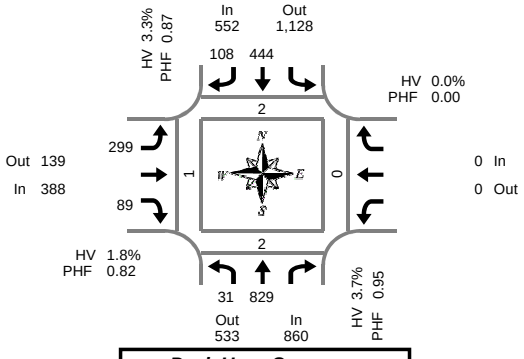
WEATHER

The roadway surface temperature over the period of the study varied between 33 and 70 degrees Fahrenheit. The HI-STAR determined that the roadway surface was Dry 100.00 percent of the time.

Appendix B – Turn Movement Counts

Total Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 43 & Hidden Springs Rd

Tuesday, November 08, 2011
7:00 AM to 9:00 AM

Peak Hour Summary
7:30 AM to 8:30 AM

5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R	Bikes	L		R	Bikes				Bikes		North	South	East	West
7:00 AM	1	58		0	27	4	0	12		5	0				0	107	0	0	0	1
7:05 AM	2	66		0	30	1	0	16		2	0				0	117	0	0	0	0
7:10 AM	0	58		0	38	4	0	17		2	0				0	119	0	0	0	0
7:15 AM	2	68		0	33	2	0	21		7	0				0	133	1	0	0	0
7:20 AM	3	55		0	26	6	0	30		8	0				0	128	0	0	0	0
7:25 AM	2	64		0	24	3	1	30		3	0				0	126	0	0	0	1
7:30 AM	4	75		0	33	4	0	34		9	0				0	159	1	0	0	1
7:35 AM	1	72		0	34	9	0	31		4	0				0	151	0	1	0	0
7:40 AM	1	73		0	48	11	0	32		7	0				0	172	0	0	0	0
7:45 AM	3	59		0	36	10	0	37		7	0				0	152	0	0	0	0
7:50 AM	4	83		0	46	8	0	19		5	0				0	165	0	1	0	0
7:55 AM	4	74		0	35	12	0	21		7	0				0	153	0	0	0	0
8:00 AM	2	51		0	34	19	0	14		12	0				0	132	0	0	0	0
8:05 AM	3	69		0	44	8	1	23		7	0				0	154	0	0	0	0
8:10 AM	2	61		0	42	5	1	17		9	0				0	136	1	0	0	0
8:15 AM	2	70		0	32	6	0	26		8	0				0	144	0	0	0	0
8:20 AM	3	69		0	32	11	0	24		7	0				0	146	0	0	0	0
8:25 AM	2	73		0	28	5	0	21		7	0				0	136	0	0	0	0
8:30 AM	8	59		0	26	8	0	10		3	0				0	114	0	0	0	0
8:35 AM	2	64		0	41	5	0	20		4	0				0	136	0	0	0	0
8:40 AM	3	60		0	31	8	0	11		11	0				0	124	0	0	0	0
8:45 AM	2	60		0	47	6	0	21		8	0				0	144	0	0	0	0
8:50 AM	3	48		0	27	11	0	18		3	0				0	110	0	0	0	0
8:55 AM	3	48		0	30	5	0	14		5	0				0	105	0	0	0	0
Total Survey	62	1,537		0	824	171	3	519		150	0				0	3,263	3	2	0	3

15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R	Bikes	L		R	Bikes				Bikes		North	South	East	West
7:00 AM	3	182		0	95	9	0	45		9	0				0	343	0	0	0	1
7:15 AM	7	187		0	83	11	1	81		18	0				0	387	1	0	0	1
7:30 AM	6	220		0	115	24	0	97		20	0				0	482	1	1	0	1
7:45 AM	11	216		0	117	30	0	77		19	0				0	470	0	1	0	0
8:00 AM	7	181		0	120	32	2	54		28	0				0	422	1	0	0	0
8:15 AM	7	212		0	92	22	0	71		22	0				0	426	0	0	0	0
8:30 AM	13	183		0	98	21	0	41		18	0				0	374	0	0	0	0
8:45 AM	8	156		0	104	22	0	53		16	0				0	359	0	0	0	0
Total Survey	62	1,537		0	824	171	3	519		150	0				0	3,263	3	2	0	3

Peak Hour Summary
7:30 AM to 8:30 AM

By Approach	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	860	533	1,393	0	552	1,128	1,680	2	388	139	527	0	0	0	0	0	1,800	2	2	0	1
%HV	3.7%				3.3%				1.8%				0.0%				3.2%				
PHF	0.95				0.87				0.82				0.00				0.92				

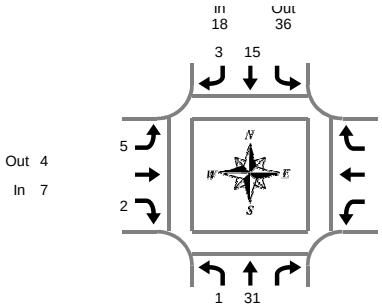
By Movement	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Total
	L	T		Total	T	R	Total	L		R	Total				Total		
Volume	31	829		860	444	108	552	299		89	388				0		1,800
%HV	3.2%	3.7%	NA	3.7%	3.4%	2.8%	3.3%	1.7%	NA	2.2%	1.8%	NA	NA	NA	0.0%		3.2%
PHF	0.70	0.94		0.95	0.85	0.69	0.87	0.75		0.79	0.82				0.00		0.92

Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R	Bikes	L		R	Bikes				Bikes		North	South	East	West
7:00 AM	27	805		0	410	74	1	300		66	0				0	1,682	2	2	0	3
7:15 AM	31	804		0	435	97	3	309		85	0				0	1,761	3	2	0	2
7:30 AM	31	829		0	444	108	2	299		89	0				0	1,800	2	2	0	1
7:45 AM	38	792		0	427	105	2	243		87	0				0	1,692	1	1	0	0
8:00 AM	35	732		0	414	97	2	219		84	0				0	1,581	1	0	0	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 43 & Hidden Springs Rd

Tuesday, November 08, 2011
7:00 AM to 9:00 AM

Peak Hour Summary
7:30 AM to 8:30 AM

Heavy Vehicle 5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Interval Total
	L	T		Total	T	R	Total		L		R	Total				Total	
7:00 AM	0	2		2	2	0	2		0		0	0				0	4
7:05 AM	0	3		3	1	0	1		0		0	0				0	4
7:10 AM	0	1		1	2	0	2		0		0	0				0	3
7:15 AM	0	2		2	0	0	0		0		0	0				0	2
7:20 AM	1	2		3	0	1	1		0		1	1				0	5
7:25 AM	0	2		2	1	0	1		3		0	3				0	6
7:30 AM	0	3		3	1	1	2		0		0	0				0	5
7:35 AM	0	3		3	1	0	1		2		0	2				0	6
7:40 AM	0	1		1	3	1	4		0		0	0				0	5
7:45 AM	0	2		2	2	0	2		1		0	1				0	5
7:50 AM	0	7		7	0	0	0		0		0	0				0	7
7:55 AM	0	1		1	3	1	4		0		1	1				0	6
8:00 AM	0	1		1	1	0	1		0		0	0				0	2
8:05 AM	1	1		2	1	0	1		1		0	1				0	4
8:10 AM	0	7		7	0	0	0		1		0	1				0	8
8:15 AM	0	1		1	0	0	0		0		0	0				0	1
8:20 AM	0	2		2	2	0	2		0		0	0				0	4
8:25 AM	0	2		2	1	0	1		0		1	1				0	4
8:30 AM	1	2		3	0	0	0		0		0	0				0	3
8:35 AM	0	3		3	1	1	2		1		1	2				0	7
8:40 AM	1	6		7	4	0	4		1		1	2				0	13
8:45 AM	0	2		2	4	0	4		0		0	0				0	6
8:50 AM	0	1		1	1	1	2		1		0	1				0	4
8:55 AM	0	2		2	1	0	1		0		0	0				0	3
Total Survey	4	59		63	32	6	38		11		5	16				0	117

Heavy Vehicle 15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Interval Total
	L	T		Total	T	R	Total		L		R	Total				Total	
7:00 AM	0	6		6	5	0	5		0		0	0				0	11
7:15 AM	1	6		7	1	1	2		3		1	4				0	13
7:30 AM	0	7		7	5	2	7		2		0	2				0	16
7:45 AM	0	10		10	5	1	6		1		1	2				0	18
8:00 AM	1	9		10	2	0	2		2		0	2				0	14
8:15 AM	0	5		5	3	0	3		0		1	1				0	9
8:30 AM	2	11		13	5	1	6		2		2	4				0	23
8:45 AM	0	5		5	6	1	7		1		0	1				0	13
Total Survey	4	59		63	32	6	38		11		5	16				0	117

Heavy Vehicle Peak Hour Summary
7:30 AM to 8:30 AM

By Approach	Northbound Hwy 43			Southbound Hwy 43			Eastbound Hidden Springs Rd			Westbound Hidden Springs Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	32	17	49	18	36	54	7	4	11	0	0	0	57
PHF	0.80			0.64			0.58			0.00			0.79

By Movement	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Total
	L	T		Total	T	R	Total		L		R	Total				Total	
Volume	1	31		32	15	3	18		5		2	7				0	57
PHF	0.25	0.78		0.80	0.63	0.38	0.64		0.42		0.50	0.58				0.00	0.79

Heavy Vehicle Rolling Hour Summary
7:00 AM to 9:00 AM

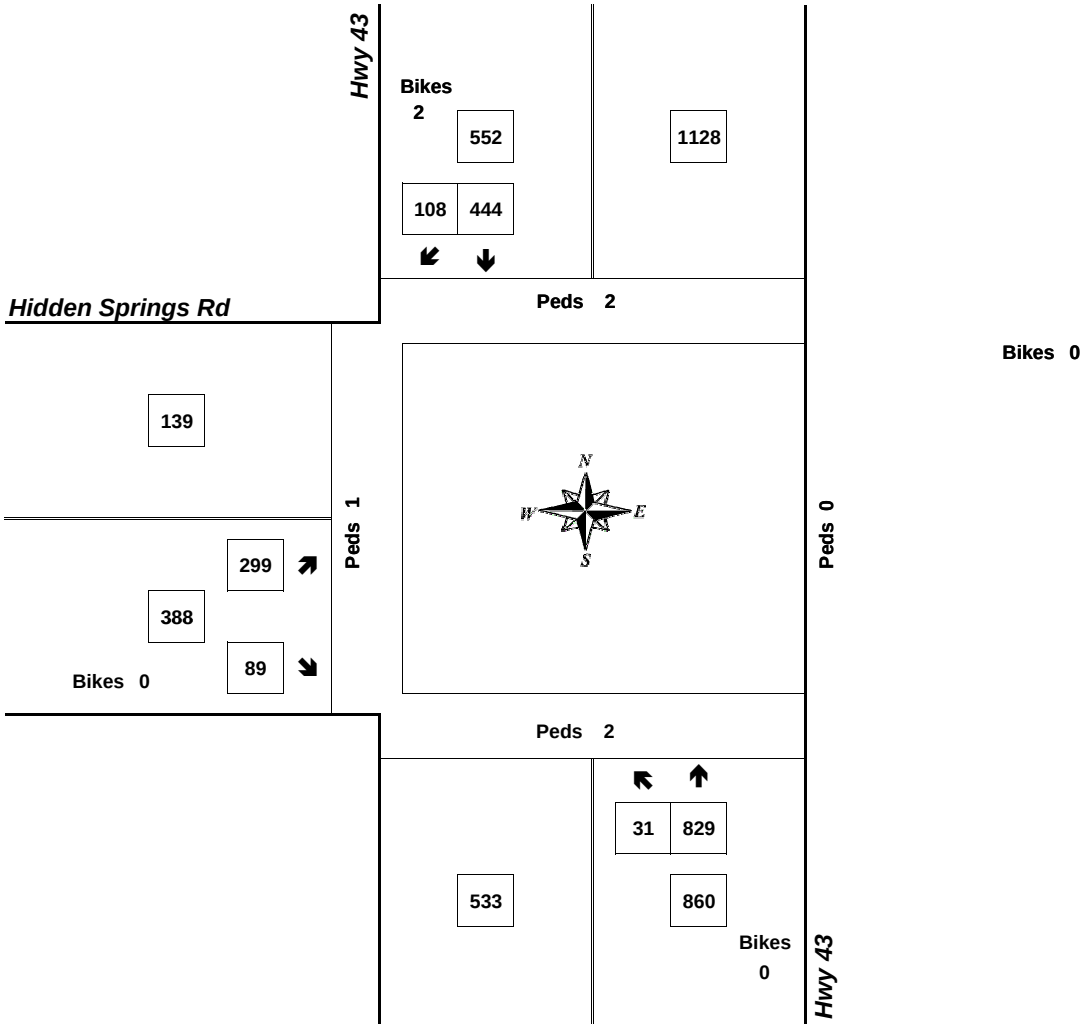
Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Interval Total
	L	T		Total	T	R	Total		L		R	Total				Total	
7:00 AM	1	29		30	16	4	20		6		2	8				0	58
7:15 AM	2	32		34	13	4	17		8		2	10				0	61
7:30 AM	1	31		32	15	3	18		5		2	7				0	57
7:45 AM	3	35		38	15	2	17		5		4	9				0	64
8:00 AM	3	30		33	16	2	18		5		3	8				0	59

