

**APPENDIX A-2012 Master Plan
Transportation Impact Analysis**

Transportation Impact Analysis

Providence Willamette Falls Medical Center

Oregon City, Oregon

August 2011



KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Transportation Impact Analysis

Providence Willamette Falls Medical Center

Oregon City, Oregon

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Section 1 Executive Summary

EXECUTIVE SUMMARY

Providence Health & Services is preparing a Master Plan and Detailed Development Plan (DDP) for its Providence Willamette Falls Medical Center (PWFMC) campus. The Master Plan will include development of the property between Division Street, Davis Road, Trillium Park Drive, and Gilman Drive, in addition to the property immediately west of Division Street between 14th Street and 16th Street and the property immediately east of Division Street between Penn Lane and Davis Road.

As part of the Master Plan, the existing campus buildings will remain intact and operational. PWFMC is seeking approval to increase the amount of development on-campus by a net addition of 104,000 square feet, which accounts for two additional medical office buildings (MOBs), expansions to the existing hospital building, and a central utility plant (CUP). The DDP includes the upgrading of the existing gravel parking lot adjacent to Penn Lane. As part of the upgrading, the parking lot will be paved and stormwater, landscaping and curbs will be added. No traffic impacts are anticipated by the paving of the parking lot. All other planned additions to the campus will require separate DDP submissions and subsequent traffic analyses.

This report summarizes the transportation and parking analyses needed to support the Master Plan. The pertinent findings and recommendations are summarized below.

Findings

EXISTING TRANSPORTATION SYSTEM OPERATIONS AND SAFETY

- Under existing conditions, all study intersections meet operating standards during both the a.m. and p.m. peak hours.
- Only five of the study intersections have any reported crashes over the past five years. No safety mitigation needs have been identified based on the crash data alone.
- Several mitigations have been identified that would improve sight distance at the PWFMC accesses and the roadways that intersect Division Street across from the PWFMC campus. In order to provide adequate sight distance, PWFMC should move the hospital sign at the intersection of Division Street/Davis Road and restrict on-street parking and consider bulb-outs for the accesses and intersections along Division Street, particularly at the intersections of Division Street/Davis Road, Division Street/15th Street, and the Division Street/PWFMC Access Road (between 13th Street and 14th Street). The City and property owners should consider trimming and maintaining the shrubs near the roadway.

YEAR 2021 TRANSPORTATION SYSTEM OPERATIONS

- The 104,000 square feet of net building space proposed as part of the Master Plan is estimated to generate 87 weekday a.m. and 91 weekday p.m. peak hour trips, assuming no additional reduction in campus-related drive-alone travel is realized during the next ten years.

- Assuming year 2021 background conditions without an increase in campus-related uses, the Redland Road/Anchor Way and Molalla Avenue/7th Street intersections do not meet City of Oregon City operating standards. The Molalla Avenue/7th Street intersection is anticipated to operate acceptably for the next five years (through the year 2016) whereas the Redland Road/Anchor Way intersection is anticipated to operate acceptably for the next six years (through the year 2017) with increases in background growth.
- Assuming year 2021 total build-out conditions, the Master Plan does not cause any intersections to not meet City of Oregon City operating standards.
 - The City has been evaluating the potential for a roundabout at the Molalla Avenue/7th Street intersection. With a roundabout in-place, this intersection would meet City standards at full build-out of the Master Plan.
 - The Redland Road/Anchor Way intersection is anticipated to warrant a traffic signal within the next six years. This improvement has been identified in the Oregon City TSP. With a signal in-place, this intersection would meet standards.

MODE SPLIT AND PARKING

- The 2011 Employee Commute Options (ECO) survey results represent a slight decrease in the drive-alone mode split from the July 2010 survey (a decrease from 89 to 88 percent). PWFMC's efforts to reduce the drive-alone rate will continue to lessen both parking and traffic impacts associated with the campus over time.
- There is sufficient on-campus parking today to accommodate the existing peak daily demand. During the highest hour of parking utilization, approximately 78 percent of the spaces are full within the existing Master Plan boundaries. This level of utilization still provides sufficient opportunities for patients and visitors to easily and efficiently find a parking space without unnecessary circulating through the garages or parking lots.
- Based on the existing parking demand, a campus-wide rate of 1.95 spaces per 1,000 square feet of building space should be supplied on-campus throughout the next ten years. Accounting for an excess of parking today, 138 new spaces would be needed campus-wide upon build-out of the Master Plan uses.
- PWFMC should monitor the need for supplying a campus-wide rate of 1.95 spaces per 1,000 square feet of buildings space to ensure that this ratio remains applicable as the drive-alone rate to campus continues to decrease over time.
- There is limited use of the first block of 15th Street (west of Division Street) by hospital staff and visitors. Neighborhood feedback indicated that hospital staff and visitors also frequently park on the first blocks of 14th Street and 16th Street (west of Division Street). PWFMC should continue to monitor this situation and work with the neighborhood to ensure any impacts are mitigated.

Recommendations

- In order to achieve adequate sight distance at the PWFMC accesses and roadways intersecting Division Street, the hospital sign at the intersection of Division Street/Davis Road should be moved east. Parking restrictions and bulb-outs should also be considered in order to acquire additional sight distance, specifically at the intersections of Division Street/Davis Road, Division Street/15th Street, and the Division Street/PWFMC Access Road (between 13th Street and 14th Street). The City and property owners should consider trimming and maintaining the shrubs near the roadway.
- Based on existing parking demand, 1.95 parking spaces should be provided per 1,000 square feet of total building space on-campus. This ratio should be monitored over time to ensure its application remains appropriate as the campus experiences further reductions in the drive-alone rate. This ratio results in a total campus need of 138 new parking spaces.
- PWFMC should work with the City of Oregon City to contribute a pro rata share of improvements at the Redland Road/Anchor Way and Molalla Avenue/7th Street intersections. The timing of and need for these pro rata share improvements should be determined as part of subsequent DDP submittals. Improvements at these locations are not anticipated to be needed for five to six years, and the timing of expansions to the hospital that are included in the Master Plan have not yet been defined.
 - Based on current estimates, build-out of the Master Plan uses would contribute approximately 1.1 percent of the p.m. peak hour traffic volumes in the year 2021 at the Molalla Avenue/7th Street intersection.
 - At the Redland Road/Anchor Way intersection, build-out of the Master Plan uses would contribute approximately 2.3 percent of the p.m. peak hour traffic volumes in the year 2021.

Section 2 Introduction

INTRODUCTION

Project Description

As part of the Master Plan, Providence Willamette Falls Medical Center (PWFMC) is proposing a net increase of 104,000 square feet of new space on campus. The new Master Plan will include development of the property between Division Street, Davis Road, Trillium Park Drive, and Gilman Drive, in addition to the property immediately west of Division Street between 14th Street and 16th Street and the property immediately east of Division Street between Penn Lane and Davis Road. Figure 1 illustrates the site vicinity and updated campus boundary. Figure 2 shows the Master Plan conceptual uses.

There are a number of public roadways and private accesses that serve the campus today. The majority of these will be maintained as part of future development. One additional access point along Penn Lane is proposed as part of future campus development and will serve a parking lot that has an existing access to Division Street that will be closed.

Construction activities are expected to occur over the course of several years, depending on fiscal resources and operational needs. For the purposes of this report, a ten-year planning horizon was used to understand transportation impacts associated with build-out of the Master Plan uses.

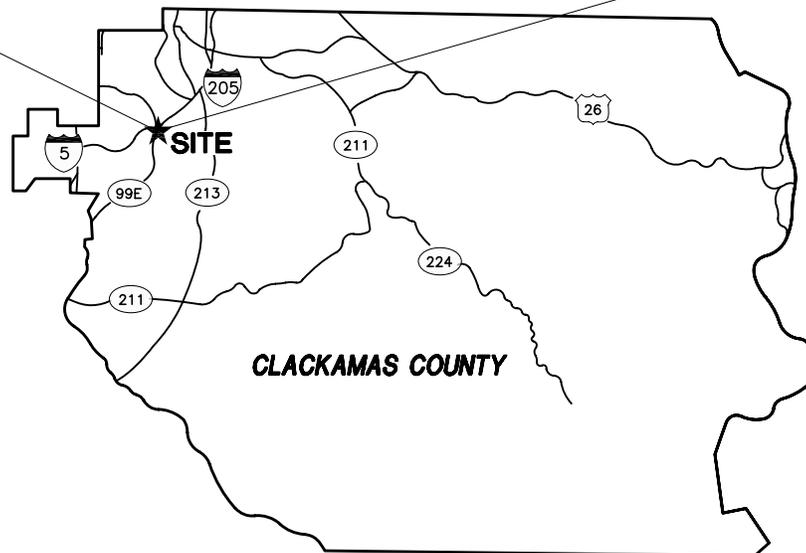
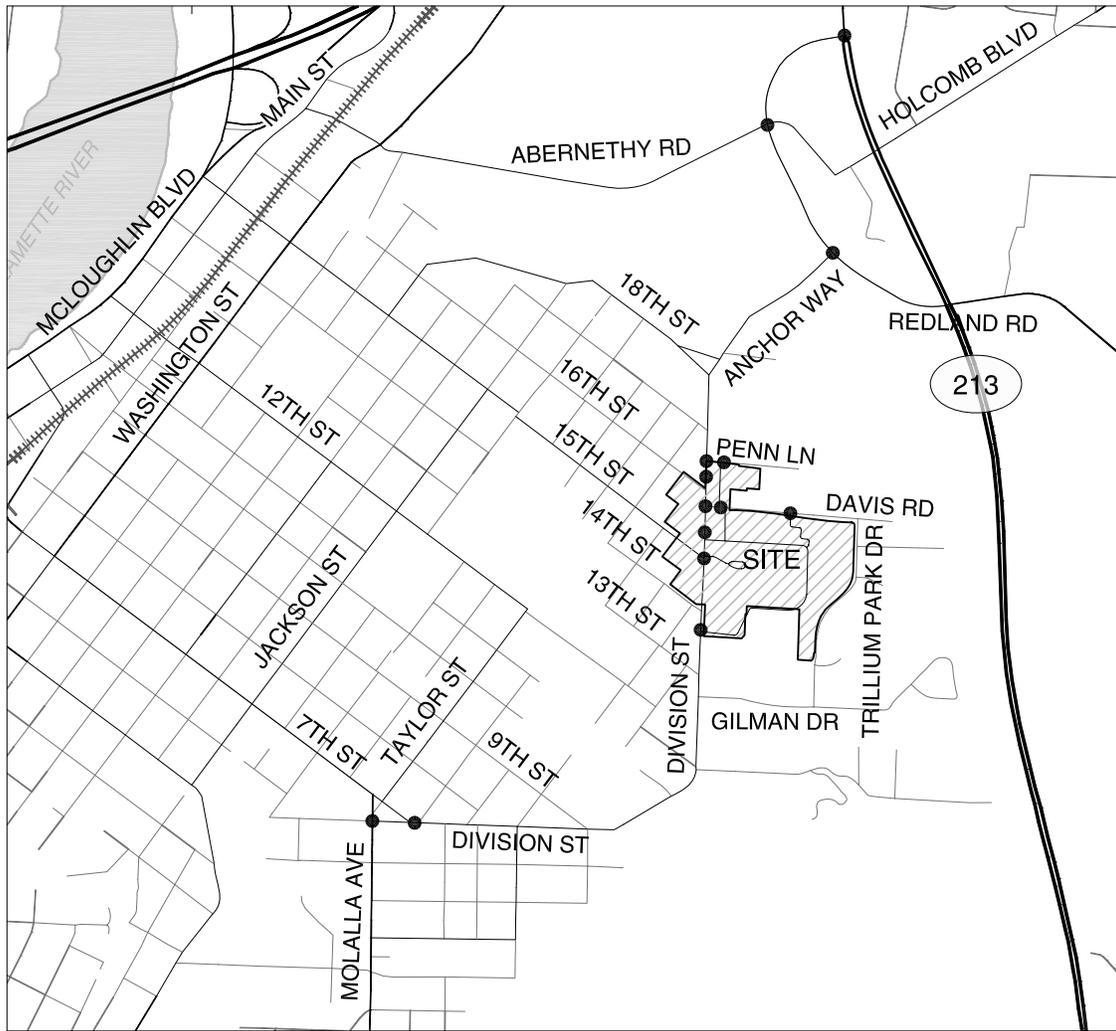
A Detailed Development Plan (DDP) is being submitted concurrently with the Master Plan. As part of this DDP, PWFMC proposes to upgrade the parking lot adjacent to Penn Lane. No traffic impacts are anticipated with the paving of this parking lot.

Scope of the Report

This report identifies the transportation-related impacts associated with development of an additional 104,000 square feet of net new campus space proposed as part of the Master Plan update and was prepared in accordance with the City of Oregon City standards. The study intersections and scope of this project were selected based on a review of the local transportation system and direction provided by City staff. Operational analyses were performed for the weekday a.m. and p.m. peak hours at the following locations:

Off-Site Locations

1. Cascade Highway (OR 213)/Redland Road
2. Redland Road/Holcomb Boulevard-Abernethy Road
3. Redland Road/Anchor Way
4. Molalla Avenue/7th Street
5. Molalla Avenue/Division Street
6. 7th Street/Division Street



LEGEND

- - STUDY INTERSECTIONS

**SITE VICINITY MAP
OREGON CITY, OREGON**

**FIGURE
1**

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CONCEPTUAL SITE PLAN OREGON CITY, OREGON

FIGURE 2

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Campus Adjacent Locations

7. Division Street/Davis Road
8. Division Street/Penn Lane (Total Traffic Conditions Only)

Campus Accesses

- A1E. Access #1 (Existing Location): Division Street/Between 16th Street and Penn Lane (Existing Traffic Conditions Only)
- A1F. Access #1 (Future Location): Penn Lane/East of Division Street (Total Traffic Conditions Only)
- A2. Access #2: Davis Road/West Access between Division Street and Trillium Park Drive (This access point contains two driveways with (A) access to the parking lot between Penn Lane and Davis Road and (B) access to the parking lot south of Davis Road.)
- A3. Access #3: Davis Road/East Access between Division Street and Trillium Park Drive
- A4. Access #4: Division Street/Between Davis Road and 15th Street
- A5. Access #5: Division Street/15th Street
- A6. Access #6: Division Street/Between 13th Street and 14th Street

This report summarizes these transportation areas:

- Existing land-use and transportation-system conditions within the site vicinity during the weekday a.m. and p.m. peak periods;
- Year 2021 traffic conditions during both peak periods;
- Trip generation and distribution estimates for the proposed Master Plan uses;
- Campus parking demand and supply analyses;
- On-street parking analyses; and
- Conclusions and recommendations.

Section 3 Existing Conditions

EXISTING CONDITIONS

The existing conditions analysis identifies the site conditions and current multimodal, operational, functional, and safety characteristics of the transportation system within the vicinity of the campus. These conditions are compared with future conditions later in this report.

Kittelson & Associates, Inc. (KAI) staff collected information regarding site conditions, adjacent land uses, existing traffic operations, and transportation facilities in the study area during the spring and summer of 2011.

