BEND COUNT PROGRAM

GROWTH MANAGEMENT

An overview of the City of Bend Growth Management's count program and a comparison of traffic volumes in Bend for Spring and Summer 2016.

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Bend Count Program

PROGRAM OVERVIEW AND INITIAL DATA REPORT

The City of Bend Growth Management department is in the process of developing a multimodal transportation count program with the following goals:

- The count program should be easy to implement with minimal staff time required for maintenance or data manipulation.
- The data should provide mode split (Vehicle/Bicycle/Pedestrian) information.
- Locations for data collection should be selected to allow for corridor trend analysis as well
  as regional analysis.
- Locations for data collection should be developed systematically rather than randomly in response to requests.
- Store the data in an accessible system for city internal and external uses.

Benefits of this program include understanding where transportation issues exist today (congestion, etc.) and how the system is operating to:

- Appropriately plan for the future of the transportation network
- Prioritize maintenance activities and operations
- Understand which areas experience the heaviest use (across all modes) to appropriately prioritize capital and maintenance activities
- Be able to provide development identified improvements to complete appropriate mitigation

PHASE ONE - PLANNING

- ✓ Collaborate with staff and local jurisdictions to implement a program that meets regional needs
- ✓ Identify count methods, locations and frequency
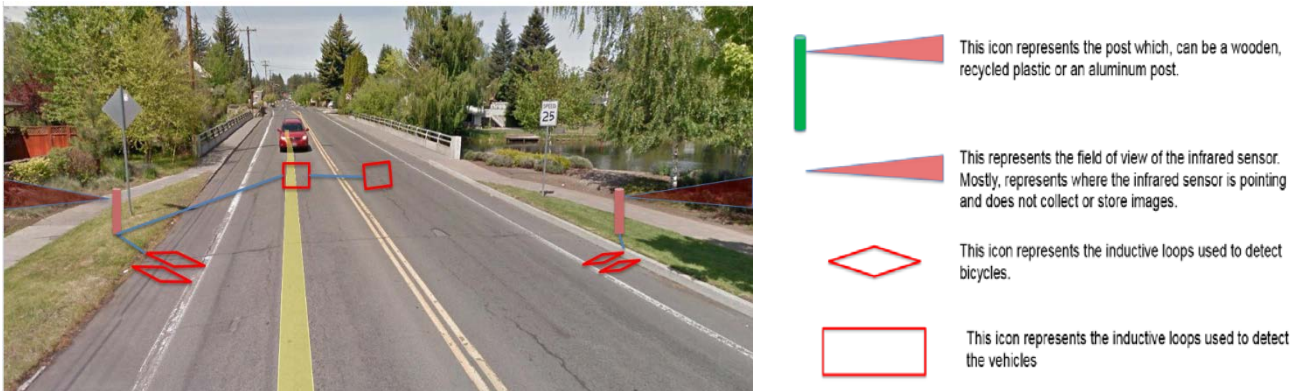- ✓ Create a program to store and analyze data

PHASE TWO - IMPLEMENTATION

- ✓ Obtain equipment for installation of permanent counters for multimodal data collection
  - o Installation of Eco Counters is planned for fall of 2016.
  - o Locations include
    - Colorado Avenue Bridge
    - Galveston Avenue Bridge (See Figure 1 for installation image)
    - Newport Avenue Bridge

- Portland Avenue Bridge
- Franklin Parkway Undercrossing/Tunnels

The photo below is an example of how the Eco Counter system measures traffic.

This icon represents the post which, can be a wooden, recycled plastic or an aluminum post.

This represents the field of view of the infrared sensor. Mostly, represents where the infrared sensor is pointing and does not collect or store images.

This icon represents the inductive loops used to detect bicycles.

This icon represents the inductive loops used to detect the vehicles

FIGURE 1 Standard data collection site configuration

- ✓ Begin data collection
  - o Quality Counts data collection completed in May and July 2016
  - o Counts will be collected by contractor every May with some locations counted annually or every other year. See map Figure 2 – Count locations collected in May 2016

PHASE THREE – DATA SHARING AND ANALYSIS

- Data from May 2016 is being modified to be shown in the City's Mapping Program (available by Fall 2016)
- Create program for collecting vehicle data using tube counts in a three year cycle
- Create annual reports of the volume data city use
  - Monitor use and trends
  - Understand trends in the transportation system (coverage counts)
  - Understand mode splits and changes on key corridors
  - Understand the number of people walking and biking
  - Understand the number of transit riders
  - Measure project success
  - Understand traffic changes before and after project implementation (including roadway projects as well as pedestrian/bike projects) – "before" data may also be used for grant applications.

FIGURE 2 July 2016 Count Locations

INITIAL DATA REPORT COMPARING MAY AND JULY 2016 VOLUME DATA

As part of the data sharing and analysis of the Bend Count Program, the following comparisons are provided from vehicle collection efforts in May and July 2016.

Overall findings include:

- A majority of locations showed less than a 5% difference comparing July daily traffic volume to May daily traffic volume.
- The peak morning hour moved in several locations on city streets from the 7:00 – 8:00 AM hour in May to the 11:00 – 12:00 AM hour in July. This may be explained by school start times in May.
- The summer traffic peak is higher for Lava Butte, HWY 20 East of Bear Creek, and Pinebrook. Revere and Empire stays more flat.
- Difference between peak (summer) and low (winter) traffic in 2015 were – Lava Butte: 45%, Pilot Butte: 41%, Pinebrook: 46%, Revere: 22%, and Empire: 21%

The following charts and summaries were obtained from 24 hour tube counts with both directions of travel during a Tuesday, Wednesday or Thursday. The counts for July were chosen for this analysis to determine if there were any differences with summer travel compared to spring travel on Bend's roadways. Typically, data will be collected with the tube count method in May of each year.

