



## TECHNICAL MEMORANDUM

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Date: March 3, 2017 Project #: 19890.3  
To: Jim Whynot and Jacque Betz, City of Gladstone  
Gail Curtis, Oregon Department of Transportation, Region 1  
From: Matt Bell and Molly McCormick, Kittelson and Associates, Inc.  
Project: Gladstone Transportation System Plan (TSP) Update  
Subject: Final Tech Memo 5: Existing Transportation System Gaps and Deficiencies (Subtask 3.1)

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This memorandum documents existing transportation system gaps and deficiencies within the City of Gladstone. Figure 1 illustrates the city boundary. The information presented in this memorandum will serve as a baseline for evaluating transportation system needs and identifying potential solutions for the Transportation System Plan (TSP) update. The information is based on an inventory of existing transportation facilities, discussions with City and Oregon Department of Transportation (ODOT) staff, and input from the project advisory committees and the general public.

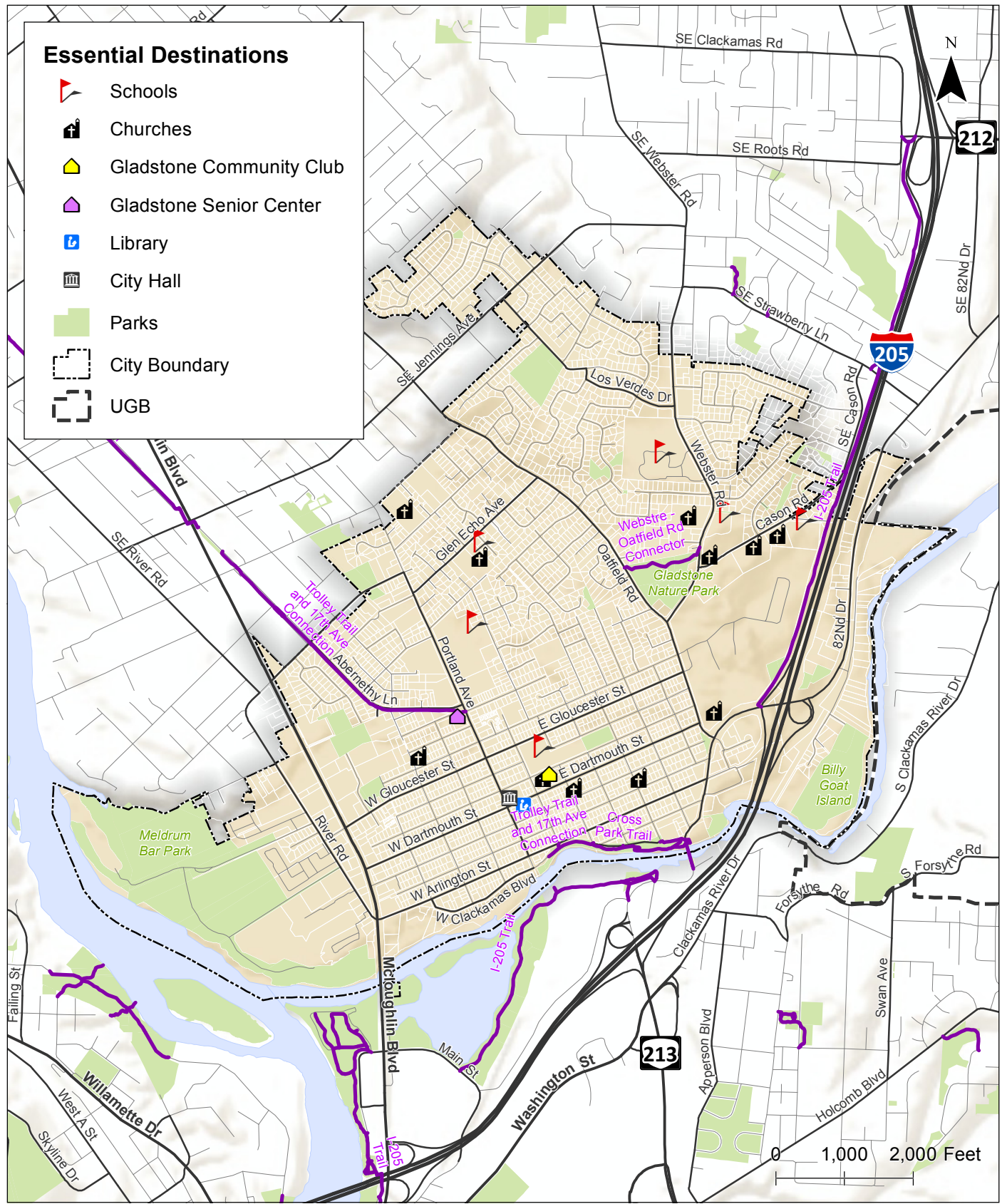
This memorandum includes information on the existing public transit, pedestrian, bicycle, motor vehicle, and other travel modes within the city. This memorandum also includes information on existing Transportation System Management and Operations (TSMO) and Transportation Demand Management (TDM) programs within the city as well and the region. The following sections describe the characteristics, usage, performance, gaps, and deficiencies of the existing transportation system within Gladstone.

### PUBLIC TRANSIT SYSTEM

The public transit system within Gladstone consists of fixed-route and paratransit services as well as school and shuttle bus service. Frequent morning and evening peak hour service along OR 99E provides residents with the ability to use public transit for daily commuting, while less frequent mid-day, and weekend service provides residents with the ability to use public transit to access retail and recreational areas located throughout Clackamas County and the region.

#### Transit Service Providers

Transit service is provided in Gladstone by the Tri County Metropolitan Transportation District of Oregon (TriMet), which provides transit service for the Portland Metro area including the counties of Clackamas, Multnomah and Washington. Other service providers include the Gladstone Senior Center, Somerset Lodge, and Clackamas County Social Services.



**Study Area  
Gladstone, Oregon**

**Figure  
1**

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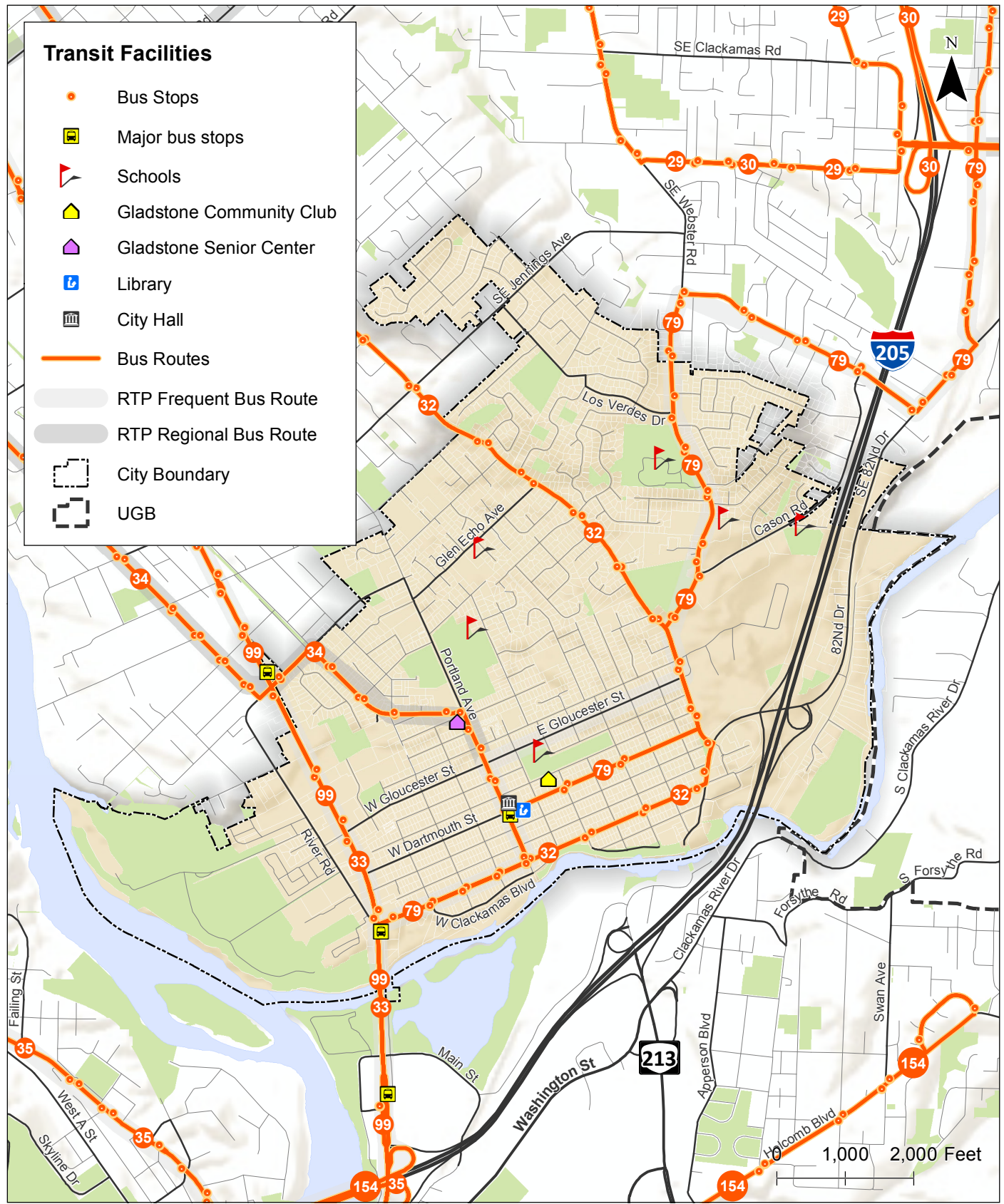
## Transit Facilities and Services

### *Fixed-Route Service*

TriMet operates five fixed-route bus lines in Gladstone, including Lines 32, 33, 34, 79, and 99, providing connections to the Milwaukie City Center, Clackamas Community College (CCC), Clackamas Town Center, Oregon City Transit Center, and Portland City Center.

- Line 32 (Oatfield) provides weekday service between Clackamas Community College (CCC) Downtown Milwaukie via OR 99E, Arlington Street, and Oatfield Road from 4:49 a.m. to 9:49 p.m. on approximately 30 minute headways during the morning and evening peak periods and 60 minute headways during non-peak periods. Line 32 also provides Saturday service between CCC and the Oregon City Transit Center from 9:43 a.m. to 5:26 p.m. on approximately 60 minute headways.
- Line 33 (McLoughlin/King Road) provides weekday service between CCC, Downtown Milwaukie, and Clackamas Town Center via OR 99E from 4:15 a.m. to 12:29 a.m. on approximately 15-30 minute headways. Weekend service is provided from 5:33 a.m. to 11:58 p.m. on Saturday and 12:31 a.m. on Sunday on approximately 15-30 minute headways.
- Line 34 (Linwood/River Road) provides weekday service between the Clackamas Town Center and the Oregon City Transit Center via Arlington Street, Portland Avenue, Abernathy Lane, and River Road from 6:04 a.m. to 8:05 p.m. on approximately 40 minute headways.
- Line 79 (Clackamas/Oregon City) provides weekday service between the Clackamas Town Center and the Oregon City Transit Center via Arlington Street, Portland Avenue, Dartmouth Street, Oatfield Road, and Webster Road from 5:19 a.m. to 10:31 p.m. on approximately 30-40 minute headways. Weekend service is provided from 8:15 a.m. to 10:33 p.m. on approximately 40 minute headways.
- Line 99 (Macadam/McLoughlin) provides weekday rush hour service between CCC and the Portland City Center via OR 99E during the morning peak period from 5:16 a.m. to 8:46 a.m. on approximately 15-30 minute headways and during the evening peak period from 3:07 p.m. to 5:57 p.m. on approximately 15-30 minute headways.

Existing transit routes and stops are illustrated on Figure 2. As shown, fixed-route transit service is provided along several major roadways throughout the city with stops at major intersections. Also shown, there are currently two stops with bus shelters within Gladstone: bus stop 10328, north of the OR 99E/E Arlington Avenue intersection, and bus stop 10326, north of the OR 99E/Glen Echo Avenue intersection.



Existing Transit Facilities  
Gladstone, Oregon

Figure  
2

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## **Ridership**

Ridership data was obtained from TriMet for each of the fixed-route services and stops located within Gladstone. The data includes the average number of weekday boardings and alightings (ons and offs) at each stop in Spring 2016. *Tables A-1 through A-5 in Attachment "A" summarize the TriMet ridership data for the stops located within Gladstone.* Per TriMet's Bus Stops Guidelines document, bus stop amenities are provided at each stop based on average daily ridership. A pole and bus stop sign is required at all stops; however, shelters are installed at stops that experience 50 or more boardings and alightings (ons and offs) per day (35 if headways are greater than 17 minutes).

## **Paratransit Service**

TriMet's LIFT Paratransit service is a shared-ride transportation service for residents who are unable to use regular fixed-route services due to disabilities or disabling health conditions. The service is offered within three-fourths of a mile beyond the outermost portions of TriMet's fixed-route bus and light-rail lines. Service is not offered outside of TriMet's service district. LIFT is available from 4:30 a.m. to 2:30 a.m. seven days a week.

## **School Bus Service**

School bus service within the Gladstone area is contracted out to a local service provider. Elementary school students living more than one mile from school are eligible for bus service, as are middle and high school students living more than 1.5 miles from their schools. School buses operate on all arterial and collector streets and many local streets. Safe bus stop approaches and waiting areas are a concern, as are walkways to schools within the radii not served by buses.

## **Shuttle Service**

Shuttle service is provided by the Gladstone Senior Center Tram for senior citizens who reside within city limits. Seniors may call to take part in the Tuesday through Thursday service including trips to the Senior Center for their provided lunches, transportation to specified grocery stores after lunch, and rides to morning medical appointments in Gladstone or Oregon City. In addition, senior citizens can sign up for pre-paid Friday excursions scheduled by the Senior Center.

Somerset Lodge and Somerset Assisted Living Facility provide a shuttle service for Somerset residents. The shuttle service operates Monday through Friday during regular business hours and provides residents with travel options to local retail and commercial activity within Gladstone (i.e. Safeway, Walmart, Rite-Aid). Special trips can also be prearranged with the service provider.

Clackamas County Social Services runs several transportation programs that are meant to provide service to people unable to access other transportation options. One program called "Transportation Reaching People" provides transportation for elderly, disabled, or rural County residents to medical appointments, shopping and errands. Volunteers with personal cars provide the service. A second transportation program called "Ride Together" provides similar service with the exception that volunteer drivers, such as family, friends, or neighbors, are recruited by the riders. The last Clackamas

County Social Services transportation program, “Vets Driving Vets”, provides the type of services for veterans with volunteer veteran drivers. The services are available from 8:00 a.m. to 5:00 p.m. on weekdays, excluding holidays.

### ***Park-and-Rides***

There are no park-and-rides located within the city. The closest park-and-ride is located to the north in Milwaukie. The Milwaukie Elks park-and-ride located at 13121 SE McLoughlin Boulevard is a shared facility which provides 90 parking stalls to transit riders. The SE Park Avenue park-and-ride located in Milwaukie at 2750 SE Park Avenue is a TriMet facility that provides 402 parking stalls to transit riders. Both facilities are free for up to 24-hours (unless otherwise posted). Overnight parking is permitted, as long as it does not exceed 24-hours.

### ***Regional Public Transit Facilities***

The 2014 Regional Transportation Plan (RTP) identifies several regional public transit facilities within Gladstone, including frequent bus routes, regional bus routes, and major transit stops. Per Figure 2.10 (Regional Transit Network) of the RTP, OR 99E, Arlington Street, Portland Avenue, Gloucester Street, Oatfield Road, and Webster Road are frequent bus routes; OR 99E, Portland Avenue, Abernathy Lane, Glen Echo Avenue, and River Road are regional bus routes, and; bus stop 10326 (McGloughlin & Glen Echo), 10328 (McLoughlin & W Arlington), and 4463 (Portland Ave & E Dartmouth) are identified as major bus stops. Other regional public transit facilities within the area include an inter-city bus passenger terminal and an inter-city rail passenger terminal in Oregon City.

### **Existing Gaps and Deficiencies**

The following provides a summary of the existing gaps and deficiencies in the public transit system along with issues identified by local residents:

- Marketing and awareness of existing public transit facilities and services should be improved to attract higher levels of ridership.
- More frequent transit service should be provided to improve the viability of using public transit for daily commuting.
- More direct service should be provided to regional centers located further west, such as Tigard, Tualatin, Beaverton, and Hillsboro.
- Locations for new park-and-ride facilities should be identified within the city.
- Transit shelters should be installed where warranted by existing ridership.
- Transit service enhancements should be identified along regional public transit facilities.
  - Transit service is not provided along Gloucester Street, which is identified in the RTP as a frequent bus route.

- A bus shelter is not provided at bus stop 4463 (Portland Avenue & E Dartmouth), which is identified in the RTP as a major transit stop.
- Gaps and deficiencies in the pedestrian and bicycle systems that provide access to public transit facilities as well as other key destinations with Gladstone are identified below.

## PEDESTRIAN SYSTEM

The pedestrian system within Gladstone consists of sidewalks, shared-use paths, and trails as well as marked and unmarked, signalized and unsignalized pedestrian crossings. These facilities provide local residents with the ability to access transit as well as local retail, commercial, recreational, and other land uses by foot. Safe and convenient pedestrian facilities are essential to a vibrant community and economy within the city.

### Pedestrian Facilities

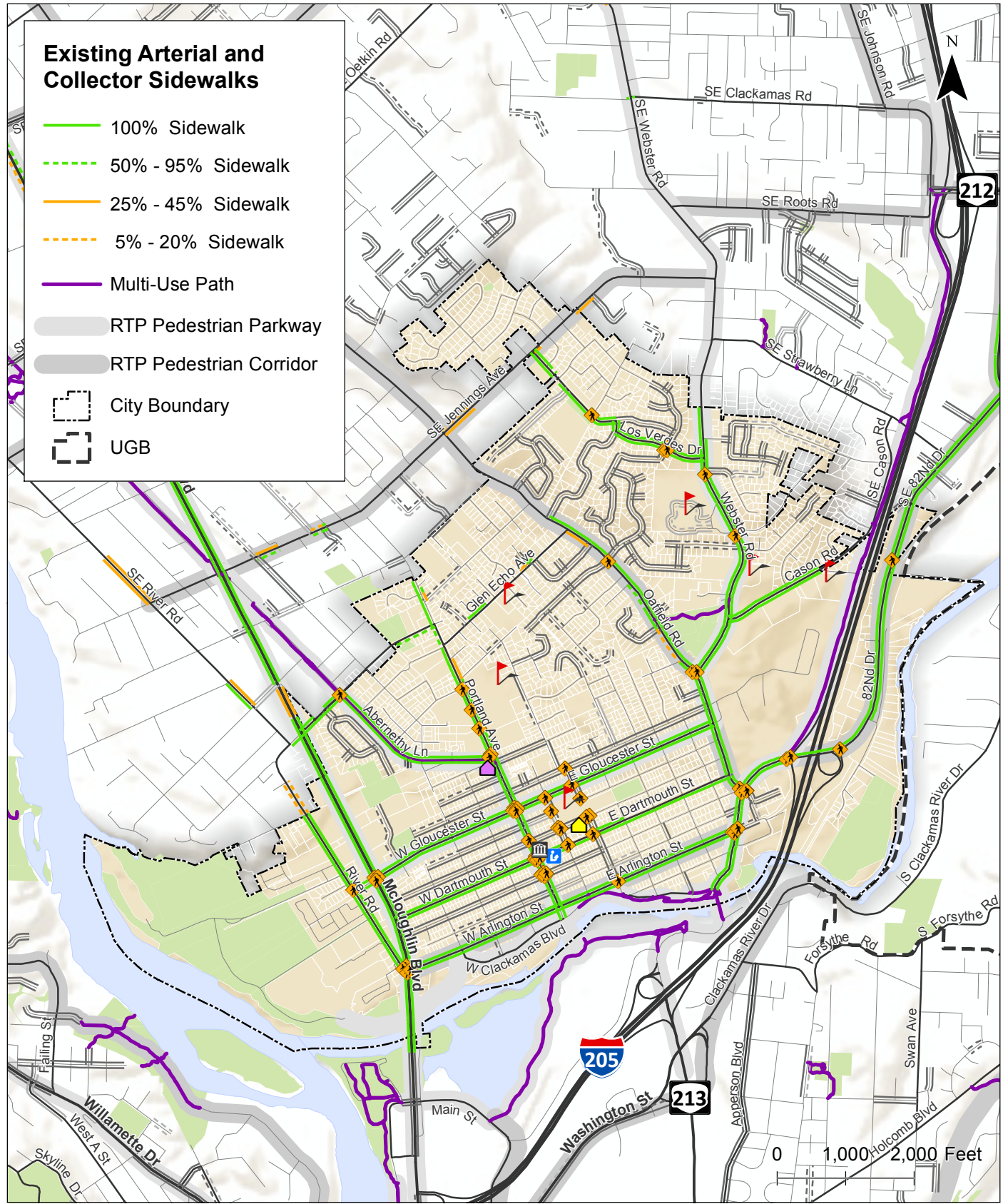
In order to assess the adequacy of pedestrian facilities, Geographic Information System (GIS) data was obtained from Metro's Regional Land Information System (RLIS). The GIS data was updated to reflect recent aerial imagery of sidewalks and other pedestrian facilities along the city's arterial and collector streets. The data includes the location of existing sidewalks and crosswalks along with the location of essential destinations such as schools, parks, and retail/commercial areas as well as the local senior center, community center, library, and City Hall. Local churches are also included as essential destination per direction from the project committees. These essential destinations were identified to determine possible pedestrian trip generators and to help prioritize potential improvements to the pedestrian system. Figure 3 shows the existing pedestrian facilities within Gladstone and the location of essential destinations. The following provides a summary of the facilities, including existing gaps and deficiencies.

#### *Sidewalks*

Sidewalks are currently provided along a majority of arterial and collector streets within the city as well as many local streets. However, there are gaps in the northern parts of the city, particularly along Glen Echo Avenue and Oatfield Road. The gaps along Glen Echo Avenue limit pedestrian access to Grace Christian School as well as access to OR 99E and Oatfield Road. The gaps along Oatfield Road limit pedestrian access to transit service. Other notable gaps include those along the northern portion of Portland Avenue, Dartmouth Street, and 82<sup>nd</sup> Drive.

#### *Crosswalks*

Marked crosswalks are also provided at several major intersections (signalized and unsignalized), particularly within the central part of the city and along Portland Avenue; however, there are several locations that currently lack signed or striped crosswalks, particularly near schools, parks, and along street that provide transit service (i.e. Arlington Street, Oatfield Road, Webster Road).