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

Hwy 43 & Hidden Springs Rd

7:30 AM to 8:30 AM
Tuesday, November 08, 2011

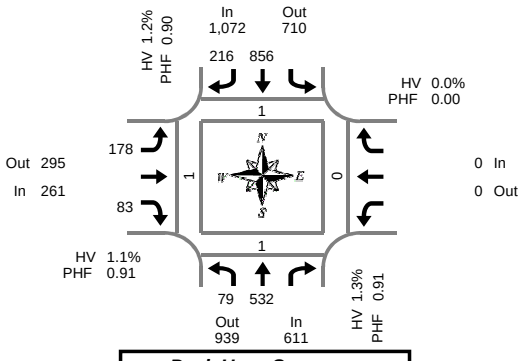


Approach	PHF	HV%	Volume
EB	0.82	1.8%	388
WB	0.00	0.0%	0
NB	0.95	3.7%	860
SB	0.87	3.3%	552
Intersection	0.92	3.2%	1,800

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:50 PM to 5:50 PM

Hwy 43 & Hidden Springs Rd

Tuesday, November 08, 2011
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R	Bikes		L	R	Bikes					Bikes		North	South	East	West
4:00 PM	10	44		0	58	28	0		11	10	0					0	161	0	0	0	0
4:05 PM	10	33		0	65	24	0		13	11	0					0	156	0	2	0	1
4:10 PM	9	41		0	72	17	0		15	2	0					0	156	0	1	0	0
4:15 PM	3	43		0	53	16	0		8	10	0					0	133	0	1	0	0
4:20 PM	11	39		0	62	24	0		16	7	0					0	159	0	0	0	0
4:25 PM	5	32		0	60	14	0		18	9	0					0	138	0	0	0	0
4:30 PM	10	53		0	56	20	0		13	8	0					0	160	0	2	0	0
4:35 PM	5	41		0	66	17	0		8	10	0					0	147	0	0	0	1
4:40 PM	3	53		0	68	20	0		14	10	0					0	168	0	0	0	0
4:45 PM	7	36		0	74	17	0		11	3	0					0	148	0	0	0	0
4:50 PM	4	47		0	63	25	0		14	7	0					0	160	0	0	0	0
4:55 PM	8	57		0	70	23	0		10	10	0					0	178	0	0	0	0
5:00 PM	7	44		0	69	12	0		17	8	0					0	157	0	0	0	0
5:05 PM	7	45		0	69	16	0		19	8	0					0	164	0	0	0	0
5:10 PM	4	39		0	96	19	0		14	6	0					0	178	0	0	0	0
5:15 PM	10	57		0	76	21	0		15	5	0					0	184	0	0	0	0
5:20 PM	6	38		0	59	13	0		16	9	0					0	141	0	0	0	0
5:25 PM	8	35		0	73	15	0		17	5	0					0	153	0	0	0	0
5:30 PM	5	42		0	66	17	0		11	5	0					0	146	0	0	0	0
5:35 PM	10	42		0	68	17	0		12	8	0					0	157	0	0	0	0
5:40 PM	8	42		0	73	21	0		14	5	0					0	163	1	1	0	1
5:45 PM	2	44		0	74	17	0		19	7	0					0	163	0	0	0	0
5:50 PM	12	49		0	62	20	0		7	10	0					0	160	0	0	0	0
5:55 PM	3	36		0	65	12	0		23	7	0					0	146	0	0	0	0
Total Survey	167	1,032		0	1,617	445	0		335	180	0					0	3,776	1	7	0	3

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R	Bikes		L	R	Bikes					Bikes		North	South	East	West
4:00 PM	29	118		0	195	69	0		39	23	0					0	473	0	3	0	1
4:15 PM	19	114		0	175	54	0		42	26	0					0	430	0	1	0	0
4:30 PM	18	147		0	190	57	0		35	28	0					0	475	0	2	0	1
4:45 PM	19	140		0	207	65	0		35	20	0					0	486	0	0	0	0
5:00 PM	18	128		0	234	47	0		50	22	0					0	499	0	0	0	0
5:15 PM	24	130		0	208	49	0		48	19	0					0	478	0	0	0	0
5:30 PM	23	126		0	207	55	0		37	18	0					0	466	1	1	0	1
5:45 PM	17	129		0	201	49	0		49	24	0					0	469	0	0	0	0
Total Survey	167	1,032		0	1,617	445	0		335	180	0					0	3,776	1	7	0	3

Peak Hour Summary
4:50 PM to 5:50 PM

By Approach	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	611	939	1,550	0	1,072	710	1,782	0	261	295	556	0	0	0	0	0	1,944	1	1	0	1
%HV	1.3%				1.2%				1.1%				0.0%				1.2%				
PHF	0.91				0.90				0.91				0.00				0.92				

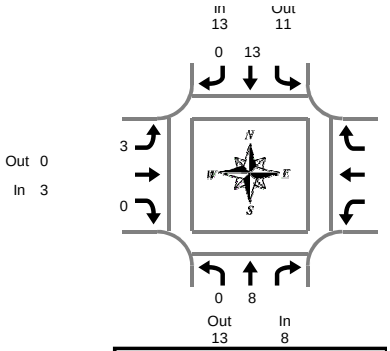
By Movement	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Total
	L	T		Total	T	R	Total		L	R	Total					Total	
Volume	79	532		611	856	216	1,072		178	83	261					0	1,944
%HV	0.0%	1.5%	NA	1.3%	1.5%	0.0%	1.2%	NA	1.7%	0.0%	1.1%	NA	NA	NA	0.0%	1.2%	
PHF	0.82	0.90		0.91	0.89	0.90	0.90		0.89	0.80	0.91					0.00	0.92

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R	Bikes		L	R	Bikes					Bikes		North	South	East	West
4:00 PM	85	519		0	767	245	0		151	97	0					0	1,864	0	6	0	2
4:15 PM	74	529		0	806	223	0		162	96	0					0	1,890	0	3	0	1
4:30 PM	79	545		0	839	218	0		168	89	0					0	1,938	0	2	0	1
4:45 PM	84	524		0	856	216	0		170	79	0					0	1,929	1	1	0	1
5:00 PM	82	513		0	850	200	0		184	83	0					0	1,912	1	1	0	1

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 43 & Hidden Springs Rd

Tuesday, November 08, 2011
4:00 PM to 6:00 PM

Peak Hour Summary
4:50 PM to 5:50 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Interval Total
	L	T		Total	T	R	Total		L		R	Total				Total	
4:00 PM	2	1		3	1	0	1		1		1	2				0	6
4:05 PM	0	0		0	2	0	2		1		0	1				0	3
4:10 PM	0	0		0	3	1	4		0		0	0				0	4
4:15 PM	1	1		2	4	0	4		0		2	2				0	8
4:20 PM	0	1		1	0	0	0		0		0	0				0	1
4:25 PM	1	0		1	0	1	1		0		0	0				0	2
4:30 PM	0	2		2	2	0	2		0		1	1				0	5
4:35 PM	0	1		1	1	0	1		1		1	2				0	4
4:40 PM	0	2		2	0	1	1		0		0	0				0	3
4:45 PM	0	1		1	1	0	1		0		0	0				0	2
4:50 PM	0	0		0	1	0	1		0		0	0				0	1
4:55 PM	0	1		1	1	0	1		1		0	1				0	3
5:00 PM	0	0		0	1	0	1		0		0	0				0	1
5:05 PM	0	0		0	0	0	0		0		0	0				0	0
5:10 PM	0	0		0	3	0	3		0		0	0				0	3
5:15 PM	0	2		2	1	0	1		0		0	0				0	3
5:20 PM	0	1		1	0	0	0		1		0	1				0	2
5:25 PM	0	1		1	1	0	1		0		0	0				0	2
5:30 PM	0	1		1	2	0	2		1		0	1				0	4
5:35 PM	0	0		0	2	0	2		0		0	0				0	2
5:40 PM	0	1		1	1	0	1		0		0	0				0	2
5:45 PM	0	1		1	0	0	0		0		0	0				0	1
5:50 PM	0	0		0	1	0	1		0		0	0				0	1
5:55 PM	0	0		0	1	0	1		0		0	0				0	1
Total Survey	4	17		21	29	3	32		6		5	11				0	64

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Interval Total
	L	T		Total	T	R	Total		L		R	Total				Total	
4:00 PM	2	1		3	6	1	7		2		1	3				0	13
4:15 PM	2	2		4	4	1	5		0		2	2				0	11
4:30 PM	0	5		5	3	1	4		1		2	3				0	12
4:45 PM	0	2		2	3	0	3		1		0	1				0	6
5:00 PM	0	0		0	4	0	4		0		0	0				0	4
5:15 PM	0	4		4	2	0	2		1		0	1				0	7
5:30 PM	0	2		2	5	0	5		1		0	1				0	8
5:45 PM	0	1		1	2	0	2		0		0	0				0	3
Total Survey	4	17		21	29	3	32		6		5	11				0	64

Heavy Vehicle Peak Hour Summary
4:50 PM to 5:50 PM

By Approach	Northbound Hwy 43			Southbound Hwy 43			Eastbound Hidden Springs Rd			Westbound Hidden Springs Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	8	13	21	13	11	24	3	0	3	0	0	0	24
PHF	0.50			0.65			0.38			0.00			0.75

By Movement	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Total
	L	T		Total	T	R	Total		L		R	Total				Total	
Volume	0	8		8	13	0	13		3		0	3				0	24
PHF	0.00	0.50		0.50	0.65	0.00	0.65		0.38		0.00	0.38				0.00	0.75