1. Colorado Avenue was counted on May 19, 2016 (Thursday) and on July 19, 2016 (Tuesday) for northbound and southbound vehicle movement. The daily traffic volume in May was 13,242 and in July was 16,183. The vehicle volume in July increased by 22.2% from May or 2,941 more vehicles counted in July. One explanation of this increase may have been the city effort to upgrade a sewer line running through the area from October 2015 to May 2016 where portions of Arizona and Colorado Avenues were closed at times. See Figure 3 for an image of the areas closures.
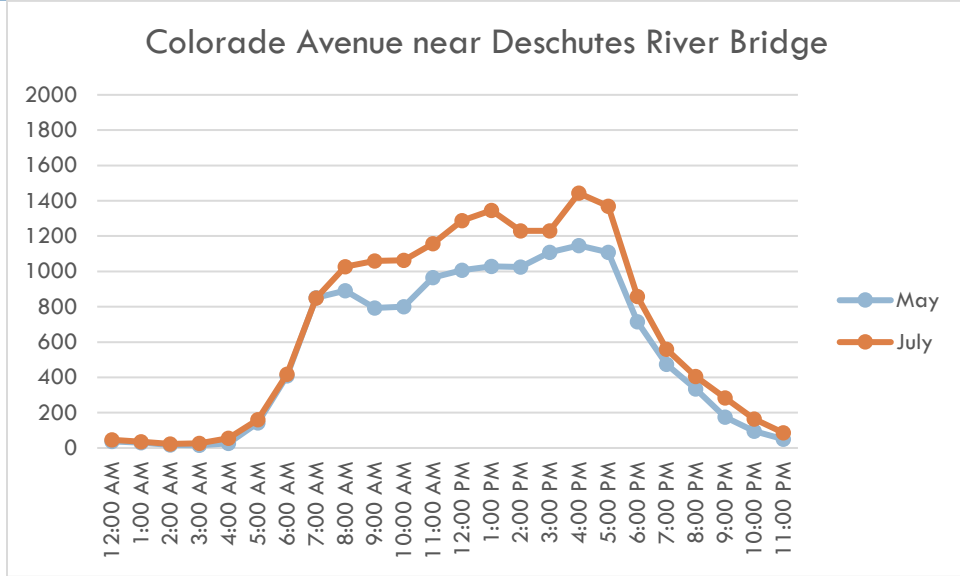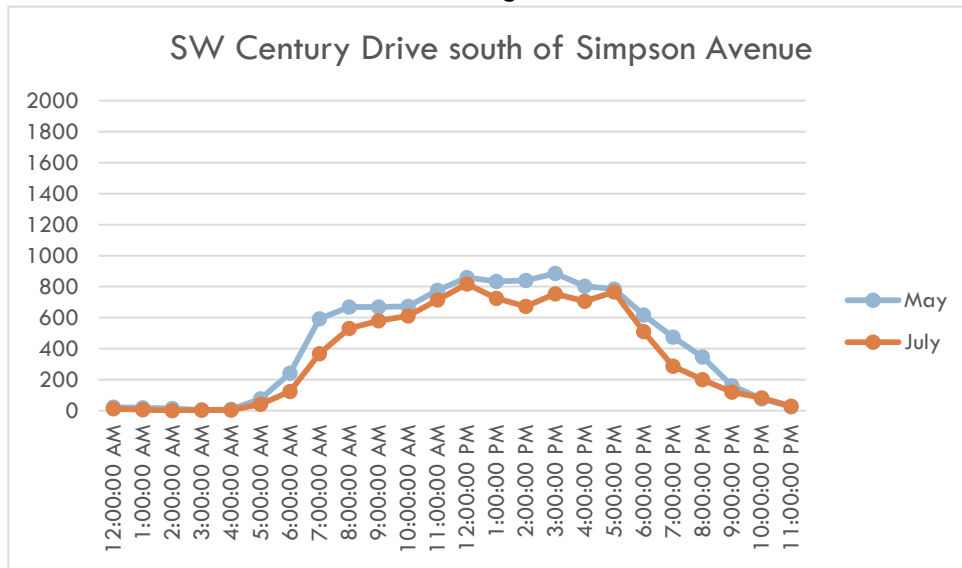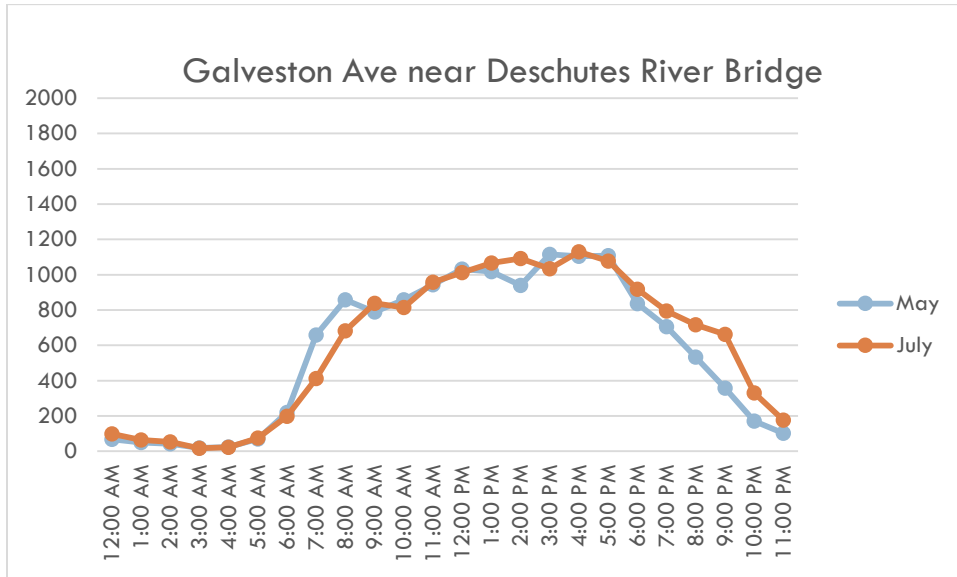
Colorade Avenue near Deschutes River Bridge

Legend: May, July

FIGURE 3 Arizona Avenue work from October 2015 to May 2016 included this area. Photo from December 2015.
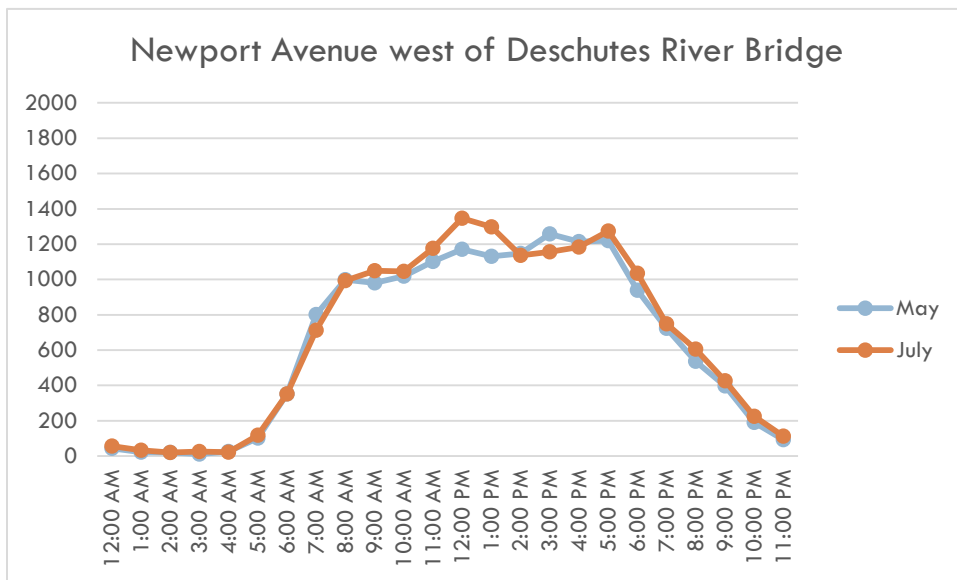
3. Century Drive South of Simpson Avenue was counted on May 17, 2016 (Tuesday) and on July 19, 2016 (Tuesday) for northbound and southbound vehicle movement. The daily traffic volume in May was 10,473 and in July was 8,664. The vehicle volume in July decreased by 17.3% from May. One explanation of this decrease could be the school traffic morning peak of 668 vehicles and afternoon peak of 885 vehicles corresponding to start and end time of school from 7:00 – 8:00 AM and 3:00- 4:00 PM whereas the July data shows the morning peak of 818 vehicles from 11:00 AM – 12:00 noon and the afternoon peak of 765 vehicles from 5:00 – 6:00 PM. This decrease could also be explained by the Colorado Avenue roadwork completion where many would have used this route as an alternative to Colorado during construction.