Campus Conditions and Adjacent Land Uses

The main Providence Willamette Falls Medical Center (PWFMC) campus encompasses the area between Division Street, Davis Road, Trillium Park Drive, and Gilman Drive. The main campus includes 335,076 square feet of medical and administrative/support uses today. In addition, 16,105 square feet of shelled space has been constructed within the hospital but is not yet in use.

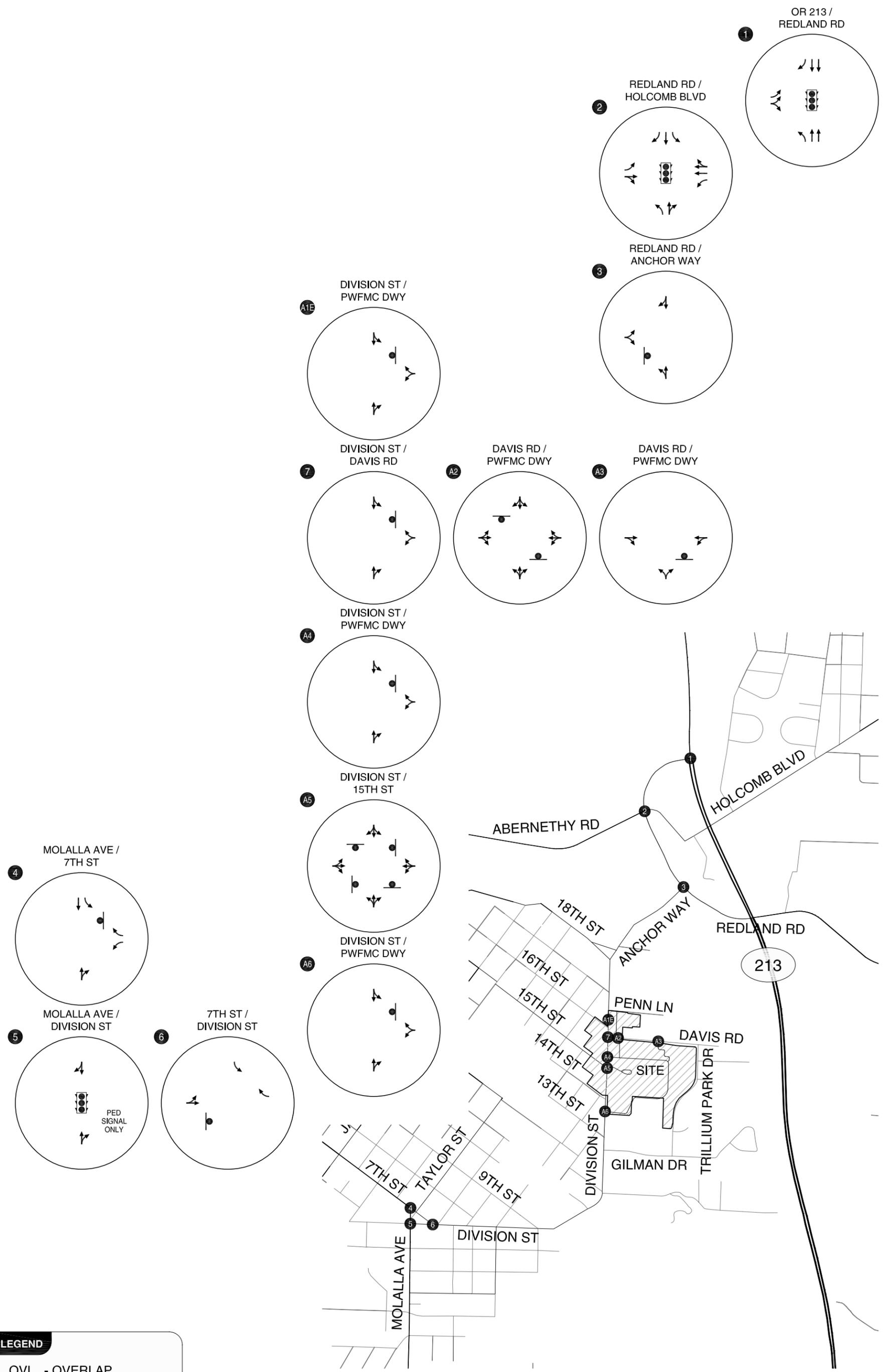
Structured parking and surface parking are available on the campus today. The parking structure is located on the northeast corner of the campus near the intersection of Davis Road and Trillium Park Drive. The parking structure has two accesses that are located off of Davis Road (to the north) and through the surface parking lot (to the south). There are surface parking lots currently surrounding the campus. Two of the parking lots are located on the northeast and southeast corners of the Division Street/Davis Road intersection. Another surface parking lot is located on the west side of the campus, near the Division Street/15th Street intersection, and wraps around the east side of the Hospital, extending to Trillium Park Drive. A gated driveway is located on the southeast corner of the campus connecting to Trillium Park Drive and is for emergency use only.

The PWFMC campus is zoned Mixed Use Employment (MUE). The MUE zoning extends beyond the PWFMC campus to the north, south, and west. There is a Children's Center on Penn Lane outside of the Master Plan boundary to the north. Other medical providers are located to the south of the Master Plan boundary, including the Mountain View Nursing Home, Eye Health Northwest, and Gilman Park Assisted Living. While Eye Health Northwest and Gilman Park Assisted Living have their own surface parking lots and accesses, Mountain View Nursing Home shares the PWFMC Division Street access between 13th Street and 14th Street. The surrounding properties beyond the MUE zoned area are generally residentially zoned as single family (R-6 and R-10) to the west and east and multi-family (R-2) to the south.

Transportation Facilities

Table 1 provides a summary of the transportation facilities included in the analyses. This table outlines the operational characteristics of the streets, as well as the modal functional classifications identified in the City of Oregon City *Transportation System Plan* (TSP, Reference 1). Figure 3 identifies the lane configurations and traffic control devices at the study intersections.

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YEAR 2011 EXISTING LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES OREGON CITY, OREGON

LEGEND

- OVL - OVERLAP
- - STOP SIGN
- ⚡ - TRAFFIC SIGNAL
- ⚡ - PED SIGNAL ONLY

Table 1 Existing Transportation Facilities

Roadway	Classification	Number of Lanes	Posted Speed (MPH)	Sidewalks	Bicycle Lanes	On-Street Parking	Transit Route
Cascade Highway (OR 213)	Expressway	4 - 5	45	No	Yes	No	No
Redland Road	Minor Arterial	2 - 5	45	Partial ¹	Yes	No	No
Holcomb Boulevard	Minor Arterial	2 - 4	40	Yes	Yes	No	Yes
Anchor Way	Minor Arterial	2	25	Partial ²	Partial ²	No	No
Division Street	Minor Arterial	2	25	Partial ³	Partial ⁴	Partial ⁵	Yes
Penn Lane	Local Street	2	NP ⁶	Yes	No	Yes	No
Davis Road	Local Street	2	NP ⁶	Yes	No	Yes	No
15 th Street	Collector	2	25	Yes	No	Yes	No
7 th Street	Minor Arterial	2	25	Yes	No	Yes	Yes
Molalla Avenue	Major Arterial	2 - 3	25	Yes	Yes	No	Yes

¹ Sidewalks are provided along Redland Road to the south of Holcomb Boulevard-Abernethy Road.

² Sidewalks and bicycle lanes are provided along Anchor Way west of Redland Road (for approximately 250 feet only).

³ Sidewalks are provided along Division Street to the south of 16th Street.

⁴ Bicycle lanes are provided along Division Street between 13th Street and 15th Street.

⁵ On-street parking is available along Division Street to the west of 9th Street and between 16th Street and Gilman Drive.

⁶ Not posted; assumed to be 25 miles per hour.

PEDESTRIAN AND BICYCLE FACILITIES

The PWFMC campus and surrounding neighborhood are generally well served by a grid network of streets and sidewalks today. Sidewalks are available adjacent to the campus on both Division Street and Davis Road, as well as along the major connecting roadways near the campus, including Molalla Avenue, 7th Street, and 15th Street. Additional sidewalk connectivity is planned in the vicinity of the PWFMC campus, as identified in the City of Oregon City TSP. The need for new sidewalks has been identified for Division Street, Anchor Way, Redland Road, Holcomb Boulevard-Abernethy Road, 15th Street, and Molalla Avenue.

Bicycle lanes are currently provided on Division Street between 13th Street and 15th Street and along some of the major surrounding roadways, including Redland Road and Molalla Avenue. According to the TSP, bicycle lane improvements are needed on Division Street, 15th Street, Cascade Highway (OR 213), Anchor Way, Holcomb Boulevard- Abernethy Road, 7th Street, and Molalla Avenue.

Bicycle parking counts were conducted once per day on the PWFMC campus around 11:00 a.m. from Monday, July 18, 2011, through Thursday, July 21, 2011. The results are summarized in Table 2. The bicycle counts revealed that, on average, there are two bicycles parked in the designated bicycle racks per day. There may be additional bicycles parked elsewhere on campus, as PWFMC staff could take their bicycles in to their offices.

Table 2 PWFMC Campus Bicycle Count

Day	Number of Bicycles Parked in Designated Bicycle Racks
Monday, July 18, 2011	0
Tuesday, July 19, 2011	2
Wednesday, July 20, 2011	2
Thursday, July 21, 2011	3

TRANSIT FACILITIES

Two fixed-route bus stops are located within one block of the main entrance of the PWFMC campus on Division Street; a total of four stops are located within one block of the overall PWFMC campus. Service to these stops is provided by TriMet Bus Route 32. Route 32 provides service between Clackamas Community College, Oregon City, Gladstone, and Milwaukie. As of August 2011, the bus operates Monday through Friday between 5:30 a.m. and 7:30 p.m. on 30-minute headways, Saturdays between 9:30 a.m. and 5:30 p.m. on 60-minute headways, and does not offer service on Sundays. The Oregon City Transit Center provides connections to several additional bus routes and services. Other bus service in the area of the PWFMC campus is provided by TriMet Bus Routes 33, 34, and 99 (Reference 2).

Existing Campus Mode Split

The Employee Commute Options (ECO) Program is mandated by the Department of Environmental Quality (DEQ). The program requires employers with more than 100 employees to provide commute options that will reduce the number of work-commute trips made by car in Portland and the surrounding area. The ECO Program is part of the Portland-Vancouver Air Plan to meet federal health-based ozone standards (Reference 3).

Per the 2011 Employee Commute Options (ECO) survey, the existing employee mode split for the PWFMC campus is as follows:

- 88 percent single-occupancy-vehicle travel (drive-alone)
- 4 percent carpool
- 3 percent bus
- 1 percent bike
- 1 percent walk
- 0 percent telecommute
- 3 percent compressed work week

The 2011 results show a decrease in the drive-alone mode split from the July 2010 survey, which showed a rate of 89 percent. Since the baseline ECO survey was conducted in August 1997, there

has been a seven-percent reduction in drive-alone trips. PWFMC’s efforts to reduce the drive-alone rate will continue to lessen both parking and traffic impacts associated with the campus over time.

Traffic Volumes and Peak Hour Operations

Peak period vehicular, pedestrian, and bicycle counts were collected on June 2, 2011, at the study intersections and PWFMC accesses.

ODOT requires that a seasonal factor be applied to traffic volumes on ODOT facilities. Seasonal factors adjust traffic counts based on trends seen during the peak month of the year. Because the traffic counts for this study were taken in June, a seasonal factor of 1.01 was applied to the volumes on OR 213 at the OR 213/Redland Road intersection.

Figure 4 and Figure 5 provide a summary of the existing turning-movement counts during the weekday a.m. and p.m. peak hours, respectively. *Appendix “A” contains the traffic counts used in this study.*

The PWFMC campus currently generates 339 trips during the a.m. peak hour and 356 trips during the p.m. peak hour, as shown in Table 3.

Table 3 Measured Trip Generation for PWFMC Based on Traffic Counts

Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
In	Out	Total	In	Out	Total
257 (76%)	82 (24%)	339	89 (25%)	267 (75%)	356

CURRENT LEVELS OF SERVICE

Level-of-service (LOS) analyses described in this report were performed in accordance with the procedures stated in the *2000 Highway Capacity Manual* (Reference 4). All intersection level-of-service evaluations used the peak 15-minute flow rate during the peak hour. Using the peak 15-minute flow rate ensures that this analysis is based on a reasonable worst-case scenario. *A description of level of service and the criteria by which it is determined is presented in Appendix “B.”*

Per the City of Oregon City *Guidelines for Transportation Impact Analyses* (Reference 5):

- The minimum acceptable LOS is defined as follows for signalized intersections located outside the Regional Center boundaries:
 - LOS “D” or better for the intersection as a whole *and* no approach operating at worse than LOS “E” *and* a volume-to-capacity (v/c) ratio not higher than 1.0 for the sum of the critical movements.
- For signalized intersections within the Regional Center boundaries, the following minimum LOS standards will be allowed:
 - LOS “D” can be exceeded during the a.m. and p.m. peak hour; however, during the second hour of each two-hour peak period, LOS “D” or better will be required for

the intersection as a whole *and* no approach operating at worse than LOS “E” *and* a v/c ratio not higher than 1.0 for the sum of the critical movements.

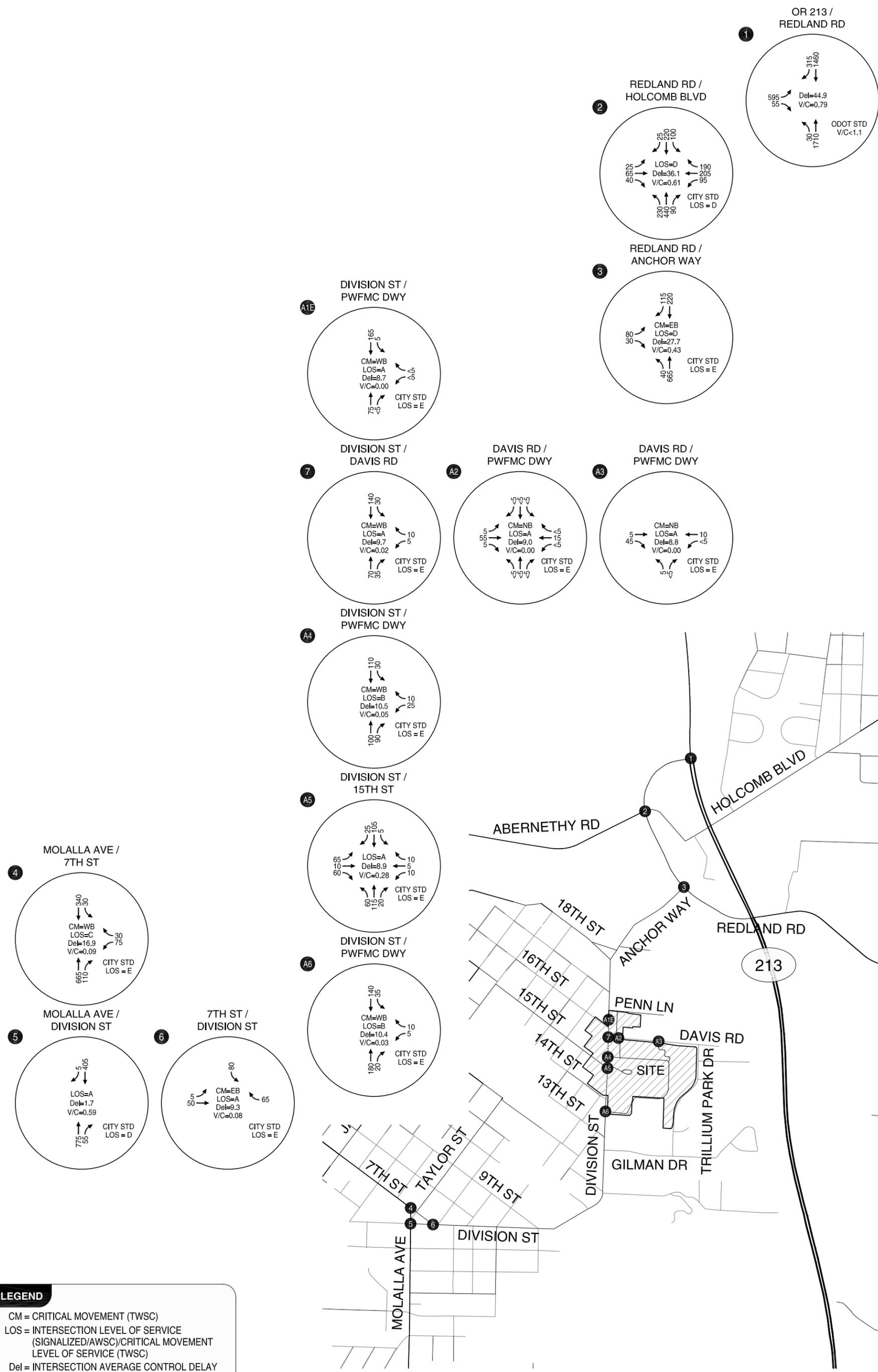
- Oregon City’s minimum acceptable LOS is defined as follows for unsignalized intersections throughout the City:
 - LOS “E” or better for the poorest operating approach *and* with no movement serving more than 20 peak hour vehicles operating at worse than LOS “E.” In other words, LOS “F” will be tolerated for minor movements during a peak hour.