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

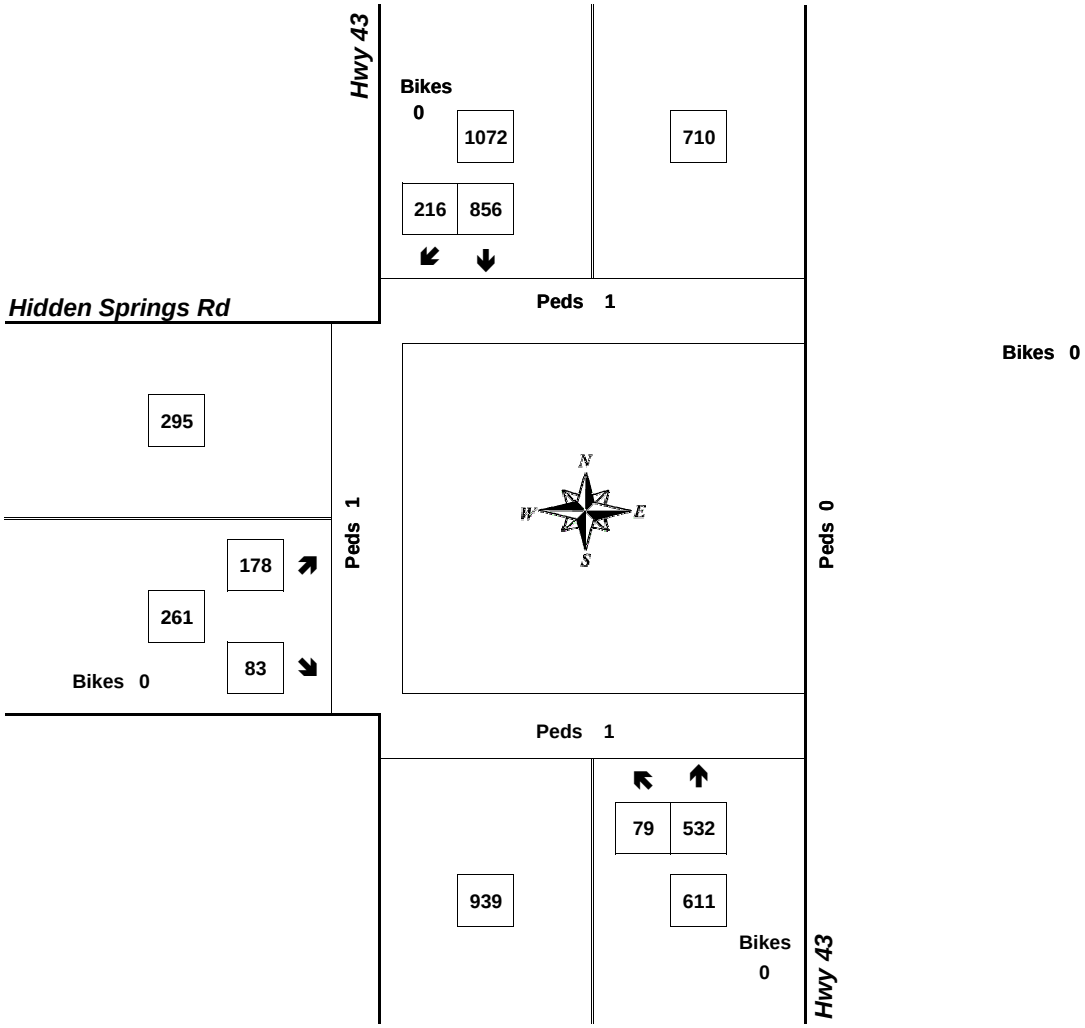
Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Hidden Springs Rd				Westbound Hidden Springs Rd				Interval Total
	L	T		Total	T	R	Total		L		R	Total				Total	
4:00 PM	4	10		14	16	3	19		4		5	9				0	42
4:15 PM	2	9		11	14	2	16		2		4	6				0	33
4:30 PM	0	11		11	12	1	13		3		2	5				0	29
4:45 PM	0	8		8	14	0	14		3		0	3				0	25
5:00 PM	0	7		7	13	0	13		2		0	2				0	22

Peak Hour Summary

Clay Carney
(503) 833-2740

Hwy 43 & Hidden Springs Rd

4:50 PM to 5:50 PM
Tuesday, November 08, 2011

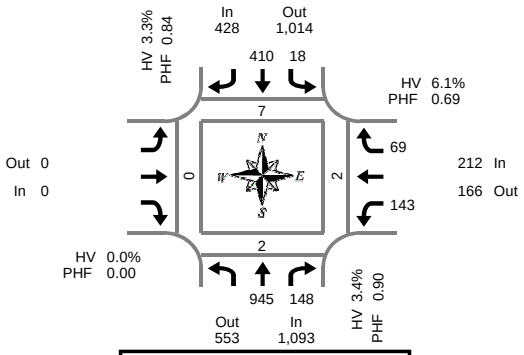


Approach	PHF	HV%	Volume
EB	0.91	1.1%	261
WB	0.00	0.0%	0
NB	0.91	1.3%	611
SB	0.90	1.2%	1,072
Intersection	0.92	1.2%	1,944

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
7:30 AM to 8:30 AM

Hwy 43 & Cedar Oak Dr

Tuesday, November 08, 2011
7:00 AM to 9:00 AM

5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
7:00 AM	72	6	0		1	22		0				0	6		5	0	112	0	0	0	0
7:05 AM	67	4	0		1	31		0				0	5		6	0	114	0	0	0	0
7:10 AM	77	4	0		0	31		0				0	3		4	0	119	0	0	0	0
7:15 AM	70	5	0		2	31		0				0	7		2	0	117	0	0	0	0
7:20 AM	76	4	0		0	29		0				0	4		4	0	117	0	0	0	0
7:25 AM	82	13	0		0	25		0				0	3		6	0	129	0	0	0	0
7:30 AM	90	13	0		2	36		0				0	3		3	0	147	0	0	0	0
7:35 AM	80	22	0		0	30		0				0	10		2	0	144	0	0	0	0
7:40 AM	79	18	0		1	38		2				0	14		8	0	158	0	0	0	0
7:45 AM	72	29	0		2	32		0				0	16		11	0	162	0	0	0	0
7:50 AM	82	11	0		0	32		0				0	20		6	0	151	1	0	0	0
7:55 AM	89	10	0		0	40		0				0	11		13	0	163	3	0	1	0
8:00 AM	61	7	0		5	40		0				0	12		5	0	130	0	0	1	0
8:05 AM	65	8	0		3	39		0				0	19		7	0	141	0	1	0	0
8:10 AM	79	4	0		1	35		0				0	8		4	0	131	0	0	0	0
8:15 AM	80	11	0		1	31		0				0	9		4	0	136	0	1	0	0
8:20 AM	77	9	1		2	35		0				0	11		3	0	137	2	0	0	0
8:25 AM	91	6	0		1	22		0				0	10		3	0	133	1	0	0	0
8:30 AM	66	6	0		0	38		0				0	2		3	0	115	0	2	0	0
8:35 AM	72	3	1		2	38		0				0	6		0	0	121	3	1	1	0
8:40 AM	68	5	0		3	31		0				0	10		3	0	120	0	1	1	0
8:45 AM	80	3	0		1	40		0				0	8		6	0	138	0	0	0	0
8:50 AM	62	5	1		0	35		0				0	7		2	0	111	0	0	0	0
8:55 AM	57	5	0		1	29		0				0	6		3	0	101	0	0	0	0
Total Survey	1,794	211	3		29	790		2				0	210		113	0	3,147	10	6	4	0

15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
7:00 AM	216	14	0		2	84		0				0	14		15	0	345	0	0	0	0
7:15 AM	228	22	0		2	85		0				0	14		12	0	363	0	0	0	0
7:30 AM	249	53	0		3	104		2				0	27		13	0	449	0	0	0	0
7:45 AM	243	50	0		2	104		0				0	47		30	0	476	4	0	1	0
8:00 AM	205	19	0		9	114		0				0	39		16	0	402	0	1	1	0
8:15 AM	248	26	1		4	88		0				0	30		10	0	406	3	1	0	0
8:30 AM	206	14	1		5	107		0				0	18		6	0	356	3	4	2	0
8:45 AM	199	13	1		2	104		0				0	21		11	0	350	0	0	0	0
Total Survey	1,794	211	3		29	790		2				0	210		113	0	3,147	10	6	4	0

Peak Hour Summary
7:30 AM to 8:30 AM

By Approach	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	1,093	553	1,646	1	428	1,014	1,442	2	0	0	0	0	212	166	378	0	1,733	7	2	2	0
%HV	3.4%				3.3%				0.0%				6.1%				3.7%				
PHF	0.90				0.84				0.00				0.69				0.91				

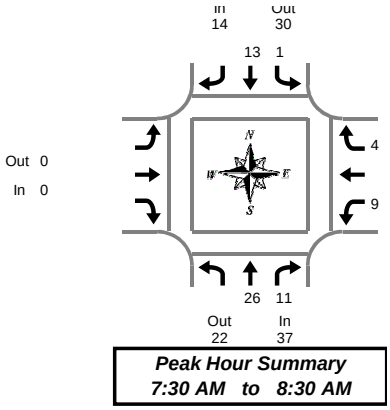
By Movement	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Total
	T	R	Total		L	T		Total				Total	L		R	Total	
Volume	945	148	1,093		18	410		428				0	143		69	212	1,733
%HV	NA	2.8%	7.4%	3.4%	5.6%	3.2%	NA	3.3%	NA	NA	NA	0.0%	6.3%	NA	5.8%	6.1%	3.7%
PHF		0.95	0.54	0.90	0.50	0.86		0.84				0.00	0.72		0.58	0.69	0.91

Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
7:00 AM	936	139	0		9	377		2				0	102		70	0	1,633	4	0	1	0
7:15 AM	925	144	0		16	407		2				0	127		71	0	1,690	4	1	2	0
7:30 AM	945	148	1		18	410		2				0	143		69	0	1,733	7	2	2	0
7:45 AM	902	109	2		20	413		0				0	134		62	0	1,640	10	6	4	0
8:00 AM	858	72	3		20	413		0				0	108		43	0	1,514	6	6	3	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 43 & Cedar Oak Dr

Tuesday, November 08, 2011
7:00 AM to 9:00 AM

Peak Hour Summary
7:30 AM to 8:30 AM

Heavy Vehicle 5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
7:00 AM		2	0	2	0	0		0				0	0		0	0	2
7:05 AM		3	0	3	0	1		1				0	0		0	0	4
7:10 AM		2	0	2	0	2		2				0	0		0	0	4
7:15 AM		0	0	0	0	1		1				0	0		0	0	1
7:20 AM		3	0	3	0	1		1				0	0		0	0	4
7:25 AM		2	1	3	0	0		0				0	0		0	0	3
7:30 AM		4	2	6	1	3		4				0	0		0	0	10
7:35 AM		2	4	6	0	1		1				0	0		0	0	7
7:40 AM		0	1	1	0	1		1				0	3		2	5	7
7:45 AM		1	1	2	0	1		1				0	0		0	0	3
7:50 AM		2	1	3	0	0		0				0	1		0	1	4
7:55 AM		5	1	6	0	2		2				0	1		0	1	9
8:00 AM		1	0	1	0	0		0				0	2		1	3	4
8:05 AM		1	0	1	0	1		1				0	1		1	2	4
8:10 AM		5	0	5	0	0		0				0	0		0	0	5
8:15 AM		2	0	2	0	1		1				0	0		0	0	3
8:20 AM		1	1	2	0	2		2				0	1		0	1	5
8:25 AM		2	0	2	0	1		1				0	0		0	0	3
8:30 AM		0	1	1	0	1		1				0	0		1	1	3
8:35 AM		3	0	3	0	2		2				0	0		0	0	5
8:40 AM		4	2	6	0	2		2				0	1		0	1	9
8:45 AM		1	0	1	0	0		0				0	2		0	2	3
8:50 AM		1	1	2	0	4		4				0	0		0	0	6
8:55 AM		1	1	2	0	1		1				0	1		0	1	4
Total Survey		48	17	65	1	28		29				0	13		5	18	112

Heavy Vehicle 15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
7:00 AM		7	0	7	0	3		3				0	0		0	0	10
7:15 AM		5	1	6	0	2		2				0	0		0	0	8
7:30 AM		6	7	13	1	5		6				0	3		2	5	24
7:45 AM		8	3	11	0	3		3				0	2		0	2	16
8:00 AM		7	0	7	0	1		1				0	3		2	5	13
8:15 AM		5	1	6	0	4		4				0	1		0	1	11
8:30 AM		7	3	10	0	5		5				0	1		1	2	17
8:45 AM		3	2	5	0	5		5				0	3		0	3	13
Total Survey		48	17	65	1	28		29				0	13		5	18	112

Heavy Vehicle Peak Hour Summary
7:30 AM to 8:30 AM

By Approach	Northbound Hwy 43			Southbound Hwy 43			Eastbound Cedar Oak Dr			Westbound Cedar Oak Dr			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	37	22	59	14	30	44	0	0	0	13	12	25	64
PHF	0.71			0.58			0.00			0.54			0.67

By Movement	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Total
		T	R	Total	L	T		Total				Total	L		R	Total	
Volume		26	11	37	1	13		14				0	9		4	13	64
PHF		0.81	0.39	0.71	0.25	0.65		0.58				0.00	0.56		0.50	0.54	0.67