SW Century Drive south of Simpson Avenue

4. Galveston Avenue near the Deschutes River Bridge was counted on May 17, 2016 (Tuesday) and on July 21, 2016 (Thursday) for westbound and eastbound vehicle movement. The daily traffic volume in May was 13,621 and in July was 14,242. The vehicle volume increase in July showed a 4.6% from May to July.
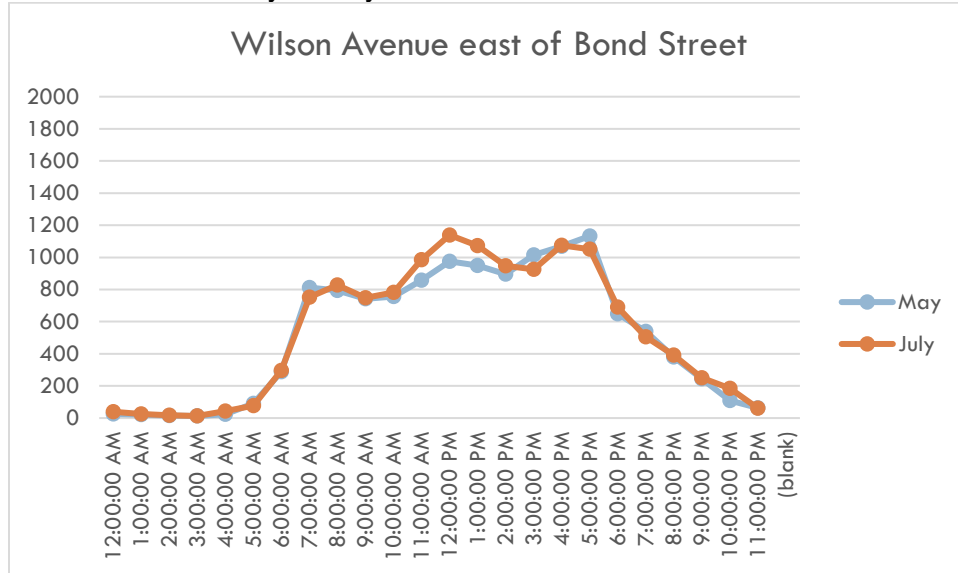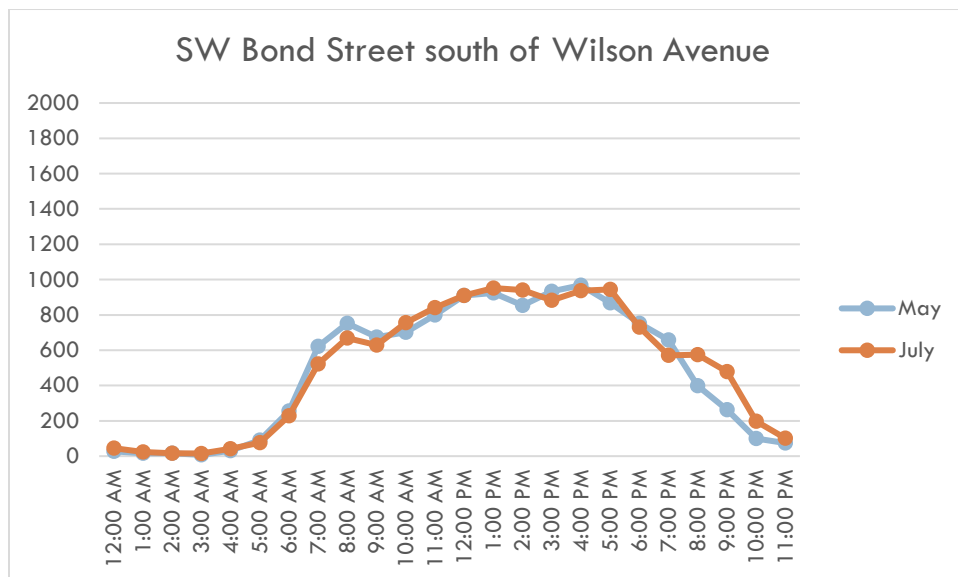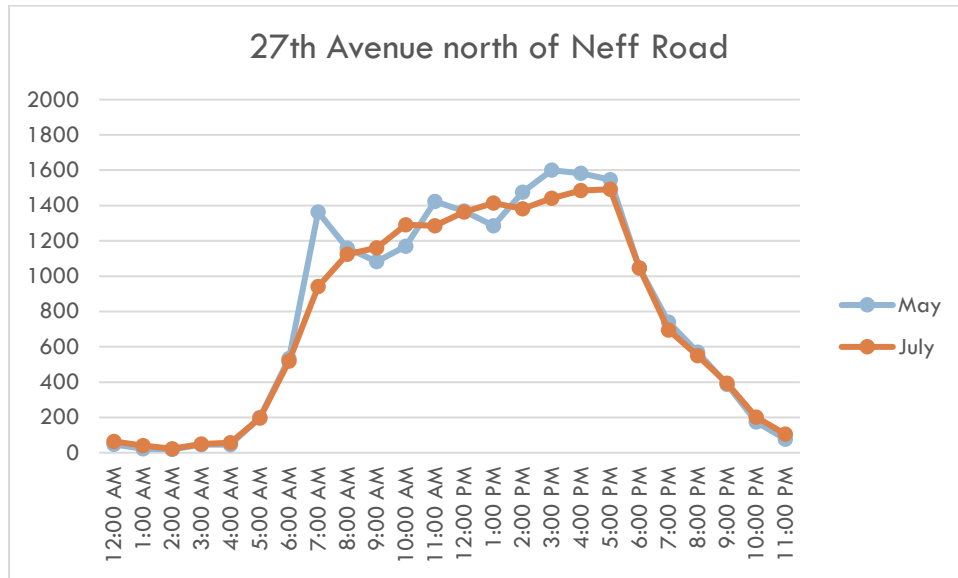

5. Newport Avenue near the Deschutes River Bridge was counted on May 19, 2016 (Thursday) and on July 19, 2016 (Tuesday) for westbound and eastbound vehicle movement. The daily traffic volume in May was 15,495 and in July was 16,147. The vehicle volume increase in July showed a 4.2% from May to July.

6. Wilson Avenue east of Bond Street was counted on May 17, 2016 (Tuesday) and on July 19, 2016 (Tuesday for westbound and eastbound vehicle movement). The daily traffic volume in May was 12,464 and in July was 12,901. The vehicle volume increase in July showed a 3.5% from May to July.


Wilson Avenue east of Bond Street

7. Southwest Bond Street south of Wilson Avenue was counted on May 17, 2016 (Tuesday) and on July 19, 2016 (Tuesday) The daily traffic volume in May was 11,694 and in July was 12,078. The vehicle volume increase in July showed a 3.3% from May to July.

