Analysis Procedure Manual – March 2007

Change Sheet – March 2007

Opening APM Webpage - Links

As Reads:

Appendix E – Sample Narrative (Report) (Report Appendices)

Changed To:

Appendix E.1 Downtown Brookings-US 101 Transportation Solutions Project (Example of a System Project) (Report) (Report Appendices)
E.2 Constitution Area Refinement Study (Example of a Point Project)

Opening APM Webpage

As Reads:

Changed To:

Added:

TruckSum Spreadsheet
The TruckSum Spreadsheet is used to process ODOT-counted 12-hour or greater counts. These counts are provided in electronic form in "TruckSum" format from the Transportation Systems Monitoring Unit. For information on how to use this spreadsheet, see Chapter 11 of the Analysis Procedures Manual.

TABLE OF CONTENTS

As reads:

Appendices

Appendix E Sample Narrative

Appendix F Glossary

Changed to:

Appendices

Appendix A Resources

Appendix B ODOT Traffic Engineering Authority

Appendix C Sample ODOT Count Request, 16-Hour Manual Count and Road Tube Count

Appendix D Procedure for Analysis and Design of Weaving Sections, A User's Guide (Jack E. Leisch & Associates)

Appendix E Sample Narratives

Appendix F Glossary

Table of Contents Page iii, 7.4

As Reads:

7.4 Making the Case for A New Traffic Signal 7-38

Changed To:

7.4 Traffic Signal Warrants 7-38

Chapter 2, Page 2-8 & 2-9, 2.2.2 Scoping Procedures

As Reads:

Evaluate the volume to capacity (v/c) and level of service (LOS) for the study area for intersections, merge/diverge/weaving sections and highway segments.

Changed To:

Evaluate the volume to capacity (v/c) and level of service (LOS) for the study area for intersections, merge/diverge/weaving sections, freeway mainlines and highway segments.

Chapters 2 & 3, Appendices A & F

As Reads:

First appearance: Traffic Engineering Operations Section (TEOS)
Subsequent appearances: TEOS

Changed To:

For first appearance: Traffic – Roadway Section (TRS)
Subsequent appearances: TRS

Chapter 3, Page 3-9, 3.3.4 Ordering Counts

As Reads:

When ordering counts the name of the person making the request, the person to whom the data will be sent, the locations, time periods, dates, types of counts and collection methods must be clearly communicated to those conducting the counts. A map showing the count locations, durations and other special requirements should also be provided to help eliminate misunderstandings.

Changed To:

When ordering counts the name of the person making the request, the person to whom the data will be sent, the locations, time periods, dates, types of counts and collection methods must be clearly communicated to those conducting the counts. A map showing the count locations, durations and other special requirements should also be provided to help eliminate misunderstandings. See the sample count request in Appendix C.

Chapter 4, Pages 4-8 and 4-9

As Reads:

1. ***Interstate:*** ATRs located on any interstate section. (Example: I-84, west of Troutdale - ATR #26-001.)
2. ***Coastal Destination:*** ATRs characterized by summer peaks to/or within larger coastal city destinations as well as favorable routes from the valley. Favorable routes for Coastal Destinations include: Salmon River Highway (OR 18), Corvallis-Newport Highway (US 20/OR 34), Alsea Highway (OR 34), and Florence-Eugene Highway (OR 126). (Example: OR 18, east of Valley Junction - ATR #27-001.) Note: This grouping does not include the Sunset Highway.
3. ***Coastal Destination Route:*** ATRs characterized by high summer peaks on predominantly rural routes to/or between large coastal cities and coastal destinations. Rural routes include the Sunset Highway (US 26) from the Wilson River Hwy. junction, Umpqua Highway (OR 38), and Redwood Highway (OR 199). (Example: US 101, south of Rockaway - ATR #29-001.)
4. ***Commuter:*** ATRs characterized by small seasonal changes in traffic patterns and commuting between city pairs. (Example: OR 22, West Salem Bridges - ATR #24-0 14.) Note: Also for non-state streets in urbanized cities.
5. ***Recreational Summer/Winter:*** ATRs characterized by **both** summer and winter peaks in recreational areas. (Example: Timberline Highway - ATR #03-008.)
6. ***Recreational Summer:*** ATRs characterized by high summer peaks in recreational areas. (Example: Crater Lake Highway, south of Fort Klamath - ATR #18-021.)
7. ***Recreational Winter:*** ATRs characterized by high winter peaks in recreational areas. (Example: Century Drive Highway, Mt. Bachelor - ATR #09-011.)
8. ***Agriculture:*** ATRs characterized by peaking in the late summer and fall harvest months. (Example: Kings Valley Highway - ATR #02-005.)

If the project area trend does not fall into Trends 1 through 8, either Trend 9 or 10 should be used.