Heavy Vehicle Rolling Hour Summary
7:00 AM to 9:00 AM

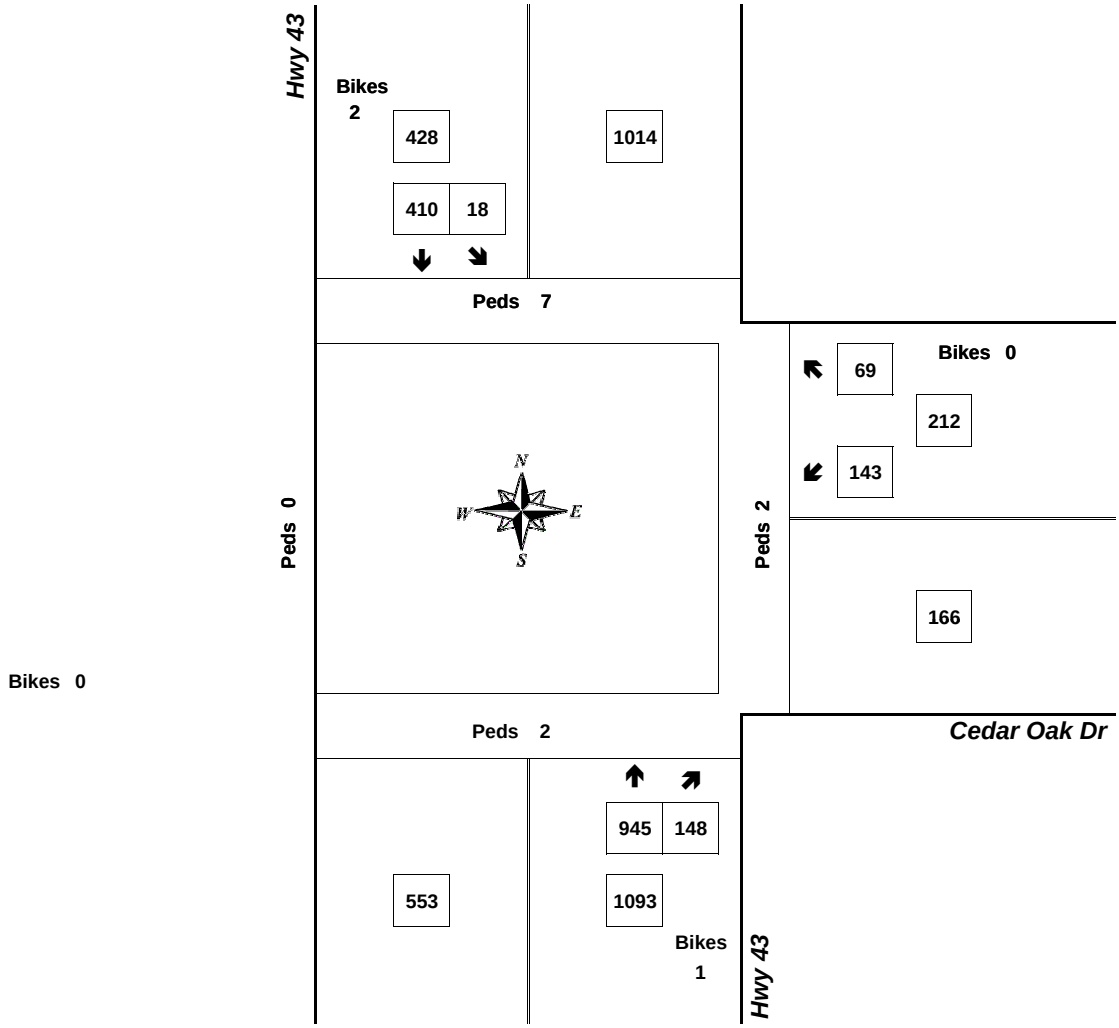
Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
7:00 AM		26	11	37	1	13		14				0	5		2	7	58
7:15 AM		26	11	37	1	11		12				0	8		4	12	61
7:30 AM		26	11	37	1	13		14				0	9		4	13	64
7:45 AM		27	7	34	0	13		13				0	7		3	10	57
8:00 AM		22	6	28	0	15		15				0	8		3	11	54

Peak Hour Summary

Clay Carney
(503) 833-2740

Hwy 43 & Cedar Oak Dr

7:30 AM to 8:30 AM
Tuesday, November 08, 2011

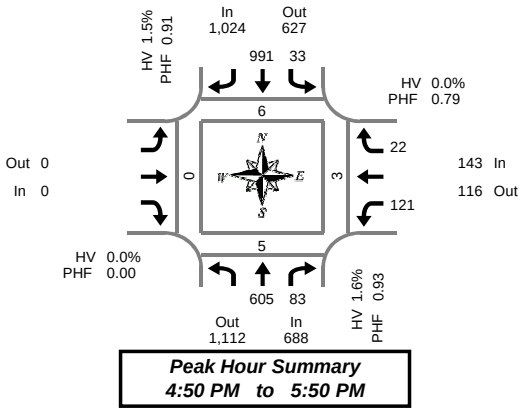


Approach	PHF	HV%	Volume
EB	0.00	0.0%	0
WB	0.69	6.1%	212
NB	0.90	3.4%	1,093
SB	0.84	3.3%	428
Intersection	0.91	3.7%	1,733

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

Clay Carney
(503) 833-2740



Peak Hour Summary
4:50 PM to 5:50 PM

Hwy 43 & Cedar Oak Dr

Tuesday, November 08, 2011
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
4:00 PM	43	4	0		4	64		0				0	11		1	0	127	0	0	0	0
4:05 PM	54	6	0		2	83		0				0	7		3	0	155	0	0	0	0
4:10 PM	43	7	0		5	91		0				0	11		2	0	159	0	2	0	0
4:15 PM	42	5	0		3	65		0				0	7		4	1	126	0	1	0	0
4:20 PM	36	16	0		0	69		0				0	5		3	0	129	0	1	0	0
4:25 PM	50	3	0		3	69		0				0	9		2	0	136	0	0	0	0
4:30 PM	51	11	1		1	69		0				0	8		3	0	143	0	4	0	0
4:35 PM	44	3	0		0	76		0				0	9		7	0	139	1	0	0	0
4:40 PM	51	9	0		0	77		0				0	7		2	0	146	0	1	0	0
4:45 PM	43	9	0		3	75		0				0	9		2	0	141	1	8	0	0
4:50 PM	44	11	0		4	80		0				0	20		1	0	160	0	0	0	0
4:55 PM	50	13	0		3	70		0				0	11		1	0	148	1	0	0	0
5:00 PM	55	5	0		2	81		0				0	4		1	0	148	1	3	0	0
5:05 PM	55	6	0		3	82		0				0	9		1	0	156	0	0	2	0
5:10 PM	53	4	0		2	98		0				0	15		2	0	174	2	0	0	0
5:15 PM	58	6	0		4	93		0				0	11		2	0	174	0	0	0	0
5:20 PM	50	6	0		2	70		0				0	10		5	0	143	0	0	0	0
5:25 PM	48	4	0		3	84		1				0	7		2	0	148	1	1	0	0
5:30 PM	52	3	0		2	72		0				0	8		2	0	139	0	0	1	0
5:35 PM	49	10	0		4	83		0				0	3		2	0	151	0	0	0	0
5:40 PM	34	7	0		3	93		0				0	9		2	0	148	1	0	0	0
5:45 PM	57	8	0		1	85		0				0	14		1	0	166	0	1	0	0
5:50 PM	46	11	0		1	72		0				0	11		4	0	145	1	0	0	0
5:55 PM	41	9	0		3	66		0				0	8		3	0	130	1	1	0	0
Total Survey	1,149	176	1		58	1,867		1				0	223		58	1	3,531	10	23	3	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
4:00 PM	140	17	0		11	238		0				0	29		6	0	441	0	2	0	0
4:15 PM	128	24	0		6	203		0				0	21		9	1	391	0	2	0	0
4:30 PM	146	23	1		1	222		0				0	24		12	0	428	1	5	0	0
4:45 PM	137	33	0		10	225		0				0	40		4	0	449	2	8	0	0
5:00 PM	163	15	0		7	261		0				0	28		4	0	478	3	3	2	0
5:15 PM	156	16	0		9	247		1				0	28		9	0	465	1	1	0	0
5:30 PM	135	20	0		9	248		0				0	20		6	0	438	1	0	1	0
5:45 PM	144	28	0		5	223		0				0	33		8	0	441	2	2	0	0
Total Survey	1,149	176	1		58	1,867		1				0	223		58	1	3,531	10	23	3	0

Peak Hour Summary
4:50 PM to 5:50 PM

By Approach	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	688	1,112	1,800	0	1,024	627	1,651	1	0	0	0	0	143	116	259	0	1,855	6	5	3	0
%HV	1.6%				1.5%				0.0%				0.0%				1.4%				
PHF	0.93				0.91				0.00				0.79				0.92				

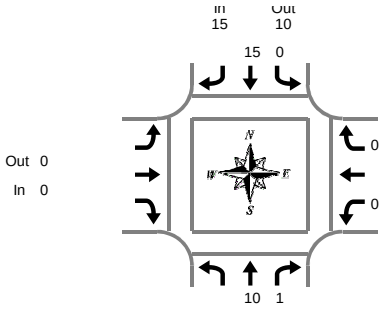
By Movement	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Total
	T	R	Total		L	T		Total				Total	L		R	Total	
Volume	605	83	688		33	991		1,024				0	121		22	143	1,855
%HV	NA	1.7%	1.2%	1.6%	0.0%	1.5%	NA	1.5%	NA	NA	NA	0.0%	0.0%	NA	0.0%	0.0%	1.4%
PHF	0.91	0.72	0.93		0.92	0.91		0.91				0.00	0.84		0.61	0.79	0.92

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Interval Total	Pedestrians Crosswalk			
	T	R	Bikes		L	T		Bikes				Bikes	L		R	Bikes		North	South	East	West
4:00 PM	551	97	1		28	888		0				0	114		31	1	1,709	3	17	0	0
4:15 PM	574	95	1		24	911		0				0	113		29	1	1,746	6	18	2	0
4:30 PM	602	87	1		27	955		1				0	120		29	0	1,820	7	17	2	0
4:45 PM	591	84	0		35	981		1				0	116		23	0	1,830	7	12	3	0
5:00 PM	598	79	0		30	979		1				0	109		27	0	1,822	7	6	3	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 43 & Cedar Oak Dr

Tuesday, November 08, 2011
4:00 PM to 6:00 PM

Peak Hour Summary
4:50 PM to 5:50 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
4:00 PM		2	1	3	1	1		2				0	0		0	0	5
4:05 PM		0	0	0	0	2		2				0	0		0	0	2
4:10 PM		0	1	1	0	4		4				0	0		0	0	5
4:15 PM		1	0	1	0	3		3				0	1		0	1	5
4:20 PM		0	1	1	0	1		1				0	0		0	0	2
4:25 PM		0	0	0	0	2		2				0	0		0	0	2
4:30 PM		2	0	2	0	2		2				0	0		0	0	4
4:35 PM		2	0	2	0	1		1				0	0		0	0	3
4:40 PM		1	0	1	0	1		1				0	0		0	0	2
4:45 PM		1	0	1	0	1		1				0	0		0	0	2
4:50 PM		0	0	0	0	1		1				0	0		0	0	1
4:55 PM		1	0	1	0	2		2				0	0		0	0	3
5:00 PM		2	0	2	0	3		3				0	0		0	0	5
5:05 PM		0	0	0	0	0		0				0	0		0	0	0
5:10 PM		0	0	0	0	2		2				0	0		0	0	2
5:15 PM		2	0	2	0	2		2				0	0		0	0	4
5:20 PM		1	0	1	0	0		0				0	0		0	0	1
5:25 PM		1	1	2	0	1		1				0	0		0	0	3
5:30 PM		1	0	1	0	1		1				0	0		0	0	2
5:35 PM		0	0	0	0	2		2				0	0		0	0	2
5:40 PM		1	0	1	0	1		1				0	0		0	0	2
5:45 PM		1	0	1	0	0		0				0	0		0	0	1
5:50 PM		0	0	0	0	1		1				0	0		0	0	1
5:55 PM		0	0	0	0	1		1				0	0		0	0	1
Total Survey		19	4	23	1	35		36				0	1		0	1	60

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
4:00 PM		2	2	4	1	7		8				0	0		0	0	12
4:15 PM		1	1	2	0	6		6				0	1		0	1	9
4:30 PM		5	0	5	0	4		4				0	0		0	0	9
4:45 PM		2	0	2	0	4		4				0	0		0	0	6
5:00 PM		2	0	2	0	5		5				0	0		0	0	7
5:15 PM		4	1	5	0	3		3				0	0		0	0	8
5:30 PM		2	0	2	0	4		4				0	0		0	0	6
5:45 PM		1	0	1	0	2		2				0	0		0	0	3
Total Survey		19	4	23	1	35		36				0	1		0	1	60

Heavy Vehicle Peak Hour Summary
4:50 PM to 5:50 PM

By Approach	Northbound Hwy 43			Southbound Hwy 43			Eastbound Cedar Oak Dr			Westbound Cedar Oak Dr			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	11	15	26	15	10	25	0	0	0	0	1	1	26
PHF	0.55			0.63			0.00			0.00			0.72

By Movement	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Total
		T	R	Total	L	T		Total				Total	L		R	Total	
Volume		10	1	11	0	15		15				0	0		0	0	26
PHF		0.63	0.25	0.55	0.00	0.63		0.63				0.00	0.00		0.00	0.00	0.72