SW Bond Street south of Wilson Avenue

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8. NE 27th Street north of Neff was counted on May 18-19 2016 (Wednesday from 4:00 PM to Thursday ending at 4:00 PM) and on July 20, 2016 (Wednesday) for northbound and southbound vehicle movement. The daily traffic volume in May was 18,962 and in July was 18,321. The vehicle volume decreased 3.4% from May to July.
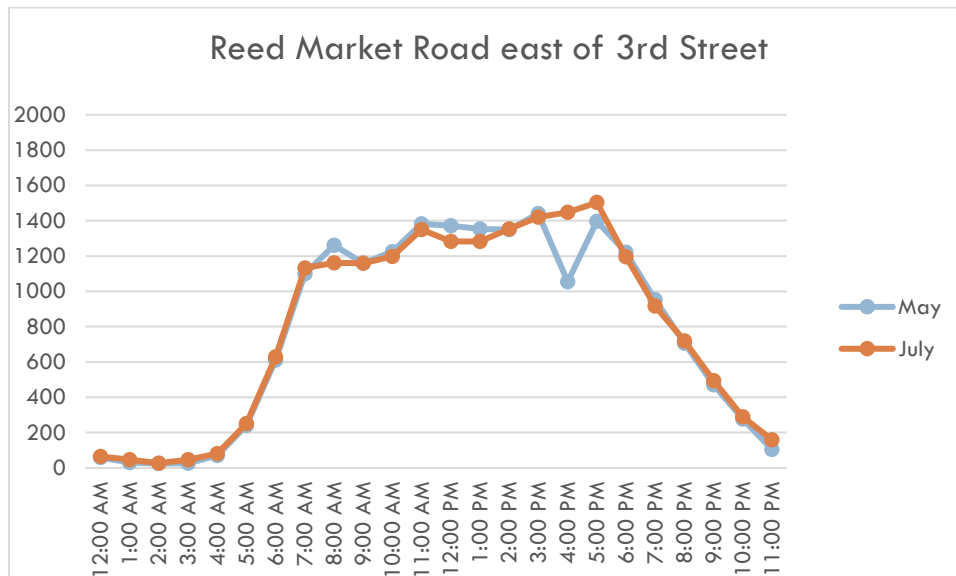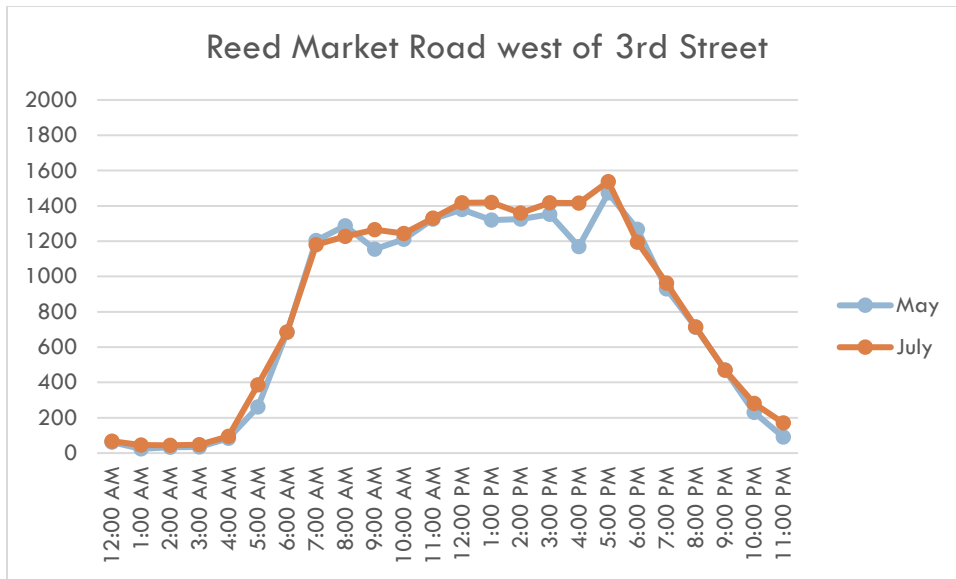

27th Avenue north of Neff Road

9. 27th Street south of Neff was counted on May 19, 2016 (Thursday) and on July 19, 2016 (Tuesday) for northbound and southbound vehicle movement. The daily traffic volume in May was 22,187 and in July was 20,602. The vehicle volume decreased 7.2% from May to July.

27th Avenue south of Neff Road
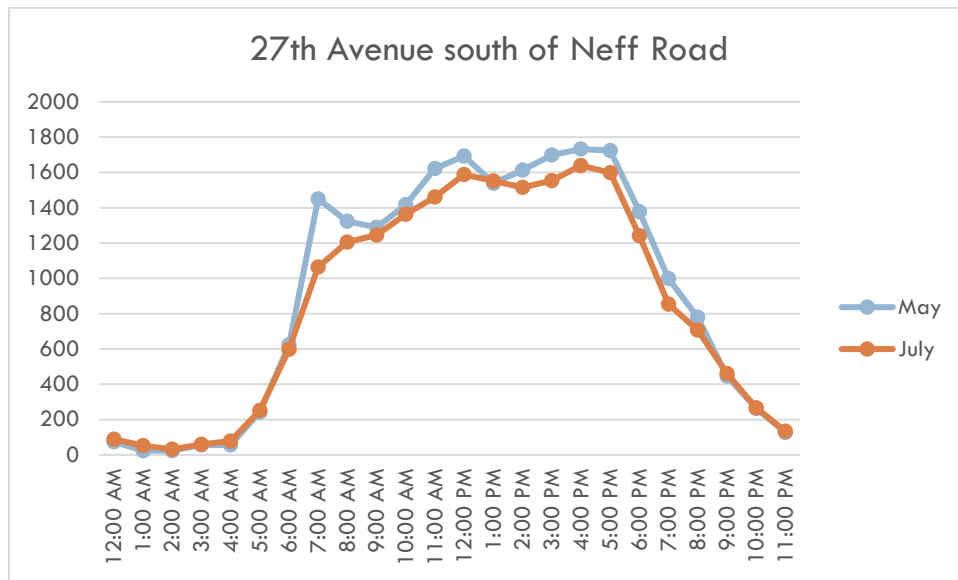
10. Neff Road east of 27th Street was counted on May 19, 2016 (Thursday) and on July 19, 2016 (Tuesday) for westbound and eastbound vehicle movement. The daily traffic volume in May was 10,770 and in July was 10,345. The vehicle volume decreased 3.9% from May to July with 425 less vehicles.
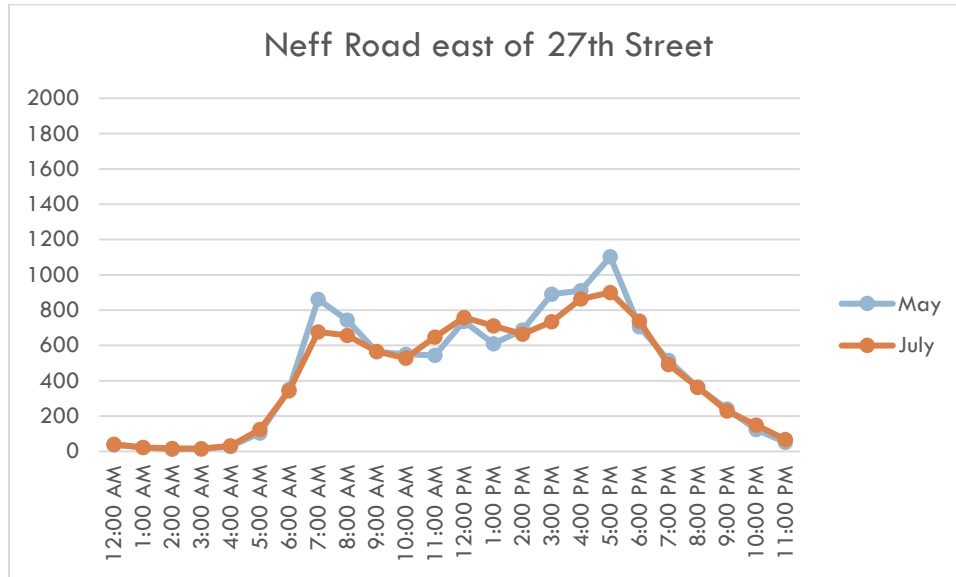

11. Reed Market Road east of 3rd Street was counted on May 17, 2016 (Tuesday) and on July 19, 2016 (Tuesday) for westbound and eastbound vehicle movement. The daily traffic volume in May was 18,888 and in July was 19,216. The vehicle volume increased 1.7% from May to July with 328 more vehicles.

12. Reed Market Road west of 3rd Street was counted on May 17, 2016 (Tuesday) and on July 19, 2016 (Tuesday) for westbound and eastbound vehicle movement. The daily traffic volume in May was 19,084 and in July was 19,980. The vehicle volume increased 4.7% from May to July with 896 more vehicles.