**Existing Pedestrian Facilities  
Gladstone, Oregon**

**Figure  
3**

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### ***Shared-use Paths and Trails***

There are several shared-use paths and trails located throughout the city. A few of the key paths and trails include the Trolley Trail, the Cross Park Trail, the Charles Ames Park Way, and the I-205 Trail.

- Trolley Trail – the Trolley Trail is a shared use path that follows the historic streetcar right-of-way that ran in the area from 1893 until 1968. The trail extends north from Portland Avenue along the south side of Abernathy Lane and crosses OR 99E at Jennings Avenue.
- Cross Park Trail – the Cross Park Trail is a shared-use path that is located along the southern boundary of the city in Cross Park. The trail extends from 82<sup>nd</sup> Drive, near the Park Place Bridge, to Chief Charles Ames Memorial Park.
- Charles Ames Park Walk – the Charles Ames Park Walk is a shared-use path that is located along the southern boundary of the city in Chief Charles Ames Memorial Park. The trail extends from Cross Park to Clackamas Boulevard.
- I-205 Trail – the I-205 trail is a shared-use path that follows I-205. The trail extends north from 82<sup>nd</sup> Drive along the west side of I-205.

### ***Pedestrian Accessways***

There are several pedestrian accessways located throughout the city. These accessways provide pedestrian connectivity between cul-de-sacs and other areas where there are no streets. Additional accessways are not always possible due to topography and existing development patterns. However, there are a few locations where accessways could be provided and where existing accessways could be improved.

### ***Safe Routes to School***

Gladstone does not have a Safe Routes to School (SRTS) program, which is a program design to encourage students to walk to school by improving infrastructure along streets that provide access to local schools as well as providing education programs, driver enforcement programs, and more. This TSP update will provide a SRTS program, but it will serve as a catalyst to begin discussions and implementation of a SRTS program in the city.

### ***Regional Pedestrian Facilities***

The 2014 RTP identifies several regional pedestrian facilities within Gladstone, including on-street and off-street pedestrian parkways and regional pedestrian corridors and a regional pedestrian district. Per Figure 2.20 (Regional Pedestrian Network) of the RTP, OR 99E, Portland Avenue (between Arlington Street and Abernathy Lane), Oatfield Road (between Gloucester Street and Webster Road), Gloucester Street, Webster Road, and the shared-use paths and trails described above are regional parkways; Arlington Street, 82<sup>nd</sup> Drive, Oatfield Road and Jennings Avenue are pedestrian corridors; and the central city is a regional pedestrian district.

In general, the existing pedestrian facilities are adequate in the retail and commercial areas along OR 99E, Portland Avenue, and 82<sup>nd</sup> Drive and in the central part of the city; however, they are inadequate in the areas surrounding several schools and parks and along streets that provides transit service. It is desirable to provide at least one continuous sidewalk connection between essential destinations and along arterial and collector roadways to provide safe and convenient non-motorized travel options. Further review of the adequacy of existing pedestrian facilities will be provided in subsequent tech memos.

### Pedestrian Activity

Pedestrian counts were conducted at the study intersections in June 2016 while school was in session. All of the counts were conducted on a typical mid-weekday during the evening (4:00 to 6:00 p.m.) peak time period. All of the counts include the total number of pedestrians that entered the intersections in 15-minute intervals. The pedestrian counts show a relatively high level of pedestrian activity at the study intersections along OR 99E and a relatively low level of pedestrian activity at the other study intersections. It should be noted that while the peak hour for vehicular traffic typically occurs between 4:00 to 6:00 p.m., the peak hour for pedestrian activity near schools and other activity centers typically occurs earlier in the day. The pedestrian count data is shown in Table 1.

**Table 1: PM Peak Hour Pedestrian Crossing Volumes at Study Intersections**

Map ID	Intersection	North/South Pedestrian Volume	East/West Pedestrian Volume	Pedestrian Peak Hour
1	OR 99E/S Arlington Street	24	14	4:05 to 5:05 p.m.
2	OR 99E/W Gloucester Street	22	16	5:00 to 6:00 p.m.
3	OR 99E/Glen Echo Avenue	12	19	4:15 to 5:15 p.m.
4	Oatfield Road/SE 82 <sup>nd</sup> Drive	8	5	4:15 to 5:15 p.m.
5	Oatfield Road/Ridgegate Drive-Collins Crest Street	6	1	4:00 to 5:00 p.m.
6	Oatfield Road/Glen Echo Avenue	0	2	4:05 to 5:05 p.m.
7	I-205 Southbound Ramp Terminal/SE 82 <sup>nd</sup> Drive	1	3	4:15 to 5:15 p.m.
8	I-205 Northbound Ramp Terminal/SE 82 <sup>nd</sup> Drive	2	0	5:00 to 6:00 p.m.

As shown in Table 1, the highest pedestrian crossing volumes were observed at intersections located along OR 99E near retail and commercial land uses and along Oatfield Road. Potential pedestrian crossing improvements should be prioritized at these locations to ensure safe and convenient access for pedestrians.

### Existing Gaps and Deficiencies

Streets with no sidewalks or intermittent sidewalks force pedestrians to walk along the edge of the travel lane or use the shoulder if available. In many cases, this is not a desirable option for pedestrians due to narrow lane widths or uneven pavement conditions. Similarly, streets with no crosswalks or limited crosswalks force pedestrians to make unsafe or illegal crossings. Adequate pedestrian facilities should be provided to allow for safe travel between neighborhoods and essential destinations. The

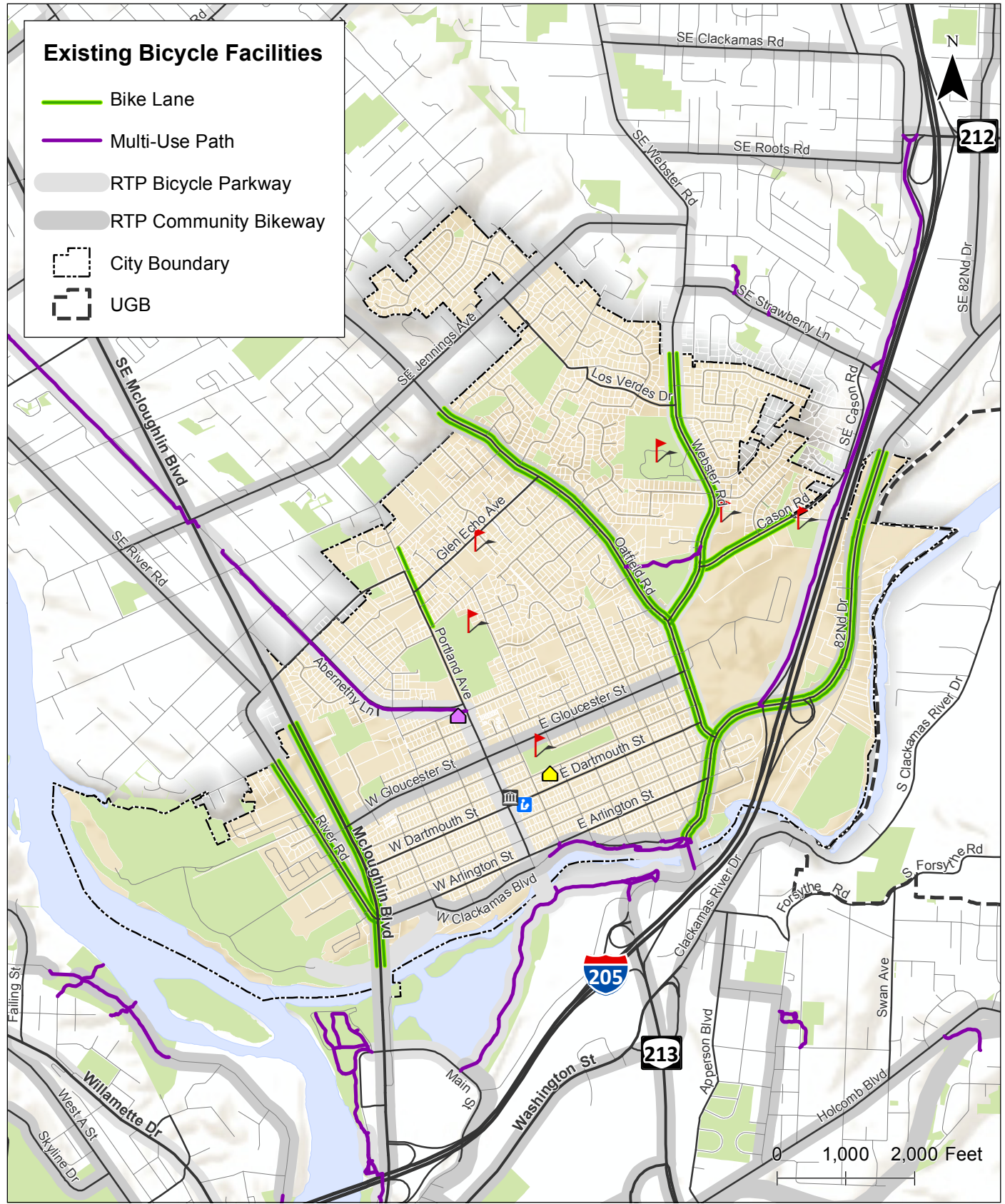
following provides a summary of the existing gaps deficiencies in the existing pedestrian system along with issues identified by local residents:

- There are several arterial and collector streets that currently do not have sidewalks along one or two sides of the roadway. These streets include:
  - Glen Echo Avenue from River Road to Oatfield Road – gaps on both sides
  - Dartmouth Street from Portland Avenue to Oatfield Road – north side
  - Portland Avenue from Nelson Lane to the north city limits – gaps on both sides
  - Oatfield Road from Webster Road to north city limits – gaps on both sides
  - Los Verdes Drive from Valley View Road to north city limits – gaps on both sides
- There are also several local streets that currently do not have sidewalks along one or two sides of the roadway.
- Several of the gaps and deficiencies limit connectivity between residential areas and essential destinations throughout the city, including schools, parks, and transit stops.
- Many sidewalks throughout the city do not provide sufficient width to accommodate pedestrian activity or are in disrepair.
- Many sidewalks and pedestrian ramps throughout the city are not ADA compliant.
- Several intersections do not provide marked pedestrian crossings.
- There are a few locations where new pedestrian accessways could be provided and others where existing accessways could be improved.

## BICYCLE SYSTEM

The bicycle system within Gladstone consists of on-street bike lanes and shared roadways as well as off-street bicycle facilities such as bicycle parking and shared-use paths. These facilities provide local residents with the ability to access transit as well as local retail, commercial, recreational, and other land uses within Gladstone and neighboring cities by bike. Safe and convenient bicycle facilities are essential to a vibrant community and economy within the city.

In order to assess the adequacy of bicycle facilities in Gladstone, GIS data was obtained from Metro's RLIS. The GIS data was updated to reflect recent aerial imagery of bike lanes and other bicycle facilities along the city's arterial and collector streets. The data includes the location of existing bike lanes along with the location of essential destinations such as schools, parks, and retail/commercial areas as well as the local senior center, community center, library, and City Hall. Local churches are also included as essential destination per direction from the project committees. These essential destinations were identified to determine possible bicycle trip generators and to help prioritize potential improvements to the bicycle system. Figure 4 shows the existing bicycle facilities within Gladstone as well as the location of essential destinations.



**Existing Bicycle Facilities  
Gladstone, Oregon**

**Figure  
4**

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## Bicycle Facilities

### *Bike lanes*

On-street bike lanes are currently provided along only a few arterial and collector streets within the city including River Road, OR 99E, Oatfield Road, Webster Road, Carson Road, and 82<sup>nd</sup> Drive. Bike lane striping also appears to be provided along the east side of Portland Avenue north of Nelson Road; however, there are no bicycle symbols and vehicles can be seen parked along the side of the roadway.

### *Bicycle Crossings*

Bicycle crossing treatments are also provided at several major intersections, particularly along OR 99E and 82<sup>nd</sup> Drive where channelized right-turn lanes would otherwise conflict with through bike movements; however, they are limited to intersections channelized right-turn lanes.

### *Regional Bicycle Facilities*

The 2014 RTP identifies several regional bicycle facilities within Gladstone, including on-street and off-street regional bikeways and bicycle parkways and a regional bicycle district. Per Figure 2.18 (Regional Bicycle Network) of the RTP, River Road, OR 99E, Oatfield Road (north of Webster Road), 82<sup>nd</sup> Drive, Gloucester Street, and Clackamas Boulevard are regional bikeways; Portland Avenue (between Arlington Street and Abernathy Lane), Oatfield Road (between 82<sup>nd</sup> Drive and Webster Road), Webster Road, 82<sup>nd</sup> Drive, and the shared-use paths and trail described above are bicycle parkways; and the central city is a regional bicycle district.

In general, the existing bicycle facilities are limited to a few arterial and collector streets; however, these streets (OR 99E, River Road, 82<sup>nd</sup> Drive, Oatfield Road, and Webster Road) provide connectivity on a local and regional level. It should also be noted that not all streets need to provide bike facilities, since streets with low vehicle volumes (fewer than 3,000 average daily traffic) and slow speeds (25 miles per hour or less) are considered safe environments for shared vehicle and bicycle use of the travel lanes. Further review of the adequacy of existing bicycle facilities will be provided in subsequent tech memos.

## Bicycle Activity

Bicycle counts were conducted at the study intersections in June 2016 while school was in session. All of the counts were conducted on a typical mid-week day during the evening (4:00 to 6:00 p.m.) peak time period. All of the counts include the total number of bicyclists that entered the intersections in 15-minute intervals. The bicycle counts show a relatively low level of bicycle activity at the study intersections in general. It should be noted that while the peak hour for vehicular traffic typically occurs between 4:00 to 6:00 p.m., the peak hour for bicycle activity near schools and other activity centers typically occurs earlier in the day. The bicycle count data is shown in Table 2.

**Table 2: Bicycle Crossing Volumes at Study Intersections**

Map ID	Intersection	North/South Bicycle Volume	East/West Bicycle Volume	Bicycle Peak Hour
1	OR 99E/S Arlington Street	6	2	5:00 to 6:00 p.m.
2	OR 99E/W Gloucester Street	2	0	4:55 to 5:55 p.m.
3	OR 99E/Glen Echo Avenue	0	1	4:55 to 5:55 p.m.
4	Oatfield Road/SE 82 <sup>nd</sup> Drive	0	4	4:15 to 5:15 p.m.
5	Oatfield Road/Ridgegate Drive-Collins Crest Street	1	1	4:50 to 5:50 p.m.
6	Oatfield Road/Glen Echo Avenue	1	0	4:55 to 5:55 p.m.
7	I-205 Southbound Ramp Terminal/SE 82 <sup>nd</sup> Drive	0	1	4:00 to 5:00 p.m.
8	I-205 Northbound Ramp Terminal/SE 82 <sup>nd</sup> Drive	0	0	4:30 to 5:30 p.m.

As shown in Table 2, the highest bicycle crossing volumes were observed at intersections located along OR 99E near retail and commercial land uses and along Oatfield Road.

### Existing Gaps and Deficiencies

Streets with no bike lanes or intermittent bike lanes force bicyclists to share the travel lane with motor vehicles or use the shoulder if available. In many cases, this is not a desirable option for bicyclists due to narrow lane widths or uneven pavement conditions. Adequate bicycle facilities should be provided to allow for safe travel between neighborhoods and essential destinations. The following provides a summary of the existing gaps deficiencies in the existing bicycle system along with issues identified by local residents:

- There are several arterial and collector streets that currently do not provide on-street bike lanes. These streets include:
  - Glen Echo Avenue from River Road to Oatfield Road
  - Abernathy Lane from Glen Echo Avenue to Portland Avenue
    - There is a shared-use path along the south/west side of Abernathy Lane
  - Gloucester Street from River Road to Oatfield Road
  - Dartmouth Street from OR 99E to Oatfield Road
  - Arlington Street from OR 99E to 82<sup>nd</sup> Drive
  - Portland Avenue from Arlington Street to the north city limits
  - Los Verdes Drive from Webster Road to Valley View Road
  - Valley View Road from Los Verdes Drive to north city limits
- Several of the gaps and deficiencies limit connectivity between residential areas and bicycle destinations throughout the city, including schools, parks, and transit stops.

## MOTOR VEHICLE SYSTEM

The motor vehicle system within Gladstone includes private streets, city streets, state highways, and an interstate freeway. These types of facilities provide residents with the ability to access retail, commercial, recreational, and other land uses within Gladstone and neighboring cities by vehicle. This section describes how the system has been developed to date and provides a more detailed review of how it is used and operated.

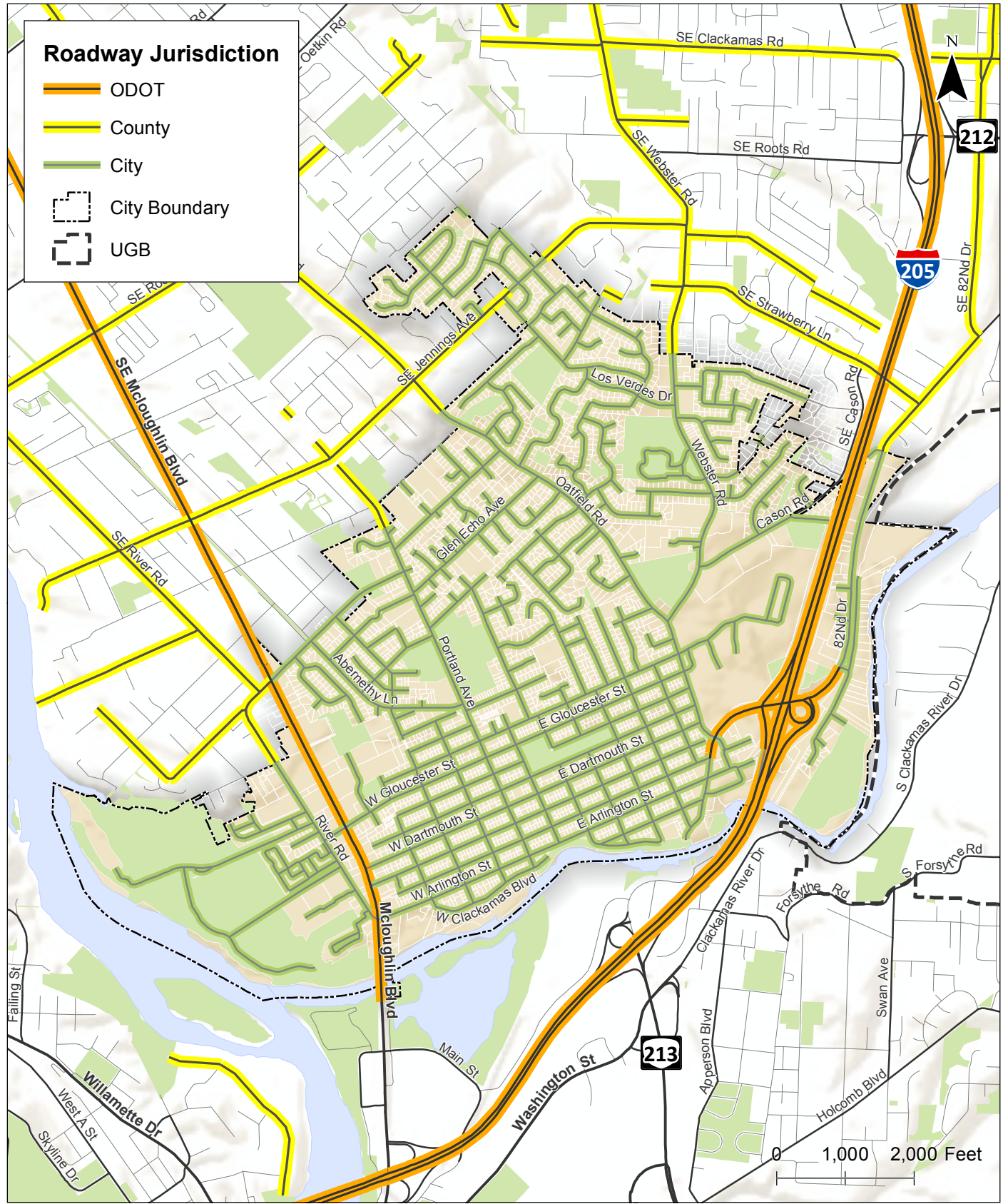
### Jurisdiction

Streets within Gladstone are owned and operated by the City of Gladstone and the Oregon Department of Transportation (ODOT). Each jurisdiction is responsible for determining the functional classification of the streets, defining major design and multimodal features, and approving construction and access permits. Coordination is required among the jurisdictions to ensure that the streets are planned, operated, maintained, and improved to safely meet public needs. Figure 5 illustrates the jurisdiction (ownership and maintenance responsibilities) of streets within Gladstone. As shown, OR 99E and I-205 are under the jurisdiction of ODOT along with the I-205 on- and off-ramps and the segment of 82<sup>nd</sup> Drive between Berkeley Street and Edgewater Road. All remaining streets within the city limits are under the jurisdiction of the City of Gladstone.

### Functional Classification

A street's functional classification defines its role in the transportation system and reflects desired operational and design characteristics such as right-of-way requirements, pavement widths, pedestrian and bicycle features, and driveway (access) spacing standards. Figure 6 illustrates the functional classification of streets within Gladstone, which includes the following designations:

- Freeways are divided highways with two or more travel lanes for exclusive use by traffic in each direction. They have uninterrupted traffic flow and allow full control of access and egress at ramps.
- Major arterials carry a high volume of traffic at relatively high travel speeds. They connect major traffic generators and may only be accessed by major traffic generators. Major arterials should not divide homogenous land uses.
- Minor arterials carry relatively high traffic volumes and high travel speeds. They connect major traffic generators to collector streets; facilitate through traffic, and channel it around homogenous land uses. Private driveways and parking entrances are discouraged along minor arterials while channelization is encouraged at major intersections.
- Collector streets provide access between neighborhoods and arterials and may define neighborhood boundaries. Through traffic is discouraged along collector streets as are private residential driveways.