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

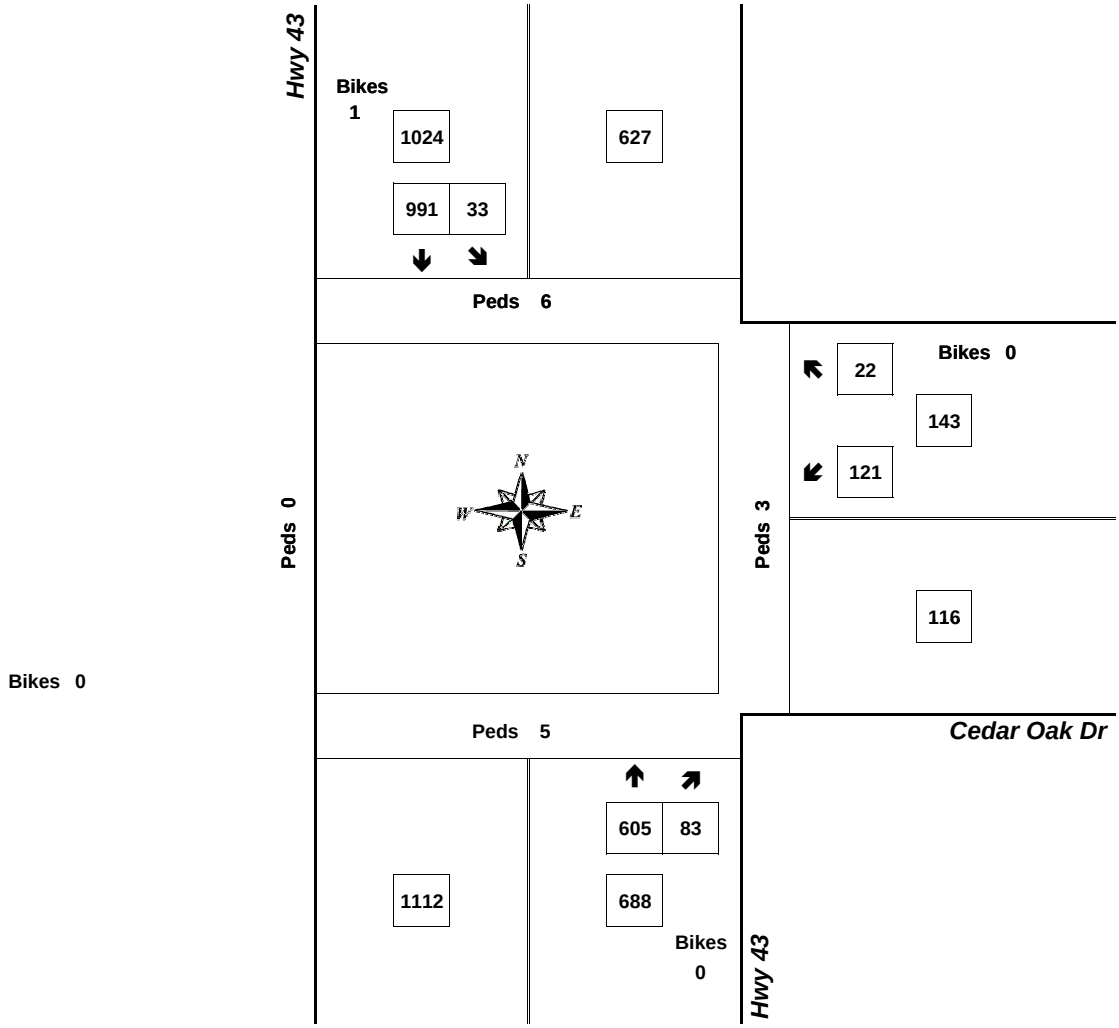
Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Cedar Oak Dr				Westbound Cedar Oak Dr				Interval Total
		T	R	Total	L	T		Total				Total	L		R	Total	
4:00 PM		10	3	13	1	21		22				0	1		0	1	36
4:15 PM		10	1	11	0	19		19				0	1		0	1	31
4:30 PM		13	1	14	0	16		16				0	0		0	0	30
4:45 PM		10	1	11	0	16		16				0	0		0	0	27
5:00 PM		9	1	10	0	14		14				0	0		0	0	24

Peak Hour Summary

Clay Carney
(503) 833-2740

Hwy 43 & Cedar Oak Dr

4:50 PM to 5:50 PM
Tuesday, November 08, 2011

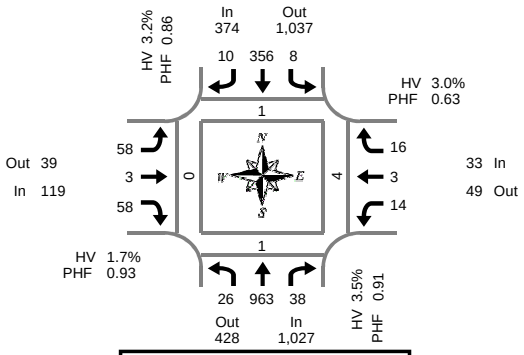


Approach	PHF	HV%	Volume
EB	0.00	0.0%	0
WB	0.79	0.0%	143
NB	0.93	1.6%	688
SB	0.91	1.5%	1,024
Intersection	0.92	1.4%	1,855

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
7:20 AM to 8:20 AM

Hwy 43 & Marylhurst Dr

Tuesday, November 08, 2011
7:00 AM to 9:00 AM

5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	2	66	1	0	1	20	1	0	4	0	6	0	2	0	2	0	105	0	0	0	1
7:05 AM	0	80	1	0	1	17	0	0	6	0	8	0	0	0	1	0	114	0	0	0	0
7:10 AM	4	67	2	0	1	36	0	0	5	0	3	0	2	0	1	0	121	0	0	1	0
7:15 AM	1	79	2	0	0	22	1	1	9	0	5	0	0	0	3	0	122	0	0	1	0
7:20 AM	2	76	8	0	1	21	0	0	7	1	9	0	0	0	2	0	127	0	0	0	0
7:25 AM	3	84	2	0	0	28	0	0	4	0	3	0	1	0	4	0	129	0	0	0	0
7:30 AM	2	88	0	0	1	22	0	0	2	0	4	0	3	0	3	0	125	0	0	0	0
7:35 AM	1	76	4	0	1	34	1	0	6	0	4	0	2	0	0	0	129	0	0	0	0
7:40 AM	4	83	1	0	0	35	1	1	8	1	6	0	2	0	1	0	142	0	0	0	0
7:45 AM	2	87	3	0	0	24	1	0	5	0	1	0	0	0	1	0	124	1	0	0	0
7:50 AM	1	80	3	1	2	35	3	2	7	0	3	0	1	2	0	0	137	0	1	0	0
7:55 AM	2	97	6	0	0	35	1	0	1	0	4	0	1	0	1	0	148	0	0	1	0
8:00 AM	2	63	2	0	0	32	1	0	6	0	5	0	0	0	3	0	114	0	0	0	0
8:05 AM	2	63	4	0	3	35	0	0	4	1	5	0	3	1	0	0	121	0	0	3	0
8:10 AM	4	76	2	0	0	31	0	0	2	0	3	0	0	0	0	0	118	0	0	0	0
8:15 AM	1	90	3	0	0	24	2	0	6	0	11	0	1	0	1	0	139	0	0	0	0
8:20 AM	0	81	0	0	2	20	2	0	5	0	5	0	1	1	0	0	117	0	0	1	0
8:25 AM	1	84	4	1	0	23	1	0	3	0	3	0	2	0	1	0	122	0	0	0	0
8:30 AM	1	64	4	0	1	26	1	0	3	0	0	0	0	0	1	0	101	0	0	1	0
8:35 AM	3	61	5	0	0	34	0	1	3	0	4	0	1	0	0	1	111	0	0	0	0
8:40 AM	1	73	3	0	2	28	1	0	4	0	3	0	3	0	0	0	118	0	0	1	0
8:45 AM	5	69	4	0	1	34	1	0	2	0	6	0	0	0	0	0	122	0	0	0	0
8:50 AM	0	59	2	0	3	32	0	0	5	0	5	0	0	0	2	0	108	0	0	0	0
8:55 AM	1	60	2	0	1	28	1	0	4	0	3	0	0	0	0	0	100	0	0	0	0
Total Survey	45	1,806	68	2	21	676	19	5	111	3	109	0	25	4	27	1	2,914	1	1	9	1

15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	6	213	4	0	3	73	1	0	15	0	17	0	4	0	4	0	340	0	0	1	1
7:15 AM	6	239	12	0	1	71	1	1	20	1	17	0	1	0	9	0	378	0	0	1	0
7:30 AM	7	247	5	0	2	91	2	1	16	1	14	0	7	0	4	0	396	0	0	0	0
7:45 AM	5	264	12	1	2	94	5	2	13	0	8	0	2	2	2	0	409	1	1	1	0
8:00 AM	8	202	8	0	3	98	1	0	12	1	13	0	3	1	3	0	353	0	0	3	0
8:15 AM	2	255	7	1	2	67	5	0	14	0	19	0	4	1	2	0	378	0	0	1	0
8:30 AM	5	198	12	0	3	88	2	1	10	0	7	0	4	0	1	1	330	0	0	2	0
8:45 AM	6	188	8	0	5	94	2	0	11	0	14	0	0	0	2	0	330	0	0	0	0
Total Survey	45	1,806	68	2	21	676	19	5	111	3	109	0	25	4	27	1	2,914	1	1	9	1

Peak Hour Summary
7:20 AM to 8:20 AM

By Approach	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	1,027	428	1,455	1	374	1,037	1,411	3	119	39	158	0	33	49	82	0	1,553	1	1	4	0
%HV	3.5%				3.2%				1.7%				3.0%				3.3%				
PHF	0.91				0.86				0.93				0.63				0.95				

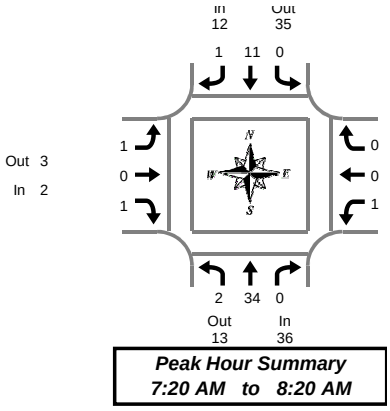
By Movement	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	26	963	38	1,027	8	356	10	374	58	3	58	119	14	3	16	33	1,553
%HV	7.7%	3.5%	0.0%	3.5%	0.0%	3.1%	10.0%	3.2%	1.7%	0.0%	1.7%	1.7%	7.1%	0.0%	0.0%	3.0%	3.3%
PHF	0.81	0.91	0.79	0.91	0.67	0.87	0.50	0.86	0.73	0.75	0.76	0.93	0.50	0.38	0.44	0.63	0.95

Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	24	963	33	1	8	329	9	4	64	2	56	0	14	2	19	0	1,523	1	1	3	1
7:15 AM	26	952	37	1	8	354	9	4	61	3	52	0	13	3	18	0	1,536	1	1	5	0
7:30 AM	22	968	32	2	9	350	13	3	55	2	54	0	16	4	11	0	1,536	1	1	5	0
7:45 AM	20	919	39	2	10	347	13	3	49	1	47	0	13	4	8	1	1,470	1	1	7	0
8:00 AM	21	843	35	1	13	347	10	1	47	1	53	0	11	2	8	1	1,391	0	0	6	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Peak Hour Summary
7:20 AM to 8:20 AM

Hwy 43 & Marylhurst Dr

Tuesday, November 08, 2011
7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	0	2	0	2	1	0	0	1	0	0	0	0	1	0	0	1	4
7:05 AM	0	4	0	4	0	1	0	1	0	0	0	0	0	0	0	0	5
7:10 AM	2	1	0	3	0	2	0	2	0	0	0	0	0	0	0	0	5
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:20 AM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
7:25 AM	0	5	0	5	0	1	0	1	1	0	1	2	0	0	0	0	8
7:30 AM	0	2	0	2	0	2	0	2	0	0	0	0	1	0	0	1	5
7:35 AM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
7:40 AM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
7:45 AM	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
7:50 AM	0	2	0	2	0	4	0	4	0	0	0	0	0	0	0	0	6
7:55 AM	0	7	0	7	0	0	1	1	0	0	0	0	0	0	0	0	8
8:00 AM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
8:05 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:10 AM	1	5	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
8:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
8:20 AM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
8:25 AM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
8:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:35 AM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
8:40 AM	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
8:45 AM	1	3	0	4	0	2	0	2	0	0	1	1	0	0	0	0	7
8:50 AM	0	3	0	3	0	2	0	2	0	0	0	0	0	0	0	0	5
8:55 AM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
Total Survey	5	57	0	62	1	25	1	27	1	0	2	3	2	0	0	2	94