Operations at the OR 213/Redland Road intersection are governed by ODOT, which operates and maintains the intersection. The v/c mobility standard from the Oregon Highway Plan (OHP, Reference 6) is 1.10 for the first peak hour and 0.99 for the second peak hour.

Figures 4 and 5 summarize the level-of-service analyses for the study intersections. The OR 213/Redland Road intersection currently operates acceptably during the a.m. and p.m. peak periods using ODOT standards. The Redland Road/Holcomb Boulevard-Abernethy Road intersection is located within the Regional Center boundaries, and it currently operates acceptably during the a.m. and p.m. peak periods using City standards.

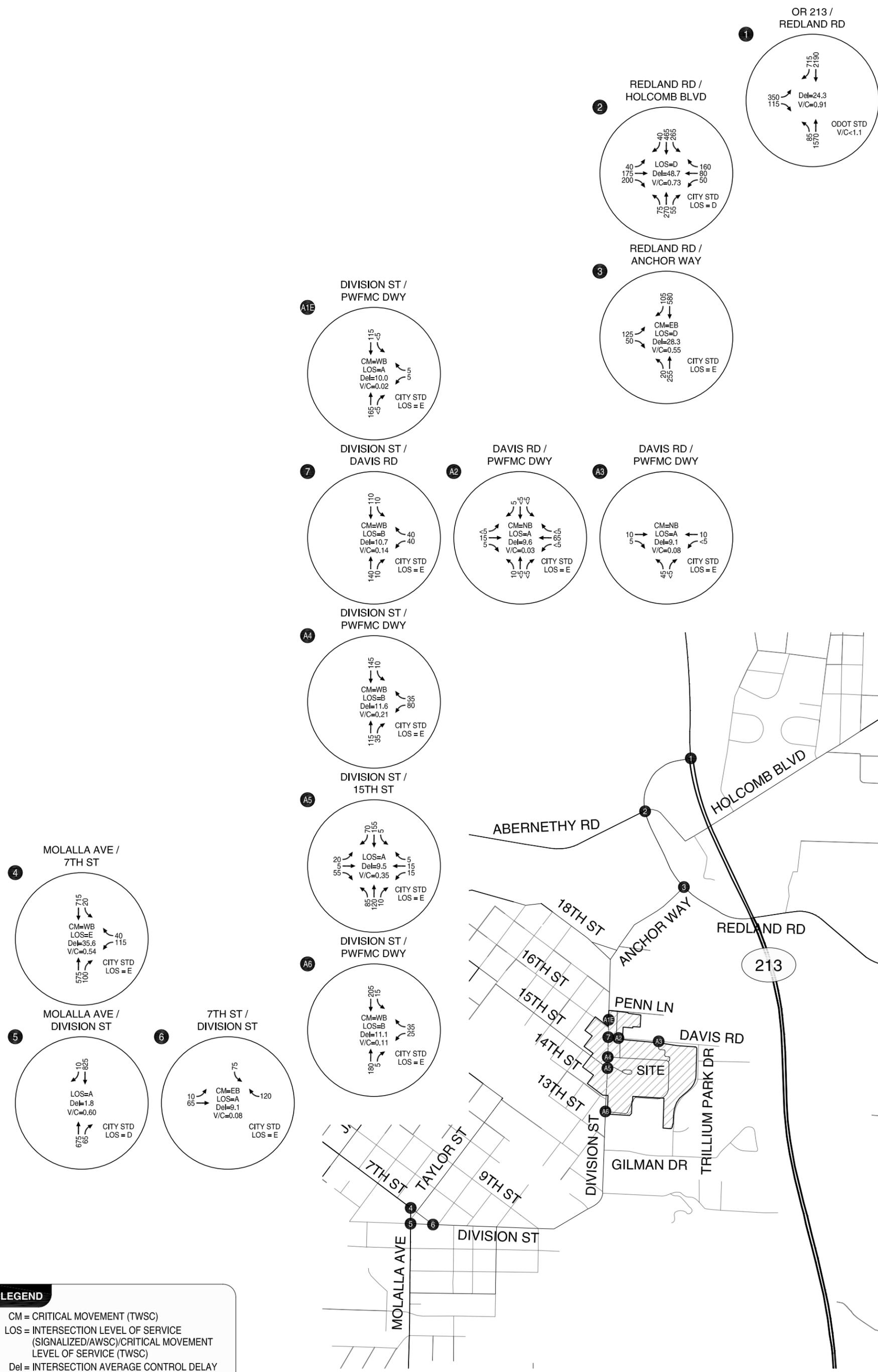
The signalized study intersections located outside of the Regional Center boundaries and the unsignalized study intersections also operate acceptably during both peak periods. *Appendix “C” includes the level-of-service worksheets for the existing traffic conditions.*

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YEAR 2011 EXISTING TRAFFIC CONDITIONS
WEEKDAY AM PEAK HOUR
OREGON CITY, OREGON

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LEGEND

- CM = CRITICAL MOVEMENT (TWSC)
- LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED/AWSC)/CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
- Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED/AWSC) / CRITICAL MOVEMENT CONTROL DELAY (TWSC)
- V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
- TWSC = TWO-WAY STOP CONTROL
- AWSC = ALL-WAY STOP CONTROL

YEAR 2011 EXISTING TRAFFIC CONDITIONS
 WEEKDAY PM PEAK HOUR
 OREGON CITY, OREGON **FIGURE 5**

Safety Analyses

CRASH RECORDS

The crash history of each study intersection was reviewed in an effort to identify potential safety issues. Crash records were obtained from ODOT for the five-year period from January 1, 2005, through December 31, 2009. Table 4 displays the crashes reported at the study intersections and access points during the five-year period. *Appendix "D" contains the crash records obtained from ODOT.*

Table 4 Intersection Crash History (January 1, 2005 – December 31, 2009)

Intersection	Collision Type				Severity			Total	Crash Rate ²
	Rear-End	Turning	Angle	Other	PDO ¹	Injury	Fatal		
Cascade Hwy (OR 213)/Redland Road	2	6	-	-	4	4	-	8	0.09
Redland Road/Holcomb Boulevard-Abernethy Road	3	-	-	-	2	1	-	3	0.09
Redland Road/Anchor Way	1	4	1	-	4	2	-	6	0.29
Division Street/7 th Street	-	-	-	-	-	-	-	0	0.00
Molalla Avenue/Division Street	-	-	1	1	1	1	-	2	0.07
Molalla Avenue/7 th Street	-	2	2	-	2	2	-	4	0.14
Division Street/Davis Road	-	-	-	-	-	-	-	0	0.00
Access A1E: Division Street/South of Penn Lane	-	-	-	-	-	-	-	0	0.00
Access A2: Davis Road/West Access between Division Street and Trillium Park Drive	-	-	-	-	-	-	-	0	0.00
Access A3: Davis Road/East Access between Division Street and Trillium Park Drive	-	-	-	-	-	-	-	0	0.00
Access A4: Division Street/Between Davis Road and 15 th Street	-	-	-	-	-	-	-	0	0.00
Access A5: Division Street/15 th Street	-	-	-	-	-	-	-	0	0.00
Access A6: Division Street/Between 13 th Street and 14 th Street	-	-	-	-	-	-	-	0	0.00

¹ PDO – Property Damage Only.

² Crash Rate = Crashes per million entering vehicles.

As shown in Table 4, the study intersections and campus access points have experienced relatively low crash rates.

Based on a review of the crash records, six of the eight crashes that occurred at the signalized OR 213/Redland Road intersection were turning crashes. Four of the six turning crashes at that location involved eastbound vehicles turning left, and four of the six crashes occurred during dark conditions. One of the turning crashes involved a bicyclist. ODOT is currently rebuilding this intersection, as will be discussed later in this report.

The majority of crashes reported at the unsignalized Redland Road/Anchor Way intersection involved turning and angle crashes. Three of those turning and angle crashes involved eastbound vehicles turning left from Anchor Way on to Redland Road. The most common cause was cited as vehicles not yielding the right-of-way. However, there are no discernable patterns related to time of day or weather conditions.

While left turns are not permitted at the Molalla Avenue/Division Street intersection, the angle crash involved a right-turning vehicle and a bicyclist. The other crash reported at this location was caused by a vehicle backing up into another vehicle.

Overall, there are no discernable patterns related to time of day or weather conditions at the study area intersections.

DRIVEWAY SIGHT DISTANCE

A sight distance investigation was conducted at the PWFMC accesses and the public roadways across from the campus that intersect Division Street. Table G1 (in "Appendix G") contains information on the available sight distance at each intersection. *More detailed information and pictures from each access and roadway are also provided in "Appendix G."*

Based on the posted speed limit along Division Street (25 miles per hour), 280 feet of intersection sight distance is required in both directions, in accordance with the AASHTO *Policy on Geometric Design of Highways and Streets* (Reference 7) that is referenced in the City of Oregon City *Guidelines for Transportation Impact Analysis*. Measurements were based on an eye height of 3.5 feet and an object height of 3.5 feet above the road; and were assumed to be 6.5 feet from the near edge of pavement to the front of a stopped vehicle (actual measurements were taken 14.5 feet from the travel edge).

Sight distance is limited by parked vehicles to the south of the following intersections:

- Division Street/Penn Lane;
- Division Street/16th Street;
- Division Street/Davis Road; and
- Division Street/PWFMC Access (at 15th Street).

Sight distance is limited by parked vehicles to the north of the following intersections:

- Division Street/Davis Road;

- Division Street/PWFMC Access (Between 15th Street and Davis Road);
- Division Street/14th Street; and
- Division Street/PWFMC Access Road (Between 13th Street and 14th Street).

Sight Distance Recommendations

Sight distance could be improved at these locations by restricting on-street parking along Division Street immediately adjacent to the intersections. In addition to signing and striping options, bulb-outs could be constructed to accommodate pedestrians and facilitate sight distance. In particular, bulb-outs at the Division Street/Davis Road, Division Street/15th Street, and Division Street/PWFMC Access Road (between 13th and 14th Street) intersections would improve sight distance compliance.

Even if on-street parking is restricted, sight distance would still be obstructed by a hospital sign to the north of the Division Street/Davis Road intersection. In order to have 280 feet of sight distance at that location, the sign would need to be moved further east.

While PWFMC could adjust on-street parking and the hospital sign, the City or property owners should consider implementing the following additional recommendations. Sight distance is limited by shrubs to the east of the PWFMC West Access located on the north side of Davis Road, and in addition to the shrubs, sight distance is limited by a mailbox and fence at the PWFMC East Access located on the north side of Davis Road. The shrubs should be trimmed and maintained to accommodate the required sight distance at the West Access. Plans for the parking lot located between Penn Lane and Davis Road include restricting the East Access to an inbound-only access, which this analysis confirms would improve sight lines at that location.

Shrubs are also a sight-distance obstruction for eastbound drivers facing to the north and south of the Division Street/14th Street intersection and to the south of the Division Street/PWFMC Access Road (between 13th Street and 14th Street) intersection. The shrubs should be trimmed and maintained to achieve adequate sight distance at those locations.

Existing Conditions Summary

The key findings from the existing conditions analysis are summarized below.

- The PWFMC campus currently produces 339 trips during the a.m. peak hour and 356 trips during the p.m. peak hour.
- The 2011 ECO survey results represent a slight decrease in the drive-alone mode split from the July 2010 survey (a decrease from 89 to 88 percent). PWFMC's efforts to reduce the drive-alone rate are expected to continue to lessen both parking and traffic impacts associated with the campus over time.
- The OR 213/Redland Road intersection operates acceptably during the a.m. and p.m. peak hours under ODOT standards.
- The Redland Road/Holcomb Boulevard-Abernethy Road intersection is located within the Regional Center boundaries, and it operates acceptably during the a.m. and p.m. peak periods, according to City of Oregon City standards.

- All of the signalized study intersections and access points within the Regional Center boundaries and all of the unsignalized intersections and access points meet City operating standards during both the weekday a.m. and p.m. peak hours.
- A review of historical crash records revealed that only five of the study intersections have any reported crashes over the past five years. No safety mitigation needs have been identified based on the crash data alone.
- Several mitigations have been identified that could improve sight distance at the PWFMC accesses and the roadways that intersect Division Street across from the PWFMC campus. PWFMC should move the hospital sign at the intersection of Division Street/Davis Road and restrict on-street parking and consider bulb-outs for the accesses and intersections along Division Street, particularly at the intersections of Division Street/Davis Road, Division Street/15th Street, and Division Street/PWFMC Access Road (between 13th Street and 14th Street). The City and property owners should consider trimming and maintaining shrubs near the roadway.

Section 4 Transportation Impact Analysis

TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis identifies how the study area's transportation system is forecast to operate in 2021, which is representative of when the proposed campus modifications within the updated Master Plan are likely to be complete. The transportation impacts associated with the updated Master Plan were examined as follows:

- Planned developments and transportation improvements in the site vicinity were identified and reviewed;
- Year 2021 background traffic conditions were analyzed at each of the study intersections during the weekday a.m. and p.m. peak hours;
- Site-generated trips were estimated for the net increase in building square footage proposed under the updated Master Plan;
- A site trip-distribution pattern was developed and the site-generated trips were assigned to the study intersections and access points;
- Year 2021 total traffic conditions were analyzed during both peak periods; and
- On-site circulation issues and access operations were evaluated.