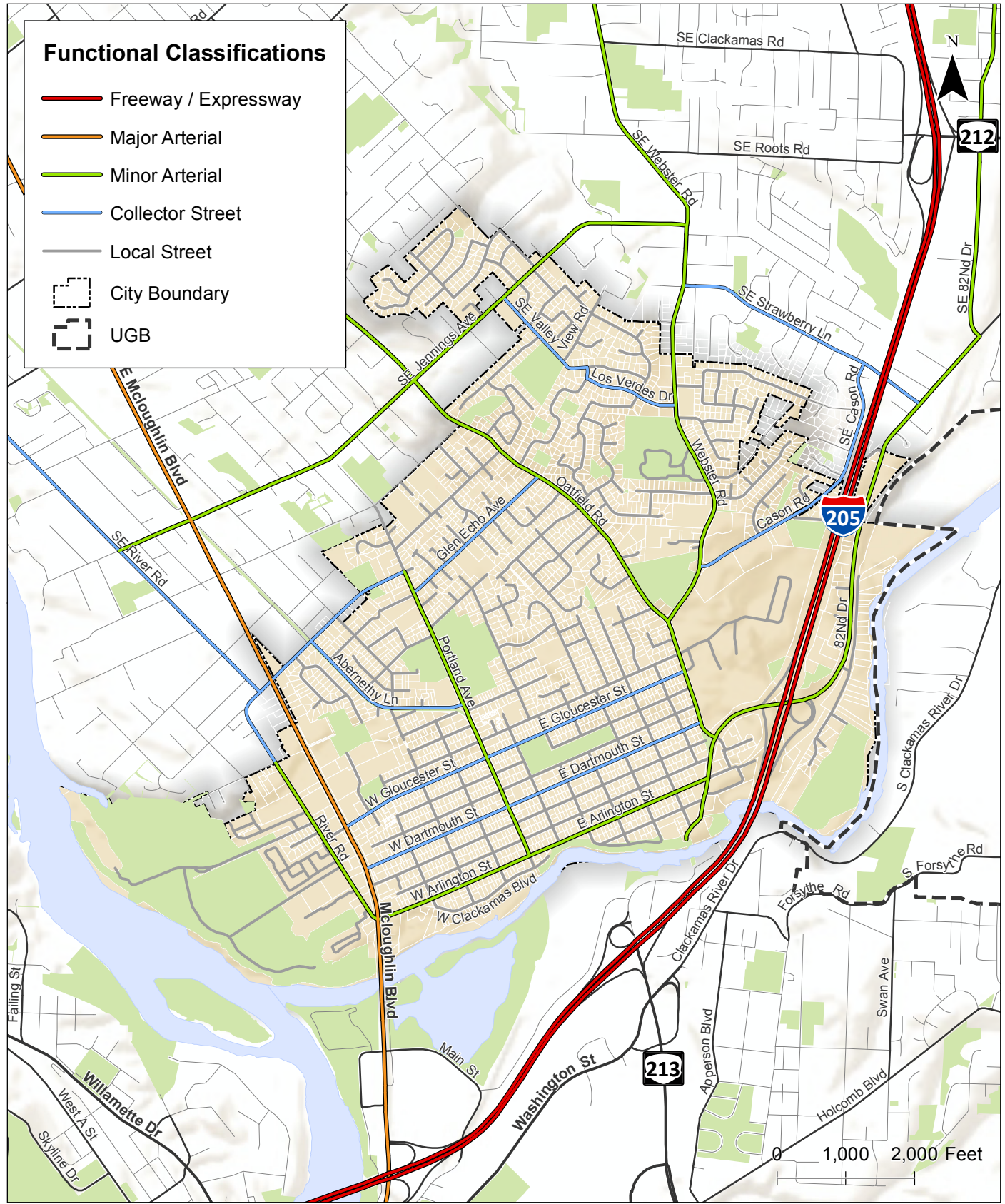


Roadway Jurisdiction  
Gladstone, Oregon

Figure  
5

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Gladstone Functional Classifications  
Gladstone, Oregon

Figure  
6

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- Local Streets provide access to abutting properties and accommodate minor traffic volumes. Local streets should not be a route for through traffic, buses, or trucks. They should also not connect to arterials.

Table 3 summarizes the functional classifications of the arterial and collector streets within Gladstone and identifies the overlapping ownership/maintenance and jurisdictional relationships that exist. Figure 6 illustrates the functional classifications of streets within Gladstone.

**Table 3: Functional Classification Comparison of Collector and Higher Streets by Jurisdiction**

Roadway	Jurisdiction	Functional Classification			
		Gladstone	Clackamas County	Metro	ODOT
I-205	ODOT	Freeway/Expressway	Principal Interstate	Principal Arterial	Interstate
OR 99E	ODOT	Major Arterial	Principal Arterial	Major Arterial	Principal Arterial
82 <sup>nd</sup> Drive	City	Minor Arterial	Minor Arterial	Minor Arterial	Minor Arterial
Arlington Street	City	Minor Arterial	Minor Arterial	Minor Arterial	Minor Arterial
Oatfield Road	City	Minor Arterial	Minor Arterial	Minor Arterial	Minor Arterial
Portland Avenue (Arlington to Glen Echo)	City	Minor Arterial	Minor Arterial	<sup>1</sup>	Minor Arterial
River Road	City	Minor Arterial	Minor Arterial	<sup>1</sup>	Minor Arterial
Webster Road	City	Minor Arterial	Minor Arterial	Minor Arterial	Major Collector
Jennings Avenue	City	Minor Arterial	Minor Arterial	Minor Arterial	Major Collector
Abernathy Lane	City	Collector	Collector	<sup>1</sup>	Major Collector
Cason Road	City	Collector	Collector	<sup>1</sup>	Major Collector
Dartmouth Street	City	Collector	Collector	<sup>1</sup>	Major Collector
Glen Echo Avenue	City	Collector	Collector	<sup>1</sup>	Major Collector
Gloucester Street (OR 99E to Oatfield)	City	Collector	Collector	<sup>1</sup>	Major Collector
Gloucester Street (River Road to OR 99E)	City	Local	Local	<sup>1</sup>	Local
Los Verdes Drive	City	Collector	Collector	<sup>1</sup>	Major Collector
Valley View Road	City	Collector	Collector	<sup>1</sup>	Major Collector
Portland Avenue (Glen Echo to Caldwell)	City	Local	Local	<sup>1</sup>	Major Collector
Portland Avenue (Caldwell to north city limits)	City	Local	Local	<sup>1</sup>	Minor Collector

1. Figure 2.7 of the RTP (Arterial and Throughway Network) identifies Metro’s classification of regionally significant arterial streets within the city.

Per the RTP, the functional classifications used in local TSPs should be consistent with other regional planning efforts. As shown in Table 3, the following streets currently have conflicting classifications:

- Webster Road is classified as a minor arterial by the City of Gladstone, Clackamas County, and Metro, but as a major collector by ODOT.
- Jennings Avenue is classified as a minor arterial by the City of Gladstone, Clackamas County, and Metro, but as a major collector by ODOT.
- Portland Avenue (Glen Echo to Caldwell) is classified as a local street by the City of Gladstone and Clackamas County, but as a major collector by ODOT.

- Portland Avenue (Caldwell to north city limits) is classified as a local street by the City of Gladstone and Clackamas County, but as minor collector by ODOT.

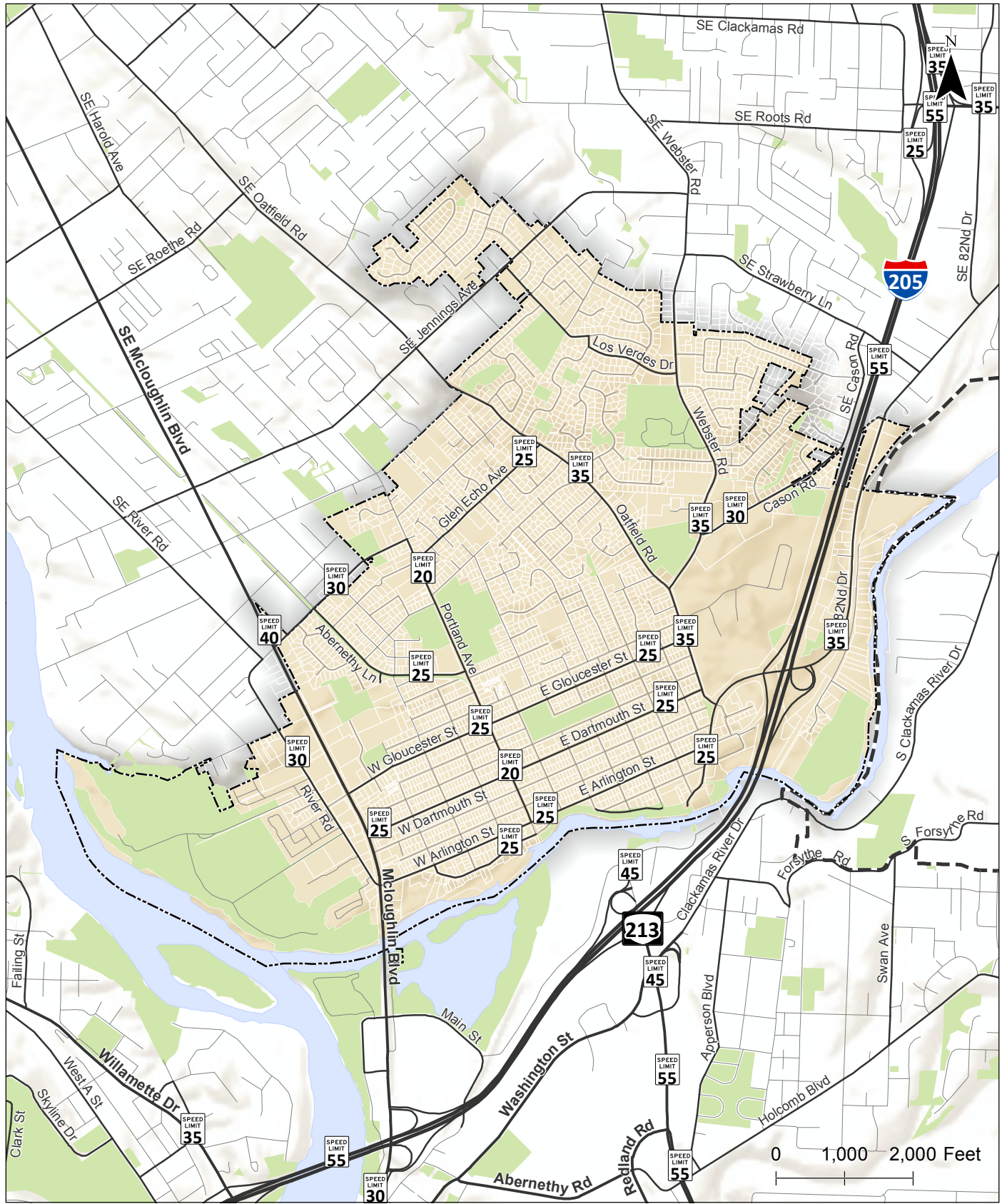
## Roadway Characteristics

The characteristics of arterial and collector streets are summarized in Table 4. The data includes posted speed limits, street widths, number of lanes, lane widths, on-street bike lanes, and on-street parking. These characteristics define roadway capacity and operating speeds through the street system, which affects travel path choices for drivers in Gladstone. Figure 7 illustrates posted speed limits throughout the city. Figure 8 illustrates average daily traffic volumes in select locations throughout the city. Subsequent sections provide additional information on traffic volumes at select study intersections.

**Table 4: Existing Study Area Roadway Characteristics by Functional Classification**

Corridor	Posted Speed [MPH]	Street Width [ft]	Number of Lanes	Lane Width [ft]	On-street Bike Lanes	On-street Parking
<b>Major Arterial</b>						
OR 99E	40	80	5	12-14	Yes	No
<b>Minor Arterial</b>						
82 <sup>nd</sup> Drive (Cross Park to First)	25	42-50	2	11-12	Yes	Yes
82 <sup>nd</sup> Drive (First to city limits)	35	50-59	3-5	11-12	Yes	No
Arlington Street	25	35	2	10-11	No	Yes
Jennings Avenue	30	24	2	10-11	No	No
Oatfield Road (82 <sup>nd</sup> to Webster)	35	48	3	11-12	Yes	No
Oatfield Road (Webster to city limits)	35	42	2	11-12	Yes	Yes
Portland Avenue (Arlington to Nelson)	20	56	3	11-12	No	Yes
Portland Avenue (Nelson to Lynne)	20	41	2	11-12	No	Yes
Portland Avenue Lynne to city limits)	20	41	2	11-12	No	Yes
River Road (OR 99E to 600' north)	25	46	3	11-12	Yes	No
River Road (600' North to city limits)	25	42	2	11-12	Yes	Yes
Webster Road	35	42	2	11-12	Yes	No
<b>Collector Street</b>						
Abernethy Lane	25	38	2	11-12	No	Yes
Cason Road	30	36	2	11-12	Yes	No
Dartmouth Street (OR 99E to Portland)	25	36	2	10-11	No	Yes
Dartmouth Street (Portland to Oatfield)	25	56	2	11-12	No	Yes
Glen Echo Avenue	25	30	2	10-11	No	Yes
Gloucester Street	25	35	2	11-12	No	Yes
Los Verdes Drive	25	36	2	11-12	No	Yes
Valley View Road	25	32	2	10-11	No	Yes

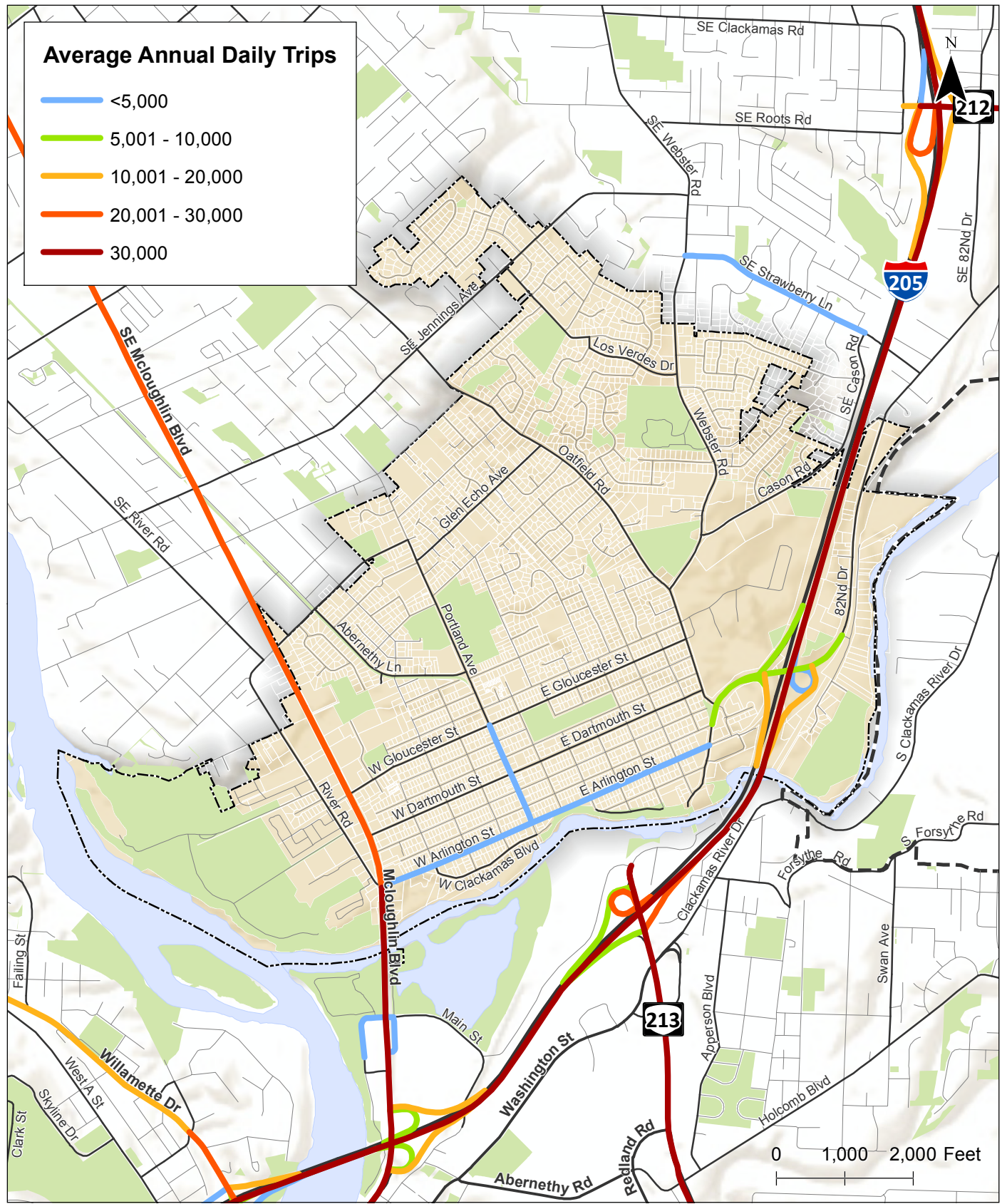
Per the current TSP, minor arterials are required to have a minimum pavement width of 42-feet while collector streets are required to have a minimum pavement width of 36 feet. As shown in Table 4, a majority of arterial and collector streets meet the City’s minimum pavement widths, with the following exceptions:



**Traffic Speeds  
Gladstone, Oregon**

**Figure  
7**

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**Traffic Volumes  
Gladstone, Oregon**

**Figure  
8**

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- Arlington Street is currently 35-feet wide and also allows on-street parking, which results in relatively narrow travel lanes in some areas.
- Jennings Avenue is currently 24-feet wide; however, it does not allow on-street parking.
- Glen Echo Avenue is currently 30-feet wide and allows on-street parking, which results in relatively narrow travel lanes in some areas.
- Valley View Road is currently 32-feet wide and allows on-street parking, which results in relatively narrow travel lanes in some areas.

## Pavement Condition

Capitol Assets & Pavement Services, Inc. was contracted by the City of Gladstone to evaluate the pavement condition of all City maintained streets. A total of 37.41 miles were evaluated by Capitol in October and November 2016 and assigned a Pavement Conditions Index (PCI) value of 0 to 100 based on the pavement condition. A higher PCI value allows for more cost-effective treatments, such as slurry seals and thin overlays while a lower PCI (<50) may require more expensive treatments, such as thick overlays and full reconstruction.

Capitol prepared a draft report that summarizes the current state of the city's street network, the likely state of the street network over the next five years, and what steps can be taken to improve the overall condition of the street network. Based on the draft report, the city's overall street network PCI is currently a 67 and is projected to be 68 in 2021 given current funding levels.

## Traffic Operations

Traffic operations were evaluated at eight study intersections in accordance with the assumptions and methodologies identified in Tech Memo 4. Figure 9 illustrates the location of the study intersections.

### ***Traffic Volumes and Peak Hour Operations***

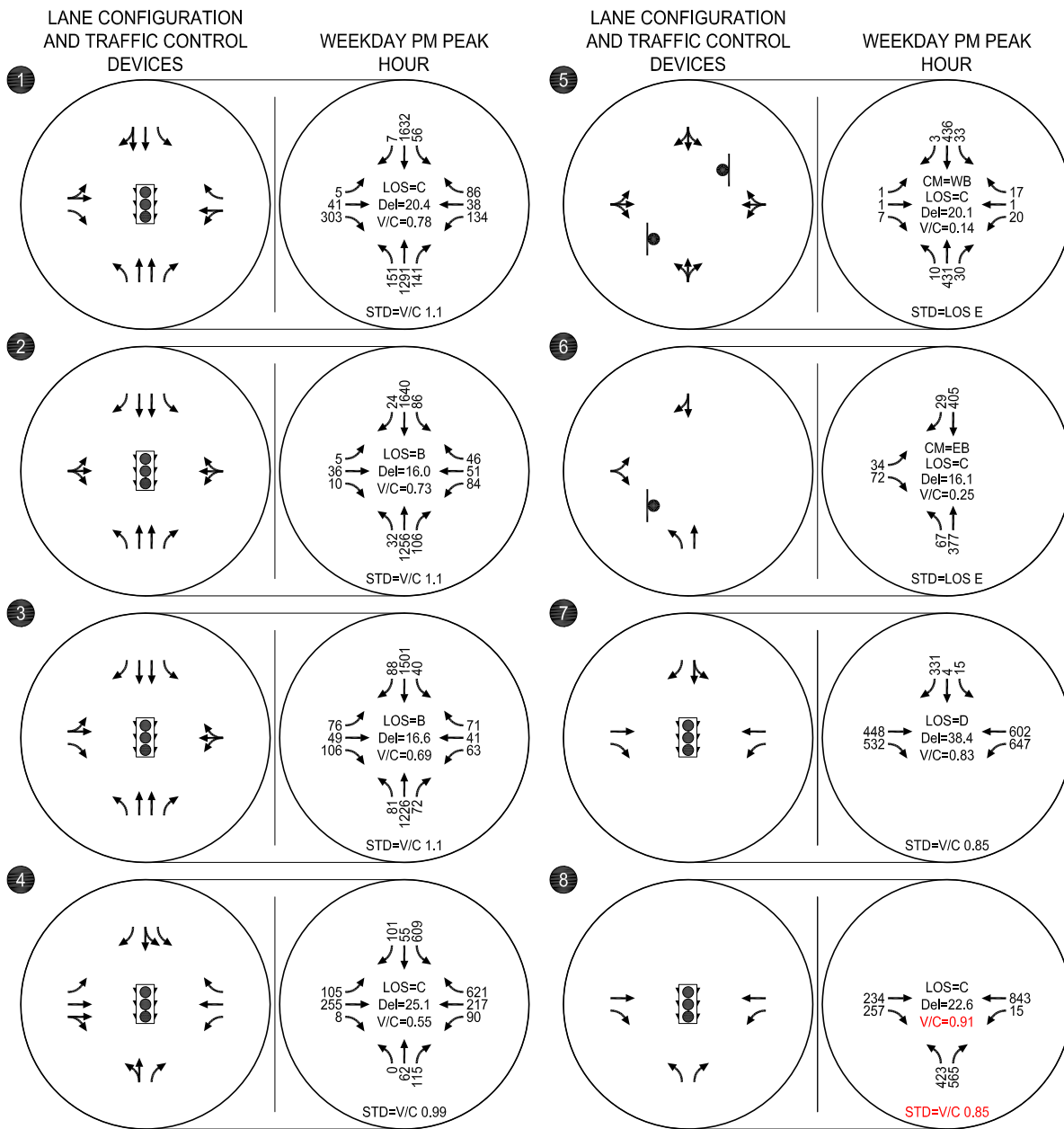
Manual turning movement counts were conducted at the study intersections in June 2016. The counts were conducted on a typical mid-week day during the evening (4:00 to 6:00 p.m.) peak time period. The system-wide peak hour for the study intersections was identified as 4:30 to 5:30 p.m.; however, individual intersection peak hours that range from 4:00 to 5:00 p.m. along Oatfield Road and 82<sup>nd</sup> Drive to 5:00 to 6:00 p.m. along OR 99E were used to complete the operational analyses. Figure 10 provides a summary off the turning movement counts at the study intersections.