Heavy Vehicle 15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	2	7	0	9	1	3	0	4	0	0	0	0	1	0	0	1	14
7:15 AM	0	7	0	7	0	2	0	2	1	0	1	2	0	0	0	0	11
7:30 AM	1	5	0	6	0	3	0	3	0	0	0	0	1	0	0	1	10
7:45 AM	0	14	0	14	0	4	1	5	0	0	0	0	0	0	0	0	19
8:00 AM	1	8	0	9	0	1	0	1	0	0	0	0	0	0	0	0	10
8:15 AM	0	3	0	3	0	5	0	5	0	0	0	0	0	0	0	0	8
8:30 AM	0	6	0	6	0	2	0	2	0	0	0	0	0	0	0	0	8
8:45 AM	1	7	0	8	0	5	0	5	0	0	1	1	0	0	0	0	14
Total Survey	5	57	0	62	1	25	1	27	1	0	2	3	2	0	0	2	94

Heavy Vehicle Peak Hour Summary
7:20 AM to 8:20 AM

By Approach	Northbound Hwy 43			Southbound Hwy 43			Eastbound Marylhurst Dr			Westbound Marylhurst Dr			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	36	13	49	12	35	47	2	3	5	1	0	1	51
PHF	0.64			0.50			0.25			0.25			0.67

By Movement	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	2	34	0	36	0	11	1	12	1	0	1	2	1	0	0	1	51
PHF	0.50	0.61	0.00	0.64	0.00	0.55	0.25	0.50	0.25	0.00	0.25	0.25	0.25	0.00	0.00	0.25	0.67

Heavy Vehicle Rolling Hour Summary
7:00 AM to 9:00 AM

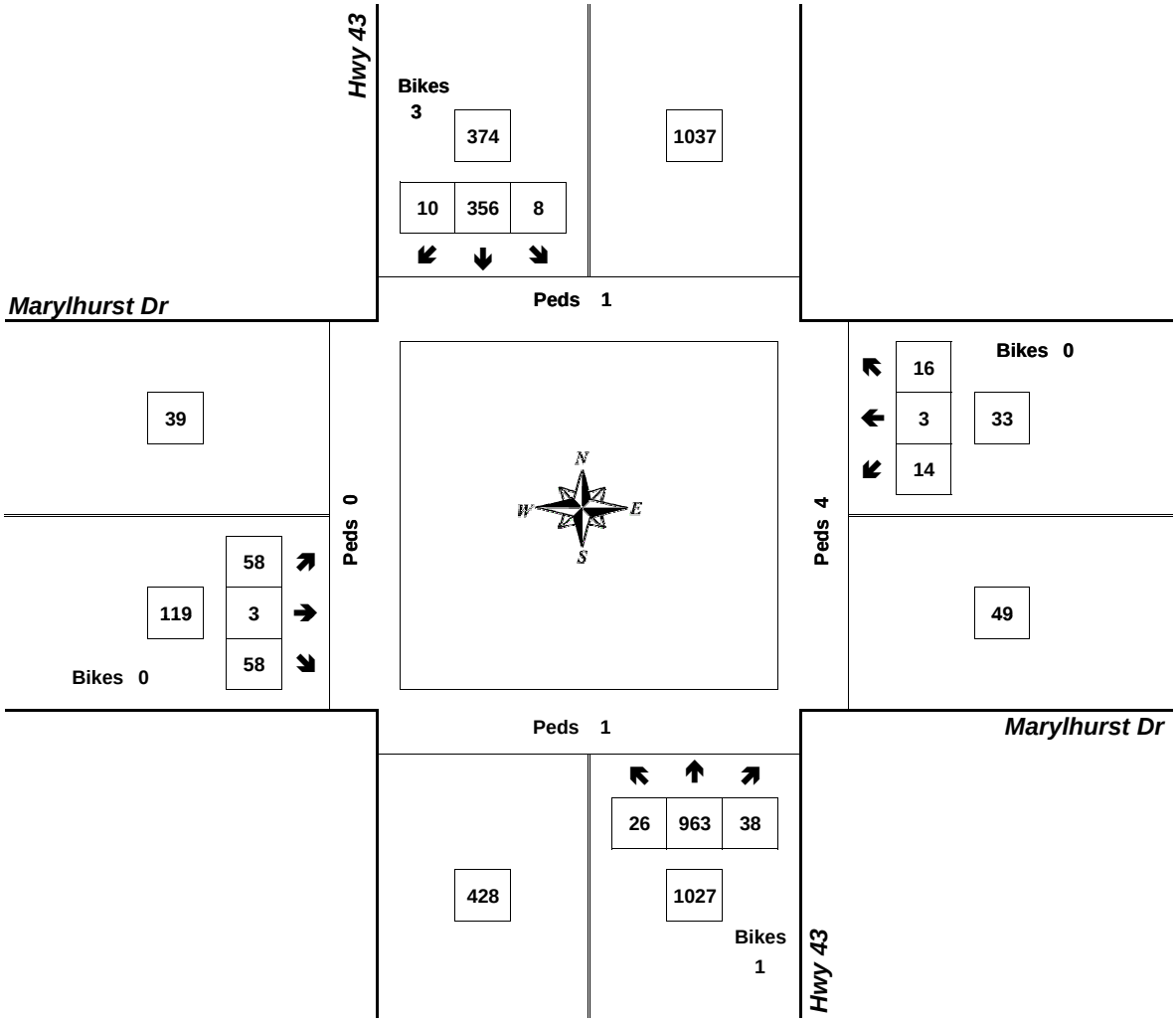
Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	3	33	0	36	1	12	1	14	1	0	1	2	2	0	0	2	54
7:15 AM	2	34	0	36	0	10	1	11	1	0	1	2	1	0	0	1	50
7:30 AM	2	30	0	32	0	13	1	14	0	0	0	0	1	0	0	1	47
7:45 AM	1	31	0	32	0	12	1	13	0	0	0	0	0	0	0	0	45
8:00 AM	2	24	0	26	0	13	0	13	0	0	1	1	0	0	0	0	40

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

Hwy 43 & Marylhurst Dr

7:20 AM to 8:20 AM
Tuesday, November 08, 2011

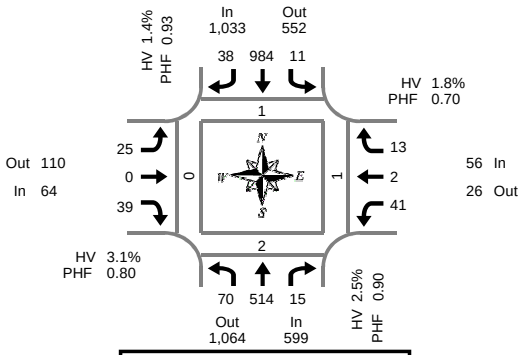


Approach	PHF	HV%	Volume
EB	0.93	1.7%	119
WB	0.63	3.0%	33
NB	0.91	3.5%	1,027
SB	0.86	3.2%	374
Intersection	0.95	3.3%	1,553

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:40 PM to 5:40 PM

Hwy 43 & Marylhurst Dr

Tuesday, November 08, 2011
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	5	28	3	0	1	64	1	0	4	1	5	0	2	0	0	0	114	0	0	0	0
4:05 PM	6	48	2	0	0	72	4	0	1	0	3	0	7	0	0	0	143	0	0	0	0
4:10 PM	1	34	2	0	2	78	2	0	2	0	1	0	1	0	0	0	123	0	1	1	0
4:15 PM	6	43	1	0	0	58	3	0	2	0	4	0	6	0	1	0	124	0	0	0	0
4:20 PM	8	27	0	0	0	67	1	0	2	0	4	0	2	0	0	0	111	0	0	0	0
4:25 PM	4	36	4	0	1	73	0	0	5	0	2	0	2	0	0	0	127	0	2	0	0
4:30 PM	8	43	0	0	1	63	5	0	1	0	7	0	3	0	0	0	131	0	0	0	0
4:35 PM	6	46	1	0	0	60	3	0	2	0	3	0	3	1	0	0	125	0	0	0	0
4:40 PM	3	41	1	0	4	92	1	0	3	0	4	0	2	0	0	0	151	0	0	0	0
4:45 PM	8	41	2	0	1	82	4	0	0	0	2	0	1	1	0	0	142	0	1	0	0
4:50 PM	5	35	2	0	1	77	3	0	3	0	4	0	4	0	1	0	135	1	0	0	0
4:55 PM	8	44	0	0	0	67	3	0	2	0	6	0	2	0	2	0	134	0	1	1	0
5:00 PM	4	42	1	0	1	86	2	0	1	0	1	0	3	0	1	0	142	0	0	0	0
5:05 PM	6	45	3	0	0	81	0	0	3	0	2	0	5	0	0	0	145	0	0	0	0
5:10 PM	1	49	2	0	1	104	4	0	1	0	4	0	7	1	1	0	175	0	0	0	0
5:15 PM	10	49	1	0	0	62	8	0	3	0	3	0	4	0	2	0	142	0	0	0	0
5:20 PM	4	46	2	0	1	72	1	0	5	0	4	0	0	0	2	0	137	0	0	0	0
5:25 PM	8	41	0	0	2	115	5	0	1	0	3	0	4	0	2	0	181	0	0	0	0
5:30 PM	6	44	1	0	0	73	2	0	2	0	1	0	1	0	1	0	131	0	0	0	0
5:35 PM	7	37	0	0	0	73	5	0	1	0	5	0	8	0	1	0	137	0	0	0	0
5:40 PM	1	30	2	0	1	92	3	0	0	0	6	0	1	0	1	0	137	0	0	0	0
5:45 PM	6	40	3	0	1	74	7	0	1	0	2	0	3	0	0	0	137	0	0	0	0
5:50 PM	6	43	0	0	1	64	8	0	0	0	2	0	0	0	0	0	124	0	0	0	0
5:55 PM	1	37	0	0	3	71	3	0	3	0	1	0	7	0	1	0	127	0	0	0	0
Total Survey	128	969	33	0	22	1,820	78	0	48	1	79	0	78	3	16	0	3,275	1	5	2	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	12	110	7	0	3	214	7	0	7	1	9	0	10	0	0	0	380	0	1	1	0
4:15 PM	18	106	5	0	1	198	4	0	9	0	10	0	10	0	1	0	362	0	2	0	0
4:30 PM	17	130	2	0	5	215	9	0	6	0	14	0	8	1	0	0	407	0	0	0	0
4:45 PM	21	120	4	0	2	226	10	0	5	0	12	0	7	1	3	0	411	1	2	1	0
5:00 PM	11	136	6	0	2	271	6	0	5	0	7	0	15	1	2	0	462	0	0	0	0
5:15 PM	22	136	3	0	3	249	14	0	9	0	10	0	8	0	6	0	460	0	0	0	0
5:30 PM	14	111	3	0	1	238	10	0	3	0	12	0	10	0	3	0	405	0	0	0	0
5:45 PM	13	120	3	0	5	209	18	0	4	0	5	0	10	0	1	0	388	0	0	0	0
Total Survey	128	969	33	0	22	1,820	78	0	48	1	79	0	78	3	16	0	3,275	1	5	2	0

Peak Hour Summary
4:40 PM to 5:40 PM

By Approach	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	599	1,064	1,663	0	1,033	552	1,585	0	64	110	174	0	56	26	82	0	1,752	1	2	1	0
%HV	2.5%				1.4%				3.1%				1.8%				1.8%				
PHF	0.90				0.93				0.80				0.70				0.95				

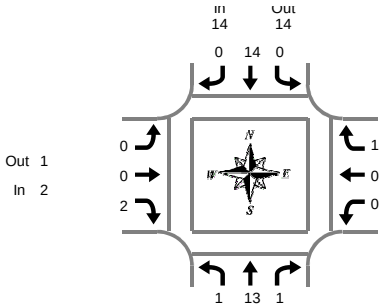
By Movement	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	70	514	15	599	11	984	38	1,033	25	0	39	64	41	2	13	56	1,752
%HV	1.4%	2.5%	6.7%	2.5%	0.0%	1.4%	0.0%	1.4%	0.0%	0.0%	5.1%	3.1%	0.0%	0.0%	7.7%	1.8%	1.8%
PHF	0.80	0.89	0.63	0.90	0.46	0.91	0.68	0.93	0.69	0.00	0.81	0.80	0.64	0.50	0.54	0.70	0.95