9. ***Summer:*** ATRs characterized by a smaller summer increase in traffic patterns when compared to Recreational Summer. (Example: US 26, south of Warm Springs - ATR #16-006.) Note: Also for non-state streets in small cities.
10. ***Summer < 2,500 ADT:*** ATRs with less than 2,500 ADT characterized by a smaller summer increase in traffic patterns when compared to Recreational

Summer. Could be used, for example, for many rural off-system county roads. (Example: OR 31, east of Silver Lake - ATR #19-010.)

ATRs are also characterized by weekly traffic trends and ADT.

- ***Weekday:*** Traffic volume trends greatest on weekdays; typical for commuter trend and urban areas.
- ***Weekend:*** Traffic volume trends greatest on weekends; typical for recreational trend and coastal destination trend.
- ***Steady:*** Traffic volume trends that are steady throughout the week without significant peaks on the weekend or weekdays.

ATRs are also characterized by area type and number of lanes.

- ***Urbanized:*** ATRs within areas of population > 50,000. (Examples: Portland and Salem)
- ***Urban Fringe:*** ATRs influenced by an urban area, such as an MPO area. (Example: Wilsonville)
- ***Small Urban:*** ATRs within areas of population between 5,000 and 49,999. (Examples: Albany and Pendleton)
- ***Small Urban Fringe:*** ATRs influenced by a small urban area. (Examples: US 101 south of Coos Bay and I-5 north of Albany)
- ***Rural:*** ATRs on routes outside of areas with population <5,000.
- ***Rural Populated:*** ATRs in cities with a population of less than 5,000. This also includes unincorporated communities. (Examples: Sisters and Tillamook)

To use the table, filter through the column characteristics from **left to right** to create a list of ATRs with similar characteristics. Starting with the "Seasonal Traffic Trend" column, filter out the traffic trend that best describes the project area. Next, filter the area type, number of lanes, and weekly traffic trend. Make sure that the section of highway where the ATR(s) is located and the project area for which the seasonal adjustments are being made have similar traffic characteristics. To be considered comparable, the AADT of the characteristic ATR should be within +/- 10% of the Transportation Volume Table AADT for the project area.

Changed To:

1. ***Interstate Urbanized:*** ATRs located on any section of urbanized (areas of population > 50,000).interstate. (Example: I-5, Iowa Street - ATR #26-016.)
2. ***Interstate Non-Urbanized:*** ATRs located on any non-urbanized interstate section. (Example: I-84, west of Troutdale - ATR #26-001.)

3. ***Commuter:*** ATRs characterized by small seasonal changes in traffic patterns and commuting between city pairs. (Example: OR 22, West Salem Bridges - ATR #24-0 14.) Note: Also for non-state streets in urbanized cities.
4. ***Coastal Destination:*** ATRs characterized by summer peaks to/or within larger coastal city destinations as well as favorable routes from the valley. Favorable routes for Coastal Destinations include: Salmon River Highway (OR 18), Corvallis-Newport Highway (US 20/OR 34), Alsea Highway (OR 34), and Florence-Eugene Highway (OR 126). (Example: OR 18, east of Valley Junction - ATR #27-001.) Note: This grouping does not include the Sunset Highway.
5. ***Coastal Destination Route:*** ATRs characterized by high summer peaks on predominantly rural routes to/or between large coastal cities and coastal destinations. Rural routes include the Sunset Highway (US 26) from the Wilson River Hwy. junction, Umpqua Highway (OR 38), and Redwood Highway (OR 199). (Example: US 101, south of Rockaway - ATR #29-001.)
6. ***Agriculture:*** ATRs characterized by peaking in the late summer and fall harvest months. (Example: Kings Valley Highway - ATR #02-005.)
7. ***Recreational Summer:*** ATRs characterized by high summer peaks in recreational areas. (Example: Crater Lake Highway, south of Fort Klamath - ATR #18-021.)
8. ***Recreational Summer/Winter:*** ATRs characterized by **both** summer and winter peaks in recreational areas. (Example: Timberline Highway - ATR #03-008.)
9. ***Recreational Winter:*** ATRs characterized by high winter peaks in recreational areas. (Example: Century Drive Highway, Mt. Bachelor - ATR #09-011.)

If the project area trend does not fall into Trends 1 through 9, either Trend 10 or 11 should be used.

10. ***Summer:*** ATRs characterized by a smaller summer increase in traffic patterns when compared to Recreational Summer. (Example: US 26, south of Warm Springs - ATR #16-006.) Note: Also for non-state streets in small cities.
11. ***Summer < 2,500 ADT:*** ATRs with less than 2,500 ADT characterized by a smaller summer increase in traffic patterns when compared to Recreational Summer. Could be used, for example, for many rural off-system county roads. (Example: OR 31, east of Silver Lake - ATR #19-010.)