**Study Intersections  
Gladstone, Oregon**

**Figure  
9**

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**Year 2016 Existing Traffic Operations  
Weekday PM Peak Hour  
Gladstone, Oregon**

**Figure  
10**

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The turning movement counts shown in Figure 10 along OR 99E and 82<sup>nd</sup> Drive were seasonally adjusted to 30<sup>th</sup> highest hour volumes (30HV) in accordance with the Seasonal Trend Table methodology identified in the ODOT *Analysis Procedures Manual*. A combination of the commuter and interstate urbanized trends were used to determine the seasonal adjustment factor for OR 99E and 82<sup>nd</sup> Drive, resulting in adjustment factors of 1.04 and 1.01, respectively. Figure 10 and Table 5 summarizes the results of the traffic operations analysis at the study intersection under existing traffic conditions. Attachment “B” contains the year 2016 existing traffic conditions worksheets.

**Table 5: Weekday PM Peak Hour Intersection Operations**

Map ID	Intersection	Level of Service (LOS)	Delay (Sec)	Volume/ Capacity (V/C)	Measure of Effectiveness (MOE)		MOE Met?
					Agency	Maximum	
<b>Signalized Intersections</b>							
1	OR 99E/S Arlington Street	C	20.4	0.78	ODOT	v/c 1.1	Yes
2	OR 99E/W Gloucester Street	B	16.0	0.73	ODOT	v/c 1.1	Yes
3	OR 99E/Glen Echo Avenue	B	16.6	0.69	ODOT	v/c 1.1	Yes
4	Oatfield Road/SE 82nd Drive	C	25.1	0.55	ODOT	v/c 0.99	Yes
7	I-205 Southbound Ramp Terminal/SE 82nd Drive	D	38.4	0.83	ODOT	v/c 0.85	Yes
8	I-205 Northbound Ramp Terminal/SE 82nd Drive	C	22.6	0.91	ODOT	v/c 0.85	No
<b>Unsignalized Intersections</b>							
5	Oatfield Road/Ridgegate Drive-Collins Crest Street	C	20.1	0.14	City	LOS E	Yes
6	Oatfield Road/Glen Echo Avenue	C	16.1	0.25	City	LOS E	Yes

Notes:

LOS = Intersection Level of Service (Signal), Critical Movement Level of Service (TWSC).

Delay = Intersection Average vehicle delay (Signal), critical movement vehicle delay (TWSC).

V/C = Intersection V/C (Signal) critical movement V/C (TWSC).

MOE = Measure of Effectiveness

As shown in Table 5, all of the study intersections currently operate acceptably per their respective mobility standards and targets, with the exception of the I-205 Northbound Ramp Terminal at SE 82<sup>nd</sup> Drive. Additional information about the operations issues identified at the ramp terminal area provided below.

*I-205 Northbound Ramp Terminal/82<sup>nd</sup> Drive*

The I-205 Northbound Ramp Terminal/82<sup>nd</sup> Drive intersection currently operates at LOS C with a V/C ratio of 0.91, which exceeds ODOT mobility target for the intersection. This is primarily due to the high volume of westbound through and northbound left-turning vehicles at the intersection.

**Queueing**

A queuing analysis was conducted at the signalized study intersections. Table 6 summarizes the 95<sup>th</sup> percentile queues during the weekday a.m. and p.m. peak hours under existing traffic conditions. The vehicle queue and storage lengths were rounded to the nearest 25-feet. The storage lengths reflect the striped storage for each movement at the intersections.

**Table 6: Weekday PM Peak Hour Queuing**

Intersection	Movement	95 <sup>th</sup> Percentile Queue	Storage Length (feet)	Adequate?
OR 99E/Arlington Street	WBR	40	175	Yes
	NBL	131	200	Yes
	NBR	25	280	Yes
	SBL	m20	250	Yes
OR 99E/Gloucester Street	NBL	m19	220	Yes
	NBR	48	175	Yes
	SBL	m34	250	Yes
	SBR	m1	260	Yes
OR 99E/Glen Echo Avenue	EBR	51	100	Yes
	NBL	m61	185	Yes
	NBR	m13	160	Yes
	SBL	16	185	Yes
	SBR	28	160	Yes
Oatfield Road/82 <sup>nd</sup> Drive	EBL	146	80	No
	WBL	130	170	Yes
	WBR	144	170	Yes
	NBR	59	100	Yes
	SBL	334	110	No
	SBR	33	110	Yes
I-205 SB Ramp Terminal/82 <sup>nd</sup> Drive	WBL	m#506	310	No
	SBR	#83	360	Yes
I-205 NB Ramp Terminal/82 <sup>nd</sup> Drive	EBR	m42	50	Yes
	WBL	25	200	Yes
	NBR	68	575	Yes

Where WB = Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, R = Right  
 #: 95<sup>th</sup> percentile volume exceeds capacity, queue may be longer.  
 m: Volume for 95<sup>th</sup> percentile queue is metered by upstream signal.

As shown in Table 6, two study intersections currently have 95<sup>th</sup> percentile queues that exceed the stripped storage for the movements:

- The eastbound left-turn movement at the Oatfield Road/82<sup>nd</sup> Drive intersection exceeds the stripped storage for the movement by approximately 66-feet.
- The southbound left-turn movement at the Oatfield Road/82<sup>nd</sup> Drive intersection exceeds the striped storage by approximately 224-feet.
- The westbound left-turn movement at the I-205 SB Ramp Terminal/82<sup>nd</sup> Drive intersection exceeds the striped storage by approximately 196-feet.

## Traffic Safety

### Intersection Crashes

The crash history of the study intersections was reviewed in an effort to identify any potential safety issues that could be addressed as part of the TSP update. ODOT provided crash records for the five-year period from January 1, 2010 through December 31, 2014 for the eight study intersections. The data provided by ODOT is summarized in Table 7.

**Table 7: Intersection Crash Summary (January 1, 2010 to December 31, 2014)**

Intersection	Crash Severity			Crash Type					Total Crashes
	Fatal	Injury	PDO <sup>1</sup>	Rear-end	Turning	Angle	Ped	Other <sup>2</sup>	
OR 99E/S Arlington Street	0	23	14	19	8	4	4	2	37
OR 99E/W Gloucester Street	0	9	8	9	5	2	0	1	17
OR 99E/Glen Echo Avenue	0	7	5	8	1	1	2	0	12
Oatfield Road/SE 82 <sup>nd</sup> Drive	0	6	1	5	0	1	0	1	7
Oatfield Road/Ridgegate Drive	0	4	0	4	0	0	0	0	4
Oatfield Road/Glen Echo Avenue	0	2	1	0	2	0	0	1	3
I-205 SB Ramp Terminal/SE 82 <sup>nd</sup> Drive	1	20	17	30	7	0	1	0	38
I-205 NB Ramp Terminal/SE 82 <sup>nd</sup> Drive	0	9	6	10	3	0	0	2	15

<sup>1</sup>Property Damage Only

<sup>2</sup>Other includes head-on, sideswipe, no collision, and fixed object

<sup>3</sup>From ODOT Critical Crash Rate Calculator

Critical crash rates were calculated for each of the study intersections following the analysis methodology presented in ODOT's *SPR 667 Assessment of Statewide Intersection Safety Performance*. SPR 667 provided average crash rates at a variety of intersection configurations in Oregon based on number of approaches and traffic control types. The average crash rate represents the approximate number of crashes that are "expected" at a study intersection. The intersection critical crash rate assessment for the study intersections is summarized in Table 8. *Attachment "C" contains the crash data provided by ODOT and the critical crash rate worksheet.*

**Table 8: Intersection Critical Crash Rate Assessment**

Intersection	Total Crashes	Critical Crash Rate by Intersection	Critical Crash Rate by Volume	Observed Crash Rate at Intersection	Observed Crash Rate > Critical Crash Rate?
OR 99E/S Arlington Street	37	0.62	0.53	0.52	No
OR 99E/W Gloucester Street	17	0.63	0.54	0.27	No
OR 99E/Glen Echo Avenue	12	0.63	0.54	0.19	No
Oatfield Road/SE 82 <sup>nd</sup> Drive	7	0.66	0.57	0.16	No
Oatfield Road/Ridgegate Drive-Collins Crest Street	4	0.40	0.41	0.22	No
Oatfield Road/Glen Echo Avenue	3	0.30	0.41	0.17	No
I-205 Southbound Ramp Terminal/SE 82 <sup>nd</sup> Drive	38	0.65	0.56	0.81	Yes
I-205 Northbound Ramp Terminal/SE 82 <sup>nd</sup> Drive	15	0.42	0.57	0.35	No

As shown in Table 8, the observed crash rate at the I-205 Southbound Ramp Terminal/SE 82<sup>nd</sup> Drive intersection exceeds the critical crash rate by both intersection type and by volume.

### *I-205 Southbound Ramp Terminal*

The crash data summarized in Table 7 shows a trend for rear-end crashes at the intersection. Of the 30 rear-end crashes observed in the five years of data, 23 occurred on the north leg of the intersection as vehicles were exiting I-205, 22 of the crashes were caused by a driver following too closely.

### **Study Area Crashes**

The crash history of the overall study area was also reviewed in an effort to identify any potential systemic safety issues or issues with pedestrian and bicycle safety that could be addressed as part of the TSP update. Crash records were obtained from ODOT for the five-year period from January 1, 2011 through December 31, 2015 for the overall study area. Figure 11 illustrates the location, severity, and type of crashes that occurred within the study area over the five-year period. Based on the data, a total of 622 crashes occurred within Gladstone, of which two resulted in fatalities, 346 resulted in injuries, and 274 resulted in property-damage-only. The fatal, severe injury, pedestrian, and bicycle crashes are described below.

### *Fatal Injury Crashes*

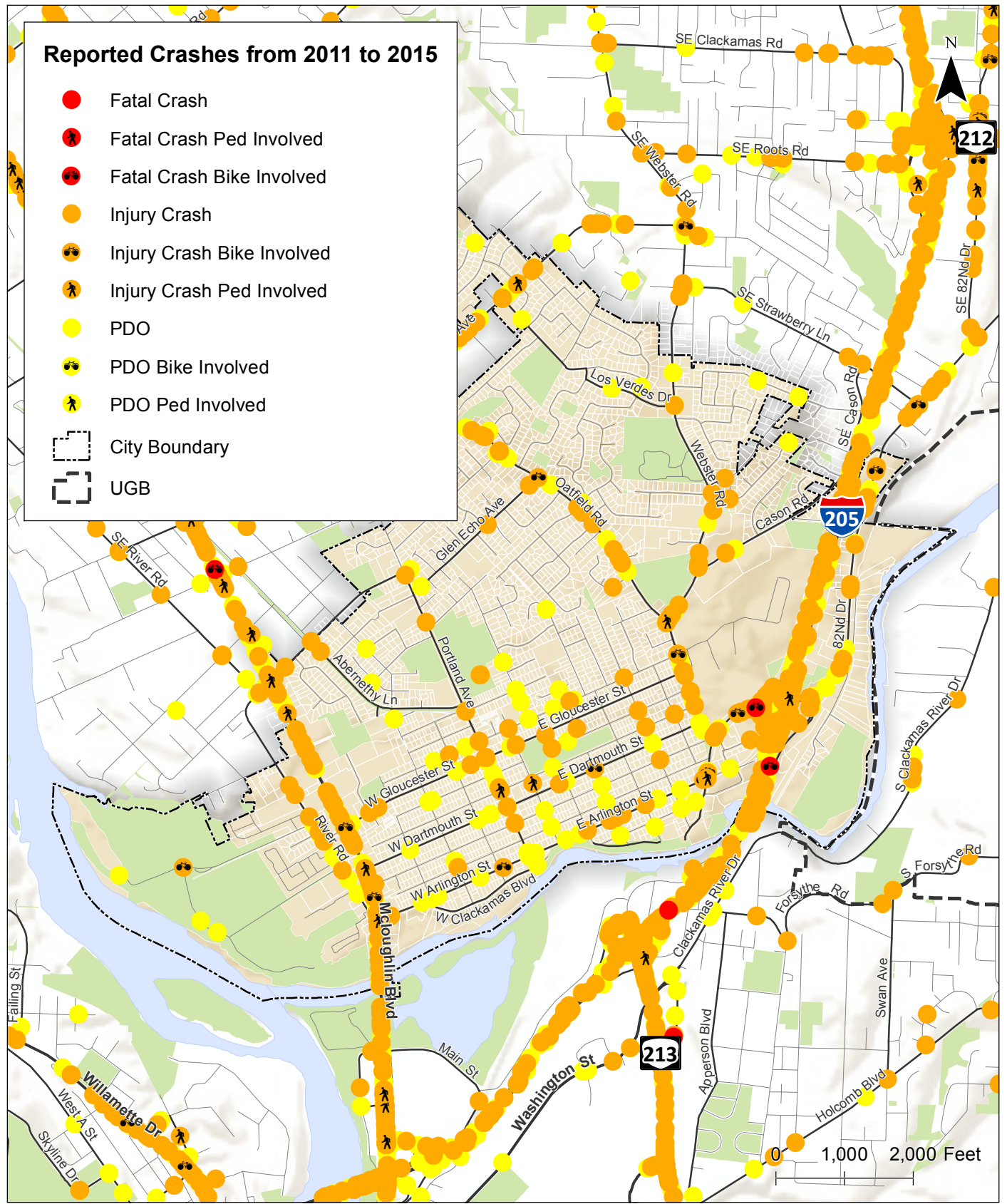
A total of two fatal injury crashes occurred within the city over the last five year period. Both crashes involved pedestrians and are described below under the pedestrian crashes section.

### *Severe Injury Crashes*

A total of 10 severe injury crashes occurred within the city over the last five year period. Of the 10 severe injury crashes, three involved a pedestrian, and one involved a bicyclist. The pedestrian and bicycle crashes are described below. Of the remaining crashes they occurred along OR 99E, Oatfield Road, and 82<sup>nd</sup> Drive. Two of the remaining crashes were caused by motorists disregarding traffic signals, two by motorists driving faster than conditions allowed, one did not yield the right-of-way, and one motorist drove on the wrong side of the road.

### *Pedestrian Crashes*

A total of 11 pedestrian-involved crashes occurred within Gladstone over the last five year period. Three of the crashes occurred along OR 99E, three along 82<sup>nd</sup> Drive, one each on I-205, Oatfield Road, Hereford Street, Chicago Avenue, and Jennings Avenue. Of the three on OR 99E, two crashes occurred at the intersection with Arlington Street. Four crashes were caused by the motorist failing to yield the right-of-way, four were caused by the non-motorist illegally present in the roadway, one motorist disregarded a traffic signal, one crash was caused by inadequate brakes, and one crash was caused through a “phantom/non-contact” vehicle.



**Reported Crashes from 2011 to 2015  
Gladstone, Oregon**

**Figure  
11**

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All 11 pedestrian crashes involved at least one injury or fatality. The three severe injury crashes occurred at OR 99E/Arlington Street, OR 99E/Dartmouth Street, and Oatfield Road/Webster Road. All three were caused by the non-motorist illegally being in the street. For two of the severe injury crashes, it was also dark conditions and alcohol was involved. There were also two fatal pedestrian crashes. One occurred at night on the northbound direction of I-205 south of the 82<sup>nd</sup> Drive bridge. The non-motorist was illegally in the roadway, and the crash also involved alcohol, drugs, and the presence of a pet.

### *Bicycle Crashes*

A total of 15 bicycle-related crashes occurred within the city of the last five year period. Five of the crashes occurred along OR 99E, four along 82<sup>nd</sup> Drive, two along Oatfield Road, and one each on Arlington Street, Dartmouth Street, Exeter Street, and Meldrum Bar Park Road. Of the five on OR 99E, three occurred at the intersection with Arlington Street. Eleven of the crashes were caused by the motorist not yielding the right-of-way, two of which were the non-motorist was not wearing visible clothing. Two the bicycle crashes were caused by the non-motorist present illegally in the roadway and two were caused by improper vehicle movements.

All 15 bicycle crashes involved at least one injury. Only one crash involved a severe injury. The motorist was making a left turning movement onto Hereford Street from Oatfield Road when the cyclist struck the vehicle, resulting in a severe injury.

### ***Safety Priority Index System***

The ODOT Statewide Priority Index System (SPIS) identifies sites along state highways where safety issues warrant further investigation. The SPIS is a method developed by ODOT for identifying hazardous locations on state highways through consideration of crash frequency, crash rate, and crash severity. Sites identified within the top 5 percent are investigated by ODOT staff and reported to the Federal Highway Administration (FHWA). Per the most recent SPIS list, the OR 99E/Arlington Street intersection is identified by ODOT as within the top five percent of crash site over the last five-year period.

### **Evacuation Routes**

There are currently no designated evacuation routes within the city; however, earthquakes, flooding, landslides, wild fires, and other natural and man-made disasters may destroy or block key access routes to emergency facilities and create episodic demand for highway routes into and out of a stricken area. ODOT's investment strategy recognizes the critical role that some highway facilities, particularly bridges, play in emergency response and evacuation. In some cases, the most cost-effective solution to maintaining security in these lifeline routes involves investment in roads or bridges owned by local jurisdictions. To the extent feasible, investments are made without regard to roadway jurisdiction in order to provide the greatest degree of lifeline security for the available resources. ODOT works with local governments to further define and map a network of lifeline routes. The lifeline network will focus on serving those communities which are particularly susceptible to isolation by virtue of their limited highway access.

## Freight

Efficient truck movement plays a vital role in the economical movement of raw materials and finished products. The designation of freight routes provides for this efficient movement while at the same time maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. Per the Oregon Highway Plan (OHP) The only designated freight route in Gladstone is I-205.

Traffic counts were conducted at the study intersections in 2016 as part of this TSP update. All the counts were conducted on a typical mid-week day during weekday evening (4:00 to 6:00 p.m.) peak time period. All of the counts include the total number of trucks that entered the intersections as a percentage of total vehicles. Truck percentages at study intersections are listed in Table 10. Freight routes are shown on Figure 12.

**Table 9: PM Peak Hour Truck Volumes at Study Intersections**

Map ID	Intersection	Intersection Truck Volume	Truck % of All Vehicular Traffic
1	OR 99E/S Arlington Street	118	3.1%
2	OR 99E/W Gloucester Street	93	2.9%
3	OR 99E/Glen Echo Avenue	89	2.7%
4	Oatfield Road/SE 82 <sup>nd</sup> Drive	56	2.5%
5	Oatfield Road/Ridgegate Drive-Collins Crest Street	26	2.6%
6	Oatfield Road/Glen Echo Avenue	24	2.4%
7	I-205 Southbound Ramp Terminal/SE 82 <sup>nd</sup> Drive	90	3.5%
8	I-205 Northbound Ramp Terminal/SE 82 <sup>nd</sup> Drive	114	4.9%

## Existing Gaps and Deficiencies

- There are several inconsistencies in how various jurisdictions classify streets within Gladstone.
- There are several arterial and collector streets that currently do not meet the city’s pavement width standard.
- The I-205 Northbound Ramp Terminal currently exceeds its applicable mobility standard during the weekday p.m. peak hour.
- Vehicles queues at two study intersections currently exceed the striped storage of the movement during the weekday p.m. peak hour.
- The crash rate at the I-205 Southbound Ramp Terminal currently exceeds the critical crash rate for similar facilities within the city.
- The OR 99E/Arlington Street intersection is identified in the top 5% of statewide SPIS sites.
- There are no designated emergency or evacuation routes with the city.
- There are no designated freight routes within the city to augment and support ODOT freight routes.



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**Freight Routes and Railroads  
Gladstone, Oregon**

**Figure  
12**



## OTHER TRAVEL MODES

The following provides a summary of other travel modes within the city, including all major air, rail, water, and pipelines located within the City and in neighboring cities.

### Rail

A Southern Pacific Railroad (SPRR) main line passes through the easternmost edge of the city, between the Clackamas River and I-205/82<sup>nd</sup> Drive. The SPRR tracks parallel Edgewater Road along its entire length. There is only one point of contact between the rail line and a city street, along the short access road connecting 82<sup>nd</sup> Drive to Edgewater Road. The at-grade rail crossing is controlled by signage, crossing gates, and flashing warning lights.

#### *Freight Rail*

On average, eight SPRR freight trains and two local freight trains travel along the SPRR main line each way each day, for a total of 16 SPRR freight trains and four local freight trains. The freight trains average approximately 100 cars each. There are currently no freight rail terminals in Gladstone. The closest freight rail terminal is located in Oregon City.

#### *Passenger Rail*

On Average, three Amtrak trains travel along the SPRR main line each way each day, for a total of six trains. The Amtrak trains average approximately 6-8 cars each. There are currently no passenger rail terminals in Gladstone. The closest passenger rail terminal is located at 1757 Washington Street in Oregon City (ORC). Amtrak provides service at this stop between Oregon City and downtown Portland at Union Station (PDX). Amtrak travels between ORC and PDX Monday through Friday at 7:24 a.m., 11:15 a.m., and 5:54 p.m. and between PDX and ORC at 6:00 a.m., 6:05 p.m., and 9:30 p.m. Travel times vary from 21 to 41 minutes depending on time of day and direction. From the ORC stop, Amtrak Cascades rail line also provides passenger service north to Vancouver, British Columbia and south to Eugene.

### Air

There are no airports located within the city limits. The closest airports include the Portland International Airport located approximately 17 miles to the north via Interstate 205 (I-205), the Aurora State Airport located approximately 16 miles to the south via 99E, and the Mulino Airport located approximately 15 miles to the south via I-205 and OR 213.

### Water

Although the western boundary of Gladstone is defined by the Willamette River and the southern boundary is defined by the Clackamas River, these waterways are rarely used to support transportation. They are, however, used for recreational purposes. In addition to several single-family residential homes with private access points to the rivers, Meldrum Bar Park provides a boat ramp and floating ramp located on the eastern bank of the Willamette River. The boat ramps offer river access for

local residents as well as docking systems and wildlife viewing. Additional access to the rivers are provided by Dahl Beach located on the northern bank of the Clackamas River where the Clackamas River meets the Willamette River and High Rock Park located on the northern bank of the Clackamas River near the commercial area along 82<sup>nd</sup> Drive. These river accesses are used year-round by fishermen and experience volumes of visitors for swimming and recreation during the summer.

The Willamette Falls Locks located between Oregon City and West Linn is currently closed indefinitely by the U.S. Army Corps of Engineers due to needed gudgeon anchor repairs. All freight and recreational water travel has been eliminated during this closure.

## Pipeline

### **Water**

Three major municipal water transmission lines are routed through the city. The City of Gladstone 27" main water line delivers water from the Clackamas River (Clackamas Water District), north and east of the city, along Cason Road to the city reservoirs off Webster Road. While smaller diameter lines provide water to higher elevations in the city, the main water transmission line continues down to the lower/main part of the city along Webster Road (18") to Oatfield Road, Oatfield Road (18") to Herford Street, Herford Street (24") to Union Avenue, Union Avenue (24") to Clarendon Street, Clarendon Street (24") to OR 99E, and OR 99E (24") to Clackamas River.

The Oak Lodge Water District 24" water transmission line delivers water from the Clackamas River, along Strawberry Lane and Valley View Road to the Oak Lodge reservoirs off Valley View Drive. These reservoirs provide water serve to a limited number of higher elevation city customers.