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	68	466	18	0	11	853	30	0	27	1	45	0	35	2	4	0	1,560	1	5	2	0
4:15 PM	67	492	17	0	10	910	29	0	25	0	43	0	40	3	6	0	1,642	1	4	1	0
4:30 PM	71	522	15	0	12	961	39	0	25	0	43	0	38	3	11	0	1,740	1	2	1	0
4:45 PM	68	503	16	0	8	984	40	0	22	0	41	0	40	2	14	0	1,738	1	2	1	0
5:00 PM	60	503	15	0	11	967	48	0	21	0	34	0	43	1	12	0	1,715	0	0	0	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Hwy 43 & Marylhurst Dr

Tuesday, November 08, 2011
4:00 PM to 6:00 PM

Peak Hour Summary
4:40 PM to 5:40 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
4:05 PM	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1	2
4:10 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	3
4:15 PM	1	1	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
4:20 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
4:25 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
4:30 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
4:35 PM	1	1	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
4:50 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
4:55 PM	0	2	0	2	0	3	0	3	0	0	0	0	0	0	0	0	5
5:00 PM	0	1	0	1	0	1	0	1	0	0	1	1	0	0	0	0	3
5:05 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:10 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
5:15 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
5:20 PM	0	1	1	2	0	2	0	2	0	0	0	0	0	0	0	0	4
5:25 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	1	2	0	3	0	1	0	1	0	0	0	0	0	0	1	1	5
5:35 PM	0	0	0	0	0	2	0	2	0	0	1	1	0	0	0	0	3
5:40 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
5:50 PM	0	0	0	0	0	1	0	1	0	0	0	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
Total Survey	4	21	1	26	0	27	0	27	0	0	2	2	1	0	1	2	57

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	1	0	0	1	0	5	0	5	0	0	0	0	1	0	0	1	7
4:15 PM	1	1	0	2	0	5	0	5	0	0	0	0	0	0	0	0	7
4:30 PM	1	3	0	4	0	2	0	2	0	0	0	0	0	0	0	0	6
4:45 PM	0	4	0	4	0	5	0	5	0	0	0	0	0	0	0	0	9
5:00 PM	0	2	0	2	0	3	0	3	0	0	1	1	0	0	0	0	6
5:15 PM	0	5	1	6	0	3	0	3	0	0	0	0	0	0	0	0	9
5:30 PM	1	3	0	4	0	3	0	3	0	0	1	1	0	0	1	1	9
5:45 PM	0	3	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
Total Survey	4	21	1	26	0	27	0	27	0	0	2	2	1	0	1	2	57

Heavy Vehicle Peak Hour Summary
4:40 PM to 5:40 PM

By Approach	Northbound Hwy 43			Southbound Hwy 43			Eastbound Marylhurst Dr			Westbound Marylhurst Dr			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	15	16	31	14	14	28	2	1	3	1	1	2	32
PHF	0.54			0.70			0.50			0.25			0.73

By Movement	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	13	1	15	0	14	0	14	0	0	2	2	0	0	1	1	32
PHF	0.25	0.65	0.25	0.54	0.00	0.70	0.00	0.70	0.00	0.00	0.50	0.50	0.00	0.00	0.25	0.25	0.73

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

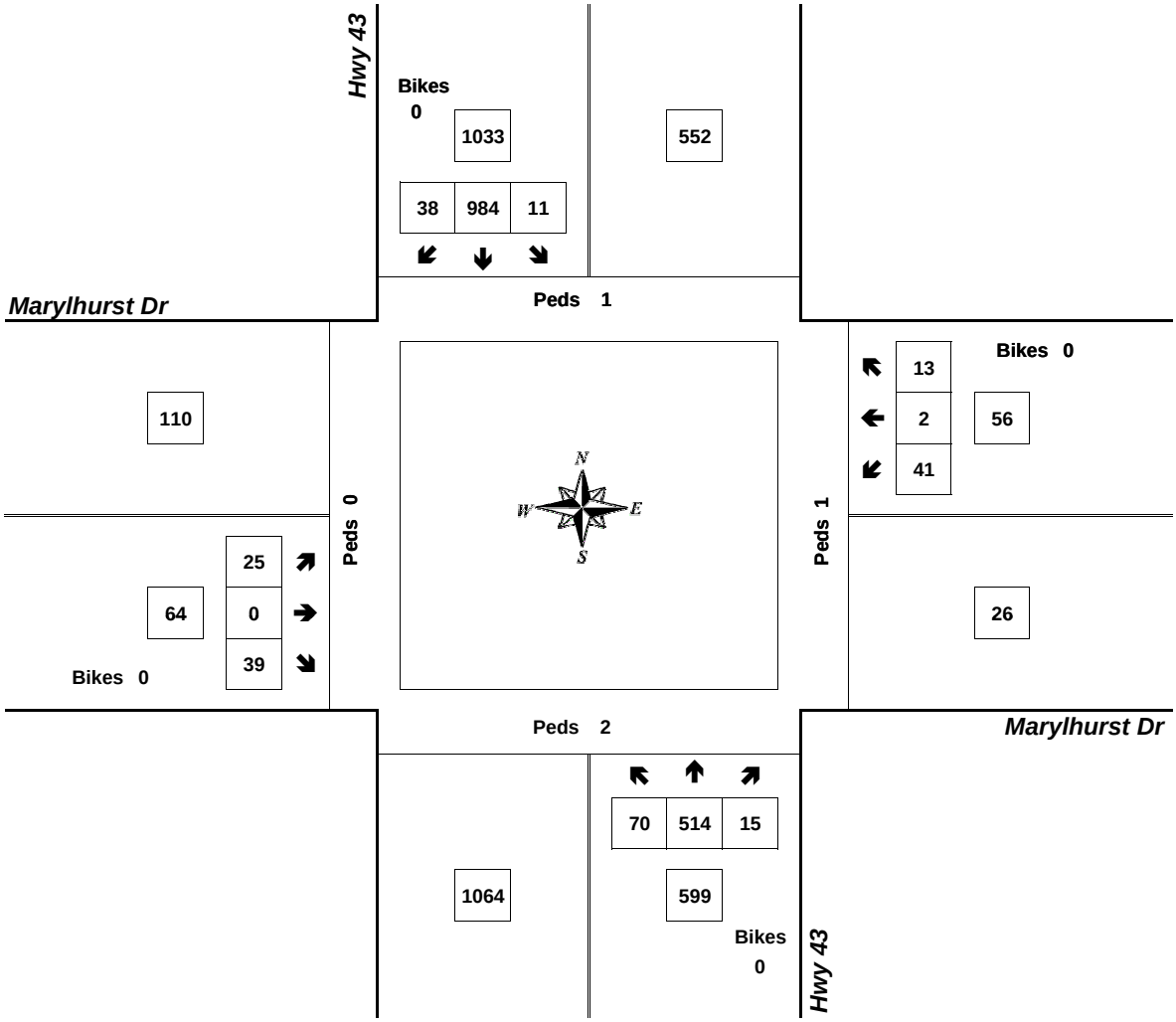
Interval Start Time	Northbound Hwy 43				Southbound Hwy 43				Eastbound Marylhurst Dr				Westbound Marylhurst Dr				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	3	8	0	11	0	17	0	17	0	0	0	0	1	0	0	1	29
4:15 PM	2	10	0	12	0	15	0	15	0	0	1	1	0	0	0	0	28
4:30 PM	1	14	1	16	0	13	0	13	0	0	1	1	0	0	0	0	30
4:45 PM	1	14	1	16	0	14	0	14	0	0	2	2	0	0	1	1	33
5:00 PM	1	13	1	15	0	10	0	10	0	0	2	2	0	0	1	1	28

Peak Hour Summary

Clay Carney
(503) 833-2740

Hwy 43 & Marylhurst Dr

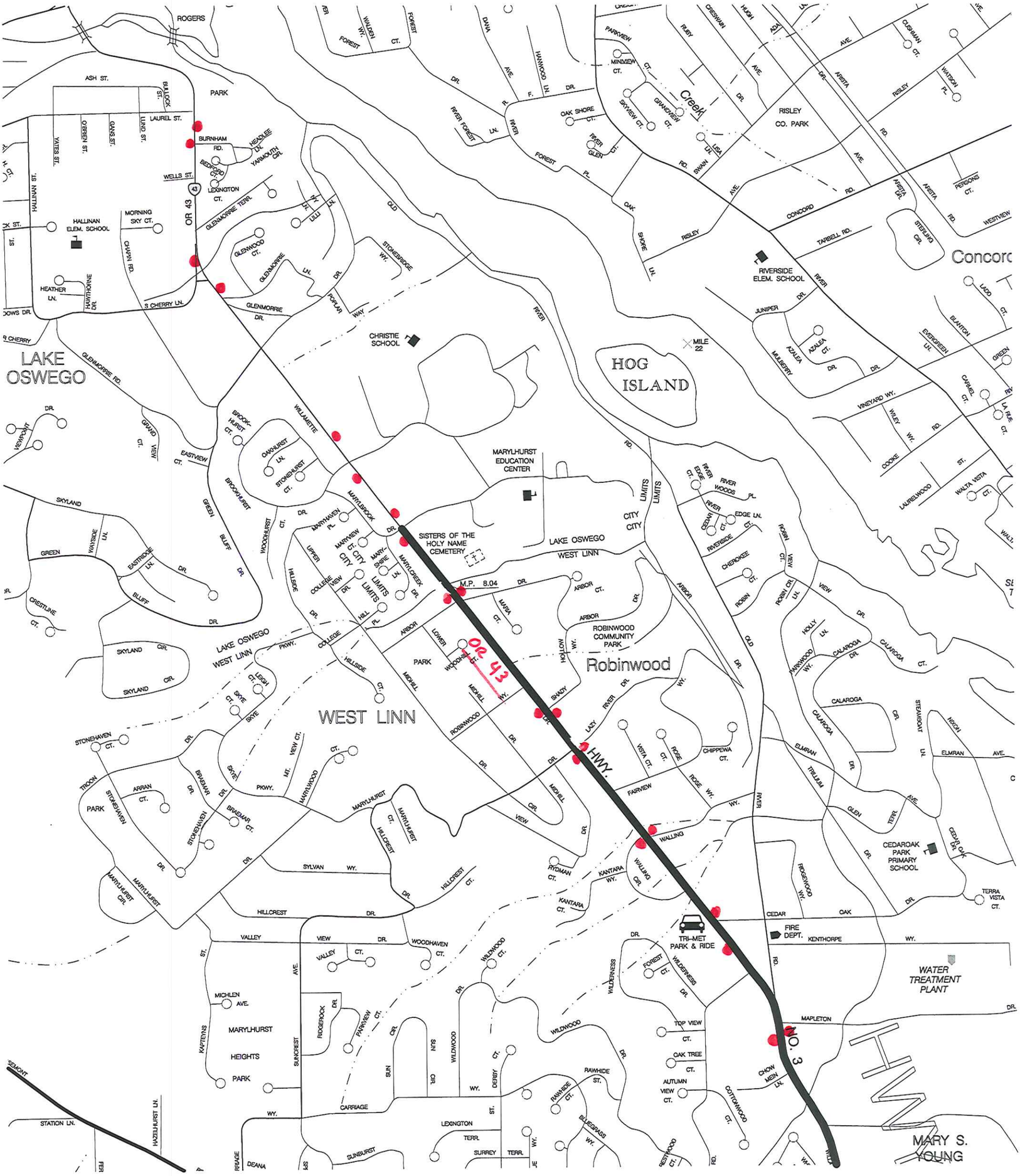
4:40 PM to 5:40 PM
Tuesday, November 08, 2011



Approach	PHF	HV%	Volume
EB	0.80	3.1%	64
WB	0.70	1.8%	56
NB	0.90	2.5%	599
SB	0.93	1.4%	1,033
Intersection	0.95	1.8%	1,752