13. 3rd Street north of Reed Market Road was counted on May 17, 2016 (Tuesday) and on July 19, 2016 (Tuesday) for northbound and southbound vehicle movement. The daily traffic volume in May was 19,507 and in July was 20,065. The vehicle volume increased 2.9% from May to July with 558 more vehicles.
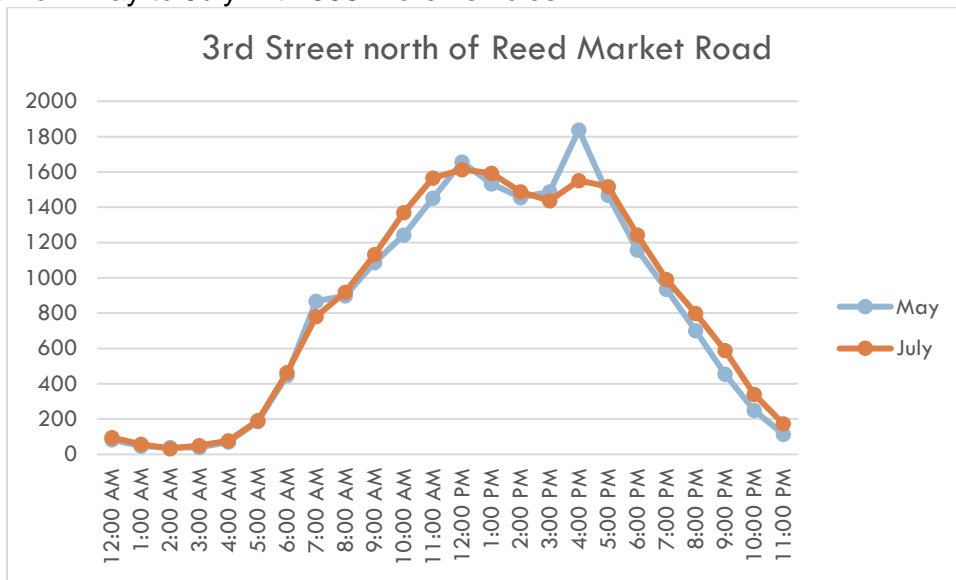
NATIONAL AND STATE DATA

THE US DEPARTMENT OF TRANSPORTATION (DOT) USES DATA FROM EACH STATE TO CREATE A NATIONAL RECORD OF TRAVEL. NATIONALLY, TRAVEL HAS INCREASED ON ALL ROADS AS SEEN IN FIGURE 4, WHICH SHOWS A CHART ILLUSTRATING NATIONAL VEHICLE MILES TRAVELED (VMT) FROM 1971 TO JUNE 2016.
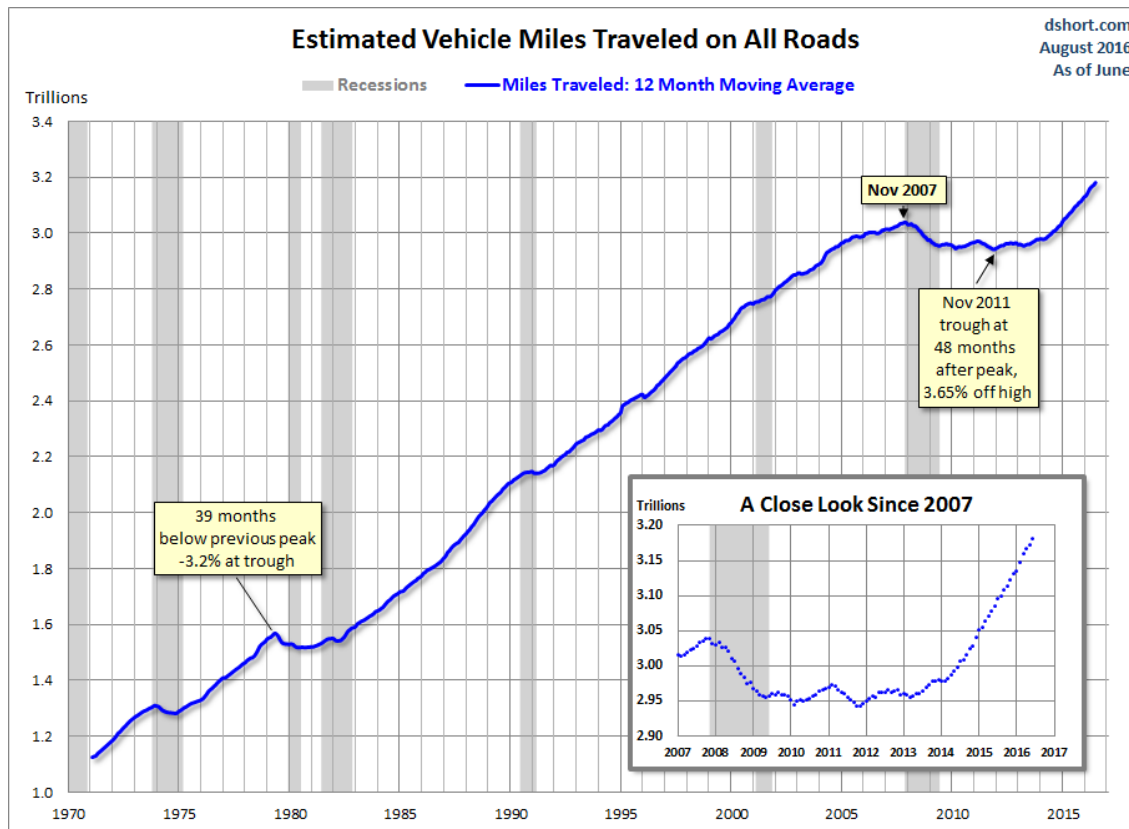

FIGURE 4 National VMT trends on all roads (Source: http://www.advisorperspectives.com/dshort/updates/DOT-Miles-Traveled.php)

Oregon showed that VMT increased by 4.3% from June 2014 to June 2015. This data can be found on the US DOT website www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm. This data is based on approximately 4000 continuous traffic counting locations nationwide.

The Oregon Department of Transportation (ODOT) has several permanent counters in Bend on ODOT roadways that show historical data. The comparison data for May and July does not represent the increase in traffic on all roadways. ODOT collects continuous data statewide through Automated Traffic Recorder (ATR) or Counters. – ATRs are placed at specific locations to record the distribution and variation of traffic flow by hour of the day, day of the week, and/or month of the year. The data is provided online at http://www.oregon.gov/ODOT/TD/TDATA/Pages/tsm/tvt.aspx. In the Bend area, there are 6 count stations that collect traffic data continuously (see Figure 5 for a map of locations). This data is presented below in Figures 6-10. The data presented is the average daily traffic (ADT) for each month.
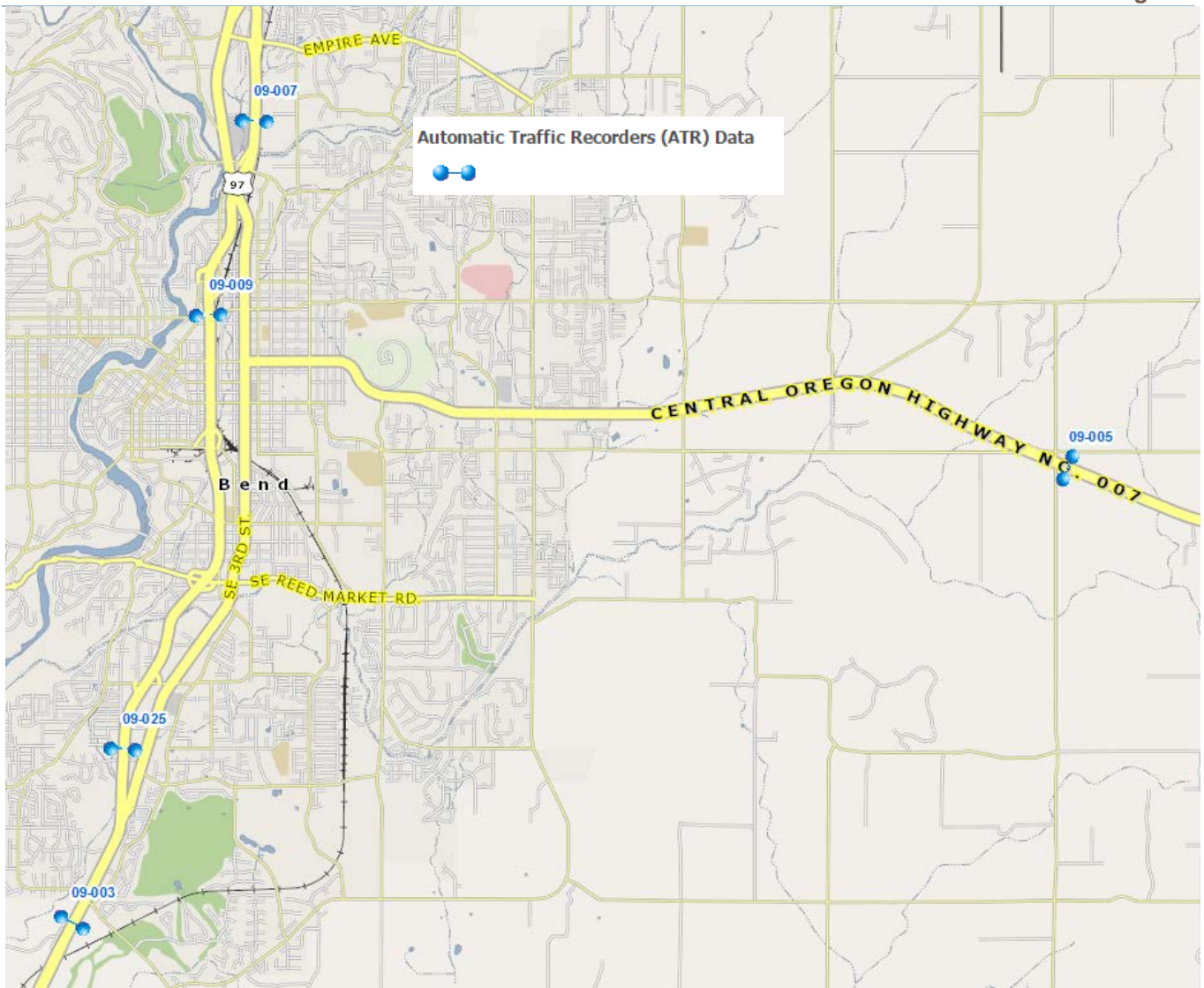
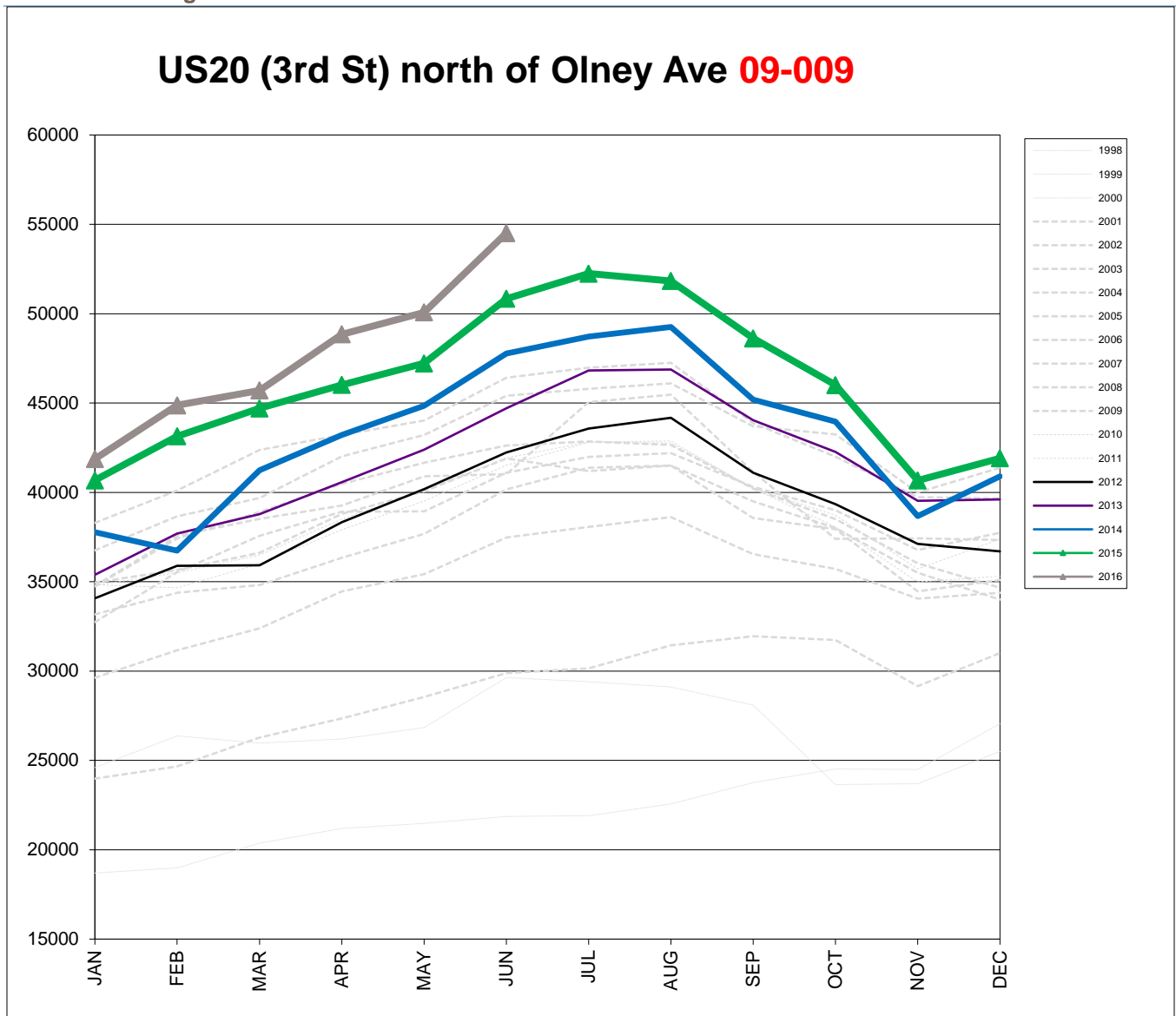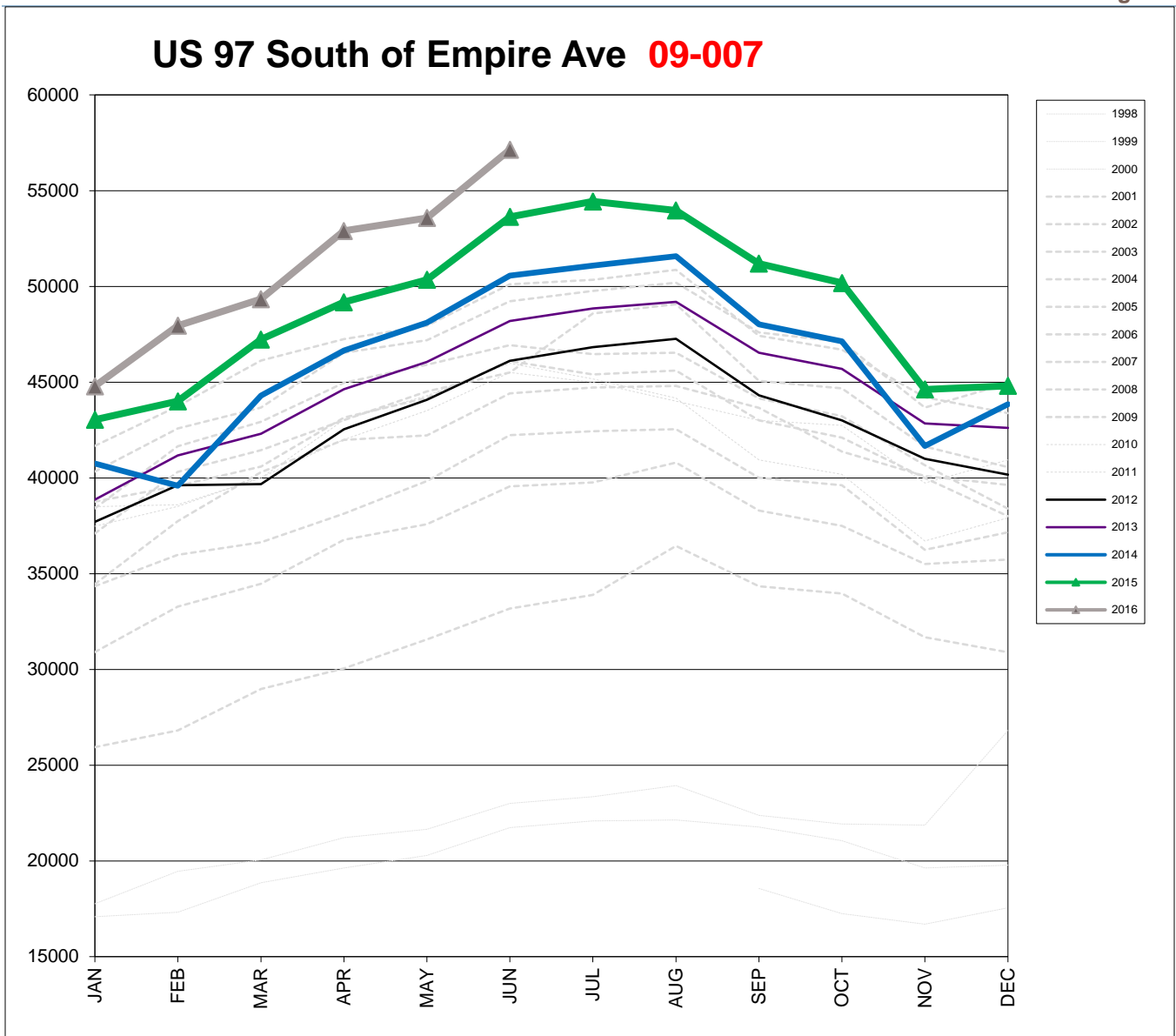**FIGURE 5 ODOT AUTOMATIC TRAFFIC RECORDER LOCATIONS IN BEND**

US20 (3rd St) north of Olney Ave 09-009

FIGURE 6 AVERAGE DAILY TRAFFIC FOR US20 (3RD STREET) NORTH OF OLNEY ATR DATA (SOURCE ODOT: HTTP://WWW.OREGON.GOV/ODOT/TD/TDATA/PAGES/TSM/TVT.ASPX)
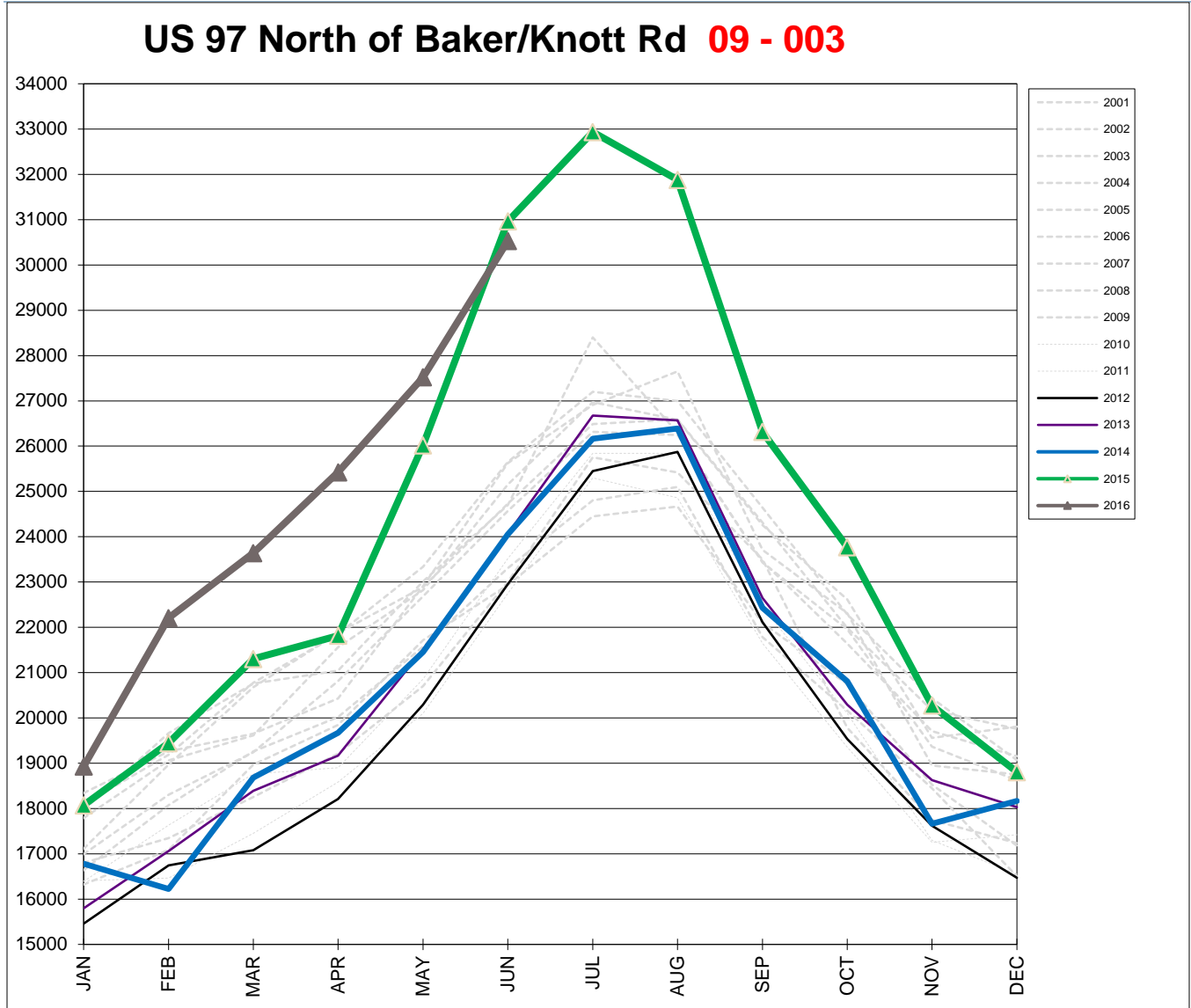
FIGURE 7 AVERAGE DAILY TRAFFIC FOR US97 SOUTH OF EMPIRE AVENUE ATR DATA
(SOURCE ODOT: HTTP://WWW.OREGON.GOV/ODOT/TD/TDATA/PAGES/TSM/TVT.ASPX)

**FIGURE 8 AVERAGE DAILY TRAFFIC FOR US 97 NORTH OF BAKER/KNOTT RD ATR DATA
(SOURCE ODOT: HTTP://WWW.OREGON.GOV/ODOT/TD/TDATA/PAGES/TSM/TVT.ASPX)**
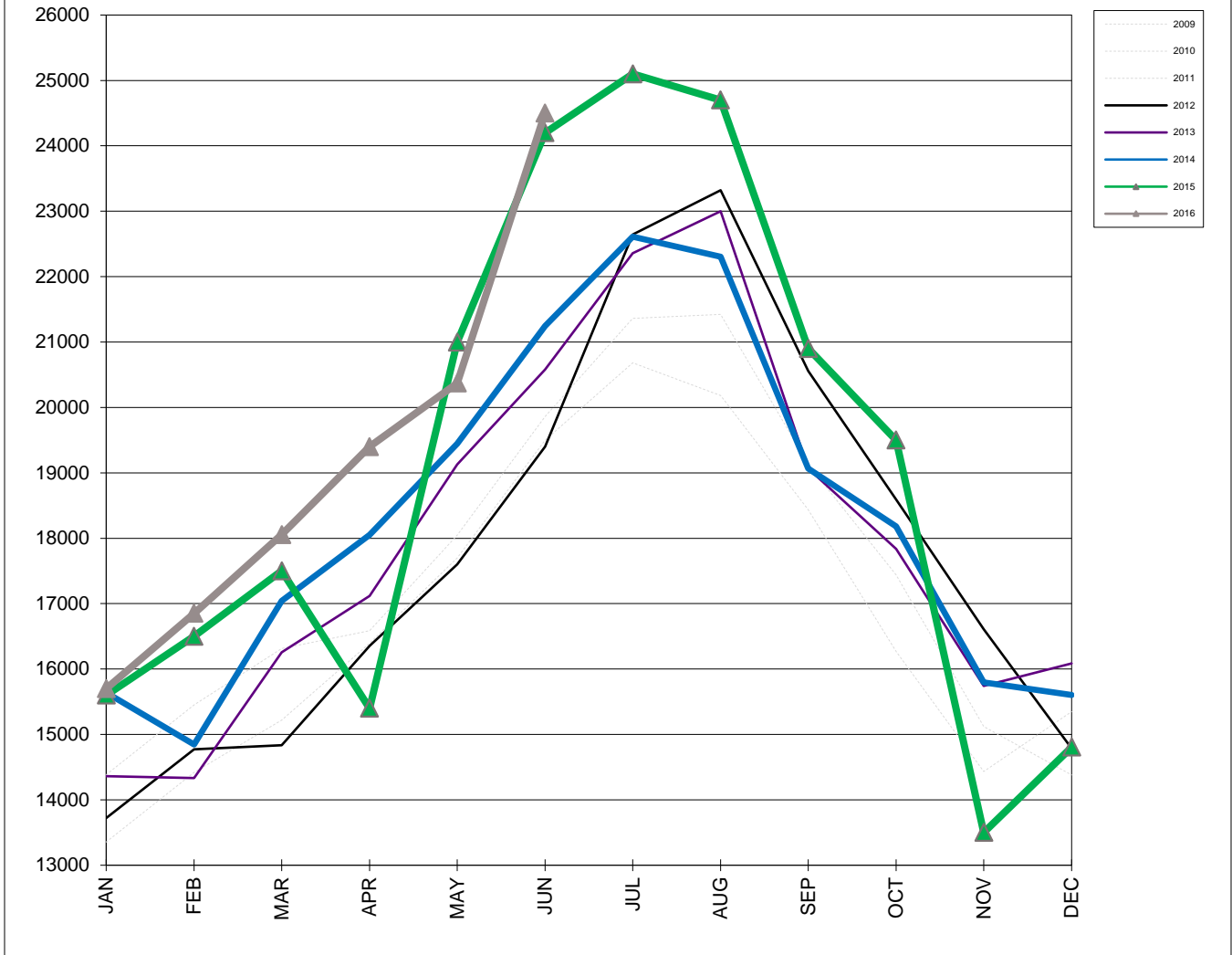
US 97 North of Pinebrook 09-025

**FIGURE 9 AVERAGE DAILY TRAFFIC FOR US97 NORTH OF PINEBROOK ATR DATA
(SOURCE ODOT: HTTP://WWW.OREGON.GOV/ODOT/TD/TDATA/PAGES/TSM/TVT.ASPX)**
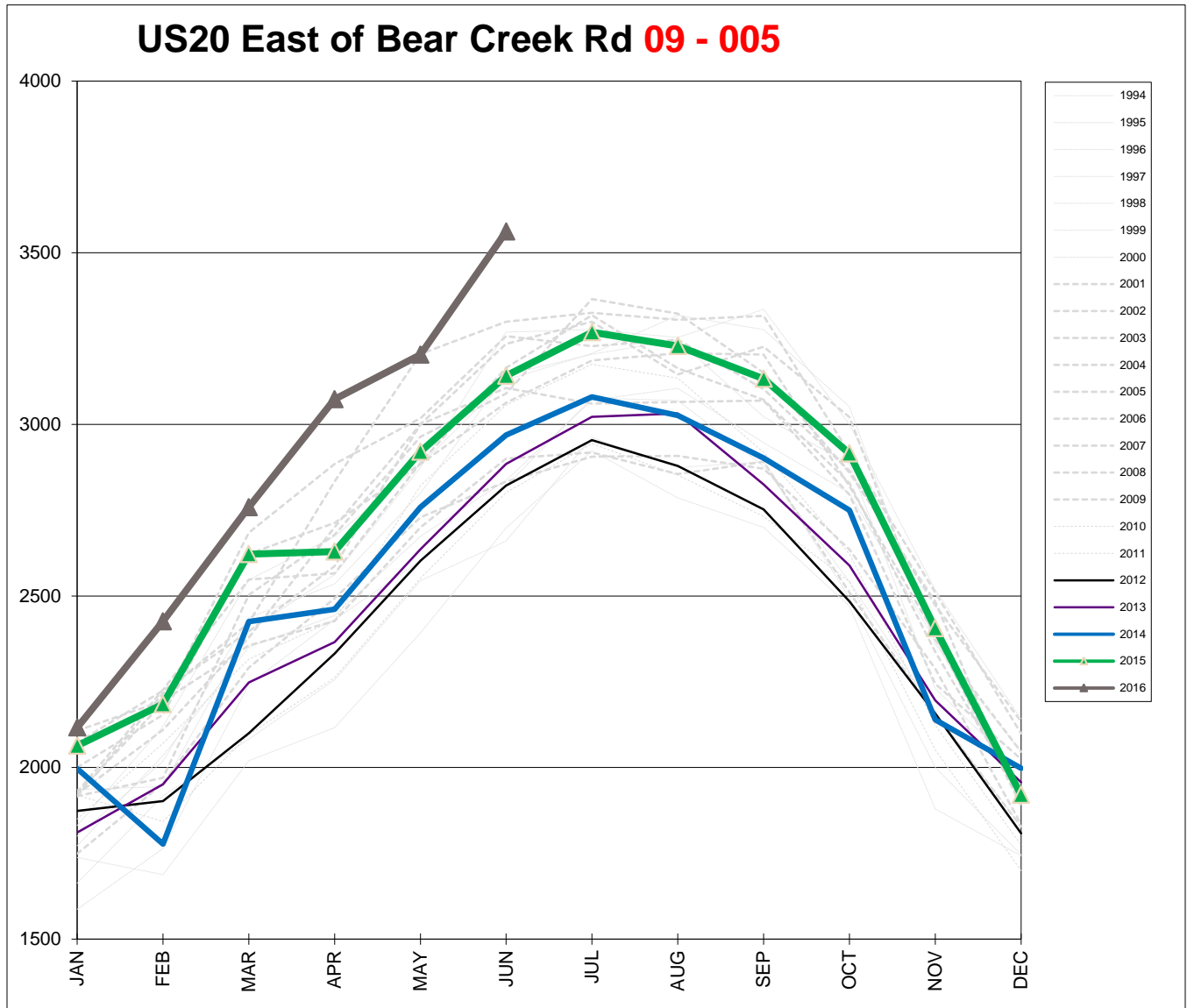
US20 East of Bear Creek Rd 09 - 005

**FIGURE 10 AVERAGE DAILY TRAFFIC FOR US 20 EAST OF BEAR CREEK ROAD ATR DATA
(SOURCE ODOT: HTTP://WWW.OREGON.GOV/ODOT/TD/TDATA/PAGES/TSM/TVT.ASPX)**