The City of Lake Oswego also routes a 27" water transmission line through the City of Gladstone and under the Willamette River to the west. The Lake Oswego water main takes in its supply at the Clackamas River at the foot Portland Avenue, and continues up Portland Avenue to Arlington Street; Arlington Street to Beatrice Avenue; Beatrice Avenue to Gloucester Street; Gloucester Street to River Road; River Road to Meldrum Bar Park Road; along Meldrum Bar Park Road and north to a point in the northwest point of the park where continues west under the river.

### **Natural Gas**

The Northwest natural gas company operates a 12" High Pressure gas main (600 psi) in the city. It travels east and west through the southern portion of Gladstone from a point at the Willamette River in Meldrum Bar Park/Dahl Beach area to a point on the east city limits. The gas pipeline proceeds across Meldrum Bar Park to a point on River Road approximately 600' north of the intersection of OR 99E and River Road; south on River Road two point parallel to Clarendon Street, crossing under River Road and OR 99E to Clarendon Street; Clarendon Street to Barton Avenue; Barton Avenue to Berkeley Street; Berkeley Street to Columbia Avenue; Columbia Avenue to Arlington Street; east on Arlington Street, under I-205, to a point between Edgewater Road and 82<sup>nd</sup> Drive; and proceeding north parallel to the SPRR tracks between Edgewater Road and 82<sup>nd</sup> Drive out of the city.

## TRANSPORTATION SYSTEM MANAGEMENT OPERATIONS

Transportation System Management and Operations (TSMO) measures are designed to increase the efficiency and safety of the transportation system without physically increasing roadway capacity. Typical TSMO measures include Intelligent Transportation System (ITS) solutions, real-time traveler information, and services that respond quickly to traffic incidents. Based on discussions with City staff, there are no TSMO measures currently being employed in Gladstone. Metro's 2040 Regional Transportation Plan (RTP) includes projects on regionally significant roadways throughout the region. However, none of the projects are TSMO related.

## TRANSPORTATION DEMAND MANAGEMENT

The TPR requires all cities with populations greater than 25,000 people to develop a Transportation Demand Management (TDM) plan. The RTP also requires that TDM strategies be used to encourage alternative transportation modes and achieve higher vehicle occupancy targets. TDM measures are designed to change travel behavior in order to reduce the need for more road capacity and improve performance of the road system. The TDM programs and strategies in Gladstone are primarily implemented through City Municipal Code Title 17, Zoning and Development and include incentives for reduced vehicle parking requirements for private developments.

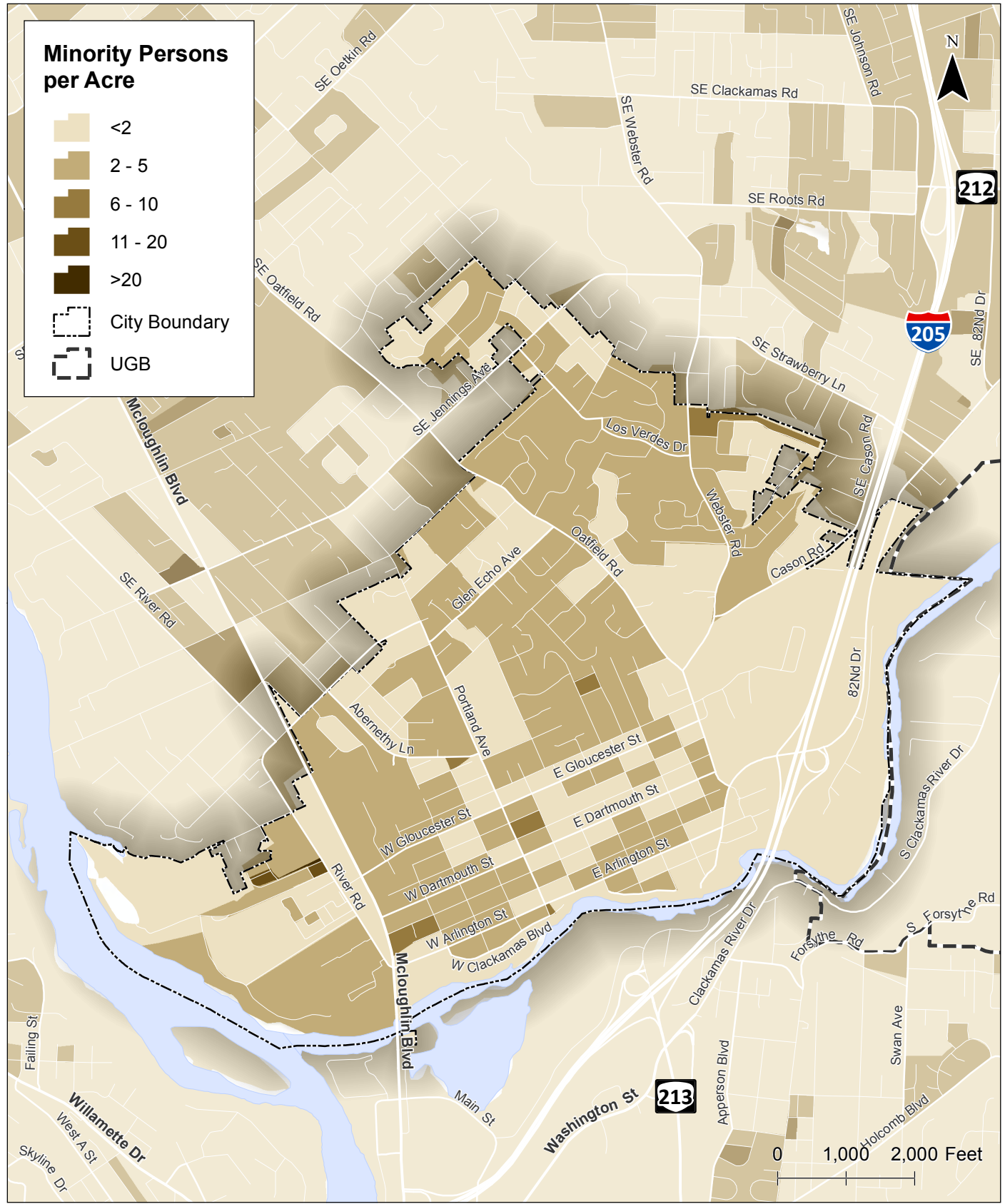
## ENVIRONMENTAL JUSTICE

The socio-economically sensitive populations within Gladstone consist of minorities, elderly people (people 65 years of age or older), people with low-income (people who earn 0 to 1.99 times the federal poverty level), and people with disabilities. 2010 census data for minorities and elderly people was collected at the census block level and shows the concentrations of these populations on an individual basis. Data for people with low income and people with disabilities was collected at the census block group level and shows the concentration of these populations as a percentage of the overall population. The data was combined with a general understanding of local conditions to ensure that the existing transportation system meets the needs of these individuals. Figure 13 through 16 illustrate the populations within Gladstone.

- Minorities – As shown in Figure 13, there are no distinct areas with a high concentration of minorities within Gladstone. The area located east of OR 99E and along the north and south sides of Oatfield Road have the largest contiguous populations. Based on the data, there appears to be a relatively low number of minorities city-wide.
- Elderly People – As shown in Figure 14, there are a few areas with a high concentration of elderly people, particularly near the senior center and the Gladstone Mobile Home Park. There are also several areas located within the older parts of Gladstone and north and east of Oatfield Road. Based on the data, there appears to be a relatively high number of elderly people city-wide.

- People with Low Income – As shown in Figure 15, the areas with the highest concentrations of people with low income are located along the east side of OR 99E, north of Gloucester Street and east of I-205. Based on the data, there appears to be a relatively high concentration of people with low income city-wide, with a few exceptions in the northern parts of the city.
- People with Disabilities – As shown in Figure 16, the areas with the highest concentrations of people with disabilities are located along the east and west sides of OR 99E, particularly on the south side of Gloucester Street. Based on the data, there appears to be a high concentration of people with disabilities city-wide, with a few exceptions in the central and northern parts of the city.

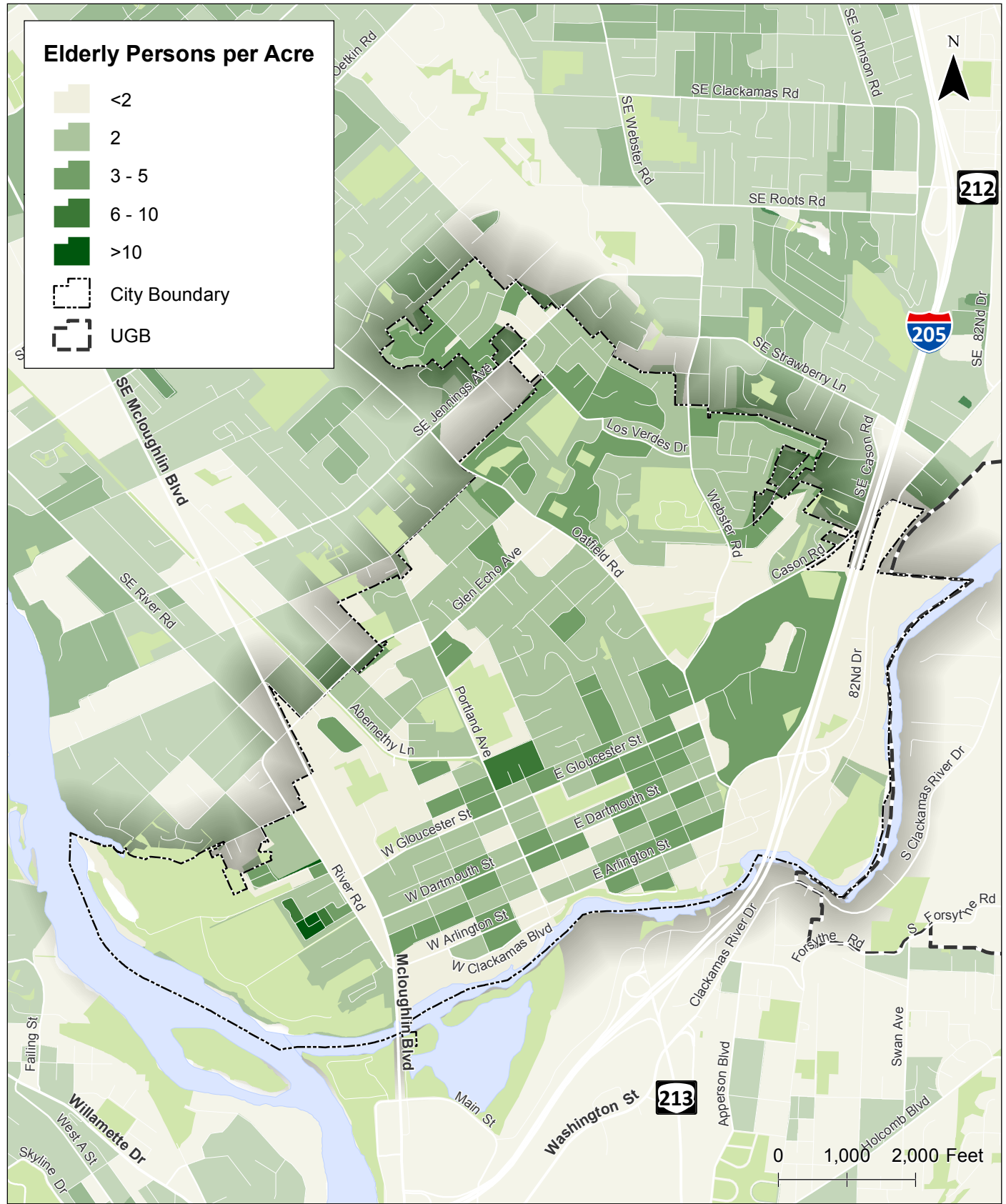
The socioeconomic conditions within the city will be considered in the development of the TSP update to ensure that the future transportation system meets the needs of the entire population while not creating adverse conditions for select segments of the population.



**Minority Population by Census Blocks  
Gladstone, Oregon**

**Figure  
13**

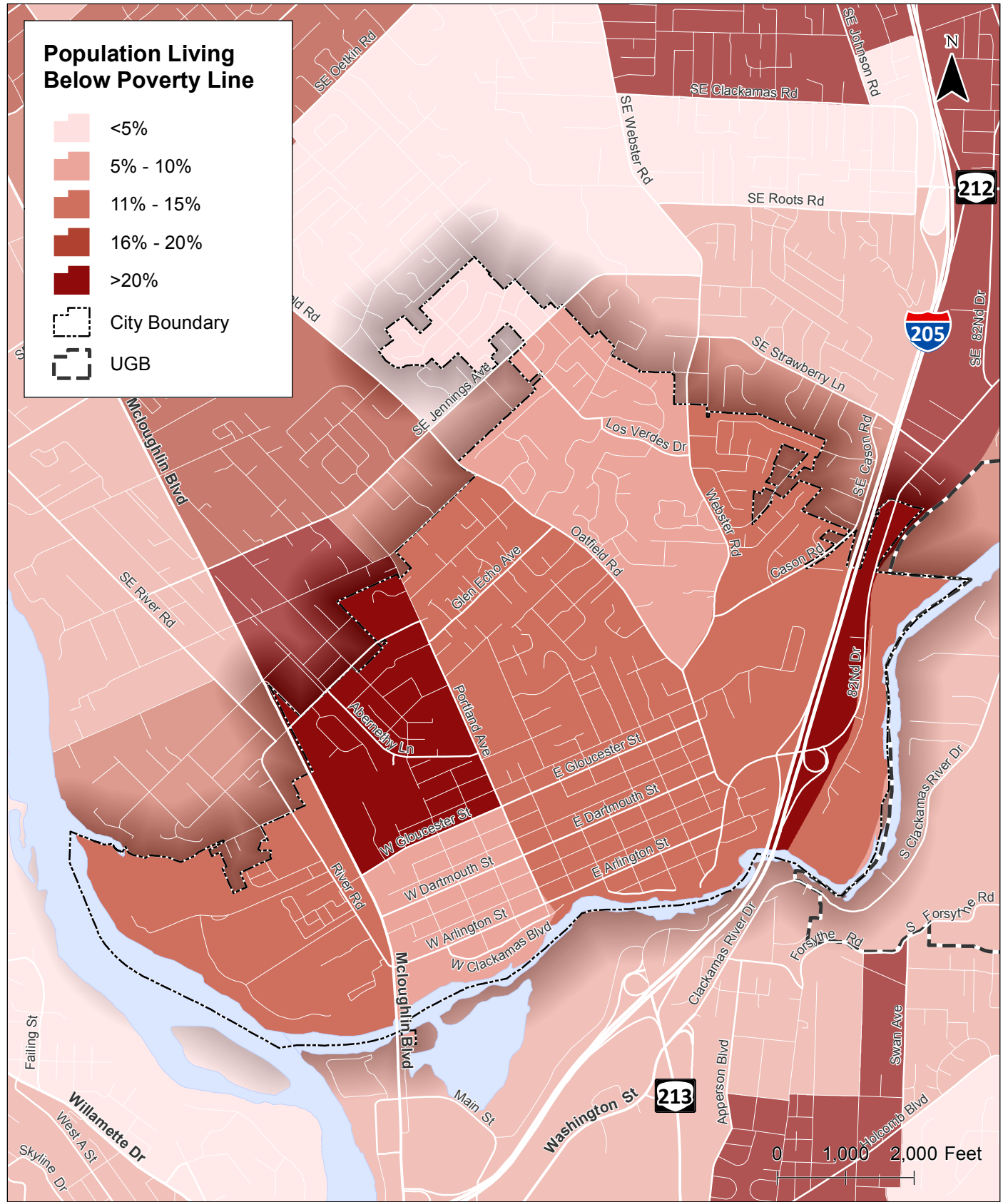
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**Elderly Population by Census Block  
Gladstone, Oregon**

**Figure  
14**

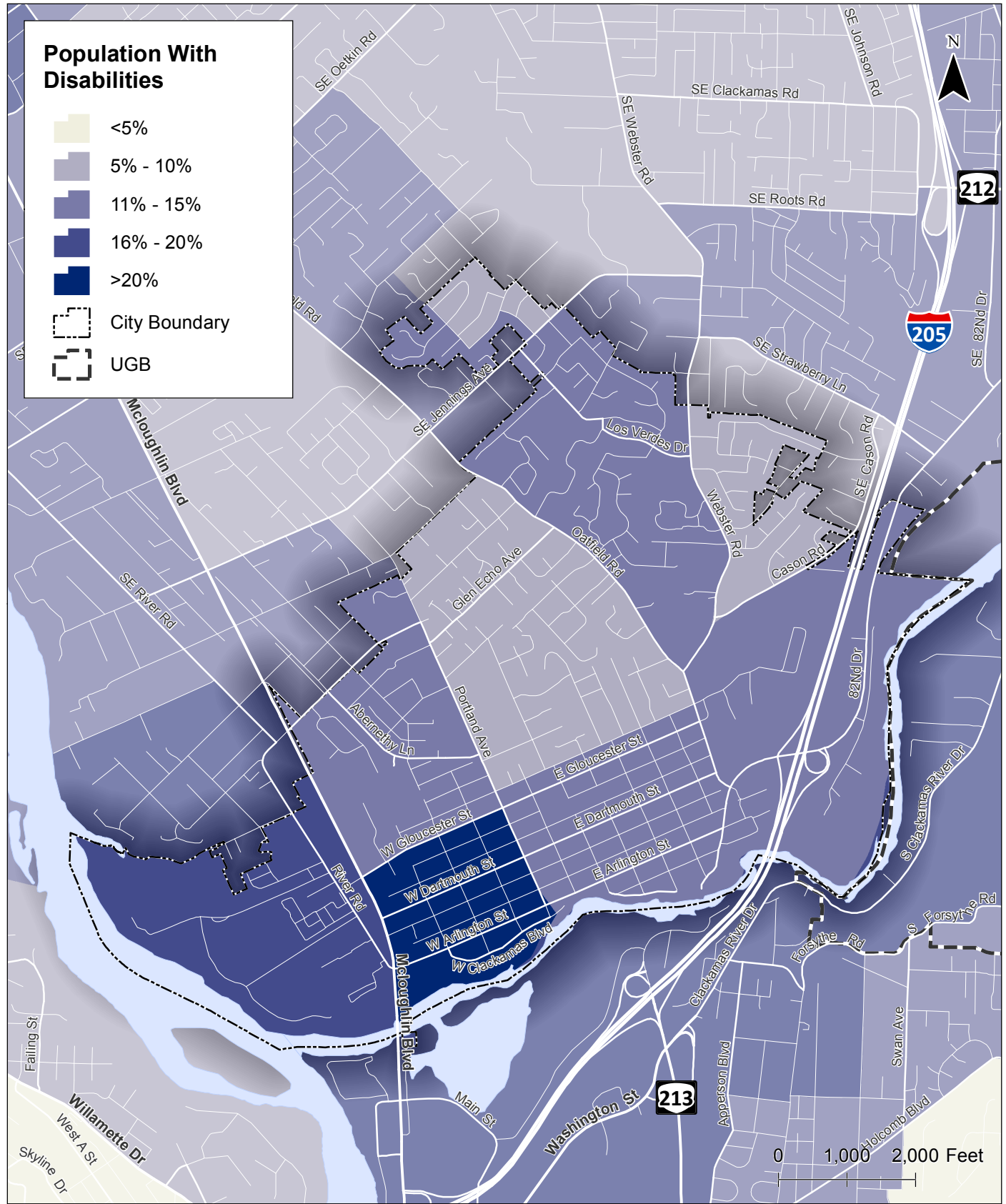
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**Poverty by Census Block Group  
Gladstone, Oregon**

**Figure  
15**

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**Disabled Population by Census Block Group  
Gladstone, Oregon**

**Figure  
16**

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Attachment A TriMet Ridership Data

## TRIMET RIDERSHIP DATA

TriMet outlines standards for bus stop amenities in their Bus Stops Guidelines document. To warrant the provision of a bus stop shelter at a stop along a route with headways larger than 17 minutes, a minimum of 35 riders is necessary. Based on the Spring 2016 TriMet ridership data, six stops in Gladstone have ridership to support the installation of bus stop shelters: 10323, 10324, 10325, 10326, 10327, and 10328. Stops 10326 and 10328 currently provide shelters.