Change Sheet – March 2007

Chapter 4, Page 4-10, Figure 4-2 Seasonal Trends

As Reads:

Changed To:

Inserted Figure 4-2, renumbered remaining Figures in Chapter 4, updated Table of Contents to reflect changes.

Chapter 7, Page 7-38, 7.4

As Reads:

7.4 Making the Case for A New Traffic Signal

Changed To:

7.4 Traffic Signal Warrants

Added:

Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway. However, approval of a signal depends on more than just a warrant analysis. Meeting a warrant is necessary to install a signal, but it does not mean a signal should be recommended or guarantee that a signal will be installed. **When preliminary signal warrants are met, project analysts need to coordinate with Region Traffic to initiate the traffic signal engineering investigation as outlined in the Traffic Manual.** Before a signal can be installed, the engineering investigation must be conducted or reviewed by the Region Traffic Manager who will forward signal recommendations to headquarters. Considerations to be evaluated include safety concerns, alternatives to signalization, signal systems, delay, queuing, bike and pedestrian needs, access, railroads, consistency with local plans, local agency support, and others. The engineering investigation must demonstrate a reduction in delay, improvements in safety, improved connectivity, or some other "benefit", and why a signal is the best solution as compared to other alternatives, such as listed in MUTCD Section 4B.04a.

Chapter 7, Page 7-47, 7-44, 7-47, and 7-50 (Footer)

As Reads:
Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigation must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

Changed To:

Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. When preliminary signal warrants are met, project analysts need to coordinate with Region Traffic to initiate the traffic signal engineering investigation as outlined in the Traffic Manual. Before a signal can be installed, the engineering investigation must be conducted or reviewed by the Region Traffic Manager who will forward signal recommendations to headquarters. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

Chapter 9, Page 9-1

As Reads:

9.1 Purpose

The primary purpose for conducting the analysis presented in previous chapters is to determine how a given facility performs relative to the selected performance measures of the study. This chapter presents an overview of the process for comparing analytical outcomes with adopted performance measures in assessing the suitability of a facility to meet the goals and objectives of the study. Topics covered include:

- Standards for Determining Needs
- Applicable Oregon Highway Standards
- Analysis of Transportation Systems

Changed To:

9.1 Purpose

The primary purpose for conducting the analysis presented in previous chapters is to determine how a given facility performs relative to the selected performance measures of the study. This chapter presents an overview of the process for comparing the results of the Existing and No-Build analysis with adopted OHP standards, in order to identify deficiencies in the performance of the facility. Solutions are addressed in Chapter 10. Topics covered include:

- Standards for Determining Needs
- Applicable Oregon Highway Standards
- Analysis of Transportation Systems

Chapter 10 (All)

As Reads:

Highway Design Manual Standards

Changed To:

Highway Design Manual Guidelines

Chapter 11, Page 11-8, 11.2.2 Calculations

As Reads:

An easy way to process ODOT-counted 12-hour or greater counts is to request the count in electronic form in “TruckSum” format from the Transportation Systems Monitoring Unit. This format organizes the count into the three basic subgroups of medium, heavy and all vehicles for the macro-based TruckSum Excel spreadsheet.

Changed To:

An easy way to process ODOT-counted 12-hour or greater counts is to request the count in electronic form in "TruckSum" format from the Transportation Systems Monitoring Unit. A copy of the spreadsheet is available on the TPAU website. This format organizes the count into the three basic subgroups of medium, heavy and all vehicles for the macro-based TruckSum Excel spreadsheet.

Appendix C, C-1

As Reads:

Sample ODOT 16-Hour Manual Count and Tube Count

Changed To:

Sample ODOT Count Request, 16-Hour Manual Count and Tube Count

Added Attachments:

Allen Creek-Fairgrounds Count Request
Allen Creek Count Request

Appendix E, Page E-1

As Reads:
Sample Narrative

NOTE: The sample narrative in this appendix is provided in its original form, which means that they will not contain the Analysis Procedures Manual footer.

Changed To:

Sample Narratives

NOTE: The sample narratives in this appendix are provided in their original form, which means that they will not contain the Analysis Procedures Manual footer.

Change Sheet – March 2007

Preliminary Signal Warrant Calculation

As Reads:

Changed To:

Form on Webpage was updated.

Added footnotes:

Meeting preliminary signal warrants does not guarantee that a signal will be installed. When preliminary signal warrants are met, project analysts need to coordinate with Region Traffic to initiate the traffic signal engineering investigation as outlined in the Traffic Manual. Before a signal can be installed, the engineering investigation must be conducted or reviewed by the Region Traffic Manager who will forward signal recommendations to headquarters. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.