Year 2021 Background Traffic Conditions

The year 2021 background traffic conditions analysis identifies how the study area's transportation system will operate without the additional uses proposed as part of the updated Master Plan. This analysis includes traffic attributed to PWFMC building space that is approved and constructed but not currently used and to general growth in the region.

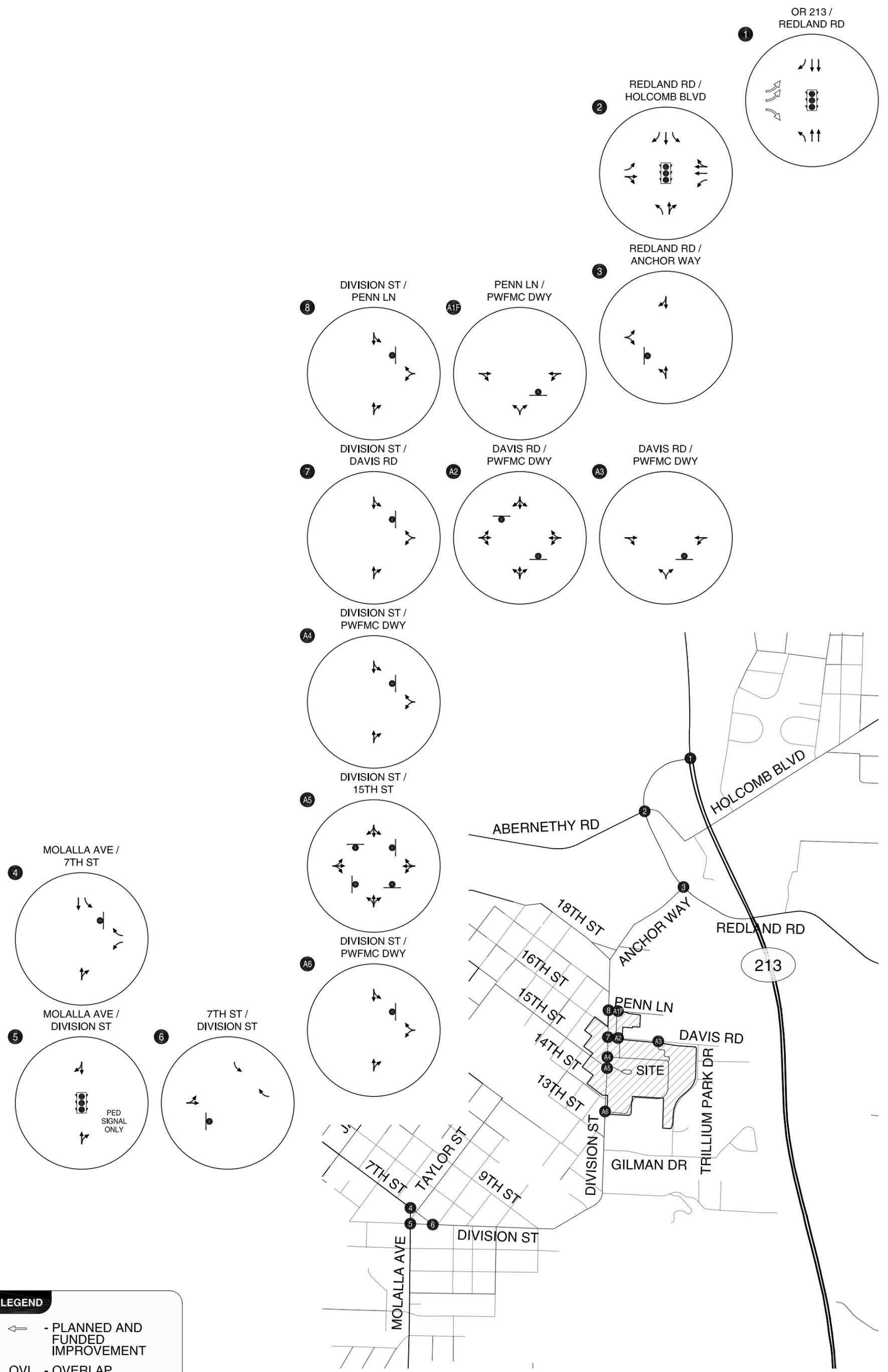
TRANSPORTATION FACILITIES

Most of the study intersections are expected to have the same lane configurations and traffic control devices in 2021. ODOT is currently constructing improvements on OR 213 that will include widening the eastbound approach at the OR 213/Redland Road intersection to provide two left-turn lanes and a separate right-turn lane with an overlap phase. Figure 6 shows the anticipated 2021 lane configurations and traffic control devices. The future signal timing plan for the reconstructed approach has not been completed on the OR 213 project. The existing signal timing plan was used for the background and future conditions analyses at the OR 213/Redland Road intersection, in order to maintain the existing green time on OR 213.

BACKGROUND GROWTH ASSUMPTIONS

PWFMC previously secured approval for 16,105 square feet of "shelled" space that has been constructed but is not yet in use. For traffic study purposes, the future trips associated with the shelled space were included in the background growth, as shown in Figures E1 and E2 in "Appendix E."

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LEGEND

- PLANNED AND FUNDED IMPROVEMENT
- OVL - OVERLAP
- STOP SIGN
- TRAFFIC SIGNAL

YEAR 2021 LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES OREGON CITY, OREGON **FIGURE 6**

In addition to the inclusion of traffic associated with the shelled PWFMC space, annual growth rates were applied to the existing traffic counts at the study intersections to reflect local and regional growth. The assumed annual growth rates were based on historic patterns and direction from City staff.

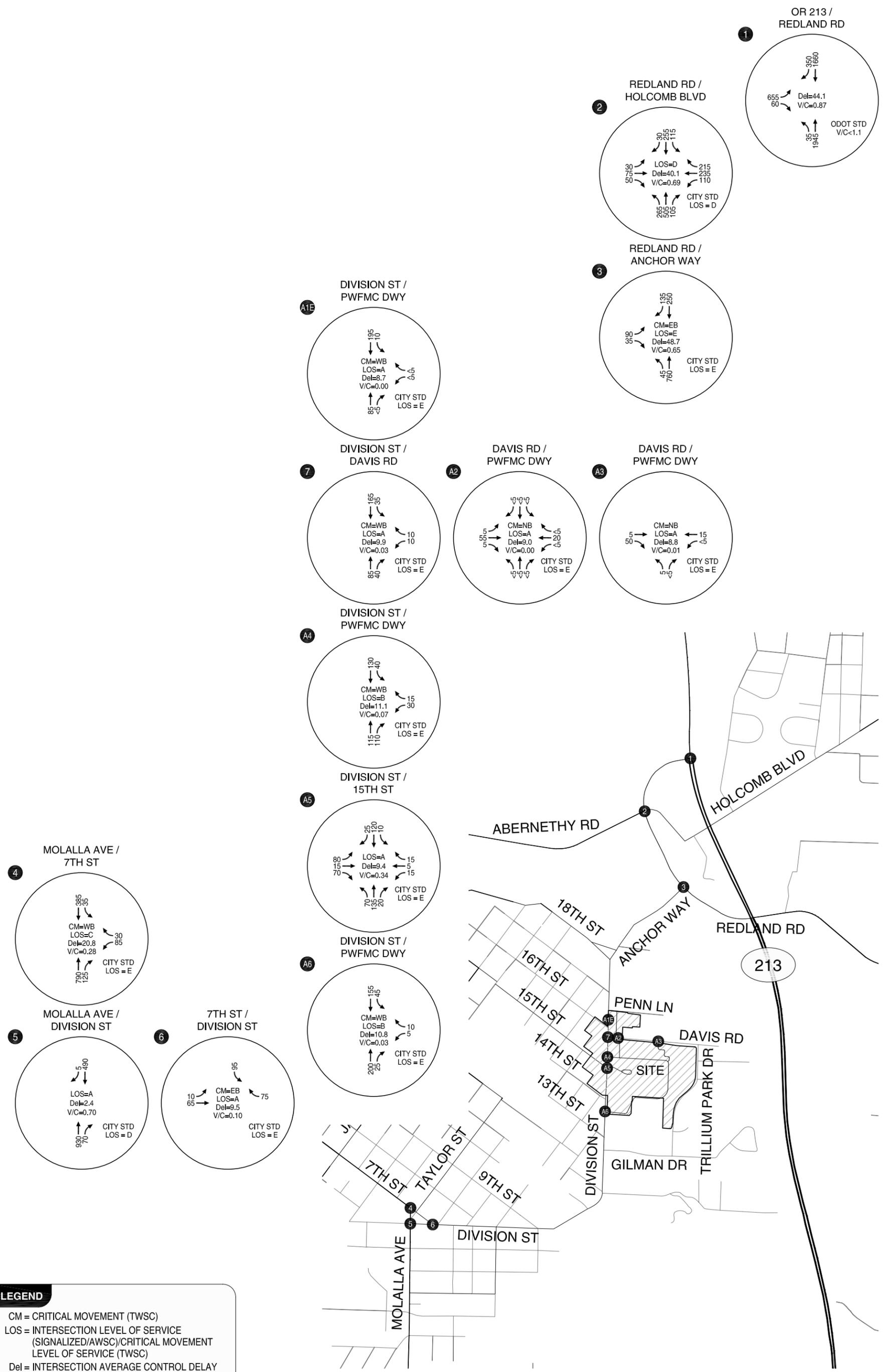
Specifically, a 2008 study related to the OR 213/Redland Road intersection applied a 1.37-percent annual growth rate on OR 213 based on the City's *Transportation System Plan*, ODOT's *I-205 Reconnaissance Study (June 2006)* (Reference 8), and the *Highway 213 Urban Corridor Design Study* (Reference 9). A two percent annual growth rate was applied on Molalla Avenue because it is a major arterial, while a 1.5 percent annual growth rate was applied to the remaining study area streets because they are minor arterials, collectors, or local streets.

TRAFFIC VOLUMES & LEVEL-OF-SERVICE ANALYSIS

The year 2021 background traffic volumes are illustrated in Figure 7 and Figure 8. These figures also show the corresponding operating standards and the anticipated levels of service at the study intersections and access points in the year 2021. As indicated by the figures, the background traffic analysis determined that most of the study intersections are forecast to continue to operate acceptably, as discussed below.

- The Redland Road/Holcomb Boulevard-Abernethy Road intersection operates at LOS E during the p.m. peak hour (which is below City standards for signalized intersections within the Regional Center boundaries). However, during the second hour of the peak period, the Redland Road/Holcomb Boulevard-Abernethy Road intersection operates at LOS D. These operations are within acceptable City standards.
- The Molalla Avenue/7th Street intersection operates at LOS F during the p.m. peak period as a result of the westbound approach. This does not meet City standards. Based on the applied growth rates, the Molalla Avenue/7th Street intersection is anticipated to meet City standards through the year 2016. In 2017, the westbound left at this intersection is anticipated to operate at LOS F with more than 50 seconds of delay.
- The Redland Road/Anchor Way intersection operates at LOS F during the p.m. peak hour as a result of the eastbound approach. These operations also do not meet City standards. Based on the applied growth rates, the Redland Road/Anchor Way intersection is anticipated to meet City standards through the year 2017. In 2018, the northbound left at this intersection is anticipated to operate at LOS F with more than 50 seconds of delay.
- The operations of the remaining intersections and access points meet the applicable standards through the year 2021. *Appendix "E" contains the year 2021 background traffic level-of-service worksheets.*

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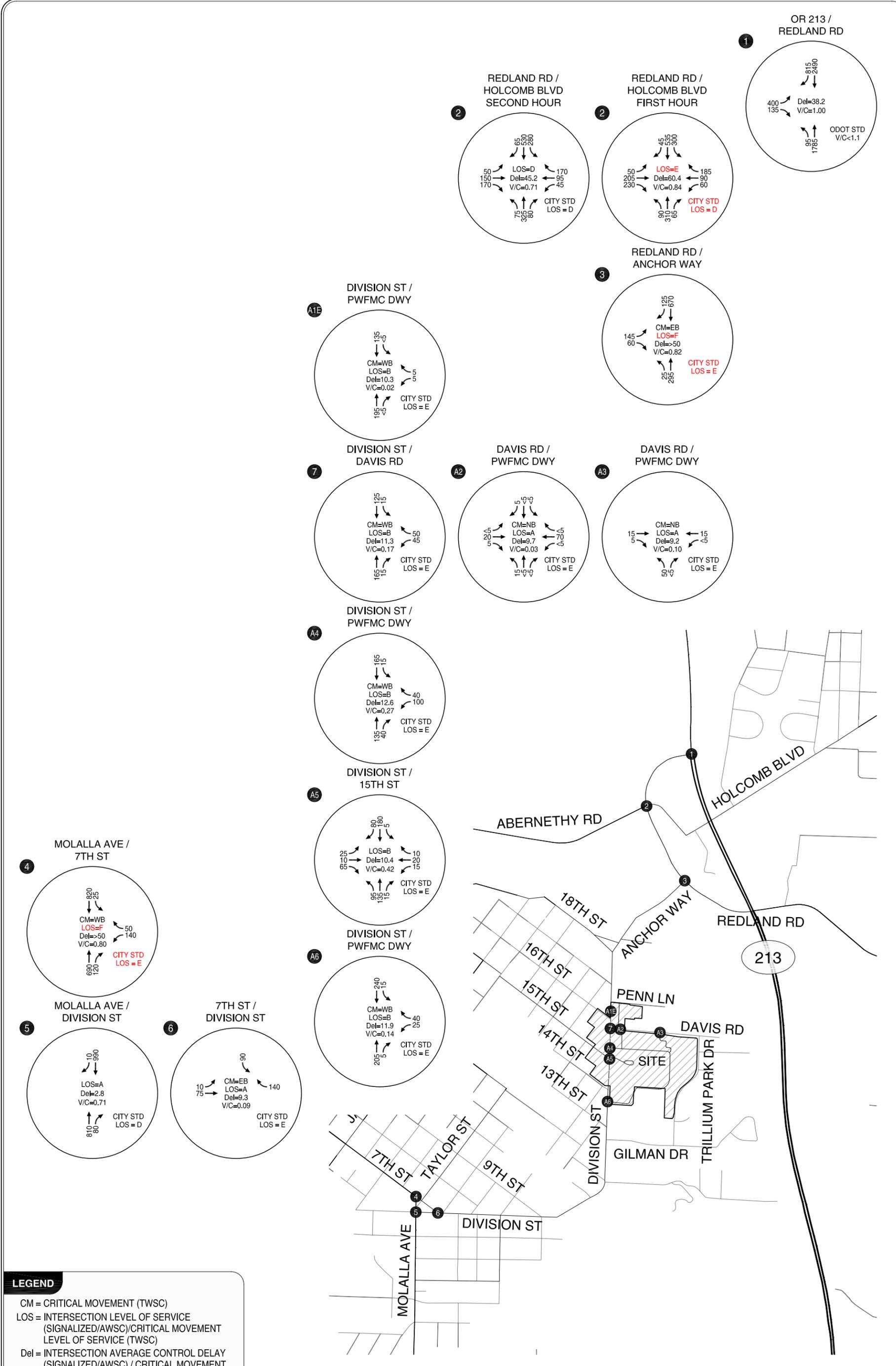


YEAR 2021 BACKGROUND TRAFFIC CONDITIONS
 WEEKDAY AM PEAK HOUR
 OREGON CITY, OREGON

LEGEND

- CM = CRITICAL MOVEMENT (TWSC)
- LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED/AWSC)/CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
- Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED/AWSC) / CRITICAL MOVEMENT CONTROL DELAY (TWSC)
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LEGEND

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- AWSC = ALL-WAY STOP CONTROL

YEAR 2021 BACKGROUND TRAFFIC CONDITIONS
WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON **FIGURE 8**

Trip Generation

Recent studies conducted at other hospital campuses in the Metro area have shown that it is most appropriate to identify a hospital campus trip rate, rather than trying to separate out the trip generation by use. These studies have shown that there is a synergy and efficiency that is gained by a hospital campus between the main hospital, medical office buildings (MOBs), and ancillary uses. In addition, we have also identified that the trip rates for Portland area hospital campuses are lower than what may be predicted by the Institute of Transportation Engineer's (ITE) *Trip Generation* (Reference 10) given the relatively high rate of non-single occupancy vehicle use at these campuses. Highlights of these representative studies are summarized below.

LOCAL HOSPITAL MASTER PLAN TRIP GENERATION

As part of the St Vincent's Master Plan recently approved by Washington County, a combined rate of 0.97 trips per 1,000 square feet of campus space was measured and approved for the weekday a.m. peak hour and a combined rate of 0.92 trips per 1,000 square feet was measured and approved for the weekday p.m. peak hour based on 2008 traffic count data. According to the 2007 Employee Commute Option survey, 74 percent of all employees surveyed traveled via a single-occupancy vehicle to the St. Vincent's campus.

In 2001, a Providence Portland Medical Center (PPMC) campus rate of 1.24 trips per 1,000 square feet of campus space was measured and approved for the weekday a.m. peak hour and a rate of 1.04 trips per 1,000 square feet of campus space was measured and approved for the weekday p.m. peak hour. Since 2001, the drive-alone rate at PPMC has decreased from 79 percent to 67 percent, according to TriMet's ECO survey. Most recently, a combined PPMC campus rate of 0.78 trips per 1,000 square feet of campus space was measured during the weekday a.m. peak hour and a rate of 0.75 trips per 1,000 square feet of campus space was measured during the weekday p.m. peak hour using traffic counts from 2010. The lower trip rates most likely reflect the success of the ECO program on the PPMC campus.

PROPOSED PWFMC TRIP GENERATION ASSUMPTIONS

The existing conditions traffic counts conducted at all access points into the hospital campus were used to determine the current campus trip rate for the PWFMC campus. The total number of vehicles observed at the campus driveways was divided by the total square-footage of the campus (total vehicles/335,076 square-feet) to develop a campus trip generation rate for PWFMC. Table 5 summarizes the measured trip generation rates for the PWFMC campus during the weekday a.m. and p.m. peak hours.

Table 5 Measured Trip Generation Rates for PWFMC Based on Traffic Counts

Weekday AM Peak Hour Trips				Weekday PM Peak Hour Trips			
In	Out	Total	Rate (Trips Per 1,000 Square Feet)	In	Out	Total	Rate (Trips Per 1,000 Square Feet)
257 (76%)	82 (24%)	339	1.01	89 (25%)	267 (75%)	356	1.06

The trip rates in Table 5 are representative of the proposed hospital development that includes the MOBs and expansions to the existing Hospital. The central utility plant (CUP) will operate differently than the rest of the PWFMC campus because it will be used to house heating, cooling, and other building electrical equipment supporting the campus. A different trip generation rate is proposed for the CUP, as discussed in the following sections.

MASTER PLAN PROPOSAL

Currently, PWFMC is proposing a net addition of 104,000 square feet of additional campus space as part of the Master Plan. This addition accounts for two additional MOBs, expansions to the existing hospital building, and a CUP. While the trip rates in Table 5 are recommended for the 84,000 square feet of MOBs and expansions to the Hospital building, ITE *Trip Generation* rates are recommended for the 20,000 square feet of CUP.

The Central Utility Plant is an ancillary use to the campus that will not generate trips nor new staff. However to remain conservative, trip generation for the CUP building space was estimated using the high-cube warehouse land use in ITE. Table 6 contains a summary of the Master Plan proposal, and Table 7 shows the resulting trip generation for the proposed campus using both the PWFMC and ITE trip generation rates.

Table 6 Summary of Master Plan Proposal

	Size (Square Feet)
Total Existing Campus	335,076
Total In-Process (Used in Background Traffic Conditions)	
<i>Uses Approved but Not Yet Constructed</i>	<i>0</i>
<i>Shelled Space in the Hospital Building</i>	<i>16,105</i>
Total	16,105
Proposed Expansion	
<i>MOBs and Hospital Expansions</i>	<i>84,000</i>
<i>Central Utility Plant</i>	<i>20,000</i>
Total	104,000
Total Space at Build Out	455,181

Table 7 Estimated Trip Generation

Use	Size (Square Feet)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
PWFMC MOBs and Hospital Expansions	84,000	65	20	85	22	67	89
Central Utility Plant	20,000	1	1	2	1	1	2
Total Proposed Campus	104,000	66	21	87	23	68	91

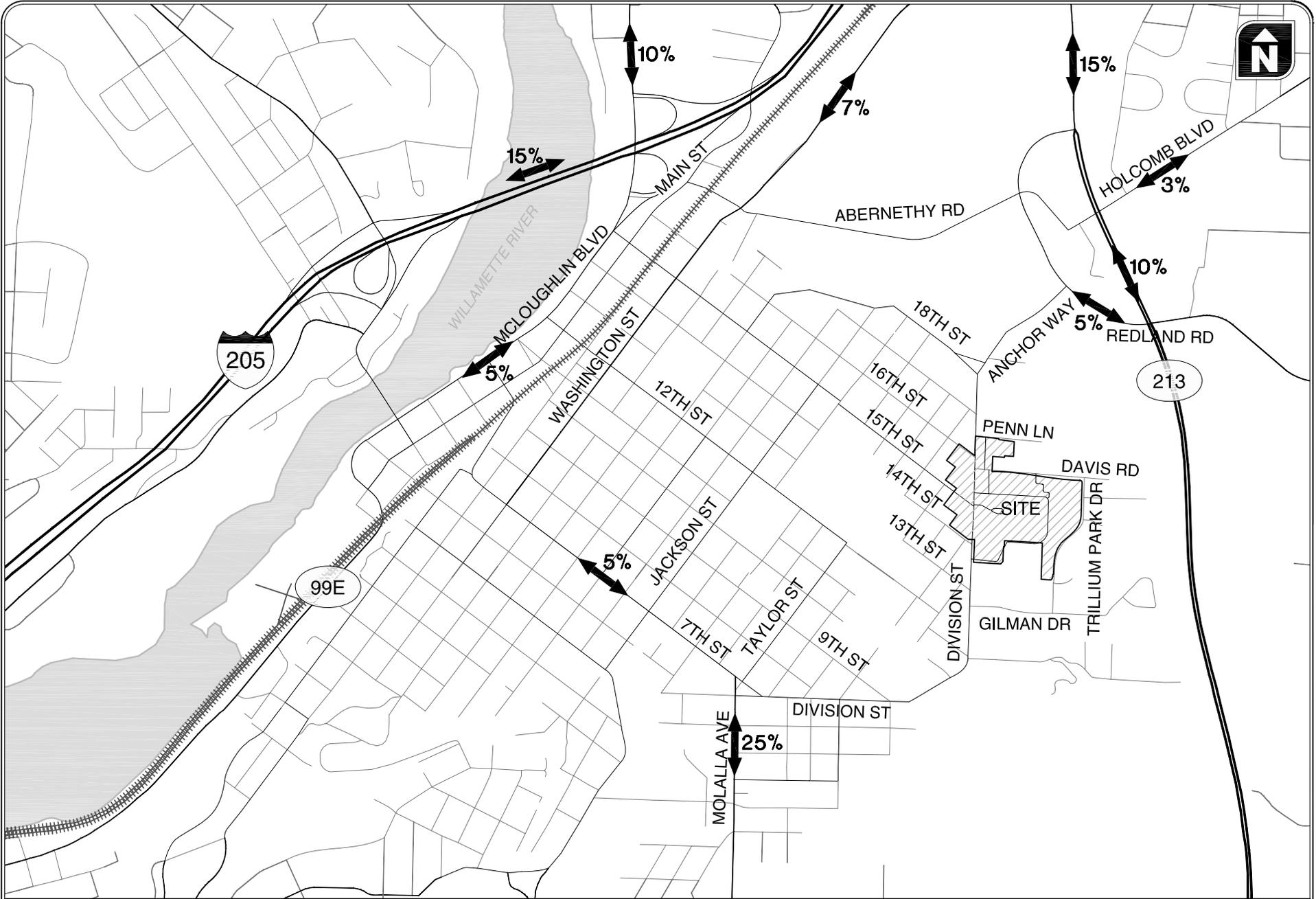
The paving of the parking lot adjacent to Penn Lane is not anticipated to generate any new trips to the campus.

Trip Distribution

The trip distribution of site-generated trips was based on the existing 2011 traffic counts. Figure 9 illustrates the estimated trip distribution pattern for PWFMC. A majority of the site-generated traffic is anticipated to travel to and from War Veterans Memorial Parkway (I-205), Cascade Highway (OR 213), McLoughlin Boulevard (99E), and Molalla Avenue.

Figure 10 and Figure 11 show the distribution of site-generated traffic during the a.m. and p.m. peak hours respectively.

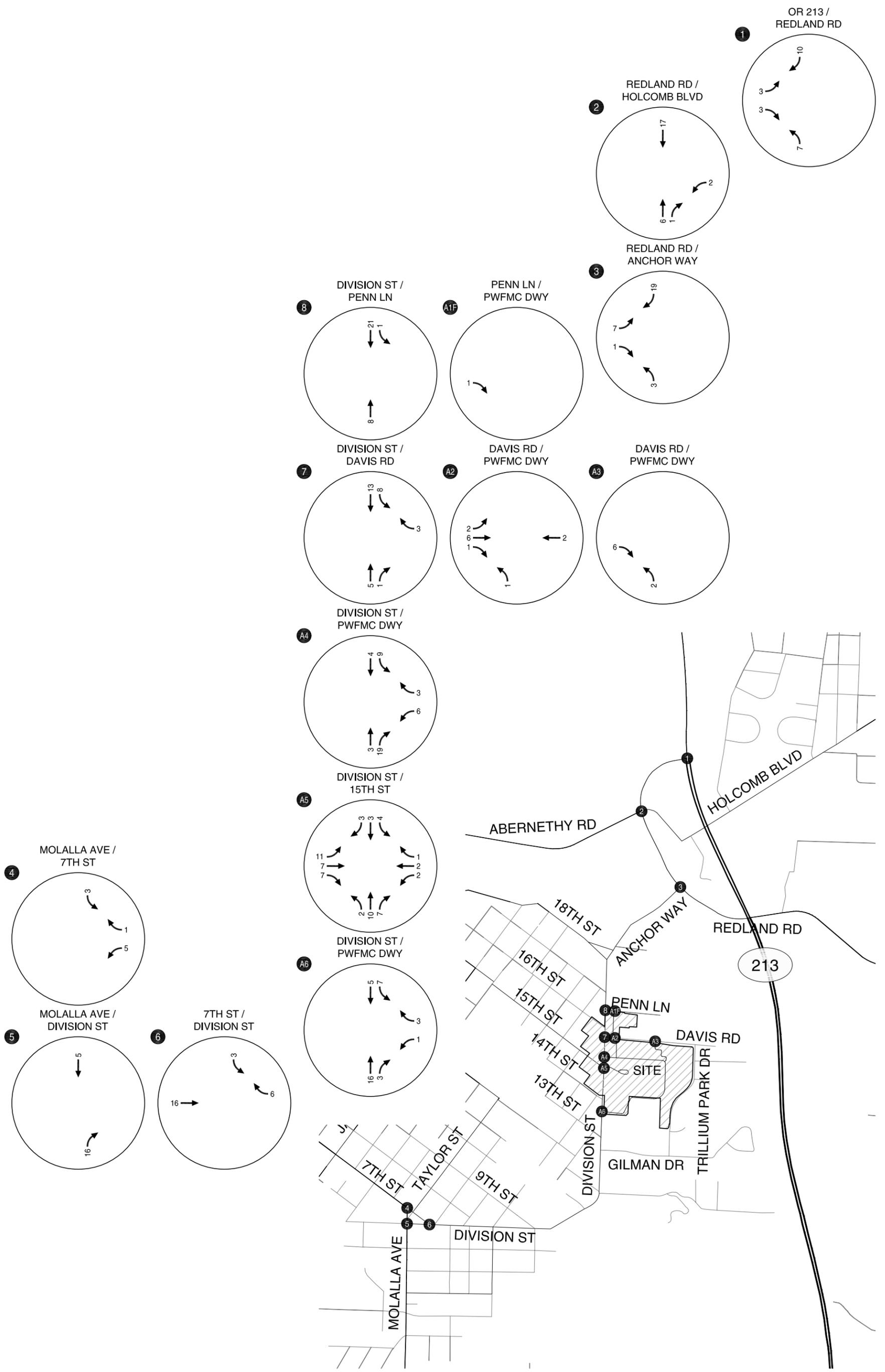
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ESTIMATED TRIP DISTRIBUTION PATTERN OREGON CITY, OREGON

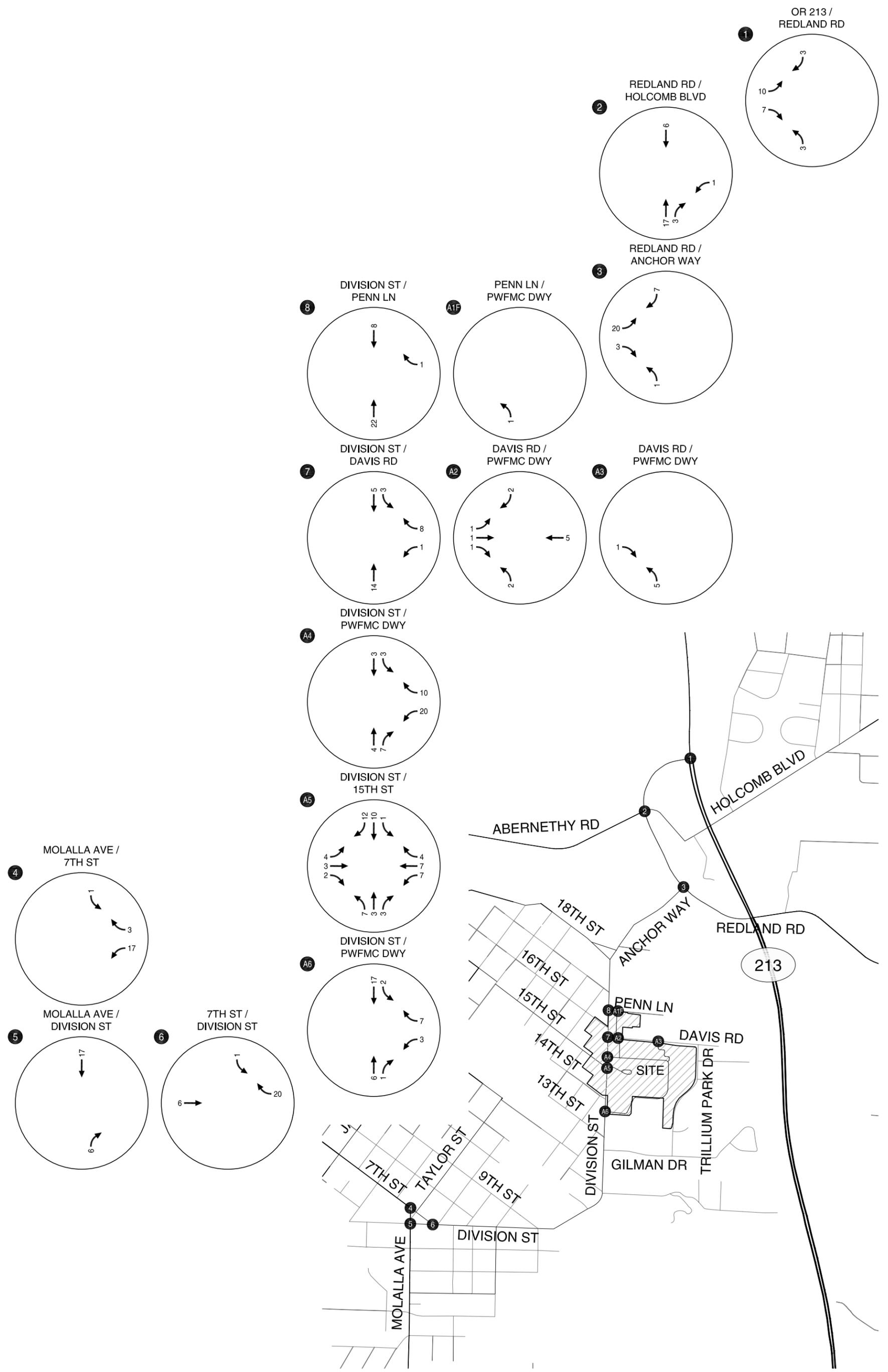
FIGURE 9

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SITE-GENERATED TRAFFIC WEEKDAY AM PEAK HOUR OREGON CITY, OREGON

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SITE-GENERATED TRAFFIC WEEKDAY PM PEAK HOUR OREGON CITY, OREGON

Year 2021 Total Traffic Conditions

The total traffic conditions analysis forecasts how the study area’s transportation system will operate with the traffic generated by the Master Plan uses. The 2021 analysis reflects the background traffic and net new campus-generated traffic. The resultant traffic volumes during the weekday a.m. and p.m. peak hour are shown in Figure 12 and Figure 13. These figures also identify the projected operations at each of the study intersections and the corresponding standard.

Comparing the 2021 background and total traffic conditions, the Master Plan does not cause any of the intersections to not meet applicable standards. The two study intersections that were not meeting the adopted operating standards under background conditions also do not meet standards under total traffic conditions, as shown in Table 8.

Table 8 Intersections Not Meeting City Standards

Intersection	Scenario & Time Period	Operations		
		LOS	V/C	LOS Standard
#3: Redland Road/Anchor Way	Background PM Peak	F	0.82	E
	Future AM Peak	F	0.72	E
	Future PM Peak	F	0.93	E
#4: Molalla Avenue/7 th Street	Background PM Peak	F	0.80	E
	Future PM Peak	F	0.90	E

Similar to background conditions, the Redland Road/Holcomb Boulevard-Abernethy Road intersection operates at LOS E during the p.m. peak hour but at LOS D during the second hour of the peak period (which puts the intersection within City standards for signalized intersections within the Regional Center boundaries).

As discussed in the previous section, the Molalla Avenue/7th Street intersection is anticipated to operate acceptably for the next five years, whereas the Redland Road/Anchor Way intersection is anticipated to operate acceptably for the next six years with increases in background growth. Based on estimated traffic volumes, the following improvements would be needed to meet City standards at these intersections:

- Molalla Avenue/7th Street: The City has been evaluating the potential for a roundabout at this location. With a roundabout in-place, this intersection would meet City standards at full build-out of the Master Plan.
- Redland Road/Anchor Way: This intersection is anticipated to warrant a traffic signal within the next six years. This improvement has been identified in the Oregon City TSP. With a signal in-place, this intersection would meet standards.

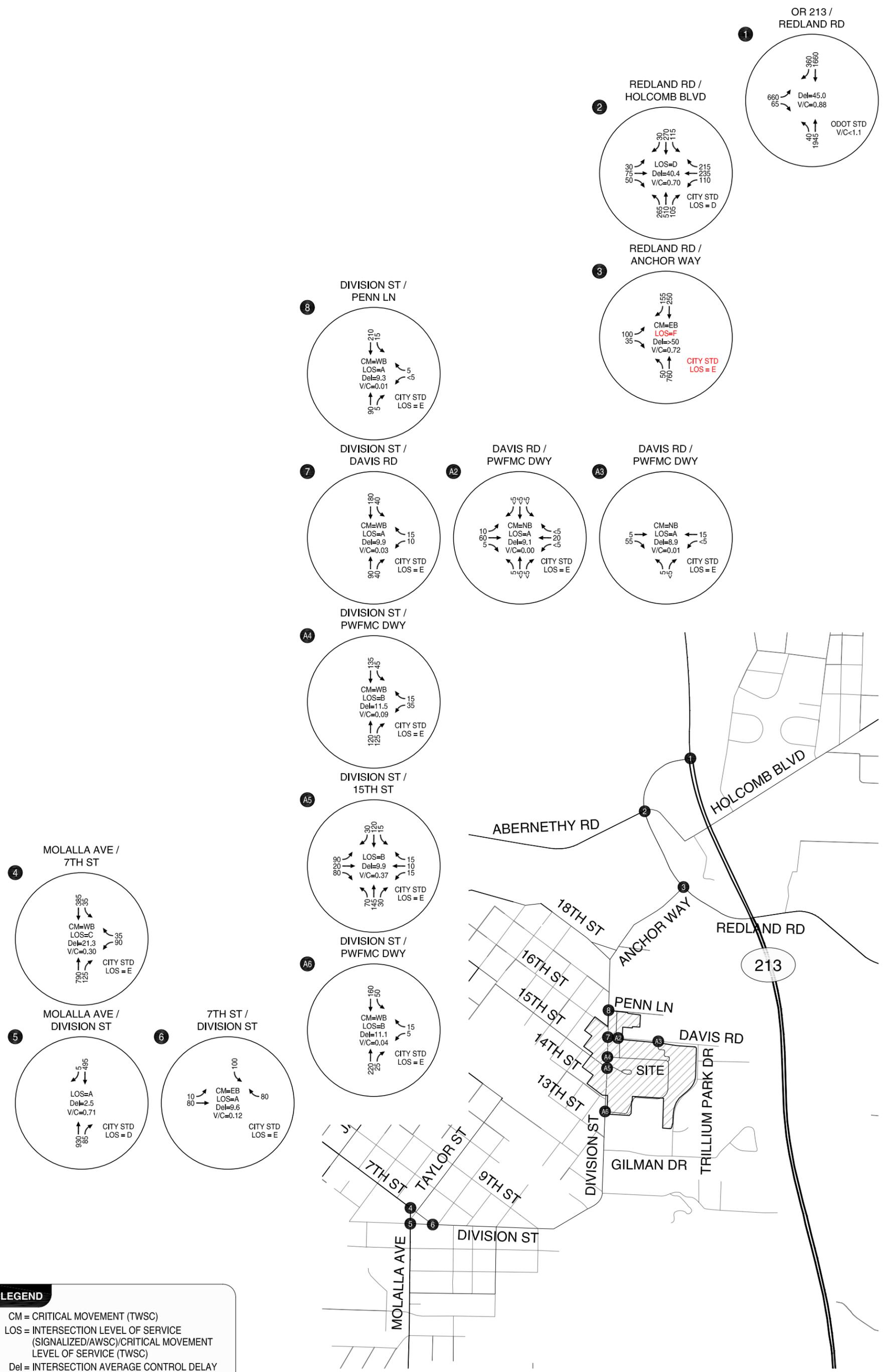
Given that build-out of the Master Plan does not create the need for the improvements, PWFMC should work with the City of Oregon City to contribute a pro rata share of improvements at the Redland Road/Anchor Way and Molalla Avenue/7th Street intersections. The timing of and need for

these pro rata share improvements should be determined as part of subsequent DDP submittals. Improvements at these locations are not anticipated to be needed for five to six years, and the timing of expansions to the hospital that are included in the Master Plan have not yet been defined.

- Based on current estimates, build-out of the Master Plan uses would contribute approximately 1.1 percent of the p.m. peak hour traffic volumes in the year 2021 at the Molalla Avenue/7th Street intersection.
- At the Redland Road/Anchor Way intersection, build-out of the Master Plan uses would contribute approximately 2.3 percent of the p.m. peak hour traffic volumes in the year 2021.

Appendix "F" contains the year 2021 total traffic level-of-service worksheets.

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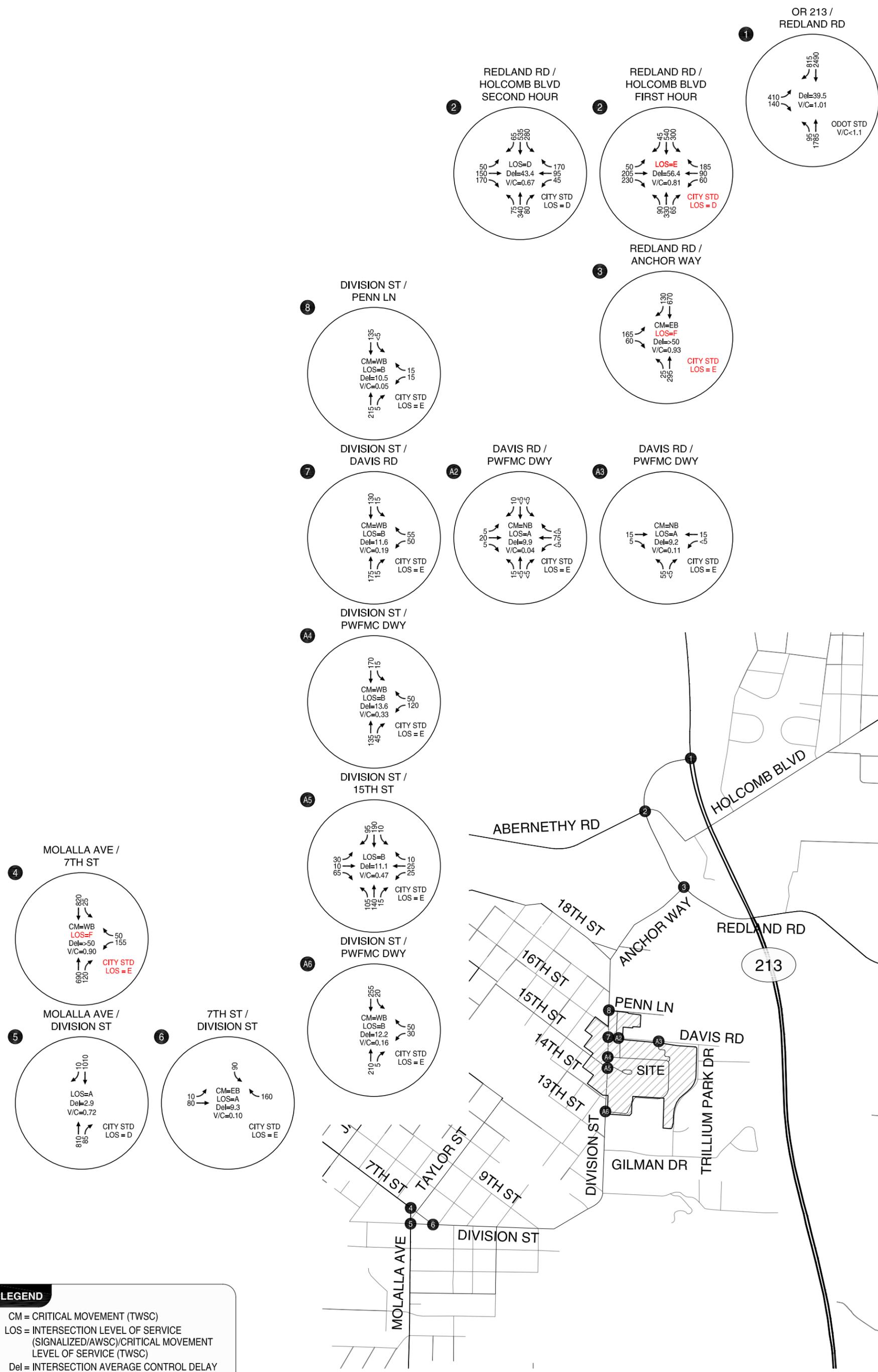
LEGEND

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YEAR 2021 TOTAL TRAFFIC CONDITIONS
 WEEKDAY AM PEAK HOUR
 OREGON CITY, OREGON

FIGURE 12

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LEGEND

- CM = CRITICAL MOVEMENT (TWSC)
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YEAR 2021 TOTAL TRAFFIC CONDITIONS
 WEEKDAY PM PEAK HOUR
 OREGON CITY, OREGON **FIGURE 13**

On-Site Circulation and Driveway Operations

Campus circulation was evaluated to ensure that the Master Plan provides for a well-connected pedestrian and bicycle environment and plans for sufficient vehicular traffic to/from and within the campus.

PEDESTRIAN AND BICYCLE ACCESS

The PWFMC campus includes a variety of pedestrian and bicycle access ways within the campus and sidewalks and bicycle lanes along the frontage of the campus. These facilities enable convenient and comfortable options for people walking and biking through or adjacent to the campus, as well as for those walking and biking to/from uses within the campus.

Transportation Impact Analysis Findings

The pertinent findings of the year 2021 transportation impact analyses are summarized below.

- The 104,000 square feet of net building space proposed as part of the Master Plan is estimated to generate 87 weekday a.m. and 91 weekday p.m. peak hour trips, assuming no additional reduction in campus-related drive-alone travel is realized during the next ten years.
- Assuming year 2021 background conditions without an increase in campus-related uses, the Redland Road/Anchor Way and Molalla Avenue/7th Street intersections do not meet City of Oregon City operating standards.
 - The City has been evaluating the potential for a roundabout at the Molalla Avenue/7th Street intersection. With a roundabout in-place, this intersection would meet City standards at full build-out of the Master Plan
 - The Redland Road/Anchor Way intersection is anticipated to warrant a traffic signal within the next six years. This improvement has been identified in the Oregon City TSP. With a signal in-place, this intersection would meet standards.
- Assuming year 2021 total build-out conditions, no additional intersections fail under the City of Oregon City operating standards as a result of the increase in PWFMC campus-related uses.
- PWFMC should work with the City of Oregon City to contribute a pro rata share of improvements at the Redland Road/Anchor Way and Molalla Avenue/7th Street intersections. The timing of and need for these pro rata share improvements should be determined as part of subsequent DDP submittals. Improvements at these locations are not anticipated to be needed for five to six years, and the timing of expansions to the hospital that are included in the Master Plan have not yet been defined.
 - Based on current estimates, build-out of the Master Plan uses would contribute approximately 1.1 percent of the p.m. peak hour traffic volumes in the year 2021 at the Molalla Avenue/7th Street intersection.

- At the Redland Road/Anchor Way intersection, build-out of the Master Plan uses would contribute approximately 2.3 percent of the p.m. peak hour traffic volumes in the year 2021.

Section 5 Parking Analysis

PARKING ANALYSIS

This section describes the PWFMC parking in-place today as well as the parking planned as part of the Master Plan.

Parking Data Collection Methodology

Parking utilization data was collected at each of the surface and structured parking locations throughout the campus between 6:00 a.m. and 6:00 p.m. on June 2, 2011. The number of vehicles parked in each of the parking locations was recorded on each hour. The study parking lots are listed below with their existing vehicular parking supplies:

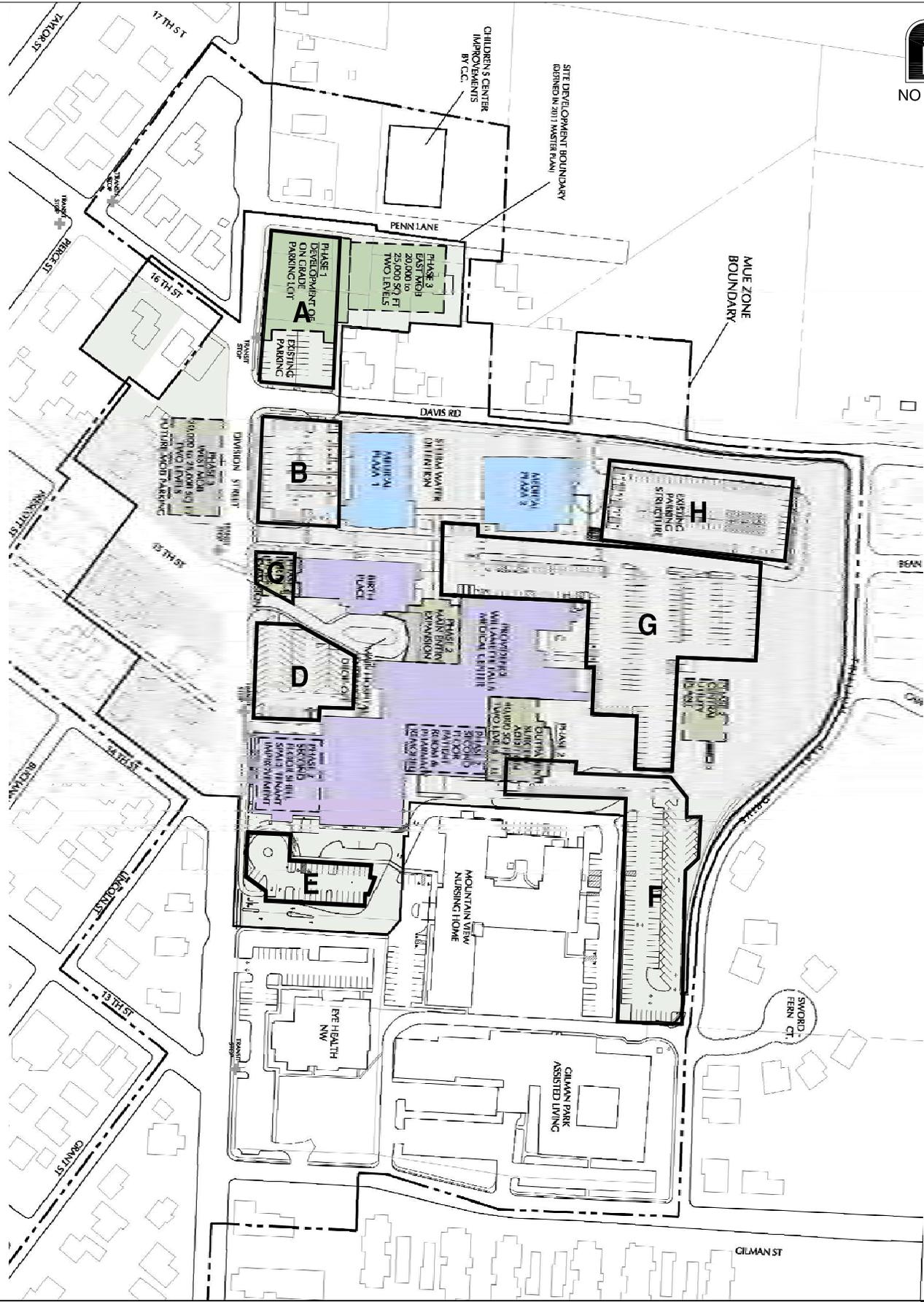
- (A) MOB Parking Lot between Penn Lane and Davis Road – 66 vehicles
- (B) Medical Plaza 1 Parking Lot – 47 vehicles
- (C) Birthing Center Parking Lot – 10 vehicles
- (D) Main Hospital Entrance Parking Lot – 54 vehicles
- (E) Main Hospital South Parking Lot between 13th Street and 14th Street – 25 vehicles
- (F) Outpatient Surgery Parking Lot – 128 vehicles
- (G) Medical Plaza 2 Parking Lot – 193 vehicles
- (H) Parking Structure – 226 vehicles

Figure 14 shows the location of each of the study parking lots on the PWFMC campus. At the time of the study, the total vehicular parking supply was measured at 749 parking spaces.

Daily Parking Demand

Exhibit 1 and Exhibit 2 show the hourly fluctuations in parking utilization based on the June 2011 data (both in terms of number of spaces occupied and percent utilization). As shown, the demand for parking is fairly consistent between 8:00 a.m. and 4:00 p.m. Peak parking demand occurred between 11:00 a.m. and 12:00 p.m. At peak times, approximately up to 78 percent of all parking spaces are utilized. *“Appendix H” contains the campus parking utilization data.*

For planning purposes, a general rule-of-thumb is that a parking facility’s capacity is reached when approximately 85 – 90 percent of the spaces are occupied. The remaining 10 - 15 percent of available spaces provide a buffer for visitors and staff to circulate and conveniently locate a parking space.



PARKING LOT LOCATIONS
OREGON CITY, OREGON

FIGURE
14

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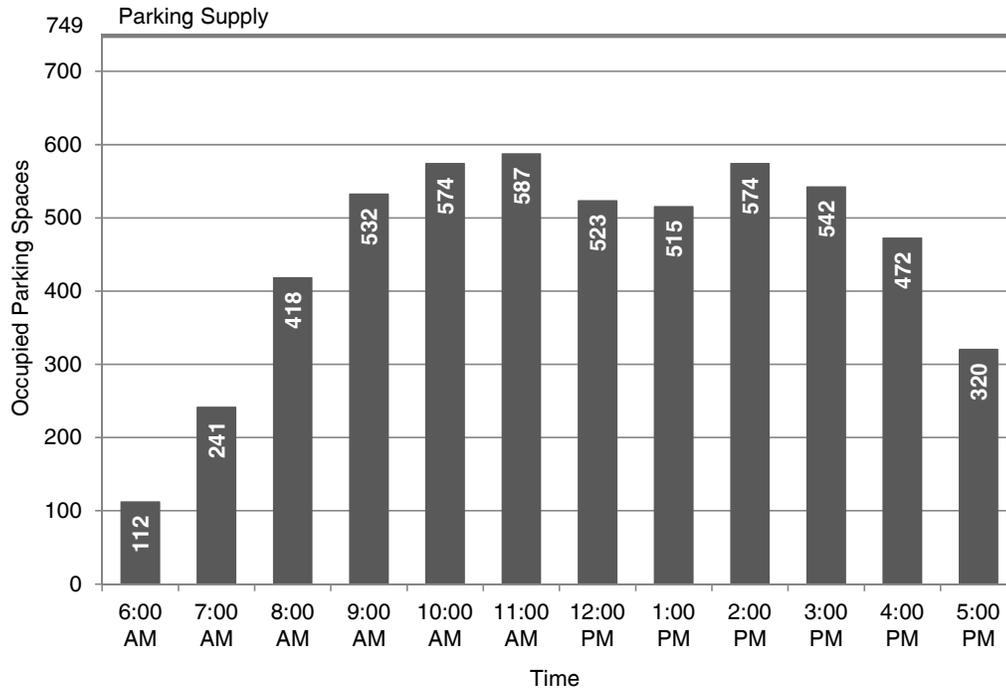


Exhibit 1 Parking Occupancy by Number of Vehicles Parked On Campus

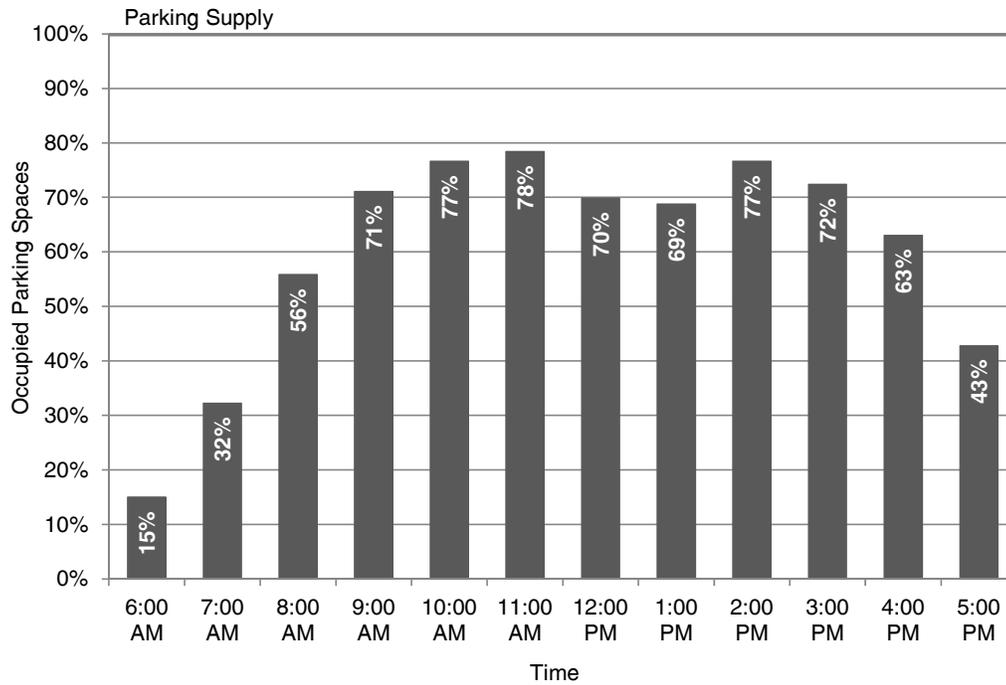


Exhibit 2 Parking Occupancy by Percentage of Parking Spaces Occupied

Peak Parking Demand

Within the PWFMC campus, the existing parking supply and demand ratios (assuming 335,076 square feet of usable space today) are as follows:

- Parking Supply = 2.24 spaces per 1,000 square feet
- Parking Demand = 1.75 spaces per 1,000 square feet

Like the trip generation, the parking ratios were calculated using the total square feet of buildings in operation on the PWFMC campus today, given the synergy between uses.

For campus planning purposes, it is common to apply either an 85 or 90 percent full standard to determine parking supply needed to facilitate build-out of the Master Plan uses. These ratios assume a better overall efficiency in campus parking but do not assume a change in the employee-related mode split occurring today. The resultant parking ratios are shown below:

- 85 percent full = 2.06 spaces required per 1,000 square feet of new building space
- 90 percent full = 1.95 spaces per 1,000 square feet of new building space

Application of the 90 percent full parking ratio for the overall campus at build-out of the Master Plan uses is recommended because this still provides enough “reserve capacity” to minimize the need for unnecessary circling when trying to locate a parking space, ensures there is sufficient parking to accommodate higher than typical demand, and to ensure the most appropriate and efficient use of resources are dedicated to parking.

Future On-Campus Parking Demand

Based on a 90-percent-full ratio and assuming the drive-alone rate for employees remains at 88 percent, the following identifies the number of parking spaces that would be needed to serve the demand, assuming the 16,105 square feet of shelled space is in-use and a net increase of 104,000 square feet of new uses:

EXISTING PARKING SUPPLY/DEMAND

- Existing Campus Parking Need = 653 spaces assuming parking ratio of 1.95 spaces per 1,000 square feet for total campus space (335,076 square feet)
- Existing Campus Supply = 749 spaces
- *Existing Campus Surplus = 96 spaces (749 supplied versus 653 needed at 90 percent full)*

SHELLED SPACE PARKING SUPPLY/DEMAND

- Parking need for 16,105 square feet of shelled space = 31 spaces
- *Net Parking Supply Surplus = 65 spaces (96 surplus spaces minus 31 spaces)*

NET NEW SPACE PARKING SUPPLY/DEMAND

- Parking need for 104,000 square feet of net new space = 203 spaces
- *Total New Parking Supply Needed = 138 net new spaces on campus (203 spaces minus 65 spaces)*

Per the Master Plan, future parking needs will be met through a combination of structured parking and surface parking facilities. Some new parking is planned as part of the new MOB's north of Davis Road and west of Division Street (between 15th Street and 16th Street), but additional parking space should be identified to accommodate the 138 new parking spaces needed on campus. PWFMC should continue to monitor this parking ratio over time to ensure its application remains appropriate. The required parking ratio would be reduced with further reductions in the drive-alone rate.

Existing On-Street Parking Demand

Parking utilization data was also collected along the following street segments surrounding the campus during the 6:00 a.m. to 6:00 p.m. period on June 2, 2011:

- Davis Road between Division Street and Trillium Park Drive
- Gilman Drive between Division Street and Trillium Park Drive
- Division Street between Penn Lane and Gilman Drive
- Trillium Park Drive between Gilman Drive and Davis Road

The parking utilization for the on-street parking ranged from 14 to 27 percent. Exhibit 3 identifies the hourly parking fluctuation in the number of spaces occupied on-street. The 6:00 a.m. time period is used to gauge the non-campus related parking demand within the neighborhood. As shown in the figure, there is very little variation in on-street parking usage during the course of the day, with the exception of Division Street, which is the minor arterial that fronts the PWFMC campus. The on-street parking pattern is reasonable given the easily-accessible parking spaces along Division Street.

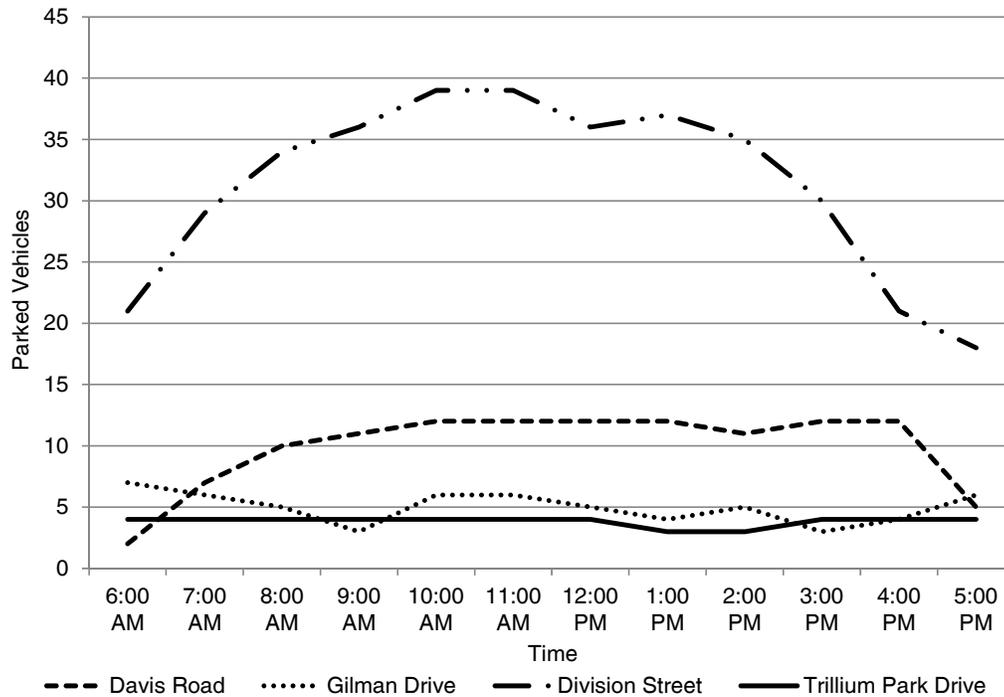
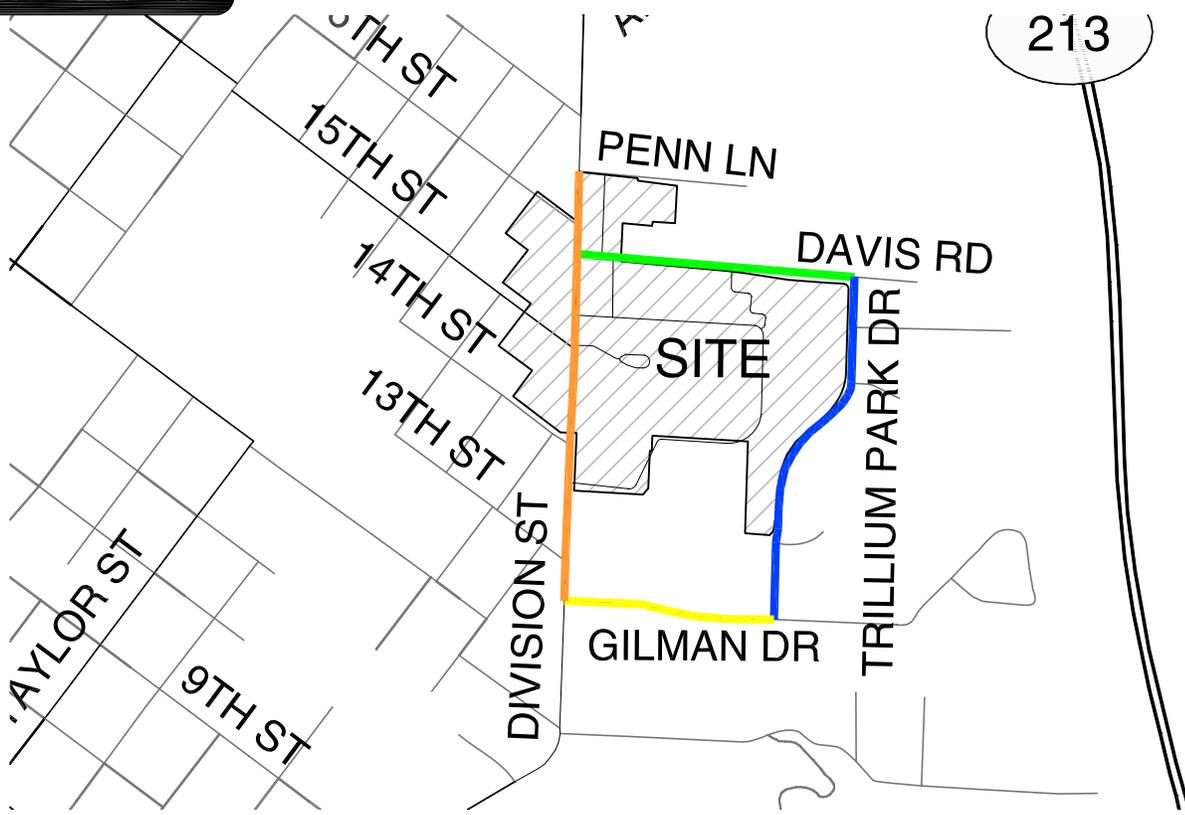


Exhibit 3 On-Street Parking Occupancy

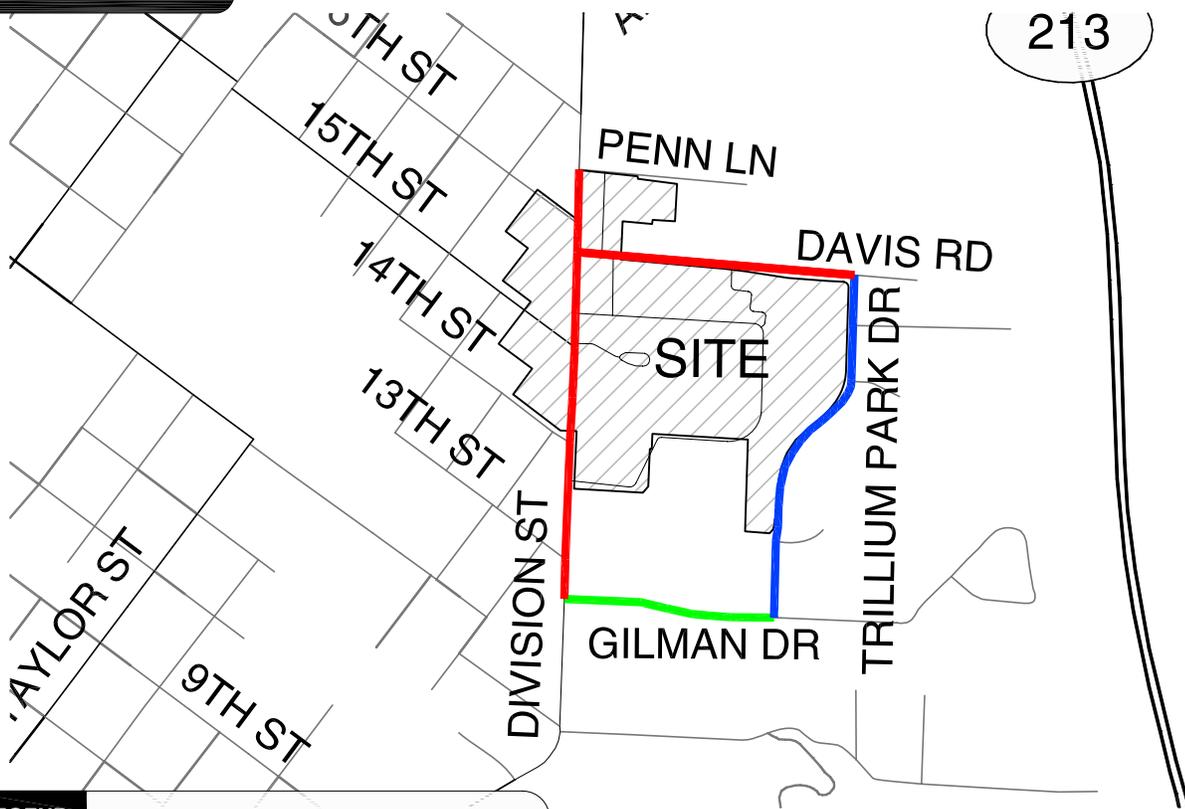
Figure 15 shows the change in parking utilization, by block face, when comparing the 11:00 a.m. to 12:00 p.m. period (when the campus is at its maximum) to the 6:00 a.m. to 7:00 a.m. time period. The data shown in this figure confirms that there are few hospital-related parking occurrences on the neighborhood streets immediately surrounding the campus, with the exception of Division Street.

After reviewing the peak hour videos of the Division Street/15th Street intersection, it appears that there is limited use of the first block of 15th Street (west of Division Street) by hospital staff and visitors. Neighborhood feedback indicated that hospital staff and visitors also frequently park on the first blocks of 14th Street and 16th Street (west of Division Street). PWFMC should continue to monitor this situation and work with the neighborhood to ensure any impacts are mitigated.

6:00 AM UTILIZATION



11:00 AM UTILIZATION



LEGEND

- 0 - 5% UTILIZED
- 6 - 10% UTILIZED
- 11 - 25% UTILIZED
- 26 - 50% UTILIZED
- 51 - 75% UTILIZED
- 76 - 100% UTILIZED

ON-STREET PARKING UTILIZATION
OREGON CITY, OREGON

FIGURE
15

H:\proj\10567 - Providence Willamette Falls\dwgs\figs\10567_Fig02.dwg Aug 25, 2011 - 9:05am - atanaka Layout Tab: 15

Parking Conclusions

The significant findings of the parking analysis are summarized below.

- There is sufficient on-campus parking today to accommodate the existing peak daily demand. During the highest hour of parking utilization, 78 percent of the spaces are full within the existing Master Plan boundaries. This level of utilization still provides sufficient opportunities for patients and visitors to easily and efficiently find a parking space without unnecessary circulating through the garages or parking lots.
- The Master Plan includes some additional parking on the west side of Division Street, but new parking areas will need to be identified to facilitate the new development. Based on a ratio of 1.95 spaces per 1,000 square feet, 138 new spaces would be needed campus-wide at build-out.
- PWFMC should monitor the need for supplying 1.95 spaces per 1,000 square feet of new buildings to ensure that this ratio remains applicable assuming the drive-alone rate to campus continues to decrease over time.
- There is limited use of the first block of 15th Street (west of Division Street) by hospital staff and visitors. Neighborhood feedback indicated that hospital staff and visitors also frequently park on the first blocks of 14th Street and 16th Street (west of Division Street). PWFMC should continue to monitor this situation and work with the neighborhood to ensure any impacts are mitigated.

Section 6 Conclusions and Recommendations

CONCLUSIONS AND RECOMMENDATIONS

The pertinent findings and recommendations are summarized below.

Findings

EXISTING TRANSPORTATION SYSTEM OPERATIONS AND SAFETY

- Under existing conditions, all study intersections meet operating standards during both the a.m. and p.m. peak hours.
- Only five of the study intersections have any reported crashes over the past five years. No safety mitigation needs have been identified based on the crash data alone.
- Several mitigations have been identified that would improve sight distance at the PWFMC accesses and the roadways that intersect Division Street across from the PWFMC campus. In order to provide adequate sight distance, PWFMC should move the hospital sign at the intersection of Division Street/Davis Road and restrict on-street parking and consider bulb-outs for the accesses and intersections along Division Street, particularly at the intersections of Division Street/Davis Road, Division Street/15th Street, and the Division Street/PWFMC Access Road (between 13th Street and 14th Street). The City and property owners should consider trimming and maintaining the shrubs near the roadway.

YEAR 2021 TRANSPORTATION SYSTEM OPERATIONS

- The 104,000 square feet of net building space proposed as part of the Master Plan is estimated to generate 87 weekday a.m. and 91 weekday p.m. peak hour trips, assuming no additional reduction in campus-related drive-alone travel is realized during the next ten years.
- Assuming year 2021 background conditions without an increase in campus-related uses, the Redland Road/Anchor Way and Molalla Avenue/7th Street intersections do not meet City of Oregon City operating standards. The Molalla Avenue/7th Street intersection is anticipated to operate acceptably for the next five years (through the year 2016) whereas the Redland Road/Anchor Way intersection is anticipated to operate acceptably for the next six years (through the year 2017) with increases in background growth.
- Assuming year 2021 total build-out conditions, the Master Plan does not cause any intersections to not meet City of Oregon City operating standards.
 - The City has been evaluating the potential for a roundabout at the Molalla Avenue/7th Street intersection. With a roundabout in-place, this intersection would meet City standards at full build-out of the Master Plan.
 - The Redland Road/Anchor Way intersection is anticipated to warrant a traffic signal within the next six years. This improvement has been identified in the Oregon City TSP. With a signal in-place, this intersection would meet standards.

MODE SPLIT AND PARKING

- The 2011 Employee Commute Options (ECO) survey results represent a slight decrease in the drive-alone mode split from the July 2010 survey (a decrease from 89 to 88 percent). PWFMC's efforts to reduce the drive-alone rate will continue to lessen both parking and traffic impacts associated with the campus over time.
- There is sufficient on-campus parking today to accommodate the existing peak daily demand. During the highest hour of parking utilization, approximately 78 percent of the spaces are full within the existing Master Plan boundaries. This level of utilization still provides sufficient opportunities for patients and visitors to easily and efficiently find a parking space without unnecessary circulating through the garages or parking lots.
- Based on the existing parking demand, a campus-wide rate of 1.95 spaces per 1,000 square feet of building space should be supplied on-campus throughout the next ten years. Accounting for an excess of parking today, 138 new spaces would be needed campus-wide upon build-out of the Master Plan uses.
- PWFMC should monitor the need for supplying a campus-wide rate of 1.95 spaces per 1,000 square feet of buildings space to ensure that this ratio remains applicable as the drive-alone rate to campus continues to decrease over time.
- There is limited use of the first block of 15th Street (west of Division Street) by hospital staff and visitors. Neighborhood feedback indicated that hospital staff and visitors also frequently park on the first blocks of 14th Street and 16th Street (west of Division Street). PWFMC should continue to monitor this situation and work with the neighborhood to ensure any impacts are mitigated.

Recommendations

- In order to achieve adequate sight distance at the PWFMC accesses and roadways intersecting Division Street, the hospital sign at the intersection of Division Street/Davis Road should be moved east. Parking restrictions and bulb-outs should also be considered in order to acquire additional sight distance, specifically at the intersections of Division Street/Davis Road, Division Street/15th Street, and the Division Street/PWFMC Access Road (between 13th Street and 14th Street). The City and property owners should consider trimming and maintaining the shrubs near the roadway.
- Based on existing parking demand, 1.95 parking spaces should be provided per 1,000 square feet of total building space on-campus. This ratio should be monitored over time to ensure its application remains appropriate as the campus experiences further reductions in the drive-alone rate. This ratio results in a total campus need of 138 new parking spaces.
- PWFMC should work with the City of Oregon City to contribute a pro rata share of improvements at the Redland Road/Anchor Way and Molalla Avenue/7th Street intersections. The timing of and need for these pro rata share improvements should be determined as part of subsequent DDP submittals. Improvements at these locations are not anticipated to be needed for five to six years, and the timing of expansions to the hospital that are included in the Master Plan have not yet been defined.

- Based on current estimates, build-out of the Master Plan uses would contribute approximately 1.1 percent of the p.m. peak hour traffic volumes in the year 2021 at the Molalla Avenue/7th Street intersection.
- At the Redland Road/Anchor Way intersection, build-out of the Master Plan uses would contribute approximately 2.3 percent of the p.m. peak hour traffic volumes in the year 2021.