**Table A-1: Route 32 Spring 2016 Ridership**

Bus Stop ID	Location	Direction	Passengers On	Passengers Off	Total
4181	Oatfield & Oakridge	To Clackamas CC	1	5	6
4159	Oatfield & Glen Echo	To Clackamas CC	2	5	7
4148	Oatfield & Collins Crest	To Clackamas CC	2	5	7
4140	Oatfield & Stone Oaks Ct	To Clackamas CC	1	1	2
4171	Oatfield & E Kenmore	To Clackamas CC	1	4	5
4164	Oatfield & E Hereford	To Clackamas CC	0	3	3
4154	Oatfield & E Exeter	To Clackamas CC	2	1	3
4204	Oatfield & 82nd Dr	To Clackamas CC	1	2	3
141	82nd Dr & E Berkeley	To Clackamas CC	3	4	7
132	E Arlington & Cornell	To Clackamas CC	2	1	3
134	E Arlington & Harvard	To Clackamas CC	0	1	1
137	E Arlington & Portland Ave	To Clackamas CC	3	4	7
126	W Arlington & Bellevue	To Clackamas CC	0	1	1
124	W Arlington & Beatrice	To Clackamas CC	1	0	1
122	W Arlington & Barton	To Clackamas CC	1	1	2
135	W Arlington & McLoughlin	To Clackamas CC	2	4	6
121	W Arlington & Barton	To Oregon City TC	3	3	6
123	W Arlington & Beatrice	To Oregon City TC	1	3	4
125	W Arlington & Bellevue	To Oregon City TC	0	0	0
136	W Arlington & Portland Ave	To Oregon City TC	4	3	7
133	E Arlington & Harvard	To Oregon City TC	1	1	2
131	E Arlington & Cornell	To Oregon City TC	2	2	4
140	E Arlington & 82nd Dr	To Oregon City TC	6	7	13
10700	Oatfield & E Exeter	To Oregon City TC	3	2	5
13252	Oatfield & E Hereford	To Oregon City TC	3	1	4
13458	Oatfield & Webster	To Oregon City TC	6	3	9
4145	Oatfield & Stone Oaks Ct	To Oregon City TC	2	2	4
4191	Oatfield & Ridgeway	To Oregon City TC	5	2	7
4187	Oatfield & Park Way	To Oregon City TC	5	1	6
4182	Oatfield & Oakridge	To Oregon City TC	5	2	7

**Table A-2: Route 33 Spring 2016 Ridership**

Bus Stop ID	Location	Direction	Passengers On	Passengers Off	Total
10323	SE McLoughlin & Glen Echo	To Clackamas CC	19	52	71
10422	19300 Block McLoughlin	To Clackamas CC	3	17	20
10324	McLoughlin & Gloucester	To Clackamas CC	17	47	64
10325	McLoughlin & River Rd	To Clackamas CC	23	56	79
10328	McLoughlin & W Arlington	To Clackamas Town Center	88	30	118
10327	McLoughlin & W Gloucester	To Clackamas Town Center	42	17	59
10421	19300 Block McLoughlin	To Clackamas Town Center	8	4	12
10326	SE McLoughlin & Glen Echo	To Clackamas Town Center	51	27	78

**Table A-3: Route 34 Spring 2016 Ridership**

Bus Stop ID	Location	Direction	Passengers On	Passengers Off	Total
1993	Glen Echo & SE Mildred	To Oregon City TC	2	3	5
14	Abernethy & Duniway	To Oregon City TC	1	1	2
10	Abernethy & Barclay	To Oregon City TC	1	1	2
11	Abernethy & Beatrice	To Oregon City TC	0	1	1
17	Abernethy & Portland Ave	To Oregon City TC	1	4	5
4475	Portland Ave & W Ipswich	To Oregon City TC	0	2	2
4467	Portland Ave & W Fairfield	To Oregon City TC	1	1	2
4462	Portland Ave & W Dartmouth	To Oregon City TC	1	4	5
4456	Portland Ave & W Arlington	To Oregon City TC	2	2	4
126	W Arlington & Bellevue	To Oregon City TC	0	0	0
124	W Arlington & Beatrice	To Oregon City TC	1	0	1
122	W Arlington & Barton	To Oregon City TC	0	0	0
135	W Arlington & McLoughlin	To Oregon City TC	0	3	3
121	W Arlington & Barton	To Clackamas Town Center	4	1	5
123	W Arlington & Beatrice	To Clackamas Town Center	0	0	0
125	W Arlington & Bellevue	To Clackamas Town Center	0	0	0
136	W Arlington & Portland Ave	To Clackamas Town Center	1	1	2
4463	Portland Ave & E Dartmouth	To Clackamas Town Center	6	2	8
4468	Portland Ave & E Fairfield	To Clackamas Town Center	1	0	1
4472	Portland Ave & E Hereford	To Clackamas Town Center	3	1	4
16	Abernethy & Portland Ave	To Clackamas Town Center	6	1	7
12	Abernethy & Center	To Clackamas Town Center	1	0	1
9	Abernethy & Barclay	To Clackamas Town Center	1	0	1
13	Abernethy & Duniway	To Clackamas Town Center	1	0	1
1994	Glen Echo & Mildred	To Clackamas Town Center	4	3	7

**Table A-4: Route 79 Spring 2016 Ridership**

Bus Stop ID	Location	Direction	Passengers On	Passengers Off	Total
6201	Webster & Los Verdes	To Oregon City TC	7	9	16
6198	Webster & Kraxberger Middle School	To Oregon City TC	1	1	2
6194	Webster & Clayton	To Oregon City TC	4	5	9
13153	Webster & Cason	To Oregon City TC	2	5	7
6206	Webster & Oatfield	To Oregon City TC	2	9	11
4164	Oatfield & E Hereford	To Oregon City TC	1	5	6
4154	Oatfield & E Exeter	To Oregon City TC	3	7	10
1256	E Dartmouth & Cornell	To Oregon City TC	3	8	11
1258	E Dartmouth & Harvard	To Oregon City TC	0	2	2
1259	E Dartmouth & Portland Ave	To Oregon City TC	2	14	16
4456	Portland Ave & W Arlington	To Oregon City TC	2	4	6
126	W Arlington & Bellevue	To Oregon City TC	0	1	1
124	W Arlington & Beatrice	To Oregon City TC	1	2	3
122	W Arlington & Barton	To Oregon City TC	1	2	3
135	W Arlington & McLoughlin	To Oregon City TC	1	23	24
121	W Arlington & Barton	To Clackamas Town Center	19	1	20
123	W Arlington & Beatrice	To Clackamas Town Center	3	0	3
125	W Arlington & Bellevue	To Clackamas Town Center	1	0	1
136	W Arlington & Portland Ave	To Clackamas Town Center	5	1	6
4463	Portland Ave & E Dartmouth	To Clackamas Town Center	17	4	21
1257	E Dartmouth & Harvard	To Clackamas Town Center	2	0	2
1255	E Dartmouth & Cornell	To Clackamas Town Center	8	3	11
10700	Oatfield & E Exeter	To Clackamas Town Center	12	4	16
13252	Oatfield & E Hereford	To Clackamas Town Center	3	0	3
13459	Webster & Oatfield	To Clackamas Town Center	6	1	7
8763	Webster & Cason	To Clackamas Town Center	3	2	5
6196	18000 Block Webster	To Clackamas Town Center	0	1	1
6208	Webster & Kirkwood	To Clackamas Town Center	5	3	8
6197	17700 Block Webster	To Clackamas Town Center	1	3	4
6190	Webster & Charolais	To Clackamas Town Center	11	6	17

**Table A-5: Route 99 Spring 2016 Ridership**

Bus Stop ID	Location	Direction	Passengers On	Passengers Off	Total
10324	McLoughlin & W Gloucester	To Clackamas CC	2	15	17
10327	McLoughlin & W Gloucester	To Portland City Center	11	2	13

Attachment B Year 2016 Existing Traffic  
Conditions Worksheets

Year 2016 Existing Traffic Conditions  
1: OR-99E & W Arlington St

Weekday PM Peak Hour  
Weekday PM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	319	181	91	159	1359	148	59	1725
v/c Ratio	0.15	0.75	0.80	0.26	0.62	0.57	0.14	0.25	0.79
Control Delay	41.3	28.0	72.5	9.0	43.8	12.3	1.8	7.9	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	28.0	72.5	9.0	43.8	12.3	1.8	7.9	17.1
Queue Length 50th (ft)	32	85	135	0	53	277	0	18	422
Queue Length 95th (ft)	64	184	209	40	131	404	25	m20	817
Internal Link Dist (ft)	442		371			477			1350
Turn Bay Length (ft)				175	200		280	250	
Base Capacity (vph)	399	489	288	414	290	2399	1080	329	2195
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.65	0.63	0.22	0.55	0.57	0.14	0.18	0.79

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Year 2016 Existing Traffic Conditions  
1: OR-99E & W Arlington St

Weekday PM Peak Hour  
Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↘	↕↕	↗	↘	↕↗	
Traffic Volume (vph)	5	41	303	134	38	86	151	1291	141	56	1632	7
Future Volume (vph)	5	41	303	134	38	86	151	1291	141	56	1632	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.8	4.8	4.0	4.8	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		1.00	0.97		1.00	0.98	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1889	1529		1730	1564	1787	3505	1511	1770	3503	
Flt Permitted		0.97	1.00		0.74	1.00	0.07	1.00	1.00	0.13	1.00	
Satd. Flow (perm)		1845	1529		1333	1564	139	3505	1511	239	3503	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	43	319	141	40	91	159	1359	148	59	1718	7
RTOR Reduction (vph)	0	0	168	0	0	76	0	0	48	0	0	0
Lane Group Flow (vph)	0	48	151	0	181	15	159	1359	100	59	1725	0
Confl. Peds. (#/hr)	7		13	13		7	4		3	3		4
Confl. Bikes (#/hr)						1			2			
Heavy Vehicles (%)	0%	0%	3%	6%	0%	1%	1%	3%	4%	2%	3%	0%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1		6
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)		20.4	20.4		20.4	20.4	82.1	81.3	81.3	74.3	74.3	
Effective Green, g (s)		20.4	20.4		20.4	20.4	82.1	81.3	81.3	74.3	74.3	
Actuated g/C Ratio		0.17	0.17		0.17	0.17	0.68	0.68	0.68	0.62	0.62	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.8	4.8	4.0	4.8	
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.3	4.7	4.7	2.3	4.7	
Lane Grp Cap (vph)		313	259		226	265	266	2374	1023	218	2168	
v/s Ratio Prot							0.06	c0.39		0.01	c0.49	
v/s Ratio Perm		0.03	0.10		c0.14	0.01	0.35		0.07	0.16		
v/c Ratio		0.15	0.58		0.80	0.06	0.60	0.57	0.10	0.27	0.80	
Uniform Delay, d1		42.4	45.9		47.8	41.7	32.4	10.2	6.7	12.0	17.1	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.58	0.81	
Incremental Delay, d2		0.2	2.8		17.7	0.1	2.8	1.0	0.2	0.3	2.2	
Delay (s)		42.6	48.7		65.5	41.8	35.2	11.2	6.9	7.3	16.1	
Level of Service		D	D		E	D	D	B	A	A	B	
Approach Delay (s)		47.9			57.6			13.1			15.8	
Approach LOS		D			E			B			B	

Intersection Summary

HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	55	194	34	1351	114	92	1763	26
v/c Ratio	0.20	0.82	0.20	0.57	0.11	0.28	0.70	0.02
Control Delay	38.3	71.0	9.7	17.8	5.0	9.8	9.7	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	71.0	9.7	17.8	5.0	9.8	9.7	1.2
Queue Length 50th (ft)	31	136	11	446	26	21	286	0
Queue Length 95th (ft)	69	#238	m19	606	48	m34	315	m1
Internal Link Dist (ft)	261	413		1350			2302	
Turn Bay Length (ft)			220		175	250		160
Base Capacity (vph)	314	272	283	2351	1029	414	2528	1092
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.71	0.12	0.57	0.11	0.22	0.70	0.02

**Intersection Summary**

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Year 2016 Existing Traffic Conditions  
2: OR-99E & W Gloucester St

Weekday PM Peak Hour  
Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕	↗	↗	↕	↗
Traffic Volume (vph)	5	36	10	84	51	46	32	1256	106	86	1640	24
Future Volume (vph)	5	36	10	84	51	46	32	1256	106	86	1640	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.8	4.8	4.0	4.8	4.8
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes		1.00			1.00		1.00	1.00	0.95	1.00	1.00	0.96
Flpb, ped/bikes		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.97			0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		1.00			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1756			1733		1805	3505	1487	1804	3505	1497
Flt Permitted		0.98			0.83		0.07	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)		1725			1478		129	3505	1487	310	3505	1497
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	5	39	11	90	55	49	34	1351	114	92	1763	26
RTOR Reduction (vph)	0	8	0	0	10	0	0	0	33	0	0	8
Lane Group Flow (vph)	0	47	0	0	184	0	34	1351	81	92	1763	18
Confl. Peds. (#/hr)	6		11	11		6	5		10	10		5
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	0%	6%	0%	2%	2%	4%	0%	3%	3%	0%	3%	4%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		18.6			18.6		78.8	78.8	78.8	85.7	84.9	84.9
Effective Green, g (s)		18.6			18.6		78.8	78.8	78.8	85.7	84.9	84.9
Actuated g/C Ratio		0.16			0.16		0.66	0.66	0.66	0.71	0.71	0.71
Clearance Time (s)		4.0			4.0		4.0	4.8	4.8	4.0	4.8	4.8
Vehicle Extension (s)		2.5			2.5		2.3	4.7	4.7	2.3	4.7	4.7
Lane Grp Cap (vph)		267			229		136	2301	976	343	2479	1059
v/s Ratio Prot							0.01	c0.39		0.02	c0.50	
v/s Ratio Perm		0.03			c0.12		0.16		0.05	0.17		0.01
v/c Ratio		0.18			0.80		0.25	0.59	0.08	0.27	0.71	0.02
Uniform Delay, d1		44.1			48.9		13.6	11.5	7.5	13.0	10.3	5.2
Progression Factor		1.00			1.00		0.87	1.42	1.80	0.82	0.75	1.33
Incremental Delay, d2		0.2			17.6		0.5	1.0	0.1	0.2	1.4	0.0
Delay (s)		44.3			66.6		12.4	17.3	13.6	10.9	9.1	6.9
Level of Service		D			E		B	B	B	B	A	A
Approach Delay (s)		44.3			66.6			17.0			9.2	
Approach LOS		D			E			B			A	

Intersection Summary

HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Year 2016 Existing Traffic Conditions  
3: OR-99E & Glen Echo Ave

Weekday PM Peak Hour  
Weekday PM Peak Hour



Lane Group	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	133	113	187	86	1304	77	43	1597	94
v/c Ratio	0.81	0.34	0.93	0.38	0.53	0.07	0.14	0.65	0.09
Control Delay	82.9	10.8	89.5	15.5	4.5	2.0	4.7	12.8	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.9	10.8	89.5	15.5	4.5	2.0	4.7	12.8	3.4
Queue Length 50th (ft)	98	0	123	4	33	0	7	365	8
Queue Length 95th (ft)	#194	51	#252	m61	146	m13	16	474	28
Internal Link Dist (ft)	271		213		2302			539	
Turn Bay Length (ft)		100		185		160	185		160
Base Capacity (vph)	185	360	225	341	2478	1096	436	2449	1100
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.31	0.83	0.25	0.53	0.07	0.10	0.65	0.09

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Year 2016 Existing Traffic Conditions  
3: OR-99E & Glen Echo Ave

Weekday PM Peak Hour  
Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↕	↗	↖	↕	↗
Traffic Volume (vph)	76	49	106	63	41	71	81	1226	72	40	1501	88
Future Volume (vph)	76	49	106	63	41	71	81	1226	72	40	1501	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.8	4.8	4.0	4.8	4.8
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes		1.00	0.98		0.99		1.00	1.00	0.95	1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00		0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1813	1528		1717		1736	3505	1525	1804	3505	1548
Flt Permitted		0.57	1.00		0.67		0.10	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)		1062	1528		1172		190	3505	1525	323	3505	1548
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	81	52	113	67	44	76	86	1304	77	43	1597	94
RTOR Reduction (vph)	0	0	95	0	21	0	0	0	18	0	0	19
Lane Group Flow (vph)	0	133	18	0	166	0	86	1304	59	43	1597	75
Confl. Peds. (#/hr)	3		4	4		3	4		8	8		4
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	4%	4%	3%	2%	1%	4%	3%	1%	0%	3%	1%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)		18.6	18.6		18.6		89.6	84.1	84.1	87.6	83.1	83.1
Effective Green, g (s)		18.6	18.6		18.6		89.6	84.1	84.1	87.6	83.1	83.1
Actuated g/C Ratio		0.16	0.16		0.16		0.75	0.70	0.70	0.73	0.69	0.69
Clearance Time (s)		4.0	4.0		4.0		4.0	4.8	4.8	4.0	4.8	4.8
Vehicle Extension (s)		2.5	2.5		2.5		2.3	4.7	4.7	2.3	4.7	4.7
Lane Grp Cap (vph)		164	236		181		212	2456	1068	291	2427	1071
v/s Ratio Prot							c0.02	0.37		0.01	c0.46	
v/s Ratio Perm		0.13	0.01		c0.14		0.28		0.04	0.10		0.05
v/c Ratio		0.81	0.07		0.92		0.41	0.53	0.06	0.15	0.66	0.07
Uniform Delay, d1		49.0	43.3		49.9		8.9	8.6	5.6	5.7	10.4	6.0
Progression Factor		1.00	1.00		1.00		3.20	0.42	0.79	1.00	1.00	1.00
Incremental Delay, d2		24.7	0.1		43.4		0.6	0.7	0.1	0.1	1.4	0.1
Delay (s)		73.7	43.4		93.3		29.1	4.3	4.5	5.9	11.8	6.1
Level of Service		E	D		F		C	A	A	A	B	A
Approach Delay (s)		59.8			93.3			5.8			11.4	
Approach LOS		E			F			A			B	

Intersection Summary

HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Year 2016 Existing Traffic Conditions  
4: Oatfield Rd & 82nd Dr

Weekday PM Peak Hour  
Weekday PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	111	276	95	228	654	65	121	346	353	106
v/c Ratio	0.49	0.30	0.46	0.58	0.62	0.35	0.46	0.64	0.65	0.18
Control Delay	49.4	31.5	50.1	40.8	5.9	49.5	15.4	32.5	32.6	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.4	31.5	50.1	40.8	5.9	49.5	15.4	32.5	32.6	5.1
Queue Length 50th (ft)	56	65	48	110	44	33	0	164	167	0
Queue Length 95th (ft)	146	139	130	251	144	98	59	334	342	33
Internal Link Dist (ft)		452		736		230			650	
Turn Bay Length (ft)	80		170		170		100	110		110
Base Capacity (vph)	532	2121	429	1008	1337	343	379	1002	1010	965
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.13	0.22	0.23	0.49	0.19	0.32	0.35	0.35	0.11

Intersection Summary

Year 2016 Existing Traffic Conditions  
4: Oatfield Rd & 82nd Dr

Weekday PM Peak Hour  
Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	255	8	90	217	621	0	62	115	609	55	101
Future Volume (vph)	105	255	8	90	217	621	0	62	115	609	55	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0		4.5	5.0	5.0		5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00	0.95	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.99		1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1770	3523		1787	1863	1567		1900	1553	1665	1679	1539
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	1770	3523		1787	1863	1567		1900	1553	1665	1679	1539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	111	268	8	95	228	654	0	65	121	641	58	106
RTOR Reduction (vph)	0	1	0	0	0	202	0	0	109	0	0	71
Lane Group Flow (vph)	111	275	0	95	228	452	0	65	12	346	353	35
Confl. Peds. (#/hr)	2		3	3		2	5					5
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	2%	2%	0%	1%	2%	2%	0%	0%	4%	3%	4%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov		NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6	4		8		4	4	
Permitted Phases						6	8		8			4
Actuated Green, G (s)	11.3	23.1		8.5	20.3	49.3		8.8	8.8	29.0	29.0	29.0
Effective Green, g (s)	11.3	23.1		8.5	20.3	49.3		8.8	8.8	29.0	29.0	29.0
Actuated g/C Ratio	0.13	0.26		0.10	0.23	0.55		0.10	0.10	0.33	0.33	0.33
Clearance Time (s)	4.5	5.0		4.5	5.0	5.0		5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.3	4.2		2.3	4.2	2.5		2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	224	915		170	425	957		188	153	543	547	502
v/s Ratio Prot	c0.06	c0.08		0.05	c0.12	0.15		c0.03		0.21	c0.21	
v/s Ratio Perm						0.13			0.01			0.02
v/c Ratio	0.50	0.30		0.56	0.54	0.47		0.35	0.08	0.64	0.65	0.07
Uniform Delay, d1	36.1	26.4		38.4	30.2	11.9		37.4	36.4	25.5	25.6	20.6
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.3		2.8	1.8	0.3		0.8	0.2	2.1	2.3	0.0
Delay (s)	37.2	26.7		41.2	32.0	12.2		38.2	36.5	27.6	27.9	20.7
Level of Service	D	C		D	C	B		D	D	C	C	C
Approach Delay (s)		29.7			19.6			37.1			26.8	
Approach LOS		C			B			D			C	

Intersection Summary

HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	88.9	Sum of lost time (s)	19.5
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

**Intersection**

Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	1	1	7	20	1	17	10	431	30	33	436	3
Future Vol, veh/h	1	1	7	20	1	17	10	431	30	33	436	3
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	0	0	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	10	0	6	0	2	3	0	3	0
Mvmt Flow	1	1	7	21	1	18	11	454	32	35	459	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1034	1040	465	1029	1027	473	464	0	0	487	0	0
Stage 1	532	532	-	493	493	-	-	-	-	-	-	-
Stage 2	502	508	-	536	534	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.2	6.5	6.26	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.59	4	3.354	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	212	232	602	205	236	583	1108	-	-	1086	-	-
Stage 1	535	529	-	543	550	-	-	-	-	-	-	-
Stage 2	555	542	-	514	528	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	195	218	600	192	222	581	1106	-	-	1084	-	-
Mov Cap-2 Maneuver	195	218	-	192	222	-	-	-	-	-	-	-
Stage 1	527	505	-	534	541	-	-	-	-	-	-	-
Stage 2	528	533	-	484	504	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.7	20.3	0.2	0.6
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1106	-	-	421	275	1084	-	-
HCM Lane V/C Ratio	0.01	-	-	0.023	0.145	0.032	-	-
HCM Control Delay (s)	8.3	0	-	13.7	20.3	8.4	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.1	-	-

**Intersection**

Int Delay, s/veh 2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	34	72	67	377	405	29
Future Vol, veh/h	34	72	67	377	405	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	120	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	6	1	0	3	3	0
Mvmt Flow	35	74	69	389	418	30

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	959	432	447 0
Stage 1	432	-	- -
Stage 2	527	-	- -
Critical Hdwy	6.46	6.21	4.1 -
Critical Hdwy Stg 1	5.46	-	- -
Critical Hdwy Stg 2	5.46	-	- -
Follow-up Hdwy	3.554	3.309	2.2 -
Pot Cap-1 Maneuver	280	626	1124 -
Stage 1	646	-	- -
Stage 2	584	-	- -
Platoon blocked, %			-
Mov Cap-1 Maneuver	263	626	1124 -
Mov Cap-2 Maneuver	263	-	- -
Stage 1	646	-	- -
Stage 2	548	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	16.1	1.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1124	-	434	-	-
HCM Lane V/C Ratio	0.061	-	0.252	-	-
HCM Control Delay (s)	8.4	-	16.1	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1	-	-



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	462	548	667	621	19	341
v/c Ratio	0.74	0.74	1.12	0.44	0.10	0.71
Control Delay	30.8	16.6	92.2	3.5	31.2	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	16.6	92.2	3.5	31.2	13.2
Queue Length 50th (ft)	187	91	~361	60	8	0
Queue Length 95th (ft)	#306	218	m#506	m89	27	#83
Internal Link Dist (ft)	736			638	725	
Turn Bay Length (ft)			310			
Base Capacity (vph)	621	737	596	1403	196	483
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.74	1.12	0.44	0.10	0.71

**Intersection Summary**

- ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Year 2016 Existing Traffic Conditions  
7: I-205 SB Ramps & 82nd Dr