Count Period: 4:00 PM to 6:00 PM

Appendix C – Existing TriMet Bus Stops and Shelters



OR 43

TRIMET

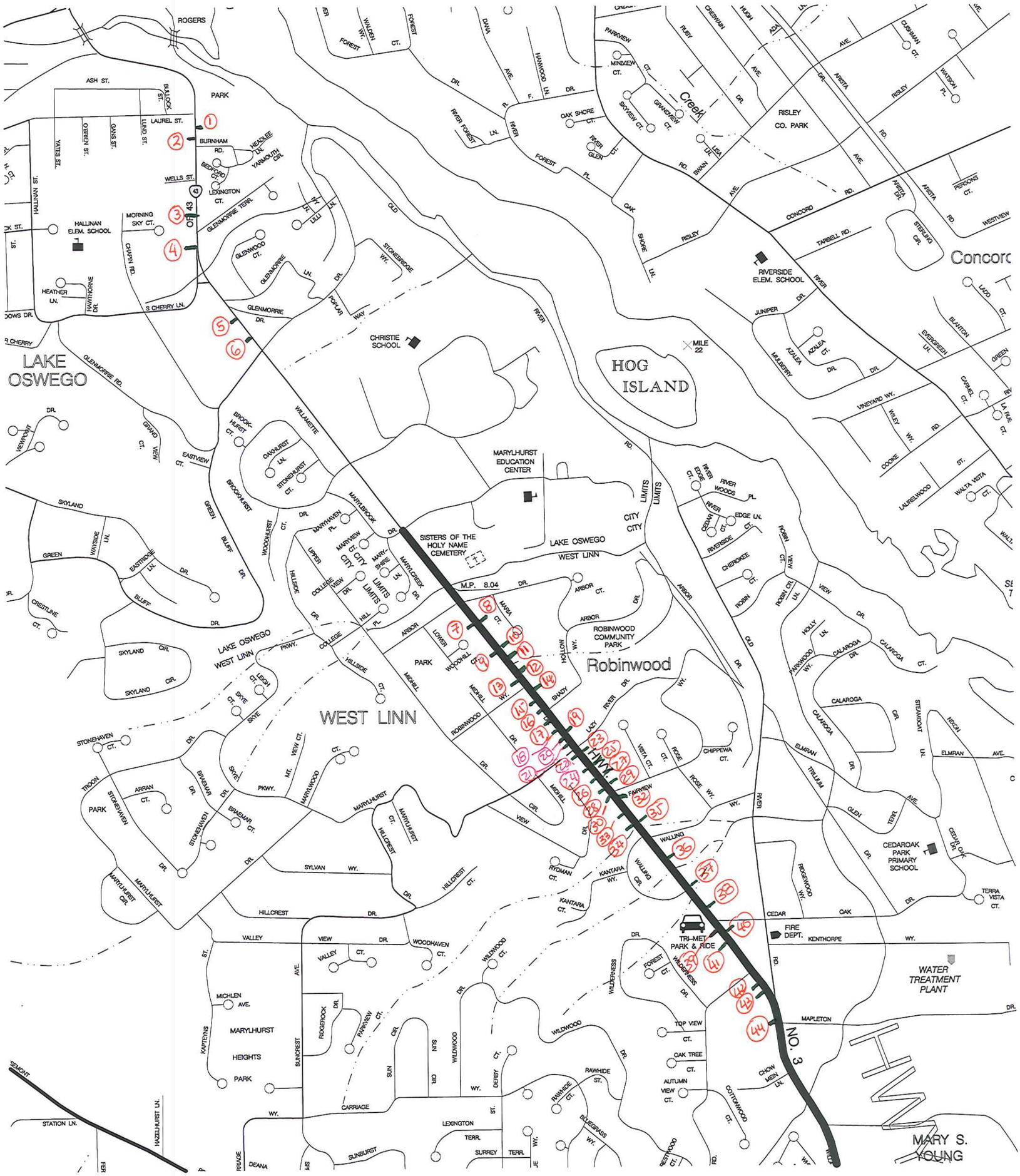
Bus Stop/shelter ●

↑ N

SCHEDULE 3

Appendix D – Existing Commercial and Residential Driveways along OR43

OR 43 - Commercial/Residential Driveways



Commercial/Residential Driveys Inventory - OR43					
Street or Access	**Land Use**	**Business Name**	**Hours of Operation**	**Access on 43**	**Access on Side Street**
1	Residential	N/A			
2	Residential	N/A			
3	Residential	N/A			
4	Residential	N/A			
5	Residential	N/A			
6	Residential	N/A			
7	Residential	N/A			
8	Residential	N/A			
9	Residential	N/A			
10	Residential	N/A			
11	Residential	N/A			
12	Residential	N/A			
13	Residential	N/A			
14	Residential	N/A			
15	Residential	N/A			
16	Residential	N/A			
17	Residential	N/A			
18	Residential	N/A			
19	Restaurant	Burgerville	6am to 11pm	1	None
20	Residential	N/A			
22	Medical	Family Dentistry	7am to 5pm	1	1 on Marylhurst Dr
	Business	Guitar Lessons	By Appointment	1	1 on Marylhurst Dr
23	Business	Big Brother Big Sister	Open until 7pm	2	None
	Business	Woodbury and Malone	Open until 5pm?	2	None
24	Restaurant	Philadelaphia's Steaks	10am to 9pm	1	None
	Business	American Family Insurance	8:30am to 5:30pm	1	None
	Business	Edward Jones	8am to 4:30 pm	1	None
25	Business	Big Brother Big Sister	Open until 7pm	2	None
26	Business	The Dog Club	6:30am to 6:30pm	2	None
27	Business	Kindercare	6am to 6:30pm	None	1 on Lazy River Drive
28	Business	The Dog Club	6:30am to 6:30pm	2	None
29	Medical	Cedar Oak Professional Building	Closed at time of visit (5:30)	1	1 on Fairview Way
30	Residential	N/A			
31	Restaurant	Sourdough Willy's	Closed (looks out of business)	2	None
32	Restaurant	Thai Orchard	Open until 9pm	1	1 on Fairview Way
	Restaurant	Bugatti	5pm to 9pm Mon-Thur, 5pm to 10pm Fri and Sat	1	1 on Fairview Way
33	Restaurant	Sourdough Willy's	Closed (looks out of business)	2	None
34	Medical	Marylhurst Plaza - Massage/Chiropractor	9am to 6pm	2	None
	Medical	Marylhurst Plaza - Accurate Hearing	9am to 5:30pm	2	None
	Medical	Marylhurst Plaza - Medical Supply and Tech writing	Closed at time of visit (5:00)	2	None
	Business	Marylhurst Plaza - 72 Degrees	9am to 6pm, but employees sometimes arrive as early as 6am and leave as late as 8pm	2	None
35	Restaurant	Cedar Oaks Shopping Center - McDonalds	6am to 11pm	1	1 on Walling Way
	Restaurant	Cedar Oaks Shopping Center - Starbucks	5am to 7pm	1	1 on Walling Way
	Business	Cedar Oaks Shopping Center - Nail Salon	10am and 7pm	1	1 on Walling Way
	Business	Cedar Oaks Shopping Center - State Farm	9am to 6pm	1	1 on Walling Way
	Business	Cedar Oaks Shopping Center - Modern Eyes	9am to 6pm	1	1 on Walling Way
	Restaurant	Cedar Oaks Shopping Center - Teriyaki	11am to 8pm	1	1 on Walling Way
36	Services	Bank of the West	9am to 6pm	1	1 on Walling Way
	Medical	Dialysis	6am to 3pm	1	1 on Walling Way
37	Business	Willamette Village Retail Plaza (for lease) - LaBell Nails	9:30am to 7pm	1	None
38	Restaurant	Senor Taco	10am to 9pm	1	1 on Cedaroak
	Retail	711	24 hours	1	1 on Cedaroak
	Business	Cleaners	7am to 6:30pm	1	1 on Cedaroak
	Restaurant	Chinese Restaurant	11am to 9:30pm	1	1 on Cedaroak
39, 41	Retail	Robinwood Retail Plaza (construction) - Walmart	Closed for remodel	1	2 on Hidden Springs Rd
	Retail	Robinwood Retail Plaza (construction) - Pet store	Closed for remodel	1	2 on Hidden Springs Rd
	Business	Robinwood Retail Plaza (construction) - H&R Block	10am to 6pm	1	2 on Hidden Springs Rd
	Restaurant	Robinwood Retail Plaza (construction) - Baskin Robins	Closed for remodel	1	2 on Hidden Springs Rd
	Business	Robinwood Retail Plaza (construction) - Hairport	8:30am to 7:30 pm	1	2 on Hidden Springs Rd
	Business	Robinwood Retail Plaza (construction) - Cleaners	7am to 7pm	1	2 on Hidden Springs Rd
	Retail	Robinwood Retail Plaza (construction) - Boutique	10am to 5pm	1	2 on Hidden Springs Rd
	Medical	Robinwood Retail Plaza (construction) - WC Dental	Closed at time of visit (5:30)	1	2 on Hidden Springs Rd
	Business	Robinwood Retail Plaza (construction) - Johnstone	Close at 4:30	1	2 on Hidden Springs Rd
	Business	Robinwood Retail Plaza (construction) - Wells Fargo	9am to 6pm	1	2 on Hidden Springs Rd
	Business	Robinwood Retail Plaza (construction) - Martial Arts	Classes and Events until 10pm	1	2 on Hidden Springs Rd
40	Gas Station	Chevron	5am to 10pm	1	1 on Cedaroak
42, 43, 44	Restaurant	West Linn Retail Center - Linn City Pub	10am to 11pm	2	1 on Hidden Springs Rd
	Business	West Linn Retail Center - Cleaners	7am to 6:30pm	2	1 on Hidden Springs Rd
	Business	West Linn Retail Center - Suns Up	9am to 9pm	2	1 on Hidden Springs Rd
	Business	West Linn Retail Center - UPS Store	6:30am to 6:30pm	2	1 on Hidden Springs Rd
	Business	West Linn Retail Center - J Meyer Salon	Closed at time of visit (5:30)	2	1 on Hidden Springs Rd
	Business	West Linn Retail Center - Dentist	Close at 4:30	2	1 on Hidden Springs Rd
	Business	West Linn Retail Center - Vet	8am to 6pm	2	1 on Hidden Springs Rd
	Restaurant	West Linn Retail Center - Subway	7am to 10pm	2	1 on Hidden Springs Rd
	Business	West Linn Retail Center - Liquer	10am to 8pm	2	1 on Hidden Springs Rd
	Business	West Linn Retail Center - Oil Can Henry's	8am to 7pm	2	1 on Hidden Springs Rd
	Business	West Linn Retail Center - Kaady Car Wash	7am to 8:30pm	2	1 on Hidden Springs Rd

Appendix E – Letter from ODOT (April 3, 2012)

Oregon
John A. Kitzhaber, M.D., Governor

Department of Transportation
District 2B Sylvan
6000 SW Rabb Road
Portland, Oregon, 97221-1302
Phone: (503) 229-5002
Fax: (503) 297-6058

April 3, 2012

FILE CODE:

RECEIVED
APR 05 2012
By

Joel Komarek
City Engineering Manager
City of Lake Oswego
PO Box 369
Lake Oswego, OR 97034

Joel,

In response to your question on the time of day for constructing the water pipe down Route 43, it has been our permitting practice on heavily traveled two lane highways to limit the work in the lane to periods of lower flow. To minimize the disruption to the traveling motorists and business along Route 43 we are limiting the work in the lane to start work at 8pm and be off the road open to traffic at 5am in the morning. We also expect the contractor to follow all local agency rules for work at night.

In response to your second question on the added supply trucks on Route 43, I asked Jess Brown from our Motor Carrier Unit his opinion. The email content is below underlined.

Hi Jess,

I have a permit coming up that involves construction of a 4 foot water pipe down Hwy 43 from West Linn to Tigard. A question came up on the increased supply truck traffic to and from the water treatment plant located at 4260 Kenthorpe Way in West Linn. The WTP is located approximately one half mile from Oregon Route 43. The expanded WTP will generate fewer than 20 new vehicle trips per week and will require approximately 1-2 chemical truck deliveries per week, roughly the same number as present. The quantity and type of chemicals are not substantially different from what has been coming to the site for the past 15 years. What is the highway rule on these trips?

Good Morning Bob,

The Oregon Department of Transportation adopts the Federal rules governing the transportation of Hazardous Materials. These rules have no restrictions from carrying hazardous materials in the area that is being discussed. All transporters of hazardous material must follow the rules in part 397 of the Federal Motor Carrier Safety Administration. The only restriction that I am aware of in the Portland area is on HWY 26 between I-405 and HWY 217. I have not heard anything from Clackamas County or the cities of West Linn or Lake Oswego.

Please let me know if you any other questions.
Jess

ODOT is not restricting supply trucks according to Federal, State and local rules.

Bob Ebeling
Assistant District Manager
District 2B Sylvan
503-229-5002