Weekday PM Peak Hour  
Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↖	↗
Traffic Volume (vph)	0	448	532	647	602	0	0	0	0	15	4	331
Future Volume (vph)	0	448	532	647	602	0	0	0	0	15	4	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5						5.5	5.5
Lane Util. Factor		1.00	1.00	1.00	1.00						1.00	1.00
Frbp, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.96	1.00
Satd. Flow (prot)		1827	1568	1687	1863						1732	1599
Flt Permitted		1.00	1.00	0.95	1.00						0.96	1.00
Satd. Flow (perm)		1827	1568	1687	1863						1732	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	462	548	667	621	0	0	0	0	15	4	341
RTOR Reduction (vph)	0	0	204	0	0	0	0	0	0	0	0	302
Lane Group Flow (vph)	0	462	344	667	621	0	0	0	0	0	19	39
Confl. Peds. (#/hr)							2					2
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	4%	3%	7%	2%	0%	0%	0%	0%	7%	0%	1%
Turn Type		NA	Perm	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			2									
Actuated Green, G (s)		25.5	25.5	26.5	56.5						8.5	8.5
Effective Green, g (s)		25.5	25.5	26.5	56.5						8.5	8.5
Actuated g/C Ratio		0.34	0.34	0.35	0.75						0.11	0.11
Clearance Time (s)		4.5	4.5	4.5	4.5						5.5	5.5
Vehicle Extension (s)		4.2	4.2	2.3	0.2						6.0	6.0
Lane Grp Cap (vph)		621	533	596	1403						196	181
v/s Ratio Prot		c0.25		c0.40	0.33						0.01	c0.02
v/s Ratio Perm			0.22									
v/c Ratio		0.74	0.65	1.12	0.44						0.10	0.21
Uniform Delay, d1		21.9	20.9	24.2	3.4						29.8	30.2
Progression Factor		1.00	1.00	0.98	0.81						1.00	1.00
Incremental Delay, d2		7.9	5.9	66.2	0.6						0.6	1.7
Delay (s)		29.7	26.9	90.0	3.3						30.4	31.9
Level of Service		C	C	F	A						C	C
Approach Delay (s)		28.2			48.2			0.0			31.8	
Approach LOS		C			D			A			C	

Intersection Summary

HCM 2000 Control Delay	38.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	249	273	16	897	450	601
v/c Ratio	0.26	0.29	0.12	0.86	0.84	0.69
Control Delay	10.4	3.9	34.0	26.9	39.4	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	3.9	34.0	26.9	39.4	6.5
Queue Length 50th (ft)	25	7	7	340	189	0
Queue Length 95th (ft)	m74	m42	25	#632	#288	68
Internal Link Dist (ft)	638			440	402	
Turn Bay Length (ft)		50	200			575
Base Capacity (vph)	965	945	240	1037	619	912
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.29	0.07	0.86	0.73	0.66

**Intersection Summary**

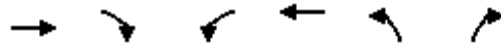
# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Year 2016 Existing Traffic Conditions  
8: I-205 NB Ramps & 82nd Dr

Weekday PM Peak Hour  
Weekday PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	234	257	15	843	423	565
Future Volume (vph)	234	257	15	843	423	565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	4.5	5.5	5.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1810	1568	1805	1845	1752	1482
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1810	1568	1805	1845	1752	1482
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	249	273	16	897	450	601
RTOR Reduction (vph)	0	119	0	0	0	418
Lane Group Flow (vph)	249	154	16	897	450	183
Heavy Vehicles (%)	5%	3%	0%	3%	3%	9%
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	2		1	6	8	8
Permitted Phases		2				
Actuated Green, G (s)	36.8	36.8	1.4	42.2	22.8	22.8
Effective Green, g (s)	36.8	36.8	1.4	42.2	22.8	22.8
Actuated g/C Ratio	0.49	0.49	0.02	0.56	0.30	0.30
Clearance Time (s)	4.5	4.5	4.0	4.5	5.5	5.5
Vehicle Extension (s)	0.2	0.2	2.3	4.2	2.3	2.3
Lane Grp Cap (vph)	888	769	33	1038	532	450
v/s Ratio Prot	0.14		0.01	c0.49	c0.26	0.12
v/s Ratio Perm		0.10				
v/c Ratio	0.28	0.20	0.48	0.86	0.85	0.41
Uniform Delay, d1	11.3	10.8	36.4	14.0	24.5	20.7
Progression Factor	0.84	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.4	6.4	9.5	11.5	0.3
Delay (s)	10.0	11.3	42.8	23.5	36.0	21.1
Level of Service	B	B	D	C	D	C
Approach Delay (s)	10.7			23.8	27.5	
Approach LOS	B			C	C	

Intersection Summary

HCM 2000 Control Delay	22.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Attachment C ODOT Crash Data

SE McLoughlin Blvd 99E (Hwy 081) & Glen Echo Ave  
 January 1, 2010 through December 31, 2014

COLLISION TYPE	FATAL CRASHES		NON-PROPERTY DAMAGE ONLY		TOTAL CRASHES	TOTAL PEOPLE KILLED	TOTAL PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION RELATED	OFF-ROAD	
	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	OTHER DAMAGE ONLY											
YEAR: 2014															
PEDESTRIAN	0	1	0	0	1	0	1	0	0	1	0	1	1	0	0
REAR-END	0	3	0	0	3	0	6	0	1	2	3	0	3	0	0
TURNING MOVEMENTS	0	0	1	0	1	0	0	1	0	1	1	0	1	0	0
2014 TOTAL	0	4	1	1	5	0	7	1	1	4	4	1	5	0	0
YEAR: 2013															
REAR-END	0	1	2	0	3	0	2	0	3	0	2	1	3	0	0
2013 TOTAL	0	1	2	0	3	0	2	0	3	0	2	1	3	0	0
YEAR: 2011															
ANGLE	0	0	1	1	1	0	0	0	0	0	1	0	1	0	0
REAR-END	0	1	1	1	2	0	1	0	0	2	1	1	2	0	0
2011 TOTAL	0	1	2	2	3	0	1	0	0	2	2	1	3	0	0
YEAR: 2010															
PEDESTRIAN	0	1	0	0	1	0	1	0	1	0	0	1	1	0	0
2010 TOTAL	0	1	0	0	1	0	1	0	1	0	0	1	1	0	0
FINAL TOTAL	0	7	5	5	12	0	11	1	5	6	8	4	12	0	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.









SE McLoughlin Blvd 99E (Hwy 081) & Gloucester St  
 January 1, 2010 through December 31, 2014

COLLISION TYPE	FATAL CRASHES		NON-PROPERTY DAMAGE ONLY		TOTAL CRASHES	TOTAL PEOPLE		TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION RELATED ROAD		OFF-ROAD	
	FATAL CRASHES	NON-FATAL CRASHES	FATAL CRASHES	PROPERTY DAMAGE ONLY		KILLED	INJURED						INTER-SECTION	RELATED ROAD		
YEAR: 2014																
REAR-END	0	3	2	0	5	0	3	0	4	1	4	1	5	0	0	
TURNING MOVEMENTS	0	1	1	0	2	0	1	0	2	0	1	1	2	0	0	
2014 TOTAL	0	4	3	0	7	0	4	0	6	1	5	2	7	0	0	
YEAR: 2013																
ANGLE	0	1	0	0	1	0	1	0	1	0	0	1	1	0	0	
REAR-END	0	1	2	0	3	0	1	0	1	2	2	1	3	0	0	
2013 TOTAL	0	2	2	0	4	0	2	0	2	2	2	2	4	0	0	
YEAR: 2012																
TURNING MOVEMENTS	0	1	1	0	2	0	2	0	2	0	2	0	2	0	0	
2012 TOTAL	0	1	1	0	2	0	2	0	2	0	2	0	2	0	0	
YEAR: 2011																
ANGLE	0	1	0	0	1	0	2	0	0	1	1	0	1	0	0	
FIXED / OTHER OBJECT	0	0	1	0	1	0	0	0	0	1	0	1	1	0	0	
REAR-END	0	1	0	0	1	0	1	0	1	0	1	0	1	0	0	
2011 TOTAL	0	2	1	0	3	0	3	0	1	2	2	1	3	0	0	
YEAR: 2010																
TURNING MOVEMENTS	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	
2010 TOTAL	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	
FINAL TOTAL	0	9	8	0	17	0	11	0	11	5	12	5	17	0	0	

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081 PACIFIC HIGHWAY EAST

SE McLoughlin Blvd 99E (Hwy 081) & Gloucester St  
January 1, 2010 through December 31, 2014

SER#	INVEST UNLOC?	D C S L K	E L G H R	A U C O	R S W	P	RD#	FC	CONN #	STREET	RD CHAR	INT-TYP	INT-REL	OFFED	WTHR	CRASH	TYP	SPCL USE	MOVE	FROM	TO	VEH TYPE	V#	VEH TYPE	PRIC INJ	A S E LICNS	PED	LOC ERROR	ACTN EVENT	CAUSE
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	01	DRVR	INJC	36	F	OR-Y	000	000	00	00
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	02	PSNG	NO<5	01	F	OR>25	000	000	00	00
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	01	DRVR	NONE	46	F	OR-Y	026	000	00	29
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	02	PSNG	NO<5	01	F	OR<25	000	000	00	00
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	01	DRVR	NONE	49	F	NONE	020	000	00	04
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	01	DRVR	NONE	49	F	NONE	020	000	00	04
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	02	PSNG	NO<5	03	M	OR<25	000	000	00	00
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	01	DRVR	NONE	45	F	OR-Y	000	000	00	00
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	01	DRVR	NONE	54	M	OR-Y	000	000	00	00
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	01	DRVR	NONE	40	F	OR-Y	031	000	00	06
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	02	PSNG	NO<5	03	M	OR<25	000	000	00	00
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	02	PSNG	NO<5	03	M	OR<25	000	000	00	00
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	01	DRVR	NONE	88	M	OR-Y	000	000	00	00
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	01	DRVR	NONE	16	F	OR-Y	020	000	00	04
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	02	PSNG	NO<5	16	F	OR<25	000	000	00	00
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	02	PSNG	NO<5	16	F	OR<25	000	000	00	00
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	01	DRVR	NONE	64	F	OR-Y	000	000	00	00
NO	45	22	45	37	-122	36	13.46	1	14	GLOUCESTER ST	INTER	CROSS	N	TRF SIGNAL	N	RAIN	S-1STOP	0	STRAIGHT	NW SE	01	DRVR	NONE	64	F	OR-Y	000	000	00	00



SE McLoughlin Blvd 99E (Hwy 081) & Arlington St / River Rd  
 January 1, 2010 through December 31, 2014

COLLISION TYPE	FATAL CRASHES		NON-PROPERTY DAMAGE ONLY		TOTAL CRASHES		TOTAL PEOPLE		TRUCKS		DRY SURF		WET SURF		DAY		DARK		INTER-SECTION RELATED ROAD		INTER-SECTION OFF-ROAD	
	FATAL CRASHES	FATAL CRASHES	FATAL CRASHES	PROPERTY DAMAGE ONLY	CRASHES	KILLED	PEOPLE INJURED	PEOPLE KILLED	CRASHES	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION RELATED ROAD	INTER-SECTION OFF-ROAD						
YEAR: 2014																						
ANGLE	0	1	0	0	1	0	0	3	0	0	1	0	0	1	1	0	0	1	1	0	0	0
FIXED / OTHER OBJECT	0	1	0	0	1	0	1	1	0	1	0	0	1	0	1	0	1	0	1	0	0	1
REAR-END	0	4	2	2	6	0	5	0	0	5	1	1	4	2	6	0	2	0	6	0	0	0
TURNING MOVEMENTS	0	4	0	0	4	0	5	0	0	3	1	1	4	0	4	0	0	0	4	0	0	0
2014 TOTAL	0	10	2	2	12	0	14	0	0	9	3	3	9	3	12	0	3	12	0	0	1	1
YEAR: 2013																						
PEDESTRIAN	0	1	0	0	1	0	1	0	0	1	0	0	0	1	1	0	0	1	1	0	0	0
REAR-END	0	4	4	4	8	0	8	0	0	7	1	1	5	3	8	0	0	3	8	0	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	1	0	0	0	0	1	0	0	1	0	1	0	0	0	1	0	0	0
TURNING MOVEMENTS	0	2	0	0	2	0	3	0	0	1	1	1	2	0	2	0	0	0	2	0	0	0
2013 TOTAL	0	7	5	5	12	0	12	0	0	10	2	2	8	4	12	0	4	12	0	0	0	0
YEAR: 2012																						
ANGLE	0	1	0	0	1	0	1	0	0	1	0	0	1	0	1	0	0	0	1	0	0	0
REAR-END	0	1	1	1	2	0	3	0	0	1	1	1	2	0	2	0	0	0	2	0	0	0
2012 TOTAL	0	2	1	1	3	0	4	0	0	2	1	1	3	0	3	0	0	0	3	0	0	0
YEAR: 2011																						
ANGLE	0	1	1	1	2	0	1	0	0	2	0	0	1	1	2	0	0	1	2	0	0	0
PEDESTRIAN	0	1	0	0	1	0	1	0	0	1	0	0	0	1	1	0	0	1	1	0	0	0
REAR-END	0	0	1	1	1	0	0	0	0	1	0	0	1	0	1	0	0	0	1	0	0	0
TURNING MOVEMENTS	0	0	1	1	1	0	0	0	0	1	0	0	1	0	1	0	0	0	1	0	0	0
2011 TOTAL	0	2	3	3	5	0	2	0	0	5	0	0	3	2	5	0	2	5	0	0	0	0
YEAR: 2010																						
PEDESTRIAN	0	2	0	0	2	0	2	0	0	1	1	1	2	0	2	0	0	0	2	0	0	0
REAR-END	0	0	2	2	2	0	0	0	0	2	0	0	2	0	2	0	0	0	2	0	0	0
TURNING MOVEMENTS	0	0	1	1	1	0	0	0	0	1	0	0	0	1	1	0	1	1	1	0	0	0
2010 TOTAL	0	2	3	3	5	0	2	0	0	4	1	1	4	1	5	0	1	5	0	0	0	0
FINAL TOTAL	0	23	14	14	37	0	34	0	0	30	7	7	27	10	37	0	10	37	0	0	1	1

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081 PACIFIC HIGHWAY EAST

SE McLoughlin Blvd 99E (Hwy 081) & Arlington St / River Rd  
January 1, 2010 through December 31, 2014

SER#	UNLOC?	D C S L K	E A U C O	R S W	P	DATE	TIME	AREA	RD#	FC	CONN #	STREET	RD CHAR	INT-TYP	INT-REL	OFFED	WTHR	CRASH_TYP	SPCL USE	MOVE	PRIC INJ	A S	E L I C N S	P E D	CAUSE					
INVEST	UNLOC?	D C S L K	E A U C O	R S W	P	DATE	TIME	AREA	LR	MILENT	INTERSECTION	SEQ#	DIRECT	LOC	LEGS	TRAF-	DRMVT	LIGHT	SVRTY	V#	VEH TYPE	W	VEH TYPE	FROM	TO	LOC	ERROR	ACTN	EVENT	CAUSE
01142	N	N	N	N	N	03/22/2014		CLACKAMAS	1	14	0	ARLINGTON ST	INTER	CROSS	N	Y CLR	FIX OBJ	01	NONE	0	TURN-L				040	08				
NONE								GLADSTONE	MN	0	ARLINGTON ST	05	NE	05	0	TRF SIGNAL	N DRY	FIX	PRVTE	N	NE			000	040	00				
No	45	22	32.10	-122	36	6.28		PORTLAND UA	008100100S00			1													001	08				
00904	N	N	N	N	N	03/19/2010		CLACKAMAS	1	14	0	ARLINGTON ST	INTER	CROSS	N	N CLR	S-1STOP	01	NONE	0	STRTHT				07					
NONE								GLADSTONE	MN	0	ARLINGTON ST	06	NE	06	0	TRF SIGNAL	N DRY	REAR	PRVTE	NE SW				000	00					
No	45	22	32.10	-122	36	6.28		PORTLAND UA	008100100S00			1												000	07					
04407	N	N	N	N	N	11/19/2011		CLACKAMAS	1	14	0	MCLOUGHLIN BLVD	INTER	CROSS	N	N CLR	PED	PED	01	NONE	0	TURN-L			02					
NONE								GLADSTONE	MN	0	MCLOUGHLIN BLVD	05	SE	05	0	TRF SIGNAL	N DRY	PED	PRVTE	NE SE				000	00					
No	45	22	32.10	-122	36	6.28		PORTLAND UA	008100100S00			1												000	02					
00135	N	N	N	N	N	01/13/2010		CLACKAMAS	1	14	0	ARLINGTON ST	INTER	CROSS	N	N RAIN	PED	PED	01	NONE	0	TURN-L			02					
NONE								GLADSTONE	MN	0	ARLINGTON ST	05	S	05	0	TRF SIGNAL	N WET	PED	PRVTE	NE S				000	00					
No	45	22	32.10	-122	36	6.28		PORTLAND UA	008100100S00			1												000	02					
00320	N	N	N	N	N	01/28/2010		CLACKAMAS	1	14	0	MCLOUGHLIN BLVD	INTER	CROSS	N	N CLD	PED	PED	01	NONE	0	TURN-R			02,19					
NONE								GLADSTONE	MN	0	MCLOUGHLIN BLVD	05	S	05	0	TRF SIGNAL	N DRY	PED	PRVTE	W S				000	00					
No	45	22	32.10	-122	36	6.28		PORTLAND UA	008100100S00			1												000	02					
04237	N	N	N	N	N	11/04/2013		CLACKAMAS	1	14	0	MCLOUGHLIN BLVD	INTER	CROSS	N	N CLD	BIKE	BIKE	01	NONE	0	TURN-R			02,27,19					
NONE								GLADSTONE	MN	0	MCLOUGHLIN BLVD	05	S	05	0	TRF SIGNAL	N WET	TURN	PRVTE	W S				000	00					
No	45	22	32.10	-122	36	6.28		PORTLAND UA	008100100S00			1												000	02,27					
03388	N	N	N	N	N	09/14/2011		CLACKAMAS	1	14	0	ARLINGTON ST	INTER	CROSS	N	N CLR	S-1STOP	01	NONE	0	STRTHT			19						
NONE								GLADSTONE	MN	0	ARLINGTON ST	06	S	06	0	TRF SIGNAL	N DRY	REAR	PRVTE	S N				000	07					
No	45	22	32.10	-122	36	6.28		PORTLAND UA	008100100S00			1												000	00					
00111	N	N	N	N	N	01/28/2010		CLACKAMAS	1	14	0	MCLOUGHLIN BLVD	INTER	CROSS	N	N CLR	PED	PED	01	NONE	0	TURN-L			011					
NONE								GLADSTONE	MN	0	MCLOUGHLIN BLVD	06	S	06	0	TRF SIGNAL	N DRY	PED	PRVTE	S N				000	00					
No	45	22	32.10	-122	36	6.28		PORTLAND UA	008100100S00			1												000	00					



081 PACIFIC HIGHWAY EAST

SE McLoughlin Blvd 99E (Hwy 081) & Arlington St / River Rd  
January 1, 2010 through December 31, 2014

SR#	INVEST	UNLOC?	D C S L K	L A T I T U D E	R D #	FC	CONN #	RD CHAR	INT-TYP	INT-REL	OFFED	WTHR	CRASH TYP	SPCL USE	TEL R	OTY	MOVE	FRM	PRIC	INJ	A S	E L I C N S	P E D	CAUSE								
NO	DATE	TIME	STREET	INTERSECTION	SECT	MILE	LR	DIRECT	CROSS	TRF	SIGNAL	N	WET	REAR	DRY	DAY	POO	PSNGR	CAR	DRVR	NONE	00	M	OR-Y	OR<25							
01424	N N N	04/17/2012	CLACKAMAS	ARLINGTON ST	1	14		S	CROSS	N	TRF	SIGNAL	N	WET	REAR	DRY	DAY	POO	PSNGR	CAR	01	DRVR	NONE	00	M	OR-Y	OR<25	000	000	07		
NONE			GLADSTONE					S	0	0																						
No	45 22 32.10	-122 36 6.28	PORTLAND UA	MCLOUGHLIN BLVD	1			S	0	0											01	DRVR	NONE	00	M	OR-Y	OR<25	042	000	07		
								S													02	DRVR	NONE	54	M	OR-Y	OR<25	000	006	00		
								S													01	DRVR	NONE	54	M	OR-Y	OR<25	000	000	00		
01705	N N N	05/12/2012	CLACKAMAS	ARLINGTON ST	1	14		S	CROSS	N	TRF	SIGNAL	N	DRY	REAR	DRY	DAY	INJ	PSNGR	CAR	01	DRVR	NONE	25	F	OR-Y	OR<25	000	000	27,07,32		
STATE			GLADSTONE					S	0	0																						
No	45 22 32.10	-122 36 6.28	PORTLAND UA	MCLOUGHLIN BLVD	1			S	0	0											01	DRVR	NONE	25	F	OR-Y	OR<25	016,026,052	038	000	27,07,32	
								S													02	PSNG	NO<5	03	M							
								S													03	PSNG	NO<5	01	F							
00536	N N N	02/16/2013	CLACKAMAS	ARLINGTON ST	1	14		S	CROSS	N	TRF	SIGNAL	N	DRY	REAR	DRY	DAY	INJ	PSNGR	CAR	01	DRVR	NONE	30	F	OR-Y	OR<25	000	011	00		
NO RPT			GLADSTONE					S	0	0																						
No	45 22 32.10	-122 36 6.28	PORTLAND UA	MCLOUGHLIN BLVD	1			S	0	0											01	DRVR	NONE	57	M	OR-Y	OR<25	026	000	00		
								S													02	PSNG	INJC	00	F							
								S													01	DRVR	INJC	50	M	OR-Y	OR<25	000	012	00		
								S													01	DRVR	INJC	50	M	OR-Y	OR<25	000	000	00		
03282	N N N	09/04/2013	CLACKAMAS	ARLINGTON ST	1	14		S	CROSS	N	TRF	SIGNAL	N	DRY	REAR	DRY	DAY	INJ	PSNGR	CAR	01	DRVR	NONE	00	M	UNK	UNK	000	000	07		
NONE			GLADSTONE					S	0	0																						
No	45 22 32.10	-122 36 6.28	PORTLAND UA	MCLOUGHLIN BLVD	1			S	0	0											01	DRVR	NONE	00	M	UNK	UNK	026	000	00		
								S													02	PSNG	INJC	00	M							
								S													01	DRVR	NONE	23	M	OR-Y	OR<25	000	011	00		
								S													01	DRVR	NONE	23	M	OR-Y	OR<25	000	000	00		
								S													02	PSNG	INJC	00	M							
00903	N N N	03/03/2014	CLACKAMAS	ARLINGTON ST	1	14		S	CROSS	N	TRF	SIGNAL	N	DRY	REAR	DRY	DAY	INJ	PSNGR	CAR	01	DRVR	NONE	00	M	OR-Y	OR<25	000	000	07		
CITY			GLADSTONE					S	0	0																						
No	45 22 32.10	-122 36 6.28	PORTLAND UA	MCLOUGHLIN BLVD	1			S	0	0											01	DRVR	INJB	29	F	OR-Y	OR<25	026,043	000	000	07	
								S													01	DRVR	INJB	29	F	OR-Y	OR<25	026,043	000	000	07	
								S													01	DRVR	INJB	29	F	OR-Y	OR<25	026,043	000	000	07	









CITY OF GLADSTONE, CLACKAMAS COUNTY

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
URBAN NON-SYSTEM CRASH LISTING

SE McLoughlin Blvd 99E (Hwy 081) & Arlington St / River Rd  
January 1, 2010 through December 31, 2014

SR#	INVEST	UNLOC?	D	R	S	W	DATE	FC	DISTNC	CITY STREET	INT-TYP	INT-REL	OFF-RD	WTHR	CRASH TYP	SPCL USE	VEH TYPE	MOVE	PRTC	INI	A	S	LOC	EVENT	CAUSE	
04489	N N N		11/19/2013	16	ARLINGTON ST	CROSS	N	RAIN	N	S-1STOP	01	NONE	0	STRTGHT	01	NONE	0	STRTGHT	01	DRVR	NONE	00	M	UNK	026	00
No	45	22	32.10	-122	36	6.28			1	MCLOUGHLIN BLVD	0	L-GRN-SIG	N	DAWN	PDO	PSNGR CAR	NE SW	NE SW	01	DRVR	NONE	00	M	UNK	026	00
00262	N N N		01/20/2014	16	ARLINGTON ST	CROSS	N	CLR	N	S-1STOP	01	NONE	0	STRTGHT	01	NONE	0	STRTGHT	01	DRVR	NONE	39	M	OTH-Y	000	00
No	45	22	32.10	-122	36	6.28			1	MCLOUGHLIN BLVD	0	TRF SIGNAL	N	DAY	INJ	UNKN	NE SW	NE SW	01	DRVR	NONE	00	U	UNK	026	00
01593	N N N		04/26/2014	16	ARLINGTON ST	CROSS	N	CLR	N	S-1STOP	01	NONE	0	STRTGHT	01	NONE	0	STRTGHT	01	DRVR	INJC	58	M	OR-Y	000	00
No	45	22	32.10	-122	36	6.28			1	MCLOUGHLIN BLVD	0	TRF SIGNAL	N	DAY	PDO	PSNGR CAR	NE SW	NE SW	01	DRVR	INJC	83	F	OR>25	000	00
04655	N N N		11/17/2014	16	ARLINGTON ST	CROSS	N	CLR	N	S-1STOP	01	NONE	0	STRTGHT	01	NONE	0	STRTGHT	01	DRVR	INJC	46	M	OR-Y	000	00
No	45	22	32.10	-122	36	6.28			1	MCLOUGHLIN BLVD	0	TRF SIGNAL	N	DLIT	INJ	UNKN	NE SW	NE SW	01	DRVR	INJC	19	F	OR-Y	026	29
03174	N N N		08/26/2013	16	MCLOUGHLIN BLVD	CROSS	N	CLR	N	S-1STOP	01	NONE	0	STRTGHT	01	NONE	0	STRTGHT	01	DRVR	NONE	00	M	OR-Y	000	00
No	45	22	32.10	-122	36	6.28			1	RIVER RD	0	TRF SIGNAL	N	DAY	PDO	PSNGR CAR	NW SE	NW SE	01	DRVR	NONE	00	M	OR-Y	026	07
											02	NONE	0	STOP	02	NONE	0	STOP	01	DRVR	NONE	00	F	OR-Y	000	00
											03	NONE	0	STOP	03	NONE	0	STOP	01	DRVR	NONE	00	F	OR-Y	000	00

Oatfield Rd & Glen Echo Ave  
 January 1, 2010 through December 31, 2014

COLLISION TYPE	FATAL CRASHES		NON- FATAL CRASHES		PROPERTY DAMAGE ONLY		TOTAL CRASHES	TOTAL PEOPLE KILLED	TOTAL PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION RELATED	OFF- ROAD
	FATAL CRASHES	NON- FATAL CRASHES	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY											
YEAR: 2012																
TURNING MOVEMENTS	0	1	0	0	0	0	1	0	1	0	0	1	1	0	1	0
2012 TOTAL	0	1	0	0	0	0	1	0	1	0	0	1	1	0	1	0
YEAR: 2010																
FIXED / OTHER OBJECT	0	1	0	0	0	0	1	0	1	0	1	0	1	0	1	0
TURNING MOVEMENTS	0	0	1	1	1	0	2	0	0	0	0	0	1	0	1	0
2010 TOTAL	0	1	1	1	1	0	2	0	1	0	1	0	2	0	2	0
FINAL TOTAL	0	2	1	1	1	0	3	0	2	0	1	1	3	0	3	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 URBAN NON-SYSTEM CRASH LISTING

CDS3380 10/6/2016

CITY OF GLADSTONE, CLACKAMAS COUNTY

Oatfield Rd & Glen Echo Ave  
 January 1, 2010 through December 31, 2014

SER#	INVEST UNLOC?	P E A U E L D C S I R C O H R L K	DATE DAY/TIME	FC	DISTNC	CITY STREET FIRST STREET SECOND STREET INTERSECTION SEQ #	RD CHAR DIRECT LOCCHN	INT-TYP (MEDIAN) LEGS (#LANES)	CONTL	FLASHHCN-A	Y CLR	WTHR	CRASH COLL TYP	SPCL USE TPLR QTY	MOVE FROM TO	V#	VEH TYPE	OWNER	PRVTE	PSNGR	DRVR	INJUB	A G E LICNS	PED LOC_ERROR	ACTN_EVENT	CAUSE	
00733		Y N N N N	03/06/2010	16		GLEN ECHO AVE	INTER	3-LEG	N	FLASHHCN-A	N	CLR	FIX OBJ	01 NONE	TURN-L	01	NONE	0	PRVTE	PSNGR	01	DRVR	INJUB	34	F OR-Y	054	01,08
			Sat	3P	0	OATFIELD RD	SW	0			N	DRY	FIX	SE SW							01	DRVR	INJUB	047,006	000	054	00
		45 23 36.46	-122 35 35.94			1	05				N	DAY	INJ	PSNGR	CAR						01	DRVR	INJUB	047,006	000	054	01,08
02238		N N N N N	06/22/2012	16		GLEN ECHO AVE	INTER	3-LEG	N	STOP SIGN	N	RAIN	BIKE	01 NONE	TURN-R	01	NONE	0	PRVTE	PSNGR	01	DRVR	NONE	22	F OR-Y	015	19,02,18
			Fri	7P	0	OATFIELD RD	SW	0			N	WET	TURN	SW SE							01	DRVR	NONE	027	000	015	00
		45 23 36.46	-122 35 35.94			1	06				N	DAY	INJ	PSNGR	CAR						01	DRVR	NONE	027	000	015	02
02692		N N N	08/03/2010	16		GLEN ECHO AVE	INTER	3-LEG	N	STOP SIGN	N	UNK	ANGL-OTH	01 NONE	STRGHT	01	NONE	0	PRVTE	PSNGR	01	DRVR	NONE	22	M OR-Y	000	02
			Tue	2P	0	OATFIELD RD	CN	0			N	UNK	TURN	NW SE							01	DRVR	NONE	000	000	000	00
		45 23 36.46	-122 35 35.94			1	04				N	DAY	PDO	MTRCYCLE							01	DRVR	NONE	000	000	000	00
											N	DAY	PDO								01	DRVR	NONE	028	000	015	02
											N	DAY	PDO								01	DRVR	NONE	028	000	015	02
											N	DAY	PDO								01	DRVR	NONE	028	000	015	02



Oatfield Rd & Collins Crest St / Ridgeway Dr  
 January 1, 2010 through December 31, 2014

COLLISION TYPE	FATAL CRASHES		NON-PROPERTY DAMAGE		TOTAL CRASHES	TOTAL PEOPLE KILLED	TOTAL PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION RELATED	INTER-SECTION OFF-ROAD	
	FATAL CRASHES	NON-FATAL CRASHES	FATAL CRASHES	PROPERTY DAMAGE CRASHES											
YEAR: 2013															
REAR-END	0	2	0	0	2	0	2	0	2	0	2	0	2	0	0
2013 TOTAL	0	2	0	0	2	0	2	0	2	0	2	0	2	0	0
YEAR: 2012															
REAR-END	0	1	0	0	1	0	1	0	1	0	1	0	1	0	0
2012 TOTAL	0	1	0	0	1	0	1	0	1	0	1	0	1	0	0
YEAR: 2010															
REAR-END	0	1	0	0	1	0	1	0	0	1	1	0	1	0	0
2010 TOTAL	0	1	0	0	1	0	1	0	0	1	1	0	1	0	0
FINAL TOTAL	0	4	0	0	4	0	4	0	3	1	4	0	4	0	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
URBAN NON-SYSTEM CRASH LISTING

CDS3380 10/6/2016

CITY OF GLADSTONE, CLACKAMAS COUNTY

Oatfield Rd & Collins Crest St / Ridgeway Dr  
January 1, 2010 through December 31, 2014

SER#	INVEST UNLOC?	P E L L D C S L K	R A U G H R	O C O DATE	FC	DISTNC	CITY STREET FIRST STREET SECOND STREET INTERSECTION SEQ #	RD CHAR DIRECT LOCIN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CONTL	OFF-RD SURF LIGHT	WTHR	CRASH COLL SVRTY	VEH TYPE	SPCL USE	MOVE FROM TO	P#	PRTC INI SVRTY	A G E X RES	S LICNS	PED LOC_ERROR	ACTN_EVENT	CAUSE
00201	NONE	N N N	N N N	01/19/2010	16		COLLINS CREST OATFIELD RD	INTER SE 06	CROSS 0	N SCHL X-ING	N RAIN	N WET	S-1STOP REAR INJ	01 NONE 0 PSNGR CAR	01 STRGHT SE NW	0.1	DRVR NONE	30	M OR-Y	026	000	000	07
03364	NONE	N N N	N N N	09/11/2013	16		OATFIELD RD RIDGEGATE DR	INTER SE 06	CROSS 0	N NONE	N CLR	N DRY	S-1STOP REAR INJ	01 NONE 0 PSNGR CAR	01 STRGHT SE NW	0.1	DRVR NONE	38	F OR-Y	000	000	011	00
03756	NONE	N N N	N N N	10/09/2012	16		OATFIELD RD RIDGEGATE DR	INTER CN 04	CROSS 0	N NONE	N CLR	N DRY	S-1STOP REAR INJ	01 NONE 0 PSNGR CAR	01 STRGHT SE NW	0.1	DRVR NONE	27	M OR-Y	016,026	000	038	27,07
04415	NONE	N N N	N N N	11/13/2013	16		OATFIELD RD RIDGEGATE DR	INTER CN 04	CROSS 0	N NONE	N CLR	N DRY	S-1STOP REAR INJ	01 NONE 0 PSNGR CAR	01 STRGHT SE NW	0.1	DRVR NONE	31	M SUSP	026	000	000	07

Oatfield Rd / Princeton Ave & 82nd Dr (Hwy 064)  
 January 1, 2010 through December 31, 2014

COLLISION TYPE	FATAL CRASHES		NON-PROPERTY DAMAGE ONLY		TOTAL CRASHES		TOTAL PEOPLE		TRUCKS		DRY SURF		WET SURF		DAY		DARK		INTER-SECTION RELATED ROAD		INTER-SECTION OFF-ROAD	
	FATAL CRASHES	NON-FATAL CRASHES	FATAL CRASHES	PROPERTY DAMAGE ONLY	CRASHES	KILLED	PEOPLE INJURED	PEOPLE	CRASHES	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION RELATED ROAD	INTER-SECTION OFF-ROAD						
YEAR: 2014																						
REAR-END	0	0	1	1	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0
2014 TOTAL		0	0	1	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	1	0	0
YEAR: 2012																						
NON-COLLISION																						
REAR-END	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	0	0	1	1	0	0
REAR-END	0	2	0	0	2	0	2	0	0	2	0	0	2	0	2	0	0	0	2	2	0	0
2012 TOTAL		0	3	0	0	3	0	3	0	3	0	0	3	0	3	0	0	0	3	3	0	0
YEAR: 2011																						
REAR-END	0	1	0	0	1	0	1	0	0	0	1	1	0	0	1	0	0	1	1	0	0	0
2011 TOTAL		0	1	0	0	1	0	1	0	0	1	1	0	0	1	0	0	1	1	1	0	0
YEAR: 2010																						
ANGLE																						
REAR-END	0	1	0	0	1	0	2	0	0	0	1	1	0	0	1	0	0	1	1	0	0	0
REAR-END	0	1	0	0	1	0	1	0	0	1	0	0	1	0	1	0	0	0	1	1	0	0
2010 TOTAL		0	2	0	0	2	0	3	0	1	1	1	1	1	2	0	0	1	2	2	0	0
FINAL TOTAL		0	6	1	1	7	0	7	0	5	2	2	5	2	7	0	0	2	7	0	0	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.







I-205 SB ramps (Hwy 064) & 82nd Dr (Hwy 064)  
 January 1, 2010 through December 31, 2014

COLLISION TYPE	FATAL CRASHES		NON-PROPERTY DAMAGE ONLY		TOTAL CRASHES	TOTAL PEOPLE KILLED	TOTAL PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION RELATED	OFF-ROAD
	FATAL CRASHES	NON-FATAL CRASHES	FATAL CRASHES	PROPERTY DAMAGE ONLY										
YEAR: 2014														
PEDESTRIAN	1	0	0	0	1	1	0	0	1	0	1	0	1	0
REAR-END	0	1	2	2	3	0	1	0	3	0	3	0	3	0
TURNING MOVEMENTS	0	0	2	2	2	0	0	0	2	0	1	1	2	0
2014 TOTAL	1	1	4	4	6	1	1	0	6	0	5	1	6	0
YEAR: 2013														
REAR-END	0	5	1	1	6	0	6	0	4	2	6	0	6	0
TURNING MOVEMENTS	0	1	1	1	2	0	2	0	2	0	1	1	2	0
2013 TOTAL	0	6	2	2	8	0	8	0	6	2	7	1	8	0
YEAR: 2012														
REAR-END	0	2	1	1	3	0	2	0	3	0	3	0	3	0
TURNING MOVEMENTS	0	1	1	1	2	0	3	0	2	0	2	0	2	0
2012 TOTAL	0	3	2	2	5	0	5	0	5	0	5	0	5	0
YEAR: 2011														
REAR-END	0	5	3	3	8	0	6	0	6	2	8	0	8	0
TURNING MOVEMENTS	0	1	0	0	1	0	2	0	1	0	1	0	1	0
2011 TOTAL	0	6	3	3	9	0	8	0	7	2	9	0	9	0
YEAR: 2010														
REAR-END	0	4	6	6	10	0	5	0	7	3	7	3	10	0
TURNING MOVEMENTS	0	4	6	6	10	0	5	0	7	3	7	3	10	0
2010 TOTAL	0	8	12	12	20	0	10	0	14	6	14	6	20	0
FINAL TOTAL	1	20	17	17	38	1	27	0	31	7	33	5	38	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.





OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
CONTINUOUS SYSTEM CRASH LISTING

064 EAST PORTLAND FREEWAY

I-205 SB ramps (Hwy 064) & 82nd Dr (Hwy 064)  
January 1, 2010 through December 31, 2014

SER#	INVEST	UNLOC?	D C S L K	E A U C O	R S W	P	DATE	TIME	RD#	FC	CONN #	STREET	RD CHAR	INT-TYP	INT-REL	OFFED	WTHR	CRASH	TYP	SPLC	USE	PRIC	INJ	A	S	LOC	ERROR	ACTN	EVENT	CAUSE						
NO	45	23	4	34	-122	34	49	02	1	16	5	82ND DR	CN	0	82ND DR	INTER	CROSS	N	TRF	SIGNAL	N	DRY	TURN	INJ	01	DRVR	NONE	30	F	OR-Y	OR<25	020	000	00	04	
01454	N N N	04/28/2011	CLACKAMAS	CLACKAMAS	THU	12P			1	16	5	82ND DR	CN	0	82ND DR	INTER	CROSS	N	TRF	SIGNAL	N	DRY	TURN	INJ	01	DRVR	NONE	30	F	OR-Y	OR<25	020	000	00	04	
No	45	23	4	34	-122	34	49	02	1	16	5	82ND DR	CN	0	82ND DR	INTER	CROSS	N	TRF	SIGNAL	N	DRY	TURN	INJ	01	DRVR	NONE	30	F	OR-Y	OR<25	020	000	00	04	
02855	N Y N N	08/04/2012	CLACKAMAS	CLACKAMAS	SAT	10A			1	16	5	82ND DR	CN	0	82ND DR	INTER	CROSS	N	TRF	SIGNAL	N	DRY	TURN	INJ	01	DRVR	NONE	30	F	OR-Y	OR<25	000	000	00	02,33	
CITY			GLADSTONE	GLADSTONE																																
No	45	23	4	34	-122	34	49	02	1	16	5	82ND DR	CN	0	82ND DR	INTER	CROSS	N	TRF	SIGNAL	N	DRY	TURN	INJ	01	DRVR	NONE	30	F	OR-Y	OR<25	000	000	00	00	
03598	N N N	09/28/2012	CLACKAMAS	CLACKAMAS	FRI	10A			1	16	5	82ND DR	CN	0	82ND DR	INTER	CROSS	N	TRF	SIGNAL	N	DRY	TURN	INJ	01	DRVR	NONE	33	F	OR-Y	OR<25	000	000	00	04	
NO REP			GLADSTONE	GLADSTONE																																
No	45	23	4	34	-122	34	49	02	1	16	5	82ND DR	CN	0	82ND DR	INTER	CROSS	N	TRF	SIGNAL	N	DRY	TURN	INJ	01	DRVR	NONE	33	F	OR-Y	OR<25	000	000	00	00	
01426	N N N	04/26/2013	CLACKAMAS	CLACKAMAS	FRI	4P			1	16	5	82ND DR	CN	0	82ND DR	INTER	CROSS	N	TRF	SIGNAL	N	DRY	TURN	INJ	01	DRVR	NONE	26	M	OR-Y	OR<25	020	000	00	04	
NONE			GLADSTONE	GLADSTONE																																
No	45	23	4	34	-122	34	49	02	1	16	5	82ND DR	CN	0	82ND DR	INTER	CROSS	N	TRF	SIGNAL	N	DRY	TURN	INJ	01	DRVR	NONE	26	M	OR-Y	OR<25	020	000	00	04	
04221	N N N	10/25/2013	CLACKAMAS	CLACKAMAS	FRI	5P			1	16	5	82ND DR	CN	0	82ND DR	INTER	CROSS	N	TRF	SIGNAL	N	DRY	TURN	INJ	01	DRVR	NONE	25	M	OR-Y	OR<25	000	000	00	00	
NONE			GLADSTONE	GLADSTONE																																
No	45	23	4	18	-122	34	50	28	1	16	5	82ND DR	CN	0	82ND DR	INTER	CROSS	N	TRF	SIGNAL	N	DRY	TURN	INJ	01	DRVR	NONE	00	F	OR-Y	UNK	026	000	00	07	













I-205 NB ramps (Hwy 064) & 82nd Dr (Hwy 064)  
 January 1, 2010 through December 31, 2014

COLLISION TYPE	FATAL CRASHES		NON-PROPERTY DAMAGE ONLY		TOTAL CRASHES		TOTAL PEOPLE		TRUCKS		DRY SURF		WET SURF		DAY		DARK		INTER-SECTION RELATED ROAD		INTER-SECTION OFF-ROAD	
	FATAL CRASHES	NON-FATAL CRASHES	FATAL CRASHES	PROPERTY DAMAGE ONLY	CRASHES	KILLED	PEOPLE INJURED	CRASHES	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION RELATED ROAD	INTER-SECTION OFF-ROAD							
YEAR: 2014																						
MISCELLANEOUS	0	1	0	0	1	0	1	0	0	1	0	1	0	1	0	1	0	0	1	0	0	0
NON-COLLISION	0	0	1	1	1	0	0	1	1	0	0	1	0	1	0	1	0	0	1	0	0	0
REAR-END	0	1	0	0	1	0	1	0	0	1	0	0	1	1	0	0	1	1	1	0	0	0
2014 TOTAL	0	2	1	1	3	0	2	1	1	3	0	2	1	3	0	2	1	1	3	0	0	0
YEAR: 2013																						
REAR-END	0	1	0	0	1	0	1	0	0	0	1	1	0	1	0	1	0	0	1	0	0	0
TURNING MOVEMENTS	0	0	2	2	2	0	0	1	0	2	2	1	1	1	2	1	1	1	2	0	0	0
2013 TOTAL	0	1	2	2	3	0	1	1	1	3	3	2	1	3	0	2	1	1	3	0	0	0
YEAR: 2012																						
REAR-END	0	2	2	2	4	0	2	0	0	2	2	3	1	4	0	3	1	1	4	0	0	0
2012 TOTAL	0	2	2	2	4	0	2	0	0	2	2	3	1	4	0	3	1	1	4	0	0	0
YEAR: 2011																						
REAR-END	0	1	0	0	1	0	1	0	0	1	0	1	0	1	0	1	0	0	1	0	0	0
TURNING MOVEMENTS	0	1	0	0	1	0	1	0	0	1	0	0	1	1	0	0	1	1	1	0	0	0
2011 TOTAL	0	2	0	0	2	0	2	0	0	2	0	1	1	2	0	1	1	1	2	0	0	0
YEAR: 2010																						
REAR-END	0	2	1	1	3	0	5	0	0	3	0	2	1	3	0	2	1	1	3	0	0	0
2010 TOTAL	0	2	1	1	3	0	5	0	0	3	0	2	1	3	0	2	1	1	3	0	0	0
FINAL TOTAL	0	9	6	6	15	0	12	2	2	10	5	10	5	15	0	15	5	5	15	0	0	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.









ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSuing OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PROFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRCT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS_TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO.
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NOT MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
8	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
8	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN, ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-2	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FALL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNED FROM WRONG LANE
007	TO WRONG	TURNED INTO WRONG LANE
008	ILLEG U	U-TURNED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS 2N	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVERLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE



EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRECT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHICLE)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OFN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LYSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
060	MARKER	DELINATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRGL PYMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/YELD	FENCE OR BUILDING, ETC.
089	OTHER CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE FGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABRUPT EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRCTD BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRCTD BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN MAJOR COLLECTOR
18	URBAN MINOR COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COULET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE

LIGHT CONDITION CODE TRANSLATION LIST

CODE	DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY

PARTICIPANT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	OC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSSNGR	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYER
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OB.
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OB.
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	UNK	UNKNOWN TYPE OF NON-MOTORIST

PEDESTRIAN LOCATION CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHCN-R	FLASHING BEACON - RED (STOP)
003	FLASHCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFGR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVHRD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING

ROAD CHARACTER CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

095 BUS STPSCN BUS STOP SIGN AND RED LIGHTS  
 099 UNKNOWN UNKNOWN OR NOT DEFINITE

**VEHICLE TYPE CODE TRANSLATION LIST**

CODE	SHORT DESC	LONG DESCRIPTION
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

**WEATHER CONDITION CODE TRANSLATION LIST**

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH