November 2010

I-84/US 395 Interchange Area Management Plan

Volume II: Technical Appendix

Pendleton, Oregon

Prepared by:

Kittelson & Associates, Inc.

In association with:

Angelo Planning Group
CH2MHill

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Appendix A

Meetings Summaries

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

June 25, 2009 – I-84 / US 395 IAMP
(TAC Meeting #1)

TEAM MEMBERS PRESENT:	Matt Hughart, Kittelson & Associates, Inc. Marc Butorac, Kittelson & Associates, Inc. Nick Foster, Kittelson & Associates, Inc. Shayna Rehberg, Angelo Planning Evan Mackenzie, City of Pendleton Tim Simons, City of Pendleton Don Fine, ODOT Patrick Knight, ODOT Larry Dalrymple, City of Pendleton Grant Young, DLCD Dave Warrick, ODOT Marilyn Holt, ODOT Pete Wells, City of Pendleton J.R. Cook, Umatilla County
FROM:	Matt Hughart and Nick Foster
DATE:	June 26, 2009

The first Technical Advisory Committee (TAC) was held on June 25, 2009 in Pendleton. The purpose of the meeting was to kick off the IAMP project, discuss project study area, and review Technical Memorandums #1 and #2.

IAMP 101& Project Background

- Matt Hughart gave a presentation covering the purpose of IAMPs
- There was a question regarding why we are doing this IAMP right now when there is no budget for improvements.
    - ODOT discussed the history of the ideas to improve this interchange (first began 5-6 years ago), which so far have resulted in only short-term fixes. This is the first formal planning process. This IAMP is necessary in order to be eligible for potential future funding sources.
- Pendleton's comprehensive plan is just starting its periodic review, so some level of coordination will be needed between the two projects.

Technical Memo #1: Definition and Background

- Presented draft goals and objectives of the IAMP.
    - TAC members were asked to review the draft goals and objectives and provide the project team with feedback. Goals and objectives will be finalized at the next TAC meeting.
- A number of residents have expressed concern in the past that their travel needs/interests carry less weight than those traveling along I-84. Their concern is getting from one side of the freeway to another. This is the only north-south connection for 4-5 miles. The TSP did not look at other crossings.
- A draft version of the IAMP study area map was reviewed:
    - Concern was expressed for neighborhoods being left out of the study area. It was explained that their trips will be accounted for through the study area, but their property will not be looked at since it does not have direct access to US 395, nor is it likely to redevelop.
    - On north side, the line should follow the toe of the bluff on the east. That side of Frazer could redevelop. It's a mix of uses and zones.
    - The TSP includes a bridge over the Umatilla River near the prison, coming off the new roadway by Wal-Mart. The City owns most of the land south of the prison, but some of it is privately owned.
    - The road behind the Starbucks should be included (it is).
    - On the south side, include all of the Thompson's RV property, currently have most of it. (It is on the west side at the southern boundary).
    - Cemetery was pulled into the study area since all alternatives that are feasible need to be reviewed.
    - The area southeast of the southern boundary is developable. The TSP shows future access roads serving this area. The study area line should be expanded.
    - Revised boundaries will be shown to the PAC in the afternoon meeting.
- TAC members were encouraged to read through the rest of Technical Memorandum #1.
- Electronic copies will be sent to members of the committee.
- We can look into doing a shared document process (e.g. Google Docs or our intranet check-in/out system).

Technical Memo #2: Adopted Plans and Regulations

- Hard copies of Tech Memo #2 were passed out and Shayna Rehberg gave a brief overview. Electronic versions will be e-mailed out.
- Committee feedback will be important since the members are familiar with the documents.
- The memo was not reviewed during the meeting due to time constraints and the group's familiarity with background planning documents.

Concluding Comments/Next Steps

- TAC comments on memos #1 and #2 are due by the end of the following week (July 3rd). Please e-mail those comments back to Matt Hughart or Evan MacKenzie. Following the receipt of any comments, the project team will finalize the memos and redistribute them as Final.
- PAC membership was discussed:
    - It was concluded that an even distribution of businesses on the north and south sides of I-84 was necessary to properly balance perspectives.
    - Important to keep even global/individual membership on PAC so that one interest doesn't steer the project. Need to add 2 more global people to offset the addition of the hospital and Pendleton Round-up.
- Following finalization of memo's #1 and #2, the project team will be working on the existing land use and transportation conditions (memo's #3 and #4) and future land use/transportation conditions (memo's #5 and #6).
- Next TAC Meeting tentatively scheduled for August 27th or September 3rd.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

June 25, 2009 – I-84 / US 395 IAMP
(PAC Meeting #1)

TEAM MEMBERS PRESENT:

Matt Hughart, Kittelson & Associates, Inc.
Marc Butorac, Kittelson & Associates, Inc.
Nick Foster, Kittelson & Associates, Inc.
Joani Bosworth, Umatilla National Forest
Harry Snyder, Dean's Market & Deli
Loren Schmucker, Keystone RV
Don Russell, Time-to-Wash
Dan Ball, Pendleton Bicycle Club
Bill Arrington, DB Supply Co.
Stacy Bowen, Safeway
Greg Jones/Eric Fanciullo, Denny's
Jef Farley, Real Estate/Housing
Vern Wilcox, Wilcox Furniture
Bill Miller
Rick Oliver, First Church of God
Craig Smith/Randall Mee, St. Anthony's Hospital
Daniel Mitzimberg, City Transportation Commission

FROM: Matt Hughart (KAI)

DATE: March 15, 2009

The first Public Advisory Committee (PAC) was held on June 25, 2009 in Pendleton. The purpose of the meeting was to kick off the IAMP project, discuss project study area, and review Technical Memorandums #1 and #2.

Meeting Purpose & Introductions

- The project team and PAC members were introduced.
- General meeting purpose was discussed, along with general information regarding the area, interchanges, past history, roles and responsibilities of the committees, and the notebooks.

IAMP 101& Project Background

- Marc Butorac gave a presentation covering the purpose of IAMPs

- A comment was made about not mentioning non-auto modes during the presentation. Will those be covered? Marc Butorac responded that all modes of transportation including transit, bicycle, and pedestrian modes will be included in the development of the IAMP.

Technical Memo #1: Definition and Background

- Matt discussed the highlights of the memo, including purpose and intent, problem statement and goals and objectives.
- Problems noted by PAC that should be included in the Problem Statement:
    - Left-turn off the westbound off-ramp towards downtown is difficult to make at times.
    - People don't pay much attention to the no right-turn on red sign at the signal. Don Fine from ODOT mentioned that ODOT does plan on putting a sign on the mast arm in the near future.
    - Geography will place severe limitations on what we can do. It would be good for Kittelson to provide examples of what can be done to overcome these constraints.
- A comment was made that the IAMP project should look at increasing north-south connectivity outside of the I-84/US 395.
- PAC members were asked to perform a more thorough review of memo #1 and provide the project team with comments by no later than July 3rd.

IMSA Overview

- The IMSA map was introduced with modifications made as a result of the morning TAC meeting
- Further adjustments as discussed by the PAC:
    - People can build on just about anything, so it may be good to add in the undeveloped slope behind the Burger King

Technical Memo #2: Adopted Plans and Regulations

- Sheyna presented on the highlights of Tech Memo #2 including the state planning goals, state transportation planning policies, Transportation Planning Rule, zoning, and what will need to occur regarding adoption (state and local).
- PAC members were asked to perform a more thorough review of memo #1 and provide the project team with comments by no later than July 3rd.

Concluding Comments/Next Steps

- An updated contact list (that includes Shayna as a replacement for Darci) will be mailed out.
- Need a confirmed, committed PAC that will attend the remainder of the meetings.
- A finalized schedule with the final dates and times for all meetings will be sent out in early-July.

- The duties and challenges of the PAC were reiterated to the group
- Need everyone to work together for the good of the community
- PAC members asked to provide their feedback on the memos and confirm their position on the PAC by July 3rd .
- Thursday afternoons (at the beginning of the month) tend to work better than Wednesday afternoons for future meetings.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

August 26, 2009 – I-84 / US 395 IAMP
(TAC Meeting #2)

TEAM MEMBERS PRESENT:
Matt Hughart, Kittelson & Associates, Inc.
Marc Butorac, Kittelson & Associates, Inc.
Nick Foster, Kittelson & Associates, Inc.
Shayna Rehberg, Angelo Planning
Evan Mackenzie, City of Pendleton
Patrick Knight, ODOT
Don Fine, ODOT
Dave Warrick, ODOT
Dave Krumbein, Pendleton
Ken Patterson, ODOT District 12
Pete Wells, City of Pendleton
Tim Simmons, City of Pendleton
Larry Dalrymple, City of Pendleton
Frank Reading, ODOT

FROM: Matt Hughart and Nick Foster

DATE: August 28, 2009

The second Technical Advisory Committee (TAC) was held on August 26, 2009 in Pendleton. The purpose of the meeting was to review Technical Memorandums #3/4 (Existing Land Use/Transportation Conditions) and #5/6 (Future Land Use/Transportation Conditions). Following the memo review, interchange design and access design characteristics were discussed and participants were given the opportunity to explore improvement scenarios for the interchange and surrounding local transportation network.

Introduction

- Matt Hughart provided an introduction of the meeting, its purpose, and the purpose of the public workshop to be held later in the evening.

Review of Finalized Tech Memos (#1 and #2)

- Several minor comments were received on the DRAFT versions of Tech Memos #1 and #2. Finalized versions of these memos are now available for download on the Kittelson FTP site.

- Copies will also be uploaded to the ODOT FTP site and Pete Wells will upload them to the Google Docs as well.

Technical Memo #3/4: Existing Conditions

- Several comments were received regarding the memo graphics:
    - The memo should state that there are actually five interchanges that serve Pendleton (including Barhart Road).
    - Expand access/operations inventory along 20th up to Court
        - Evan and Pete to see if the City has any inventory work
        - Data will be collected in case changes are made to the network that would require a formal review of the access inventory.
    - Wal-Mart owns a large part of the commercial development on the north side of the interchange.
    - The operations explanation graphic used in the presentation should be added to the existing conditions memo.
    - The City has considered the placement of a median along 20th Avenue to address turning traffic at Dorion and a private driveway on the opposite side of the road.
    - 20th/Court phasing is limited by geometry.
    - Bike lanes on US 395 have a lot of debris which makes it difficult to safety bike through the interchange.
    - Not a comfortable bicycling environment due to heavy traffic demand and hectic nature of the interchange.
- Check with Don regarding what mobility standards apply north of the interchange (OR 37).

Technical Memo #5/6: Future Conditions

- The relocation of the hospital will result in a major shift of traffic on US 395 if it relocates to US 395.
- Chances of the cemetery redeveloping are pretty slim, particularly given the surrounding available land.
- Parcel 4 has topographic issues that could lead to a rezone for a multi-family development, if it ever develops at all.
- Comp plan has not changed since the model was created – City is comfortable with the TAZs as they are.
- There is a strip of land adjacent to the cemetery on the east side, it is stubbed for utilities, zoned residential, and the City wants it to develop.
- The airport area future development may not be in the model. This would affect traffic patterns at the interchange

- Will need to double check and tweak it to account for this – could be a major effort

Interchange Design 101

- Matt presented on fundamentals of interchange design and local circulation issues.
- TAC members were asked to sketch some ideas for improving the interchange and/or local street networks to better address existing and future conditions.

Concluding Comments/Next Steps

- The improvement ideas from today's meetings will be summarized and evaluated over the next month.
- Next TAC meeting set for October 29th. It will cover a review of the improvement ideas, the evaluation process, and look at access management improvement concepts.
- The 4th TAC meeting is tentatively scheduled for December 3rd.
- The 5th TAC meeting is tentatively scheduled for January 28th.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

August 26, 2009 – I-84 / US 395 IAMP
(PAC Meeting #2)

TEAM MEMBERS PRESENT:
Matt Hughart, Kittelson & Associates, Inc.
Marc Butorac, Kittelson & Associates, Inc.
Nick Foster, Kittelson & Associates, Inc.
Shayna Rehberg, Angelo Planning
Harry Snyder, Dean's Market & Deli
Loren Schmucker, Keystone RV
Dan Ball, Pendleton Bicycle Club
Bill Arrington, DB Supply Co.
Eric Fanciullo, Denny's
Vern Wilcox, Parks & Recreation Commission
Rick Oliver, First Church of God
Daniel Mitzimberg, City Transportation Commission

FROM: Matt Hughart and Nick Foster

DATE: August 28, 2009

The second Public Advisory Committee (TAC) was held on August 26, 2009 in Pendleton. The purpose of the meeting was to review Technical Memorandums #3/4 (Existing Land Use/Transportation Conditions) and #5/6 (Future Land Use/Transportation Conditions). Following the memo review, interchange design and access design characteristics were discussed and participants were given the opportunity to explore improvement scenarios for the interchange and surrounding local transportation network.

Meeting Introduction

- Matt Hughart provided an introduction of the meeting, its purpose, and the purpose of the public workshop to be held later in the evening.
- It was noted that there were a number of PAC members who could not make the meeting. Those in attendance were asked to reach out to those absent PAC members to help bring them up to speed on the meeting.

Review of Finalized Tech Memos (#1 and #2)

- Several minor comments were received on the DRAFT versions of Tech Memos #1 and #2. Finalized versions of these memos are now available for download on the Kittelson FTP site.

Technical Memo #3/4: Existing Conditions

- Several comments were received regarding the memo graphics:
  - The interchange access/operations boundary line should extend out to the railroad tracks on the north side of the interchange.
- PAC members were asked to note where they have noticed existing deficiencies within the interchange study area:
  - The Tutuilla/Hailey intersection experiences vehicle queue spill back to the EB ramp terminal under today's traffic conditions, not just in the future.
  - The signal heads at the EB ramp terminal are difficult to see due to grades and I-84 structure.
  - Access along US 395 south of I-84 leads a number of conflicting movements, especially around D&B
  - Parking at minimart is difficult to access and it slows the turning of traffic on US 395.
  - East/west traffic at the Hailey/Tutuilla intersection does not yield. This is an existing safety concern.
  - Bicycle travel is difficult along US 395, especially at the WB ramp terminal.
  - There is limited intersection sight distance at the 17th/Emigrant intersection which may the cause of the noted vehicle crashes.
  - It would be nice if the 17th/Emigrant intersection had a traffic signal.

Technical Memo #5/6: Future Conditions

- Matt gave a presentation on the forecast future conditions. It was noted that the Pendleton Travel Demand Forecast Model will be utilized to analyze future travel patterns. Preliminary model runs have concluded that without improvements to the interchange and surrounding roadway network, there will be some significant capacity and vehicle queuing issues.

Interchange Design 101

- Matt presented on fundamentals of interchange design and local circulation issues.
- PAC members were asked to sketch some ideas for improving the interchange and/or local street networks to better address existing and future conditions.

Concluding Comments/Next Steps

- The improvement ideas from today's meetings will be summarized and evaluated over the next month.

- Next PAC meeting set for October 29th. It will cover a review of the improvement ideas, the evaluation process, and look at access management improvement concepts.
- The 4th PAC meeting is tentatively scheduled for December 3rd.
- The 5th PAC meeting is tentatively scheduled for January 28th.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

January 7, 2010 – I-84 / US 395 IAMP
(TAC Meeting #3)

TEAM MEMBERS PRESENT:
Matt Hughart, Kittelson & Associates, Inc.
Marc Butorac, Kittelson & Associates, Inc.
Nick Foster, Kittelson & Associates, Inc.
Evan Mackenzie, City of Pendleton
Patrick Knight, ODOT
Don Fine, ODOT
Dave Warrick, ODOT
Ken Patterson, ODOT
Tom Kuhlman, ODOT
Pete Wells, City of Pendleton
Tim Simmons, City of Pendleton
Larry Dalrymple, City of Pendleton
Justin Pearce, City of Pendleton City Council (PAC Member)
Chuck Wood, City of Pendleton Planning Commission (PAC Member)
Dan Ceniga, City of Pendleton City Council (PAC Member)
Oliver Pahl, Umatilla County

FROM: Matt Hughart and Nick Foster

DATE: January 8, 2010

The third Technical Advisory Committee (TAC) was held on January 7, 2010 in Pendleton. The purpose of the meeting was to review the initial evaluation of the concepts developed at the previous set of TAC, PAC, and public meetings. A preliminary screening was conducted by the project team and reviewed with the TAC for their feedback.

Introduction

- Matt Hughart provided an introduction of the meeting, its purpose, and the purpose of the public workshop to be held later in the evening.

Review of North Side Concepts

- N1
    - SW 20th Street will likely need to be five lanes from SW Emigrant Avenue to SW Court Avenue in order to accommodate demand from northbound US 395.

  - The issue of bringing in a lower classified street directly across from the interchange ramps is less of an obstacle if the interchange can be managed so that queues do not back up into the deceleration portion of the ramp.
  - N1 with the Option B bypass is not ideal for bicycles or pedestrians, as they would likely need to be directed to the east side of US 395 in order to avoid the merge of traffic from SW Emigrant Avenue coming into US 395 south of the WB ramp terminals.
- N2
  - Access to businesses on SW 20th Street between SW Frazer Avenue and SW Emigrant Avenue would be an issue.
  - There would be weaving issues on SW Frazer Avenue before SW 20th Street where the traffic from US 395 and I-84 WB ramps merge together.
- N3 – N6 (concepts with roundabouts)
  - Roundabouts do not offer sufficient capacity.
  - The State Traffic Engineer does not like the idea of double-lane roundabouts right now.
- N7
  - SW Court Avenue becomes more important under this concept, since SW 20th Street is restricted to right-in/right-out access at SW Emigrant Avenue.
- N8
  - The new on-ramp onto I-84 creates weaving issues due to its close proximity to the existing off-ramp.
  - Costs would likely significantly outweigh the benefits of the new on-ramp.
- N9
  - The new off-ramp would cost approximately $15-20 million due to the severe vertical difference between its start and where it would come into US 395.
  - The tight diamond would also have left-turn storage issues on US 395 between the ramp terminals.
- N10
  - This concept is similar to a solution to one implemented in Redmond that is working well.
  - Converting SW 20th and 17th Streets to one-way may raise access concerns for the businesses along these roadways.
  - Stopping westbound traffic on SW Court Avenue at SW 17th Street to accommodate the traffic shifted over from SW 20th Street may create conflicts with the nearby rail crossing.
    - This will need to be examined further.
- N11

- This concept presents significant design and FHWA related hurdles.
  - Non-standard interchange design.
  - Ramps would act somewhat like a driveway for nearby commercial development with their traffic driving the signal timing.
- SW Court Place would have to become a state highway in the vicinity of where it intersects the interchange.
- The new intersection would need to be moved further west if the existing off-ramp is kept in order to provide additional decision time.
- Oxford Suites is considering expanding.
- Developed two new options (A and B)
  - Option A would eliminate the existing off-ramp and move the new intersection to the east to avoid impacting Oxford Suites and then add free right-turns at the new intersection and the existing WB ramp terminal intersection for vehicles traveling from WB I-84 to SB US 395.
  - Option B would move the new intersection into the vacant land west of the Oxford Suites. This would avoid impacts to existing businesses, but would likely necessitate the widening of the I-84 bridge over the Umatilla River.

- N12
  - The I-84 bridge over US 395 would likely need to be widened to accommodate the single-point.
  - The single-point does not offer sufficient capacity for projected traffic volumes.

South Side Concepts

- The configurations of the existing SW Hailey Avenue-SW Tutuilla Creek Road may differ from what is shown on the drawings. They may be right-in/right-out or closed, depending on what is determined by further analysis.
- S1
  - A raised median will be necessary to enforce the right-in/right-out restrictions.
  - The right-out only from the existing SW Hailey Avenue intersection may be confusing for motorists wishing to access I-84.
- S2
  - The existing SW Hailey Avenue connection to US 395 likely cannot be kept due to the proximity of where it would connect to the new alignment to the new US 395 intersection.
- S3
  - This concept impacts a number of existing viable businesses.
  - The south approach to the new intersection of SW Hailey Avenue west of US 395 does not really go anywhere, but it is best to bring it in at that location so there is only one intersection in that area.

    - The existing off-ramp could stay as a right-out only.
- S4-6 (concepts with roundabouts)
    - These concepts do not provide sufficient capacity.
    - The cost of constructing roundabouts on the grade would be high since they would need to be level.
- S7
    - The existing WB off-ramp would stay. This is a mistake in the drawing.
    - The new on-ramp solves a problem that does not really exist.
- S8
    - This concept has major costs and impacts to existing viable businesses.
    - The new ramp would require a new and wider bridge over US 395.
- S9
    - The realigned SW Tutuilla Creek Road utilizes an existing interior road.
        - The new roadway would be much wider than the existing road; however a viaduct may not have a much wider foot print.
        - A culvert would be needed under the roadway for cemetery maintenance staff.
- S10
    - A new concept was introduced that has not been drawn up. This concept involves eliminating the southbound left-turn onto SW Tutuilla Creek Road from US 395 by bringing it off on the west side of US 395 and then looping it back underneath the roadway and into the existing SW Tutuilla Creek Road.

West Side Concepts

- W1
    - This is the type of solution that would be likely included in a future TSP, since it does not directly address the interchange.
    - The increase in traffic on the local street system would impact surrounding residences.
- W2
    - This concept does more than what is needed and it does so at a great expense.
- There is currently a north-south connection in the TSP further to the west.
    - It would likely not significantly decrease southbound left-turn volumes onto SW Tutuilla Creek Road.
    - It is not included in the modeling since it was identified by the City as a very long-term desire that is probably more than 20 years from construction.

Initial Screening

- There is no golden solution. There will be immediate impacts from the ultimate recommended concepts.
- There was general agreement on removing the concepts without sufficient capacity; though there was some concern about removing S6 since it does not impact the cemetery.
- There was agreement that the concepts identified for removal due to construction issues should not be forwarded for further analysis.
- N1 with the Option A bypass should be removed due to its likely significant costs and limited benefits.
- N2 is marginal.
- The SW Court Ave/SW 17th St intersection will need to be examined further for queuing issues under concept N10.
- N11 will need to be looked at by FHWA. Its various options will be explored further.
- Access to businesses on the east side of US 395 will be important in concept S1.
- Burger King's access will need to be addressed carefully under the south side concepts.
- Costs may be prohibitive for concept S10.
- Another concept (E1) to look at is realigning SW Tutuilla Creek Road behind Denny's and then tunnel it into the SW Frazer Ave/SW 18th St intersection.
- The concepts that will be examined further are N1, N2, N10, N11 (all options), S1, S2, S9, S10 (new concept), W1 (not as an interchange solution, though), and E1.

Next Steps

- TAC members will provide any additional comments by next Thursday, January 14th.
- Next TAC meeting set for February 18th. It will cover the more detailed analysis, including cost estimates for the concepts forwarded for further analysis.
- The 5th TAC meeting is tentatively scheduled for April 15th.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

January 7, 2010 – I-84 / US 395 IAMP
(PAC Meeting #3)

TEAM MEMBERS PRESENT:
Matt Hughart, Kittelson & Associates, Inc.
Marc Butorac, Kittelson & Associates, Inc.
Nick Foster, Kittelson & Associates, Inc.
Evan Mackenzie, City of Pendleton
Patrick Knight, ODOT
Don Fine, ODOT
Harry Snyder, Dean's Market & Deli
Bill Arrington, DB Supply Co.
Vern Wilcox, Parks & Recreation Commission
Rick Oliver, First Church of God
Daniel Mitzimberg, City Transportation Commission
Michael & Pam Poland, City Residents
Eric Fanciullo, Denny's Restaurant
Rich Britton, Bank of the West
Marjorie Iburg, Wilcox Furniture building

FROM: Matt Hughart and Nick Foster

DATE: January 8, 2010

The third Public Advisory Committee (PAC) was held on January 7, 2010 in Pendleton. The purpose of the meeting was to review the initial evaluation of the concepts developed at the previous set of TAC, PAC, and public meetings. A preliminary screening was conducted by the project team and reviewed with the PAC for their feedback.

Introduction

- Matt Hughart provided an introduction of the meeting, its purpose, and the purpose of the public workshop to be held later in the evening.
- Concern was expressed that an option to close the existing interchange was not included. It was explained that it has been considered but due to local circulation issues and the City and ODOT's desires for the area, it was removed from further consideration.

Review of North Side Concepts

- N1

  - SW 20th Street will likely need to be five lanes from SW Emigrant Avenue to SW Court Avenue in order to accommodate demand from northbound US 395.
  - The alley behind Dean's Market & Deli is narrow.
- N2
  - Access to businesses on SW 20th Street between SW Frazer Avenue and SW Emigrant Avenue would be an issue.
  - There would be weaving issues on SW Frazer Avenue before SW 20th Street where the traffic from US 395 and I-84 WB ramps merge together.
- N3 – N6 (concepts with roundabouts)
  - Roundabouts do not offer sufficient capacity.
- N7
  - This concept has substantial impacts.
- N8
  - The new on-ramp onto I-84 creates weaving issues due to its close proximity to the existing off-ramp.
  - Costs would likely significantly outweigh the benefits of the new on-ramp.
- N9
  - The new off-ramp would cost approximately $15-20 million due to the severe vertical difference between its start and where it would come into US 395.
- N10
  - This concept is similar to a solution to one implemented in Redmond that is working well.
  - Access to the Safeway would not be that much more difficult than it is today due to the existing congestion.
  - Stopping westbound traffic on SW Court Avenue at SW 17th Street to accommodate the traffic shifted over from SW 20th Street may create conflicts with the nearby rail crossing.
    - This will need to be examined further.
    - A free westbound through movement may solve this issue.
- N11
  - This concept presents significant design and FHWA related hurdles.
    - Non-standard interchange design.
    - Ramps would act somewhat like a driveway for nearby commercial development with their traffic driving the signal timing.
  - SW Court Place would have to become a state highway in the vicinity of where it intersects the interchange.

  - The new intersection would need to be moved further west if the existing off-ramp is kept in order to provide additional decision time.
  - There would not be access to the new roadways near the interchange so developing the land opened up by the ramp realignment is not likely.
  - Developed two new options (A and B)
    - Option A would eliminate the existing off-ramp and move the new intersection to the east to avoid impacting Oxford Suites and then add free right-turns at the new intersection and the existing WB ramp terminal intersection for vehicles traveling from WB I-84 to SB US 395.
    - Option B would move the new intersection into the vacant land west of the Oxford Suites. This would avoid impacts to existing businesses, but would likely necessitate the widening of the I-84 bridge over the Umatilla River.

- N12
  - The I-84 bridge over US 395 would likely need to be widened to accommodate the single-point.
  - The single-point does not offer sufficient capacity for projected traffic volumes.

South Side Concepts

- The configurations of the existing SW Hailey Avenue-SW Tutuilla Creek Road may differ from what is shown on the drawings. They may be right-in/right-out or closed, depending on what is determined by further analysis.
- S1
  - A raised median will be necessary to enforce the right-in/right-out restrictions.
  - The right-out only from the existing SW Hailey Avenue intersection may be confusing for motorists wishing to access I-84.
  - The church would maintain side street access.
- S2
  - The existing SW Hailey Avenue connection to US 395 likely cannot be kept due to the proximity of where it would connect to the new alignment to the new US 395 intersection.
  - The raised median would run between the EB ramp terminals and the new SW Hailey Ave-SW Tutilla Creek Rd intersection.
- S3
  - This concept impacts a number of existing viable businesses.
- S4-6 (concepts with roundabouts)
  - These concepts do not provide sufficient capacity.
  - The cost of constructing roundabouts on the grade would be high since they would need to be level.

- S7
  - The existing WB off-ramp would stay. This is a mistake in the drawing.
  - The new on-ramp solves a problem that does not really exist.
- S8
  - This concept has major costs and impacts to existing viable businesses.
  - The new ramp would require a new and wider bridge over US 395.
- S9
  - The realigned SW Tutuilla Creek Road utilizes an existing interior road.
    - The new roadway would be much wider than the existing road; however a viaduct may not have a much wider foot print.
    - A culvert would be needed under the roadway for cemetery maintenance staff.
- S10
  - A new concept was introduced that has not been drawn up. This concept involves eliminating the southbound left-turn onto SW Tutuilla Creek Road from US 395 by bringing it off on the west side of US 395 and then looping it back underneath the roadway and into the existing SW Tutuilla Creek Road.

West Side Concepts

- W1
  - This is the type of solution that would be likely included in a future TSP, since it does not directly address the interchange.
  - The increase in traffic on the local street system would impact surrounding residences.
- W2
  - This concept does more than what is needed and it does so at a great expense.
- There is currently a north-south connection in the TSP further to the west.
  - It would likely not significantly decrease southbound left-turn volumes onto SW Tutuilla Creek Road.
  - It is not included in the modeling since it was identified by the City as a very long-term desire that is probably more than 20 years from construction.

Initial Screening

- There is no golden solution. There will be immediate impacts from the ultimate recommended concepts.
- There was general agreement on removing the concepts without sufficient capacity from further analysis.

- There was agreement that the concepts identified for removal due to construction issues should not be forwarded for further analysis.

Next Steps

- PAC members will provide any additional comments by next Thursday, January 14th.
- Next PAC meeting set for February 18th. It will cover the more detailed analysis, including cost estimates for the concepts forwarded for further analysis.
- The 5th PAC meeting is tentatively scheduled for April 15th.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

February 18, 2010 – I-84 / US 395 IAMP
(TAC Meeting #4)

TEAM MEMBERS PRESENT:

Matt Hughart, Kittelson & Associates, Inc.
Marc Butorac, Kittelson & Associates, Inc.
Nick Foster, Kittelson & Associates, Inc.
Shayna Rehberg, Angelo Planning Group
Darren Hippenstiel, CH2M Hill
Evan Mackenzie, City of Pendleton
Patrick Knight, ODOT
Don Fine, ODOT
Dave Warrick, ODOT
Ken Patterson, ODOT
Pete Wells, City of Pendleton
Tim Simmons, City of Pendleton
Dave Byrd – City of Pendleton Parks Department
Oliver Pahl – Umatilla County
Chuck Wood, Planning Commission
Justin Pearce – City Council
Rodney Parker
Grant Young, DLCD

FROM: Matt Hughart and Nick Foster

DATE: February 25, 2010

The fourth Technical Advisory Committee (TAC) was held on February 18, 2010 in Pendleton. The purpose of the meeting was to review the evaluation of the refined concepts developed at the last set of PAC, TAC, and public meetings and determine preferred concepts.

Introduction

- Matt Hughart provided an introduction of the meeting and its purpose and identified a couple of corrections to the handouts.

Review of Past Concepts

- Matt conducted a brief review of the previous concepts and noted which ones had been dismissed and which had been moved forward for detailed review, as well as which ones had been included as a result of the last meeting.

Detailed Review

- The new concepts and the ones moved forward from the last meeting were discussed in greater detail.
- N10
  - A roundabout would not be appropriate for the SW 17th St/SW Court Ave intersection due to the potential for queues to back into the nearby train tracks.
  - A signal at the SW 17th St/SW Court Ave intersection could be coordinated with the train crossing.
  - Another option is to not stop SW bound traffic on SW Court Avenue by channelizing left-turns from SW 17th Street into their own lane on SW Court Avenue
    - There is likely sufficient right-of-way for this.
    - Two-way traffic on SW Court Avenue appears feasible, largely due to the increased efficiency obtained at the SW 17th and SW 20th Street signals from the couplet.
- N11
  - Option A does include a free right-turn from I-84.
  - Option B may impact deliveries to Safeway.
  - FHWA will have questions about functionality of the N11 options, especially related to queuing back on the I-84 ramp.
  - Option C could go even further west.
    - It would cut-off access to a vacant parcel and would require the removal of the Oxford Suites access onto SW Court Place.
- Regarding the south side concepts, Patrick Knight spoke with the area tribes and state cemetery organization.
  - It will be an uphill battle to impact the cemetery.
  - There have been a number of public comments to avoid the cemetery.
- S10 (New concept that would create a loop ramp underneath US 395 allowing SB traffic to make a right-turn to reach SW Tutuilla Creek Road).
  - This option would be costly to construct and has a handful of potential design issues.
  - Building an overpass would be easier, but would connect into SW Tutuilla Creek Road several hundred feet east of US 395.
  - TAC does not want this option forwarded due to these issues.
- S11 (New concept that would reroute part or all of SW Tutuilla Creek Road alongside US 395 between the highway and the cemetery with a connection to US 395 across from a realigned SW Hailey Avenue).

  - Option A reroutes only traffic from US 395 onto SW Tutuilla Creek Road onto the new frontage road, with traffic from SW Tutuilla Creek Road still accessing US 395 at its current location.
    - ODOT expressed concern regarding leaving the signal at its current location, even if it is only a two-phase signal (SW Hailey Avenue would be right-in/right-out only).
  - Concern was expressed regarding out-of-direction travel for pedestrians and bicyclists.
    - There are treatments that could be applied to alleviate this problem.
  - Access to the Denny's restaurant would need to be examined.
  - Option B reroutes all SW Tutuilla Creek Road traffic through the frontage road and the new intersection across from the realigned SW Hailey Avenue.
    - This option has more impacts due to the radii needed to accommodate the two-way traffic and the increased width of the roadway.
- S12 (New concept that would include a tunnel connecting SW 18th Street underneath I-84 to SW Tutuilla Creek Road).
  - Concept would be costly and difficult to construct.
- S13 (New concept conceived earlier in the morning that would feature a realigned SW Hailey Avenue across from a jug handle allowing SB US 395 traffic to make a u-turn to access SW Tutuilla Creek Road in the near-term and in the long-term would include the construction of a new road connecting SW 30th Street to SW Tutuilla Creek Road).
  - The new road would impact 3-4 homes.
- The TAC recommended removing all options on the south side that reroute SW Tutuilla Creek Road through the cemetery.
  - This leaves the following as the remaining options on the south side:
    - S11 (A and B)
    - S13
    - S12 (as a possible long-term connection)

Discussion of Double-line Drawings (South Side)

- Darren Hippenstiel of CH2M HILL presented a double-line drawing of S11 (Option A)
  - Shifting the new intersection to the north would make it difficult to avoid impacting the cemetery.

General Discussion of South Side Alternatives

- Discussed the idea of tunneling SW Tutuilla Creek Road and SW Hailey Avenue underneath US 395 at their current location and providing signalized access at the realigned SW Hailey Avenue location
  - This would completely remove access to Burger King.

- Concern was expressed regarding SW 30th Street as a solution (S13)
    - The jug handle will still be used frequently, so the connection may not provide sufficient relief.
- S11 A & B are then the only options left on the south side.
    - The project team will directly compare the impacts of the two options.
- The SW 30th Street option will be costed by the project team.
- S11 B is an acceptable solution if it turns out to be the best.
- The City is pursuing stimulus funds to construct an extension of SW Perkins Avenue to SW Tutuilla Creek Road.
    - A local roadway network is already planned for the area.

Discussion of Double-line Drawings (North Side)

- Darren Hippenstiel of CH2M HILL presented a double-line drawing of N1 and N11.
- N1
    - Jim Whitney of Whitney Land Company (formerly Coldwell Banker) owns nearly all of the block impacted
    - About three of the structures shown on the aerial that would be impacted have been removed and there may be more that are coming down
- N1 (Option B)
    - The underpass has poor merging and sight distance measurements
    - There are some operational efficiency gains
    - The underpass would be costly and presents poor crossing conditions for pedestrians and cyclists
    - In summation, it is a high cost for little benefit
    - The TAC dismissed this option
- N11 (Option A)
    - The off-ramp includes three lanes (dual lefts and a free right-turn)
        - Accommodations would need to be made for pedestrians and cyclists
    - Impacts Oxford Suites parking, but not the structure itself
    - Achieving 1320’ spacing would be a challenge
- N11 (Option B)
    - Would need to do three-lanes here too
    - Cummins would be willing to move
    - Sub-standard off-ramp length for deceleration

  - Could also be designed with a slip lane and pedestrian island for right-turning traffic to reduce stacking

- N11 (Option C)
  - Would have to widen I-84 bridge over the Umatilla River for longer acceleration lane for on-ramp
  - Access for Oxford Suites and other future businesses would not be on SW Court Place due to 1320' spacing requirements

General Discussion of North Side Alternatives

- N1 is still preferred by some.
- N11 draws traffic away from confusion of network at existing interchange.
  - Some prefer this concept to the proposed complex N1 alternatives.
- N11 (Options A and B) create a four-way intersection at ramp terminals introducing a street hierarchy conflict.
- N11 (Option C) could still be considered but modified to retain existing on-ramp and extend proposed off-ramp for deceleration.
- N10 complements other alternatives but some do not prefer it as the only solution.
  - Could be a short-term solution.

Next Steps

- Dave Warrick will check with others at ODOT about the feasibility of the N11 options.
- April 15th is currently scheduled as the next meeting where the draft IAMP report would be reviewed.
  - The project team will examine potential schedule modifications, which may change the focus of the April 15th meeting.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

February 18, 2010 – I-84 / US 395 IAMP
(PAC Meeting #4)

TEAM MEMBERS PRESENT:

Matt Hughart, Kittelson & Associates, Inc.
Shayna Rehberg, Angelo Planning Group
Darren Hippenstiel, CH2M Hill
Evan Mackenzie, City of Pendleton
Patrick Knight, ODOT
Don Fine, ODOT
Albert Plute
Bob Ehmann
Diana LaSarge
Marcia Bunnell
Bill Clemens, Pacific Power
Gary Tellum, Seven Lakes Development
Dan Ceniga
Rick Oliver
Dan Ball
Vern Willcox
Becky Schaad
Don Ramsay
Dan Mitzinberg
Richard Waloryk
Dan Alanis

FROM: Matt Hughart and Nick Foster

DATE: February 25, 2010

The fourth Public Advisory Committee (PAC) was held on February 18, 2010 in Pendleton. The purpose of the meeting was to review the evaluation of the refined concepts developed at the last set of PAC, TAC, and public meetings and determine preferred concepts.

Introduction

- Matt Hughart provided an introduction of the meeting and its purpose and identified a couple of corrections to the handouts.

Review of Past Concepts

- Matt conducted a brief review of the previous concepts and noted which ones had been dismissed and which had been moved forward for detailed review, as well as which ones had been included as a result of the last meeting.

Detailed Review

- The new concepts and the ones moved forward from the last meeting were discussed in greater detail.
- N1 (Option B)
    - The location of pedestrian and bicycle facilities was discussed.
    - The water table is shallow in this area.
- N10
    - Likely no right-of-way impacts.
    - May impact businesses due to circuitous routing.
    - SW Court Avenue may need to be widened if the City wants avoid as much congestion as is forecast if it is not.
    - Moves traffic away from the new Westgate overpass that the overpass was meant to help serve.
    - Traffic may reroute through town instead utilizing the SW 17th-20th Street couplets (e.g. high school traffic).
    - A graphic explaining that an option at the SW 17th St/SW Court Ave intersection is to not stop SW bound traffic on SW Court Avenue by channelizing left-turns from SW 17th Street into their own lane on SW Court Avenue to avoid back-up onto the railroad tracks was presented.
        - There is likely not sufficient justification for grade-separation (e.g. underpass) to avoid back-up.
- N11 (Option C)
    - Freeway speed limits could be changed to allow for more time to decelerate and accelerate so ramps don't need to be as long.
        - This would be difficult to achieve without intensive enforcement, especially given the downhill grade.
    - The alignment could be shifted west since the widening of the I-84 bridge over the Umatilla River is inevitable.
        - However care must be taken because the further west it is moved, the more the land to the west is impacted in terms of access, and possibly rendered undevelopable.
    - The connection to US 395 is circuitous.
- S10 (New concept that would create a loop ramp underneath US 395 allowing SB traffic to make a right-turn to reach SW Tutuilla Creek Road).

  - This option would be costly to construct and has a handful of potential design issues (grade, shade, and water table).
  - Pedestrians would cross at existing signal that would be retained.
  - Climbing back onto SW Tutuilla Creek Road would likely take traffic beyond access for businesses.
  - A new EB off-ramp further west could connect to the existing dead-end road north of Burger King and the Forest Service.

- S11 (New concept that would reroute part or all of SW Tutuilla Creek Road alongside US 395 between the highway and the cemetery with a connection to US 395 across from a realigned SW Hailey Avenue).
  - Option A reroutes only traffic from US 395 onto SW Tutuilla Creek Road onto the new frontage road, with traffic from SW Tutuilla Creek Road still accessing US 395 at its current location.
  - Does not impact cemetery, except for potential retaining walls.
  - Limits access to Burger King and Denny's, which would be big impacts to these businesses.
  - Impacts car wash and quick lube.
  - Shifting the new intersection to the north would make it difficult to avoid impacting the cemetery.
  - The downhill grade on NB US 395 could be used to elevate the through route over I-84 to SW Frazer Avenue to prevent stopping at signals and the idling that occurs at them.
  - Option B reroutes all SW Tutuilla Creek Road traffic through the frontage road and the new intersection across from the realigned SW Hailey Avenue.
    - This option has more impacts due to the radii needed to accommodate the two-way traffic and the increased width of the roadway.

- S12 (New concept that would include a tunnel connecting SW 18th Street underneath I-84 to SW Tutuilla Creek Road)
  - Concept would be costly and difficult to construct.
  - Reroutes traffic in a somewhat confusing manner.

- S13 (New concept conceived earlier in the morning that would feature a realigned SW Hailey Avenue across from a jug handle allowing SB US 395 traffic to make a u-turn to access SW Tutuilla Creek Road in the near-term and in the long-term would include the construction of a new road connecting SW 30th Street to SW Tutuilla Creek Road)
  - The new road would impact 3-4 homes and potentially 1-2 businesses, but not cemetery.
  - Access restrictions would impact businesses near I-84.
  - SW 30th Street connection will not provide sufficient relief to the SW Tutuilla Creek Road intersection.

- May be useful as a supplement to connection planned in City's TSP.

General Discussion of South Side Alternatives

- The committee does not want to support any ideas that may impact the cemetery.

Next Steps for South Side Alternatives

- Refining modifications to existing alternatives plus others developed today (including S13, EB off-ramp further west, widening US 395, and US 395 roadway over I-84).

Discussion of Double-line Drawings (North Side)

- Darren Hippenstiel of CH2M HILL presented a double-line drawing of N1 and N11.
- N1 (Option B)
  - The underpass has poor merging and sight distance measurements.
  - There are some operational efficiency gains.
  - The underpass would be costly and presents poor crossing conditions for pedestrians and cyclists.
  - In summation, it is a high cost for little benefit.
- N11 (Option A)
  - Impacts to businesses (structures and parking), access, and four-way intersection at ramps may be fatal flaws.
  - Limited sight distance and grade challenges for deceleration.
  - Requires construction on SW Court Place.
- N11 (Option B)
  - Also has deceleration issues.
  - May impact Safeway deliveries.
  - Less impacts to other businesses and no reconstruction of SW Court Place.
- N11 (Option C)
  - Would have to widen I-84 bridge over the Umatilla River for longer acceleration lane for on-ramp.
  - Limits physical impacts to businesses.
  - Access for Oxford Suites and other future businesses would not be on SW Court Place due to 1320' spacing requirements.

Next Steps

- April 15th is currently scheduled as the next meeting where the draft IAMP report would be reviewed.
  - The project team will examine potential schedule modifications, which may change the focus of the April 15th meeting to reviewing modified alternatives.

    - There could be a meeting to do this review between now and April 15th

- Challenging decisions will be made at future meetings.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

March 31, 2010 – I-84 / US 395 IAMP
(TAC Meeting #5)

TEAM MEMBERS PRESENT:	Matt Hughart, Kittelson & Associates, Inc. Marc Butorac, Kittelson & Associates, Inc. Nick Foster, Kittelson & Associates, Inc. Evan Mackenzie, City of Pendleton Patrick Knight, ODOT Don Fine, ODOT Dave Warrick, ODOT Ken Patterson, ODOT Tom Kuhlman, ODOT Pete Wells, City of Pendleton Tim Simmons, City of Pendleton Oliver Pahl – Umatilla County Grant Young, DLCD Dan Ceniga, City Council
FROM:	Matt Hughart and Nick Foster
DATE:	April 5, 2010

The fifth Technical Advisory Committee (TAC) was held on March 31, 2010 in Pendleton. The purpose of the meeting was to review the evaluation of the refined concepts and determine preferred concepts.

Introduction

- Matt Hughart and Nick Foster provided an introduction of the meeting and its purpose and summarized events since the last meeting and new concepts that have been introduced.

North Side Concepts

- Matt conducted a review of the detailed evaluation performed by the consultant team of each of the north side concepts.
- The TAC requested that the team evaluate the feasibility of allowing left-ins from SW 20th Street to SW Dorion Avenue and to the existing Safeway business in Concept N1.

- The TAC introduced an addition to Concept N10 involving an extension of SW 23rd Street along the northeast side of the I-84 WB ramp terminals in order to avoid circuitous routing between US 395 and the SW Court Place area.
- The TAC asked that Concept N11a/N11b be reexamined in lieu of N11c.

South Side Concepts

- Matt conducted a review of the detailed evaluation performed by the consultant team of each of the south side concepts.
- The TAC requested that the feasibility of adding a right-out only access from the realigned SW Tutuilla Creek Road onto US 395 at the location of the existing intersection be examined under Concept S11b.

TAC Recommendations

- The TAC members were asked to provide their opinions regarding which concepts they would support on either side of the interchange
- The conclusions were:
    - The TAC could support Concept N1, though it may not be the best option.
    - Concept N10 could be an interim fix to avoid a development moratorium or address a safety concern, but there was anxiety that it may become a permanent fix, which is not ideal.
        - Without the SW 23rd Street extension it is fatally flawed from the City's perspective
    - Concept N11a has a number of potential issues that need to be examined further before a decision can be made
    - Concept S11b would be the preferred concept on the south side if the right-turn access could be included
    - The jughandle proposed in Concept S13 is fatally flawed without the SW 23rd Street extension

Next Steps

- The following were identified as next steps:
    - Consultant team will study feasibility of the Concept S11b right-turn access.
    - ODOT will prepare right-of-way estimates for the concepts.
    - Consultant team and ODOT will review Concept N11a in greater detail to determine the amount of structure widening on I-84 that will need to occur, the ability to address the roadway hierarchy issues being introduced, access impacts, and roadway sizes.
    - The results of these next steps will be presented at meeting on April 15th.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

March 31, 2010 – I-84 / US 395 IAMP
(PAC Meeting #5)

TEAM MEMBERS PRESENT:

Matt Hughart, Kittelson & Associates, Inc.
Marc Butorac, Kittelson & Associates, Inc.
Nick Foster, Kittelson & Associates, Inc.
Evan Mackenzie, City of Pendleton
Patrick Knight, ODOT
Don Fine, ODOT
Vern Wilcox, Wilcox Furniture
Harry Snyder, Dean's Market
Dan Ceniga, City Council
Dan Ball, Pendleton Bicycle Club
Loren Schmucker, Keystone RV
Eric Fanciullo, Denny's
Brian Schmick, Safeway
Rick Oliver, Church of God
Chuck Wood, Planning Commission

FROM: Matt Hughart and Nick Foster

DATE: April 5, 2010

The fifth Public Advisory Committee (PAC) was held on March 31, 2010 in Pendleton. The purpose of the meeting was to review the evaluation of the refined concepts and determine preferred concepts. A number of owners and representatives of businesses in the interchange area were in attendance at this meeting.

In Attendance

- In addition to the formal PAC members, the following individuals were in attendance: Marjorie Iburg, Eric Flosip, CF Dudek, Toby Carlson (owner of Premium Lube), Dan Alanis (owner of Burger King), Gary Tellum (Seven Lakes Development), Eric Smith (Cummins), Jim Swearingen (JB Automotive), and Doug Hattenhauer (76 Gas Station).

Introduction

- Matt Hughart and Nick Foster provided an introduction of the meeting and its purpose and summarized events since the last meeting and new concepts that have been introduced.
- Concept S14 (a new concept phoned in by Jim Swearingen) was discussed in greater detail. The consultant team performed that same level of screening on this concept as all the other previously developed concepts and concluded that as initially drawn, it didn't have significant merit for further consideration. New variations of Concept S14 were introduced by individuals in attendance.

North Side Concepts

- Matt conducted a review of the detailed evaluation performed by the consultant team of each of the north side concepts, including recommendations from the morning's TAC meeting.
    - Include and review a new connection to 23rd Street under Concept N10
    - Reintroduce a variation of Concept N11a/N11b
- Individuals in attendance expressed concern over access and circuitous routing under certain concepts and would like to see these issues minimized by the refinements discussed in the TAC meeting.

South Side Concepts

- Matt conducted a review of the detailed evaluation performed by the consultant team of each of the south side concepts, including recommendations from the morning's TAC meeting.
- The PAC and other individuals in attendance expressed interest in a more detailed evaluation of S14 and any refinements necessary to make it feasible given that it could potentially minimize impacts to existing businesses (in comparison to Concepts S11a, S11b, and S13).

Other Discussion

- There was a general discussion of the process and concern was expressed regarding the impacts to existing businesses in the interchange vicinity.

PAC Recommendations

- The PAC members were asked to provide their opinions regarding which concepts they would support on either side of the interchange
    - N1 could be supported, but the extent of that support is somewhat dependent on the ability to provide the left-in access from SW 20th Street onto SW Dorion Avenue and the existing Safeway business.
    - N10 would likely not be supported without the SW 23rd Street extension.
    - N11a would likely be supported.
    - None of the detailed south side concepts would have the full support of the PAC.

- S14 should be reviewed in greater detail to determine a feasible similar approach.

Next Steps

- The following were identified as next steps:
  - The consultant team will take a more detailed look at the feasibility of a refined S14 that connects the EB off ramp to the US 395/Tutuilla Creek Road intersection.
  - ODOT will look into bringing its right-of-way manager to a meeting to answer questions regarding compensation for impacted businesses.
  - The findings of the additional analyses requested by both committees will be presented at a meeting on April 15th.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

April 16, 2010 – I-84 / US 395 IAMP
(TAC Meeting #6)

TEAM MEMBERS PRESENT:
Matt Hughart, Kittelson & Associates, Inc.
Marc Butorac, Kittelson & Associates, Inc.
Evan Mackenzie, City of Pendleton
Patrick Knight, ODOT
Don Fine, ODOT
Dave Warrick, ODOT
Tom Kuhlman, ODOT
Pete Wells, City of Pendleton
Tim Simmons, City of Pendleton
Bob Patterson, City of Pendleton
Oliver Pahl – Umatilla County
Grant Young, DLCD
Stephanie Anderson, ODOT ROW
Leslie Hasse, ODOT ROW
Davy Byrd, City of Pendleton Parks
Chuck Wood, Planning Commission
Bill Clemens, Pacific Power

FROM: Matt Hughart

DATE: April 23, 2010

The sixth Technical Advisory Committee (TAC) was held on April 16, 2010 in Pendleton. The purpose of the meeting was to review the evaluation of the refined concepts and determine preferred concepts.

Introduction

- Matt Hughart provided an introduction of the meeting and its purpose and summarized events since the last meeting and new concepts that have been introduced.
    - Further refined N1, N10, N11a, N11b, N11c, S11b, and S14 based on committee feedback
    - Refined & evaluated S14 based on feedback from PAC
    - Prepared double-line drawings and detailed evaluation of concepts recommended from the last meeting

- Refined Conceptual Construction Cost Estimates
- Verified Property Impacts
- Prepared Initial Conceptual Right of Way (ROW) Cost Estimates
- Calculated Conceptual Level Total Cost Estimates

North Side Concepts

- Matt summarized the N1, N10, N11a, N11b, and N11c concepts and presented the refined construction cost and right-of-way costs.
- Under concept N1, it was found that a northbound left-turn lane could be provided along SW 20th Street at Dorian, but that long-term vehicle queues would likely require it to be a near/mid-term provision.
- Matt provided operational evidence that adding a SW 23rd Street connection to concept N10 would not be feasible due to the requirements of triple left-turn lanes to feed this connection and the existing WB on-ramp.
- Discussion was had regarding the benefits of the N11a element that provided a better connection from SW Court Place to US 395.
- Tom Kuhlman suggested that concepts N1 and N11a could be combined to help distribute traffic to/from the SW Court Place corridor better. The consultant team agreed to study this concept more thoroughly and named this concept N13.

South Side Concepts

- Matt conducted a review of the detailed evaluation performed by the consultant team of each of the south side concepts.
- A right-turn lane can be added to Concept S11b providing better access from Tutuila Road onto US 395 northbound.
- The 30th Street connection between US 395 and Tutuila Road is an element that should be included in the final recommendation regardless of what South Side concept is chosen to be included in the IAMP.
- A discussion was had regarding the connection of 30th Street to Tutuila Road. Should it connect across from Marshall or should Marshall be realigned further to the south to avoid impacts to the lumber yard?
- It was noted that Concept S14 (later referred to as S14a) would still have some safety and operational concerns due to the closely spaced EB ramp terminal intersection and the unconventional layout. To mitigate this issue, a suggestion was made to modify S14 by adding an eastbound entering loop ramp onto I-84. This would eliminate the closely spaced intersections and safety concerns. The consultant team agreed to call this concept S14b and study it for the next meeting.

TAC Recommendations

- The TAC members were asked to provide their opinions regarding which concepts they would support on either side of the interchange.

- The conclusions were:
  - Concepts N10, N11b, N11c, S11a, and S14a do not have sufficient merit for moving forward in the evaluation process.
  - Concepts N1, N11a, and the new N13 should continue to be evaluated.
  - Concepts S11b and S14b should continue to be evaluated.
- For the next meeting, additional analysis is needed on the following:
  - ODOT ROW needs more specific information on some of the concepts in order to refine their calculations.
  - Study the cost of aligning 30th Street either across from Marshall or realigning Marshall to the south to avoid the lumber yard.
  - What would it take to bridge Tutuila Creek in S14a or S14b?

Next Meeting

- May 5, 2010 – Vert Auditorium

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

April 16, 2010 – I-84 / US 395 IAMP
(PAC Meeting #6)

TEAM MEMBERS PRESENT:
Matt Hughart, Kittelson & Associates, Inc.
Marc Butorac, Kittelson & Associates, Inc.
Nick Foster, Kittelson & Associates, Inc.
Evan Mackenzie, City of Pendleton
Patrick Knight, ODOT
Don Fine, ODOT
Tom Kuhlman, ODOT
Don Russell
Chuck Wood, Planning Commission
Loren Schmucker, Keystone RV
Bill Arrington
Dan Ball, Pendleton Bicycle Club
Rick Oliver, Church of God
Eric Fanciullo, Denny's

FROM: Matt Hughart

DATE: April 23, 2010

The sixth Public Advisory Committee (PAC) was held on April 16, 2010 in Pendleton. The purpose of the meeting was to review the evaluation of the refined concepts and determine preferred concepts. A number of owners and representatives of businesses in the interchange area were in attendance at this meeting.

In Attendance

In addition to the formal PAC members, the following individuals were in attendance: Eric Smith, Eric Florip, Betty Brunette, Marjorie Iburg, Dale Baker, Jim Swearingen, Denice Carlson, Dan Alanis, Gary Tellum, Michael Peden, Leslie Carnes, Leslie Vovell, Phyllis Mayberry

Introduction

- Matt Hughart provided an introduction of the meeting and its purpose and summarized events since the last meeting and new concepts that have been introduced.
    - Further refined N1, N10, N11a, N11b, N11c, S11b, and S14 based on committee feedback
    - Refined & evaluated S14 based on feedback from PAC

- Prepared double-line drawings and detailed evaluation of concepts recommended from the last meeting
- Refined Conceptual Construction Cost Estimates
- Verified Property Impacts
- Prepared Initial Conceptual Right of Way (ROW) Cost Estimates
- Calculated Conceptual Level Total Cost Estimates

North Side Concepts

- Matt summarized the N1, N10, N11a, N11b, and N11c concepts and presented the refined construction cost and right-of-way costs.
- Under concept N1, it was found that a northbound left-turn lane could be provided along SW 20th Street at Dorian, but that long-term vehicle queues would likely require it to be a near/mid-term provision.
- Matt provided operational evidence that adding a SW 23rd Street connection to concept N10 would not be feasible due to the requirements of triple left-turn lanes to feed this connection and the existing WB on-ramp.
- Discussion was had regarding the benefits of the N11a element that provided a better connection from SW Court Place to US 395.
- In the earlier TAC meeting, it was suggested that concepts N1 and N11a could be combined to help distribute traffic to/from the SW Court Place corridor better. The consultant team agreed to study this concept more thoroughly and named this concept N13.

South Side Concepts

- Matt conducted a review of the detailed evaluation performed by the consultant team of each of the south side concepts.
- A right-turn lane can be added to Concept S11b providing better access from Tutuila Road onto US 395 northbound.
- The 30th Street connection between US 395 and Tutuila Road is an element that should be included in the final recommendation regardless of what South Side concept is chosen to be included in the IAMP.
- It was noted that Concept S14 (later referred to as S14a) would still have some safety and operational concerns due to the closely spaced EB ramp terminal intersection and the unconventional layout. To mitigate this issue, a suggestion was made in the TAC meeting to modify S14 by adding an eastbound entering loop ramp onto I-84. This would eliminate the closely spaced intersections and safety concerns. The consultant team agreed to call this concept S14b and study it for the next meeting.
- It was suggested that a new concept (herein referred to as S15) be investigated that expands the existing US 395/Tutuila Road/Hailey Avenue intersection. This concept would add dual southbound left-turn lanes on US 395 and on Hailey Avenue. If it was

operationally feasible, there would be minimal impacts to the existing businesses along US 395. The consultant team agreed to study this concept for the next meeting.

PAC Additional Analysis

- Those in attendance were asked to provide their opinions on the concepts to date and state what additional analysis is needed to address their concerns.
    - Parallel south side roadways should be explored to limit traffic impacts on Tutuila Road.
    - 30th Street is a critical component. Study its impact on all of the south side concepts.
    - An expanded US 395/Tutuila Road/Hailey Avenue intersection would minimize business impacts. This should be looked at carefully.
    - On the north side, consider a braided ramp system that would provide a direct connection to SW Court Place.

Next Meeting

- May 5, 2010 – Vert Auditorium

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

May 5, 2010 – I-84 / US 395 IAMP
(TAC Meeting #7)

TEAM MEMBERS PRESENT:

Marc Butorac, Kittelson & Associates, Inc.
Nick Foster, Kittelson & Associates, Inc.
Evan Mackenzie, City of Pendleton
Patrick Knight, ODOT
Dave Warrick, ODOT
Pete Wells, City of Pendleton
Tim Simmons, City of Pendleton
Bob Patterson, City of Pendleton
Dave Byrd, City of Pendleton
Michael Peden, Premium Lube, LLC

FROM: Matt Hughart and Nick Foster

DATE: May 6, 2010

The seventh Technical Advisory Committee (TAC) was held on May 5, 2010 in Pendleton. The purpose of the meeting was to review the evaluation of the refined and new concepts and gather feedback on them.

Introduction

- Marc Butorac provided an introduction of the meeting and its purpose and summarized events since the last meeting and new concepts that have been introduced.

North Side Concepts

- Marc reviewed the team's analysis of the north side concepts still under consideration.
    - All concepts provide adequate capacity.
    - Concept N1 is the least expensive and could be the first phase of N13 without there being much throw-away construction.
- The variation of N11a proposed by the City would have similar operations as the original concept, though it may require slightly more right-of-way to achieve the proper spacing.

- A question was raised if under Concept N1 a connection could be made between the US 395/SW Emigrant Avenue intersection and SW Court Place to provide a direct connection to the overpass.
    - It may be too much for the signal to handle.
    - ODOT and FHWA may not approve of this due to the potential for driver confusion.

South Side Concepts

- Marc reviewed the team's analysis of the south side concepts still under consideration.
    - Concept S15 is the only concept that does not address the queue spillback problem over the 20-year horizon.
    - Concept S11b has the most significant land-use impacts.
    - Concept S14b is approximately $10 million more than S14a.
- A new concept, S15b, was introduced that was developed by the project team just before the meeting.
    - This concept begins with the original S15 intersection configurations in the first phase.
    - The second phase includes building the new SW Hailey Avenue connection proposed under the other south side concepts.
        - Some time after this, the section of SW Hailey Avenue between its current intersection of US 395 and the new connection to US 395 would need to be converted to one-way southbound traffic in order to enhance the capacity of the US 395/SW Tutuilla Creek Road intersection and prevent queues from spilling back on US 395 into the EB ramp terminals.
        - It is likely that this phase would be constructed at the same time as the first phase, but they could be separated if necessary
    - If necessary, a third phase could involve constructing the EB ramp configurations proposed under either Concept S14a or S14b.
- The TAC questioned whether the current realigned SW Hailey Avenue connection to US 395 would be better if it were straightened out through the church, instead of the current curvilinear alignment.
- The SW 30th Street and SW Perkins Avenue extensions were discussed in detail.
    - Enhanced east-west connectivity south of the interchange on the east side of US 395 may further alleviate the need to realign the EB off-ramps if it takes sufficient pressure off of the SB left-turn onto SW Tutuilla Creek Road.
- It appears that there may be sufficient space to widen SW Tutuilla Creek Road from US 395 to SW Hailey Avenue to provide two eastbound lanes and a left-turn lane into SW Hailey Avenue to provide access to the Denny's and Econo Lodge properties.
    - This section of the cemetery does not have any plots next to the roadway.

TAC Feedback

- The TAC members were asked to provide their opinions regarding which concepts they would support and which they might not support on either side of the interchange.
- The conclusions on the north side were:
  - Concepts N1 and N11a generally received the most support.
  - The City primarily supported N11a as a means to provide enhanced access to the SW Court Place area.
  - If N11a is moved forward, then ODOT would like to see the variation proposed by the City put in place.
- The conclusions on the south side were:
  - Concept S15b, with a phasing plan, generally received the most support.
    - The SW Hailey Avenue connection should be done at the same time as the US 395/SW Tutuilla Creek Road intersection widening.
    - The need for anything further should be based on a trigger and evaluated later once the SW Perkins Avenue (in final design right now) and/or SW 30th Street extensions are in place and their impacts to traffic patterns are known.
  - The SW 30th Street extension may be tough to construct due to topography issues.
  - Concept S11b is off the table.

Next Steps

- The next TAC meeting will be on June 17th at 9:00 a.m. in Pendleton. This meeting will cover:
  - Access management
  - Draft recommendations
- Comments on Tech Memo #7c are due by next Monday.
- There will also be a public open house on June 17th. It will start one hour before the Planning Commission meeting and may be held in the same room.
- City and ODOT management will meet in the next couple weeks to discuss the results of this and the PAC meeting.
- A joint Planning Commission/City Council update meeting may be held on the 10th of June
- A draft plan will be made available shortly after the 17th of June in order to provide for the 45-days public comment period to be complete in time for an adoption hearing to be held at the Planning Commission meeting on September 2nd.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

May 5, 2010 – I-84 / US 395 IAMP
(PAC Meeting #7)

TEAM MEMBERS PRESENT:
Marc Butorac, Kittelson & Associates, Inc.
Nick Foster, Kittelson & Associates, Inc.
Evan Mackenzie, City of Pendleton
Patrick Knight, ODOT
Dave Warrick, ODOT
Frank Reading, ODOT
Phillip Houk, City of Pendleton Mayor
Eric Fanciullo, Denny's
Dan Ceniga, City Council
Bill Arrington, D&B Supply
Chuck Wood, Planning Commission
Loren Schmucker, Keystone RV
Rick Oliver, First Church of God
Dan Ball, Pendleton Bicycle Club
Don Russell, Time to Wash
Justin Pearce, City Council

FROM: Matt Hughart and Nick Foster

DATE: May 6, 2010

The seventh Public Advisory Committee (PAC) was held on May 5, 2010 in Pendleton. The purpose of the meeting was to review the evaluation of the refined and new concepts and gather feedback on them. A number of owners and representatives of businesses in the interchange area were in attendance at this meeting.

In Attendance

In addition to the formal PAC members, the following individuals were in attendance: Leslie Carnes, Tracy Bosen, Barbara Deggins, Gary Tellum, Jim Swearingen, Denice Carlson, Toby Carlson, Dan Alanis, CF Dudek, Jason Kelly, Joe Kelly, Eric Smith, Kris Thieme, Brian Schmick, Wayne Swearengin, and Doug Hattenhauer.

Introduction

- Marc Butorac provided an introduction of the meeting and its purpose and summarized events since the last meeting and new concepts that have been introduced.

North Side Concepts

- Marc reviewed the team's analysis of the north side concepts still under consideration.
  - All concepts provide adequate capacity.
  - Concept N1 is the least expensive and could be the first phase of N13 without there being much throw-away construction.
- The variation of N11a proposed by the City would have similar operations as the original concept, though it may require slightly more right-of-way to achieve the proper spacing.

South Side Concepts

- Marc reviewed the team's analysis of the south side concepts still under consideration.
  - Concept S15 is the only concept that does not address the queue spillback problem over the 20-year horizon.
  - Concept S11b has the most significant land-use impacts.
  - Concept S14b is approximately $10 million more than S14a.
- A new concept, S15b, was introduced that was developed by the project team just before the meeting.
  - This concept begins with the original S15 intersection configurations in the first phase.
  - The second phase includes building the new SW Hailey Avenue connection proposed under the other south side concepts.
    - Some time after this, the section of SW Hailey Avenue between its current intersection of US 395 and the new connection to US 395 would need to be converted to one-way southbound traffic in order to enhance the capacity of the US 395/SW Tutuilla Creek Road intersection and prevent queues from spilling back on US 395 into the EB ramp terminals.
    - It is likely that this phase would be constructed at the same time as the first phase, but they could be separated if necessary
  - If necessary, a third phase could involve constructing the EB ramp configurations proposed under either Concept S14a or S14b.
- The improvements outlined in the City's TSP will help alleviate congestion at the interchange, but will not solve it alone.
- The medians shown in the example graphics are only a possibility and that level of detail has not been analyzed yet.
- If access restrictions become so severe that a business cannot function, then it would need to be purchased and that would add to the cost.
- A question was raised if extending the EB off-ramp to provide additional deceleration length would buy more time before a solution is needed
- Aligning SW 30th Street into the Perkins bridge may be more feasible than the alignment shown in the presentation due to topography.

- It appears that there may be sufficient space to widen SW Tutuilla Creek Road from US 395 to SW Hailey Avenue to provide two eastbound lanes and a left-turn lane into SW Hailey Avenue to provide access to the Denny's and Econo Lodge properties.
    - This section of the cemetery does not have any plots next to the roadway.

PAC Feedback

- The PAC members were asked to provide their opinions regarding which concepts they would support and which they might not support on either side of the interchange.
- The conclusions on the north side were:
    - Concept N1 generally received the most support as it appears to be the least circuitous and the least impactful to existing businesses.
- The conclusions on the south side were:
    - Concept S15b, with a phasing plan, generally received the most support.
        - The phasing should be need-based on triggers and continuously evaluated to see how traffic patterns are influenced by other roadway connections.
    - The SW 30th Street extension may be tough to construct due to topography issues and connecting it to Perkins may be the best option.
    - Concept S11b is off the table.
    - The SW Hailey Avenue connection to US 395 could go through the church.
        - The church needs to expand in the near future.
    - Concern was expressed for what S15 or S15b might do to Denny's parking.

Additional Feedback

- The other attendees of the meeting were asked to provide their feedback as well. Their thoughts included:
    - Concern over restricting Burger King access to right-in/right-out only under S15.
    - A question was raised if extending the EB off-ramp to provide additional deceleration length would buy more time before a solution is needed.
    - Concern over restricting the 76 gas station to right-in/right-out under any scenario with the realignment of SW Hailey Avenue.
    - General support for the phasing of S15b.
        - Phasing it will allow the project to match with the incremental growth that is seen in small towns like Pendleton.
    - A question was raised if it was possible to leave the existing SW Hailey Avenue alignment as two-way and to encourage traffic to use the new connection as much as possible (e.g. stop-control the northbound through movement where the new connection ties into the existing roadway so as to encourage northbound traffic to turn right to the new intersection).

Next Steps

- The next PAC meeting will be on June 17th at 1:30 p.m. in Pendleton. This meeting will cover:
    - Access management
    - Draft recommendations
- Comments on Tech Memo #7c are due by next Monday.
- There will also be a public open house on June 17th. It will start one hour before the Planning Commission meeting and may be held in the same room.
- City and ODOT management will meet in the next couple weeks to discuss the results of this and the TAC meeting.
- A joint Planning Commission/City Council update meeting may be held on the 10th of June
- A draft plan will be made available shortly after the 17th of June in order to provide for the 45-days public comment period to be complete in time for an adoption hearing to be held at the Planning Commission meeting on September 2nd.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

July 22, 2010 – I-84 / US 395 IAMP
(TAC Meeting #8)

TEAM MEMBERS PRESENT:

Matt Hughart, Kittelson & Associates, Inc.
Marc Butorac, Kittelson & Associates, Inc.
Nick Foster, Kittelson & Associates, Inc.
Evan Mackenzie, City of Pendleton
Patrick Knight, ODOT
Don Fine, ODOT
Dave Warrick, ODOT
Pete Wells, City of Pendleton
Tim Simmons, City of Pendleton

FROM: Matt Hughart and Nick Foster

DATE: July 25, 2010

The eighth Technical Advisory Committee (TAC) was held on July 22, 2010 in Pendleton. The purpose of the meeting was to review the draft IAMP and implementation plan and determine if the plan was ready to be forwarded to the City of Pendleton Planning Commission.

Introduction

- Matt Hughart provided an introduction of the meeting and its purpose, briefly recapped the history of the project and the concept development process, and summarized events since the last meeting.

Transportation Improvement Plan

- Matt reviewed the recommended transportation improvement plan
- Concept N1 is the recommended first phase of improvements
    - Issues on the north side are the most pressing today
    - Will require an alternate mobility standard and access spacing deviations
- Concept S15a is the recommended second phase of improvements
- Concept S15b is the recommended third phase of improvements

  - Would be phased improvements on the south side, since S15b (Phase 3) builds off the work in S15a (Phase 2)
  - Will require access spacing deviations
  - City is beginning to look into purchasing vacant building and the church that would be impacted by Phase 3
- The total cost of the transportation improvement plan is approximately $19 million based on revised cost estimates
- The City and ODOT are still determining how costs will be shared
- SW 30th Street and the north-south connection recommended in W1 will be recommended additions to the City's TSP
  - Language will be strengthened in Section 7 regarding these components
- The improvements that were going to be a part of the Vision Plan were briefly discussed
  - They are no longer included as part of the recommended improvement plan, based on direction from the City and ODOT

Access Management

- The access management component of each phase of the transportation improvement plan was reviewed
- Access management regulations are dynamic and could loosen up in future years, which would relax the access restrictions in this IAMP
- Access #17 on the north side needs to be reexamined as it may not be feasible in its proposed location due to topography

Implementation

- The plan, adoption, implementation, and monitoring elements were discussed
- The City has not decided yet if it is going to pursue a special SDC
  - They will only adopt the framework that would allow for one right now
- Implementation triggers are being left open to some interpretation to preserve flexibility
- The overlay district may extend further down Tutuilla Road
- An additional local gas tax may be a consideration further down the road when the City is allowed to implement one again
- DLCD approval and the cost-sharing determination are the two pieces left to be completed prior to the plan being able to go to the City of Pendleton Planning Commission

Implementation

- The TAC recommended that the plan be moved forward as presented with the following modifications:

- Language will be added to Section 7 of the IAMP regarding the SW 30th Street extension
- Access #17 is revised, if necessary

Next Steps

- A draft plan will be made available shortly in order to provide for the 45-days public comment period to be complete in time for an adoption hearing to be held at the Planning Commission meeting on September 23rd or October 6th.

Feedback on the Overall Process

- Good that we gave the PAC feedback on its comments
- It was a transparent process
- It was a good process

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

MEETING SUMMARY

July 22, 2010 – I-84 / US 395 IAMP
(PAC Meeting #8)

TEAM MEMBERS PRESENT:

Matt Hughart, Kittelson & Associates, Inc.
Marc Butorac, Kittelson & Associates, Inc.
Nick Foster, Kittelson & Associates, Inc.
Dan Ball
Vern Wilcox
Rick Oliver
Tim Simons
Manny Patel
Jitgranda Patel
Eric Fancuillo
Diana LaSarge
Bills Clemons
Bill Arrington
Bob Ehman
Don Russell
Jim Swearingen
Denice Carlson
Toby Carlson
Marjorie Iburg

FROM: Matt Hughart and Nick Foster

DATE: July 26, 2010

The eighth Public Advisory Committee (PAC) was held on July 22, 2010 in Pendleton. The purpose of the meeting was to review the draft IAMP and implementation plan and determine if the plan was ready to be forwarded to the City of Pendleton Planning Commission.

Introduction

- Matt Hughart provided an introduction of the meeting and its purpose, briefly recapped the history of the project and the concept development process, and summarized events since the last meeting.

Transportation Improvement Plan

- Matt reviewed the recommended transportation improvement plan

- Concept N1 is the recommended first phase of improvements
    - Issues on the north side are the most pressing today
    - Will require an alternate mobility standard and access spacing deviations
- Concept S15a is the recommended second phase of improvements
- Concept S15b is the recommended third phase of improvements
    - Would be phased improvements on the south side, since S15b (Phase 3) builds off the work in S15a (Phase 2)
    - Will require access spacing deviations
    - City is beginning to look into purchasing vacant building and the church that would be impacted by Phase 3
- The total cost of the transportation improvement plan is approximately $19 million based on revised cost estimates
    - The tech memos provide an estimate of the number of properties impacted
    - Impacts to the Olney cemetery are in public right-of-way and shouldn't impact grave sites
- The City and ODOT are still determining how costs will be shared
- SW 30th Street and the north-south connection recommended in W1 will be recommended additions to the City's TSP

Access Management

- The access management component of each phase of the transportation improvement plan was reviewed
- The long-term access control on the south side is based on properties along US 395 redeveloping
- Changes to access management can occur as situations arise

Implementation

- The plan, adoption, implementation, and monitoring elements were discussed
- DLCD approval and the cost-sharing determination are the two pieces left to be completed prior to the plan being able to go to the City of Pendleton Planning Commission
- It is probably 4-5 years before Phase 1 comes close to being funded

Recommendations

- The TAC recommendations were explained
- Members of the general public in attendance were asked to provide comment
    - The only comments were written comments from Doug Hattenhauer

- Evan MacKenzie provided an explanation of the adoption process
- The five PAC members in attendance voted to forward the plan to Planning Commission with the following modifications:
    - SW 30th Street extension and Concept W1 north-south connection be discussed as additions to the City's TSP
    - The SW Perkins Street extension that is currently being designed is emphasized
    - Phases 2 and 3 are tied together as possible to minimize disruptions to businesses along US 395
    - The median on US 395 is delayed/avoided as possible
    - City Council should review potential impacts of access modifications to Dean's Market and Bank of the West to determine if compensation may be warranted

Next Steps

- A draft plan will be made available shortly in order to provide for the 45-days public comment period to be complete in time for an adoption hearing to be held at the Planning Commission meeting on September 23rd or October 6th.

Appendix B

Technical Memorandum #1 – Definition and Background

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

TECHNICAL MEMORANDUM #1

I-84 / US 395 Interchange Area Management Plan

Definition & Background

Date: June 23, 2009

To: Patrick Knight, ODOT Region 5

From: Matt Hughart, AICP; Nick Foster; and Marc Butorac, PE

cc: Don Fine, ODOT Region 5
Evan MacKenzie, City of Pendleton

The purpose of this technical memorandum is to define the intent of the Interchange Area Management Plan (IAMP), define the interchange function, the project goals and objectives, and the proposed study area.

DRAFT

PURPOSE AND INTENT

The IAMP is a strategic transportation plan that is designed to protect the long-term function of the Interstate 84 (I-84) / US 395 interchange by preserving the capacity of the interchange while providing safe and efficient operations between connecting roadways. The IAMP will identify land use management strategies, short-term and long-term transportation improvements, access management goals, and strategies to fund identified improvements.

The intent is that the IAMP planning efforts will result in policies, ordinances, and other provisions that will be adopted into the City of Pendleton's Transportation System Plan (TSP) and Comprehensive Plan. The IAMP will be adopted by the Oregon Transportation Commission (OTC) as an amendment to the Oregon Highway Plan.

PROBLEM STATEMENT

Because of topographic constraints and the construction of I-84, there are only two existing opportunities for access between the areas of Pendleton to the north and south of I-84: US 395 and OR 11. The resulting level of cross-town traffic, especially in the vicinity of the I-84 interchange with US-395, makes it very difficult for motorists exiting the freeway to access downtown, and subsequently, both of the ramp termini operate over capacity. Queues on the eastbound off-ramp are forecast to back onto the mainline of I-84 by the year 2025. Traffic operations within the

vicinity of the interchange are also poor. In particular the operations of the Tutuilla Creek/Hailey and 20th Street intersections of US 395 and the 20th Street/Court Place intersection will all need to be improved. There are several direct accesses from commercial properties onto US 395 south of the interchange. The Oregon Department of Transportation (ODOT) initiated the IAMP process to ensure that growth and development will occur in the interchange study area without compromising the operation of the interchange. The IAMP will identify long-term transportation improvements, land-use strategies, and implementation policies. The IAMP will satisfy the requirements of Oregon Administrative Rule (OAR) 734-051 and will be developed according to the ODOT IAMP guidelines.

INTERCHANGE FUNCTION

The I-84 / US 395 interchange is an urban interchange that connects US 395, a statewide highway and freight route, with I-84. It is one of two interchanges in Pendleton. US 395 serves as a major connection between the north and south sides of the Pendleton community. US 395 is a five-lane facility through the I-84 interchange area and then transitions into a couplet facility north of the freeway comprised of SW Frazer and SW Emigrant Avenues. This couplet provides access to downtown Pendleton. Much of the traffic flow in this area is focused on the SW Emigrant Ave/SW 20th St intersection, with traffic coming to and from the US 30 couplet of SW Court Avenue and SW Dorion Avenue and US 30 (Westgate Avenue). These roads also provide access to downtown, as well as to the Eastern Oregon Correctional Facility, Eastern Oregon Regional Airport at Pendleton, and other industrial and residential areas. The couplet also connects to OR 11, which travels north into Milton-Freewater, Oregon and Walla Walla, WA. To the south, US 395 serves commercial uses and connections to residential areas before continuing south through the communities of John Day and Burns.

The land uses within the immediate vicinity of the interchange are primarily commercial. Residential areas are located off local streets connecting to US 395 and along the Frazer-Emigrant couplet.

GOALS AND OBJECTIVES

The IAMP process is intended to protect the function of the interchange for the next 20 years while accounting for changes in land use and traffic patterns. Potential capacity for additional residential development south of the interchange will impact the traffic patterns over this period. As stated in Policy 3C of the 1999 Oregon Highway Plan, "it is the policy of the State of Oregon to plan for and manage grade-separated interchange areas to ensure safe and efficient operation between connecting roadways." From this definition, the goals and objectives of the I-84 / US 395 IAMP are to:

- Protect the function and operation of the existing local street network within the IAMP study area.
- Ensure changes to the planned land use are consistent with protecting the long-term function of the interchange and the local street system.

- Ensure that the interchange will function to support future local economic development.
- Identify the existing and potential land use designations, intensities, conditions, and actions that could have a *favorable* effect on the facility, or an *adverse* effect on the facility.
- Manage the allowed land uses within the vicinity of the interchange to provide for future economic growth over the next 20 years.
- Identify and prioritize transportation improvements needed to maintain acceptable traffic operations at the proposed interchange while providing safe access to adjacent land uses.
- Apply access management techniques and develop a planned local-roadway infrastructure.
- Collaborate throughout the planning process with design professionals, jurisdictional representatives, developers, and local property owners.
- Comply with the intent of Statewide Planning Goal 1: Public Involvement, 2: Land Use Planning, 5: Natural Resources, 6: Air, Water and Land Resources Quality, 7: Areas Subject to Natural hazards, 8: Recreation Needs, 9: Economic Development, 12: Transportation, and 14: Urban Growth Boundaries.
- Develop implementation policies to be adopted into the City and County comprehensive plans, transportation system plans, interchange access standards, and zoning ordinances, as appropriate.

Evaluation Criteria

Based on the above objectives, the following evaluation criteria were assembled to ensure that each concept would be evaluated for consistency with the overall intent of the community and the project. The five evaluation criteria are as outlined below:

- Transportation Operations: This category consists of those criteria that assess the ability for vehicles to travel through and within the study area. Special considerations within this category include safety, local connectivity and mobility, including freight mobility.
- Land Use: This category consists of those criteria that assess right-of-way impacts, consistency with adopted land use and economic development plans, transportation capacity impacts of changes in land use intensity, impacts to utilities, and impacts to existing and proposed developments.
- Economic Development: This category consists of those criteria that assess the potential for near-term growth (1-5 years), mid-term growth (5-15 years), and long-term growth (15-25 years)
- Cost: This category consists of those criteria that assess the practicality of a design concept from a construction cost and feasibility perspective.
- Environmental, Social, and Equity factors: This category consists of those criteria that assess the degree to which an alternative is compatible with the natural and built

environment including environmental impacts (i.e., storm water drainage and hazardous waste) and socio-economic impacts (i.e., stakeholders' needs).

- Accessibility: This category consists of those criteria that assess the ability to access properties and businesses within the study area to/from the regional infrastructure network including the balance between local access and roadway function, future access for undeveloped properties, and adherence to the access spacing standards.

INTERCHANGE MANAGEMENT STUDY AREA (IMSA)

To provide a comprehensive study and to achieve effective results, the IMSA needs to include developable and re-developable properties and major roadways that would significantly affect the interchange function over the next 20 years. At a minimum, the IMSA should include properties within ½ mile from the existing I-84 interchange as defined by the IAMP Guidelines. The study area should also take into account facilities and properties that will impact the operations of the interchange and any natural or cultural resources in the vicinity of the interchange.

A draft Interchange Management Study Area (IMSA) map is shown in Figure 1. Figure 1 identifies key features and boundaries of the area to be included in the IAMP. As shown on the IMSA map, two study boundaries are identified: the IAMP Operations and Access Study area and the Land Use Study Area. The following describes the criteria used to create the IMSA map.

Operations and Access Study Area

The Operations and Access Study Area includes all access points and intersections within ¼ mile from the existing I-84 interchange and encompass key intersections that have potential to affect traffic operations in the interchange area over the planning period. This study boundary identifies the area for which operational analysis will be completed and the area that will be considered for the Access Management Plan. The proposed study intersections include:

- I-84 / US 395 Eastbound Ramp Terminal
- I-84 / US 395 Westbound Ramp Terminal
- SW Dorian Avenue / SW 20th Street
- SW Court Avenue / SW 20th Street
- SW Emigrant Avenue / SW 17th Street
- SW Frazer Avenue / SW 17th Street
- SW Emigrant Avenue / SW 18th Street
- SW Emigrant Avenue / SW 19th Street
- SW Frazer Avenue / SW 19th Street
- SW Emigrant Avenue / SW 20th Street

- Southgate Avenue / SW Hailey Avenue
- Southgate Avenue / SW 30th Street

Land Use Study Area

The Land Use Study Area includes all properties located roughly within a ½ mile of the interchange. The Land Use Study Area extends beyond a ½ mile in places to incorporate developable and re-developable properties that are expected to significantly affect the interchange function over the next 20 years. Properties identified with potential to affect the interchange include those that are expected to utilize the interchange as their primary connection to I-84 or those that may be necessary to examine to improve local circulation.

TABLE OF CONTENTS

The IAMP will be documented in several technical memorandums throughout the course of the project. The draft and final IAMP document will include a compilation of all material presented in the following order (subject to change):

1) Definition and Background
   a. IAMP Purpose and Background Purpose and Intent
   b. Problem Statement
   c. Interchange Function
   d. Goals and Objectives
   e. IAMP Study Area Map
2) Review of Adopted Plans and Regulations
3) Existing Conditions Analysis
   a. Land Use
   b. Transportation Facilities and Traffic Operations
   c. Natural and Cultural Resources
4) Future Conditions Analysis
   a. Land Use
   b. Transportation Facilities and Traffic Operations
   c. Natural and Cultural Resources
5) Geometric Alternatives Development and Analysis
6) Interchange Area Management Plan
   a. Selected Alternative and Findings
   b. Access Management Plan

7) Adoption and Implementation Tools
8) IAMP Monitoring and Updates

Appendix C

Technical Memorandum #2 – Review of Adopted Plans and Regulations

Angelo planning group

LAND USE PLANNING • TRANSPORTATION PLANNING • PROJECT MANAGEMENT

Memorandum

TO: Project Management Team

FROM: Shayna Rehberg, Angelo Planning Group

DATE: July 8, 2009

CC: Frank Angelo, Angelo Planning Group
Matt Hugart, Nick Foster, Kittelson & Associates, Inc.

FILE #:

RE: I-84/US 395 Interchange Area Management Plan
Technical Memo #2: Review of Adopted Plans and Regulations

I. Introduction

This memorandum provides an overview of the regulations pertaining to the land use and transportation systems in the vicinity of the I-84/US 395 Interchange in the City of Pendleton. The following sections define the study area and summarize the plans, policies, and other documentation and data that apply to the study area. The regulatory context involves state and local levels of governance that directly impact transportation planning and project proposals associated with the I-84/US 395 Interchange Area Management Plan (IAMP). This memorandum provides an overview of the regulatory context, with an emphasis on any potential issues of compliance between existing regulations and the kind of project alternatives and management strategies that may be developed during the IAMP process.

As stated in the project's scope of work, the purpose of the I-84/US 395 IAMP is:

> *"(T)o ensure growth and development will occur in the interchange study area without compromising the operations of the interchange… There is state and local interest in controlling high density interchange-induced development that would continue to compromise the safety and function of the interchange for all users."*

The impetus for developing an IAMP for this interchange is the inability to meet traffic mobility standards and make safe and easy turning movements given the design of the existing facility. All of the interchange ramp terminals currently fail to meet the Oregon Highway Plan (OHP) mobility standards, and the intersection of US 395 and Tutuilla Creek/Hailey is projected to fail by the year 2025. Left-turn movement from the eastbound off-ramp terminal is delayed by high traffic volumes on US 395. The conditions at this intersection have met warrants that led to signalization and are projected to lead to queues on the ramp that back onto I-84. High volumes, geometry, and signal timing make turning and through movements at the US 395 (Emigrant) and 20th Street intersection difficult. The interchange area and city overall face the challenge of hill-

and-canyon topography and limited opportunities to cross over or under I-84 to access the north and south parts of the city. Generally, travelers experience difficulty in accessing downtown from the interchange off-ramps.

In striving to protect the function of the interchange, maximize its capacity, and provide safe and efficient operations between connecting roadways, the IAMP's project objectives include evaluation of surrounding land use, traffic operations, connectivity, right-of-way, and access. The regulatory overview presented in this memorandum has been prepared with these elements in mind.

While it is not yet known what modifications to the I-84/US 395 interchange will be necessary within the 20-year planning horizon, the IAMP process will identify any necessary improvements, their timing and potential funding, thereby ensuring that this interchange continues to serve regional and local transportation needs. The I-84/US 395 IAMP must be developed in accordance with Oregon Administrative Rule 734, Division 51 (Highway Approaches, Access Control, Spacing Standards and Medians) and the policies of the Oregon Highway Plan (OHP). Proposed improvements or alterations to the interchange or other highway facilities also must be in accordance with criteria in the Oregon Highway Design Manual to the greatest extent possible as well as federal policy relating to Interstate access.

It is anticipated that elements of the I-84/US 395 IAMP will be adopted by the City of Pendleton before ODOT presents the completed IAMP to the Oregon Transportation Commission (OTC) for review and approval.[1] Elements of IAMPs, such as policies addressing interchange planning and access management plans, are adopted into local plans and ordinances and the document itself is adopted by the OTC as a Facility Plan of the OHP. The IAMP planning process considers how existing and planned land uses are likely to impact the future function of the subject interchange. In addition to transportation improvements, recommendations in IAMPs can include land use restrictions. Restrictions on what uses are allowed in the vicinity of the interchange, for example, could be adopted as part of an IAMP to ensure that future development will not generate traffic that will exceed the capacity of the facility.

II. Study Area

The IAMP study area or Interchange Management Study Area (IMSA) is discussed in detail in Memorandum #1. While transportation modeling will account for traffic outside of the IMSA, the IMSA focuses on an area generally one-half mile beyond the interchange and land uses that will most directly and significantly impact US 395 and the interchange.

On the north side, the study area is bounded by the railroad. The western border north of I-84 is formed by the Umatilla River and City property across the river, which is planned to be accessed by a new road. The western study area border south of I-84 follows the edge of undeveloped land (although sloped) and then properties with either direct access to US 395 or an approach

[1] If major improvements to the interchange are developed during the IAMP process, they will need to be adopted into the local transportation system plan(s) before becoming eligible for State Transportation Improvement Program funding.

road to the highway. The border extends south to include large commercial and institutional uses and then runs to the east along lot lines, the edge of Olney Cemetery, and far enough east to capture roads planned for in the City's TSP. The eastern border north of I-84 runs along the freeway then US 395 to SW Frazer and then to the toe of the bluff south of Frazer in order to include properties between the road and the bluff. The IMSA is shown in Figure 1.

Figure 1. Interchange Management Study Area (IMSA)

[insert IMSA map here]

Source: Kittelson & Associates

The study area falls entirely within the City of Pendleton city limits and Urban Growth Boundary (UGB). Zoning in the study area is comprised of C-1 (Central Commercial), C-2 (Tourist Commercial), C-3 (Service Commercial), R-2 (Medium Density Residential), and M-1 (Light

LEGEND

- MINIMUM 1,320-FOOT IAMP LIMITS
- IAMP OPERATION/ACCESS STUDY AREA
- INTERCHANGE MANAGEMENT STUDY AREA (IMSA)

INTERCHANGE MANAGEMENT STUDY AREA (IMSA)
PENDLETON, OREGON

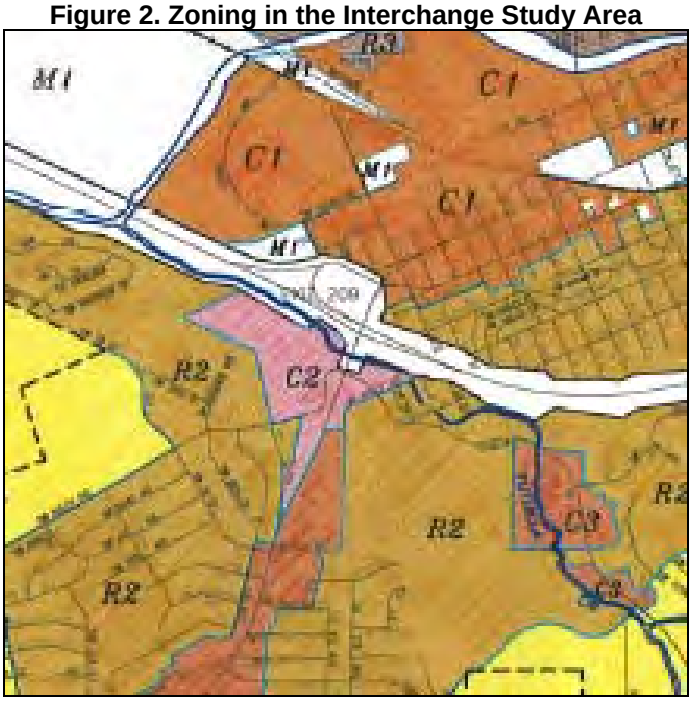
FIGURE **1-1**

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

H:\profile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_fig-01.dwg Sep 01, 2009 - 11:19am - jhenriksen Layout Tab: Fig_1-1

Industrial) (see Figure 2). Zoning is discussed further in this memorandum in a section addressing the City's Development Code.

Figure 2. Zoning in the Interchange Study Area



Source: City of Pendleton

III. Regulatory Framework

Documents Reviewed

This memorandum summarizes relevant federal, state, and local regulatory documents, long-range plans, and adopted policies and identifies how they influence transportation planning in the vicinity of the interchange and possible future interchange improvements. The following transportation and land use plans were reviewed for policies and regulations applicable to the I-84/US 395 Interchange.

Federal

- CFR 23 Subchapter G – Section 625 (Interstate System Access) – p. 5

State/ODOT

- Statewide Planning Goal 1 (Public Involvement), Goal 2 (Land Use Planning), Goal 5 (Natural Resources, Scenic and Historic Areas, and Open Spaces), Goal 6 (Air, Water and Land Resources Quality), Goal 7 (Areas Subject to Natural Hazards), Goal 8 (Recreational Needs), Goal 9 (Economic Development), Goal 10 (Housing), Goal 12 (Transportation) and Transportation Planning Rule (TPR) Oregon Administrative Rule 660 Division 12, and Goal 14 (Urbanization) – p. 8

- Oregon Transportation Plan (1992) – p. 13
- Oregon Highway Plan (1999) – p. 14
- Oregon Administrative Rule 660, Division 12 (Transportation Planning Rule) – p. 18
- Oregon Administrative Rule 734, Division 51 (Access Management Rule) – p. 18
- Highway Design Manual – p. 21

Local

- City of Pendleton Comprehensive Plan (1983) – p. 21
- City of Pendleton Development Code (Last amended 2009) – p. 22
- City of Pendleton Transportation System Plan (Updated 2007) – p. 24
- City of Pendleton System Development Charges – p. 27
- City of Pendleton Capital Improvement Program (CIP) – p. 27
- Pendleton Downtown Resource Team Report (2006) – p. 28

FEDERAL

CFR 23 Subchapter G – Section 625 (Interstate System Access)

This section of the Code of Federal Regulations (CFR) specifically addresses changes to Interstate interchanges and access. Compliance with these regulations ensure that all reasonable alternatives to changes to Interstate access are evaluated, and that changes to access are well-studied, maintain or improve the safety and function of the Interstate, are consistent with regional and local land use and transportation plans, and demonstrate coordination between local, state, and federal agencies and required planning and environmental procedures.

1. *ADDITIONAL ACCESS TO THE INTERSTATE SYSTEM*
   a. *Policy. It is in the national interest to maintain the Interstate System to provide the highest level of service in terms of safety and mobility. Adequate control of access is critical to providing such service. Therefore, new or revised access points to the existing Interstate System should meet the following requirements:*

      (1) The existing interchanges and/or local roads and streets in the corridor can neither provide the necessary access nor be improved to satisfactorily accommodate the design-year traffic demands while at the same time providing the access intended by the proposal.

      (2) All reasonable alternatives for design options, location and transportation system management type improvements (such as ramp metering, mass transit, and HOV facilities) have been assessed and provided for if currently justified, or provisions are included for accommodating such facilities if a future need is identified.

      (3) The proposed access point does not have a significant adverse impact on the safety and operation of the Interstate facility based on an analysis of current and future traffic. The operational analysis for existing conditions shall, particularly in urbanized areas, include an analysis of sections of Interstate to and including

at least the first adjacent existing or proposed interchange on either side. Crossroads and other roads and streets shall be included in the analysis to the extent necessary to assure their ability to collect and distribute traffic to and from the interchange with new or revised access points.

(4) The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" for special purpose access for transit vehicles, for HOV's, or into park and ride lots may be considered on a case-by- case basis. The proposed access will be designed to meet or exceed current standards for Federal- aid projects on the Interstate System.

(5) The proposal considers and is consistent with local and regional land use and transportation plans. Prior to final approval, all requests for new or revised access must be consistent with the metropolitan and/or statewide transportation plan, as appropriate, the applicable provisions of 23 CFR part 450 and the transportation conformity requirements of 40 CFR parts 51 and 93.

(6) In areas where the potential exists for future multiple interchange additions, all requests for new or revised access are supported by a comprehensive Interstate network study with recommendations that address all proposed and desired access within the context of a long-term plan.

(7) The request for a new or revised access generated by new or expanded development demonstrates appropriate coordination between the development and related or otherwise required transportation system improvements.

(8) The request for new or revised access contains information relative to the planning requirements and the status of the environmental processing of the proposal.

b. Application

(1) This policy is applicable to new or revised access points to existing Interstate facilities regardless of the funding of the original construction or regardless of the funding for the new access points. This includes routes incorporated into the Interstate System under the provisions of 23 U.S.C. 139(a) or other legislation. Routes approved as a future part of the Interstate system under 23 U.S.C. 139(b) represent a special case because they are not yet a part of the Interstate system and the policy contained herein does not apply. However, since the intention to add the route to the Interstate system has been formalized by agreement, any proposed access points, regardless of funding, must be coordinated with the FHWA Division Office.

(3) For the purpose of applying this policy, each entrance or exit point, including "locked gate" access, to the mainline is considered to be an access point. For example, a diamond interchange configuration has four access points. Generally,

revised access is considered to be a change in the interchange configuration even though the number of actual points of access may not change. For example, replacing one of the direct ramps of a diamond interchange with a loop, or changing a cloverleaf interchange into a fully directional interchange would be considered revised access for the purpose of applying this policy.

(4) All requests for new or revised access points on completed Interstate highways must be closely coordinated with the planning and environmental processes. The FHWA approval constitutes a Federal action, and as such, requires that the National Environmental Policy Act (NEPA) procedures are followed. The NEPA procedures will be accomplished as part of the normal project development process and as a condition of the access approval. This means the final approval of access cannot precede the completion of the NEPA process. To offer maximum flexibility, however, any proposed access points can be submitted in accordance with the delegation of authority for a determination of engineering and operational acceptability prior to completion of the NEPA process. In this manner, the State highway agency can determine if a proposal is acceptable for inclusion as an alternative in the environmental process. This policy in no way alters the current NEPA implementing procedures as contained in 23 CFR part 771.

c. *Implementation. The FHWA Division Office will ensure that all requests for new or revised access submitted by the State highway agency for FHWA consideration contain sufficient information to allow the FHWA to independently evaluate the request and ensure that all pertinent factors and alternatives have been appropriately considered. The extent and format of the required justification and documentation should be developed jointly by the State highway agency and the FHWA to accommodate the operations of both agencies, and should also be consistent with the complexity and expected impact of the proposals. For example, information in support of isolated rural interchanges may not need to be as extensive as for a complex or potentially controversial interchange in an urban area. No specific documentation format or content is prescribed by this policy.*

3. *<u>ADDITIONAL ACCESS POINTS TO EXISTING FULL ACCESS-CONTROLLED INTERCHANGE RAMPS</u>*
   a. *Local connections within interchanges -- especially on freeway-to-freeway ramps -- violate driver expectancy and introduce additional decision points in an area where the information processing task is already complex. They also create a high potential for traffic queuing back onto the through freeway lanes. In addition, such ramps seldom provide for full directional service, thus creating the possibility of wrong-way movements by drivers who wish to return or continue in the same direction.*
   b. *It is poor public policy as well as poor engineering practice to allow additional access to existing freeway ramps. In many cases, the additional access ramps would provide traffic service to individual developments. Interchanges on the Interstate System and normally on other freeways are designed to provide access to local areas -- not to individual developments or parcels. Ramps to and from freeways should*

connect to local area road networks which in turn perform the function of land service to individual generators.

STATE OF OREGON

Statewide Planning Goals

Statewide Planning Goal 1: Citizen Involvement

Goal 1, Citizen Involvement, requires jurisdictions that prepare, adopt, and maintain comprehensive plans to provide the "opportunity for citizens to be involved in all phases of the planning process." According to the goal, the planning process includes the preparation and adoption of plans and implementation measures, and minor and major amendments to adopted plans. Technical information associated with the planning process must be available to citizens in an understandable form, and accessible ways of feedback must also be available.

Developing and adopting the I-84/US 395 IAMP will involve meetings of a Technical Advisory Committee and Project Advisory Committee, public workshops, and public hearings. These public involvement activities will be guided by and assessed according to Goal 1.

Statewide Planning Goal 2: Land Use Planning

Goal 2, Land Use Planning, requires that a planning process and policy framework be established as a basis for all decisions and actions relating to land use. Goal 2 is important for four reasons. First, Goal 2 requires planning coordination between those local governments and state agencies "which have programs, land ownerships, or responsibilities within the area included in the plan." Goal 2 requires that ODOT coordinate with the City of Pendleton, which has planning authority over the area around the interchange, in developing and implementing the IAMP. Coordination is particularly important because land use decisions in the vicinity of the interchange could affect its future use and operation.

A second important element of Goal 2 is its provision that land use decisions and actions be supported by an "adequate factual base." In essence, it requires that a reasonable person would determine that findings prepared to demonstrate a land use action's compliance with applicable review standards are adequate. Findings for adopting the IAMP or elements of the IAMP will be provided in a staff report prepared by City staff, which will be guided by this element of Goal 2.[2]

Third, Goal 2 requires that city, county, and state and federal agency and special district plans and actions related to land use be "consistent with the comprehensive plans of cities and counties and regional plans adopted under ORS Chapter 268." This provision is important because the IAMP – or elements of the IAMP – developed for the I-84/US 395 Interchange will need to be

[2] Preparing a staff report is not in the scope of work for the consultant team, per Work Order Contract #7, W4 23482, certified April 20, 2009.

adopted by the City as an element of its Transportation System Plan (TSP), a part of the City's Comprehensive Plan.

Last, Goal 2 also provides a framework and standards for taking an "exception" to one or more statewide planning goals. The Goal 2 exception standards apply when a local government or property owner proposes to use property in a manner otherwise prohibited by one or more statewide planning goals. Resource land or other land use designations in the interchange vicinity that may require a goal exception given potential IAMP implementation measures are not present or identified in the interchange vicinity at this time.

Statewide Planning Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces

The purpose of Goal 5, Natural Resources, Scenic and Historic Areas, and Open Spaces, is to "protect natural resources and conserve scenic and historic areas and open spaces." This goal requires local governments to inventory natural and cultural resources in their jurisdictions and to develop and adopt programs to conserve and protect them. The resources addressed in Goal 5 include riparian corridors, wetlands, federal Wild and Scenic Rivers, state Scenic Waterways, groundwater resources, wildlife habitat (e.g. upland habitat in addition to riparian habitat), natural areas, wilderness areas, open spaces, scenic views and sites, mineral and aggregate resource areas, energy sources, and historic and cultural areas. Suggestions for implementing conservation and protection of these resources include zoning, fee acquisition, development rights acquisition, easements, preferential tax assessment, and clustered development.

Goal 5 resources will be identified in the I-84/US 395 IMSA as part of the IAMP planning process. Improvements proposed in the IAMP must comply with this goal and the City of Pendleton's Goal 5 policies and programs accordingly. Potential significant natural resources in or adjacent to the study area include the following resources generally identified in the City's 1983 Comprehensive Plan.

- Umatilla River
- Tutuilla Creek
- "Good" wildlife habitat in Tutuilla Creek corridor around intersection with US 395 (Map 8).

City staff has identified Tutuilla Creek as potentially salmon-bearing and Umatilla River as salmon-bearing, so one or both of the water bodies will also be subject to federal endangered species protection.

The Comprehensive Plan's resource inventory does not identify any archaeological, historic, or other cultural sites in the IMSA, but it should be noted that this document was adopted in the 1980s and may not reflect current conditions or present-day community values or policies.[3]

[3] This goal element of the City's Comprehensive Plan will likely be revised as part of the City's 2009-2013 plan update.

Statewide Planning Goal 6: Air, Water and Land Use Resources Quality

Jurisdictions must comply with state and federal environmental agency regulations. Goal 6, Air, Water and Land Resources Quality, calls for jurisdictions to "maintain and improve the quality of the air, water and land resources of the state." Waste and process discharges within a jurisdiction may not exceed the carrying capacity of the local air shed and water shed in the long-term, nor degrade the quality or otherwise threaten the availability of the air shed and water shed services. Further, as indicated in the previous section on Goal 5, Tutuilla Creek and the Umatilla River have been identified as salmon-bearing or potentially salmon-bearing, and streams with salmon will be subject to federal endangered species regulations.

This goal must be taken into account in developing and selecting alternatives for the I-84/US 395 IAMP. In addition to minimizing impacts to Goal 6 resources, alternatives also have to be found to be consistent with corresponding policies in the City's Comprehensive Plan.[4]

Statewide Planning Goal 7: Areas Subject to Natural Hazards

Goal 7, Areas Subject to Natural Hazards, was adopted to "protect people and property from natural hazards." The goal requires local jurisdictions to adopt comprehensive plans, including inventories, policies, and implementation measures, for identifying natural hazard areas and prohibiting or limiting development in these areas. Although local jurisdictions may define others, the goal defines natural hazard areas as those subject to floods (both coastal and riparian), landslides, earthquakes, and wildfires.

Similar to Goal 5 resources, any existing natural hazards will be identified in the I-84/US 395 IMSA. Improvements proposed in the IAMP must comply with this goal. The City's Comprehensive Plan describes natural hazards in the city but does not include corresponding Goal 7 policies and programs. The Comprehensive Plan inventory identifies the following potential Goal 7 hazards that are found in the study area:

- A mixture of "unbuildable" steep slopes (over 25%), hillsides (5-25%), and some relatively flat land (less than 5%) south of the Umatilla River (Map 12)
- Two areas of identified soil erosion "problems" on the south side of interchange (Map 14)
- Umatilla River and Tutuilla Creek and floodplains (Map 15).

Statewide Planning Goal 8: Recreational Needs

Goal 8, Recreational Needs, was adopted to "satisfy the recreational needs of the citizens of the state and visitors, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts." The goal requires that local government conduct comprehensive recreational planning by identifying recreational needs, planning for facilities in sufficient quantities and locations to meet these needs, and working with private companies and other partners in meeting these needs. The goal provides specific guidance on destination resort siting.

[4] The City's existing Comprehensive Plan does not include Goal 6 policies. Updating Goal 6 is not currently part of the work program to update the City's Comprehensive Plan, scheduled for 2009-2013.

The City of Pendleton does not have an adopted parks and recreation master plan, but does manage a set of well-developed parks and recreation programming and facilities. Olney Cemetery is the primary facility that Pendleton Parks and Recreation manages in the study area, at the intersection of US 395 and Tutuilla Creek Road. In addition to its primary purpose, the department's web page identifies the cemetery as a site for walking and recreation. The department does not identify recreational facilities or programming in conjunction with Tutuilla Creek. The City's existing transportation plan, however, does propose to extend the Umatilla River Parkway along Tutuilla Creek.

There are several existing parks on the edges of and surrounding the study area, as identified on the City's Parks and Recreation website. Access and connections to these sites should be maintained and, when possible, improved by implementation of the IAMP.

- Community Park, East and West, southwest of interchange
- Grecian Heights Park, North and South (main access on Tutuilla Creek Road), southeast of interchange
- McKay Neighborhood Park, southwest of interchange (south of Community Park)
- Rice-Blakey Park, southeast of interchange (south of Olney Cemetery)
- Sherwood Park, small neighborhood park, southwest of interchange
- Trailhead Park, north of interchange, serving Pendleton River Parkway (along the Umatilla River and extending along Tutuilla reek) and Pendleton Skate Park

The Parks and Recreation Department does not appear to have a long-range or master plan that presents plans for future parks. However, a recommendation for a new riverfront park is made in the 2006 Downtown Resource Team Report, which is reviewed later in this memorandum.

Statewide Planning Goal 9: Economic Development

The intent of Goal 9, Economic Development, is to "provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens." Local comprehensive plans and policies must support this goal and should include an assessment of the jurisdiction's existing economic conditions and comparative advantages, policies generally and specifically addressing economic development and development opportunities, provide an adequate supply of sites with characteristics suitable for a variety of employment and economic development, and limit development around identified industrial sites to that which is compatible with uses allowed on the sites. The goal suggests implementation measures such as tax incentives and disincentives, preferential assessments, land use regulations, capital improvement planning and programming, and fee or partial fee acquisition.

Ultimately, IAMP adoption findings should demonstrate how the preferred alternative for future interchange improvements supports this goal and the City's economic development goals. The existing City Comprehensive Plan includes an inventory of employment land and an analysis of future employment land needs. However, the plan does not establish its own specific economic development goals and policies. The plan does note that the City of Pendleton is an economic

center for the region and freeway access is important to the City's economic vitality. Thus the IAMP, based on its stated purpose of protecting the function of the interchange and providing safe and efficient operations between connecting roadways, is designed to support economic development and vitality.

Statewide Planning Goal 10: Housing

Goal 10 was adopted to support the "availability of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households and allow for flexibility of housing location, type and density." Housing need in Pendleton was established in the *Pendleton Urban Fringe Land Use Study, Phase I* prepared by OTAK (1997) and *Phase II* prepared by The Benkendorf Associates Corporation and The Bookin Group (1998). The studies found that roughly 1,800-3,000 new housing units would be needed in Pendleton by 2020, assuming lower and higher growth scenarios, and that this would require about 300-500 net buildable acres.

There are residential uses and residential zoning in the IAMP study area. Proposed IAMP projects and other implementation measures must consider any potential impacts to housing – particularly low-income or affordable housing – in the area.

Statewide Planning Goal 12: Transportation

Statewide Planning Goal 12, Transportation, requires cities, counties, Metropolitan Planning Organizations, and ODOT to provide and support a safe, convenient, and economic transportation system. This is accomplished through development of Transportation System Plans (TSPs) based on inventories of local, regional, and state transportation needs.

Goal 12 is implemented through **OAR 660, Division 12**, the Transportation Planning Rule (TPR). The TPR contains numerous requirements governing transportation planning and project development, several of which are relevant to planning a new interchange. The TPR is discussed in later in this memorandum.

The Land Conservation and Development Commission's rules implementing Goal 12 do not regulate access management. ODOT adopted OAR 734, Chapter 51, to address access management and it is expected that ODOT, as part of this project, will engage in access management consistent with its Access Management Rule. This could involve the purchase of access rights within at least one-quarter mile of the interchange ramps. See OAR 734, Division 51 on pages 15-18 of this memorandum for a review of these access management rules.

Statewide Planning Goal 14: Urbanization

Goal 14 regulates urban growth boundaries. The goal provides that establishment and change of a UGB shall be based upon consideration of the following four factors:

1. Efficient accommodation of identified land needs;
2. Orderly and economic provision of public facilities and services;
3. Comparative environmental, energy, economic, and social consequences;

4. Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB.

Additionally, **ORS 197.298** establishes priorities for including land inside urban growth boundaries. The first (highest) priority for inclusion is land that is designated "urban reserve" land. The second priority is land adjacent to a UGB that is identified as "an exception area or nonresource land." The third priority is land that is designated as "marginal land" pursuant to ORS 197.247. The final (lowest) priority is land that is designated for agriculture, forestry, or both.

While the IMSA does not include land outside of the UGB nor is it adjacent to the UGB, implementation strategies developed for the IAMP must support efficient development and provision of public facilities within the UGB.

Oregon Transportation Plan (2006)

Originally adopted in 1992, the Oregon Transportation Plan (OTP) is a policy document developed by ODOT in response to federal and state mandates for systematic planning for the future of Oregon's transportation system. The OTP is intended to meet statutory requirements (ORS 184.618(1)) to develop a state transportation policy and comprehensive long-range plan for a multi-modal transportation system that addresses economic efficiency, orderly economic development, safety, and environmental quality. The 2006 OTP expands on the policy objectives of the 1992 plan, with an emphasis on maintaining assets in place, [5] optimizing existing system performance through technology and better system integration, creating sustainable funding, and investing in strategic capacity enhancements.

The OTP's goals, policies, and strategies guide the development of state multimodal, modal/topic[6] and facility plans and regional and local transportation system plans. The OTP provides the framework for prioritizing transportation improvements and funding, but it does not identify specific projects for development.[7] As required by Oregon and federal statutes, the OTP guides development and investment in the transportation system through:

- Transportation goals and policies,
- Transportation investment scenarios and an implementation framework, and
- Key initiatives to implement the vision and policies.

Goals in the OTP include: Mobility and Accessibility; Management of the System; Economic Vitality; Sustainability; Safety and Security; Funding the Transportation System; and

[5] The OTP defines "asset management" as a "systematic process of maintaining, upgrading and operating physical assets cost-effectively. It combines engineering principles with sound business practices and economic theory, and it provides tools to facilitate a more organized, logical approach to decision-making. Asset management provides a framework for handling both short- and long-range planning."

[6] Modal or topic plans, as developed by ODOT and other state agencies, include plans for aviation, bicycle and pedestrian facilities, highways, marine ports and waterways, public transportation and rail.

[7] Projects are identified through facility plans and regional and local transportation system plans, and sometimes through modal plans.

Coordination, Communication and Cooperation. Policies and strategies under many of these goals emphasize increasing coordination and cooperation among federal and state agencies, regional and local governments and private entities to achieve these goals.

The Implementation Framework section of the OTP describes the implementation process and how state multimodal, modal/topic plans, regional and local transportation system plans and master plans will further refine the OTP's broad policies and investment levels. Local transportation system plans can further OTP implementation by defining standards, instituting performance measures, and requiring that operational strategies be developed.[8]

The Implementation section also describes three investment levels, examples of the investment priorities for each level of investment, and their impacts on the transportation system. These levels are described as "flat funding" (Level 1), "maintaining and improving existing infrastructure" (Level 2), and "expanding facilities and services and services" (Level 3). The recommendation in the OTP is for the State to invest at levels closer to Level 3 "in order to be competitive economically and to have the transportation infrastructure and services that allow communities to function well."

Finally, a list of "key initiatives" describes the OTP's implementation priorities. The key initiatives are intended to help frame plan implementation and reflect the directions of the OTP including system optimization, integration of transportation modes, integration of transportation, land use, the environment and the economy, and the need to make strategic investments using a sustainable funding structure. The key initiatives envision creating the sustainable funding plan using both traditional and new revenue sources. The I-84/US 395 IAMP will likely draw on both traditional and innovative revenue sources to fund its proposed improvements and implementation measures. Project funding will be addressed in the IAMP.

Oregon Highway Plan (1999)

The 1999 Oregon Highway Plan (OHP) is an element and modal plan of the OTP that guides the planning, operations, and financing of ODOT's Highway Division. Policies in the OHP emphasize the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. These policies also link land use and transportation, set standards for highway performance and access management, and emphasize the relationship between state highways and local road, bicycle, pedestrian, transit, rail, and air systems.

The policies found within the OHP that are relevant to the I-84/US 395 IAMP include:

- Policy 1A: State Highway Classification System;
- Policy 1B: Land Use and Transportation;

[8] As stated in the Implementation section of the OTP, requirements for regional and local transportation system plans (TSPs) are found in the Transportation Planning Rule (OAR 660-012). Regional and local TSPs must be consistent with the state TSP (the OTP), state multimodal, modal/topic and transportation facility plans.

- Policy 1C: State Highway Freight System;
- Policy 1F: Highway Mobility Standards;
- Policy 1G: Major Improvements;
- Policy 2B: Off-System Improvements;
- Policy 3A: Classification and Spacing Standards;
- Policy 3B: Medians;
- Policy 3C: Interchange Access Management Areas;
- Policy 4A: Efficiency of Freight Movement;
- Policy 4B: Alternative Passenger Modes;

Policy 1A: State Highway Classification System. The state highway classification system includes five classifications: Interstate, Statewide, Regional, District, and Local Interest Roads. In addition, there are four special purpose categories that overlay the basic classifications: land use, statewide freight route, scenic byways, and lifeline routes.

Interstate 84 (I-84) is an interstate freeway that is part of the National Highway System (NHS) and is a freight route. As such, its main purpose is to provide mobility, safe and efficient high-speed traffic operation and connections to major cities, regions of the state, and other states while providing connections to cities and other destinations, according to the OHP.

US 395 is a statewide highway and freight route. US 395 is one of few connections between the north and south sides of Pendleton. It is a five-lane facility through the study area and then transitions into a couplet facility north of the freeway comprised of SW Frazer and SW Emigrant Streets. The main purpose of a statewide highway provides inter-urban and regional mobility with connections to urban areas, ports, and major recreation areas that the interstate does not access. To properly manage a statewide highway is to provide safe and efficient, high-speed, continuous-flow operation. Interruptions to flow should be minimal in urban areas.

Policy 1B: Land Use and Transportation. This policy recognizes the role of both the State and local governments related to the state highway system and calls for a coordinated approach to land use and transportation planning.

Policy 1C: State Highway Freight System. This policy recognizes the need for the efficient movement of freight through the state. I-84 and US 395 are designated freight routes. A primary function of the interchange is to provide safe and efficient freight movements by providing free-flow movement for through traffic on I-84 and minimally interrupted movement between I-84 and US 395.

Policy 1F: Highway Mobility Standards Access Management Policy. This policy addresses state highway performance expectations, providing guidance for managing access and traffic control systems related to state facilities. It provides mobility standards in terms of traffic volume compared to roadway capacity (a V/C ratio). According to Policy 1F, the mobility standard for I-84 in the IMSA, an Interstate Highway in an area outside of an MPO and STA (Special Transportation Area) where non-freeway posted speeds are greater than 35 miles per hour (mph) or equal to or greater than 45 mph, is a V/C ratio of 0.70. The mobility standard for US 395 in

the study area, a statewide highway and freight route outside of an MPO and STA, is a V/C ratio of 0.80 where non-freeway posted speeds are 35 mph or less, 0.75 where non-freeway posted speeds are more than 35 mph, or 0.70 where non-freeway posted speeds are equal to or more than 45 mph.

Policy 1G: Major Improvements. This policy requires maintaining performance and improving safety by improving efficiency and management on the existing roadway network before adding capacity. The state's highest priority is to preserve the functionality of the existing highway system. Tools that could be employed to improve the function of the existing interchange include access management, transportation demand management, improved traffic operations, and changes to local land use designations or development restrictions. After existing system preservation, the second priority is to make minor improvements to existing highway facilities such as adding ramp signals or making improvements to the local street network to minimize local trips on the state facility. The third priority is to make major roadway, or in this case, interchange, improvements.

Policy 2B: Off-System Improvements. This policy recognizes that the state may provide financial assistance to local jurisdictions to make improvements to local transportation systems if the improvements would provide a cost-effective means of improving the operations of the state highway system. As part of this IAMP process, ODOT will work with the City of Pendleton to identify improvements to the local road system that support the planned land use designations in the vicinity of the interchange and that will help preserve capacity and ensure the long-term efficient and effective operation of the interchange.

Policy 3A: Classification and Spacing Standards. This policy addresses the location, spacing and type of road and street intersections and approach roads on state highways. I-84 is classified as an Interstate Highway, and Interstate Highways are subject to federal interstate standards established by the Federal Highway Administration (FHA) and to ODOT's Interchange Policy. ODOT owns the access rights onto I-84; direct access is not allowed and users may enter or exit the roadway only at interchanges.

The adopted spacing standards can be found in Appendix C of the OHP. These are further addressed by Policy 3C.

Policy 3B: Medians. This policy acknowledges the use of medians in controlling turn movements and access to properties adjacent to state roadways in order to ensure safe and efficient operations of state facilities. Medians are to be used according to roadway classification and surrounding land uses and land use designations, and the policy likewise addresses appropriate openings in medians. There are no medians in the IMSA currently, but because of the importance of supporting safe and efficient traffic operations in the study area, medians will be considered during the IAMP process where appropriate.

Policy 3C: Interchange Access Management Areas. This policy addresses management of grade-separated interchange areas to ensure safe and efficient operation between connecting roadways. Action items include developing interchange area management plans to protect the function of the interchange to provide safe and efficient operations between connecting roadways and to

minimize the need for major improvements of existing interchanges. The local jurisdiction's role in access management is stated in Policy 3C as follows: "necessary supporting improvements, such as road networks, channelization, medians and access control in the IMSA must be identified in the local comprehensive plan and committed with an identified funding source, or must be in place (Action 3C.2)."

Access management standards related to Policy 3A and Policy 3C are detailed in Appendix C of the OHP. It includes standards for each highway classification; generally, the access spacing distance increases as either the highway's classification or posted speed increases. OHP Table 12 specifies that the interchange spacing on interstate freeways through urban areas is three miles, and the minimum distance between the start and end of tapers of adjacent interchanges is one mile (Table 17). As shown in Table 17, the spacing standards for the I-84/US 395 freeway interchange and its multi-lane crossroads are as follows:

- From the end of the off-ramp to the first right-in/right-out approach
  - 1,320 feet in an urban area
  - 750 feet in a fully developed urban area
- From the end of the off-ramp to the first signalized intersection
  - 1,320 feet in an urban area or fully developed urban area
- From the last right-in/right-out approach to the start of an on-ramp taper
  - 1,320 feet in an urban area
  - 990 feet in a fully developed urban area.

Thus, it needs to be determined if the study area qualifies as an urban area or fully developed urban area. An exception to the spacing standards has already been granted for spacing between the eastbound I-84 off-ramp and the Hailey Avenue/Tutuilla Creek Road intersection.[9]

Policy 4A: Efficiency of Freight Movement. This policy emphasizes the need to maintain and improve the efficiency of freight movement on the state highway system. I-84 and US 395 are designated freight routes. A primary function of the interchange is to provide safe and efficient freight movements by providing free-flow movement for through traffic on I-84 and minimally interrupted movement between I-84 and US 395.

Policy 4B: Alternative Passenger Modes. This policy encourages the development of alternative passenger services and systems as part of broader corridor strategies and promotes the development of alternative passenger transportation services located off the highway system to help preserve the performance and function of the state highway system.

Transportation Planning Rule (OAR 660-012)

OAR 660, Division 12 – the Transportation Planning Rule (TPR) – implements Goal 12 (Transportation) of the Statewide Planning Goals. The TPR requires that state, regional, and local governments prepare and comprehensive transportation system plans. In implementing these plans, it requires that local governments adopt land use regulations that are consistent with

[9] See p. 3 of the scope of work, Work Order Contract #7, W4 23482.

state and federal requirements in order "to protect transportation facilities, corridors and sites for their identified functions (OAR 660-012-0045(2))." This provision is achieved through a variety of measures, including:

- Access control measures that are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;
- Standards to protect future operations of roads;
- A process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites;
- A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors or sites;
- Regulations to provide notice to ODOT of land use applications that require public hearings, involve land divisions, or affect private access to roads; and
- Regulations assuring that amendments to land use designations, densities and design standards are consistent with the functions, capacities and performance standards of facilities identified in the TSP. (See also OAR 660-012-0060.)

Potential new land use regulations and land use regulation amendments will be considered during the development of IAMP implementation strategies if they are deemed necessary in implementing the IAMP and ensuring safe and efficient operations at and around the interchange.

Access Management Rule (OAR 734-051)

This Administrative Rule establishes rules and procedures for the State in managing access to state facilities in order to maintain their functional use and safety and to maximize public investment. Consistent with the scope of this planning project, the I-84/US 395 IAMP must be developed in accordance with the provisions of OAR 734-051-0125, OAR 734-051-0155, and OAR 734-051-0285.

Section -0125, Access Management Spacing Standards for Approaches in an Interchange Area, outlines how the State will manage grade-separated interchange areas to ensure safe and efficient operation between connecting roadways. Pursuant to 734-051-0125(1), spacing standards for approaches in the area of an interchange are as follows.

(1) Tables 4, 5, 6 and 7 identify the spacing standards for approaches in the area of an interchange, which are shown in Figures 1, 2, 3 and 4. These tables and figures are adopted and made a part of this rule. The spacing standards:

(a) Are based on classification of highway and highway segment designation, type of area, and posted speed;

(b) Apply to properties abutting state highways, highway or interchange construction and modernization projects, planning processes involving state highways, or other projects determined by the Region Manager; and

(c) Do not apply to approaches in existence prior to April 1, 2000 except where any of the following occur:

(A) These standards will apply to private approaches at the time of a change of use.
(B) If infill development or redevelopment occurs, spacing and safety factors will improve by moving in the direction of the access management spacing standards, with the goal of meeting or improving compliance with the access management spacing standards.
(C) For a highway or interchange construction or modernization project or other roadway or interchange project determined by the Region Manager, the project will improve spacing and safety factors by moving in the direction of the access management spacing standards, with the goal of meeting or improving compliance with the access management spacing standards.

In order for ODOT to approve an approach application, the following requirements of 734-051-0125(2) must be met.

(2) When the Department approves an application:
a) Access spacing standards for approaches in the area of an interchange shown in Figures 1, 2, 3 and 4 must be met or approaches must be combined or eliminated to result in a net reduction of approaches to the state highway and improve compliance with spacing standards; and
(b) The approach must be consistent with any applicable Access Management Plan or Interchange Area Management Plan.

Additional Section -0125 standards applicable to interchange areas include:

(3) Deviations must meet the criteria in OAR 734-051-0135.
(4) Location of traffic signals within an interchange area illustrated in Figures 1, 2, 3 and 4 must meet the criteria of OAR 734-020-0400 through 734-020-0500.
(5)The Department should acquire access control on crossroads around interchanges for a distance of 1320 feet. In some cases it may be appropriate to acquire access control beyond 1320 feet.

Section -0155 identifies when and how ODOT will develop Access Management Plans and Interchange Area Management Plans for particular sections of a highway. The rule states that:

(1) The Department encourages the development of Access Management Plans and Interchange Area Management Plans to maintain and improve highway performance and safety by improving system efficiency and management before adding capacity. Access Management Plans and Interchange Area Management Plans:
(a) Must be consistent with Oregon Highway Plan;
(b) Must be used to evaluate development proposals; and
(c) May be used to determine mitigation for development proposals.
(2) Access Management Plans and Interchange Area Management Plans must be adopted by the Oregon Transportation Commission as a transportation facility plan consistent with

the provisions of OAR 731-015-0065. Prior to adoption by the Oregon Transportation Commission, the Department will work with local governments on any amendments to local comprehensive plans and transportation system plans and local land use and subdivision codes to ensure the proposed Access Management Plan and Interchange Area Management Plan is consistent with the local plan and codes.

(6) The Department encourages the development of an Interchange Area Management Plan to plan for and manage grade-separated interchange areas to ensure safe and efficient operation between connecting roadways:

(a) Interchange Area Management Plans are developed by the Department and local governmental agencies to protect the function of interchanges by maximizing the capacity of the interchanges for safe movement from the mainline facility, to provide safe and efficient operations between connecting roadways, and to minimize the need for major improvements of existing interchanges;

(b) The Department will work with local governments to prioritize the development of Interchange Area Management Plans to maximize the operational life and preserve and improve safety of existing interchanges not scheduled for significant improvements; and

(c) Priority should be placed on those facilities on the Interstate system with cross roads carrying high volumes or providing important statewide or regional connectivity.

(7) An Interchange Area Management Plan is required for new interchanges and should be developed for significant modifications to existing interchanges. An Interchange Area Management Plan must comply with the following criteria, unless the Plan documents why compliance with a criterion is not applicable:

(a) Be developed no later than the time an interchange is designed or is being redesigned.

(b) Identify opportunities to improve operations and safety in conjunction with roadway projects and property development or redevelopment and adopt policies, provisions, and development standards to capture those opportunities.

(c) Include short, medium, and long-range actions to improve operations and safety within the designated study area.

(d) Consider current and future traffic volumes and flows, roadway geometry, traffic control devices, current and planned land uses and zoning, and the location of all current and planned approaches.

(e) Provide adequate assurance of the safe operation of the facility through the design traffic forecast period, typically 20 years.

(f) Consider existing and proposed uses of all the property within the designated study area consistent with its comprehensive plan designations and zoning.

(g) Be consistent with any applicable Access Management Plan, corridor plan or other facility plan adopted by the Oregon Transportation Commission.

(h) Include polices, provisions and standards from local comprehensive plans, transportation system plans, and land use and subdivision codes that are relied upon for consistency and that are relied upon to implement the Interchange Area Management Plan.

Section -0285, Project Delivery, applies to access management for new construction, modernization, preservation, and operations projects for state highways and interchanges and supports the development of Access Management Strategies and Access Management Plans during delivery of these projects. This section grants ODOT Region Managers the authority to require modification, mitigation, or removal of approaches within the project area according to an adopted IAMP. Access management measures will be explored as part of the I-84/US 395 IAMP.

Highway Design Manual

The Highway Design Manual includes ODOT standards and procedures for the location and design of new construction or major reconstruction (4R), and resurfacing, restoration or rehabilitation (3R) projects. The Highway Design Manual is used for all projects that are located on state highways. Section 9.6, Interchange Design, includes the design standards, guidelines, and processes for designing interchanges for State Highways. ODOT's Engineering Services Unit and FHWA must approve the reconstruction of an interchange on the Interstate system. The proposed interchange design must be prepared on the Standard Interchange Layout Sheet by the Engineering Services Unit or authorized representative. The approved design is then used for contract plans. Modifications to the I-84/US 395 Interchange would be subject to the standards in 9.6.1, Freeway Interchange Design.

LOCAL PLANNING DOCUMENTS

City of Pendleton Comprehensive Plan (1983)

The City's existing Comprehensive Plan is its original plan adopted in 1983. A December 2008 work program has been established to update it over the next four years. The work program summary reports that updates for Comprehensive Plan sections pertaining to Goals 1, 2, 5, 7, 8, 9, 10, 11, and 12 are estimated to be completed as a series of subtasks from June 2009 to June 2013.

The existing Comprehensive Plan presents a thorough inventory and description of natural, social, economic, public facilities and services, and land use conditions existing at the time the Comprehensive Plan was developed. The plan was amended in 1999 and 2007 to include an updated set of population and employment growth projections and associated land needs for 2020 and 2026. The existing plan establishes goals and policies only for housing, transportation, and utilities. The 2007 TSP Update amended a few policies. It is expected that policies will be further developed as part of the upcoming Comprehensive Plan update.

The transportation sections in the existing Comprehensive Plan are updated by the City's 2007 Transportation System Plan (TSP) (see the City of Pendleton Transportation System Plan section of this memorandum). The I-84/US 395 IAMP will be adopted as an amendment to the City's TSP, which is part of the City's Comprehensive Plan. In terms of land use planning and participation goals, it will be developed with citizen participation in committee meetings, public workshops, and public hearings, and will require coordination between the City and ODOT. The

plan will be implemented through any necessary amendments to the City's Comprehensive Plan policies and Development Code.

As mentioned above, the plan was amended in 1999 to include an updated population and employment growth projections and associated land needs for 2020. The 1999 study estimated about 4,100 new residents in Pendleton by 2020 according to a low-growth scenario and about 7,000 new residents according to a growth scenario similar to historic growth patterns in the city. Employment was projected to grow by 1,098 industrial jobs and 2,563 commercial jobs by 2020. The 1999 update also addressed the land needs that are expected to be accommodated within the existing UGB. Some employment infill may occur on vacant land in the IMSA, for example, near the Wal-Mart. This will be further discussed in upcoming memoranda on existing and future land use conditions. However, infill in the study area is expected to be limited given that the area is already largely developed and access in the area will need to be strictly managed to ensure the long-range safety and functionality of the interchange.

The Comprehensive Plan was further amended in 2007 to incorporate the *Industrial Land Report* prepared by Winterbrook Consulting as part of an Oregon Department of Land Conservation and Development (DLCD) technical assistance grant. The report found that there was a shortage of suitable industrial land in the Pendleton UGB at the time and that the UGB needed to be expanded by 308 acres in the vicinity of the Pendleton Airport to include suitable industrial land. These findings formed the basis for the City's UGB expansion toward the Barnhart Road extension and interchange, and thus that land need was satisfied in that area and does not need to be addressed in the IMSA.

City of Pendleton Development Code (Last amended 2009)

The City's Development Code is comprised of Zoning Ordinance (Ordinance No. 3250) and the Subdivision and Partition Ordinance (Ordinance No. 3251). The Development Code implements policies established in the City's Comprehensive Plan and regulates development through zoning designations and provisions that apply generally to all development and specifically to land divisions within the city.

Land inside the IMSA is designated with the following zoning:

- R-2 (Medium Density Residential)
- C-1 (Central Commercial)
- C-2 (Tourist Commercial)
- C-3 (Service Commercial)
- M-1 (Light Industrial).

Articles IV through IX of the Zoning Ordinance establish permitted uses and development standards for residential, commercial, and industrial zones. Below is an overview of these provisions for the zoning districts within the IMSA. The use regulations refer to Standard Industrial Code (SIC) Major Groups in order to define uses.

- R-2 (Medium Density Residential) – detached and attached single-family housing, duplexes, townhouses, manufactured homes, residential homes and facilities, and city parks permitted outright; multi-family housing, neighborhood commercial uses, schools, and transportation facilities permitted conditionally; minimum lot sizes range from 5,000 to 8,000 square feet depending on slope; 5 to 18 units per acre permitted; maximum lot coverage is 40%; maximum building height is 40 feet or three stories.
- C-1 (Central Commercial) – vehicle services, business and personal services, housing (subject to conditions), eating and drinking establishments, general retail, public and health services, parking areas, garages, and transit facilities permitted outright; city parks, housing (subject to conditions), hospitals, cultural facilities, and transportation services permitted conditionally; no minimum lot size, maximum lot coverage, or maximum height.
- C-2 (Tourist Commercial) – eating and drinking establishments, lodging, vehicle services, and information centers permitted outright; transit facilities and transportation services permitted conditionally; no minimum lot size or maximum lot coverage; maximum building height is 50 feet or five stories.
- C-3 (Service Commercial) – vehicle services, business and personal services, housing (subject to conditions), eating establishments, food stores, general retail, health services, and transit facilities permitted outright; drinking establishments, housing (subject to conditions), public services, hospitals, lodging, cultural facilities, warehousing, railroad facilities, and transportation services permitted conditionally; no minimum lot size or maximum lot coverage; maximum building height is 50 feet or five stories.
- M-1 (Light Industrial) – vehicle services, contractors and construction retail, light industrial, business services, repair services, wholesaling, solid waste transfer stations (subject to conditions), and transportation services and facilities permitted outright; eating and drinking establishments, public services, lodging, junk and wrecking yards, light industrial, landfills and waste treatment or disposal facilities, animal clinics and hospitals, mining, utilities, and transportation equipment permitted conditionally; minimum lot size determined site-by-site in Zoning Ordinance (Figure 8) but minimum lot sizes not identified in the study area; no maximum lot coverage; landscaping required for screening.

Article XXI of the Zoning Ordinance addresses amendments to the zoning map and Zoning Ordinance. The code establishes that the City Council, Planning Commission, or a property owner may initiate amendments. The amendments must be consistent with the City's Comprehensive Plan and Land Use Map, or the Comprehensive Plan text or map must be amended.

Article VII of the Subdivision and Partition Ordinance establishes design standards for land divisions. The design standards regulate minimum block length and perimeter (Section 26), access to lots or parcels (Section 28) with an emphasis on limiting access to arterial streets, and public street design (Section 31) according to functional classification and addressing right-of-way width, pavement width, planter width, sidewalk width, number and width of travel and turn lanes, number and width of bike lanes, and number and width of parking lanes. These design standards were updated as part of the 2007 TSP update.

Article VIII of the Subdivision and Partition Ordinance addresses improvement standards for land divisions including street improvements that are consistent with City standards (Section 39), pedestrian walkway improvements to be dedicated with right-of-way (Section 43), accessways for non-motorized traffic and emergency vehicles (Section 44), and dedication of public improvements to the City (Section 49).

Finally, **Article XII of the Subdivision and Partition Ordinance** includes a section on amending the ordinance (Section 55). As with amendments to the Zoning Ordinance, proposed amendments to the text of the Subdivision and Partition Ordinance must be consistent with the City's Comprehensive Plan and Land Use Map, or an amendment to the Comprehensive Plan text and map is required. Planning Commission hears the amendment and makes a recommendation to the City Council, whereupon City Council holds a hearing and issues a decision to approve, deny, or approve with modifications the proposed amendment(s).

City of Pendleton Transportation System Plan (Updated 2007)

The City of Pendleton's current TSP is essentially made up of transportation needs and policies established in the City's 1983 Comprehensive Plan, related code and policy amendments, and updated roadway, pedestrian facility, bicycle facility, and long-range project TSP maps.

Transportation Plan policies, from the 1983 Comprehensive Plan (Part II) and adopted as part of the 2007 TSP, that apply to the I-84/US 395 IAMP study area include those related to the function of roadways according to functional classification, access, intersections, transportation options, freight, and targeted land uses. **Policy 1** establishes the purpose of roadways according to functional classification, including freeways, arterials, and collectors. The freeway and interchange provisions are superseded by, but are consistent with and reinforce, State regulations of these transportation facilities, as primarily documented in the OHP.

A. Freeways:
- *(1) The primary function of a freeway is to accommodate continuous movement of heavy volumes of all types of inter-community and inter-regional vehicular traffic. Freeways have full access control.*
- *(2) On freeways, any future interchanges to serve the community shall be located on the basis of future land use, as well as existing land use, and on the basis of intersections with planned arterial streets as well as existing arterial streets.*
- *(4) Frontage roads along freeways, connecting streets with interchange access, shall be constructed where necessary to provide for adequate traffic circulation within neighborhoods within the Pendleton Urban area.*

B. Arterial Streets.
- *(1) Arterial streets shall be primarily designed to serve as the network for major traffic flow, and to intercept traffic from outside the community and from collector and minor streets within the community. Parking on arterial streets may be reasonably regulated or even prohibited and access may be controlled through curb-cut regulations. Traffic lanes are to be designed for maximum capacity and parking*

lanes are to be generally increased in width to help reduce the conflict between parking and moving vehicles. Right-of-way and the width of streets can be more varied than in the case of other types of streets because of differing traffic volumes and because of greater problems of providing ideal widths due to existing conditions.

(2) All designated state highways shall be classified as arterial streets as they traverse through the urban[iz]able area.

C. Collector Streets.

(1) Collector Streets furnish access to abutting property and serve as a connecting link between the arterial and minor streets. They should be designed to intercept traffic from minor streets and carry it to arterial streets.

The road classification section also includes road design standards, which were updated as part of the 2007 TSP update and can be found in the City's code (Section 31 of Article VII of the Subdivision and Partition Ordinance).

Policy 8 of the 1983 Transportation Plan requires intersections to form at right angles and to provide for continuous through traffic unless otherwise constrained and approved by the Planning Commission or City Council. **Policy 9** requires the City to provide for a range of transportation alternatives in the city, and encourages the City to plan transportation facilities and services in order to be compatible with and support surrounding planned land uses. **Policy 12** reinforces Policy 9 in requiring the City to develop and maintain a bicycle system on the city's arterial and collector streets.

Policy 16 requires the City to support the expansion of trucking lines in the city. Also as a matter of economic development, **Policy 19** calls for the City to provide transportation facilities to serve industrial parks and industrial uses in the city. With their prime freeway access, interchange areas are often targeted for trucking services in a community, and, similarly, industrial area siting criteria includes easy access to major transportation facilities like freeways and highways. Supporting and maintaining access of industrial areas to major transportation facilities remains a City priority.

Of the policies proposed during the 2007 TSP update, the most relevant policy to the IAMP planning process is a general one and is phrased as a statement of need: "There is a need to adopt and enforce a fair, clear Transportation System Plan Map." Adoption of a preferred alternative for the interchange will include a projects list recommended for adoption and may include amendments to the Transportation System Plan Map.

Four Transportation System Plan Maps were updated as part of the 2007 TSP Update: Pedestrian Facility, Bicycle Facility, Roadway, and Long-Range Project Transportation System Plan Maps. The following projects are shown on the maps in the IMSA.

- **Pedestrian Facility Transportation System Plan Map**
  - Sidewalk on planned road/connection between NW Westgate Drive and SW Court Place
  - Sidewalk and multi-use path on Old US 30 (Westgate), west of the Umatilla River

  - River Parkway multi-use path along both sides of Umatilla River between Old US 30 (Westgate) and I-84
  - River Parkway on north side of Tutuilla Creek west of US 395
  - Sidewalk on SW 20th and SW 23rd for a few blocks around SW Frazer and Emigrant
  - Sidewalk on SW Hailey Avenue west of US 395
  - Sidewalk on US 395 south of SW 30th Street
  - Sidewalk on planned road/connection between SW Ladow Avenue and Tutuilla Creek Road
  - Sidewalk on SW 20th Street and SW 17th Street off of SW Emigrant Avenue and SW Frazer Avenue
- **Bicycle Facility Transportation System Plan Map**
  - Existing bike lanes on SW Emigrant Avenue, SW Frazer Avenue, US 395, SW Hailey Avenue, and Tutuilla Creek Road
  - Proposed River Parkway on north side of Tutuilla Creek west of US 395
- **Roadway Transportation System Plan Map**
  - New local road and bridge across Umatilla River, connecting SW Court Place and NW Westgate Drive
  - Roundabout at Old US 30 (Westgate)/SW Court Avenue
  - New local road between SW Ladow and Tutuilla Creek Road
  - Traffic signals at SW 17th Street/SW Emigrant Avenue and SW 17th/Frazer Avenue
  - Traffic signal at US 395/SW Hailey Avenue/Tutuilla Creek Road
- **Long-Range Project Transportation System Plan Map**
  - *There are not long-range projects identified on the map in the interchange area.*

There is no documentation of funding options or a funding plan to supplement the maps. However, the City's Capital Improvement Program (CIP) addresses these issues on a short-term basis (five years), and the CIP is discussed in the next section of this memorandum.

Provisions for transportation impact studies are not established in the City's TSP but in the City's code. As part of the 2007 TSP Update, amendments to Ordinance 3481, Section 5, Development Requirements (Part A) addressed transportation impact studies. According to the proposed amendments, studies would be required for all new development with the following conditions and exceptions:

A transportation impact study shall not be required to analyze impacts on affected transportation corridors or intersections of regional significance located more than the following distances from the proposed development (as measured by straight-line distance):

a) Fifty (50) or less new peak hour trips at development site: one (1) mile;

b) Fifty-one (51) to two hundred fifty (250) new peak hour trips at development site: two (2) miles;

c) Two hundred fifty-one (251) or more new peak hour trips at development site: three (3) miles.

No traffic impact study shall be required, pursuant to the provisions of this section, where the proposed development will includes fewer than 50 single family residential units, 83 multi family units, or 50,000 square feet of non-residential space.

City of Pendleton System Development Charges

The City of Pendleton has established System Development Charges (SDCs) for three infrastructure systems – water, transportation, and parks – so that new development contributes to paying for the services and facilities based on additional expected demand. The City's current SDCs were established by Ordinance No. 3587, which was adopted in July 1998. Section 5 of the ordinance states the methodology principles for determining SDC reimbursement and improvement fees.

A. *The methodology used to establish the reimbursement fee shall consider of the cost of then-existing facilities, prior contributions by then-existing users, the value of unused capacity, rate-making principals employed to finance publicly owned capital improvements, and other relevant factors identified by the council. The methodology shall promote the objective that future system users shall contribute no more than an equitable share of the cost of then-existing facilities.*
B. *The methodology used to establish the improvement fee shall consider the cost of projected capital improvements needed to increase the capacity of the systems to which the fee is related.*
C. *The methodology used to establish the improvement fee or the reimbursement fee, or both, shall be contained in an ordinance adopted by the council.*

SDCs may be used only for expenditures on capital improvements and debt repayment for the improvements. They may not be used for operations or maintenance. The ordinance specifies that the capital improvements to be paid for with SDCs must be part of an adopted improvement plan. The City's list of qualified improvements is included in this memorandum as Attachment A.

City staff reports that limited transportation SDC funds have been spent in the last few years. In FY 2006-2007, $500,000 was spent on a new highway overpass on Dorion/Court/Hwy 11, but nothing else has been spent since then.[10]

The ordinance also establishes the time at which the SDCs will be collected (e.g. the time of a development permit, a building permit, and a right-of-way access permit), exemptions, credits, and appeal procedures.

City of Pendleton Capital Improvement Program (CIP) (2009-2014)

The City's Capital Improvement Program (CIP) schedules infrastructure improvements for construction over the short term (five years), including transportation improvements. The CIP

[10] Email communication, June 4, 2009.

document specifies the source of funding for these projects. The following projects will potentially impact the IAMP study area:

- Street Local Improvement District (LID) – Funded by the City and a neighborhood LID, $3.2 million for FY 2009-2012.
  1. Reconstruct SW Hailey Avenue from SW 30th to SW 37th & SW Jay Avenue with a 49-foot roadway, curb, gutter, sidewalk, waterline, and storm drainage. Improves a narrow County road to City collector standards. Possible construction in FY 2012.
  2. Reconstruct portions of SW Quinney Avenue from Southgate Place to SW 44th Street; coincides with the bridge upgrade funded by State funds in FY 2011.

- Sidewalk LID – Approximately $890,000 for FY 2008-2013; includes Safe Pathways to School funding from State, $180,000 for FY 2009-2011.

- SW Hailey Bridge and Street Extension – Construct SW Hailey Avenue Bridge across McKay Creek and construct 44-foot roadway from SW 37th Street to the west side of McKay Creek with a connection to SW 44th Street and SW Kirk Avenue. Provides access to the west side of McKay Creek. Approximately $2.3 million for FY 2011-2012.

Pendleton Downtown Resource Team Report (2006)

The *Pendleton Downtown Resource Team Report* was prepared in 2006 and represented a collaboration of the Pendleton Resource Team Advisory Committee, Oregon Housing & Community Services, Oregon Downtown Development Association (ODDA), and State Historic Preservation Office. As described in the report, the Resource Team consisted of specialists in architecture, historic preservation, housing, streetscape design, and business development who performed both background research and a three-day on-site visit, with staff support from ODDA.

The report and its recommendations were based on the following goals that were established by the Resource Team.

1. Develop strategies to address on-street parking and circulation on Main Street, increase pedestrian friendliness, and better connect downtown to the Round-Up Grounds and river.
2. Strengthen Pendleton's central business district, improve and enhance existing business and grow new local businesses.
3. Address the identified need for the redevelopment of vacant upper floors with a mix of housing options.
4. Promote a historic preservation ethic for Pendleton and explore opportunities to expand the National Register Historic District in downtown or create adjacent district(s).
5. Develop prioritized strategies for downtown Pendleton based on the identified needs, vision of the community, and best opportunities for success.
6. Improve the local capacity of stakeholders to successfully implement a variety redevelopment projects.

The downtown area is outside of the IMSA but the interchange provides critical access to Downtown Pendleton. Redevelopment projects implemented in the downtown will ultimately affect the interchange and the IAMP recommendations and implementation should account for or otherwise acknowledge recommendations made in the Resource Team Report. That said, the impact of redevelopment policy and project recommendations in the report on the interchange and IAMP may be indirect and minimal.

The following are amongst the redevelopment policy and project recommendations:

- **Strategic Initiative 1: Capital Improvements**
  - Finalize improvement plans for parking and circulation on Main Street and begin to implement (2007).
  - Develop detailed street and streetscape improvement plan for Main Street including a parking plan, street lights, street trees, furnishings, new sidewalks, crosswalks, and intersection changes as needed (2007-2008).
  - Integrate concepts for access improvements to River Parkway at SW 18th, streetscape improvements, and replacement of fencing and wall along the northern border of Roy Raley Park with wide long steps that could be used as a gathering place and amphitheater into Round-Up Master Plan (2007).
  - Refine and prepare cost estimates for new city park and trail connection designs for Riverfront Parkway (2007).
  - Refine and prepare cost estimates for streetscape improvements for SW 4th, 5th, and 6th Streets and Dorian, which provide connections to Riverfront Parkway (2008).

- **Strategic Initiative 5: Redevelopment Policies and Tools**
  - Adopt internal policies for the Urban Renewal Agency addressing decision-making criteria, property acquisition, and urban renewal tools.
  - Form a Downtown Project Management Team that is made up of representatives of the City, Urban Renewal and Downtown stakeholders (DT Org) to coordinate and publicize project implementation.
  - Streamline development permitting, such as if ‘”x, y, and z” criteria are met, then the project qualifies for expedited permitting.
  - Option Downtown “opportunity sites” for redevelopment, ensuring that the option is transferable to the developer.
  - Develop Vertical Housing Development Zones in which the City applies, on behalf of a developer, to Oregon Housing & Community Services to create a VHDZ district that allows a 10-year tax abatement for projects that include market rate and/or affordable housing over ground floor commercial uses.

Attachment A: SDC Improvement Project List (1998)

Roadway Improvements Preliminary Capital Cost Estimates

Project Name	Facility	Beginning	End	Length	Travel lanes	Side-walks?	Bike Lanes?	Parking?	Pave. Width	Sidewalk Width	Total Width	Pavement @ $40/SY	Sidewalk @ $31/LF	Drainage at $40/LF	Bridge @ $125/SF	Paint stripes @ $1/stripe/LF	Mobe & traf controll @ 18%	TOTAL * 1.20 for contingency
outhgate Place Upgrade	Collector	Quinney	US 395	700	3	Yes	Yes	No	46	10	56	$49,778	$43,400	$28,000		$2,800	$22,316	$176,000
W 20th St. Extension	Arterial	Court Place	Westgate		5	Yes	Yes	No	70	10	80							$4,200,000
Vestgate Upgrade - Phase 1	Arterial	Prison	Interstate 84	6100	3	No	Yes	No	48	0	48							$282,000
E 8th St. Bridge	Collector	Bridge	—	350	2	Yes	Yes	No	34	10	44							$655,000
W 20th St. Upgrade	Arterial	Emigrant	Court	900	5	Yes	Yes	No	70	10	80	$104,000	$55,800	$36,000		$5,400	$36,216	$285,000
E Kirk Avenue Extension	Collector	Terminus	SE 10th	2800	2	Yes	No	Yes	40	10	50	$497,778	$173,600	$112,000	*	$8,400	$142,520	$1,121,000
W 28th Drive Extension	Collector	Terminus	SW 37th Extension	2000	2	Yes	No	No	24	10	34	$213,333	$124,000	$80,000	*	$2,000	$75,480	$594,000
ye/Patawa Extension	Collector	Nye Ave.	UGB	2100	3	Yes	No	No	36	10	46	$149,333	$130,200	$84,000	*	$4,200	$66,192	$521,000
erkins Avenue - Phase 2	Collector	Southgate	Nye Ave.	9100	3	Yes	Yes	No	46	10	56	$647,111	$564,200	$364,000		$36,400	$290,108	$2,282,000
erkins Avenue - Phase 1	Collector	SW 33rd	Southgate	2000	3	Yes	Yes	No	46	10	56	$142,222	$124,000	$80,000		$8,000	$63,760	$502,000
W 37th St. Ext. - Phase 1	Arterial	SW Hailey	Old Rieth Road	4578	3	Yes	Yes	No	46	10	56	$935,947	$283,836	$183,120	$900,000	$18,312	$417,819	$3,287,000
ndustrial Park Arterial	Arterial	Westgate	Court Loop	2200	3	Yes	Yes	No	46	10	56	$215,111	$136,400	$88,000	$2,625,000	$8,800	$553,196	$4,352,000
W Court Loop	Arterial	SW 23rd	Industrial Park Arterial	4800	3	Yes	Yes	No	46	10	56	$213,333	$297,600	$192,000	*	$19,200	$129,984	$1,023,000
E 10th St. Upgrade	Collector	Frazer	SE Kirk	1700	2	Yes	No	Yes	40	10	50	$302,222	$105,400	$68,000	*	$5,100	$86,530	$681,000
W 28th Drive Upgrade	Collector	City limits	Barts Rd./Bridge	4400	2	Yes	No	No	24	10	34	$78,222	$272,800	$176,000	*	$4,400	$95,656	$752,000
W 44th Upgrade	Collector	Quinney	North terminus	2300	2	Yes	Yes	No	34	10	44	$132,889	$142,600	$92,000		$6,900	$67,390	$530,000
Hailey Avenue Upgrade	Collector	SW 29th	SW 37th	1600	3	Yes	Yes	No	46	10	56	$85,333	$99,200	$64,000		$6,400	$45,888	$361,000
Hailey Avenue Extension	Collector	SW 37th	SW 44th	3800	2	Yes	Yes	No	34	10	44	$574,222	$235,600	$152,000	$300,000	$11,400	$229,180	$1,803,000
E Goodwin Upgrade	Collector	SE 8th	SE 10th	600	2	Yes	No	Yes	40	10	50	$42,667	$37,200	$24,000	*	$1,800	$19,020	$150,000
Hepton Upgrade	Arterial	Rieth Road	Westgate	8800	3	Yes	No	No	36	10	46	$234,667	$545,600	$352,000		$17,600	$206,976	$1,628,000
Riverside	Collector	Highway 11	NE 35th	4000	2	Yes	No	Yes	40	10	50	$337,778	$248,000	$160,000	*	$12,000	$136,400	$1,073,000
W Isaac Upgrade	Collector	SW 6th	SW 13th	1500	2	Yes	No	Yes	40	10	50	$106,667	$93,000	$60,000	*	$4,500	$47,550	$374,000
Westgate Upgrade - Phase 2	Arterial	Court	Interstate 84	10900	5	Yes	Yes	No	70	10	80	$1,647,111	$675,800	$436,000	*	$65,400	$508,376	$3,999,000
TOTAL																		$30,631,000

* Not determined at this time

Attachment A: SDC Improvement Project List (1998) (cont.)

Bicycle Facilities Improvements
Preliminary Capital Cost Estimates

Project Name	Facility	Beginning	End	Length (ft.)	Included in Roadway Project?	Pavement @ $40/SY	Paint stripes @ $1/stripe/LF	Mobe & traf controll @ 18%	TOTAL * 1.2 for contingen
			NORTH						
NW 4th	Route	Furnish	John's Lane	2800	No	$124,444	$5,600	$23,408	*
NW 7th	Route	Carden	King	2100	No	$93,333	$4,200	$17,556	*
NW Furnish/8th/Gilliam	Route	NW 12th	NW 4th	2700	No	$120,000	$5,400	$22,572	*
NW 3rd	Route	Furnish	Gilliam	900	No	$40,000	$1,800	$7,524	*
NW King/Horn	Route	NW 7th	NW 12th	5200	No	$231,111	$10,400	$43,472	*
NW 14th/NW 15th/Ellis	Route	Carden	End	3900	No	$173,333	$7,800	$32,604	*
NE 8th	Route	Umatilla River	UGB	2100	No	$93,333	$4,200	$17,556	*
	DOWNTOWN								
SW 10th	Route	Carden	Dorion	1900	No.	$84,444	$3,800	$15,884	*
SW 7th	Route	Goodwin	Isaac	900	No	$40,000	$1,800	$7,524	*
South Main Street	Lane	Frazer	Isaac						$92,000
Highway 11/Intercourt Place	Lane	Nye Avenue	SE 10th	4800	Intersection Widening	$213,333	$9,600	$40,128	**
SE 8th/Hailey/SE 9th	Route	Goodwin	End	4600	No	$204,444	$9,200	$38,456	*
Nye Ave.	Route	Tutuilla Creek Rd	Highway 11	5300	No	$235,556	$10,600	$44,308	*
SE Goldwin	Route	Main	SE 3rd	5900	No	$262,222	$11,800	$49,324	*
River Parkway	Path	SE 8th Ave.	Highway 11	8600	No, but STIP funded.				$250,000
	EAST								
SE Byers	Route	SW 1st	Umatilla River	7000	No	$311,111	$14,000	$58,520	*
Highway 11	Lane	U.S. 30	UGB	5300	Intersection Widening	$235,556	$10,600	$44,308	$100,000
SE 17th	Route	Court Place	Byers Avenue	800	No	$35,556	$1,600	$6,688	*
U.S. 30	Route	SE 20th	Highway 11	1300	Intersection Widening	$57,778	$2,600	$10,868	*
	SOUTHWEST								
SW 37th	Lane	Southgate Place	Hailey Avenue	2700	Intersection Widening	$120,000	$5,400	$22,572	$178,000
SW 44th	Route	Quinncy Avenue	End	2300	SW 44th Upgrade				*
SW Jay	Route	SW 37th	SW 31st	1700	No		$3,400	$14,212	*
SW 31st	Route	Hailey Avenue	SW Nye Ave	2100	No	$93,333	$4,200	$17,556	*
Nye Ave.	Route	SW 31st	U.S. 395	1000	No		$2,000	$360	*
SW 30th	Route	SW 28th Avenue	U.S. 395	3000	No	$75,556	$6,000	$14,680	*
SW Perkins	Route	U.S. 395	End	3100	Perkins Ave Extension				*
SW Quinncy	Route	SW 44th	Southgate Pl	1500	No	$66,667	$3,000	$12,540	*
Nye Ave.	Route	SW 23rd	Hospital	600	No	$26,667	$1,200	$5,016	*
SW 30th/Ladow	Route	U.S. 395	Perkins	2300	No	$102,222	$4,600	$19,228	*
								Total	$620,000

Attachment A: SDC Improvement Project List (1998) (cont.)

Intersection Improvements
Preliminary Capital Cost Estimates

Project Name	Improvement Description	COST
Court/SW 17th	Traffic Signal	$150,000
US 30/Airport Road	Traffic Signal	$150,000
US 395/I-84 WB	Traffic Signal	$150,000
Highway 11/US 30	Traffic Signal	$150,000
Highway 11/I-84 EB	Traffic Signal	$150,000
Emigrant/SW 17th	Traffic Signal	$150,000
Frazer/SW 17th	Traffic Signal	$150,000
Frazer/SW 20th	Traffic Signal	*
Westgate/Northgate	Traffic Signal	$150,000
Emigrant/SW 20th	Traffic Signal Mod.	$50,000
Emigrant/Frazer/I-84 WB Ramps	Geometric	$50,000
I-84 WB Ramp at U.S. 395	Widen	*
Westgate/Court/Dorion	Geometric	*
Hwy 11 Viaduct		$7,557,000
Total		$8,857,000

Appendix D

Technical Memorandum #3/4 – Existing Land Use and Transportation Conditions

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

TECHNICAL MEMORANDUM #3/4

I-84 / US 395 Interchange Area Management Plan

Existing Land Use and Transportation Conditions

Date: August 19, 2009 Project #: 9627

To: Patrick Knight, ODOT Region 5

From: Matt Hughart, AICP; Nick Foster; and Marc Butorac, PE

cc: Technical Advisory Committee (TAC)
Public Advisory Committee (PAC)

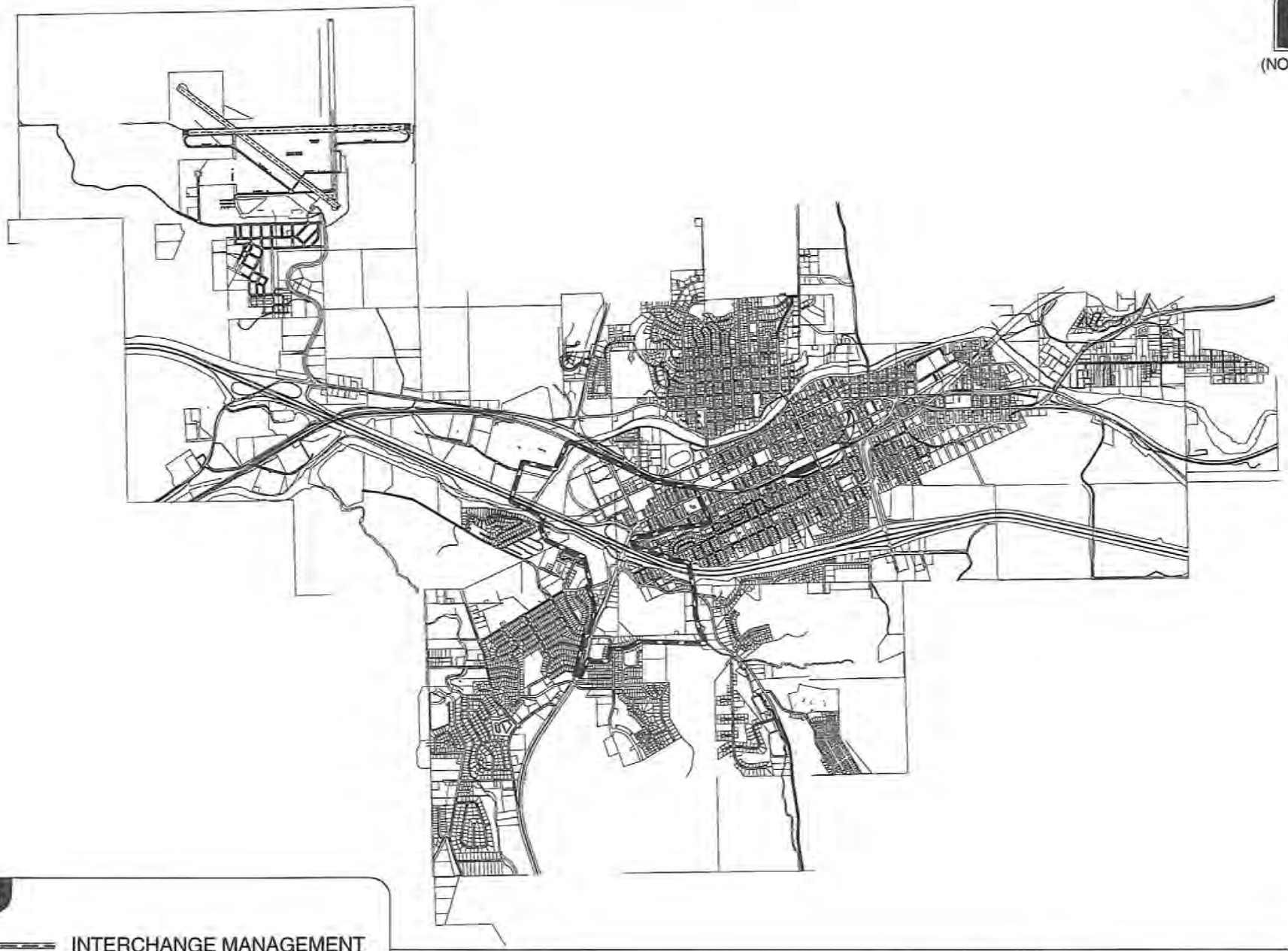
INTRODUCTION

This memorandum provides a review of existing land uses and transportation facilities within the vicinity of the I-84/US 395 interchange in Pendleton, Oregon. The information identified in this memorandum is intended to provide a basis for identifying opportunities and constraints for meeting the goals and objectives of the IAMP.

INTERCHANGE MANAGEMENT STUDY AREA

The I-84/US 395 interchange is one of four major freeway interchanges serving the City of Pendleton. Of the four interchanges, it is central to the urban core of the City as illustrated in Figure 3-1. To help define the extent of the land use and traffic operations review for this study effort, an Interchange Management Study Area (IMSA) has been defined as depicted in Figure 3-2. As the figure shows, the IMSA has been drawn to include those areas within the vicinity of the interchange that have, or are expected to have a direct impact on the daily function of the I-84/US 395 interchange. Generally speaking, land uses outside of the IMSA area are not anticipated to directly impact the function of the interchange because they don't directly access the interchange, they have other travel route options within the City, the land is already developed, the land has limited redevelopment potential, or the land is outside of Pendleton's Urban Growth Boundary (UGB).

Figure 3-2 also displays the Interchange Operations and Access Study Area. The operations and access management of intersections and accesses within this area is the subject of analysis described later in this memorandum.



LEGEND

INTERCHANGE MANAGEMENT STUDY AREA

STUDY AREA VICINITY MAP
PENDLETON, OREGON

FIGURE **3-1**

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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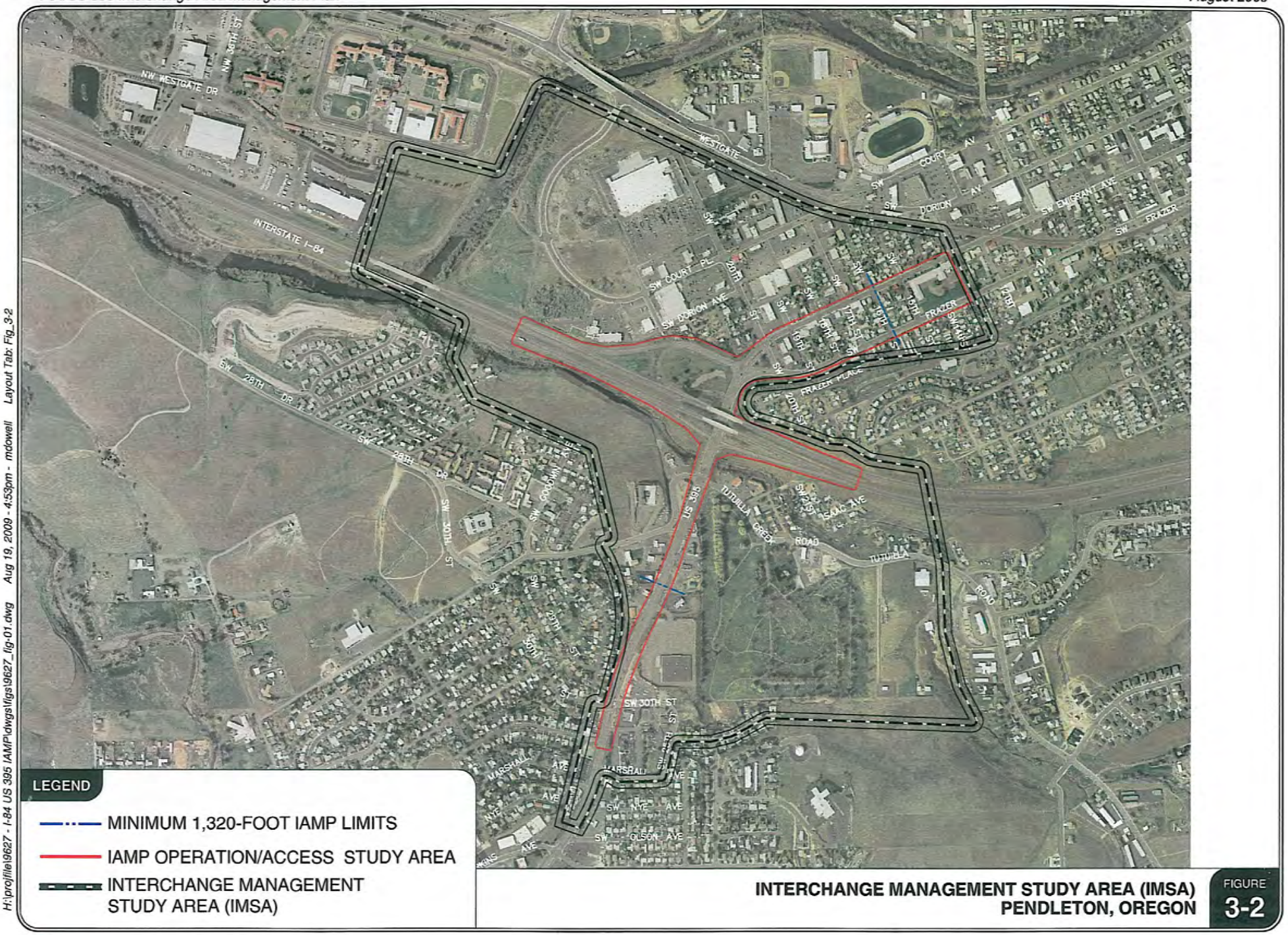

LEGEND

- MINIMUM 1,320-FOOT IAMP LIMITS
- IAMP OPERATION/ACCESS STUDY AREA
- INTERCHANGE MANAGEMENT STUDY AREA (IMSA)

INTERCHANGE MANAGEMENT STUDY AREA (IMSA)
PENDLETON, OREGON

FIGURE **3-2**

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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EXISTING LAND USE

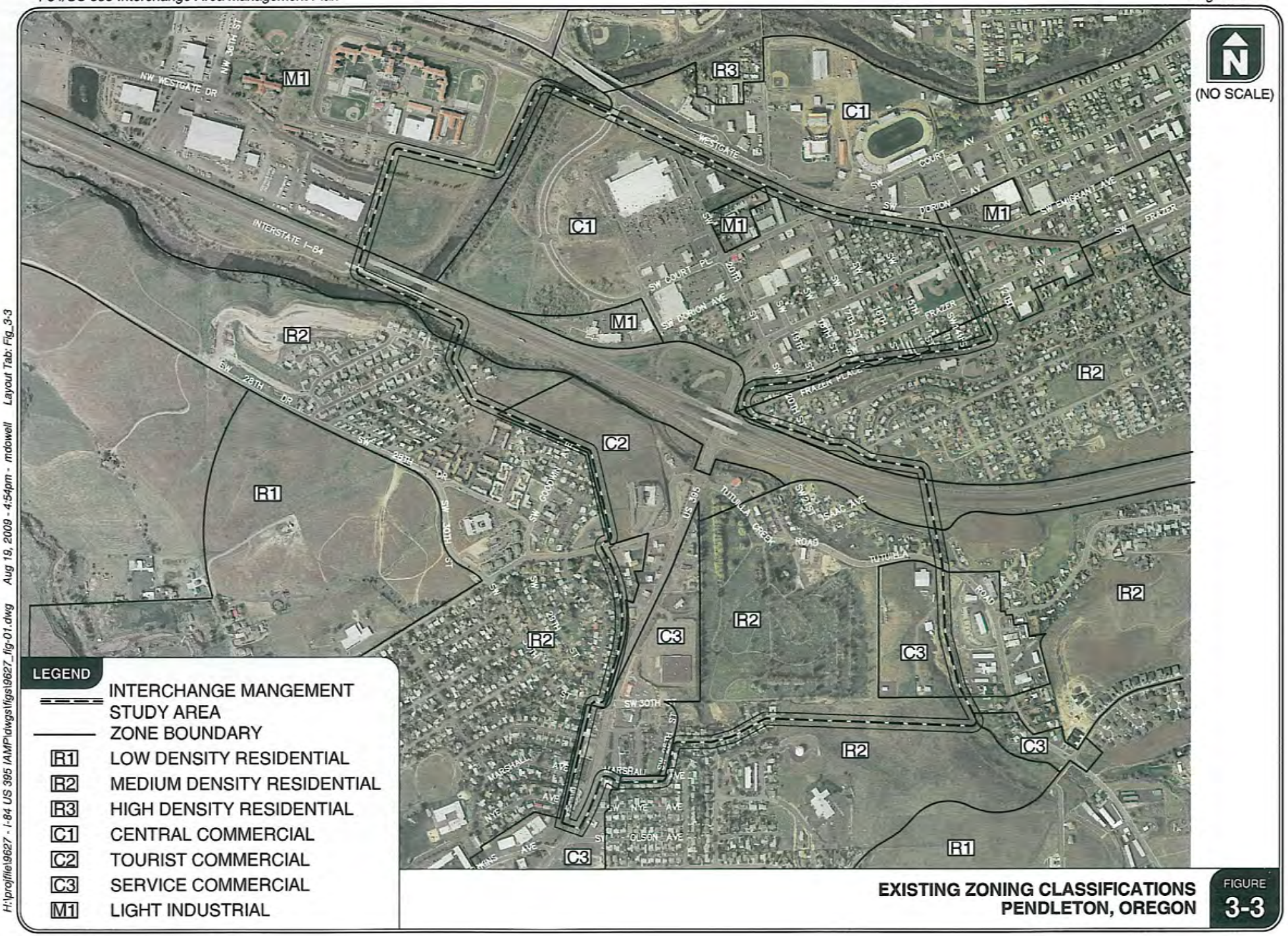
Pursuant to the requirements stated in the Oregon Administrative Rule 734-051-0155 for the preparation of an IAMP, a land use inventory has been prepared for the I-84/US 395 IAMP study area. This section provides a description of the existing land-use patterns and zoning regulations that currently exist within the IMSA.

Existing Zoning

All urban development in the vicinity of the interchange will have some impact on the facility, so it is important to review what zoning surrounds the interchange and connecting roads and what uses and standards are currently allowed or apply to the zones around the interchange to anticipate the potential for growth. Recommendations for restricting uses or modifying development standards (e.g. restricting uses with high traffic generation rates or limiting building size) are a possible outcome of the IAMP process.

Zoning in the City of Pendleton is implemented using districts or base zones. As shown in Figure 3-3, zoning in the IMSA primarily consists of commercial zones and secondarily of residential and industrial zones. Articles IV through IX of the City of Pendleton Zoning Ordinance establish permitted uses and development standards for residential, commercial, and industrial zones. Below is an overview of these provisions for the zoning districts within the identified land use study area.

- C-1 (Central Commercial)
    - Uses: vehicle services, business and personal services, housing (subject to conditions), eating and drinking establishments, general retail, public and health services, parking areas, garages, and transit facilities permitted outright; city parks, housing in the Central Parking District (subject to conditions), hospitals, cultural facilities, and transportation services permitted conditionally.
    - Development standards: no minimum lot size, maximum lot coverage, nor maximum height.
- C-2 (Tourist Commercial)
    - Uses: eating and drinking establishments, lodging, vehicle services, and information centers permitted outright; transit facilities and transportation services permitted conditionally.
    - Development standards: no minimum lot size nor maximum lot coverage; and maximum building height is 50 feet or five stories.



EXISTING ZONING CLASSIFICATIONS
PENDLETON, OREGON

FIGURE 3-3

H:\profile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_fig-01.dwg Aug 19, 2009 - 4:54pm - mdowell Layout Tab: Fig_3-3

- C-3 (Service Commercial)
  - Uses: vehicle services, business and personal services, housing (subject to conditions), eating establishments, food stores, general retail, health services, and transit facilities permitted outright; drinking establishments, housing (subject to conditions), public services, hospitals, lodging, cultural facilities, warehousing, railroad facilities, and transportation services permitted conditionally.
  - Development standards: no minimum lot size nor maximum lot coverage; and maximum building height is 50 feet or five stories.
- R-2 (Medium Density Residential)
  - Uses: detached and attached single-family housing, duplexes, townhouses, manufactured homes, residential homes and facilities, and city parks permitted outright; multi-family housing, neighborhood commercial uses, schools, churches, cemeteries, and transportation facilities permitted conditionally.
  - Development standards: minimum lot sizes range from 5,000 to 8,000 square-feet depending on slope; 5 to 18 units per acre permitted; maximum lot coverage is 40%; and maximum building height is 40 feet or three stories.
- M-1 (Light Industrial)
  - Uses: vehicle services, contractors and construction retail, light industrial, business services, repair services, wholesaling, solid waste transfer stations (subject to conditions), and transportation services and facilities permitted outright; eating and drinking establishments, public services, lodging, junk and wrecking yards, light industrial, landfills and waste treatment or disposal facilities, animal clinics and hospitals, mining, utilities, and transportation equipment permitted conditionally.
  - Development standards: minimum lot size established site-by-site in Zoning Ordinance but minimum lot sizes not identified in study area; no maximum lot coverage; and landscaping required for screening.

LAND USE INVENTORY

Commercial Uses (North of the Interchange)

Zoning north of the interchange in the study area is mostly C-1 (Central Commercial). Existing uses in the zone include large to small retail as well as residential. As mentioned in the zoning section above, housing is allowed in the C-1 (Central Commercial) zone given adequate public facilities and services and conformance with other city requirements. Immediately north/northeast of the interchange between SW 20th Street and SW 23rd Street are a mini-mart, bank, furniture store, a shopping plaza, and housing, primarily single-family. Directly north of the interchange loop ramp, south/southwest of SW 20th Street is housing and a Safeway store. West/southwest of Safeway is a glass business with a storage yard and a hotel. Across SW Court Avenue from Safeway is a Wal-Mart store, with access onto SW Court Avenue and SW 20th Street. Beyond SW 23rd Street to the northern border of the IMSA is a combination of downtown businesses, services, and housing. The railroad

forms the northern IMSA border, and the Round-Up Grounds and Convention Center lay just on the other side of the border.

Commercial Uses (South of the Interchange)

Unlike the commercial development north of the interchange, which reflects the city's transition to downtown, the development in the C-2 (Tourist Commercial) zone south of the interchange reflects this area's orientation to the freeway and is comprised of fast, convenient, and motor vehicle-oriented businesses. Immediately south of the interchange along US 395 (Southgate), SW Hailey Avenue, and SW Tutuilla Creek Road are a Burger King , Denny's, and motel.

Commercial zoning lines US 395 (Southgate) as it travels south from the interchange. Between the SW Hailey Ave/SW Tutuilla Creek Rd intersection and SW 30th Street are a series of retail businesses and professional services including a gas station, oil change shop, car wash, Wendy's, McDonald's, Subway, Starbucks, Abby's Pizza, a mini-mart, and two realtors. There is also a retailer on a large lot – D&B – a farm store that took over the building and property from K-Mart.

Residential Uses (North of the Interchange)

There are areas of residential zoning and housing in the IMSA. The IAMP process and the preferred alternative for the IAMP and interchange-related transportation improvements need to be sensitive to existing residential areas. The homes in the study area tend to be "stick-built" and "site-built" and not mobile or manufactured homes, according to City staff, even though mobile homes are allowed in the C-1 and R-2 zones.

As noted earlier, housing is allowed in the C-1 (Central Commercial) zone and existing housing is found interspersed with commercial uses north of the interchange. In particular, there is a block of housing between the northern interchange loop ramp and SW 20th Street, across from the Safeway. There is also housing in the R-2 (Medium Density Residential) zone in the northeast quadrant of the interchange. This area's direct impact on future interchange operations is assumed to be minimal because of the lack of new developable land, grade differences, and lack of direct access to US 395. While traffic from this area will be included in the transportation analysis, this area is not included in the IMSA for purposes of land use analysis or access management.

Residential Uses (South of the Interchange)

Housing south of the interchange is located in the only residential zoning district within the IMSA, the R-2 (Medium Density Residential) zone. There is an area of housing adjacent to the freeway and east of the Denny's and motel on SW Tutuilla Creek Road. There is also a large area of residentially zoned land (R-2) in this southeast quadrant of the interchange and study area that is vacant. This area is included in the study area because planned roads shown in the City's Transportation System Plan (TSP) will connect SW Ladow Avenue and SW Tutuilla Creek Road. This will create another connection between SW Tutuilla Creek Road and US 395 (Southgate). There are large developed neighborhoods southwest of the interchange, but as with the areas north of the interchange, these neighborhoods have not been included in the study area because of grade differences and only

indirect access to US 395 and the interchange. Traffic from these and other areas of the city, however, will be captured in transportation analyses conducted over the course of this project through regional growth projections.

Other Uses

Other uses and features in the IMSA include industrial uses, institutional uses, open space, the Umatilla River and Tutuilla Creek. Light industrial uses are found in the IMSA in areas of light industrial (M-1) zoning. For example, the M-1 zone directly to the northwest of the westbound I-84 loop ramp is the site for a glass business, which also uses the site for storage. A larger area of M-1 zoning is found in the IMSA west of the Umatilla River, adjacent to and north of the freeway. This area was included in the study area because of planned roadways across the river shown in the City's TSP. This industrially zoned land is currently vacant and owned by the City. North of it is the Eastern Oregon Correctional Institution, a 1,600-bed facility and the city's fourth largest employer, according to the Oregon Department of Corrections.

Institutional uses in the study area include a church, cemetery, and a US Forest Service (USFS) building, all to the south of the interchange. The USFS building that is directly south of the eastbound I-84 off-ramp and the Burger King is the headquarters for the Umatilla National Forest. This land is not owned by the USFS or federal government. Olney Cemetery occupies a large area southeast of the interchange. The 55-acre site and associated facilities are owned and managed by the City and its Parks Department. According to the City's website, of the 70,000 available graves, 17,000 people have thus far been interred there, including transfers from a former pioneer cemetery.

On the west side of US 395 (Southgate), there are two churches across SW Hailey Avenue from each other. Only the church on the south side of SW Hailey Avenue (behind the realtor office, gas station, and Starbucks) has access to US 395 (Southgate) and is included in the study area. At the south tip of the IMSA and directly south of SW 30th Street is a medical center. City staff report that it functions as a regional facility, drawing visitors and patients from outside the city and not just inside the city.

Vacant Land

The most significant areas of vacant land in the IMSA are found north of the interchange west of the Wal-Mart and then across the Umatilla River on the City-owned property south of the Eastern Oregon Correctional Institution. These areas are zoned C-1 (Central Commercial) and M-1 (Light Industrial) respectively. The land west of Wal-Mart in particular has the potential to generate traffic given its commercial zoning and existing roads and infrastructure in the area. The City-owned land across the river is planned to be accessible via a new bridge and roads shown in the City's TSP, but these are long-term projects, so this land can be considered developable but later in a 20-year planning horizon.

South of the interchange, there is land in the southeast section of the study area that is vacant residentially zoned land. The land was included in the study area because of planned roads and connections to SW Ladow Avenue and SW Tutuilla Creek Road, which connect to US 395 (Southgate). Development here would likely occur later in the planning period, given the need to

first, or concurrently, build these connecting roads. Residential development is assumed for future land use scenarios.

There is also vacant land included in the IMSA that is residentially zoned and is adjacent to the freeway and interchange in its southwest quadrant. This land is steeply sloped and less likely to be developed any time soon, if at all. If developed, this area would likely be homes rather than employment (commercial or industrial) uses. The area is not well suited to employment uses, which tend to seek flatter land and might conflict with adjacent residential neighborhoods.

City staff identified the potential for infill development amongst existing commercial development along US 395 (Southgate) south of the interchange. However, there has been no recent indication of private interest.

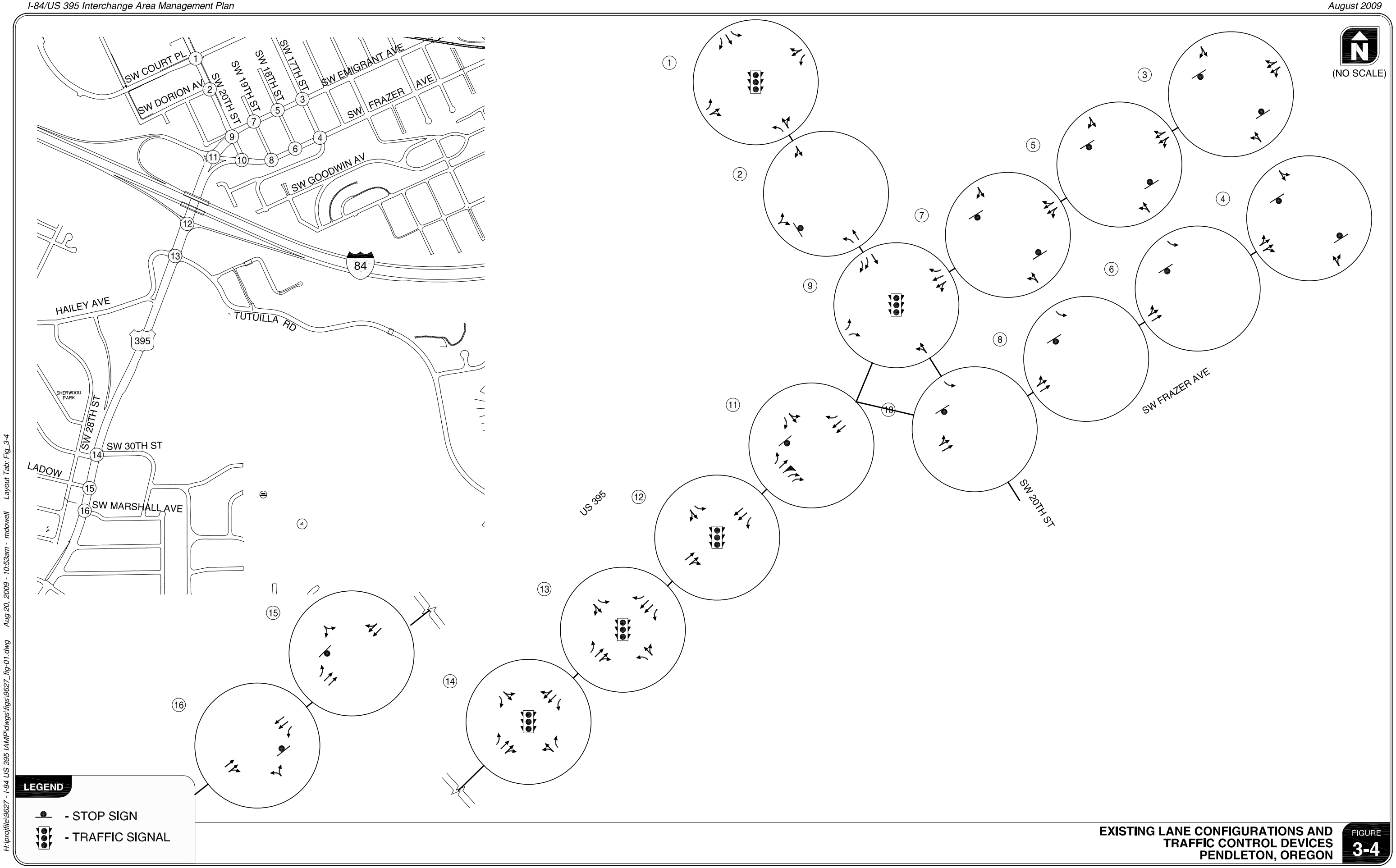
Despite the vacant land and development opportunities documented here, City planning staff report that there are no submitted or pending development applications in the IMSA at this time, nor have there been informal inquiries or conversations with staff about development in the vicinity of the interchange.

EXISTING TRANSPORTATION INVENTORY

The second major component of the I-84/US 395 IAMP existing conditions evaluation process is the transportation system. The existing transportation inventory provides a detailed description of all transportation facilities and travel modes within the study area. In addition, the inventory identifies the current operational, traffic control, and geometric characteristics of roadways and other transportation facilities. A detailed description of these facilities is provided in the following sections.

ROADWAY FACILITIES

The roadways within the IMSA include state and city roadways. A description of each of the functionally classified roadway facilities is summarized below and in Table 3-1. The remaining roadways (e.g., SW 19th Street, SW 18th Street, etc…) are classified as local roads and typically are 25 mph, two-lane sections with sidewalks and on-street parking but no bike lanes. Figure 3-4 illustrates the existing lane configurations and traffic control devices at the study intersections.



EXISTING LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES PENDLETON, OREGON

FIGURE 3-4

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H:\profile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_fig-01.dwg Aug 20, 2009 - 10:53am - mdowell Layout Tab: Fig_3-4

Table 3-1 Existing Transportation Facilities and Roadway Designations

Roadway	Existing Roadway Ownership/ Functional Classification	Cross-section	Posted Speed (mph)	Side-walks?	Bicycle Lanes?	On-Street Parking?
Interstate-84	ODOT/ Interstate Highway	4-lane	65	No	No	No
US 395 (Southgate)	ODOT/ Statewide Highway-Freight Route	5-lane	30	Yes	Yes	No
SW Emigrant Avenue (OR 37)	ODOT/ District Highway	2-lane	30	Yes	Yes	No
SW Frazer Avenue (OR 37)	ODOT/ District Highway	2-lane	30	Yes	Yes	No
SW 17th Street	City/ Minor Arterial – Local[2]	2-lane	25	Yes	No	Yes
SW 20th Street	City/ Minor Arterial – Local[1]	3-lane	25	Yes	No	No
SW Tutuilla Creek Road	City/ Minor Arterial	2-lane	25	Yes	Yes	No
SW Hailey Avenue	City/ Urban Collector	2-lane	25	Yes	No	No
SW 30th Street	City/ Urban Collector[3]	2-lane	25	Yes	No	Yes
Local Streets[4]	City/ Local Streets	2-lane	25	Partial	No	Partial

[1]SW 20th Street is classified as a minor arterial northwest of SW Emigrant Avenue and a local road to the southeast
[2]SW 17th Street is classified as a minor arterial northwest of SW Frazer Avenue and a local road to the southeast
[3]SW 30th Street is classified as an urban collector west of Southgate and a local road to the east
[4]Local Streets include SW 19th Street, SW 18th Street, SW Dorion Avenue, SW Court Place, SW Ladow Avenue, SW Nye Avenue, SW Olson Avenue, and SW Perkins Avenue

Interstate-84

I-84 is a four-lane interstate highway that runs east-west through Pendleton. It is the main east-west travel route within the state of Oregon providing a connection between Portland, Oregon and Boise, Idaho. I-84 is part of the National Highway System and is designated in the 1999 Oregon Highway Plan (Reference 1) as an Interstate Highway, Freight Route, and Truck Route. Interstate 84 was being repaved in the vicinity of the interchange at the time of the site visit.

Interstate-84 Ramps

The eastbound ramps are a diamond configuration. They include a single-lane on and a single-lane off the interstate in the eastbound direction between the right travel lane of I-84 and Southgate. The eastbound off-ramp provides approximately 900 feet for deceleration and queue storage from the ramp gore to the ramp terminal intersection. Its intersection with Southgate is signalized and there is approximately 100 feet of storage for the added eastbound right-turn lane.

The westbound ramps consist of an exiting loop ramp and a conventional on-ramp located in the northwest quadrant of the interchange (commonly referred to as a partial cloverleaf PARCLO-B interchange configuration). They include a single-lane on and a single-lane off the interstate in the westbound direction between the right travel lane of I-84 and Southgate The westbound off-ramp provides approximately 1,300 feet for deceleration and queue storage from the ramp gore to the ramp terminal intersection. There is approximately 400 feet of storage for the added eastbound right-turn lane from the off-ramp onto Southgate.

Due to the area's topography, I-84 is elevated over Southgate, which slopes downward from south to north. Consequently vehicles entering I-84 must travel up a grade while accelerating to merge onto I-84. Exhibit 3-1 shows the eastbound on-ramp.

Exhibit 3-1 Eastbound I-84 On-Ramp from US 395 (Southgate)

The partial cloverleaf configuration of the westbound ramps allows for their intersection with Southgate to be spaced further away from I-84 than the eastbound ramps. There is approximately 650 feet between the ramp terminal intersections on Southgate. This allows for nearly 300 feet of storage for left-turning vehicles between the ramp terminals. There is approximately 250 feet between the westbound ramp terminal and the SW Emigrant Avenue/SW 20th Street intersection. This spacing can be used exclusively for northbound left-turn storage at the SW 20th Street intersection because there is no southbound left-turn at the ramp terminal.

US 395 (Southgate)

US 395, the Pendleton-John Day Highway, is classified by the Oregon Highway Plan as a Statewide Highway. It travels north-south across the state of Oregon from Washington to California through cities such as Lakeview, John Day, Pendleton, and Hermiston. Locally, it is known as Southgate from I-84 to the south city limits. US 395 (Southgate) proceeds to become the SW Emigrant Avenue-SW Frazer Avenue couplet, northeast of I-84. Within the study area, it has signalized intersections at the

eastbound I-84 ramp terminals, SW Hailey Ave/SW Tutuilla Creek Road, SW 30th Street, and SW Perkins Avenue. The Southgate corridor is primarily occupied by commercial uses, with highway-oriented uses near the interchange. It is also a major commuter route providing a north-south connection across the interstate between downtown Pendleton and the southern residential areas.

Exhibit 3-2 US 395 (Southgate) Northbound

SW Emigrant Avenue-SW Frazer Avenue (OR 37) Couplet

The SW Emigrant Avenue-SW Frazer Avenue couplet is also OR 37 from its junction with US 395 to SW 17th Street. OR 37 is classified as a District Highway by the Oregon Highway Plan and is not a National Highway System (NHS) route. SW Emigrant Avenue (one-way southwestbound) is primarily fronted by commercial uses and SW Frazer Avenue (one-way northeastbound) is primarily accessed by residential uses within the study area. Both roadways have two-lane sections with sidewalks and bicycle lanes.

SW 17th Street (OR 37)

SW 17th Street is also OR 37 from the SW Emigrant Avenue-SW Frazer Avenue couplet to SW Court Avenue. This section of OR 37 is classified as a district highway by the Oregon Highway Plan and is not a National Highway System (NHS) route. SW 17th Street is a minor arterial and provides a connection from the SW Emigrant Avenue-SW Frazer Avenue couplet to the SW Dorion Avenue-SW Court Avenue couplet, as well as West Gate Avenue (US 30), which travels west across the Umatilla River and provides access to the Eastern Oregon Correctional Institution, Blue Mountain Community College, and Eastern Oregon Regional Airport.

SW 20th Street

SW 20th Street is a City roadway that connects the SW Emigrant Avenue-SW Frazer Avenue couplet to SW Court Place, a relatively newer roadway that has more recently experienced new large-scale retail and hotel development. SW 20th Street has sidewalks, but lacks bicycle lanes. Although it is part of the City street grid, SW 20th Street does not have on-street parking given its significance as a major connecting roadway to the I-84/US 395 interchange and its limited right-of-way.

SW Tutuilla Creek Road

SW Tutuilla Creek Road is a two-lane minor arterial with sidewalks and bike lanes along most of the roadway within the study area. It provides access to the City's cemetery and residential and industrial areas in the southeast portion of Pendleton. The road extends much further out into rural county land. It also provides connections to other roadways (SW Marshall Ave-SW Nye Ave) that access the easternmost I-84 interchange in Pendleton.

SW Hailey Avenue

SW Hailey Avenue is a two-lane urban collector with sidewalks. It provides access into residential areas in southwest Pendleton. It also connects to SW 37th Street, which provides access to Pendleton Community Park.

SW 30th Street

SW 30th Street is a two-lane urban collector to the west of Southgate. It provides access to residential areas and connects to SW Hailey Avenue. SW 30th Street terminates just to the east of Southgate, where it functions as a local road.

Local Streets

SW 19th Street, SW 18th Street, SW Dorion Avenue, SW Court Place, SW Ladow Avenue, SW Nye Avenue, SW Olson Avenue, and SW Perkins Avenue all function as local streets providing access to local properties. Most of theses streets have sidewalks and allow on-street parking.

PUBLIC TRANSPORTATION FACILITIES

There are no fixed line public transportation facilities that operate within the IMSA. Through a grant from ODOT, the City of Pendleton operates a demand-responsive bus service from 1:00 p.m. to 5:30 p.m. Monday through Friday. The City also contracts with local taxi service to provide transportation options for senior and disabled citizens.

PEDESTRIAN AND BICYCLE FACILITIES

Sidewalks and bicycle lanes make up the exclusive pedestrian and bicycle facilities inventory in the IMSA. Sidewalks are present on nearly every functionally classified roadway within the study area, with the exception of I-84. Generally, pedestrian activity in the study area is the highest on SW Emigrant Avenue (it should be noted that pedestrian and bicycle counts were only conducted north of SW 30th Street). The SW 17th Street/SW Emigrant Avenue intersection had the highest amount of pedestrian activity, with 163 pedestrians walking through the intersection from 6 a.m. to 10 p.m., with the highest hour occurring from 3:00 p.m. to 4:00 p.m. when 31 pedestrians walked through. The I-84 eastbound ramp terminals had the second highest level of pedestrian activity, with 133 pedestrians from 6:00 a.m. to 10 p.m. Pedestrian activity was the lowest along SW Frazer Avenue, most notably at the SW 18th and 19th Street intersections.

Bicycle lanes are present on many of the classified roadways. US 395 (Southgate) and the SW Emigrant Avenue-SW Frazer Avenue couplet have bicycle lanes, thereby providing a route from the southwestern portion of Pendleton into the downtown core. The highest bicycle volumes were observed at the SW 17th Street intersections of the SW Emigrant Avenue-SW Frazer Avenue couplet (15 and 13 bicycles during the 16-hour period described above, respectively), followed by the SW 20th Street intersections of the couplet, as well as SW Dorion Avenue (16-hour volumes ranged from 11 to 13 bicycles). On this note, bicycle lanes are absent from SW 20th Street, which provides a connection to SW Court Place and West Gate Avenue (US 30).

EXISTING TRAFFIC VOLUMES AND PEAK HOUR OPERATIONS

Manual intersection turning movement counts were obtained from ODOT at each of the study intersections to assess the operational performance and characteristics within the study area. These counts were conducted on mid-week days in April 2007 and May 2009. A description of the analysis conducted with this data is summarized in the following sections.

Peak Hour Intersection Volumes

Turning movement counts at each intersection were recorded from 6:00 a.m. to 10:00 p.m. Because of the close proximity of the intersections, a system-wide peak hour is identified based on the volumes at all study intersections. The weekday p.m. peak hour in the IMSA occurs from 4:30–5:30 p.m. The turning movement volumes at each study intersection are balanced during this hour to account for the differences in data collection dates and locations where some data is missing. Exhibits 3-3 through 3-5 illustrate the 16-hour volume peaking characteristics of the I-84 ramp traffic and I-84 through traffic. Exhibit 3-6 illustrates the 16-hour volume peaking characteristics of US 395 (Southgate) south of I-84. *The existing unadjusted turning movement traffic counts are provided in Attachment "A."*

Exhibit 3-3 16-Hour Volume Profile for I-84 WB Ramps at US 395 (Southgate)

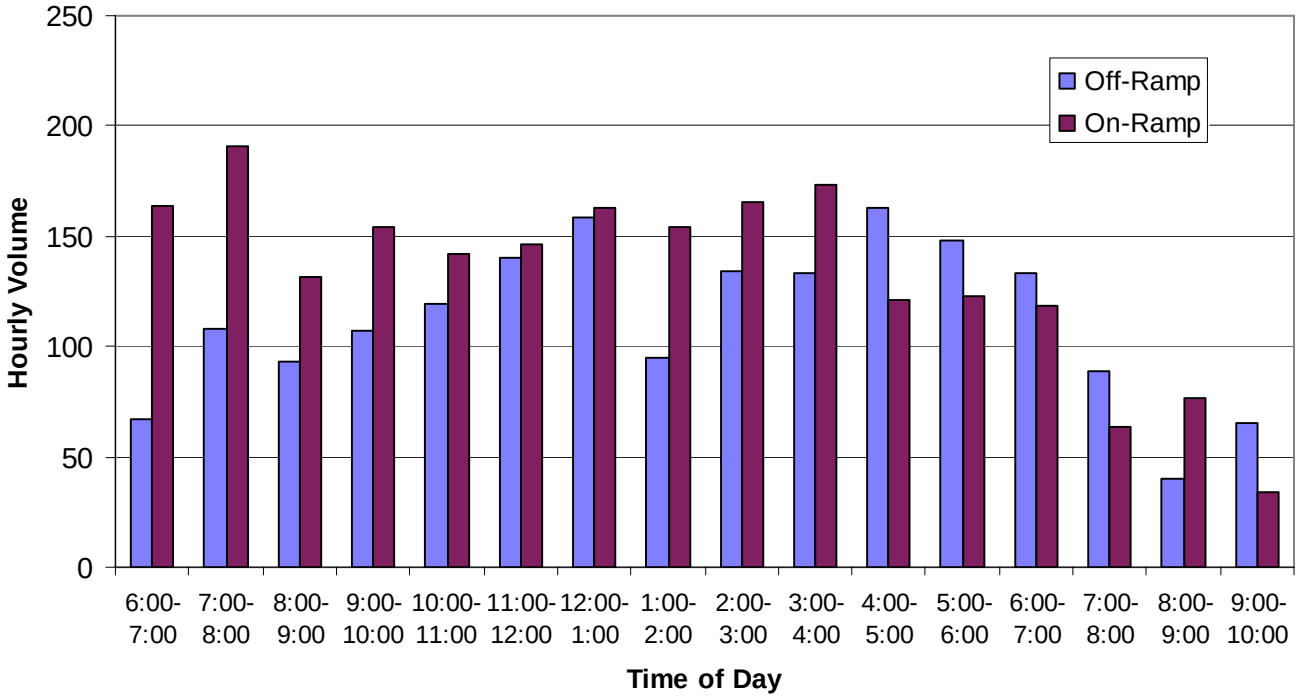


Exhibit 3-4 16-Hour Traffic Volume Profile for I-84 EB Ramps at US 395 (Southgate)

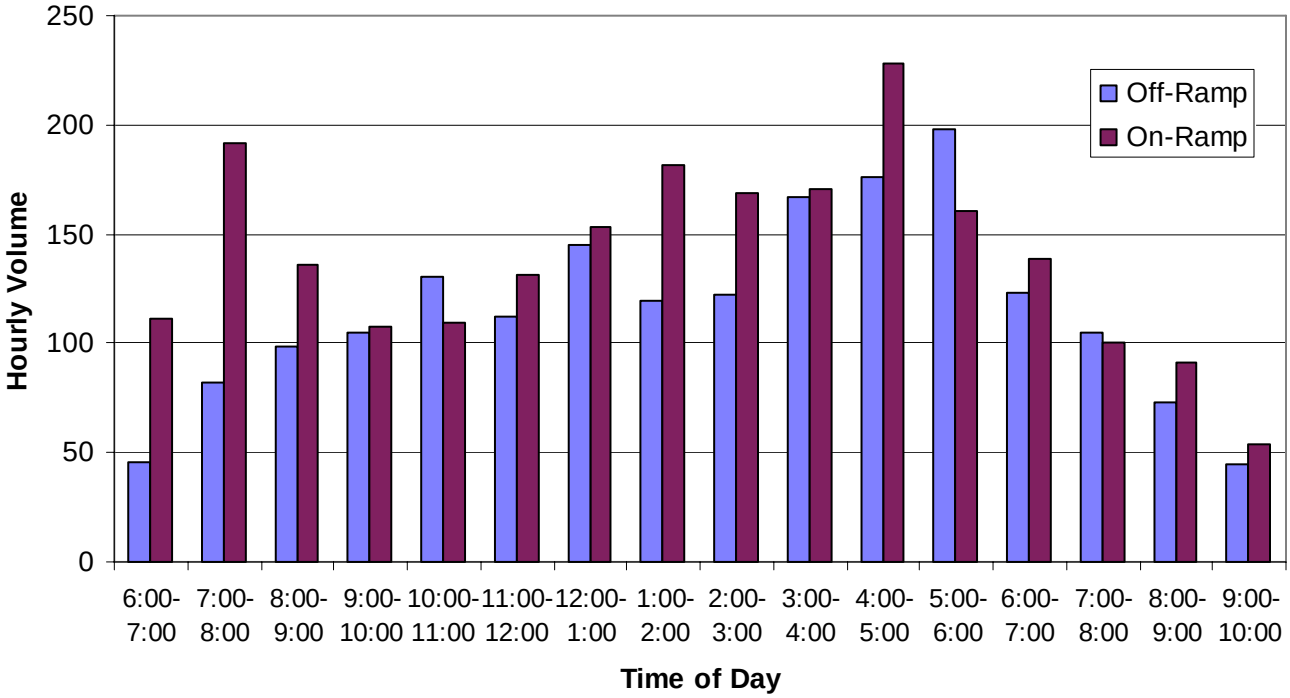


Exhibit 3-5 16-Hour Traffic Volume Profile for I-84 West of US 395

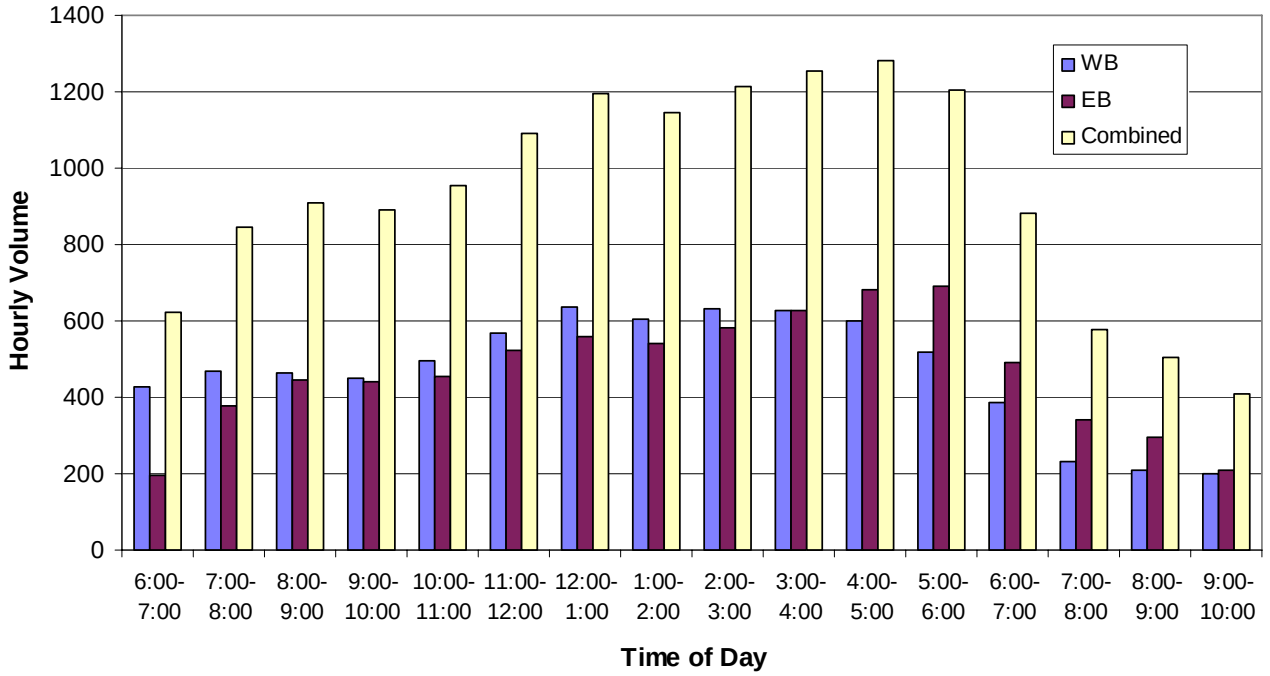
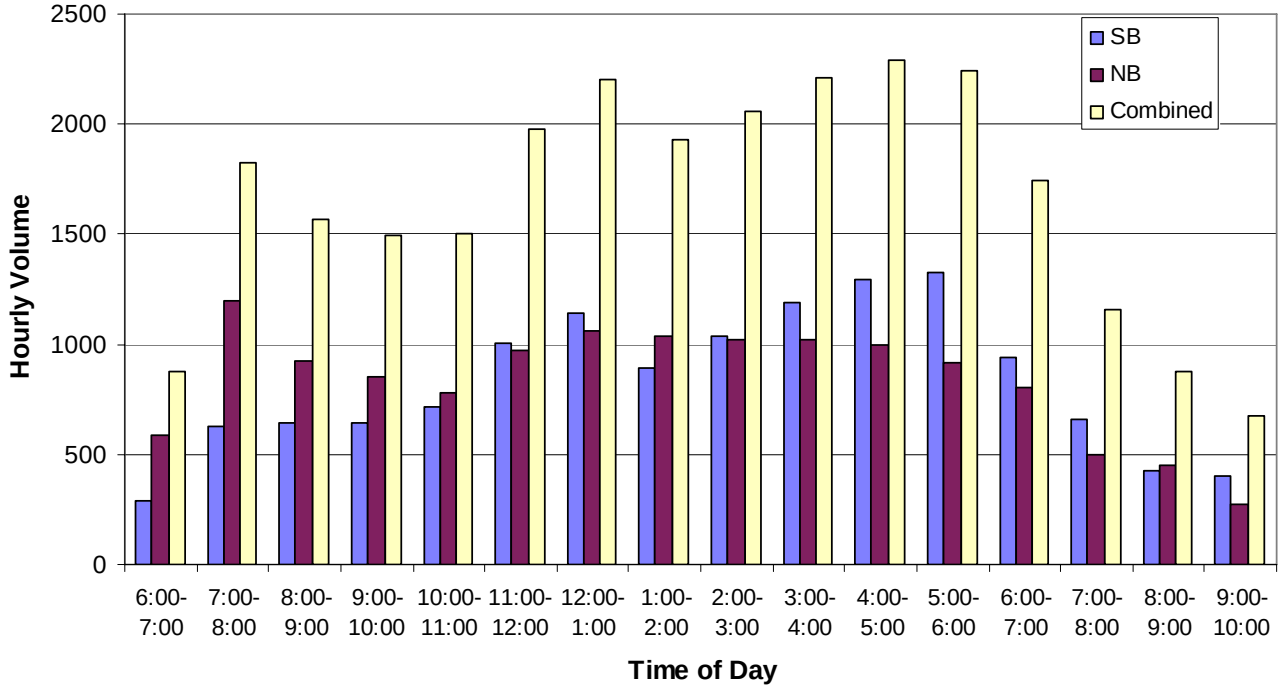


Exhibit 3-6 16-Hour Traffic Volume Profile on US 395 (Southgate) South of I-84



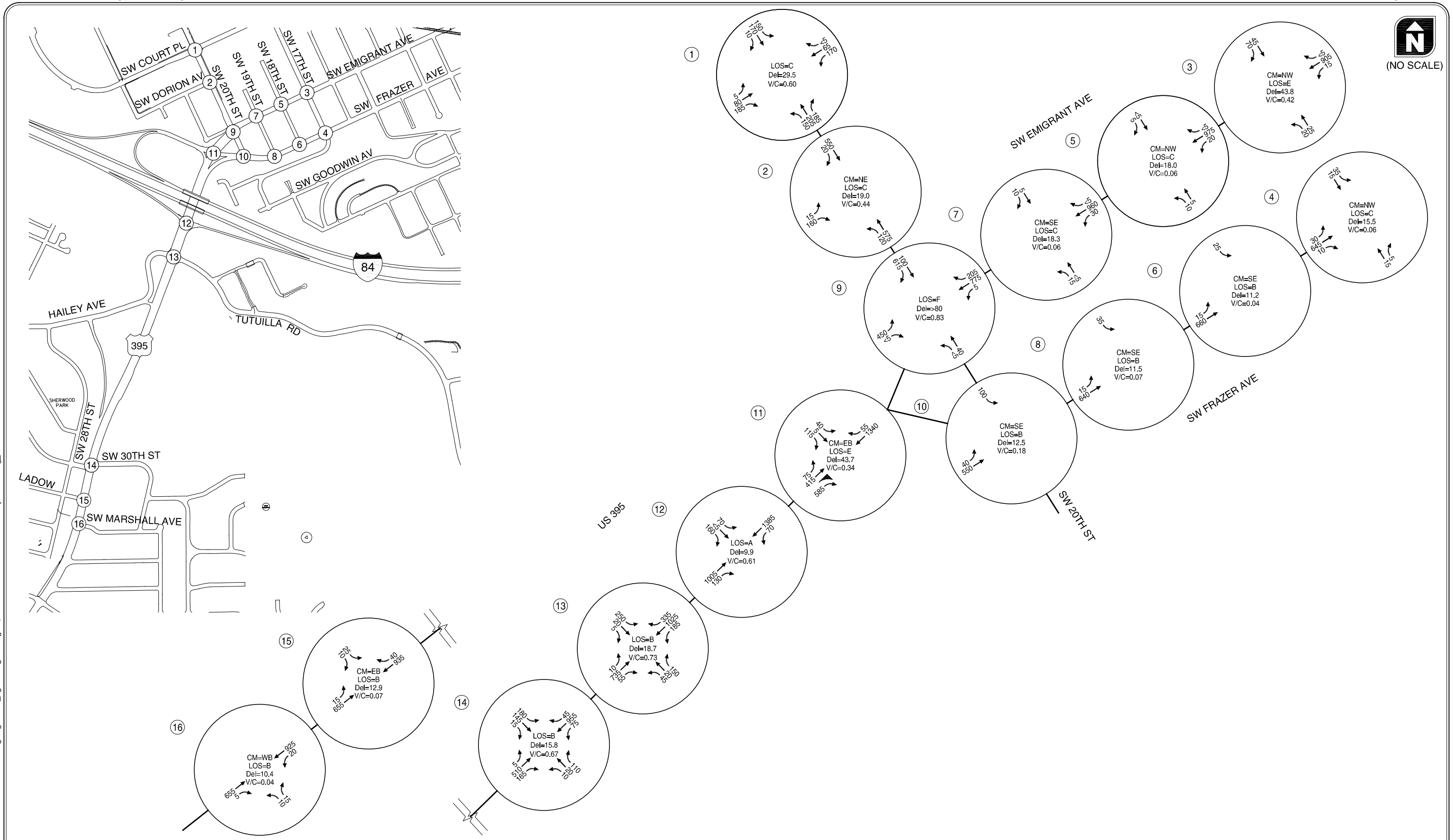
Seasonal Adjustments

Following the methodology outlined by ODOT's Analysis Procedures Manual (Reference 2), a seasonal adjustment factor was applied to the traffic counts collected for the existing conditions analysis in order to estimate 30th highest hour volumes. The counts were collected in April and May, so seasonal adjustment factors were calculated for both months. I-84 and US 395 exhibit different characteristics so separate factors were calculated for each roadway. The seasonal adjustment factor for I-84 volumes is calculated from ODOT automatic traffic recorder (ATR) #30-004, which is located on I-84, approximately 6.20 miles west of US 395. Meanwhile, the seasonal adjustment factor for US 395 and other roads in Pendleton is based on data from ATR #30-008, which is located on US 395, approximately 0.09 miles south of I-84. The factors for I-84 for April and May are 1.17 and 1.13, respectively and they are 1.01 for both months on US 395. The factor is much smaller on US 395 since its traffic is mostly local commuter traffic. This traffic pattern minimizes the seasonal fluctuations when compared to I-84 which sees a substantial amount of summertime recreational travel. The weekday 30th highest hour intersection turning movement counts used for the existing conditions analysis are shown in Figure 3-5.

Existing Intersection Operations

All operations analyses described in this report were performed in accordance with the procedures stated in the *Highway Capacity Manual 2000* (Reference 3). The OHP sets operational standards based on volume-to-capacity (v/c) ratios for the interchange ramp terminals (v/c of 0.80), intersections of US 395 (v/c of 0.85), and OR 37 (v/c of 0.90). These standards apply to the overall v/c ratio at signalized intersections and to the state highway approaches at unsignalized intersections. The minor street approaches that are stop-controlled at signalized intersections have a standard of a v/c ratio of 0.90. The operational standard for all other study intersections is the City standard of LOS "D." This is different than the ODOT standard in that it focuses on the delay experienced by drivers at the intersection as opposed to the intersection's capacity.

As shown in Figure 3-5, all study intersections currently meet applicable operation standards. *The existing conditions operations worksheets are provided in Attachment "B."* While overall intersection standards are met, there are certain movements at several critical intersections that operate without sufficient capacity and with excessive delay. These intersections are described below.



EXISTING 30TH HOUR TRAFFIC CONDITIONS
PENDLETON, OREGON

FIGURE **3-5**

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SW 20th Street/SW Emigrant Avenue (I-84 WB Ramp Terminal)

This intersection has a v/c ratio of 0.83, which meets the ODOT standard of 0.90 for this intersection. However, the northbound left-turn and the southbound through movement on SW Emigrant Avenue operate with v/c ratios greater than 1.0 and LOS "F." The lack of capacity for the northbound left-turn movement is particularly problematic as it induces long queues (95th-percentile queue of greater than 475 feet) that spillback in front of the westbound I-84 off-ramp and block the left-turn/through lane from the ramp. This means that the westbound I-84 ramp terminal intersection likely operates with greater delay and less capacity than is reported in this analysis.

SW 20th Street/SW Court Place-Avenue

The southbound left-turn from SW 20th Street onto SW Court Avenue currently operates with a v/c ratio greater than 1.0 and at LOS "F." Currently there are 150 vehicles making this movement during the 30th-highest hour, while 390 vehicles in one lane oppose it on the opposite approach. The *Signalized Intersections: Informational Guide* published by the Federal Highway Administration (Reference 4) provides guidance that left-turn phasing (e.g. protected-permissive) should be considered when the product of the left-turning and opposing volumes exceeds 45,000 vehicles. For this approach, the product is over 58,000. Providing protected left-turn phasing would provide sufficient capacity at this intersection.

TRAFFIC SAFETY

The crash histories at key intersections were reviewed in an effort to identify potential intersection safety issues. Crash records were obtained from ODOT for the five-year period from January 1, 2003 through December 31, 2007. Table 3-2 contains the summary of reported crashes at these intersections.

Table 3-2 Intersection Crash Histories (January 1, 2005 through December 31, 2007)

Intersection	# of Crashes	Crash Rate[1]	Crash Type				Severity		
			Angle	Rear-End	Turning	Other	PDO	Injury	Fatality
I-84 WB Ramps/ US 395 (Southgate)	8	0.2	1	2	3	2	4	4	0
I-84 EB Ramps/ US 395 (Southgate)	16	0.3	3	6	7	0	8	8	0
SW 20th Street/SW Emigrant Avenue	11	0.3	2	3	5	1	8	3	0
SW 20th Street/SW Frazer Avenue	2	0.1	0	0	1	1	2	0	0
SW 19th Street/SW Emigrant Avenue	1	0.1	0	1	0	0	0	1	0
SW 19th Street/SW Frazer Avenue	1	0.1	0	0	1	0	1	0	0
SW 18th Street/SW Emigrant Avenue	None Reported								
SW 18th Street/SW Frazer Avenue	None Reported								
SW 17th Street/SW Emigrant Avenue	9	0.4	5	0	3	1	7	2	0
SW 17th Street/SW Frazer Avenue	4	0.2	0	0	4	0	3	1	0
SW Hailey Ave-SW Tutuilla Creek Rd/ US 395 (Southgate)	17	0.3	3	9	5	0	9	8	0
SW 30th Street/ US 395 (Southgate)	5	0.2	0	2	2	1[2]	3	2	0

[1]Crash rate is expressed in terms of crashes per million entering vehicles
[2]Two pedestrians were struck by a vehicle and injured

The SW 17th Street/SW Emigrant Avenue intersection exhibits the highest crash rate in Table 3-2. Six of the nine reported crashes involve northwest bound vehicles leaving the stop-controlled SW 17th Avenue approach and failing to yield the right-of-way to southwest bound vehicles on uncontrolled SW Emigrant Avenue. This type of pattern is consistent with an intersection where there is a heavy uncontrolled through movement and the side street experiences moderate to high delay.

The SW Hailey Ave-SW Tutuilla Creek Rd/US 395 (Southgate) intersection has the highest number of crashes. Over half of these are rear-end crashes and nearly all of these occurred on US 395 (Southgate). This pattern is fairly typical at a signalized intersection.

The I-84 EB Ramps/US 395 (Southgate) intersection has the second highest number of reported crashes, but the data was collected before the signal was installed. Prior to the installation of the signal, there was a high proportion of rear-end crashes on the off-ramp. There were also two crashes at this intersection involving a bicycle traveling northeast. The addition of protected phasing for the

southbound left-turn would have likely prevented one of these crashes. The installation of the right-turn island on the northbound approach will help prevent certain types of right-turning crashes with bicyclists.

A review of the crash data at the I-84 WB Ramps/US 395 (Southgate) intersection reveals that the reported crashes are fairly evenly split amongst different types and movements, with none being particularly high. *ODOT crash data summary sheets are provided in Attachment "C".*

EXISTING ROADWAY ACCESS CONDITIONS

There are currently 92 public and private access points located within the US 395/SW Emigrant Avenue/SW Frazer Avenue Operations and Access Study Area (roughly ½ mile to the north and south of the interchange). Of these access points, 68 are located north of the interchange while the remaining 22 access points (excluding the interchange ramp terminals) are located south of the interchange. As the summary illustrates, there is a proportionally larger number of access points on the north side of the interchange. This is due to the presence the city street grid that begins immediately north of the interchange, the compounding effect of the SW Emigrant Avenue and SW Frazer Avenue couplet (which provides access opportunities on both sides of the roadways), and geography constraints which limit access on the south side of the interchange. Figure 3-6a and 3-6b illustrate the location and type (public or private) of each of the access locations within the Operations and Access Study Area. Table 3-3 summarizes the tax lots and existing businesses served by each of the access points as well as other miscellaneous descriptive information such as driveway width, mile point location, and permit number (if applicable).

Oregon Administrative Rule 734, Division 51 and the Oregon Highway Plan (OHP) identify ODOT's access management standards within the vicinity of interchanges. Based on an outright application of the standards, no full public or private access is allowed within 1,320 feet (¼ mile) from the ramp terminals. Figures 3-6a and 3-6b show the 1,320 foot access control area as measured from the Interstate-84 ramp terminal intersections. As shown, 26 private and 17 public accesses are located within the 1,320-foot control area north of the interchange. As previously noted, this proliferation of access points is related to the presence of the existing city street grid and multiple property access afforded by the roadway couplet.

On the south side of the interchange, 9 private and 3 public accesses are located within the 1,320- foot control area. Due to geography constraints, some level of access consolidation has naturally occurred which has reduced the number of private driveways. However, the presence of the signalized SW Hailey Avenue/Tutuilla Creek Road intersection located only several hundred feet south of the eastbound ramp terminal along with the existing private driveways will be an important access planning element to be explored as part of future alternatives analyses.

***Editors Note – Cells shaded in gray in the following table will be filled in once additional information is obtained from ODOT.

Table 3-3 I-84/US 395 IAMP Public/Private Approach Inventory

Figure 3-6 ID	Roadway	Approach Type	Side of Roadway	Serves Tax Lot Number	Property Owner / Business Name	Mile Point	Approach Width / Type	Permitted? / Permit #	Date of Permit
1	SW Emigrant Ave	Public	West	-	SW 13th St.				
2	SW Emigrant Ave	Private	West	2n32e10ca, 200	Business				
3	SW Emigrant Ave	Private	West	2n32e10ca, 200	Business				
4	SW Emigrant Ave	Private	West	2n32e10ca, 200	Residential				
5	SW Emigrant Ave	Private	West	2n32e10ca, 600	Residential				
6	SW Emigrant Ave	Public	West	-	SW 14th St.				
7	SW Emigrant Ave	Private	West	2n32e10ca, 1700	Residential				
8	SW Emigrant Ave	Private	West	2n32e10ca, 1900, 2001	Business - Gas Station				
9	SW Emigrant Ave	Public	West	-	SW 15th St.				
10	SW Emigrant Ave	Private	West	2n32e10ca, 3800	Residential				
11	SW Emigrant Ave	Private	West	2n32e10ca, 3900	Residential				
12	SW Emigrant Ave	Public	West	-	SW 16th St.				
13	SW Emigrant Ave	Private	West	2n32e10ca, 5700, 5800	Business - KFC				
14	SW Emigrant Ave	Public	West	-	SW 17th St.	1.37	40' Type C	Not Permitted	-
15	SW Emigrant Ave	Private	West	2n32e10cb, 5800	Business - Cadillac Jack's	1.38	14' Type C	Not Permitted	-
16	SW Emigrant Ave	Private	West	2n32e10cb, 5800	Business - Cadillac Jack's	1.39	32' Type C	Not Permitted	-
17	SW Emigrant Ave	Public	West	-	SW 18th St.	1.42	50' Type C	Not Permitted	-
18	SW Emigrant Ave	Private	West	2n32e10cb, 4400	Business – Jump Start Espresso	1.429	22' Type C	Not Permitted	-
19	SW Emigrant Ave	Private	West	2n32e10cb, 4400	Business – Jump Start Espresso	1.441	32' Type C	Not Permitted	-

Figure 3-6 ID	Roadway	Approach Type	Side of Roadway	Serves Tax Lot Number	Property Owner / Business Name	Mile Point	Approach Width / Type	Permitted? / Permit #	Date of Permit
20	SW Emigrant Ave	Private	West	2n32e10cb, 4300	Business - Vision Source	1.447	16' Type C	Not Permitted	-
21	SW Emigrant Ave	Public	West	-	SW 19th St.	1.47	50' Type C	Not Permitted	-
22	SW Emigrant Ave	Private	West	2n32e10cb, 3600	Business - Wilcox Furniture	1.493	25' Type C	Not Permitted	-
23	SW Emigrant Ave	Private	West	2n32e10cb, 3600	Business - Wilcox Furniture	1.506	25' Type C	Not Permitted	-
24	SW Emigrant Ave	Private	West	2n32e10cb, 3600	Business - Wilcox Furniture	1.519	25' Type C	Not Permitted	-
25	SW Emigrant Ave	Public	West	-	SW 20th St.	1.438	50' Type C	Not Permitted	-
26	SW Emigrant Ave	Public	East	-	SW 13th St.				
27	SW Emigrant Ave	Public	East	-	SW 15th St.				
28	SW Emigrant Ave	Private	East	2n32e10ca, 9100	Business				
29	SW Emigrant Ave	Public	East	-	SW 16th St.				
30	SW Emigrant Ave	Public	East	-	SW 17th St.	1.37	40' Type C	Not Permitted	-
31	SW Emigrant Ave	Private	East	2n32e10ca, 7500	Business - ARCO	1.38	35' Type C	Not Permitted	-
32	SW Emigrant Ave	Private	East	2n32e10ca, 7500	Business - ARCO	1.399	40' Type C	Not Permitted	-
33	SW Emigrant Ave	Public	East	-	SW 18th St.	1.42	50' Type C	Not Permitted	-
34	SW Emigrant Ave	Private	East	2n32e10cb, 5900	Business – Pendleton Plumbing	1.438	18' Type C	Not Permitted	-
35	SW Emigrant Ave	Private	East	2n32e10cb, 6800	Business – Laundromat	1.452	20' Type C	Not Permitted	-
36	SW Emigrant Ave	Public	East	-	SW 19th St.	1.47	50' Type C	Not Permitted	-
37	SW Emigrant Ave	Private	East	2n32e10cb, 6900	Business – West Ranch Hometown Cleaners	1.492	20' Type C	Not Permitted	-
38	SW Emigrant Ave	Private	East	2n32e10cb, 7003	Business – Dean's Market	1.516	35' Type C	Not Permitted	-
39	SW Emigrant Ave	Public	East	-	SW 20th St.	1.52	50' Type C	Not Permitted	-
40	SW Emigrant Ave	Public	East	-	SW Frazer Ave				

Figure 3-6 ID	Roadway	Approach Type	Side of Roadway	Serves Tax Lot Number	Property Owner / Business Name	Mile Point	Approach Width / Type	Permitted? / Permit #	Date of Permit
41	US 395	Public	West	-	I-84 Offramp/ Onramp				
42	US 395	Public	West	-	I-84 Offramp				
43	US 395	Public	West	-	Hailey Ave.	1.77	60' Type C	Not Permitted	-
44	US 395	Public	West	-	Leg to Hailey Ave.	1.86	32' Type C	Not Permitted	-
45	US 395	Private	West	2n32e09dd, 600, 701	Business - 76 Station	1.874	35' Type C	#19097	7/28/1971
46	US 395	Private	West	2n32e09dd, 600, 701	Business - 76 Station	1.895	35' Type C	#19097	7/28/1971
47	US 395	Private	West	2n32e16aa, 202	Business - Pendleton Southgate Realty	1.913	18' Type C	#19497	3/10/1972
48	US 395	Private	West	2n32e16aa, 202	Business - Pendleton Southgate Realty				
49	US 395	Private	West	2n32e16aa, 203	Business - Starbucks	1.919	18' Type C	#19497	3/10/1972
50	US 395	Private	West	2n32e16aa, 800	Business - Subway				
51	US 395	Private	West	2n32e16aa, 801, 802	Business - MiniMart				
52	US 395	Public	West	-	SW 30th St.				
53	US 395	Private	West	2n32e16ad, 101, 200	Business - Tim's Toys				
54	US 395	Private	West	2n32e16ad, 101, 200	Business - Tim's Toys				
55	US 395	Public	West	-	SW Ladow Ave.				
56	US 395	Public	East	-	SW Marshall Ave.				
57	US 395	Private	East	2n32e16ad, 500	Medical and Inerpath Lab				
58	US 395	Public	East	-	SW 30th St.				
59	US 395	Private	East	2n32e16aa, 1102	Business - D & B Supply / Abby's Legendary Pizza				
60	US 395	Private	East	2n32e16aa, 101	Business - Quis and Wells Reality	1.927	30' Type C	#17572	4/30/1969

Figure 3-6 ID	Roadway	Approach Type	Side of Roadway	Serves Tax Lot Number	Property Owner / Business Name	Mile Point	Approach Width / Type	Permitted? / Permit #	Date of Permit
61	US 395	Private	East	2n32e16aa, 101	Business - Quis and Wells Reality				
62	US 395	Private	East	2n32e16aa, 100, 103, 2n3209dd, 500, 502	Business - Wendys / Car Wash / Kube Lube	1.892	50' Type C	#25979	12/14/1979
63	US 395	Public	East	-	Tutuilla Rd.	1.77	60' Type C	Not Permitted	-
64	US 395	Public	East	-	I-84 Onramp				
65	SW Frazier Ave	Private	East	2n32e10cb, 13302	Business	1.56	32' Type C	Not Permitted	-
66	SW Frazier Ave	Private	East	2n32e10cb, 13302	Business	1.543	16' Type C	Not Permitted	-
67	SW Frazier Ave	Private	East	2n32e10ca, 14302, 14301, 14200	Business - State Farm Insurance	1.466	20' Type C	Not Permitted	-
68	SW Frazier Ave	Private	East	2n32e10ca, 14302, 14301, 14200	Business - State Farm Insurance	1.461	20' Type C	Not Permitted	-
69	SW Frazier Ave	Public	East	-	SW 17th St.	1.44	40' Type C	Not Permitted	-
70	SW Frazier Ave	Private	East	2n32e10ca, 13700	Residential				
71	SW Frazier Ave	Private	East	2n32e10ca, 13300	Business				
72	SW Frazier Ave	Public	East	-	SW 16th St.				
73	SW Frazier Ave	Private	East	2n32e10ca, 13100	Residential				
74	SW Frazier Ave	Public	East	-	SW 15th St.				
75	SW Frazier Ave	Private	East	2n32e10ca, 12500	Residential				
76	SW Frazier Ave	Private	East	2n32e10ca, 11900	Residential				
77	SW Frazier Ave	Public	East	-	SW 14th St.				
78	SW Frazier Ave	Private	East	2n32e10ca, 10500, 11700	Residential				
79	SW Frazier Ave	Public	East	-	SW 13th St.				
80	SW Frazier Ave	Public	West	-	SW 20th St.	1.59	40' Type C	Not Permitted	-
81	SW Frazier Ave	Private	West	2n32e10cb, 7000	Business - Bank of the West	1.571	22' Type C	Not Permitted	-

Figure 3-6 ID	Roadway	Approach Type	Side of Roadway	Serves Tax Lot Number	Property Owner / Business Name	Mile Point	Approach Width / Type	Permitted? / Permit #	Date of Permit
82	SW Frazier Ave	Public	West	-	SW 19th St.	1.53	40' Type C	Not Permitted	-
83	SW Frazier Ave	Private	West	2n32e10cb, 6300	Residential	1.502	16' Type C	Not Permitted	-
84	SW Frazier Ave	Public	West	-	SW 18th St.	1.474	40' Type C	Not Permitted	-
85	SW Frazier Ave	Private	West	2n32e10ca, 6900	Residential	1.462	16' Type C	Not Permitted	-
86	SW Frazier Ave	Private	West	2n32e10ca, 7000	Residential	1.448	32' Type C	Not Permitted	-
87	SW Frazier Ave	Public	West	-	SW 17th St.	1.44	40' Type C	Not Permitted	-
88	SW Frazier Ave	Private	West	2n32e10ca, 8200	Residential				
89	SW Frazier Ave	Public	West	-	SW 16th St.				
90	SW Frazier Ave	Private	West	2n32e10ca, 9600	Residential				
91	SW Frazier Ave	Public	West	-	SW 15th St.				
92	SW Frazier Ave	Public	West	-	SW 13th St.				

EXISTING ACCESS LOCATIONS (NORTH OF I-84) PENDLETON, OREGON

FIGURE 3-6A

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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EXISTING ACCESS LOCATIONS (SOUTH OF I-84) PENDLETON, OREGON

FIGURE 3-6B

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EXISTING ROADWAY DEFICIENCIES

No significant existing roadway deficiencies were identified within the study area along the paved sections of roadway.

PLANNED PROJECTS

There are no significant roadway improvement projects planned for the area.

NATURAL AND CULTURAL RESOURCES

Tutuilla Creek is a prominent natural feature in the IMSA, running east-west and located between the eastbound I-84 ramps, and development on the south side of I-84. It is a tributary of the Umatilla River, which is also included in the study area and intersects with Tutuilla Creek west of the interchange. The City has also identified that there is "good" wildlife habitat in the Tutuilla Creek corridor around US 395 (Southgate). Among other reasons, these natural resources are important for habitat, management of water quantity and quality, and recreation in the city. Long-term transportation plans show the River Parkway path being built along and connecting both water bodies. Most of the River Parkway has been built along the Umatilla River already. City staff has identified Tutuilla Creek as potentially salmon-bearing and Umatilla River as salmon-bearing, so one or both of the water bodies will also be subject to federal endangered species protection. The City's Comprehensive Plan's resource inventory does not identify any archaeological, historic, or other cultural sites in the IMSA, but it should be noted that this document was adopted in the 1980s and may not reflect current conditions or present-day community values or policies. This element of the City's Comprehensive Plan will likely be revised as part of the City's 2009-2013 plan update.

Exhibit 3-7 Tutuilla Creek (east of US 395 and South of I-84)

SUMMARY

- The primary roadways within the Interchange Management Study Area (IMSA) include Interstate-84, US 395 (Southgate), and the SW Emigrant Avenue-SW Frazer Avenue couplet.
- All of the study intersections meet their respective ODOT mobility standard; however, specific movements at the SW 20th Street/SW Emigrant Avenue and SW 20th Street/SW Court Place intersections are over capacity. This issue is especially problematic at the SW Emigrant Avenue intersection, where queue spillback blocks movements from the I-84 westbound off-ramp.
- There are no identified safety issues within the study area based on a review of the most recent five years of available crash data.
- Pedestrian facilities are provided along all functionally classified roads. Bicycle lanes are also provided on the major facilities, however they are missing along SW 20th Street.
- There are currently 92 access points located within the Operations and Access Study Area (roughly ½-mile to the north and south of the interchange) along SW Emigrant Avenue, SW Frazer Avenue, and US 395. The existing access points are a combination of public and private approaches.
- ODOT's access spacing standard within the vicinity of the interchange is 1,320 feet (¼-mile) from the ramp terminals to any type of access (partial or full). Within this ¼-mile control area, 26 private access points and 17 public accesses reside on the north side of the interchange. On the south side of the interchange, 9 private access points and 3 public access points reside within the ¼ mile control area.
- Natural resources in the study area include Tutuilla Creek, Umatilla River, and "good" wildlife habitat in the Tutuilla Creek corridor around US 395 (Southgate). City staff has identified Tutuilla Creek as potentially salmon-bearing and Umatilla River as salmon-bearing, so one or both of the water bodies will also be subject to federal endangered species protection.

REFERENCES

1. Oregon Department of Transportation. *1999 Oregon Highway Plan*. 1999
2. Transportation Research Board. *Highway Capacity Manual*. 2000.
3. Oregon Department of Transportation. *Analysis Procedures Manual*. 2006.
4. Federal Highway Administration. *Signalized Intersections: Informational Guide.* 2004.

ATTACHMENTS

A. Traffic Counts

B. Existing Conditions Worksheets

C. Crash Data

Attachment A

Traffic Counts

SW 30th Street/US 395

			14	13	12	21	24	23	32	31	34	43	42	41			
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Total	Bikes
SBR	14	06:00-07:00A	0	0	0	0	0	0	0	0	1	1	0	19	21	21	0
SBT	13	07:00-07:15A	0	0	0	0	0	0	0	0	0	1	1	7	9		0
SBL	12	07:15-07:30A	0	0	0	0	0	0	28	0	2	1	4	3	38		0
WBR	21	07:30-07:45A	0	0	0	0	0	0	35	0	1	0	4	1	41		0
WBT	24	07:45-08:00A	0	0	0	0	0	0	28	0	0	0	2	6	36	124	0
WBL	23	08:00-08:15A	0	0	0	0	0	0	14	0	1	0	2	4	21	136	0
NBR	32	08:15-08:30A	0	0	0	0	0	0	25	0	0	0	10	12	47	145	0
NBT	31	08:30-08:45A	0	0	0	0	0	0	22	0	1	1	12	14	50	154	0
NBL	34	08:45-09:00A	0	0	0	0	0	0	14	0	0	2	12	14	42	160	0
EBR	43	09:00-10:00A	12	327	63	88	7	16	102	378	10	10	50	75	1138	1138	0
EBT	42	10:00-11:00A	16	425	98	103	8	20	116	408	16	18	95	101	1424	1424	1
EBL	41	11:00-11:15A	4	112	16	22	0	3	58	132	4	5	25	36	417		0
		11:15-11:30A	7	91	29	21	2	7	43	104	1	1	30	31	367		1
		11:30-11:45A	5	135	34	34	2	6	27	121	2	5	25	30	426		0
		11:45-12:00P	2	121	36	38	2	8	35	120	5	5	17	33	422	1632	0
		12:00-12:15P	7	135	33	28	5	6	32	125	1	5	33	26	436	1651	0
		12:15-12:30P	6	144	39	30	6	4	26	102	3	4	25	38	427	1711	1
		12:30-12:45P	6	116	36	21	3	6	25	119	3	4	23	49	411	1696	0
		12:45-01:00P	7	113	21	39	3	7	40	146	2	10	28	42	458	1732	0
		01:00-02:00P	25	459	102	96	9	16	149	475	5	21	75	140	1572	1572	2
		02:00-03:00P	20	473	84	89	9	22	134	465	8	12	113	98	1527	1527	0
		03:00-04:00P	0	0	0	0	0	0	128	0	0	3	97	62	290	290	0
		04:00-04:15P	5	160	24	12	1	8	30	122	1	5	41	41	450		1
		04:15-04:30P	8	157	15	21	1	3	39	88	3	4	41	37	417		0
		04:30-04:45P	7	150	12	28	5	2	19	119	1	5	22	38	408		2
		04:45-05:00P	2	77	7	16	1	6	51	49	3	7	38	45	302	1577	0
		05:00-05:15P	0	0	0	0	0	0	52	0	0	4	43	43	142	1269	0
		05:15-05:30P	0	0	0	0	0	0	43	0	0	0	43	32	118	970	0
		05:30-05:45P	0	0	0	0	0	0	40	0	1	0	44	32	117	679	0
		05:45-06:00P	0	0	0	0	0	0	30	0	2	5	31	23	91	468	0
		06:00-07:00P	0	0	0	0	0	0	100	0	7	9	43	83	242	242	0
		07:00-08:00P	0	0	0	0	0	0	135	0	1	9	96	128	369	369	0
		08:00-09:00P	0	0	0	0	0	0	65	0	4	2	62	60	193	193	0
		09:00-10:00P	0	0	0	0	0	0	96	0	1	2	44	66	209	209	0
		Peak Hour Total															
															12678		8
	08:00-08:1	AM PEAK	0	0	0	0	0	0	75	0	2	3	36	44	160	160	
	08:15-08:3	Heavy Veh	0	0	0	0	0	0	4	0	0	0	1	2			
	08:30-08:4	Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5.3%	#DIV/0!	0.0%	0.0%	2.8%	4.5%			
	08:45-09:0	Peak Hour Fact	0.80														
	04:00-04:1	PM PEAK	22	544	58	77	8	19	139	378	8	21	142	161	1577	1577	
	04:15-04:3	Heavy Veh	0	13	0	0	0	0	2	13	0	0	0	0			
	04:30-04:4	Heavy Veh %	0.0%	2.4%	0.0%	0.0%	0.0%	0.0%	1.4%	3.4%	0.0%	0.0%	0.0%	0.0%			
	04:45-05:0	Peak Hour Fact	0.88														
	12:00-12:1	PEAK OF THE	26	508	129	118	17	23	123	492	9	23	109	155	1732	1732	
	12:15-12:3	Heavy Veh	0	22	0	2	0	0	2	20	0	0	0	1			
	12:30-12:4	Heavy Veh %	0.0%	4.3%	0.0%	1.7%	0.0%	0.0%	1.6%	4.1%	0.0%	0.0%	0.0%	0.6%			
	12:45-01:0	Peak Hour Fact	0.95														

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
0	SBR	14	06:00-07:00A	0	0	0	0	0	0	0	0	1	0	0	1	2	2
0	SBT	13	07:00-07:15A	0	0	0	0	0	0	0	0	0	1	0	0	1	
0	SBL	12	07:15-07:30A	0	0	0	0	0	0	2	0	0	0	0	0	2	
0	WBR	21	07:30-07:45A	0	0	0	0	0	0	3	0	0	0	0	0	3	
0	WBT	24	07:45-08:00A	0	0	0	0	0	0	1	0	0	0	0	0	1	7
0	WBL	23	08:00-08:15A	0	0	0	0	0	0	3	0	0	0	1	1	5	11
0	NBR	32	08:15-08:30A	0	0	0	0	0	0	0	0	0	0	0	1	1	10
0	NBT	31	08:30-08:45A	0	0	0	0	0	0	0	0	0	0	0	0	0	7
0	NBL	34	08:45-09:00A	0	0	0	0	0	0	1	0	0	0	0	0	1	7
14	EBR	43	09:00-10:00A	0	20	0	0	0	0	4	11	0	0	3	1	39	39
7	EBT	42	10:00-11:00A	0	16	0	2	0	0	1	14	0	0	1	2	36	36
0	EBL	41	11:00-11:15A	0	5	0	0	0	0	0	7	1	0	0	0	13	
1			11:15-11:30A	0	1	0	0	0	0	0	5	0	0	1	1	8	
3			11:30-11:45A	0	2	1	0	0	0	0	2	0	0	0	0	5	
2			11:45-12:00P	0	6	0	0	0	0	0	1	0	0	1	1	9	35
0			12:00-12:15P	0	2	0	1	0	0	0	8	0	0	0	1	12	34
0			12:15-12:30P	0	5	0	0	0	0	0	6	0	0	0	0	11	37
0			12:30-12:45P	0	9	0	0	0	0	2	3	0	0	0	0	14	46
0			12:45-01:00P	0	6	0	1	0	0	0	3	0	0	0	0	10	47
5			01:00-02:00P	0	17	1	0	0	0	2	16	0	1	1	1	39	39
7			02:00-03:00P	0	13	1	0	0	0	2	18	0	0	1	0	35	35
0			03:00-04:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1			04:00-04:15P	0	3	0	0	0	0	0	8	0	0	0	0	11	
3			04:15-04:30P	0	3	0	0	0	0	1	3	0	0	0	0	7	
2			04:30-04:45P	0	4	0	0	0	0	0	0	0	0	0	0	4	
0			04:45-05:00P	0	3	0	0	0	0	1	2	0	0	0	0	6	28
0			05:00-05:15P	0	0	0	0	0	0	0	0	0	0	1	0	1	18
0			05:15-05:30P	0	0	0	0	0	0	1	0	0	0	0	0	1	12
0			05:30-05:45P	0	0	0	0	0	0	1	0	0	0	0	0	1	9
0			05:45-06:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	3
0			06:00-07:00P	0	0	0	0	0	0	2	0	0	0	3	0	5	5
0			07:00-08:00P	0	0	0	0	0	0	1	0	0	0	0	0	1	1
0			08:00-09:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0			09:00-10:00P	0	0	0	0	0	0	0	0	0	0	1	0	1	1

SW 20th Street/SW Court Place

			14	13	12	21	24	23	32	31	34	43	42	41			
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Total	Bikes
SBR	14	06:00-07:00A	7	6	33	32	20	115	53	11	1	1	0	19	298	298	1
SBT	13	07:00-07:15A	0	3	9	16	3	27	19	7	0	1	1	7	93		0
SBL	12	07:15-07:30A	7	4	4	14	9	62	28	8	2	1	4	3	146		0
WBR	21	07:30-07:45A	7	7	13	28	12	91	35	3	1	0	4	1	202		0
WBT	24	07:45-08:00A	13	7	33	36	2	94	28	8	0	0	2	6	229	670	0
WBL	23	08:00-08:15A	7	8	11	27	13	30	14	3	1	0	2	4	120	697	0
NBR	32	08:15-08:30A	16	6	13	23	17	15	25	10	0	0	10	12	147	698	0
NBT	31	08:30-08:45A	11	6	17	21	11	23	22	8	1	1	12	14	147	643	0
NBL	34	08:45-09:00A	4	9	14	19	9	30	14	11	0	2	12	14	138	552	0
EBR	43	09:00-10:00A	51	40	67	147	60	117	75	41	6	5	40	39	688	688	0
EBT	42	10:00-11:00A	51	54	82	105	87	103	95	44	7	6	89	77	800	800	0
EBL	41	11:00-11:15A	18	19	39	32	31	16	54	10	4	3	24	32	282		0
		11:15-11:30A	26	9	32	26	31	40	42	23	0	1	26	27	283		0
		11:30-11:45A	15	13	24	21	33	38	22	19	0	3	22	23	233		0
		11:45-12:00P	13	11	27	50	22	34	32	23	3	2	15	30	262	1060	0
		12:00-12:15P	15	18	39	56	40	36	27	16	0	4	32	20	303	1081	0
		12:15-12:30P	18	6	37	28	32	31	20	14	0	1	22	34	243	1041	0
		12:30-12:45P	22	9	29	49	38	28	23	14	3	1	18	46	280	1088	0
		12:45-01:00P	34	13	21	32	28	42	33	26	0	5	21	37	292	1118	0
		01:00-02:00P	70	49	118	176	115	122	129	58	1	8	69	110	1025	1025	1
		02:00-03:00P	78	59	129	120	83	126	118	50	2	5	102	68	940	940	0
		03:00-04:00P	75	55	128	119	74	117	128	43	0	3	97	62	901	901	0
		04:00-04:15P	17	16	35	37	37	26	26	25	0	1	39	31	290		1
		04:15-04:30P	17	1	25	14	27	30	37	21	0	0	39	25	236		0
		04:30-04:45P	17	10	42	34	36	28	16	19	1	2	22	32	259		0
		04:45-05:00P	19	19	35	35	45	27	47	21	2	5	38	42	335	1120	0
		05:00-05:15P	15	25	32	35	39	28	52	22	0	4	43	43	338	1168	0
		05:15-05:30P	24	11	38	31	30	26	43	17	0	0	43	32	295	1227	0
		05:30-05:45P	20	11	39	38	29	31	40	17	1	0	44	32	302	1270	0
		05:45-06:00P	17	8	30	38	34	33	30	13	2	5	31	23	264	1199	0
		06:00-07:00P	31	39	51	78	86	53	100	26	7	9	43	83	606	606	0
		07:00-08:00P	58	49	114	132	108	71	135	49	1	9	96	128	950	950	0
		08:00-09:00P	65	37	77	90	83	76	65	35	4	2	62	60	656	656	0
		09:00-10:00P	45	18	59	46	48	36	96	44	1	2	44	66	505	505	0
		Peak Hour Total															3
	07:30-07:4	AM PEAK	43	28	70	114	44	230	102	24	2	0	18	23	698	698	
	07:45-08:0	Heavy Veh	1	1	1	0	2	2	7	0	0	0	1	2			
	08:00-08:1	Heavy Veh %	2.3%	3.6%	1.4%	0.0%	4.5%	0.9%	6.9%	0.0%	0.0%	#DIV/0!	5.6%	8.7%			
	08:15-08:3	Peak Hour Fact	0.76														
	04:45-05:0	PM PEAK	78	66	144	139	143	112	182	77	3	9	168	149	1270	1270	
	05:00-05:1	Heavy Veh	0	0	0	0	2	0	3	0	0	0	1	0			
	05:15-05:3	Heavy Veh %	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	1.6%	0.0%	0.0%	0.0%	0.6%	0.0%			
	05:30-05:4	Peak Hour Fact	0.94														
	04:45-05:0	PEAK OF THE	78	66	144	139	143	112	182	77	3	9	168	149	1270	1270	
	05:00-05:1	Heavy Veh	0	0	0	0	2	0	3	0	0	0	1	0			
	05:15-05:3	Heavy Veh %	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	1.6%	0.0%	0.0%	0.0%	0.6%	0.0%			
	05:30-05:4	Peak Hour Fact	0.94														
	4:30-5:30	System Peak	75	65	147	135	150	109	158	79	3	11	146	149	1227		
		Heavy Veh	0	0	0	0	4	0	2	0	0	0	1	0			
		Heavy Veh %	0.0%	0.0%	0.0%	0.0%	2.7%	0.0%	1.3%	0.0%	0.0%	0.0%	0.7%	0.0%			
		Peak Hour Fact	0.91														

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
0	SBR	14	06:00-07:00A	0	0	0	1	1	1	0	0	1	0	0	1	5	5
1	SBT	13	07:00-07:15A	0	0	0	1	0	1	2	0	0	1	0	0	5	
0	SBL	12	07:15-07:30A	0	0	0	2	0	2	2	0	0	0	0	0	6	
0	WBR	21	07:30-07:45A	0	0	0	0	0	1	3	0	0	0	0	0	4	
0	WBT	24	07:45-08:00A	0	0	0	0	0	0	1	0	0	0	0	0	1	16
0	WBL	23	08:00-08:15A	1	1	1	0	0	1	3	0	0	0	1	1	9	20
0	NBR	32	08:15-08:30A	0	0	0	0	2	0	0	0	0	0	0	1	3	17
0	NBT	31	08:30-08:45A	0	0	0	0	1	0	0	0	0	0	0	0	1	14
0	NBL	34	08:45-09:00A	0	0	1	0	0	0	1	0	0	0	0	0	2	15
3	EBR	43	09:00-10:00A	0	2	0	4	3	1	3	1	0	0	3	1	18	18
2	EBT	42	10:00-11:00A	0	0	2	2	1	0	1	0	0	0	1	0	7	7
1	EBL	41	11:00-11:15A	1	1	0	0	0	1	0	0	1	0	0	0	4	
1			11:15-11:30A	0	0	0	1	0	1	0	0	0	0	1	1	4	
0			11:30-11:45A	0	1	0	0	1	0	0	1	0	0	0	0	3	
2			11:45-12:00P	0	0	0	0	0	0	0	0	0	0	1	1	2	13
0			12:00-12:15P	0	0	1	0	0	1	0	0	0	0	0	1	3	12
1			12:15-12:30P	0	0	0	0	1	0	0	0	0	0	0	0	1	9
0			12:30-12:45P	1	0	0	0	0	0	2	0	0	0	0	0	3	9
1			12:45-01:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	7
7			01:00-02:00P	0	0	1	1	1	3	1	1	0	1	1	0	10	10
6			02:00-03:00P	2	0	1	0	1	5	2	0	0	0	1	0	12	12
4			03:00-04:00P	0	0	0	0	0	1	0	0	0	0	0	0	1	1
0			04:00-04:15P	0	0	0	0	1	0	0	0	0	0	0	0	1	
0			04:15-04:30P	0	0	0	0	0	1	1	0	0	0	0	0	2	
0			04:30-04:45P	0	0	0	0	2	0	0	0	0	0	0	0	2	
0			04:45-05:00P	0	0	0	0	1	0	1	0	0	0	0	0	2	7
0			05:00-05:15P	0	0	0	0	1	0	0	0	0	0	1	0	2	8
0			05:15-05:30P	0	0	0	0	0	0	1	0	0	0	0	0	1	7
0			05:30-05:45P	0	0	0	0	0	0	1	0	0	0	0	0	1	6
0			05:45-06:00P	0	0	0	0	1	0	0	0	0	0	0	0	1	5
0			06:00-07:00P	0	0	0	0	1	0	2	0	0	0	3	0	6	6
10			07:00-08:00P	0	0	0	0	0	0	1	0	0	0	0	0	1	1
0			08:00-09:00P	0	1	1	0	2	0	0	1	0	0	0	0	5	5
2			09:00-10:00P	1	0	0	0	0	0	0	0	0	0	1	0	2	2
10																	
41																	

SW 20th Street/SW Dorion Avenue

			14	13	12	21	24	23	32	31	34	43	42	41			
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Total	Bikes
SBR	14	06:00-07:00A	4	85	0	0	0	0	0	189	29	23	0	4	334	334	2
SBT	13	07:00-07:15A	0	29	0	0	0	0	0	63	11	10	0	0	113		0
SBL	12	07:15-07:30A	1	64	0	0	0	0	0	101	22	19	0	1	208		0
WBR	21	07:30-07:45A	2	64	0	0	0	0	0	145	19	17	0	0	247		0
WBT	24	07:45-08:00A	3	68	0	0	0	0	0	132	30	13	0	2	248	816	0
WBL	23	08:00-08:15A	1	44	0	0	0	0	0	78	17	12	0	5	157	860	0
NBR	32	08:15-08:30A	4	41	0	0	0	0	0	75	13	7	0	3	143	795	0
NBT	31	08:30-08:45A	4	36	0	0	0	0	0	92	24	14	0	6	176	724	0
NBL	34	08:45-09:00A	2	46	0	0	0	0	0	86	19	17	0	6	176	652	0
EBR	43	09:00-10:00A	5	269	0	0	0	0	0	449	88	54	0	13	878	878	1
EBT	42	10:00-11:00A	19	282	0	0	0	0	0	387	108	90	0	21	907	907	0
EBL	41	11:00-11:15A	5	101	0	0	0	0	0	110	29	28	0	7	280		0
		11:15-11:30A	4	82	0	0	0	0	0	108	30	17	0	3	244		1
		11:30-11:45A	3	92	0	0	0	0	0	132	22	25	0	1	275		0
		11:45-12:00P	5	112	0	0	0	0	0	116	27	24	0	1	285	1084	0
		12:00-12:15P	9	122	0	0	0	0	0	167	27	35	0	1	361	1165	2
		12:15-12:30P	3	94	0	0	0	0	0	119	28	23	0	6	273	1194	0
		12:30-12:45P	7	93	0	0	0	0	0	124	27	25	0	3	279	1198	0
		12:45-01:00P	5	92	0	0	0	0	0	133	26	26	0	6	288	1201	1
		01:00-02:00P	23	334	0	0	0	0	0	410	125	91	0	25	1008	1008	0
		02:00-03:00P	20	429	0	0	0	0	0	400	97	112	0	17	1075	1075	1
		03:00-04:00P	16	451	0	0	0	0	0	433	113	129	0	13	1155	1155	3
		04:00-04:15P	5	130	0	0	0	0	0	130	35	28	0	8	336		0
		04:15-04:30P	3	133	0	0	0	0	0	127	30	35	0	4	332		0
		04:30-04:45P	7	152	0	0	0	0	0	120	26	43	0	7	355		0
		04:45-05:00P	5	108	0	0	0	0	0	123	28	37	0	0	301	1324	0
		05:00-05:15P	7	153	0	0	0	0	0	156	42	27	0	7	392	1380	0
		05:15-05:30P	3	124	0	0	0	0	0	131	16	50	0	2	326	1374	0
		05:30-05:45P	6	116	0	0	0	0	0	123	27	33	0	5	310	1329	1
		05:45-06:00P	6	127	0	0	0	0	0	116	17	32	0	1	299	1327	0
		06:00-07:00P	17	456	0	0	0	0	0	388	77	110	0	15	1063	1063	0
		07:00-08:00P	12	321	0	0	0	0	0	276	61	81	0	13	764	764	0
		08:00-09:00P	9	266	0	0	0	0	0	237	37	41	0	7	597	597	0
		09:00-10:00P	1	167	0	0	0	0	0	119	15	25	0	4	331	331	0
		Peak Hour Total															12
	07:15-07:3	AM PEAK	7	240	0	0	0	0	0	456	88	61	0	8	860	860	
	07:30-07:4	Heavy Veh	1	12	0	0	0	0	0	13	1	0	0	0			
	07:45-08:0	Heavy Veh %	14.3%	5.0%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	2.9%	1.1%	0.0%	#DIV/0!	0.0%			
	08:00-08:1	Peak Hour Fact	0.87														
	04:15-04:3	PM PEAK	22	546	0	0	0	0	0	526	126	142	0	18	1380	1380	
	04:30-04:4	Heavy Veh	0	6	0	0	0	0	0	2	1	2	0	0			
	04:45-05:0	Heavy Veh %	0.0%	1.1%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.4%	0.8%	1.4%	#DIV/0!	0.0%			
	05:00-05:1	Peak Hour Fact	0.88														
	04:15-04:3	PEAK OF THE	22	546	0	0	0	0	0	526	126	142	0	18	1380	1380	
	04:30-04:4	Heavy Veh	0	6	0	0	0	0	0	2	1	2	0	0			
	04:45-05:0	Heavy Veh %	0.0%	1.1%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.4%	0.8%	1.4%	#DIV/0!	0.0%			
	05:00-05:1	Peak Hour Fact	0.88														
	4:30-5:30	System Peak	22	537	0	0	0	0	0	530	112	157	0	16	1374		
		Heavy Veh	0	6	0	0	0	0	0	2	1	2	0	0			
		Heavy Veh %	0.0%	1.1%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.4%	0.9%	1.3%	#DIV/0!	0.0%			
		Peak Hour Fact	0.88														

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
2	SBR	14	06:00-07:00A	1	1	0	0	0	0	0	2	0	2	0	0	6	6
0	SBT	13	07:00-07:15A	0	3	0	0	0	0	0	4	0	1	0	0	8	
2	SBL	12	07:15-07:30A	0	5	0	0	0	0	0	2	0	0	0	0	7	
0	WBR	21	07:30-07:45A	1	2	0	0	0	0	0	5	0	0	0	0	8	
1	WBT	24	07:45-08:00A	0	4	0	0	0	0	0	6	1	0	0	0	11	34
2	WBL	23	08:00-08:15A	0	1	0	0	0	0	0	0	0	0	0	0	1	27
3	NBR	32	08:15-08:30A	0	4	0	0	0	0	0	1	0	0	0	0	5	25
1	NBT	31	08:30-08:45A	0	1	0	0	0	0	0	1	2	0	0	1	5	22
0	NBL	34	08:45-09:00A	0	3	0	0	0	0	0	2	0	1	0	0	6	17
2	EBR	43	09:00-10:00A	0	10	0	0	0	0	0	19	0	0	0	0	29	29
3	EBT	42	10:00-11:00A	0	7	0	0	0	0	0	2	0	1	0	1	11	11
1	EBL	41	11:00-11:15A	0	0	0	0	0	0	0	1	0	0	0	0	1	
1			11:15-11:30A	0	2	0	0	0	0	0	0	0	0	0	0	2	
0			11:30-11:45A	0	2	0	0	0	0	0	3	0	1	0	0	6	
1			11:45-12:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	10
2			12:00-12:15P	0	0	0	0	0	0	0	2	0	0	0	0	2	11
0			12:15-12:30P	0	2	0	0	0	0	0	1	0	0	0	0	3	12
2			12:30-12:45P	0	2	0	0	0	0	0	1	0	0	0	0	3	9
1			12:45-01:00P	0	1	0	0	0	0	0	1	0	0	0	0	2	10
10			01:00-02:00P	0	8	0	0	0	0	0	15	0	1	0	0	24	24
12			02:00-03:00P	0	11	0	0	0	0	0	12	1	0	0	1	25	25
10			03:00-04:00P	0	8	0	0	0	0	0	14	3	0	0	0	25	25
0			04:00-04:15P	0	2	0	0	0	0	0	0	1	0	0	0	3	
1			04:15-04:30P	0	1	0	0	0	0	0	1	0	0	0	0	2	
2			04:30-04:45P	0	1	0	0	0	0	0	0	0	1	0	0	2	
8			04:45-05:00P	0	1	0	0	0	0	0	1	1	1	0	0	4	11
6			05:00-05:15P	0	3	0	0	0	0	0	0	0	0	0	0	3	11
2			05:15-05:30P	0	1	0	0	0	0	0	1	0	0	0	0	2	11
0			05:30-05:45P	1	3	0	0	0	0	0	0	0	0	0	0	4	13
6			05:45-06:00P	0	1	0	0	0	0	0	1	0	1	0	0	3	12
14			06:00-07:00P	0	7	0	0	0	0	0	5	0	0	0	0	12	12
6			07:00-08:00P	0	3	0	0	0	0	0	7	1	0	0	0	11	11
1			08:00-09:00P	0	2	0	0	0	0	0	1	1	1	0	0	5	5
7			09:00-10:00P	0	1	0	0	0	0	0	2	0	0	0	0	3	3
7																	
109																	

SW 17th Street/SW Emigrant Avenue

			14	13	12	21	24	23	32	31	34	43	42	41			
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Total	Bikes
SBR	14	06:00-07:00A	15	173	7	0	10	15	0	0	0	10	3	0	233	233	2
SBT	13	07:00-07:15A	0	68	1	0	5	2	0	0	0	3	1	0	80		0
SBL	12	07:15-07:30A	1	60	4	0	7	0	0	0	0	9	0	0	81		0
WBR	21	07:30-07:45A	5	128	1	0	7	3	0	0	0	10	2	0	156		0
WBT	24	07:45-08:00A	6	104	2	0	15	3	0	0	0	10	5	0	145	462	1
WBL	23	08:00-08:15A	5	102	4	0	3	2	0	0	0	7	4	0	127	509	0
NBR	32	08:15-08:30A	8	82	2	0	3	2	0	0	0	3	0	0	100	528	0
NBT	31	08:30-08:45A	5	75	1	0	5	3	0	0	0	4	3	0	96	468	0
NBL	34	08:45-09:00A	2	71	3	0	7	5	0	0	0	9	4	0	101	424	0
EBR	43	09:00-10:00A	28	438	11	0	28	7	0	0	0	24	22	0	558	558	0
EBT	42	10:00-11:00A	35	486	9	0	18	9	0	0	0	38	26	0	621	621	0
EBL	41	11:00-11:15A	7	119	4	0	9	2	0	0	0	17	9	0	167		0
		11:15-11:30A	8	127	3	0	7	4	0	0	0	12	7	0	168		1
		11:30-11:45A	7	181	4	0	4	4	0	0	0	17	7	0	224		0
		11:45-12:00P	10	183	8	0	11	6	0	0	0	14	8	0	240	799	0
		12:00-12:15P	25	210	2	0	10	5	0	0	0	8	12	0	272	904	0
		12:15-12:30P	13	152	3	0	6	1	0	0	0	12	7	0	194	930	2
		12:30-12:45P	11	147	2	0	7	3	0	0	0	11	15	0	196	902	0
		12:45-01:00P	17	164	1	0	12	3	0	0	0	17	12	0	226	888	1
		01:00-02:00P	48	576	15	0	29	21	0	0	0	44	27	0	760	760	1
		02:00-03:00P	41	607	15	0	24	15	0	0	0	43	25	0	770	770	1
		03:00-04:00P	50	657	23	0	27	11	0	0	0	57	42	0	867	867	1
		04:00-04:15P	15	157	6	0	4	4	0	0	0	17	19	0	222		0
		04:15-04:30P	14	148	7	0	8	7	0	0	0	12	12	0	208		0
		04:30-04:45P	14	187	1	0	7	2	0	0	0	8	11	0	230		0
		04:45-05:00P	14	160	9	0	8	6	0	0	0	22	11	0	230	890	0
		05:00-05:15P	17	286	3	0	6	4	0	0	0	15	12	0	343	1011	0
		05:15-05:30P	6	174	4	0	6	9	0	0	0	19	9	0	227	1030	0
		05:30-05:45P	7	208	7	0	16	3	0	0	0	14	11	0	266	1066	0
		05:45-06:00P	14	147	9	0	6	6	0	0	0	14	5	0	201	1037	0
		06:00-07:00P	32	510	16	0	23	10	0	0	0	31	36	0	658	658	3
		07:00-08:00P	21	352	11	0	23	7	0	0	0	37	36	0	487	487	1
		08:00-09:00P	14	269	13	0	16	9	0	0	0	23	20	0	364	364	1
		09:00-10:00P	8	140	9	0	2	6	0	0	0	20	19	0	204	204	0
		Peak Hour Total															2
															10022		15
	07:30-07:4	AM PEAK	24	416	9	0	28	10	0	0	0	30	11	0	528	528	
	07:45-08:0	Heavy Veh	0	17	0	0	0	0	0	0	0	1	0	0			
	08:00-08:1	Heavy Veh %	0.0%	4.1%	0.0%	#DIV/0!	0.0%	0.0%	#DIV/0!	#DIV/0!	#DIV/0!	3.3%	0.0%	#DIV/0!			
	08:15-08:3	Peak Hour Fact	0.85														
	04:45-05:0	PM PEAK	44	828	23	0	36	22	0	0	0	70	43	0	1066	1066	
	05:00-05:1	Heavy Veh	0	2	0	0	0	0	0	0	0	0	0	0			
	05:15-05:3	Heavy Veh %	0.0%	0.2%	0.0%	#DIV/0!	0.0%	0.0%	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!			
	05:30-05:4	Peak Hour Fact	0.78														
	04:45-05:0	PEAK OF THE	44	828	23	0	36	22	0	0	0	70	43	0	1066	1066	
	05:00-05:1	Heavy Veh	0	2	0	0	0	0	0	0	0	0	0	0			
	05:15-05:3	Heavy Veh %	0.0%	0.2%	0.0%	#DIV/0!	0.0%	0.0%	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!			
	05:30-05:4	Peak Hour Fact	0.78														
	4:30-5:30	System Peak	51	807	17	0	27	21	0	0	0	64	43	0	1030		
		Heavy Veh	0	2	0	0	0	0	0	0	0	0	0	0			
		Heavy Veh %	0.0%	0.2%	0.0%	#DIV/0!	0.0%	0.0%	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!			
		Peak Hour Fact	0.75														

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
6	SBR	14	06:00-07:00A	0	3	0	0	0	0	0	0	0	0	0	0	3	3
3	SBT	13	07:00-07:15A	0	3	0	0	0	0	0	0	0	0	0	0	3	
0	SBL	12	07:15-07:30A	0	2	0	0	0	0	0	0	0	0	0	0	2	
3	WBR	21	07:30-07:45A	0	7	0	0	0	0	0	0	0	0	0	0	7	
0	WBT	24	07:45-08:00A	0	4	0	0	0	0	0	0	0	0	0	0	4	16
0	WBL	23	08:00-08:15A	0	4	0	0	0	0	0	0	0	1	0	0	5	18
1	NBR	32	08:15-08:30A	0	2	0	0	0	0	0	0	0	0	0	0	2	18
1	NBT	31	08:30-08:45A	0	1	0	0	0	0	0	0	0	0	0	0	1	12
1	NBL	34	08:45-09:00A	0	1	0	0	0	0	0	0	0	0	0	0	1	9
6	EBR	43	09:00-10:00A	0	7	0	0	0	0	0	0	0	0	0	0	7	7
6	EBT	42	10:00-11:00A	0	6	0	0	0	0	0	0	0	0	0	0	6	6
6	EBL	41	11:00-11:15A	0	1	0	0	0	0	0	0	0	0	0	0	1	
0			11:15-11:30A	0	4	0	0	0	0	0	0	0	0	0	0	4	
1			11:30-11:45A	0	1	0	0	0	0	0	0	0	0	1	0	2	
0			11:45-12:00P	0	2	0	0	0	0	0	0	0	0	0	0	2	9
4			12:00-12:15P	1	1	0	0	0	0	0	0	0	0	0	0	2	10
2			12:15-12:30P	0	1	0	0	0	0	0	0	0	1	0	0	2	8
2			12:30-12:45P	0	2	0	0	0	0	0	0	0	0	0	0	2	8
4			12:45-01:00P	0	1	0	0	0	0	0	0	0	0	0	0	1	7
8			01:00-02:00P	0	8	0	0	0	0	0	0	0	0	0	0	8	8
17			02:00-03:00P	0	4	0	0	0	0	0	0	0	0	0	0	4	4
31			03:00-04:00P	0	13	0	0	0	0	0	0	0	0	0	0	13	13
0			04:00-04:15P	0	0	0	0	0	0	0	0	0	0	0	0	0	
5			04:15-04:30P	0	0	0	0	0	0	0	0	0	0	0	0	0	
1			04:30-04:45P	0	0	0	0	0	0	0	0	0	0	0	0	0	
3			04:45-05:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1			05:00-05:15P	0	2	0	0	0	0	0	0	0	0	0	0	2	2
6			05:15-05:30P	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3			05:30-05:45P	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5			05:45-06:00P	0	0	0	0	0	0	0	0	0	1	0	0	1	3
14			06:00-07:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10			07:00-08:00P	0	2	0	0	0	0	0	0	0	0	0	0	2	2
10			08:00-09:00P	0	1	0	0	0	0	0	0	0	0	0	0	1	1
3			09:00-10:00P	0	2	0	0	0	0	0	0	0	0	0	0	2	2
20																	
163																	

SW 18th Street/SW Emigrant Avenue

			14	13	12	21	24	23	32	31	34	43	42	41			
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Total	Bikes
SBR	14	06:00-07:00A	1	207	2	0	3	3	0	0	0	0	1	0	217	217	0
SBT	13	07:00-07:15A	1	65	1	0	2	1	0	0	0	1	0	0	71		2
SBL	12	07:15-07:30A	0	77	3	0	1	2	0	0	0	0	0	0	83		0
WBR	21	07:30-07:45A	2	116	2	0	1	2	0	0	0	3	0	0	126		0
WBT	24	07:45-08:00A	5	121	1	0	1	2	0	0	0	3	0	0	133	413	0
WBL	23	08:00-08:15A	1	104	2	0	1	1	0	0	0	0	0	0	109	451	0
NBR	32	08:15-08:30A	2	109	3	0	1	3	0	0	0	2	0	0	120	488	1
NBT	31	08:30-08:45A	2	80	1	0	1	2	0	0	0	2	0	0	88	450	0
NBL	34	08:45-09:00A	1	115	3	0	0	2	0	0	0	2	2	0	125	442	0
EBR	43	09:00-10:00A	8	383	10	0	2	17	0	0	0	2	0	0	422	422	0
EBT	42	10:00-11:00A	6	508	7	0	0	11	0	0	0	3	3	0	538	538	0
EBL	41	11:00-11:15A	0	139	4	0	0	1	0	0	0	1	0	0	145		0
		11:15-11:30A	1	157	5	0	0	3	0	0	0	1	0	0	167		0
		11:30-11:45A	0	165	1	0	1	1	0	0	0	1	0	0	169		0
		11:45-12:00P	0	176	1	0	0	3	0	0	0	0	0	0	180	661	0
		12:00-12:15P	1	249	2	0	0	3	0	0	0	0	1	0	256	772	1
		12:15-12:30P	1	170	3	0	1	3	0	0	0	0	1	0	179	784	0
		12:30-12:45P	4	174	4	0	0	2	0	0	0	1	1	0	186	801	0
		12:45-01:00P	4	167	1	0	1	5	0	0	0	1	1	0	180	801	0
		01:00-02:00P	7	596	5	0	3	14	0	0	0	4	1	0	630	630	0
		02:00-03:00P	4	654	15	0	2	6	0	0	0	4	0	0	685	685	1
		03:00-04:00P	8	717	13	0	0	14	0	0	0	1	3	0	756	756	1
		04:00-04:15P	1	183	3	0	1	1	0	0	0	3	1	0	193		0
		04:15-04:30P	4	188	1	0	1	2	0	0	0	0	0	0	196		0
		04:30-04:45P	1	175	6	0	1	2	0	0	0	0	0	0	185		0
		04:45-05:00P	3	258	4	0	1	4	0	0	0	0	0	0	270	844	1
		05:00-05:15P	2	280	4	0	1	3	0	0	0	3	0	0	293	944	0
		05:15-05:30P	1	222	4	0	0	2	0	0	0	2	1	0	232	980	0
		05:30-05:45P	0	187	4	0	0	4	0	0	0	1	1	0	197	992	0
		05:45-06:00P	0	141	3	0	1	0	0	0	0	4	0	0	149	871	0
		06:00-07:00P	6	509	10	0	2	3	0	0	0	4	1	0	535	535	0
		07:00-08:00P	6	414	14	0	0	8	0	0	0	1	2	0	445	445	0
		08:00-09:00P	5	300	10	0	2	2	0	0	0	3	3	0	325	325	2
		09:00-10:00P	1	155	3	0	0	0	0	0	0	0	1	0	160	160	0
		Peak Hour Total															2
															8745		9
07:30-07:4		AM PEAK	10	450	8	0	4	8	0	0	0	8	0	0	488	488	
07:45-08:0		Heavy Veh	0	10	0	0	0	0	0	0	0	0	0	0			
08:00-08:1		Heavy Veh %	0.0%	2.2%	0.0%	#DIV/0!	0.0%	0.0%	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	#DIV/0!	#DIV/0!			
08:15-08:3		Peak Hour Fact	0.92														
04:45-05:0		PM PEAK	6	947	16	0	2	13	0	0	0	6	2	0	992	992	
05:00-05:1		Heavy Veh	0	6	0	0	0	0	0	0	0	0	0	0			
05:15-05:3		Heavy Veh %	0.0%	0.6%	0.0%	#DIV/0!	0.0%	0.0%	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!			
05:30-05:4		Peak Hour Fact	0.85														
04:45-05:0		PEAK OF THE	6	947	16	0	2	13	0	0	0	6	2	0	992	992	
05:00-05:1		Heavy Veh	0	6	0	0	0	0	0	0	0	0	0	0			
05:15-05:3		Heavy Veh %	0.0%	0.6%	0.0%	#DIV/0!	0.0%	0.0%	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!			
05:30-05:4		Peak Hour Fact	0.85														
4:30-5:30		System Peak	7	935	18	0	3	11	0	0	0	5	1	0	980		
		Heavy Veh	0	7	0	0	0	0	0	0	0	0	0	0			
		Heavy Veh %	0.0%	0.7%	0.0%	#DIV/0!	0.0%	0.0%	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!			
		Peak Hour Fact	0.84														

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
2	SBR	14	06:00-07:00A	0	4	0	0	0	0	0	0	0	0	0	0	4	4
5	SBT	13	07:00-07:15A	0	4	0	0	0	0	0	0	0	0	0	0	4	
3	SBL	12	07:15-07:30A	0	4	0	0	0	0	0	0	0	0	0	0	4	
0	WBR	21	07:30-07:45A	0	5	0	0	0	0	0	0	0	0	0	0	5	
0	WBT	24	07:45-08:00A	0	0	0	0	0	0	0	0	0	0	0	0	0	13
0	WBL	23	08:00-08:15A	0	2	0	0	0	0	0	0	0	0	0	0	2	11
2	NBR	32	08:15-08:30A	0	3	0	0	0	0	0	0	0	0	0	0	3	10
3	NBT	31	08:30-08:45A	0	1	0	0	0	0	0	0	0	0	0	0	1	6
1	NBL	34	08:45-09:00A	0	2	0	0	0	0	0	0	0	0	0	0	2	8
4	EBR	43	09:00-10:00A	0	3	0	0	0	2	0	0	0	0	0	0	5	5
1	EBT	42	10:00-11:00A	0	7	0	0	0	0	0	0	0	0	0	0	7	7
1	EBL	41	11:00-11:15A	0	2	1	0	0	0	0	0	0	0	0	0	3	
2			11:15-11:30A	0	4	0	0	0	0	0	0	0	0	0	0	4	
1			11:30-11:45A	0	2	0	0	0	0	0	0	0	0	0	0	2	
0			11:45-12:00P	0	2	0	0	0	0	0	0	0	0	0	0	2	11
1			12:00-12:15P	0	5	0	0	0	0	0	0	0	0	0	0	5	13
3			12:15-12:30P	0	3	0	0	0	0	0	0	0	0	0	0	3	12
0			12:30-12:45P	0	3	0	0	0	0	0	0	0	0	0	0	3	13
9			12:45-01:00P	0	2	0	0	0	0	0	0	0	0	0	0	2	13
13			01:00-02:00P	0	7	0	0	0	0	0	0	0	0	0	0	7	7
9			02:00-03:00P	0	5	0	0	0	0	0	0	0	0	0	0	5	5
16			03:00-04:00P	0	13	0	0	0	0	0	0	0	0	0	0	13	13
0			04:00-04:15P	0	2	0	0	0	0	0	0	0	0	0	0	2	
3			04:15-04:30P	0	3	0	0	0	0	0	0	0	0	0	0	3	
2			04:30-04:45P	0	1	0	0	0	0	0	0	0	0	0	0	1	
1			04:45-05:00P	0	5	0	0	0	0	0	0	0	0	0	0	5	11
4			05:00-05:15P	0	1	0	0	0	0	0	0	0	0	0	0	1	10
2			05:15-05:30P	0	0	0	0	0	0	0	0	0	0	0	0	0	7
4			05:30-05:45P	0	0	0	0	0	0	0	0	0	0	0	0	0	6
1			05:45-06:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11			06:00-07:00P	0	4	0	0	0	0	0	0	0	0	0	0	4	4
12			07:00-08:00P	0	3	0	0	0	0	0	0	0	0	0	0	3	3
14			08:00-09:00P	0	1	0	0	0	0	0	0	0	0	0	0	1	1
1			09:00-10:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26																	
131																	

SW 19th Street/SW Emigrant Avenue

			14	13	12	21	24	23	32	31	34	43	42	41			
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Total	Bikes
SBR	14	06:00-07:00A	0	208	1	0	4	9	0	0	0	0	1	0	223	223	2
SBT	13	07:00-07:15A	0	77	0	0	0	1	0	0	0	0	0	0	78		0
SBL	12	07:15-07:30A	0	76	2	0	1	2	0	0	0	0	0	0	81		0
WBR	21	07:30-07:45A	0	126	2	0	0	4	0	0	0	1	0	0	133		0
WBT	24	07:45-08:00A	0	122	3	0	1	4	0	0	0	1	0	0	131	423	0
WBL	23	08:00-08:15A	1	102	6	0	1	2	0	0	0	0	0	0	112	457	0
NBR	32	08:15-08:30A	1	105	0	0	0	7	0	0	0	1	2	0	116	492	1
NBT	31	08:30-08:45A	3	189	2	0	2	9	0	0	0	1	0	0	206	565	1
NBL	34	08:45-09:00A	1	100	2	0	0	5	0	0	0	1	2	0	111	545	0
EBR	43	09:00-10:00A	13	389	20	0	4	18	0	0	0	2	3	0	449	449	1
EBT	42	10:00-11:00A	6	499	10	0	1	13	0	0	0	4	6	0	539	539	1
EBL	41	11:00-11:15A	2	146	2	0	0	8	0	0	0	0	0	0	158		0
		11:15-11:30A	1	149	6	0	2	6	0	0	0	2	0	0	166		0
		11:30-11:45A	2	163	4	0	1	7	0	0	0	1	2	0	180		0
		11:45-12:00P	1	186	6	0	1	5	0	0	0	2	3	0	204	708	1
		12:00-12:15P	0	248	4	0	0	10	0	0	0	0	1	0	263	813	0
		12:15-12:30P	0	168	6	0	0	11	0	0	0	0	0	0	185	832	0
		12:30-12:45P	0	165	5	0	2	5	0	0	0	3	1	0	181	833	0
		12:45-01:00P	3	170	7	0	2	9	0	0	0	2	0	0	193	822	0
		01:00-02:00P	6	599	15	0	4	20	0	0	0	7	3	0	654	654	0
		02:00-03:00P	7	553	18	0	1	16	0	0	0	4	5	0	604	604	1
		03:00-04:00P	12	789	23	0	1	26	0	0	0	3	3	0	857	857	0
		04:00-04:15P	2	184	7	0	0	7	0	0	0	0	1	0	201		0
		04:15-04:30P	0	186	4	0	0	9	0	0	0	0	1	0	200		0
		04:30-04:45P	0	211	4	0	1	3	0	0	0	0	1	0	220		1
		04:45-05:00P	1	237	2	0	0	6	0	0	0	3	1	0	250	871	1
		05:00-05:15P	0	276	4	0	0	2	0	0	0	1	1	0	284	954	0
		05:15-05:30P	0	225	4	0	0	3	0	0	0	4	0	0	236	990	0
		05:30-05:45P	0	172	2	0	0	5	0	0	0	1	0	0	180	950	0
		05:45-06:00P	0	150	0	0	0	2	0	0	0	0	1	0	153	853	0
		06:00-07:00P	2	507	2	0	1	6	0	0	0	0	1	0	519	519	0
		07:00-08:00P	0	410	6	0	1	10	0	0	0	0	1	0	428	428	0
		08:00-09:00P	0	298	7	0	0	2	0	0	0	0	0	0	307	307	0
		09:00-10:00P	0	153	0	0	0	1	0	0	0	0	0	0	154	154	0
		Peak Hour Total															
															8956		10
07:45-08:0		AM PEAK	5	518	11	0	4	22	0	0	0	3	2	0	565	565	
08:00-08:1		Heavy Veh	0	10	0	0	0	1	0	0	0	0	0	0			
08:15-08:3		Heavy Veh %	0.0%	1.9%	0.0%	#DIV/0!	0.0%	4.5%	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!			
08:30-08:4		Peak Hour Fact	0.69														
04:30-04:4		PM PEAK	1	949	14	0	1	14	0	0	0	8	3	0	990	990	
04:45-05:0		Heavy Veh	0	7	0	0	0	0	0	0	0	0	0	0			
05:00-05:1		Heavy Veh %	0.0%	0.7%	0.0%	#DIV/0!	0.0%	0.0%	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!			
05:15-05:3		Peak Hour Fact	0.87														
04:30-04:4		PEAK OF THE	1	949	14	0	1	14	0	0	0	8	3	0	990	990	
04:45-05:0		Heavy Veh	0	7	0	0	0	0	0	0	0	0	0	0			
05:00-05:1		Heavy Veh %	0.0%	0.7%	0.0%	#DIV/0!	0.0%	0.0%	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!			
05:15-05:3		Peak Hour Fact	0.87														
4:30-5:30		System Peak	1	949	14	0	1	14	0	0	0	8	3	0	990		
		Heavy Veh	0	7	0	0	0	0	0	0	0	0	0	0			
		Heavy Veh %	0.0%	0.7%	0.0%	#DIV/0!	0.0%	0.0%	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!			
		Peak Hour Fact	0.87														

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
6	SBR	14	06:00-07:00A	0	4	0	0	0	0	0	0	0	0	0	0	4	4
1	SBT	13	07:00-07:15A	0	5	0	0	0	0	0	0	0	0	0	0	5	
0	SBL	12	07:15-07:30A	0	4	0	0	0	0	0	0	0	0	0	0	4	
0	WBR	21	07:30-07:45A	0	4	0	0	0	0	0	0	0	0	0	0	4	
1	WBT	24	07:45-08:00A	0	0	0	0	0	0	0	0	0	0	0	0	0	13
1	WBL	23	08:00-08:15A	0	2	0	0	0	0	0	0	0	0	0	0	2	10
0	NBR	32	08:15-08:30A	0	4	0	0	0	1	0	0	0	0	0	0	5	11
4	NBT	31	08:30-08:45A	0	4	0	0	0	0	0	0	0	0	0	0	4	11
0	NBL	34	08:45-09:00A	0	2	0	0	0	0	0	0	0	0	0	0	2	13
4	EBR	43	09:00-10:00A	0	5	0	0	0	0	0	0	0	0	0	0	5	5
5	EBT	42	10:00-11:00A	0	8	0	0	0	0	0	0	0	0	0	0	8	8
3	EBL	41	11:00-11:15A	0	2	0	0	0	0	0	0	0	0	0	0	2	
2			11:15-11:30A	0	5	0	0	0	0	0	0	0	0	0	0	5	
0			11:30-11:45A	0	2	0	0	0	0	0	0	0	0	0	0	2	
0			11:45-12:00P	0	3	0	0	0	0	0	0	0	0	0	0	3	12
2			12:00-12:15P	0	6	0	0	0	0	0	0	0	0	0	0	6	16
3			12:15-12:30P	0	3	0	0	0	0	0	0	0	0	0	0	3	14
0			12:30-12:45P	0	3	0	0	0	0	0	0	0	0	0	0	3	15
5			12:45-01:00P	0	1	0	0	0	0	0	0	0	0	0	0	1	13
10			01:00-02:00P	0	8	0	0	0	0	0	0	0	0	0	0	8	8
6			02:00-03:00P	0	4	0	0	0	0	0	0	0	0	0	0	4	4
17			03:00-04:00P	0	13	1	0	0	0	0	0	0	0	0	0	14	14
0			04:00-04:15P	0	1	0	0	0	0	0	0	0	0	0	0	1	
5			04:15-04:30P	0	4	0	0	0	0	0	0	0	0	0	0	4	
0			04:30-04:45P	0	1	0	0	0	0	0	0	0	0	0	0	1	
1			04:45-05:00P	0	5	0	0	0	0	0	0	0	0	0	0	5	11
2			05:00-05:15P	0	1	0	0	0	0	0	0	0	0	0	0	1	11
0			05:15-05:30P	0	0	0	0	0	0	0	0	0	0	0	0	0	7
0			05:30-05:45P	0	0	0	0	0	0	0	0	0	0	0	0	0	6
0			05:45-06:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4			06:00-07:00P	0	4	0	0	0	0	0	0	0	0	0	0	4	4
12			07:00-08:00P	0	3	0	0	0	0	0	0	0	0	0	0	3	3
16			08:00-09:00P	0	1	0	0	0	0	0	0	0	0	0	0	1	1
2			09:00-10:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28																	
112																	

SW 20th Street/SW Emigrant Avenue

			14	13	12	21	24	23	32	31	34	43	42	41			
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Total	Bikes
SBR	14	06:00-07:00A	33	196	0	0	9	1	1	0	173	98	10	0	521	521	1
SBT	13	07:00-07:15A	7	60	0	0	5	0	0	0	46	32	9	0	159		0
SBL	12	07:15-07:30A	5	61	0	0	3	0	1	0	79	47	8	0	204		0
WBR	21	07:30-07:45A	20	95	1	0	3	0	1	0	101	45	6	0	272		0
WBT	24	07:45-08:00A	35	75	1	0	6	0	1	0	98	60	9	0	285	920	0
WBL	23	08:00-08:15A	19	78	0	0	1	2	0	0	64	47	10	0	221	982	0
NBR	32	08:15-08:30A	19	84	0	0	1	0	0	0	65	40	9	0	218	996	0
NBT	31	08:30-08:45A	24	73	1	0	2	0	0	0	72	41	6	0	219	943	0
NBL	34	08:45-09:00A	17	84	0	0	3	0	0	0	86	60	6	0	256	914	0
EBR	43	09:00-10:00A	104	430	3	0	26	0	3	0	401	263	52	0	1282	1282	1
EBT	42	10:00-11:00A	126	412	4	0	22	1	3	0	345	324	62	0	1299	1299	0
EBL	41	11:00-11:15A	46	90	1	0	6	0	1	0	85	100	23	0	352		0
		11:15-11:30A	41	94	0	0	4	0	4	0	90	93	15	0	341		0
		11:30-11:45A	53	96	0	0	8	0	1	0	102	80	30	0	370		0
		11:45-12:00P	50	148	2	0	6	0	5	0	87	110	17	0	425	1488	0
		12:00-12:15P	61	186	0	0	4	0	0	0	112	127	20	0	510	1646	1
		12:15-12:30P	44	149	3	0	11	0	3	0	118	107	22	0	457	1762	0
		12:30-12:45P	46	91	0	0	3	0	1	0	76	103	28	0	348	1740	0
		12:45-01:00P	41	153	1	0	6	0	4	0	121	89	15	0	430	1745	0
		01:00-02:00P	179	514	5	0	16	0	6	0	331	353	77	0	1481	1481	1
		02:00-03:00P	146	451	4	0	19	0	6	0	316	433	86	0	1461	1461	1
		03:00-04:00P	181	575	7	0	14	0	4	0	360	516	103	0	1760	1760	2
		04:00-04:15P	55	130	1	0	18	0	1	0	95	120	30	0	450		0
		04:15-04:30P	50	154	2	0	5	0	1	0	99	135	18	0	464		0
		04:30-04:45P	48	153	2	0	6	0	0	0	92	181	29	0	511		0
		04:45-05:00P	43	183	1	0	8	0	0	0	90	122	16	0	463	1888	1
		05:00-05:15P	59	262	0	0	19	0	0	0	137	147	22	0	646	2084	0
		05:15-05:30P	40	129	0	0	7	0	1	0	86	160	30	0	453	2073	1
		05:30-05:45P	43	131	0	0	4	0	0	0	96	129	26	0	429	1991	0
		05:45-06:00P	33	160	0	0	1	0	0	0	98	137	17	0	446	1974	0
		06:00-07:00P	114	416	3	0	10	0	5	0	335	522	74	0	1479	1479	0
		07:00-08:00P	87	324	5	0	9	0	3	0	251	357	56	0	1092	1092	2
		08:00-09:00P	81	261	1	0	4	0	5	0	182	264	48	0	846	846	0
		09:00-10:00P	46	165	3	0	2	0	2	0	96	166	35	0	515	515	0
		Peak Hour Total															2
															20665		11
	07:30-07:4	AM PEAK	93	332	2	0	11	2	2	0	328	192	34	0	996	996	
	07:45-08:0	Heavy Veh	1	4	0	0	0	2	0	0	1	8	0	0			
	08:00-08:1	Heavy Veh %	1.1%	1.2%	0.0%	#DIV/0!	0.0%	100.0%	0.0%	#DIV/0!	0.3%	4.2%	0.0%	#DIV/0!			
	08:15-08:3	Peak Hour Fact	0.87														
	04:15-04:3	PM PEAK	200	752	5	0	38	0	1	0	418	585	85	0	2084	2084	
	04:30-04:4	Heavy Veh	0	2	0	0	0	0	0	0	3	7	0	0			
	04:45-05:0	Heavy Veh %	0.0%	0.3%	0.0%	#DIV/0!	0.0%	#DIV/0!	0.0%	#DIV/0!	0.7%	1.2%	0.0%	#DIV/0!			
	05:00-05:1	Peak Hour Fact	0.81														
	04:15-04:3	PEAK OF THE	200	752	5	0	38	0	1	0	418	585	85	0	2084	2084	
	04:30-04:4	Heavy Veh	0	2	0	0	0	0	0	0	3	7	0	0			
	04:45-05:0	Heavy Veh %	0.0%	0.3%	0.0%	#DIV/0!	0.0%	#DIV/0!	0.0%	#DIV/0!	0.7%	1.2%	0.0%	#DIV/0!			
	05:00-05:1	Peak Hour Fact	0.81														
	4:30-5:30	System Peak	190	727	3	0	40	0	1	0	405	610	97	0	2073		
		Heavy Veh	0	1	0	0	0	0	0	0	4	6	0	0			
		Heavy Veh %	0.0%	0.1%	0.0%	#DIV/0!	0.0%	#DIV/0!	0.0%	#DIV/0!	1.0%	1.0%	0.0%	#DIV/0!			
		Peak Hour Fact	0.8														

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
4	SBR	14	06:00-07:00A	0	5	0	0	0	0	0	0	2	3	0	0	10	10
1	SBT	13	07:00-07:15A	1	2	0	0	0	0	0	0	0	1	0	0	4	
2	SBL	12	07:15-07:30A	0	0	0	0	0	0	0	0	0	2	0	0	2	
1	WBR	21	07:30-07:45A	0	2	0	0	0	0	0	0	1	2	0	0	5	
0	WBT	24	07:45-08:00A	0	0	0	0	0	0	0	0	0	3	0	0	3	14
5	WBL	23	08:00-08:15A	0	0	0	0	0	2	0	0	0	1	0	0	3	13
2	NBR	32	08:15-08:30A	1	2	0	0	0	0	0	0	0	2	0	0	5	16
3	NBT	31	08:30-08:45A	0	0	0	0	0	0	0	0	2	1	0	0	3	14
2	NBL	34	08:45-09:00A	0	4	0	0	0	0	0	0	3	3	0	0	10	21
9	EBR	43	09:00-10:00A	3	20	0	0	0	0	0	0	14	12	1	0	50	50
6	EBT	42	10:00-11:00A	0	9	0	0	0	0	0	0	2	7	0	0	18	18
7	EBL	41	11:00-11:15A	0	2	0	0	0	0	0	0	0	0	0	0	2	
0			11:15-11:30A	0	5	0	0	0	0	0	0	1	1	1	0	8	
0			11:30-11:45A	2	0	0	0	0	0	0	0	1	3	0	0	6	
0			11:45-12:00P	0	3	0	0	0	0	0	0	1	0	0	0	4	20
2			12:00-12:15P	1	1	0	0	0	0	0	0	1	0	0	0	3	21
2			12:15-12:30P	0	3	0	0	0	0	0	0	1	1	0	0	5	18
5			12:30-12:45P	0	5	0	0	0	0	0	0	0	3	0	0	8	20
0			12:45-01:00P	0	1	0	0	0	0	0	0	2	0	0	0	3	19
5			01:00-02:00P	2	4	0	0	0	0	0	0	14	5	2	0	27	27
14			02:00-03:00P	1	5	0	0	0	0	0	0	10	14	0	0	30	30
13			03:00-04:00P	3	13	0	0	0	0	0	0	12	7	1	0	36	36
0			04:00-04:15P	0	1	0	0	0	0	0	0	0	0	1	0	2	
0			04:15-04:30P	0	1	0	0	0	0	0	0	1	2	0	0	4	
1			04:30-04:45P	0	1	0	0	0	0	0	0	0	1	0	0	2	
1			04:45-05:00P	0	0	0	0	0	0	0	0	2	2	0	0	4	12
3			05:00-05:15P	0	0	0	0	0	0	0	0	0	2	0	0	2	12
0			05:15-05:30P	0	0	0	0	0	0	0	0	2	1	0	0	3	11
8			05:30-05:45P	0	1	0	0	0	0	0	0	0	2	0	0	3	12
2			05:45-06:00P	0	0	0	0	0	0	0	0	1	2	0	0	3	11
7			06:00-07:00P	0	0	0	0	0	0	0	0	5	9	0	0	14	14
7			07:00-08:00P	1	1	0	0	0	0	0	0	6	3	0	0	11	11
1			08:00-09:00P	1	1	0	0	0	0	0	0	1	3	0	0	6	6
1			09:00-10:00P	0	2	0	0	0	0	0	0	2	1	0	0	5	5
8																	
114																	

SW 17th Street/SW Frazer Avenue

			14	13	12	21	24	23	32	31	34	43	42	41			
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Total	Bikes
SBR	14	06:00-07:00A	0	0	0	7	17	0	2	207	15	0	2	5	255	255	0
SBT	13	07:00-07:15A	0	0	0	1	3	0	1	56	7	0	0	3	71		0
SBL	12	07:15-07:30A	0	0	0	1	1	0	1	90	9	0	0	1	103		0
WBR	21	07:30-07:45A	0	0	0	0	4	0	0	129	8	0	1	1	143		0
WBT	24	07:45-08:00A	0	0	0	1	4	0	3	180	16	0	1	5	210	527	0
WBL	23	08:00-08:15A	0	0	0	0	1	0	0	127	4	0	1	5	138	594	0
NBR	32	08:15-08:30A	0	0	0	0	4	0	2	112	3	0	1	0	122	613	0
NBT	31	08:30-08:45A	0	0	0	1	3	0	1	101	8	0	0	1	115	585	0
NBL	34	08:45-09:00A	0	0	0	1	2	0	1	105	9	0	0	4	122	497	0
EBR	43	09:00-10:00A	0	0	0	3	9	0	1	417	32	0	8	19	489	489	1
EBT	42	10:00-11:00A	0	0	0	9	10	0	6	445	29	0	3	23	525	525	0
EBL	41	11:00-11:15A	0	0	0	2	4	0	4	104	11	0	4	2	131		1
		11:15-11:30A	0	0	0	4	3	0	7	109	14	0	0	7	144		0
		11:30-11:45A	0	0	0	1	4	0	1	134	6	0	2	6	154		0
		11:45-12:00P	0	0	0	2	5	0	1	131	14	0	3	10	166	595	0
		12:00-12:15P	0	0	0	0	3	0	4	155	18	0	2	12	194	658	0
		12:15-12:30P	0	0	0	0	2	0	4	126	8	0	3	4	147	661	0
		12:30-12:45P	0	0	0	1	2	0	2	153	5	0	1	11	175	682	0
		12:45-01:00P	0	0	0	2	0	0	1	167	11	0	2	9	192	708	1
		01:00-02:00P	0	0	0	2	14	0	10	565	38	0	4	25	658	658	1
		02:00-03:00P	0	0	0	5	16	0	9	517	44	0	4	27	622	622	2
		03:00-04:00P	0	0	0	5	11	0	14	532	43	0	13	37	655	655	1
		04:00-04:15P	0	0	0	3	2	0	5	140	5	0	2	21	178		0
		04:15-04:30P	0	0	0	0	4	0	1	133	10	0	4	10	162		0
		04:30-04:45P	0	0	0	3	4	0	3	149	6	0	3	8	176		0
		04:45-05:00P	0	0	0	2	4	0	0	139	7	0	3	10	165	681	0
		05:00-05:15P	0	0	0	0	2	0	2	164	11	0	3	7	189	692	0
		05:15-05:30P	0	0	0	1	5	0	4	120	7	0	3	7	147	677	0
		05:30-05:45P	0	0	0	1	3	0	3	116	19	0	0	15	157	658	1
		05:45-06:00P	0	0	0	0	4	0	3	103	9	0	4	7	130	623	0
		06:00-07:00P	0	0	0	3	15	0	10	404	25	0	10	36	503	503	0
		07:00-08:00P	0	0	0	1	10	0	8	360	28	0	10	23	440	440	2
		08:00-09:00P	0	0	0	3	12	0	15	237	23	0	4	15	309	309	1
		09:00-10:00P	0	0	0	2	1	0	8	145	11	0	5	14	186	186	2
		Peak Hour Total															3
															8273		13
07:30-07:4		AM PEAK	0	0	0	1	13	0	5	548	31	0	4	11	613	613	
07:45-08:0		Heavy Veh	0	0	0	0	0	0	0	8	1	0	0	0			
08:00-08:1		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!	0.0%	1.5%	3.2%	#DIV/0!	0.0%	0.0%			
08:15-08:3		Peak Hour Fact	0.73														
04:15-04:3		PM PEAK	0	0	0	5	14	0	6	585	34	0	13	35	692	692	
04:30-04:4		Heavy Veh	0	0	0	0	0	0	0	4	0	0	0	0			
04:45-05:0		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!	0.0%	0.7%	0.0%	#DIV/0!	0.0%	0.0%			
05:00-05:1		Peak Hour Fact	0.92														
12:00-12:1		PEAK OF THE	0	0	0	3	7	0	11	601	42	0	8	36	708	708	
12:15-12:3		Heavy Veh	0	0	0	0	0	0	0	2	0	0	0	0			
12:30-12:4		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!	0.0%	0.3%	0.0%	#DIV/0!	0.0%	0.0%			
12:45-01:0		Peak Hour Fact	0.91														
4:30-5:30		System Peak	0	0	0	6	15	0	9	572	31	0	12	32	677		
		Heavy Veh	0	0	0	0	0	0	0	4	0	0	0	0			
		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	0.0%	0.0%	#DIV/0!	0.0%	0.7%	0.0%	#DIV/0!	0.0%	0.0%			
		Peak Hour Fact	0.9														

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
2	SBR	14	06:00-07:00A	0	0	0	0	0	0	0	2	0	0	0	0	2	2
0	SBT	13	07:00-07:15A	0	0	0	0	0	0	0	2	0	0	0	0	2	
1	SBL	12	07:15-07:30A	0	0	0	0	0	0	0	1	0	0	0	0	1	
1	WBR	21	07:30-07:45A	0	0	0	0	0	0	0	4	0	0	0	0	4	
1	WBT	24	07:45-08:00A	0	0	0	0	0	0	0	2	0	0	0	0	2	9
0	WBL	23	08:00-08:15A	0	0	0	0	0	0	0	1	1	0	0	0	2	9
0	NBR	32	08:15-08:30A	0	0	0	0	0	0	0	1	0	0	0	0	1	9
2	NBT	31	08:30-08:45A	0	0	0	0	0	0	0	0	0	0	0	0	0	5
1	NBL	34	08:45-09:00A	0	0	0	0	0	0	0	0	0	0	0	0	0	3
2	EBR	43	09:00-10:00A	0	0	0	0	0	0	0	7	0	0	0	0	7	7
0	EBT	42	10:00-11:00A	0	0	0	0	0	0	0	2	0	0	0	0	2	2
0	EBL	41	11:00-11:15A	0	0	0	0	0	0	0	1	0	0	0	0	1	
1			11:15-11:30A	0	0	0	0	0	0	0	1	0	0	0	0	1	
6			11:30-11:45A	0	0	0	0	0	0	0	0	0	0	0	1	1	
0			11:45-12:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	4
0			12:00-12:15P	0	0	0	0	0	0	0	1	0	0	0	0	1	4
0			12:15-12:30P	0	0	0	0	0	0	0	0	0	0	0	0	0	3
0			12:30-12:45P	0	0	0	0	0	0	0	1	0	0	0	0	1	3
0			12:45-01:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5			01:00-02:00P	0	0	0	1	0	0	0	7	0	0	0	0	8	8
3			02:00-03:00P	0	0	0	0	0	0	0	3	0	0	0	0	3	3
10			03:00-04:00P	0	0	0	0	0	0	0	5	0	0	0	0	5	5
0			04:00-04:15P	0	0	0	0	0	0	0	0	0	0	0	0	0	
0			04:15-04:30P	0	0	0	0	0	0	0	0	0	0	0	0	0	
2			04:30-04:45P	0	0	0	0	0	0	0	2	0	0	0	0	2	
0			04:45-05:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	3
0			05:00-05:15P	0	0	0	0	0	0	0	1	0	0	0	0	1	4
0			05:15-05:30P	0	0	0	0	0	0	0	0	0	0	0	0	0	4
0			05:30-05:45P	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1			05:45-06:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4			06:00-07:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	1
0			07:00-08:00P	0	0	0	0	0	0	0	2	0	0	0	0	2	2
1			08:00-09:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	1
0			09:00-10:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1																	
43																	

SW 18th Street/SW Frazer Avenue

			14	13	12	21	24	23	32	31	34	43	42	41			
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Total	Bikes
SBR	14	06:00-07:00A	0	0	0	0	0	0	0	219	2	0	0	6	227	227	0
SBT	13	07:00-07:15A	0	0	0	0	0	0	0	62	3	0	0	2	67		0
SBL	12	07:15-07:30A	0	0	0	0	0	0	0	86	1	0	0	4	91		0
WBR	21	07:30-07:45A	0	0	0	0	0	0	0	146	0	0	0	2	148		0
WBT	24	07:45-08:00A	0	0	0	0	0	0	0	212	3	0	0	0	215	521	0
WBL	23	08:00-08:15A	0	0	0	0	0	0	0	148	4	0	0	2	154	608	0
NBR	32	08:15-08:30A	0	0	0	0	0	0	0	123	0	0	0	4	127	644	0
NBT	31	08:30-08:45A	0	0	0	0	0	0	0	108	1	0	0	4	113	609	0
NBL	34	08:45-09:00A	0	0	0	0	0	0	0	105	1	0	0	3	109	503	0
EBR	43	09:00-10:00A	0	0	0	0	0	0	0	557	8	0	0	10	575	575	0
EBT	42	10:00-11:00A	0	0	0	0	0	0	0	468	8	0	0	15	491	491	0
EBL	41	11:00-11:15A	0	0	0	0	0	0	0	139	5	0	0	10	154		1
		11:15-11:30A	0	0	0	0	0	0	0	129	3	0	0	8	140		1
		11:30-11:45A	0	0	0	0	0	0	0	123	4	0	0	0	127		0
		11:45-12:00P	0	0	0	0	0	0	0	149	2	0	0	2	153	574	0
		12:00-12:15P	0	0	0	0	0	0	0	175	0	0	0	3	178	598	0
		12:15-12:30P	0	0	0	0	0	0	0	141	1	0	0	2	144	602	0
		12:30-12:45P	0	0	0	0	0	0	0	137	1	0	0	7	145	620	0
		12:45-01:00P	0	0	0	0	0	0	0	184	4	0	0	6	194	661	1
		01:00-02:00P	0	0	0	0	0	0	0	613	8	0	0	14	635	635	1
		02:00-03:00P	0	0	0	0	0	0	0	560	14	0	0	9	583	583	0
		03:00-04:00P	0	0	0	0	0	0	0	551	10	0	0	33	594	594	1
		04:00-04:15P	0	0	0	0	0	0	0	153	1	0	0	6	160		0
		04:15-04:30P	0	0	0	0	0	0	0	141	4	0	0	3	148		0
		04:30-04:45P	0	0	0	0	0	0	0	156	7	0	0	5	168		0
		04:45-05:00P	0	0	0	0	0	0	0	156	2	0	0	8	166	642	0
		05:00-05:15P	0	0	0	0	0	0	0	157	3	0	0	6	166	648	0
		05:15-05:30P	0	0	0	0	0	0	0	150	2	0	0	6	158	658	0
		05:30-05:45P	0	0	0	0	0	0	0	118	1	0	0	3	122	612	0
		05:45-06:00P	0	0	0	0	0	0	0	128	2	0	0	9	139	585	0
		06:00-07:00P	0	0	0	0	0	0	0	425	8	0	0	11	444	444	0
		07:00-08:00P	0	0	0	0	0	0	0	401	5	0	0	8	414	414	2
		08:00-09:00P	0	0	0	0	0	0	0	263	8	0	0	15	286	286	0
		09:00-10:00P	0	0	0	0	0	0	0	165	3	0	0	8	176	176	1
		Peak Hour Total															2
															7911		8
07:30-07:4		AM PEAK	0	0	0	0	0	0	0	629	7	0	0	8	644	644	
07:45-08:0		Heavy Veh	0	0	0	0	0	0	0	11	0	0	0	0			
08:00-08:1		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	1.7%	0.0%	#DIV/0!	#DIV/0!	0.0%			
08:15-08:3		Peak Hour Fact	0.75														
04:30-04:4		PM PEAK	0	0	0	0	0	0	0	619	14	0	0	25	658	658	
04:45-05:0		Heavy Veh	0	0	0	0	0	0	0	4	0	0	0	0			
05:00-05:1		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.6%	0.0%	#DIV/0!	#DIV/0!	0.0%			
05:15-05:3		Peak Hour Fact	0.98														
12:00-12:1		PEAK OF THE	0	0	0	0	0	0	0	637	6	0	0	18	661	661	
12:15-12:3		Heavy Veh	0	0	0	0	0	0	0	4	0	0	0	0			
12:30-12:4		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.6%	0.0%	#DIV/0!	#DIV/0!	0.0%			
12:45-01:0		Peak Hour Fact	0.85														

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
2	SBR	14	06:00-07:00A	0	0	0	0	0	0	0	2	0	0	0	0	2	2
0	SBT	13	07:00-07:15A	0	0	0	0	0	0	0	1	0	0	0	0	1	
0	SBL	12	07:15-07:30A	0	0	0	0	0	0	0	1	0	0	0	0	1	
0	WBR	21	07:30-07:45A	0	0	0	0	0	0	0	3	0	0	0	0	3	
0	WBT	24	07:45-08:00A	0	0	0	0	0	0	0	2	0	0	0	0	2	7
0	WBL	23	08:00-08:15A	0	0	0	0	0	0	0	3	0	0	0	0	3	9
0	NBR	32	08:15-08:30A	0	0	0	0	0	0	0	3	0	0	0	0	3	11
0	NBT	31	08:30-08:45A	0	0	0	0	0	0	0	0	0	0	0	0	0	8
0	NBL	34	08:45-09:00A	0	0	0	0	0	0	0	0	0	0	0	0	0	6
0	EBR	43	09:00-10:00A	0	0	0	0	0	0	0	8	0	0	0	0	8	8
0	EBT	42	10:00-11:00A	0	0	0	0	0	0	0	4	0	0	0	0	4	4
0	EBL	41	11:00-11:15A	0	0	0	0	0	0	0	3	0	0	0	0	3	
0			11:15-11:30A	0	0	0	0	0	0	0	1	0	0	0	0	1	
1			11:30-11:45A	0	0	0	0	0	0	0	1	0	0	0	0	1	
1			11:45-12:00P	0	0	0	0	0	0	0	3	0	0	0	0	3	8
0			12:00-12:15P	0	0	0	0	0	0	0	2	0	0	0	0	2	7
0			12:15-12:30P	0	0	0	0	0	0	0	0	0	0	0	0	0	6
0			12:30-12:45P	0	0	0	0	0	0	0	1	0	0	0	0	1	6
0			12:45-01:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	4
0			01:00-02:00P	0	0	0	0	0	0	0	8	0	0	0	0	8	8
0			02:00-03:00P	0	0	0	0	0	0	0	6	0	0	0	0	6	6
1			03:00-04:00P	0	0	0	0	0	0	0	5	0	0	0	0	5	5
0			04:00-04:15P	0	0	0	0	0	0	0	0	0	0	0	0	0	
0			04:15-04:30P	0	0	0	0	0	0	0	1	0	0	0	0	1	
0			04:30-04:45P	0	0	0	0	0	0	0	2	0	0	0	0	2	
0			04:45-05:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	4
0			05:00-05:15P	0	0	0	0	0	0	0	1	0	0	0	0	1	5
0			05:15-05:30P	0	0	0	0	0	0	0	0	0	0	0	0	0	4
0			05:30-05:45P	0	0	0	0	0	0	0	0	0	0	0	0	0	2
0			05:45-06:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0			06:00-07:00P	0	0	0	0	0	0	0	2	0	0	0	0	2	2
0			07:00-08:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	1
1			08:00-09:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	1
0			09:00-10:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1																	
6																	

SW 19th Street/SW Frazer Avenue

			14	13	12	21	24	23	32	31	34	43	42	41			
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Total	Bikes
SBR	14	06:00-07:00A	0	0	0	0	0	0	0	208	4	0	0	6	218	218	0
SBT	13	07:00-07:15A	0	0	0	0	0	0	0	64	1	0	0	4	69		0
SBL	12	07:15-07:30A	0	0	0	0	0	0	0	84	0	0	0	2	86		0
WBR	21	07:30-07:45A	0	0	0	0	0	0	0	145	2	0	0	4	151		0
WBT	24	07:45-08:00A	0	0	0	0	0	0	0	223	5	0	0	4	232	538	1
WBL	23	08:00-08:15A	0	0	0	0	0	0	0	132	2	0	0	4	138	607	0
NBR	32	08:15-08:30A	0	0	0	0	0	0	0	102	1	0	0	0	103	624	0
NBT	31	08:30-08:45A	0	0	0	0	0	0	0	90	1	0	0	4	95	568	0
NBL	34	08:45-09:00A	0	0	0	0	0	0	0	118	1	0	0	2	121	457	0
EBR	43	09:00-10:00A	0	0	0	0	0	0	0	424	8	0	0	30	462	462	0
EBT	42	10:00-11:00A	0	0	0	0	0	0	0	448	9	0	0	28	485	485	0
EBL	41	11:00-11:15A	0	0	0	0	0	0	0	127	5	0	0	11	143		1
		11:15-11:30A	0	0	0	0	0	0	0	134	5	0	0	7	146		0
		11:30-11:45A	0	0	0	0	0	0	0	150	1	0	0	8	159		0
		11:45-12:00P	0	0	0	0	0	0	0	158	3	0	0	7	168	616	0
		12:00-12:15P	0	0	0	0	0	0	0	158	3	0	0	17	178	651	1
		12:15-12:30P	0	0	0	0	0	0	0	137	7	0	0	14	158	663	0
		12:30-12:45P	0	0	0	0	0	0	0	127	3	0	0	10	140	644	0
		12:45-01:00P	0	0	0	0	0	0	0	200	4	0	0	5	209	685	1
		01:00-02:00P	0	0	0	0	0	0	0	560	7	0	0	29	596	596	2
		02:00-03:00P	0	0	0	0	0	0	0	533	8	0	0	33	574	574	0
		03:00-04:00P	0	0	0	0	0	0	0	571	7	0	0	36	614	614	0
		04:00-04:15P	0	0	0	0	0	0	0	170	6	0	0	8	184		0
		04:15-04:30P	0	0	0	0	0	0	0	123	2	0	0	6	131		0
		04:30-04:45P	0	0	0	0	0	0	0	161	2	0	0	9	172		0
		04:45-05:00P	0	0	0	0	0	0	0	160	0	0	0	13	173	660	0
		05:00-05:15P	0	0	0	0	0	0	0	151	2	0	0	9	162	638	0
		05:15-05:30P	0	0	0	0	0	0	0	160	1	0	0	5	166	673	0
		05:30-05:45P	0	0	0	0	0	0	0	140	1	0	0	3	144	645	0
		05:45-06:00P	0	0	0	0	0	0	0	91	1	0	0	4	96	568	0
		06:00-07:00P	0	0	0	0	0	0	0	398	4	0	0	11	413	413	1
		07:00-08:00P	0	0	0	0	0	0	0	309	5	0	0	11	325	325	0
		08:00-09:00P	0	0	0	0	0	0	0	191	3	0	0	5	199	199	0
		09:00-10:00P	0	0	0	0	0	0	0	120	1	0	0	8	129	129	0
		Peak Hour Total															
															7539		7
07:30-07:4		AM PEAK	0	0	0	0	0	0	0	602	10	0	0	12	624	624	
07:45-08:0		Heavy Veh	0	0	0	0	0	0	0	6	0	0	0	1			
08:00-08:1		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	1.0%	0.0%	#DIV/0!	#DIV/0!	8.3%			
08:15-08:3		Peak Hour Fact	0.67														
04:30-04:4		PM PEAK	0	0	0	0	0	0	0	632	5	0	0	36	673	673	
04:45-05:0		Heavy Veh	0	0	0	0	0	0	0	2	0	0	0	0			
05:00-05:1		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.3%	0.0%	#DIV/0!	#DIV/0!	0.0%			
05:15-05:3		Peak Hour Fact	0.97														
12:00-12:1		PEAK OF THE	0	0	0	0	0	0	0	622	17	0	0	46	685	685	
12:15-12:3		Heavy Veh	0	0	0	0	0	0	0	3	0	0	0	0			
12:30-12:4		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.5%	0.0%	#DIV/0!	#DIV/0!	0.0%			
12:45-01:0		Peak Hour Fact	0.82														

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
3	SBR	14	06:00-07:00A	0	0	0	0	0	0	0	3	0	0	0	0	3	3
0	SBT	13	07:00-07:15A	0	0	0	0	0	0	0	2	0	0	0	0	2	
0	SBL	12	07:15-07:30A	0	0	0	0	0	0	0	2	0	0	0	0	2	
1	WBR	21	07:30-07:45A	0	0	0	0	0	0	0	3	0	0	0	0	3	
2	WBT	24	07:45-08:00A	0	0	0	0	0	0	0	2	0	0	0	1	3	10
0	WBL	23	08:00-08:15A	0	0	0	0	0	0	0	0	0	0	0	0	0	8
0	NBR	32	08:15-08:30A	0	0	0	0	0	0	0	1	0	0	0	0	1	7
0	NBT	31	08:30-08:45A	0	0	0	0	0	0	0	0	0	0	0	0	0	4
0	NBL	34	08:45-09:00A	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0	EBR	43	09:00-10:00A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	EBT	42	10:00-11:00A	0	0	0	0	0	0	0	6	0	0	0	0	6	6
0	EBL	41	11:00-11:15A	0	0	0	0	0	0	0	1	0	0	0	0	1	
0			11:15-11:30A	0	0	0	0	0	0	0	7	1	0	0	0	8	
0			11:30-11:45A	0	0	0	0	0	0	0	1	0	0	0	0	1	
0			11:45-12:00P	0	0	0	0	0	0	0	2	0	0	0	0	2	12
0			12:00-12:15P	0	0	0	0	0	0	0	0	0	0	0	0	0	11
0			12:15-12:30P	0	0	0	0	0	0	0	1	0	0	0	0	1	4
0			12:30-12:45P	0	0	0	0	0	0	0	1	0	0	0	0	1	4
0			12:45-01:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	3
2			01:00-02:00P	0	0	0	0	0	0	0	3	0	0	0	0	3	3
0			02:00-03:00P	0	0	0	0	0	0	0	7	1	0	0	1	9	9
2			03:00-04:00P	0	0	0	0	0	0	0	7	0	0	0	0	7	7
0			04:00-04:15P	0	0	0	0	0	0	0	1	0	0	0	0	1	
0			04:15-04:30P	0	0	0	0	0	0	0	0	0	0	0	0	0	
0			04:30-04:45P	0	0	0	0	0	0	0	1	0	0	0	0	1	
0			04:45-05:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	3
0			05:00-05:15P	0	0	0	0	0	0	0	0	0	0	0	0	0	2
0			05:15-05:30P	0	0	0	0	0	0	0	0	0	0	0	0	0	2
0			05:30-05:45P	0	0	0	0	0	0	0	2	0	0	0	0	2	3
0			05:45-06:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	2
0			06:00-07:00P	0	0	0	0	0	0	0	5	0	0	0	0	5	5
0			07:00-08:00P	0	0	0	0	0	0	0	2	0	0	0	0	2	2
0			08:00-09:00P	0	0	0	0	0	0	0	2	0	0	0	0	2	2
0			09:00-10:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	1

SW 20th Street/SW Frazer Avenue

			14	13	12	21	24	23	32	31	34	43	42	41			
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Total	Bikes
SBR	14	06:00-07:00A	0	0	0	0	0	0	0	223	17	0	0	15	255	255	1
SBT	13	07:00-07:15A	0	0	0	0	0	0	0	69	6	0	0	5	80		0
SBL	12	07:15-07:30A	0	0	0	0	0	0	0	69	5	0	0	5	79		0
WBR	21	07:30-07:45A	0	0	0	0	0	0	0	129	13	0	0	6	148		0
WBT	24	07:45-08:00A	0	0	0	0	0	0	0	224	22	0	0	9	255	562	1
WBL	23	08:00-08:15A	0	0	0	0	0	0	0	130	5	0	0	11	146	628	0
NBR	32	08:15-08:30A	0	0	0	0	0	0	0	109	4	0	0	8	121	670	0
NBT	31	08:30-08:45A	0	0	0	0	0	0	0	84	6	0	0	5	95	617	0
NBL	34	08:45-09:00A	0	0	0	0	0	0	0	104	8	0	0	18	130	492	0
EBR	43	09:00-10:00A	0	0	0	0	0	0	0	392	15	0	0	48	455	455	0
EBT	42	10:00-11:00A	0	0	0	0	0	0	0	394	7	0	0	76	477	477	0
EBL	41	11:00-11:15A	0	0	0	0	0	0	0	108	7	0	0	18	133		0
		11:15-11:30A	0	0	0	0	0	0	0	122	7	0	0	25	154		0
		11:30-11:45A	0	0	0	0	0	0	0	134	3	0	0	25	162		0
		11:45-12:00P	0	0	0	0	0	0	0	133	4	0	0	18	155	604	0
		12:00-12:15P	0	0	0	0	0	0	0	136	10	0	0	24	170	641	1
		12:15-12:30P	0	0	0	0	0	0	0	128	4	0	0	25	157	644	0
		12:30-12:45P	0	0	0	0	0	0	0	109	2	0	0	30	141	623	0
		12:45-01:00P	0	0	0	0	0	0	0	171	10	0	0	21	202	670	1
		01:00-02:00P	0	0	0	0	0	0	0	503	16	0	0	94	613	613	2
		02:00-03:00P	0	0	0	0	0	0	0	459	22	0	0	94	575	575	2
		03:00-04:00P	0	0	0	0	0	0	0	472	17	0	0	112	601	601	1
		04:00-04:15P	0	0	0	0	0	0	0	145	2	0	0	36	183		0
		04:15-04:30P	0	0	0	0	0	0	0	110	2	0	0	22	134		0
		04:30-04:45P	0	0	0	0	0	0	0	125	6	0	0	32	163		0
		04:45-05:00P	0	0	0	0	0	0	0	139	9	0	0	24	172	652	0
		05:00-05:15P	0	0	0	0	0	0	0	123	7	0	0	24	154	623	0
		05:15-05:30P	0	0	0	0	0	0	0	140	4	0	0	21	165	654	0
		05:30-05:45P	0	0	0	0	0	0	0	125	6	0	0	24	155	646	0
		05:45-06:00P	0	0	0	0	0	0	0	81	1	0	0	18	100	574	0
		06:00-07:00P	0	0	0	0	0	0	0	326	12	0	0	64	402	402	1
		07:00-08:00P	0	0	0	0	0	0	0	259	7	0	0	68	334	334	2
		08:00-09:00P	0	0	0	0	0	0	0	163	4	0	0	33	200	200	1
		09:00-10:00P	0	0	0	0	0	0	0	93	7	0	0	31	131	131	0
		Peak Hour Total															3
																	13
07:30-07:4		AM PEAK	0	0	0	0	0	0	0	592	44	0	0	34	670	670	
07:45-08:0		Heavy Veh	0	0	0	0	0	0	0	10	0	0	0	3			
08:00-08:1		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	1.7%	0.0%	#DIV/0!	#DIV/0!	8.8%			
08:15-08:3		Peak Hour Fact	0.66														
04:30-04:4		PM PEAK	0	0	0	0	0	0	0	527	26	0	0	101	654	654	
04:45-05:0		Heavy Veh	0	0	0	0	0	0	0	2	0	0	0	0			
05:00-05:1		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.4%	0.0%	#DIV/0!	#DIV/0!	0.0%			
05:15-05:3		Peak Hour Fact	0.95														
12:00-12:1		PEAK OF THE	0	0	0	0	0	0	0	544	26	0	0	100	670	670	
12:15-12:3		Heavy Veh	0	0	0	0	0	0	0	4	0	0	0	0			
12:30-12:4		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.7%	0.0%	#DIV/0!	#DIV/0!	0.0%			
12:45-01:0		Peak Hour Fact	0.83														

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
2	SBR	14	06:00-07:00A	0	0	0	0	0	0	0	1	0	0	0	1	2	2
0	SBT	13	07:00-07:15A	0	0	0	0	0	0	0	2	0	0	0	0	2	
1	SBL	12	07:15-07:30A	0	0	0	0	0	0	0	2	0	0	0	0	2	
1	WBR	21	07:30-07:45A	0	0	0	0	0	0	0	3	0	0	0	0	3	
2	WBT	24	07:45-08:00A	0	0	0	0	0	0	0	4	0	0	0	0	4	11
1	WBL	23	08:00-08:15A	0	0	0	0	0	0	0	2	0	0	0	0	2	11
0	NBR	32	08:15-08:30A	0	0	0	0	0	0	0	1	0	0	0	3	4	13
0	NBT	31	08:30-08:45A	0	0	0	0	0	0	0	1	0	0	0	0	1	11
0	NBL	34	08:45-09:00A	0	0	0	0	0	0	0	0	0	0	0	0	0	7
0	EBR	43	09:00-10:00A	0	0	0	0	0	0	0	1	0	0	0	0	1	1
0	EBT	42	10:00-11:00A	0	0	0	0	0	0	0	6	0	0	0	1	7	7
1	EBL	41	11:00-11:15A	0	0	0	0	0	0	0	1	0	0	0	0	1	
0			11:15-11:30A	0	0	0	0	0	0	0	7	1	0	0	3	11	
0			11:30-11:45A	0	0	0	0	0	0	0	0	0	0	0	1	1	
0			11:45-12:00P	0	0	0	0	0	0	0	0	0	0	0	1	1	14
1			12:00-12:15P	0	0	0	0	0	0	0	1	0	0	0	0	1	14
0			12:15-12:30P	0	0	0	0	0	0	0	1	0	0	0	0	1	4
0			12:30-12:45P	0	0	0	0	0	0	0	1	0	0	0	0	1	4
2			12:45-01:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	4
3			01:00-02:00P	0	0	0	0	0	0	0	4	0	0	0	0	4	4
1			02:00-03:00P	0	0	0	0	0	0	0	9	0	0	0	0	9	9
12			03:00-04:00P	0	0	0	0	0	0	0	10	0	0	0	1	11	11
1			04:00-04:15P	0	0	0	0	0	0	0	0	0	0	0	0	0	
0			04:15-04:30P	0	0	0	0	0	0	0	1	0	0	0	0	1	
4			04:30-04:45P	0	0	0	0	0	0	0	1	0	0	0	0	1	
0			04:45-05:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1			05:00-05:15P	0	0	0	0	0	0	0	0	0	0	0	0	0	2
0			05:15-05:30P	0	0	0	0	0	0	0	1	0	0	0	0	1	2
0			05:30-05:45P	0	0	0	0	0	0	0	1	0	0	0	1	2	3
1			05:45-06:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3			06:00-07:00P	0	0	0	0	0	0	0	5	0	0	0	1	6	6
0			07:00-08:00P	0	0	0	0	0	0	0	1	0	0	0	0	1	1
4			08:00-09:00P	0	0	0	0	0	0	0	0	0	0	0	1	1	1
0			09:00-10:00P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4																	
41																	

I-84 EB Ramps/US 395

			14	13	12	21	24	23	32	31	34	43	42	41					
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Tota	Off Ramp	On Ramp	Bikes
SBR	14	06:00-07:00A	0	249	16	0	0	0	94	498	0	32	0	13	902	902	45	110	0
SBT	13	07:00-07:15A	0	81	5	0	0	0	36	152	0	12	0	5	291				0
SBL	12	07:15-07:30A	0	146	2	0	0	0	41	191	0	14	0	2	396				0
WBR	21	07:30-07:45A	0	169	5	0	0	0	45	258	0	15	0	13	505				0
WBT	24	07:45-08:00A	0	217	12	0	0	0	44	369	0	17	0	3	662	1854	81	190	0
WBL	23	08:00-08:15A	0	159	5	0	0	0	42	239	0	21	0	8	474	2037			0
NBR	32	08:15-08:30A	0	152	2	0	0	0	29	204	0	14	0	3	404	2045			0
NBT	31	08:30-08:45A	0	121	8	0	0	0	17	208	0	20	0	10	384	1924			0
NBL	34	08:45-09:00A	0	137	7	0	0	0	25	191	0	12	0	10	382	1644	98	135	0
EBR	43	09:00-10:00A	0	547	22	0	0	0	85	727	0	65	0	39	1485	1485	104	107	0
EBT	42	10:00-11:00A	0	650	29	0	0	0	79	760	0	83	2	44	1647	1647	129	108	2
EBL	41	11:00-11:15A	0	195	5	0	0	0	25	192	0	14	0	9	440				0
		11:15-11:30A	0	187	5	0	0	0	26	202	0	25	0	6	451				0
		11:30-11:45A	0	205	6	0	0	0	21	190	0	18	0	10	450				0
		11:45-12:00P	0	264	9	0	0	0	33	217	0	21	0	8	552	1893	111	130	0
		12:00-12:15P	0	298	6	0	0	0	18	224	0	29	0	13	588	2041			0
		12:15-12:30P	0	235	10	0	0	0	27	218	0	17	0	12	519	2109			0
		12:30-12:45P	0	193	17	0	0	0	27	232	0	11	1	16	497	2156			0
		12:45-01:00P	0	236	7	0	0	0	40	266	0	31	1	13	594	2198	144	152	0
		01:00-02:00P	0	828	43	0	0	0	137	852	0	71	0	47	1978	1978	118	180	0
		02:00-03:00P	0	925	49	0	0	0	118	763	0	80	2	39	1976	1976	121	167	0
		03:00-04:00P	0	998	62	0	0	0	107	865	0	119	1	45	2197	2197	165	169	0
		04:00-04:15P	0	261	17	0	0	0	38	216	0	24	0	19	575				1
		04:15-04:30P	0	260	17	0	0	0	42	211	0	23	1	17	571				1
		04:30-04:45P	0	260	19	0	0	0	43	198	0	31	0	13	564				1
		04:45-05:00P	0	294	15	0	0	0	35	193	0	38	0	8	583	2293	174	226	0
		05:00-05:15P	0	354	12	0	0	0	25	219	0	48	1	16	675	2393			0
		05:15-05:30P	0	324	19	0	0	0	24	243	0	36	1	21	668	2490			0
		05:30-05:45P	0	289	12	0	0	0	22	189	0	23	1	13	549	2475			0
		05:45-06:00P	0	233	15	0	0	0	30	195	0	21	0	15	509	2401	196	159	0
		06:00-07:00P	0	802	55	0	0	0	82	684	0	80	2	40	1745	1745	122	137	3
		07:00-08:00P	0	655	30	0	0	0	69	420	0	69	2	33	1278	1278	104	99	0
		08:00-09:00P	0	433	28	0	0	0	62	382	0	50	1	21	977	977	72	90	1
		09:00-10:00P	0	328	21	0	0	0	32	190	0	25	0	19	615	615	44	53	0
		Peak Hour Total																	19
	07:30-07:4	AM PEAK	0	697	24	0	0	0	160	1070	0	67	0	27	2045	2045			
	07:45-08:0	Heavy Veh	0	36	1	0	0	0	23	19	0	7	0	4					
	08:00-08:1	Heavy Veh %	#DIV/0!	5.2%	4.2%	#DIV/0!	#DIV/0!	#DIV/0!	14.4%	1.8%	#DIV/0!	10.4%	#DIV/0!	14.8%					
	08:15-08:3	Peak Hour Fact	0.77																
	04:30-04:4	PM PEAK	0	1232	65	0	0	0	127	853	0	153	2	58	2490	2490			
	04:45-05:0	Heavy Veh	0	6	3	0	0	0	5	5	0	3	0	0					
	05:00-05:1	Heavy Veh %	#DIV/0!	0.5%	4.6%	#DIV/0!	#DIV/0!	#DIV/0!	3.9%	0.6%	#DIV/0!	2.0%	0.0%	0.0%					
	05:15-05:3	Peak Hour Fact	0.92																
	04:30-04:4	PEAK OF THE	0	1232	65	0	0	0	127	853	0	153	2	58	2490	2490			
	04:45-05:0	Heavy Veh	0	6	3	0	0	0	5	5	0	3	0	0					
	05:00-05:1	Heavy Veh %	#DIV/0!	0.5%	4.6%	#DIV/0!	#DIV/0!	#DIV/0!	3.9%	0.6%	#DIV/0!	2.0%	0.0%	0.0%					
	05:15-05:3	Peak Hour Fact	0.92																

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
3	SBR	14	06:00-07:00A	0	17	0	0	0	0	4	8	0	7	0	1	37	37
1	SBT	13	07:00-07:15A	0	8	0	0	0	0	5	3	0	2	0	1	19	
0	SBL	12	07:15-07:30A	0	10	1	0	0	0	6	2	0	1	0	0	20	
1	WBR	21	07:30-07:45A	0	9	0	0	0	0	4	10	0	1	0	3	27	
1	WBT	24	07:45-08:00A	0	15	1	0	0	0	2	2	0	0	0	0	20	86
0	WBL	23	08:00-08:15A	0	5	0	0	0	0	9	4	0	3	0	0	21	88
1	NBR	32	08:15-08:30A	0	7	0	0	0	0	8	3	0	3	0	1	22	90
5	NBT	31	08:30-08:45A	0	1	2	0	0	0	0	3	0	0	0	0	6	69
1	NBL	34	08:45-09:00A	0	1	1	0	0	0	0	1	0	0	0	0	3	52
9	EBR	43	09:00-10:00A	0	10	2	0	0	0	1	4	0	8	0	3	28	28
3	EBT	42	10:00-11:00A	0	21	0	0	0	0	7	12	0	4	0	2	46	46
2	EBL	41	11:00-11:15A	0	4	2	0	0	0	5	2	0	0	0	0	13	
1			11:15-11:30A	0	4	0	0	0	0	2	5	0	3	0	1	15	
2			11:30-11:45A	0	4	0	0	0	0	6	3	0	1	0	0	14	
2			11:45-12:00P	0	6	0	0	0	0	8	3	0	2	0	1	20	62
3			12:00-12:15P	0	5	1	0	0	0	1	3	0	2	0	0	12	61
2			12:15-12:30P	0	3	0	0	0	0	0	1	0	1	0	2	7	53
2			12:30-12:45P	0	3	2	0	0	0	1	6	0	1	0	0	13	52
0			12:45-01:00P	0	2	0	0	0	0	2	1	0	0	0	0	5	37
4			01:00-02:00P	0	8	1	0	0	0	8	18	0	4	0	4	43	43
16			02:00-03:00P	0	37	1	0	0	0	9	17	0	2	0	1	67	67
22			03:00-04:00P	0	17	6	0	0	0	11	23	0	5	0	3	65	65
2			04:00-04:15P	0	0	0	0	0	0	0	3	0	1	0	1	5	
5			04:15-04:30P	0	2	0	0	0	0	0	1	0	1	0	1	5	
8			04:30-04:45P	0	1	2	0	0	0	4	1	0	0	0	0	8	
3			04:45-05:00P	0	0	0	0	0	0	1	3	0	1	0	0	5	23
0			05:00-05:15P	0	4	1	0	0	0	0	0	0	1	0	0	6	24
0			05:15-05:30P	0	1	0	0	0	0	0	1	0	1	0	0	3	22
6			05:30-05:45P	0	1	1	0	0	0	0	3	0	0	0	0	5	19
7			05:45-06:00P	0	1	0	0	0	0	1	2	0	0	0	1	5	19
8			06:00-07:00P	0	2	1	0	0	0	2	1	0	1	0	3	10	10
6			07:00-08:00P	0	1	1	0	0	0	0	0	0	1	0	1	4	4
5			08:00-09:00P	0	2	1	0	0	0	2	2	0	1	0	2	10	10
2			09:00-10:00P	0	0	1	0	0	0	0	0	0	0	0	1	2	2
11																	
133																	

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			14	13	12	21	24	23	32	31	34	43	42	41					
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Tota	Off Ramp	On Ramp	Bikes
SBR	14	06:00-07:00A	52	212	0	0	0	0	201	186	110	56	2	8	827	827	66	162	2
SBT	13	07:00-07:15A	16	72	0	0	0	0	67	63	28	15	2	3	266				0
SBL	12	07:15-07:30A	13	104	0	0	0	0	65	89	25	21	1	2	320				0
WBR	21	07:30-07:45A	4	137	0	0	0	0	123	123	48	25	0	2	462				0
WBT	24	07:45-08:00A	12	164	0	0	0	0	195	157	43	36	0	0	607	1655	107	189	0
WBL	23	08:00-08:15A	13	138	0	0	0	0	123	84	30	21	0	5	414	1803			1
NBR	32	08:15-08:30A	12	122	0	0	0	0	110	53	28	10	1	3	339	1822			0
NBT	31	08:30-08:45A	11	117	0	0	0	0	95	80	18	23	1	3	348	1708			0
NBL	34	08:45-09:00A	6	131	0	0	0	0	110	83	12	18	1	6	367	1468	92	130	0
EBR	43	09:00-10:00A	49	510	0	0	0	0	382	302	104	82	3	21	1453	1453	106	153	2
EBT	42	10:00-11:00A	54	576	0	0	0	0	346	304	87	89	4	25	1485	1485	118	141	0
EBL	41	11:00-11:15A	11	181	0	0	0	0	107	82	20	30	0	6	437				0
		11:15-11:30A	16	186	0	0	0	0	111	85	19	28	2	3	450				0
		11:30-11:45A	14	216	0	0	0	0	110	89	20	24	3	5	481				0
		11:45-12:00P	19	229	0	0	0	0	110	104	26	30	2	6	526	1894	139	145	0
		12:00-12:15P	18	266	0	0	0	0	128	93	22	25	1	12	565	2022			0
		12:15-12:30P	13	220	0	0	0	0	103	75	16	41	1	12	481	2053			0
		12:30-12:45P	17	228	0	0	0	0	116	100	29	25	2	8	525	2097			0
		12:45-01:00P	21	231	0	0	0	0	156	98	25	22	3	5	561	2132	157	161	0
		01:00-02:00P	65	751	0	0	0	0	454	375	88	67	4	23	1827	1827	94	153	0
		02:00-03:00P	64	880	0	0	0	0	461	362	100	110	3	20	2000	2000	133	164	0
		03:00-04:00P	69	1042	0	0	0	0	484	254	103	98	9	25	2084	2084	132	172	0
		04:00-04:15P	12	237	0	0	0	0	102	89	18	24	2	6	490				0
		04:15-04:30P	13	250	0	0	0	0	103	90	17	38	1	7	519				0
		04:30-04:45P	9	253	0	0	0	0	129	91	22	30	0	8	542				0
		04:45-05:00P	12	296	0	0	0	0	111	110	17	28	2	15	591	2142	161	120	0
		05:00-05:15P	17	343	0	0	0	0	109	104	14	19	1	8	615	2267			0
		05:15-05:30P	10	303	0	0	0	0	97	104	22	36	2	7	581	2329			0
		05:30-05:45P	17	263	0	0	0	0	98	84	19	28	1	6	516	2303			3
		05:45-06:00P	9	202	0	0	0	0	103	87	14	29	0	10	454	2166	147	122	0
		06:00-07:00P	52	789	0	0	0	0	385	288	65	93	4	35	1711	1711	132	117	1
		07:00-08:00P	22	576	0	0	0	0	233	191	41	71	3	14	1151	1151	88	63	1
		08:00-09:00P	33	413	0	0	0	0	195	154	43	25	1	14	878	878	40	76	0
		09:00-10:00P	14	333	0	0	0	0	136	86	20	47	8	10	654	654	65	34	0
		Peak Hour Total																	1
																			10
	07:30-07:4	AM PEAK	41	561	0	0	0	0	551	417	149	92	1	10	1822	1822			
	07:45-08:0	Heavy Veh	2	22	0	0	0	0	8	18	5	9	0	1					
	08:00-08:1	Heavy Veh %	4.9%	3.9%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	1.5%	4.3%	3.4%	9.8%	0.0%	10.0%					
	08:15-08:3	Peak Hour Fact	0.75																
	04:30-04:4	PM PEAK	48	1195	0	0	0	0	446	409	75	113	5	38	2329	2329			
	04:45-05:0	Heavy Veh	2	4	0	0	0	0	1	3	4	0	0	1					
	05:00-05:1	Heavy Veh %	4.2%	0.3%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.2%	0.7%	5.3%	0.0%	0.0%	2.6%					
	05:15-05:3	Peak Hour Fact	0.95																
	04:30-04:4	PEAK OF THE	48	1195	0	0	0	0	446	409	75	113	5	38	2329	2329			
	04:45-05:0	Heavy Veh	2	4	0	0	0	0	1	3	4	0	0	1					
	05:00-05:1	Heavy Veh %	4.2%	0.3%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.2%	0.7%	5.3%	0.0%	0.0%	2.6%					
	05:15-05:3	Peak Hour Fact	0.95																

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
4	SBR	14	06:00-07:00A	2	6	0	0	0	0	2	7	4	12	0	0	33	33
0	SBT	13	07:00-07:15A	0	5	0	0	0	0	3	1	2	2	0	0	13	
0	SBL	12	07:15-07:30A	2	12	0	0	0	0	1	2	0	6	0	0	23	
2	WBR	21	07:30-07:45A	1	10	0	0	0	0	3	5	1	0	0	0	20	
2	WBT	24	07:45-08:00A	0	6	0	0	0	0	0	7	2	8	0	0	23	79
0	WBL	23	08:00-08:15A	0	4	0	0	0	0	3	4	2	1	0	0	14	80
1	NBR	32	08:15-08:30A	1	2	0	0	0	0	2	2	0	0	0	1	8	65
2	NBT	31	08:30-08:45A	1	5	0	0	0	0	0	1	1	1	0	0	9	54
1	NBL	34	08:45-09:00A	0	2	0	0	0	0	0	2	0	0	1	0	5	36
2	EBR	43	09:00-10:00A	0	7	0	0	0	0	3	6	6	7	0	1	30	30
4	EBT	42	10:00-11:00A	2	8	0	0	0	0	2	4	8	16	0	2	42	42
0	EBL	41	11:00-11:15A	2	3	0	0	0	0	5	2	3	2	0	1	18	
0			11:15-11:30A	2	0	0	0	0	0	6	2	0	3	0	0	13	
1			11:30-11:45A	1	6	0	0	0	0	0	3	2	1	0	0	13	
2			11:45-12:00P	0	4	0	0	0	0	2	0	0	4	0	0	10	54
0			12:00-12:15P	1	2	0	0	0	0	0	4	3	2	0	0	12	48
0			12:15-12:30P	1	0	0	0	0	0	0	0	1	3	0	1	6	41
3			12:30-12:45P	0	3	0	0	0	0	0	1	2	2	0	1	9	37
1			12:45-01:00P	1	2	0	0	0	0	1	2	2	0	0	1	9	36
5			01:00-02:00P	3	4	0	0	0	0	2	3	8	8	0	1	29	29
11			02:00-03:00P	2	11	0	0	0	0	4	7	1	21	0	3	49	49
11			03:00-04:00P	3	19	0	0	0	0	15	2	9	2	0	1	51	51
0			04:00-04:15P	0	1	0	0	0	0	1	3	1	1	0	1	8	
4			04:15-04:30P	0	2	0	0	0	0	0	0	1	0	0	0	3	
1			04:30-04:45P	0	1	0	0	0	0	0	0	2	0	0	0	3	
3			04:45-05:00P	0	1	0	0	0	0	1	0	1	0	0	0	3	17
6			05:00-05:15P	1	1	0	0	0	0	0	1	0	0	0	0	3	12
1			05:15-05:30P	1	1	0	0	0	0	0	2	1	0	0	1	6	15
3			05:30-05:45P	2	2	0	0	0	0	0	0	0	0	0	0	4	16
4			05:45-06:00P	0	1	0	0	0	0	1	1	2	0	0	1	6	19
13			06:00-07:00P	3	3	0	0	0	0	1	3	5	2	1	3	21	21
4			07:00-08:00P	0	6	0	0	0	0	0	3	2	0	0	1	12	12
5			08:00-09:00P	2	2	0	0	0	0	1	1	1	0	0	1	8	8
2			09:00-10:00P	2	1	0	0	0	0	1	2	1	0	1	0	8	8
9																	
98																	

I-84 Mainline, West of US 395 (MP 208)

			14	13	12	21	24	23	32	31	34	43	42	41			
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Total	Bikes
SBR	14	06:00-07:00A	0	0	0	0	367	0	0	0	0	0	166	0	533	533	0
SBT	13	07:00-07:15A	0	0	0	0	99	0	0	0	0	0	58	0	157		0
SBL	12	07:15-07:30A	0	0	0	0	98	0	0	0	0	0	68	0	166		0
WBR	21	07:30-07:45A	0	0	0	0	87	0	0	0	0	0	86	0	173		0
WBT	24	07:45-08:00A	0	0	0	0	118	0	0	0	0	0	110	0	228	724	0
WBL	23	08:00-08:15A	0	0	0	0	103	0	0	0	0	0	91	0	194	761	0
NBR	32	08:15-08:30A	0	0	0	0	88	0	0	0	0	0	95	0	183	778	0
NBT	31	08:30-08:45A	0	0	0	0	106	0	0	0	0	0	98	0	204	809	0
NBL	34	08:45-09:00A	0	0	0	0	101	0	0	0	0	0	96	0	197	778	0
EBR	43	09:00-10:00A	0	0	0	0	385	0	0	0	0	0	375	0	760	760	0
EBT	42	10:00-11:00A	0	0	0	0	424	0	0	0	0	0	390	0	814	814	0
EBL	41	11:00-11:15A	0	0	0	0	125	0	0	0	0	0	104	0	229		0
		11:15-11:30A	0	0	0	0	94	0	0	0	0	0	100	0	194		0
		11:30-11:45A	0	0	0	0	136	0	0	0	0	0	139	0	275		0
		11:45-12:00P	0	0	0	0	129	0	0	0	0	0	105	0	234	932	0
		12:00-12:15P	0	0	0	0	146	0	0	0	0	0	112	0	258	961	0
		12:15-12:30P	0	0	0	0	132	0	0	0	0	0	133	0	265	1032	0
		12:30-12:45P	0	0	0	0	128	0	0	0	0	0	110	0	238	995	0
		12:45-01:00P	0	0	0	0	138	0	0	0	0	0	122	0	260	1021	0
		01:00-02:00P	0	0	0	0	517	0	0	0	0	0	463	0	980	980	0
		02:00-03:00P	0	0	0	0	540	0	0	0	0	0	498	0	1038	1038	0
		03:00-04:00P	0	0	0	0	538	0	0	0	0	0	535	0	1073	1073	0
		04:00-04:15P	0	0	0	0	125	0	0	0	0	0	147	0	272		0
		04:15-04:30P	0	0	0	0	128	0	0	0	0	0	148	0	276		0
		04:30-04:45P	0	0	0	0	140	0	0	0	0	0	163	0	303		0
		04:45-05:00P	0	0	0	0	121	0	0	0	0	0	124	0	245	1096	0
		05:00-05:15P	0	0	0	0	138	0	0	0	0	0	160	0	298	1122	0
		05:15-05:30P	0	0	0	0	115	0	0	0	0	0	153	0	268	1114	0
		05:30-05:45P	0	0	0	0	103	0	0	0	0	0	148	0	251	1062	0
		05:45-06:00P	0	0	0	0	85	0	0	0	0	0	129	0	214	1031	0
		06:00-07:00P	0	0	0	0	332	0	0	0	0	0	420	0	752	752	0
		07:00-08:00P	0	0	0	0	200	0	0	0	0	0	293	0	493	493	0
		08:00-09:00P	0	0	0	0	180	0	0	0	0	0	252	0	432	432	0
		09:00-10:00P	0	0	0	0	169	0	0	0	0	0	180	0	349	349	0
		Peak Hour Total															
07:45-08:0		AM PEAK	0	0	0	0	415	0	0	0	0	0	394	0	809	809	
08:00-08:1		Heavy Veh	0	0	0	0	83	0	0	0	0	0	110	0			
08:15-08:3		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	20.0%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	27.9%	#DIV/0!			
08:30-08:4		Peak Hour Fact	0.89														
04:15-04:3		PM PEAK	0	0	0	0	527	0	0	0	0	0	595	0	1122	1122	
04:30-04:4		Heavy Veh	0	0	0	0	135	0	0	0	0	0	117	0			
04:45-05:0		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	25.6%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	19.7%	#DIV/0!			
05:00-05:1		Peak Hour Fact	0.93														
04:15-04:3		PEAK OF THE	0	0	0	0	527	0	0	0	0	0	595	0	1122	1122	
04:30-04:4		Heavy Veh	0	0	0	0	135	0	0	0	0	0	117	0			
04:45-05:0		Heavy Veh %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	25.6%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	19.7%	#DIV/0!			
05:00-05:1		Peak Hour Fact	0.93														

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
0	SBR	14	06:00-07:00A	0	0	0	0	71	0	0	0	0	0	62	0	133	133
0	SBT	13	07:00-07:15A	0	0	0	0	19	0	0	0	0	0	18	0	37	
0	SBL	12	07:15-07:30A	0	0	0	0	19	0	0	0	0	0	30	0	49	
0	WBR	21	07:30-07:45A	0	0	0	0	12	0	0	0	0	0	19	0	31	
0	WBT	24	07:45-08:00A	0	0	0	0	16	0	0	0	0	0	27	0	43	160
0	WBL	23	08:00-08:15A	0	0	0	0	21	0	0	0	0	0	31	0	52	175
0	NBR	32	08:15-08:30A	0	0	0	0	21	0	0	0	0	0	27	0	48	174
0	NBT	31	08:30-08:45A	0	0	0	0	25	0	0	0	0	0	25	0	50	193
0	NBL	34	08:45-09:00A	0	0	0	0	23	0	0	0	0	0	32	0	55	205
0	EBR	43	09:00-10:00A	0	0	0	0	87	0	0	0	0	0	96	0	183	183
0	EBT	42	10:00-11:00A	0	0	0	0	98	0	0	0	0	0	103	0	201	201
0	EBL	41	11:00-11:15A	0	0	0	0	26	0	0	0	0	0	20	0	46	
0			11:15-11:30A	0	0	0	0	16	0	0	0	0	0	35	0	51	
0			11:30-11:45A	0	0	0	0	32	0	0	0	0	0	32	0	64	
0			11:45-12:00P	0	0	0	0	41	0	0	0	0	0	16	0	57	218
0			12:00-12:15P	0	0	0	0	29	0	0	0	0	0	19	0	48	220
0			12:15-12:30P	0	0	0	0	26	0	0	0	0	0	24	0	50	219
0			12:30-12:45P	0	0	0	0	30	0	0	0	0	0	18	0	48	203
0			12:45-01:00P	0	0	0	0	35	0	0	0	0	0	23	0	58	204
0			01:00-02:00P	0	0	0	0	123	0	0	0	0	0	96	0	219	219
0			02:00-03:00P	0	0	0	0	130	0	0	0	0	0	123	0	253	253
0			03:00-04:00P	0	0	0	0	130	0	0	0	0	0	118	0	248	248
0			04:00-04:15P	0	0	0	0	32	0	0	0	0	0	37	0	69	
0			04:15-04:30P	0	0	0	0	35	0	0	0	0	0	35	0	70	
0			04:30-04:45P	0	0	0	0	38	0	0	0	0	0	38	0	76	
0			04:45-05:00P	0	0	0	0	24	0	0	0	0	0	18	0	42	257
0			05:00-05:15P	0	0	0	0	38	0	0	0	0	0	26	0	64	252
0			05:15-05:30P	0	0	0	0	26	0	0	0	0	0	39	0	65	247
0			05:30-05:45P	0	0	0	0	30	0	0	0	0	0	29	0	59	230
0			05:45-06:00P	0	0	0	0	20	0	0	0	0	0	28	0	48	236
0			06:00-07:00P	0	0	0	0	100	0	0	0	0	0	131	0	231	231
0			07:00-08:00P	0	0	0	0	77	0	0	0	0	0	113	0	190	190
0			08:00-09:00P	0	0	0	0	72	0	0	0	0	0	104	0	176	176
0			09:00-10:00P	0	0	0	0	64	0	0	0	0	0	69	0	133	133

SW Hailey Avenue-SW Tutuilla Creek Road/US 395

			14	13	12	21	24	23	32	31	34	43	42	41					
			SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	TOTAL	Hourly Tota	SB	NB	Bikes
SBR	14	06:00-07:00A	54	191	38	62	8	25	24	398	1	1	6	124	932	932	283	584	0
SBT	13	07:00-07:15A	15	59	19	15	4	13	5	134	2	0	5	32	303				0
SBL	12	07:15-07:30A	27	74	33	39	7	15	24	138	1	0	6	43	407				0
WBR	21	07:30-07:45A	28	117	37	58	13	29	28	236	1	1	15	70	633				0
WBT	24	07:45-08:00A	30	144	34	75	10	51	19	266	0	2	4	81	716	2059	617	1187	0
WBL	23	08:00-08:15A	35	130	18	24	3	25	17	205	0	1	4	40	502	2258			0
NBR	32	08:15-08:30A	35	99	22	25	3	18	12	164	1	1	1	32	413	2264			0
NBT	31	08:30-08:45A	26	105	18	26	1	9	11	145	2	1	2	43	389	2020			0
NBL	34	08:45-09:00A	34	95	22	39	4	9	16	114	0	0	3	58	394	1698	639	915	0
EBR	43	09:00-10:00A	125	438	72	117	13	41	41	548	10	4	9	178	1596	1596	635	843	0
EBT	42	10:00-11:00A	124	494	91	108	7	38	41	517	7	1	5	151	1584	1584	709	776	0
EBL	41	11:00-11:15A	46	156	33	28	3	16	13	156	8	1	5	45	510				0
		11:15-11:30A	50	143	33	25	6	9	8	156	4	2	3	49	488				0
		11:30-11:45A	48	185	30	40	3	16	11	159	4	1	6	46	549				0
		11:45-12:00P	50	176	45	23	3	7	13	193	3	1	3	46	563	2110	995	966	0
		12:00-12:15P	62	208	35	33	8	7	16	186	3	0	3	45	606	2206			0
		12:15-12:30P	74	196	26	28	2	7	10	138	6	1	2	48	538	2256			0
		12:30-12:45P	67	169	34	28	4	11	11	154	3	4	2	75	562	2269			0
		12:45-01:00P	44	184	30	36	3	19	8	214	1	1	5	68	613	2319	1129	1053	0
		01:00-02:00P	192	595	96	134	15	42	48	668	16	8	15	223	2052	2052	883	1025	0
		02:00-03:00P	174	713	141	170	20	65	68	624	14	5	17	215	2226	2226	1028	1009	0
		03:00-04:00P	244	771	166	144	26	59	47	655	11	6	20	210	2359	2359	1181	1009	0
		04:00-04:15P	61	193	35	29	6	15	14	158	1	2	3	50	567				0
		04:15-04:30P	90	183	34	27	0	15	9	162	4	2	4	48	578				0
		04:30-04:45P	68	221	40	34	6	14	12	180	3	2	3	50	633				0
		04:45-05:00P	64	247	42	37	3	9	15	159	2	1	7	56	642	2420	1278	990	0
		05:00-05:15P	91	248	54	27	4	15	14	154	2	0	6	59	674	2527			0
		05:15-05:30P	87	236	35	34	6	5	12	157	3	3	3	55	636	2585			0
		05:30-05:45P	66	211	42	25	6	11	14	138	1	0	9	52	575	2527			0
		05:45-06:00P	57	176	11	21	7	9	6	138	2	2	3	48	480	2365	1314	908	0
		06:00-07:00P	239	590	104	93	13	39	36	510	8	4	15	190	1841	1841	933	793	0
		07:00-08:00P	163	401	90	63	5	20	18	329	8	3	16	101	1217	1217	654	493	0
		08:00-09:00P	90	286	45	53	5	22	19	303	5	2	8	90	928	928	421	446	0
		09:00-10:00P	116	238	40	38	10	9	21	146	2	2	11	88	721	721	394	272	0
		Peak Hour Total																	
															28427				
07:30-07:4		AM PEAK	128	490	111	182	29	123	76	871	2	5	24	223	2264	2264			
07:45-08:0		Heavy Veh	5	21	9	15	1	3	3	35	0	0	0	1					
08:00-08:1		Heavy Veh %	3.9%	4.3%	8.1%	8.2%	3.4%	2.4%	3.9%	4.0%	0.0%	0.0%	0.0%	0.4%					
08:15-08:3		Peak Hour Fact	0.79																
04:30-04:4		PM PEAK	310	952	171	132	19	43	53	650	10	6	19	220	2585	2585			
04:45-05:0		Heavy Veh	0	2	1	0	0	0	0	8	0	0	0	0					
05:00-05:1		Heavy Veh %	0.0%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	1.2%	0.0%	0.0%	0.0%	0.0%					
05:15-05:3		Peak Hour Fact	0.96																
04:30-04:4		PEAK OF THE	310	952	171	132	19	43	53	650	10	6	19	220	2585	2585			
04:45-05:0		Heavy Veh	0	2	1	0	0	0	0	8	0	0	0	0					
05:00-05:1		Heavy Veh %	0.0%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	1.2%	0.0%	0.0%	0.0%	0.0%					
05:15-05:3		Peak Hour Fact	0.96																

Pedestrians	HEAVY VEHICLES			14 SBR	13 SBT	12 SBL	21 WBR	24 WBT	23 WBL	32 NBR	31 NBT	34 NBL	43 EBR	42 EBT	41 EBL	TOTAL	Hourly Total
0	SBR	14	06:00-07:00A	2	15	4	1	0	0	0	6	0	0	0	1	29	29
0	SBT	13	07:00-07:15A	0	4	4	3	0	1	1	3	0	0	1	0	17	
0	SBL	12	07:15-07:30A	2	4	8	7	1	1	3	3	0	0	0	1	30	
0	WBR	21	07:30-07:45A	2	4	4	10	1	1	1	7	0	0	0	0	30	
0	WBT	24	07:45-08:00A	1	10	4	5	0	2	1	7	0	0	0	0	30	107
0	WBL	23	08:00-08:15A	1	2	1	0	0	0	0	15	0	0	0	1	20	110
0	NBR	32	08:15-08:30A	1	5	0	0	0	0	1	6	0	0	0	0	13	93
0	NBT	31	08:30-08:45A	0	2	0	1	0	0	0	1	0	0	0	0	4	67
0	NBL	34	08:45-09:00A	2	1	2	1	0	0	0	0	0	0	0	1	7	44
0	EBR	43	09:00-10:00A	1	14	1	6	0	1	0	10	0	0	0	1	34	34
0	EBT	42	10:00-11:00A	1	34	2	0	0	0	0	12	0	0	0	2	51	51
0	EBL	41	11:00-11:15A	1	1	2	1	0	0	2	11	0	0	0	1	19	
0			11:15-11:30A	0	4	1	3	2	0	1	3	0	0	0	1	15	
0			11:30-11:45A	1	8	0	0	0	1	0	5	0	0	0	0	15	
0			11:45-12:00P	0	9	0	0	0	0	0	8	0	0	1	0	18	67
0			12:00-12:15P	0	2	0	1	0	0	0	8	0	0	0	0	11	59
0			12:15-12:30P	1	4	0	0	0	0	0	0	0	0	0	0	5	49
0			12:30-12:45P	0	2	0	0	0	0	0	2	0	0	0	0	4	38
0			12:45-01:00P	0	0	0	0	0	0	0	4	0	0	0	1	5	25
0			01:00-02:00P	1	15	0	0	0	0	0	19	0	0	0	1	36	36
0			02:00-03:00P	0	22	14	8	4	2	0	10	0	0	0	0	60	60
0			03:00-04:00P	4	12	6	4	0	2	2	26	3	0	1	5	65	65
0			04:00-04:15P	1	0	0	1	1	0	0	2	0	1	0	1	7	
0			04:15-04:30P	0	3	0	1	0	0	0	2	0	0	0	0	6	
0			04:30-04:45P	0	1	0	0	0	0	0	3	0	0	0	0	4	
0			04:45-05:00P	0	0	0	0	0	0	0	3	0	0	0	0	3	20
0			05:00-05:15P	0	0	1	0	0	0	0	0	0	0	0	0	1	14
0			05:15-05:30P	0	1	0	0	0	0	0	2	0	0	0	0	3	11
0			05:30-05:45P	0	2	0	0	0	0	0	0	0	0	0	0	2	9
0			05:45-06:00P	0	0	0	0	0	0	0	0	0	0	0	1	1	7
0			06:00-07:00P	0	3	0	3	0	0	1	4	0	0	0	1	12	12
0			07:00-08:00P	1	3	1	0	0	0	0	5	0	0	0	0	10	10
0			08:00-09:00P	1	0	0	0	0	0	0	1	0	0	0	0	2	2
0			09:00-10:00P	0	1	0	0	0	0	0	2	0	0	0	0	3	3

Attachment B

Existing Conditions Worksheets

HCM Signalized Intersection Capacity Analysis
1: SW 20th & Court Pl

8/12/2009

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	150	170	11	148	205	185	3	80	184	171	66	76
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	0.90		1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1676	1765	1500	1676	1639		1676	1580		1676	1623	
Flt Permitted	0.27	1.00	1.00	0.60	1.00		0.66	1.00		0.56	1.00	
Satd. Flow (perm)	471	1765	1500	1054	1639		1162	1580		984	1623	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	185	12	161	223	201	3	87	200	186	72	83
RTOR Reduction (vph)	0	0	5	0	45	0	0	86	0	0	36	0
Lane Group Flow (vph)	163	185	7	161	379	0	3	201	0	186	119	0
Turn Type	Perm		custom	Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		6	8			2			6		
Actuated Green, G (s)	25.5	25.5	45.5	25.5	25.5		45.5	45.5		45.5	45.5	
Effective Green, g (s)	25.5	25.5	45.5	25.5	25.5		45.5	45.5		45.5	45.5	
Actuated g/C Ratio	0.32	0.32	0.57	0.32	0.32		0.57	0.57		0.57	0.57	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	150	563	853	336	522		661	899		560	923	
v/s Ratio Prot		0.10			0.23			0.13			0.07	
v/s Ratio Perm	c0.35		0.00	0.15			0.00			c0.19		
v/c Ratio	1.09	0.33	0.01	0.48	0.73		0.00	0.22		0.33	0.13	
Uniform Delay, d1	27.3	20.7	7.5	21.9	24.2		7.5	8.5		9.2	8.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	98.5	0.3	0.0	1.1	5.0		0.0	0.6		1.6	0.3	
Delay (s)	125.8	21.1	7.5	23.0	29.1		7.5	9.1		10.8	8.3	
Level of Service	F	C	A	C	C		A	A		B	A	
Approach Delay (s)		68.0			27.5			9.1			9.7	
Approach LOS		E			C			A			A	

Intersection Summary			
HCM Average Control Delay	29.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Volume (veh/h)	552	22	121	573	16	162
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	627	25	138	651	18	184
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	363			500		
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			652		1566	640
vC1, stage 1 conf vol					640	
vC2, stage 2 conf vol					926	
vCu, unblocked vol			556		1573	542
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			85		94	62
cM capacity (veh/h)			911		283	485

Direction, Lane #	SE 1	NW 1	NW 2	NE 1
Volume Total	652	138	651	202
Volume Left	0	138	0	18
Volume Right	25	0	0	184
cSH	1700	911	1700	456
Volume to Capacity	0.38	0.15	0.38	0.44
Queue Length 95th (ft)	0	13	0	56
Control Delay (s)	0.0	9.7	0.0	19.0
Lane LOS		A		C
Approach Delay (s)	0.0	1.7		19.0
Approach LOS				C

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	43	71	22	27	0	0	0	0	17	906	52
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	57	95	29	36	0	0	0	0	23	1208	69
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								840				
pX, platoon unblocked												
vC, conflicting volume	1306	1288	639	773	1323	0	1277			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1306	1288	639	773	1323	0	1277			0		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	64	77	82	76	100	100			99		
cM capacity (veh/h)	95	160	419	160	153	1084	539			1622		

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	152	65	627	673
Volume Left	0	29	23	0
Volume Right	95	0	0	69
cSH	261	156	1622	1700
Volume to Capacity	0.58	0.42	0.01	0.40
Queue Length 95th (ft)	84	46	1	0
Control Delay (s)	36.5	43.8	0.4	0.0
Lane LOS	E	E	A	
Approach Delay (s)	36.5	43.8	0.2	
Approach LOS	E	E		

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	35	15	0	0	15	6	31	645	9	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	39	17	0	0	17	7	34	717	10	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	442	796	0	799	791	363	0			727		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	442	796	0	799	791	363	0			727		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	95	100	100	95	99	98			100		
cM capacity (veh/h)	466	312	1084	261	314	633	1622			872		

Direction, Lane #	SE 1	NW 1	NE 1	NE 2
Volume Total	56	23	393	368
Volume Left	39	0	34	0
Volume Right	0	7	0	10
cSH	406	367	1622	1700
Volume to Capacity	0.14	0.06	0.02	0.22
Queue Length 95th (ft)	12	5	2	0
Control Delay (s)	15.3	15.5	0.8	0.0
Lane LOS	C	C	A	
Approach Delay (s)	15.3	15.5	0.4	
Approach LOS	C	C		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	1	5	11	3	0	0	0	0	18	974	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	1	6	13	4	0	0	0	0	21	1160	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								559				
pX, platoon unblocked												
vC, conflicting volume	1208	1207	584	629	1211	0	1168			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1208	1207	584	629	1211	0	1168			0		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	99	96	98	100	100			99		
cM capacity (veh/h)	135	180	455	356	179	1084	594			1622		

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	7	17	601	588
Volume Left	0	13	21	0
Volume Right	6	0	0	8
cSH	362	294	1622	1700
Volume to Capacity	0.02	0.06	0.01	0.35
Queue Length 95th (ft)	2	4	1	0
Control Delay (s)	15.1	18.0	0.4	0.0
Lane LOS	C	C	A	
Approach Delay (s)	15.1	18.0	0.2	
Approach LOS	C	C		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	25	0	14	661	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	26	0	14	674	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	366	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	366	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	99			
cM capacity (veh/h)	602	1084	1622			

Direction, Lane #	SE 1	NE 1	NE 2
Volume Total	26	239	450
Volume Left	26	14	0
Volume Right	0	0	0
cSH	602	1622	1700
Volume to Capacity	0.04	0.01	0.26
Queue Length 95th (ft)	3	1	0
Control Delay (s)	11.2	0.5	0.0
Lane LOS	B	A	
Approach Delay (s)	11.2	0.2	
Approach LOS	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	29.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
7: SW 19th St & SW Emigrant Ave

8/12/2009

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	0	6	8	14	1	0	0	0	0	30	958	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	7	9	16	1	0	0	0	0	34	1101	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								279				
pX, platoon unblocked												
vC, conflicting volume	1171	1171	551	632	1171	0	1102			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1171	1171	551	632	1171	0	1102			0		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	96	98	95	99	100	100			98		
cM capacity (veh/h)	145	187	478	342	187	1084	629			1622		

Direction, Lane #	SE 1	NW 1	SW 1	SW 2
Volume Total	16	17	585	552
Volume Left	0	16	34	0
Volume Right	9	0	0	1
cSH	287	324	1622	1700
Volume to Capacity	0.06	0.05	0.02	0.32
Queue Length 95th (ft)	4	4	2	0
Control Delay (s)	18.3	16.7	0.6	0.0
Lane LOS	C	C	A	
Approach Delay (s)	18.3	16.7	0.3	
Approach LOS	C	C		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	36	0	15	638	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	39	0	16	686	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	375	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	375	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	100	99			
cM capacity (veh/h)	593	1084	1622			

Direction, Lane #	SE 1	NE 1	NE 2
Volume Total	39	245	457
Volume Left	39	16	0
Volume Right	0	0	0
cSH	593	1622	1700
Volume to Capacity	0.07	0.01	0.27
Queue Length 95th (ft)	5	1	0
Control Delay (s)	11.5	0.6	0.0
Lane LOS	B	A	
Approach Delay (s)	11.5	0.2	
Approach LOS	B		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	29.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBR	NBR2	SEL	SET	SER	NWL	NWT	NWR	SWL2	SWL	SWR
Lane Configurations												
Volume (vph)	450	0	1	0	98	616	0	40	0	3	775	203
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5		4.5		4.5	4.5		4.5			4.5	4.5
Lane Util. Factor	1.00		1.00		1.00	0.88		1.00			0.97	1.00
Frt	1.00		0.85		1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95		1.00		1.00	1.00		1.00			0.95	1.00
Satd. Flow (prot)	1676		1500		1765	2640		1765			3252	1500
Flt Permitted	0.95		1.00		1.00	1.00		1.00			0.95	1.00
Satd. Flow (perm)	1676		1500		1765	2640		1765			3252	1500
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	562	0	1	0	122	770	0	50	0	4	969	254
RTOR Reduction (vph)	0	0	1	0	0	557	0	0	0	0	0	83
Lane Group Flow (vph)	562	0	0	0	122	213	0	50	0	0	973	171
Turn Type			custom			Over	Prot			Split		Perm
Protected Phases	2		2		4	2	3	8		6	6	
Permitted Phases			2									6
Actuated Green, G (s)	24.5		24.5		29.0	24.5		29.0			21.5	21.5
Effective Green, g (s)	24.5		24.5		29.0	24.5		29.0			21.5	21.5
Actuated g/C Ratio	0.28		0.28		0.33	0.28		0.33			0.24	0.24
Clearance Time (s)	4.5		4.5		4.5	4.5		4.5			4.5	4.5
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	464		415		578	731		578			790	364
v/s Ratio Prot	c0.34		0.00		c0.07	0.08		0.03			c0.30	
v/s Ratio Perm												0.11
v/c Ratio	1.21		0.00		0.21	0.29		0.09			1.23	0.47
Uniform Delay, d1	32.0		23.1		21.5	25.2		20.6			33.5	28.6
Progression Factor	1.00		1.00		1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	113.6		0.0		0.2	0.2		0.3			115.2	4.3
Delay (s)	145.6		23.1		21.7	25.4		20.9			148.7	33.0
Level of Service	F		C		C	C		C			F	C
Approach Delay (s)	145.4				24.9			20.9			124.7	
Approach LOS	F				C			C			F	

Intersection Summary			
HCM Average Control Delay	94.5	HCM Level of Service	F
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	88.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (veh/h)	40	551	0	0	102	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	42	580	0	0	107	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				374	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				374	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				82	100
cM capacity (veh/h)	1622				584	1084

Direction, Lane #	EB 1	EB 2	SE 1
Volume Total	235	387	107
Volume Left	42	0	107
Volume Right	0	0	0
cSH	1622	1700	584
Volume to Capacity	0.03	0.23	0.18
Queue Length 95th (ft)	2	0	17
Control Delay (s)	1.5	0.0	12.5
Lane LOS	A		B
Approach Delay (s)	0.6		12.5
Approach LOS			B

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	29.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	38	7	117	0	0	0	76	413	0	0	1338	53
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	40	7	123	0	0	0	80	435	0	0	1408	56
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								706			264	
pX, platoon unblocked	0.89	0.89		0.89	0.89	0.89				0.89		
vC, conflicting volume	2003	2003	704	1303	2003	435	1408			435		
vC1, stage 1 conf vol	1408	1408		595	595							
vC2, stage 2 conf vol	595	595		708	1408							
vCu, unblocked vol	2064	2064	704	1279	2064	305	1408			305		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	70	96	68	100	100	100	83			100		
cM capacity (veh/h)	134	179	379	162	117	616	480			1117		

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	47	123	80	435	704	704	56
Volume Left	40	0	80	0	0	0	0
Volume Right	0	123	0	0	0	0	56
cSH	139	379	480	1700	1700	1700	1700
Volume to Capacity	0.34	0.32	0.17	0.26	0.41	0.41	0.03
Queue Length 95th (ft)	35	35	15	0	0	0	0
Control Delay (s)	43.7	19.0	14.0	0.0	0.0	0.0	0.0
Lane LOS	E	C	B				
Approach Delay (s)	25.9		2.2		0.0		
Approach LOS	D						

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	2	160	0	0	0	0	1006	131	71	1385	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00						0.95		1.00	0.95	
Frt	1.00	0.85						0.98		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1676	1503						3295		1676	3353	
Flt Permitted	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (perm)	1676	1503						3295		1676	3353	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	2	174	0	0	0	0	1093	142	77	1505	0
RTOR Reduction (vph)	0	40	0	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	74	136	0	0	0	0	0	1225	0	77	1505	0
Turn Type	Perm									Prot		
Protected Phases		8						6		5	2	
Permitted Phases	8											
Actuated Green, G (s)	12.2	12.2						46.8		7.5	58.8	
Effective Green, g (s)	12.2	12.2						46.8		7.5	58.8	
Actuated g/C Ratio	0.15	0.15						0.58		0.09	0.74	
Clearance Time (s)	4.5	4.5						4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	256	229						1928		157	2464	
v/s Ratio Prot		c0.09						0.37		0.05	c0.45	
v/s Ratio Perm	0.04											
v/c Ratio	0.29	0.59						0.64		0.49	0.61	
Uniform Delay, d1	30.1	31.6						11.0		34.4	5.1	
Progression Factor	1.00	1.00						0.59		1.00	1.00	
Incremental Delay, d2	0.6	4.1						1.3		2.4	1.1	
Delay (s)	30.7	35.7						7.8		36.8	6.2	
Level of Service	C	D						A		D	A	
Approach Delay (s)		34.2			0.0			7.8			7.7	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	250	19	6	43	19	149	10	737	54	184	1026	334
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5		4.0	4.5		4.0	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.97		1.00	0.87		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1676	1704		1676	1530		1676	3319		1676	3353	1500
Flt Permitted	0.60	1.00		0.74	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1054	1704		1306	1530		1676	3319		1676	3353	1500
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	260	20	6	45	20	155	10	768	56	192	1069	348
RTOR Reduction (vph)	0	4	0	0	112	0	0	5	0	0	0	212
Lane Group Flow (vph)	260	22	0	45	63	0	10	819	0	192	1069	136
Turn Type	Perm			Perm			Prot			Prot		custom
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8								6
Actuated Green, G (s)	22.3	22.3		22.3	22.3		1.4	31.3		13.4	43.3	31.3
Effective Green, g (s)	22.3	22.3		22.3	22.3		1.4	31.3		13.4	43.3	31.3
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.02	0.39		0.17	0.54	0.39
Clearance Time (s)	4.5	4.5		4.5	4.5		4.0	4.5		4.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	294	475		364	426		29	1299		281	1815	587
v/s Ratio Prot		0.01			0.04		0.01	c0.25		c0.11	0.32	
v/s Ratio Perm	c0.25			0.03								0.09
v/c Ratio	0.88	0.05		0.12	0.15		0.34	0.63		0.68	0.59	0.23
Uniform Delay, d1	27.6	21.1		21.6	21.7		38.8	19.7		31.3	12.4	16.3
Progression Factor	1.00	1.00		1.00	1.00		0.77	0.67		1.00	0.67	1.03
Incremental Delay, d2	25.4	0.0		0.2	0.2		6.2	2.1		5.5	1.1	0.7
Delay (s)	53.0	21.1		21.7	21.9		36.2	15.2		36.7	9.4	17.6
Level of Service	D	C		C	C		D	B		D	A	B
Approach Delay (s)		50.1			21.8			15.5			14.4	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	178	147	16	8	18	112	4	511	167	77	953	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.5	4.5		4.5	4.5	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	
Frt		1.00	0.85		1.00	0.85	1.00	0.96		1.00	0.99	
Flt Protected		0.97	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1718	1500		1738	1500	1676	3229		1676	3330	
Flt Permitted		0.81	1.00		0.89	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1436	1500		1569	1500	1676	3229		1676	3330	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	193	160	17	9	20	122	4	555	182	84	1036	49
RTOR Reduction (vph)	0	0	12	0	0	88	0	36	0	0	3	0
Lane Group Flow (vph)	0	353	5	0	29	34	4	701	0	84	1082	0
Turn Type	Perm		Perm	Perm		Perm	Prot			Prot		
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		22.0	22.0		22.0	22.0	1.3	37.9		6.6	43.2	
Effective Green, g (s)		22.0	22.0		22.0	22.0	1.3	37.9		6.6	43.2	
Actuated g/C Ratio		0.28	0.28		0.28	0.28	0.02	0.47		0.08	0.54	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		395	413		431	413	27	1530		138	1798	
v/s Ratio Prot							0.00	0.22		c0.05	c0.32	
v/s Ratio Perm		c0.25	0.00		0.02	0.02						
v/c Ratio		0.89	0.01		0.07	0.08	0.15	0.46		0.61	0.60	
Uniform Delay, d1		27.9	21.1		21.4	21.5	38.8	14.1		35.5	12.5	
Progression Factor		1.00	1.00		1.00	1.00	1.18	0.57		1.52	0.28	
Incremental Delay, d2		21.7	0.0		0.1	0.1	2.3	0.9		6.5	1.3	
Delay (s)		49.6	21.1		21.5	21.6	48.0	9.0		60.6	4.9	
Level of Service		D	C		C	C	D	A		E	A	
Approach Delay (s)		48.3			21.6			9.2			8.9	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	25	8	13	657	937	40
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	9	14	714	1018	43
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				1069	346	
pX, platoon unblocked	0.82	0.78	0.78			
vC, conflicting volume	1426	531	1062			
vC1, stage 1 conf vol	1040					
vC2, stage 2 conf vol	385					
vCu, unblocked vol	663	0	527			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	99	98			
cM capacity (veh/h)	432	850	812			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	36	14	357	357	679	383
Volume Left	27	14	0	0	0	0
Volume Right	9	0	0	0	0	43
cSH	490	812	1700	1700	1700	1700
Volume to Capacity	0.07	0.02	0.21	0.21	0.40	0.23
Queue Length 95th (ft)	6	1	0	0	0	0
Control Delay (s)	12.9	9.5	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	12.9	0.2			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	12	16	653	4	20	925
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	17	710	4	22	1005
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			776			639
pX, platoon unblocked	0.86	0.89			0.89	
vC, conflicting volume	1258	357			714	
vC1, stage 1 conf vol	712					
vC2, stage 2 conf vol	546					
vCu, unblocked vol	401	40			439	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	98			98	
cM capacity (veh/h)	537	913			997	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	30	473	241	22	503	503
Volume Left	13	0	0	22	0	0
Volume Right	17	0	4	0	0	0
cSH	702	1700	1700	997	1700	1700
Volume to Capacity	0.04	0.28	0.14	0.02	0.30	0.30
Queue Length 95th (ft)	3	0	0	2	0	0
Control Delay (s)	10.4	0.0	0.0	8.7	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	10.4	0.0		0.2		
Approach LOS	B					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	40	6	651	6	14	923
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	7	708	7	15	1003
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			466			949
pX, platoon unblocked	0.89	0.87			0.87	
vC, conflicting volume	1243	357			714	
vC1, stage 1 conf vol	711					
vC2, stage 2 conf vol	532					
vCu, unblocked vol	374	0			384	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	99			99	
cM capacity (veh/h)	562	948			1023	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	50	472	242	15	502	502
Volume Left	43	0	0	15	0	0
Volume Right	7	0	7	0	0	0
cSH	594	1700	1700	1023	1700	1700
Volume to Capacity	0.08	0.28	0.14	0.01	0.30	0.30
Queue Length 95th (ft)	7	0	0	1	0	0
Control Delay (s)	11.6	0.0	0.0	8.6	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	11.6	0.0		0.1		
Approach LOS	B					

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	5	8	649	8	8	955
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	9	705	9	9	1038
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			164			1251
pX, platoon unblocked	0.91	0.86			0.86	
vC, conflicting volume	1246	357			714	
vC1, stage 1 conf vol	710					
vC2, stage 2 conf vol	536					
vCu, unblocked vol	398	0			349	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			99	
cM capacity (veh/h)	577	935			1040	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	14	470	244	355	692
Volume Left	5	0	0	9	0
Volume Right	9	0	9	0	0
cSH	755	1700	1700	1040	1700
Volume to Capacity	0.02	0.28	0.14	0.01	0.41
Queue Length 95th (ft)	1	0	0	1	0
Control Delay (s)	9.9	0.0	0.0	0.3	0.0
Lane LOS	A			A	
Approach Delay (s)	9.9	0.0		0.1	
Approach LOS	A				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	20	91	45	30	40	17	541	25	65	815	81
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.5			4.5		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.93			0.95		1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1616			1650		1676	3331		1676	3308	
Flt Permitted		0.80			0.76		0.20	1.00		0.29	1.00	
Satd. Flow (perm)		1325			1277		345	3331		511	3308	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	22	99	49	33	43	18	588	27	71	886	88
RTOR Reduction (vph)	0	51	0	0	29	0	0	4	0	0	9	0
Lane Group Flow (vph)	0	153	0	0	96	0	18	611	0	71	965	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		13.9			13.9		48.6	29.0		56.6	33.0	
Effective Green, g (s)		13.9			13.9		48.6	29.0		56.6	33.0	
Actuated g/C Ratio		0.17			0.17		0.61	0.36		0.71	0.41	
Clearance Time (s)		4.5			4.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		230			222		536	1207		705	1365	
v/s Ratio Prot							0.01	0.18		c0.03	c0.29	
v/s Ratio Perm		c0.12			0.08		0.01			0.04		
v/c Ratio		0.66			0.43		0.03	0.51		0.10	0.71	
Uniform Delay, d1		30.9			29.5		6.8	19.9		4.3	19.5	
Progression Factor		1.00			1.00		0.82	0.79		0.12	0.38	
Incremental Delay, d2		7.0			1.4		0.1	1.5		0.2	2.7	
Delay (s)		37.9			30.9		5.7	17.1		0.8	10.1	
Level of Service		D			C		A	B		A	B	
Approach Delay (s)		37.9			30.9			16.8			9.5	
Approach LOS		D			C			B			A	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
1: SW 20th & Court Pl

8/12/2009

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	163	185	12	161	424	3	287	186	155
v/c Ratio	1.09	0.33	0.01	0.48	0.75	0.00	0.29	0.33	0.16
Control Delay	125.1	20.3	6.4	24.8	27.7	11.3	4.9	13.9	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	125.1	20.3	6.4	24.8	27.7	11.3	4.9	13.9	6.2
Queue Length 50th (ft)	~83	67	0	62	153	1	19	48	16
Queue Length 95th (ft)	#182	100	9	100	217	5	70	114	53
Internal Link Dist (ft)		189			283		175		166
Turn Bay Length (ft)	100			100		100		100	
Base Capacity (vph)	187	698	879	417	688	678	1004	574	981
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	0.87	0.27	0.01	0.39	0.62	0.00	0.29	0.32	0.16

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.

Lane Group	NBL	NBR2	SET	SER	NWT	SWL	SWR
Lane Group Flow (vph)	562	1	122	770	50	973	254
v/c Ratio	1.21	0.00	0.21	0.60	0.09	1.23	0.57
Control Delay	144.6	18.0	22.7	4.2	21.2	146.6	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	144.6	18.0	22.7	4.2	21.2	146.6	22.1
Queue Length 50th (ft)	~388	0	49	0	19	~350	68
Queue Length 95th (ft)	#490	3	79	18	39	#390	119
Internal Link Dist (ft)	184		420		179	199	
Turn Bay Length (ft)	150			100			75
Base Capacity (vph)	464	416	578	1288	578	790	447
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.21	0.00	0.21	0.60	0.09	1.23	0.57

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.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	74	176	1235	77	1505
v/c Ratio	0.29	0.65	0.63	0.43	0.61
Control Delay	31.0	33.9	8.7	40.3	7.2
Queue Delay	0.0	0.4	0.3	0.0	0.1
Total Delay	31.0	34.2	9.0	40.3	7.3
Queue Length 50th (ft)	33	61	104	36	152
Queue Length 95th (ft)	65	114	141	76	282
Internal Link Dist (ft)		794	126		465
Turn Bay Length (ft)	100			100	
Base Capacity (vph)	409	402	1975	207	2463
Starvation Cap Reductn	0	0	219	0	0
Spillback Cap Reductn	0	43	0	0	143
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.49	0.70	0.37	0.65

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	260	26	45	175	10	824	192	1069	348
v/c Ratio	0.88	0.05	0.12	0.32	0.08	0.63	0.69	0.55	0.44
Control Delay	57.3	15.5	20.0	6.4	27.5	17.5	41.4	9.4	4.4
Queue Delay	0.3	0.0	0.0	0.0	0.0	0.0	2.5	0.6	0.7
Total Delay	57.6	15.5	20.0	6.4	27.5	17.5	43.9	10.0	5.1
Queue Length 50th (ft)	121	7	16	7	3	102	68	67	37
Queue Length 95th (ft)	#225	23	38	47	m8	#213	136	212	61
Internal Link Dist (ft)		340		254		2184		126	
Turn Bay Length (ft)	150		150		150		100		
Base Capacity (vph)	362	589	449	628	147	1302	335	1947	798
Starvation Cap Reductn	0	0	0	0	0	0	63	465	194
Spillback Cap Reductn	6	0	0	23	0	1	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.04	0.10	0.29	0.07	0.63	0.71	0.72	0.58

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.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	353	17	29	122	4	737	84	1085
v/c Ratio	0.89	0.04	0.07	0.24	0.03	0.46	0.52	0.56
Control Delay	53.5	9.9	20.0	5.5	41.0	9.0	63.0	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	9.9	20.0	5.5	41.0	9.0	63.0	4.5
Queue Length 50th (ft)	163	0	10	0	1	156	40	36
Queue Length 95th (ft)	#291	14	28	35	m4	210	m84	22
Internal Link Dist (ft)	465		415			266		2184
Turn Bay Length (ft)		100		100	150		150	
Base Capacity (vph)	458	489	500	561	168	1598	173	1936
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	0.77	0.03	0.06	0.22	0.02	0.46	0.49	0.56

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.

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	204	125	18	615	71	974
v/c Ratio	0.73	0.50	0.03	0.51	0.10	0.71
Control Delay	35.5	26.9	4.4	17.2	0.8	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.5	26.9	4.4	17.2	0.8	10.2
Queue Length 50th (ft)	67	40	2	103	1	213
Queue Length 95th (ft)	125	82	m7	134	m3	17
Internal Link Dist (ft)	403	536		716		84
Turn Bay Length (ft)			150		150	
Base Capacity (vph)	464	431	540	1211	712	1373
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	0.44	0.29	0.03	0.51	0.10	0.71

Intersection Summary

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

Attachment C
Crash Data

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Southgate (Hwy 028) @ SW Hailey Avenue/SW Tutuilla Creek Road
January 1, 2003 through December 31, 2007

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2007														
ANGLE	0	1	0	1	0	1	0	1	0	1	0	1	0	0
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	2	3	0	1	0	3	0	2	1	3	0	0
2007 TOTAL	0	2	3	5	0	2	0	5	0	4	1	5	0	0
YEAR: 2006														
ANGLE	0	1	0	1	0	1	1	1	0	1	0	1	0	0
REAR-END	0	2	0	2	0	2	0	2	0	2	0	2	0	0
2006 TOTAL	0	3	0	3	0	3	1	3	0	3	0	3	0	0
YEAR: 2005														
REAR-END	0	1	1	2	0	1	0	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2005 TOTAL	0	2	1	3	0	2	0	3	0	3	0	3	0	0
YEAR: 2004														
REAR-END	0	1	2	3	0	1	0	3	0	3	0	3	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	1	0	1	1	0	1	0	0
2004 TOTAL	0	1	3	4	0	1	1	3	1	4	0	4	0	0
YEAR: 2003														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2003 TOTAL	0	0	2	2	0	0	0	2	0	2	0	2	0	0
FINAL TOTAL	0	8	9	17	0	8	2	16	1	16	1	17	0	0

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

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

028 PENDLETON-JOHN DAY

Southgate (Hwy 028) @ SW Hailey Avenue/SW Tutuilla Creek Road
January 1, 2003 through December 31, 2007

SER# INVEST	SPEED	ALCHL	DRUGS	SCHOL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00705	N	N	N	N	N	09/14/2007	UMATILLA	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											32
CITY						Fri	PENDLETON	0	0	SW HAILEY AVE	NE		TRF SIGNAL	N	DRY	REAR		PRVTE	SW NE									000		00
						9A	PENDLTN UA	1.77		SOUTHGATE	05	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	24	F	OR-Y		052	000		32
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	SW NE									011		00
																		PSNGR CAR		01	DRVR	NONE	72	M	OR-Y		000	000		00
																									OR>25					
01021	N	N	N			12/09/2003	UMATILLA	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07,10
NONE						Tue	PENDLETON	0	0	SW HAILEY AVE	NE		TRF SIGNAL	N	DRY	REAR		PRVTE	NE SW									000		00
						12P	PENDLTN UA	1.77		SOUTHGATE	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	57	M	OR-Y		026	000		07
																									OR>25					
																	02	NONE 0	STOP											
																		PRVTE	NE SW									011		00
																		PSNGR CAR		01	DRVR	NONE	60	F	OR-Y		009	000		10
																									OR>25					
00454	Y	N	N			06/18/2004	UMATILLA	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											01
CITY						Fri	PENDLETON	0	0	SW HAILEY AVE	NE		TRF SIGNAL	N	DRY	REAR		PRVTE	NE SW									000		00
						8P	PENDLTN UA	1.77		SOUTHGATE	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	57	F	OR-Y		052	000		01
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	NE SW									011		00
																		PSNGR CAR		01	DRVR	INJC	35	F	OR-Y		000	000		00
																									OR<25					
00117	N	N	N	N	N	02/08/2005	UMATILLA	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
CITY						Tue	PENDLETON	0	0	SW HAILEY AVE	NE		TRF SIGNAL	N	DRY	REAR		PRVTE	NE SW									000		00
						12P	PENDLTN UA	1.77		SOUTHGATE	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	17	F	OR-Y		052	000		07
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	NE SW									011		00
																		PSNGR CAR		01	DRVR	NONE	69	F	OR-Y		000	000		00
																									OR<25					
00474	N	N	N	N	N	07/05/2005	UMATILLA	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
CITY						Tue	PENDLETON	0	0	SW HAILEY AVE	NE		TRF SIGNAL	N	DRY	REAR		PRVTE	NE SW									001		00
						2P	PENDLTN UA	1.77		SOUTHGATE	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	73	M	OR-Y		043	000		07
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	NE SW									011		00
																		PSNGR CAR		01	DRVR	INJC	78	F	OR-Y		000	000		00
																									OR<25					
00673	N	N	N			09/27/2004	UMATILLA	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE						Mon	PENDLETON	0	0	SW HAILEY AVE	SW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW NE									001		00
						1P	PENDLTN UA	1.77		SOUTHGATE	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	28	M	OR-Y		026	000		07
																									OR<25					

028 PENDLETON-JOHN DAY

Southgate (Hwy 028) @ SW Hailey Avenue/SW Tutuilla Creek Road
January 1, 2003 through December 31, 2007

SER# INVEST	SPED	ALCS	DRUG	SHLK	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
																	02	NONE 0	STOP									011		00
																		PRVTE	SW NE									000		00
																		PSNGR CAR		01	DRVR	NONE	00	M	UNK	000				
																									UNK					
00694	N	N	N			10/25/2006	UMATILLA	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NO RPT						Wed	PENDLETON	0	0	SW HAILEY AVE	SW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW NE									000		00
						3P	PENDLTN UA	1.77		SOUTHGATE	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	00	U	UNK	026		000		07
																									UNK					
																	02	NONE 0	STOP									011		00
																		PRVTE	SW NE									000		00
																		PSNGR CAR		01	DRVR	INJB	16	F	OR-Y	000				
																									OR<25					
00747	N	N	N			10/22/2004	UMATILLA	1	14		INTER	CROSS	N	N	RAIN	ANGL-STP	01	NONE 0	TURN-R											08
NO RPT						Fri	PENDLETON	0	0	SW HAILEY AVE	NW		L-TURN REF	N	WET	TURN		PRVTE	NE NW									000		00
						11A	PENDLTN UA	1.77		SOUTHGATE	06	0		N	DAY	PDO		TRUCK		01	DRVR	NONE	52	M	OR-Y	001		000		08
																									OR<25					
																	02	NONE 0	STOP									012		00
																		PRVTE	NW SE									000		00
																		PSNGR CAR		01	DRVR	NONE	30	F	OR-Y	000				
																									OR<25					
00707	N	N	N			09/23/2003	UMATILLA	1	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											03
NO RPT						Tue	PENDLETON	0	0	SW HAILEY AVE	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	NE SW									000		00
						2P	PENDLTN UA	1.77		SOUTHGATE	01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	26	M	OR-Y	020		000		03
																									OR>25					
																	02	NONE 0	STRGHT									000		00
																		PRVTE	SE NW									000		00
																		PSNGR CAR		01	DRVR	NONE	42	M	OR-Y	000				
																									OR<25					
00614	N	N	N	N	N	09/09/2005	UMATILLA	1	14		INTER	CROSS	N	N	CLR	S-OTHER	01	NONE 0	TURN-L											07
CITY						Fri	PENDLETON	0	0	SOUTHGATE	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	NE SE									000		00
						3P	PENDLTN UA	1.77		TUTUILLA CREEK RD	01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	00	M	UNK	043		000		07
																									UNK					
																	02	NONE 0	TURN-L									013		00
																		PRVTE	NE SE									000		00
																		PSNGR CAR		01	DRVR	INJC	22	M	OR-Y	000				
																									OR<25					
00205	N	N	N	N	N	04/28/2006	UMATILLA	1	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	LOG 1	STRGHT											04
CITY						Fri	PENDLETON	0	0	SW HAILEY AVE	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	NE SW									000		00
						7A	PENDLTN UA	1.77		SOUTHGATE	01	0		N	DAY	INJ		SEMI TOW		01	DRVR	NONE	37	M	OTH-Y	020		000		04
																									N-RES					
																	02	NONE 0	STRGHT									000		00
																		PRVTE	SE NW									000		00
																		PSNGR CAR		01	DRVR	INJC	43	M	OR-Y	000				
																									OR<25					

028 PENDLETON-JOHN DAY

Southgate (Hwy 028) @ SW Hailey Avenue/SW Tutuilla Creek Road
January 1, 2003 through December 31, 2007

SER# INVEST	SPEED	ALCOHOL	DRUG	SCHOOL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00408	N	N	N	N	N	06/07/2007	UMATILLA	1	14		INTER	CROSS	N		N	CLR	ANGL-OTH	01	NONE 0	STRGHT										04
CITY						Thu	PENDLETON	0	0	SW HAILEY AVE	CN		TRF SIGNAL		N	DRY	ANGL		PRVTE	NE SW								000		00
						4P	PENDLTN UA	1.77		SOUTHGATE	01	0			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	33	F	OR-Y	020	026		04
																										OR<25				
																					02	PSNG	NO<5	04	F		000	000		00
																	02	NONE 0	STRGHT											
																		PRVTE	SE NW									000		00
																		PSNGR CAR		01	DRVR	INJC	50	F	OR-Y	000	000		00
																										OR<25				
00677	N	N	N			09/28/2004	UMATILLA	1	14		INTER	CROSS	N		N	CLR	S-1TURN	01	NONE 0	STRGHT										07
NONE						Tue	PENDLETON	0	0	SOUTHGATE	CN		TRF SIGNAL		N	DRY	REAR		PRVTE	SE NW								000		00
						6P	PENDLTN UA	1.77		TUTUILLA CREEK RD	02	0			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	37	F	OR-Y	042	000		07
																										OR<25				
																	02	NONE 0	TURN-L											
																		PRVTE	SE SW									000		00
																		PSNGR CAR		01	DRVR	NONE	48	M	OR-Y	000	000		00
																										OR<25				
00595	N	N	N			08/16/2007	UMATILLA	1	14		INTER	CROSS	N		N	CLR	ANGL-OTH	01	NONE 0	TURN-L										04
CITY						Thu	PENDLETON	0	0	SOUTHGATE	CN		TRF SIGNAL		N	DRY	TURN		PRVTE	SW NW								000		00
						4P	PENDLTN UA	1.77		TUTUILLA CREEK RD	02	0			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	21	F	OTH-Y	000	000		00
																										N-RES				
																	02	NONE 0	TURN-L											
																		PRVTE	SE SW									000		00
																		PSNGR CAR		01	DRVR	NONE	47	M	OR-Y	020	000		04
																										OR<25				
00198	N	N	N	N	N	03/28/2007	UMATILLA	1	14		INTER	CROSS	N		N	CLR	O-1TURN	01	NONE 0	STRGHT										04
CITY						Wed	PENDLETON	0	0	SOUTHGATE	CN		TRF SIGNAL		N	DRY	TURN		PRVTE	SW NE								000		00
						9P	PENDLTN UA	1.77		TUTUILLA CREEK RD	04	0			N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	50	F	OR-Y	097	000		00
																										OR<25				
																	02	NONE 0	TURN-L											
																		PRVTE	NE SE									000		00
																		PSNGR CAR		01	DRVR	NONE	33	M	OR-Y	097	000		00
																										OR<25				
00721	N	N	N			10/03/2007	UMATILLA	1	14		INTER	CROSS	N		N	CLR	ANGL-OTH	01	NONE 0	TURN-L										04
CITY						Wed	PENDLETON	0	0	SW HAILEY AVE	CN		TRF SIGNAL		N	DRY	TURN		PRVTE	NW NE								000		00
						12P	PENDLTN UA	1.77		SOUTHGATE	04	0			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	61	F	OR-Y	020	000		04
																										OR<25				
																	02	NONE 0	STRGHT											
																		PRVTE	SW NE									000		00
																		PSNGR CAR		01	DRVR	NONE	78	F	OR-Y	000	000		00
																										OR<25				

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

CITY OF PENDLETON, UMATILLA COUNTY

Southgate (Hwy 028) @ SW Hailey Avenue/SW Tutuilla Creek Road
January 1, 2003 through December 31, 2007

SER# INVEST	SPEC	ALC	DRUG	SCHL	WORK	DATE DAY TIME	CLASS DIST FROM	CITY STREET FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CONTL	OFF-RD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00675	N	N	N	N	N	10/25/2006	16	HAILEY AVE	INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE 1	STRGHT											07
CITY						Wed	0	TUTUILLA CREEK RD	NW		NONE	N	DRY	REAR		PRVTE	NW SE									000		00
						11A			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	18	F	OR-Y		043	000		07
																							OR<25					
															02	NONE 0	STOP											
																PRVTE	NW SE									012		00
																PSNGR CAR		01	DRVR	INJC	28	M	OR-Y		000	000		00
																							OR<25					

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
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 ANOTHER VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	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	DISTRACT	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
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF-ROAD
088	OTHER	OTHER ACTION
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--RAG	DISREGARDED R-A-G TRAFFIC SIGNAL.
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD
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 ROADWAY
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST CLOTHING NOT VISIBLE
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (CITATION ISSUED)
33	RECKLESS	RECKLESS DRIVING (CITATION ISSUED)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	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
&	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-1TURN	FROM OPPOSITE DIRECTION - ONE 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-?	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	FAIL 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	FAILED TO DIM LIGHTS (UNTIL 4/1/97) / INATTENTION (AFTER 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING, EXITING PARKED POSITION WITH INSUFFICIENT CLEARANCE OR 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 SIGN	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 ZN	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
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	TO 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 (VEHICLE IS DELIBERATELY TRAVELING ON WRONG SIDE)
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	WK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAYON RD	STANDING OR LYING IN ROADWAY
073	DIS POL	DISREGARDING POLICE (ELUDING)
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	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	PED INV	PEDESTRIAN INVOLVED (NON-PEDESTRIAN ACCIDENT)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	BIKE INV	TRICYCLE-BICYCLE INVOLVED
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE (OCCUPANTS ONLY)
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 OPN	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	LVSTOCK	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 BARS OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL 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 (ON BRIDGE AND APPROACH)
047	BR ABUT	BRIDGE ABUTMENT (APPROACH ENDS)
048	BR COLMN	BRIDGE PILLAR OR COLUMN (EVEN THOUGH STRUCK PROTECTIVE GUARD RAIL FIRST)
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL 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	DELINEATOR 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, ROCKS OFF OR ON ROAD, 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	IRRGL PVMT	SPEED BUMP, OTHER BUMP, POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	HOLE	CHUCKHOLE IN ROAD, LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ F MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY OTHER MOVING OR FLYING OBJECT
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/BLD	FENCE OR BUILDING, ETC.
089	OTH ACDT	ACCIDENT RELATED TO ANOTHER SEPARATE ACCIDENT
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE (ON PAR OR REPORT)
093	CELL-POL	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL-WTN	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	UNKNOWN TYPE OF FIXED OBJECT
101	OTHER OBJ	OTHER OR UNKNOWN OBJECT, NOT FIXED
104	OUTSIDE V	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
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS AND/OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS AND/OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR/TROLLEY RIGHT-OF-WAY
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE
125	SHLDR	SHOULDER GAVE WAY

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 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	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT 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	SHORT 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	SHORT 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	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYA
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OB
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN
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
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-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	OFCR/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	OVRHD 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 STPSGN	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, 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, MOTOR SCOOTER, OR MOTOR BICYCLE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE
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
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

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SW Frazer Avenue (Hwy 028) @ SW 18th Street
January 1, 2003 through December 31, 2007

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR:														
TOTAL														
FINAL TOTAL														

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SW Frazer Avenue (Hwy 028) @ SW 20th Street
January 1, 2003 through December 31, 2007

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2005														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2005 TOTAL	0	0	2	2	0	0	0	2	0	2	0	2	0	0
FINAL TOTAL	0	0	2	2	0	0	0	2	0	2	0	2	0	0

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CONTINUOUS SYSTEM CRASH LISTING

028 PENDLETON-JOHN DAY

SW Frazer Avenue (Hwy 028) @ SW 20th Street

January 1, 2003 through December 31, 2007

SER# INVEST	SPED	ALCS	DRUG	SCHL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00575	N	N	N	N	N	09/09/2005	UMATILLA	2	14		INTER	3-LEG	N	N	CLR	OTH OBJ	01	NONE 0	STRGHT										081	12
CITY						Fri	PENDLETON	1	0	FRAZER AVE	NE		ONE-WAY	N	DRY	FIX		PRVTE	SW NE								000	081	00
						7A	PENDLTN UA	1.59		SW 20TH ST	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	20	M	OR-Y	000	000		12
																									OR<25					
00439	N	N	N	N	N	07/18/2005	UMATILLA	2	14		INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 0	TURN-L											02
CITY						Mon	PENDLETON	1	0	FRAZER AVE	CN		ONE-WAY	N	DRY	TURN		PRVTE	NW NE								015		00
						11A	PENDLTN UA	1.59		SW 20TH ST	03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	61	F	OR-Y	028	000		02
																									OR<25					
																	02	NONE 0	TURN-L											
																		PRVTE	SW NW								000		00
																		PSNGR CAR		01	DRVR	NONE	21	M	SUSP	000	000		00
																									OR<25					

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SW Dorion Avenue @ SW 20th Street
January 1, 2003 through December 31, 2007

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2006														
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2006 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
YEAR: 2003														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2003 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	1	1	2	0	1	0	2	0	2	0	2	0	0

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

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

CITY OF PENDLETON, UMATILLA COUNTY

SW Dorion Avenue @ SW 20th Street

January 1, 2003 through December 31, 2007

SER# INVEST	SPEED	ALC	DRUG	SCHL	WORK	DATE DAY TIME	CLASS DIST FROM	CITY STREET FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CONTL	OFF-RD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00542	N	N	N			07/29/2003	16	SW DORION AVE	INTER	3-LEG	N		N	CLR	S-1STOP	01	NONE 0	STRGHT										10
NO RPT						Tue	0	SW 20TH ST	NW		TRF SIGNAL		N	DRY	REAR		PRVTE	NW SE								000		00
						4P			06	0			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	21	M	OR-Y	026	000		10
																								OR<25				
																02	NONE 0	STOP										
																	PRVTE	NW SE								011		00
																	PSNGR CAR		01	DRVR	NONE	28	M	OR-Y	000	000		00
																								OR<25				
00827	N	N	N	N	N	12/13/2006	16	SW DORION AVE	INTER	3-LEG	N		N	CLD	O-1TURN	01	NONE 0	STRGHT										02
CITY						Wed	0	SW 20TH ST	CN		TRF SIGNAL		N	DRY	TURN		PRVTE	NW SE								000		00
						2P			03	0			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	17	M	OR-Y	000	000		00
																								OR<25				
																02	NONE 0	TURN-L										
																	PRVTE	SE SW								000		00
																	PSNGR CAR		01	DRVR	INJC	82	F	OR-Y	004	000		02
																								OR<25				

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SW Emigrant Avenue (Hwy 028) @ SW 17th Street
January 1, 2003 through December 31, 2007

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2006														
ANGLE	0	2	1	3	0	4	0	3	0	3	0	3	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2006 TOTAL	0	2	2	4	0	4	0	4	0	4	0	4	0	0
YEAR: 2005														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2005 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2004														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2004 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2003														
ANGLE	0	0	2	2	0	0	0	2	0	2	0	2	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2003 TOTAL	0	0	3	3	0	0	0	3	0	3	0	3	0	0
FINAL TOTAL	0	2	7	9	0	4	0	9	0	9	0	9	0	0

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

028 PENDLETON-JOHN DAY

SW Emigrant Avenue (Hwy 028) @ SW 17th Street
January 1, 2003 through December 31, 2007

SER# INVEST	SPEED	DRUG	ALCHL	SCHL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00197	N	N	N	N	N	03/04/2003	UMATILLA	1	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE	STRGHT											02
NO RPT						Tue	PENDLETON	0	0	SW EMIGRANT AVE	CN		STOP SIGN	N	DRY	ANGL		PRVTE	SE NW									015		00
						10A	PENDLTN UA	1.37		SW 17TH ST	01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	82	F	OR-Y	028		000		02
																									OR<25					
																	02	NONE	STRGHT											
																		PRVTE	NE SW									000		00
																		PSNGR CAR		01	DRVR	NONE	26	F	OR-Y	000		000		00
																									OR<25					
00391	N	N	N			05/21/2003	UMATILLA	1	14		INTER	CROSS	N	N	CLR	S-STRGHT	01	NONE 0	STRGHT											06
NO RPT						Wed	PENDLETON	1	0	SW EMIGRANT AVE	NE		ONE-WAY	N	DRY	SS-O		PRVTE	NE SW									000		00
						5P	PENDLTN UA	1.37		SW 17TH ST	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	23	M	OTH-Y	045		000		06
																									N-RES					
																	02	NONE 0	STRGHT											
																		PRVTE	NE SW									000		00
																		PSNGR CAR		01	DRVR	NONE	25	F	OR-Y	000		000		00
																									OR<25					
00317	N	N	N			05/17/2004	UMATILLA	1	14		INTER	CROSS	N	N	CLR	S-OTHER	01	NONE 0	TURN-R											08
NONE						Mon	PENDLETON	1	0	SW EMIGRANT AVE	NW		ONE-WAY	N	DRY	TURN		PRVTE	NW SW									000		00
						4P	PENDLTN UA	1.37		SW 17TH ST	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	53	M	OR-Y	006		000		08
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	NW SE									011		00
																		PSNGR CAR		01	DRVR	NONE	44	F	OR-Y	000		000		00
																									OR<25					
00284	N	N	N	N	N	05/14/2006	UMATILLA	1	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
CITY						Sun	PENDLETON	1	0	SW EMIGRANT AVE	CN		ONE-WAY	N	DRY	ANGL		PRVTE	NE SW									000		00
						7A	PENDLTN UA	1.37		SW 17TH ST	01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJA	62	M	OR-Y	000		000		00
																									OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	SE NW									015		00
																		PSNGR CAR		01	DRVR	INJB	44	M	OR-Y	028		000		02
																									OR<25					
00396	N	N	N			06/12/2006	UMATILLA	1	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
NO RPT						Mon	PENDLETON	1	0	SW EMIGRANT AVE	CN		STOP SIGN	N	DRY	ANGL		PRVTE	NE SW									000		00
						2P	PENDLTN UA	1.37		SW 17TH ST	01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	40	F	OR-Y	000		000		00
																									OR>25					
																	02	NONE 0	STRGHT											
																		PRVTE	SE NW									000		00
																		PSNGR CAR		01	DRVR	INJC	17	F	OR-Y	028		000		02
																									OR<25					
00463	N	N	N	N	N	07/25/2006	UMATILLA	1	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											03
CITY						Tue	PENDLETON	1	0	SW EMIGRANT AVE	CN		STOP SIGN	N	DRY	ANGL		PRVTE	NE SW									000		00
						8P	PENDLTN UA	1.37		SW 17TH ST	01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	60	M	OTH-Y	021		000		03
																									N-RES					

028 PENDLETON-JOHN DAY

SW Emigrant Avenue (Hwy 028) @ SW 17th Street
January 1, 2003 through December 31, 2007

SER# INVEST	SPEED	ALCOHOL	DRUGS	SCHOOL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
																	02	NONE 0	STRGHT											
																		PRVTE	SE NW									000		00
																		PSNGR CAR		01	DRVR	NONE	18	M	NONE	000		000		00
																									OR<25					
00896	N	N	N			11/26/2003	UMATILLA	1	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											03
NO RPT						Wed	PENDLETON	1	0	SW EMIGRANT AVE	CN		STOP SIGN	N	DRY	ANGL		PRVTE	NW SE									000		00
						12P	PENDLTN UA	1.37		SW 17TH ST	03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	87	F	OR-Y	021		000		03
																									OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	NE SW									000		00
																		PSNGR CAR		01	DRVR	NONE	17	M	OR-Y	000		000		00
																									OR<25					
00680	N	N	N			10/06/2005	UMATILLA	1	14		INTER	CROSS	N	N	CLR	O-1TURN	01	NONE 0	TURN-L											02
NO RPT						Thu	PENDLETON	1	0	SW EMIGRANT AVE	CN		ONE-WAY	N	DRY	TURN		PRVTE	SE SW									015		00
						12P	PENDLTN UA	1.37		SW 17TH ST	03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	23	F	OR-Y	004		000		02
																									OR<25					
																				02	PSNG	NO<5	02	F		000		000		00
																				03	PSNG	NO<5	01	M		000		000		00
																	02	NONE 0	STRGHT											
																		PRVTE	NW SE									000		00
																		PSNGR CAR		01	DRVR	NONE	60	M	OR-Y	000		000		00
																									OR<25					
00342	N	N	N			06/23/2006	UMATILLA	1	14		INTER	CROSS	N	N	CLR	O-1TURN	01	NONE 0	TURN-L											02
CITY						Fri	PENDLETON	1	0	SW EMIGRANT AVE	CN		ONE-WAY	N	DRY	TURN		PRVTE	SE SW									015		00
						1P	PENDLTN UA	1.37		SW 17TH ST	04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	37	M	OR-Y	028		000		02
																									OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	NW SE									000		00
																		PSNGR CAR		01	DRVR	NONE	36	F	OR-Y	000		000		00
																									OR<25					

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SW Emigrant Avenue (Hwy 028) @ SW 19th Street
January 1, 2003 through December 31, 2007

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2003														
REAR-END	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2003 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
FINAL TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

028 PENDLETON-JOHN DAY

SW Emigrant Avenue (Hwy 028) @ SW 19th Street
January 1, 2003 through December 31, 2007

SER# INVEST	SPEED	ALCHL	DRUGS	SCHL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00722	N	N	N			09/29/2003	UMATILLA	1	14		INTER	CROSS	N		N	CLR	S-1STOP	01	NONE 0	STRGHT										10
NONE						Mon	PENDLETON	1	0	SW EMIGRANT AVE	NE		TRF SIGNAL		N	DRY	REAR		PRVTE	NE SW								000		00
						5P	PENDLTN UA	1.47		SW 19TH ST	06	0			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	21	F	OR-Y	026	000		10
																										OR<25				
																		02	NONE 0	STOP										
																			PRVTE	NE SW								011		00
																			PSNGR CAR		01	DRVR	INJC	37	M	OR-Y	000	000		00
																										OR<25				

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SW Frazer Avenue (Hwy 028) @ SW 17th Street
January 1, 2003 through December 31, 2007

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2007														
TURNING MOVEMENTS	0	1	3	4	0	1	0	3	1	4	0	4	0	0
2007 TOTAL	0	1	3	4	0	1	0	3	1	4	0	4	0	0
FINAL TOTAL	0	1	3	4	0	1	0	3	1	4	0	4	0	0

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

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

028 PENDLETON-JOHN DAY

SW Frazer Avenue (Hwy 028) @ SW 17th Street
January 1, 2003 through December 31, 2007

SER# INVEST	SPED	ALCS	DRUG	SCHL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00063	N	N	N			01/17/2007	UMATILLA	2	14		INTER	CROSS	N	N	CLR	S-1TURN	01	NONE 0	STRGHT											08
CITY						Wed	PENDLETON	1	0	FRAZER AVE	CN		ONE-WAY	N	DRY	TURN		PRVTE	SW NE									000		00
						2P	PENDLTN UA	1.44		SW 17TH ST	03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	20	F	OR-Y		000	000		00
																									OR<25					
																	02	NONE 0	TURN-L											
																		PRVTE	SW NW									000		00
																		PSNGR CAR		01	DRVR	NONE	64	M	OTH-Y		006	000		08
																									N-RES					
																				02	PSNG	INJC	63	F			000	000		00
00326	N	N	N			05/02/2007	UMATILLA	2	14		INTER	CROSS	N	N	RAIN	S-1TURN	01	NONE 0	STRGHT											08
CITY						Wed	PENDLETON	1	0	FRAZER AVE	CN		ONE-WAY	N	WET	TURN		PRVTE	SW NE									000		00
						7A	PENDLTN UA	1.44		SW 17TH ST	03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	28	M	OR-Y		000	000		00
																									OR<25					
																	02	NONE 0	TURN-L											
																		PRVTE	SW NW									000		00
																		PSNGR CAR		01	DRVR	NONE	71	M	OTH-Y		006	000		08
																									N-RES					
00716	N	N	N			10/01/2007	UMATILLA	2	14		INTER	CROSS	N	N	CLR	S-1TURN	01	NONE 0	TURN-L											08
CITY						Mon	PENDLETON	1	0	FRAZER AVE	CN		ONE-WAY	N	DRY	TURN		PRVTE	SW NW									000		00
						2P	PENDLTN UA	1.44		SW 17TH ST	03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	69	M	OTH-Y		006	000		08
																									N-RES					
																	02	NONE 0	STRGHT											
																		PRVTE	SW NE									000		00
																		PSNGR CAR		01	DRVR	NONE	19	F	OR-Y		000	000		00
																									OR>25					
00978	N	N	N	N	N	12/28/2007	UMATILLA	2	14		INTER	CROSS	N	N	CLD	S-1TURN	01	NONE 0	TURN-L											08
CITY						Fri	PENDLETON	1	0	FRAZER AVE	CN		ONE-WAY	N	DRY	TURN		PRVTE	SW NW									000		00
						1P	PENDLTN UA	1.44		SW 17TH ST	03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	55	M	OTH-Y		006	000		08
																									N-RES					
																	02	NONE 0	STRGHT											
																		PRVTE	SW NE									000		00
																		PSNGR CAR		01	DRVR	NONE	43	F	OR-Y		000	000		00
																									OR<25					

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SW Emigrant Avenue (Hwy 028) @ SW 18th Street
Janurary 1, 2003 through December 31, 2007

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR:														
TOTAL														
FINAL TOTAL														

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SW Emigrant Avenue (Hwy 028) @ SW 20th Street
January 1, 2003 through December 31, 2007

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2006														
TURNING MOVEMENTS	0	1	1	2	0	1	0	2	0	2	0	2	0	0
2006 TOTAL	0	1	1	2	0	1	0	2	0	2	0	2	0	0
YEAR: 2005														
REAR-END	0	0	2	2	0	0	0	1	1	1	1	2	0	0
TURNING MOVEMENTS	0	1	0	1	0	3	0	1	0	1	0	1	0	0
2005 TOTAL	0	1	2	3	0	3	0	2	1	2	1	3	0	0
YEAR: 2004														
ANGLE	0	0	2	2	0	0	1	0	2	1	1	2	0	0
2004 TOTAL	0	0	2	2	0	0	1	0	2	1	1	2	0	0
YEAR: 2003														
PARKING MOVEMENTS	0	0	1	1	0	0	1	1	0	0	1	1	0	0
REAR-END	0	1	0	1	0	1	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	0	2	2	0	0	0	2	0	2	0	2	0	0
2003 TOTAL	0	1	3	4	0	1	1	4	0	3	1	4	0	0
FINAL TOTAL	0	3	8	11	0	5	2	8	3	8	3	11	0	0

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

028 PENDLETON-JOHN DAY

SW Emigrant Avenue (Hwy 028) @ SW 20th Street
January 1, 2003 through December 31, 2007

SER# INVEST	S P E D	A L C	R U G S	S C H L	W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00746	N	N	N			09/06/2003	UMATILLA	1 14		INTER	CROSS	N		N CLR	S-OTHER	01	NONE 0	TURN-R											10
NO RPT						Sat	PENDLETON	0 0	SW EMIGRANT AVE	CN		TRF SIGNAL		N DRY	PARK		PRVTE	NW SW									000		00
						9P	PENDLTN UA	1.52	SW 20TH ST	03	0			N DARK	PDO		SEMI TOW		01	DRVR	NONE	55	F	OTH-Y	044	000		10
																								N-RES					
																02	NONE 0	TURN-R											
																	PRVTE	NW SW								000		00
																	PSNGR CAR		01	DRVR	NONE	23	F	OR-Y	000	000		00
																								OR<25					
00468	N	N	N			06/15/2003	UMATILLA	2 14		INTER	CROSS	N		N CLR	ANGL-OTH	01	NONE 0	STRGHT											02
NO RPT						Sun	PENDLETON	1 0	SW EMIGRANT AVE	SW		TRF SIGNAL		N DRY	TURN		PRVTE	NE SW								000		00
						9A	PENDLTN UA	1.52	SW 20TH ST	05	0			N DAY	PDO		PSNGR CAR		01	DRVR	NONE	87	M	OR-Y	000	000		00
																								OR<25					
																02	NONE 0	TURN-R											
																	PRVTE	NW SW								016		00
																	PSNGR CAR		01	DRVR	NONE	56	M	OR-Y	028	000		02
																								OR<25					
00843	N	N	N			10/26/2003	UMATILLA	1 14		INTER	CROSS	N		N CLR	S-1STOP	01	NONE 0	STRGHT											27
NONE						Sun	PENDLETON	1 0	SW EMIGRANT AVE	SW		TRF SIGNAL		N DRY	REAR		PRVTE	SW NE								000		00
						2P	PENDLTN UA	1.52	SW 20TH ST	06	0			N DAY	INJ		PSNGR CAR		01	DRVR	NONE	46	F	OTH-Y	016,026	038		27
																								N-RES					
																02	NONE 0	STOP											
																	PRVTE	SW NE								012		00
																	PSNGR CAR		01	DRVR	INJC	86	M	OR-Y	000	000		00
																								OR<25					
00241	N	N	N			04/06/2006	UMATILLA	1 14		INTER	CROSS	N		N CLR	ANGL-STP	01	NONE 0	TURN-R										013	27
NO RPT						Thu	PENDLETON	1 0	SW EMIGRANT AVE	NW		TRF SIGNAL		N DRY	TURN		PRVTE	NE NW								000		00
						3P	PENDLTN UA	1.52	SW 20TH ST	05	0			N DAY	INJ		PSNGR CAR		01	DRVR	NONE	21	M	OR-Y	026	000		27
																								OR<25					
																02	NONE 0	STOP											
																	PRVTE	SE NW								011	013	00
																	PSNGR CAR		01	DRVR	NONE	41	F	OR-Y	000	000		00
																								OR<25					
																			02	PSNG	NO<5	02	M		000	000		00
																03	NONE 0	STOP											
																	PRVTE	SE NW								011		00
																	PSNGR CAR		01	DRVR	NONE	45	F	OR-Y	000	000		00
																								OR<25					
																			02	PSNG	INJC	16	F		000	000		00
00724	N	N	N	N	N	10/17/2004	UMATILLA	1 14		INTER	CROSS	N		N RAIN	ANGL-OTH	01	FIRE 0	STRGHT											02
CITY						Sun	PENDLETON	1 0	SW EMIGRANT AVE	CN		TRF SIGNAL		N WET	ANGL		PUBLC	NW SE								000		00
						5P	PENDLTN UA	1.52	SW 20TH ST	01	0			N DUSK	PDO		TRUCK		01	DRVR	NONE	36	M	OR-Y	020	000		00
																								OR<25					

028 PENDLETON-JOHN DAY

SW Emigrant Avenue (Hwy 028) @ SW 20th Street
January 1, 2003 through December 31, 2007

SER# INVEST	S P E D	D R A L C	S U G S	W C H L	O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
																02	NONE 0	STRGHT											
																	PRVTE	NE SW								000			00
																	PSNGR CAR		01	DRVR	NONE	50	M	OR-Y	024	000			00
																								OR<25					
00661	N	N	N	N	N	10/30/2005	UMATILLA	1 14		INTER	CROSS	N	N	CLD	O-1TURN	01	NONE 0	STRGHT										082	02
STATE						Sun	PENDLETON	1 0	SW EMIGRANT AVE	CN		L-GRN-SIG	N	DRY	TURN		PRVTE	NE SW								001			00
						3P	PENDLTN UA	1.52	SW 20TH ST	01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	29	M	OR-Y	000	000	082		00
																								OR<25					
																			02	PSNG	NO<5	02	F		000	000			00
																02	NONE 0	TURN-L											
																	PRVTE	SW NW								000			00
																	MOTRHOME		01	DRVR	INJC	76	M	OTH-Y	020	000			04
																								N-RES					
																			02	PSNG	INJC	74	F		000	000			00
00420	N	N	N			06/09/2004	UMATILLA	1 14		INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT										099	04
NO RPT						Wed	PENDLETON	1 0	SW EMIGRANT AVE	CN		ONE-WAY	N	WET	ANGL		PRVTE	NW SE								000			00
						10A	PENDLTN UA	1.52	SW 20TH ST	03	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	29	F	OR-Y	020	000	099		04
																								OR<25					
																			02	PSNG	NO<5	01	F		000	000			00
																02	NONE 0	STRGHT											
																	PRVTE	NE SW								000			00
																	PSNGR CAR		01	DRVR	NONE	60	F	OR-Y	000	000			00
																								OR<25					
00174	N	N	N			03/24/2006	UMATILLA	1 14		INTER	CROSS	N	N	CLD	S-OTHER	01	NONE 0	TURN-R											08
CITY						Fri	PENDLETON	1 0	SW EMIGRANT AVE	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	NW SW								000			00
						8A	PENDLTN UA	1.52	SW 20TH ST	03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	71	M	OTH-Y	080	000			08
																								N-RES					
																02	NONE 0	TURN-R											
																	PRVTE	NW SW								000			00
																	PSNGR CAR		01	DRVR	NONE	30	M	OR-Y	000	000			00
																								OR>25					
00647	N	N	N			08/23/2003	UMATILLA	1 14		INTER	CROSS	N	N	CLR	S-OTHER	01	NONE 0	TURN-R											08
CITY						Sat	PENDLETON	1 0	SW EMIGRANT AVE	CN		ONE-WAY	N	DRY	TURN		PRVTE	NW SW								000			00
						12P	PENDLTN UA	1.52	SW 20TH ST	04	0		N	DAY	PDO		MOTRHOME		01	DRVR	NONE	69	M	OR-Y	044	000			08
																								OR>25					
																02	NONE 0	TURN-R											
																	PRVTE	NW SW								000			00
																	PSNGR CAR		01	DRVR	NONE	67	M	OR-Y	000	000			00
																								OR<25					
00696	N	N	N			10/14/2005	UMATILLA	1 14		INTER	CROSS	N	N	CLR	S-1TURN	01	NONE 0	STRGHT											07
CITY						Fri	PENDLETON	1 0	SW EMIGRANT AVE	CN		TRF SIGNAL	N	DRY	REAR		PRVTE	SW NE								000			00
						5P	PENDLTN UA	1.52	SW 20TH ST	04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	36	F	OR-Y	026	000			07
																								OR<25					

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CONTINUOUS SYSTEM CRASH LISTING

028 PENDLETON-JOHN DAY

SW Emigrant Avenue (Hwy 028) @ SW 20th Street

January 1, 2003 through December 31, 2007

SER# INVEST	SPEED	ALCOHOL	DRUGS	SCHOOL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG TYP MILEPNT	FC CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
																02	NONE 0	TURN-L											
																	PRVTE	SW NW									013		26
																	PSNGR CAR		01	DRVR	NONE	57	M	OR-Y	000		000		00
																								OR<25					

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

CITY OF PENDLETON, UMATILLA COUNTY

SW Emigrant Avenue (Hwy 028) @ SW 20th Street

January 1, 2003 through December 31, 2007

SER# INVEST	SPEED	ALC	DRUG	SCHL	WORK	DATE DAY TIME	CLASS DIST FROM	CITY STREET FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CONTL	OFF-RD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00905	N	N	N			12/27/2005	16	SW EMIGRANT AVE	INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT											07
NONE						Tue	0	SW 20TH ST	NW		TRF SIGNAL	N	WET	REAR		PRVTE	NW SE									000		00
						5P			06	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	F	UNK		026	000		07
																							UNK					
															02	NONE 0	STOP											
																PRVTE	NW SE									011		00
																PSNGR CAR		01	DRVR	NONE	54	M	OR-Y		000	000		00
																							OR<25					

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SW Frazer Avenue (Hwy 028) @ SW 19th Street
January 1, 2003 through December 31, 2007

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2006														
TURNING MOVEMENTS	0	0	1	1	0	0	1	1	0	1	0	1	0	0
2006 TOTAL	0	0	1	1	0	0	1	1	0	1	0	1	0	0
FINAL TOTAL	0	0	1	1	0	0	1	1	0	1	0	1	0	0

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

028 PENDLETON-JOHN DAY

SW Frazer Avenue (Hwy 028) @ SW 19th Street
January 1, 2003 through December 31, 2007

SER# INVEST	SPEED	ALCOHOL	DRUGS	SCHOOL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00122	N	N	N	N	N	02/23/2006	UMATILLA	2 14		INTER	3-LEG	N	N	CLD	S-1TURN	01	NONE 1	TURN-L											06
CITY						Thu	PENDLETON	1 0	FRAZER AVE	CN		ONE-WAY	N	DRY	TURN		PRVTE	SW NW									000		00
						3P	PENDLTN UA	1.53	SW 19TH ST	03	0		N	DAY	PDO		SEMI TOW		01	DRVR	NONE	44	M	OR-Y		019	000		06
																								OR<25					
																02	NONE 0	STRGHT											
																	PRVTE	SW NE									000		00
																	PSNGR CAR		01	DRVR	NONE	44	M	OTH-Y		000	000		00
																								N-RES					

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

I-84 (Hwy 006) EB on/off ramp @ Southgate (Hwy 028)
January 1, 2003 through December 31, 2007

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2007														
REAR-END	0	1	1	2	0	1	0	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	1	1	2	0	1	0	2	0	2	0	2	0	0
2007 TOTAL	0	2	2	4	0	2	0	4	0	4	0	4	0	0
YEAR: 2006														
REAR-END	0	2	0	2	0	4	1	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2006 TOTAL	0	3	0	3	0	5	1	3	0	3	0	3	0	0
YEAR: 2005														
ANGLE	0	0	2	2	0	0	0	2	0	2	0	2	0	0
REAR-END	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2005 TOTAL	0	1	2	3	0	1	0	3	0	3	0	3	0	0
YEAR: 2004														
REAR-END	0	0	1	1	0	0	1	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	2	3	0	1	1	2	1	2	1	3	0	0
2004 TOTAL	0	1	3	4	0	1	2	3	1	3	1	4	0	0
YEAR: 2003														
ANGLE	0	1	0	1	0	1	0	0	1	1	0	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	0	1	1	0	0
2003 TOTAL	0	1	1	2	0	1	0	1	1	1	1	2	0	0
FINAL TOTAL	0	8	8	16	0	10	3	14	2	14	2	16	0	0

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

006 OLD OREGON TRAIL

I-84 (Hwy 006) EB on/off ramp @ Southgate (Hwy 028)
January 1, 2003 through December 31, 2007

SER# INVEST	SPEED	ALCOHOL	DRUG	SCHOOL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00198	N	N	N			03/28/2006	UMATILLA	1	19	1	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
CITY						Tue	PENDLETON	6	0	SOUTHGATE	W		STOP SIGN	N	DRY	REAR		PRVTE	N S									000		00
						4P	PENDLTN UA	209.54		EB EX SOUTHGATE C1	09	1		N	DAY	INJ		TRUCK		01	DRVR	INJC	41	M	OR-Y	043		000		07
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	N S									011		00
																		PSNGR CAR		01	DRVR	INJB	28	F	OR-Y	000		000		00
																									OR<25					
																				02	PSNG	NO<5	01	F		000		000		00
																				03	PSNG	NO<5	02	F		000		000		00
00430	N	N	N			06/14/2004	UMATILLA	1	19	1	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 1	STRGHT											07
NONE						Mon	PENDLETON	6	0	SOUTHGATE	NW		STOP SIGN	N	DRY	REAR		PRVTE	NW SE									000		00
						5P	PENDLTN UA	209.54		EB EX SOUTHGATE C1	06	0		N	DAY	PDO		SEMI TOW		01	DRVR	NONE	41	M	OR-Y	014		000		07
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	NW SE									011		00
																		PSNGR CAR		01	DRVR	NONE	64	F	OR-Y	000		000		00
																									OR<25					
00640	N	N	N			09/14/2004	UMATILLA	1	19	1	INTER	CROSS	N	N	CLR	ANGL-STP	01	NONE 1	TURN-R											08
CITY						Tue	PENDLETON	6	0	SOUTHGATE	NW		STOP SIGN	N	DRY	TURN		PRVTE	NW S									000		00
						3P	PENDLTN UA	209.54		EB EX SOUTHGATE C1	06	0		N	DAY	PDO		SEMI TOW		01	DRVR	NONE	45	M	OTH-Y	006		000		08
																									N-RES					
																	02	NONE 0	STOP											
																		PRVTE	NW SE									011		00
																		PSNGR CAR		01	DRVR	NONE	67	F	OTH-Y	000		000		00
																									N-RES					
00129	N	N	N	N	N	02/17/2006	UMATILLA	1	19	1	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
STATE						Fri	PENDLETON	6	0	SOUTHGATE	NW		ONE-WAY	N	DRY	REAR		PUBLC	NW SE									000		00
						1P	PENDLTN UA	209.54		EB EX SOUTHGATE C1	06	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	50	M	OR-Y	014		000		07
																									OR>25					
																	02	NONE 0	STOP											
																		PRVTE	NW SE									011		00
																		PSNGR CAR		01	DRVR	NONE	46	M	OTH-Y	000		000		00
																									N-RES					
																				02	PSNG	INJC	17	F		000		000		00
																				03	PSNG	INJC	45	F		000		000		00
00173	N	N	N	N	N	03/24/2007	UMATILLA	1	19	1	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
CITY						Sat	PENDLETON	6	0	SOUTHGATE	NW		STOP SIGN	N	DRY	REAR		PRVTE	NW SE									000		00
						8A	PENDLTN UA	209.54		EB EX SOUTHGATE C1	06	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	53	M	OR-Y	043		000		07
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	NW SE									011		00
																		PSNGR CAR		01	DRVR	INJC	35	F	NONE	000		000		00
																									OR<25					

006 OLD OREGON TRAIL

I-84 (Hwy 006) EB on/off ramp @ Southgate (Hwy 028)
January 1, 2003 through December 31, 2007

SER# INVEST	SPEED	ALCOHOL	DRUG	SCHOOL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00200	N	N	N			03/30/2007	UMATILLA	1	19	1	INTER	CROSS	N		N	CLR	S-1STOP	01	NONE 0	STRGHT										07
NONE						Fri	PENDLETON	6	0	SOUTHGATE	NW		STOP SIGN		N	DRY	REAR		PRVTE	NW SE								000		00
						3P	PENDLTN UA	209.54		EB EX SOUTHGATE C1	06	0			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	58	M	OR-Y	014	000		07
																										OR<25				
																		02	NONE 0	STOP										
																			PRVTE	NW SE								011		00
																			PSNGR CAR		01	DRVR	NONE	53	M	OR-Y	000	000		00
																										OR<25				
00372	N	N	N	N	N	06/20/2005	UMATILLA	1	19	1	INTER	CROSS	N		N	CLR	S-1STOP	01	NONE 0	STRGHT										07
CITY						Mon	PENDLETON	6	0	SOUTHGATE	NW		STOP SIGN		N	DRY	REAR		PRVTE	NW SE								000		00
						3P	PENDLTN UA	209.54		EB EX SOUTHGATE C1	09	1			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	51	M	OR-Y	014,052	000		07
																										OR<25				
																		02	NONE 0	STOP										
																			PRVTE	NW SE								011		00
																			PSNGR CAR		01	DRVR	INJC	28	F	OR-Y	000	000		00
																										OR<25				

028 PENDLETON-JOHN DAY

I-84 (Hwy 006) EB on/off ramp @ Southgate (Hwy 028)
January 1, 2003 through December 31, 2007

SER# INVEST	S P E D	A L C	D R U S	S G H L	W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00518	N	N	N			07/21/2007	UMATILLA	1	14		INTER	CROSS	N		N	CLR	ANGL-OTH	01	NONE 0	TURN-L										03
CITY						Sat	PENDLETON	0	0	SOUTHGATE	CN		ONE-WAY		N	DRY	TURN		PRVTE	W N								015		00
						5P	PENDLTN UA	1.70		EB EX SOUTHGATE C1	01	0			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	16	M	OTH-Y	021	000		03
																											N-RES			
																		02	NONE 0	STRGHT										
																			PRVTE	N S								000		00
																			PSNGR CAR		01	DRVR	INJB	24	F	OTH-Y	000	000		00
																											N-RES			
00405	N	N	N			06/03/2005	UMATILLA	1	14		INTER	CROSS	N		N	CLR	ANGL-OTH	01	NONE 0	STRGHT										02
NONE						Fri	PENDLETON	0	0	SOUTHGATE	CN		STOP SIGN		N	DRY	ANGL		PRVTE	W E								015		00
						5P	PENDLTN UA	1.70		EB EX SOUTHGATE C1	02	0			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	F	UNK	028	000		02
																											OR<25			
																		02	NONE 0	STRGHT										
																			PRVTE	N S								000		00
																			PSNGR CAR		01	DRVR	NONE	67	M	OR-Y	000	000		00
																											OR<25			
01073	Y	N	N			12/29/2003	UMATILLA	1	14		INTER	CROSS	N		N	SNOW	ANGL-OTH	01	NONE 0	STRGHT										03,01
CITY						Mon	PENDLETON	0	0	SOUTHGATE	CN		STOP SIGN		N	ICE	ANGL		PRVTE	W E								001		00
						1P	PENDLTN UA	1.70		EB EX SOUTHGATE C1	03	0			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	45	M	OR-Y	021,047	000		03,01
																											OR>25			
																		02	NONE 0	STRGHT										
																			PRVTE	N S								000		00
																			PSNGR CAR		01	DRVR	NONE	70	M	OR-Y	000	000		00
																											OR<25			
																					02	PSNG	INJB	45	F		000	000		00
00876	N	N	N			12/08/2004	UMATILLA	1	14		INTER	CROSS	N		N	RAIN	ANGL-STP	01	NONE 0	TURN-L										03
NO RPT						Wed	PENDLETON	0	0	SOUTHGATE	CN		STOP SIGN		N	WET	TURN		PRVTE	W N								000		00
						7P	PENDLTN UA	1.70		EB EX SOUTHGATE C1	03	0			N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	54	M	OR-Y	021	000		00
																											OR>25			
																		02	NONE 0	STOP										
																			PRVTE	N S								012		00
																			PSNGR CAR		01	DRVR	NONE	16	M	OR-Y	000	000		00
																											OR<25			
00066	N	N	N	N	N	01/19/2007	UMATILLA	1	14		INTER	CROSS	N		N	CLD	ANGL-OTH	01	NONE 0	TURN-L										02
CITY						Fri	PENDLETON	0	0	SOUTHGATE	CN		STOP SIGN		N	DRY	TURN		PRVTE	W N								015		00
						10A	PENDLTN UA	1.70		EB EX SOUTHGATE C1	03	1			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	81	M	OR-Y	028	000		02
																											OR<25			
																		02	NONE 0	STRGHT										
																			PRVTE	N S								000		00
																			PSNGR CAR		01	DRVR	NONE	89	F	OR-Y	000	000		00
																											OR<25			

028 PENDLETON-JOHN DAY

I-84 (Hwy 006) EB on/off ramp @ Southgate (Hwy 028)
January 1, 2003 through December 31, 2007

SER# INVEST	SPEED	ALCOHOL	DRUG	SCHOOL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00447	N	N	N	N	N	06/16/2004	UMATILLA	1	14		INTER	CROSS	N		N	CLR	BIKE													02
CITY						Wed	PENDLETON	0	0	SOUTHGATE	CN		STOP SIGN		N	DRY	TURN													
						3P	PENDLTN UA	1.70		EB EF SOUTHGATE C2	04	0			N	DAY	INJ									055	034		02
																			STRGHT SW NE											
																	01	NONE 0 PRVTE PSNGR CAR	TURN-R SW SE									000		00
																				01	DRVR	NONE	84	M	OTH-Y N-RES	000	000		00
00528	N	N	N			08/12/2005	UMATILLA	1	14		INTER	CROSS	N		N	CLR	ANGL-OTH	01	NONE 0 PRVTE PSNGR CAR	STRGHT SW NE								000		02
CITY						Fri	PENDLETON	0	0	SOUTHGATE	CN		STOP SIGN		N	DRY	ANGL													00
						4P	PENDLTN UA	1.70		EB EF SOUTHGATE C2	04	1			N	DAY	PDO			01	DRVR	NONE	35	M	OR-Y OR<25	000	000		00
																	02	NONE 0 PRVTE PSNGR CAR	STRGHT NW SE								015		00
																				01	DRVR	NONE	38	M	OR-Y OR>25	028	000		02
00632	N	N	N			09/27/2006	UMATILLA	1	14		INTER	CROSS	N		N	CLR	BIKE	01	NONE 0 PRVTE PSNGR CAR	TURN-L NE SE									001	02
NO RPT						Wed	PENDLETON	0	0	SOUTHGATE	CN		UNKNOWN		N	DRY	TURN											000		00
						7A	PENDLTN UA	1.70		EB EF SOUTHGATE C2	04	0			N	DAY	INJ			01	DRVR	NONE	52	F	OR-Y OR>25	027	026		02
																			STRGHT SW NE	01	BIKE	INJA	45	M		000	034	001	00
00029	N	N	N	N	N	01/03/2003	UMATILLA	1	14	2	INTER	CROSS	N		N	CLR	ANGL-OTH	01	NONE PRVTE PSNGR CAR	STRGHT N S										02,27
NONE						Fri	PENDLETON	6	0	SOUTHGATE	CN		STOP SIGN		N	DRY	TURN											000		00
						4P	PENDLTN UA	1.70		EB EX SOUTHGATE C1	03	0			N	DUSK	PDO			01	DRVR	NONE	17	F	OR-Y OR<25	016	000		27
																	02	NONE PRVTE PSNGR CAR	STOP N S								011		00
																				01	DRVR	NONE	60	M	OR-Y OR>25	000	000		00
																	03	NONE PRVTE PSNGR CAR	TURN-R W S								000		00
																				01	DRVR	NONE	75	F	OTH-Y N-RES	028	000		02

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

I-84 (Hwy 006) WB on/off ramp@ SW Frazer Avenue (Hwy 028)
January 1, 2003 through December 31, 2007

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2007														
ANGLE	0	1	0	1	0	1	0	1	0	0	1	1	0	0
REAR-END	0	1	0	1	0	2	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	0	1	1	0	0
2007 TOTAL	0	3	0	3	0	4	0	3	0	1	2	3	0	0
YEAR: 2006														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	1	0	1	1	0	1
2006 TOTAL	0	0	1	1	0	0	0	0	1	0	1	1	0	1
YEAR: 2005														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	1	0	1	1	0	1
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	1	2	0	1	0	2	0	2	0	2	0	0
2005 TOTAL	0	1	3	4	0	1	0	3	1	3	1	4	0	1
FINAL TOTAL	0	4	4	8	0	5	0	6	2	4	4	8	0	2

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CONTINUOUS SYSTEM CRASH LISTING

006 OLD OREGON TRAIL

I-84 (Hwy 006) WB on/off ramp@ SW Frazer Avenue (Hwy 028)

January 1, 2003 through December 31, 2007

SER# INVEST	SPED	ALCS	DRSLK	WOR	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00338	N	N	N		05/05/2005	UMATILLA	1	19	2	INTER	CROSS	N	N	CLR	O-OTHER	01	NONE 0	TURN-R											08,05
NO RPT					Thu	PENDLETON	6	0	SOUTHGATE	W		TRF SIGNAL	N	DRY	TURN		PRVTE	N W									001		00
					7P	PENDLTN UA	209.75		WB EX SOUTHGATE C2	06	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	00	U	UNK		001,080	000		08,05
																								UNK					
																02	NONE 0	STRGHT											
																	PRVTE	W E									006		00
																	PSNGR CAR		01	DRVR	INJB	44	F	OR-Y		000	000		00
																								OR<25					
00302	N	N	N		05/26/2005	UMATILLA	1	19	2	INTER	CROSS	N	N	CLR	S-1TURN	01	NONE 0	STRGHT											07
NONE					Thu	PENDLETON	6	0	SOUTHGATE	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W E									000		00
					4P	PENDLTN UA	209.75		WB EX SOUTHGATE C2	06	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	M	OR-Y		026	000		07
																								OR>25					
																02	NONE 0	TURN-R											
																	PRVTE	W S									013		00
																	PSNGR CAR		01	DRVR	NONE	40	M	OR-Y		000	000		00
																								OR<25					

028 PENDLETON-JOHN DAY

I-84 (Hwy 006) WB on/off ramp@ SW Frazer Avenue (Hwy 028)
January 1, 2003 through December 31, 2007

SER# INVEST	SPED	ALCS	DRUG	SCHL	WRK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG	FC TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00448	N	N	N	N	N	06/24/2007	UMATILLA	1	14		INTER	CROSS	N		N	CLR S-1STOP	01	NONE 0	STRGHT											07
CITY						Sun	PENDLETON	1	0	SOUTHGATE	NE		L-TURN REF		N	DRY REAR		PRVTE	NE SW								000		00
						6P	PENDLTN UA	1.57		WB EF SOUTHGATE C1	06	1			N	DAY INJ		PSNGR CAR		01	DRVR	INJC	20	F	OR-Y		026	000		07
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	NE SW								012		00
																		PSNGR CAR		01	DRVR	INJC	46	M	OR-Y		000	000		00
																									OR<25					
00895	N	N	N			12/23/2005	UMATILLA	1	14		INTER	3-LEG	N		Y	RAIN FIX OBJ	01	NONE 0	TURN-L										040	08
NONE						Fri	PENDLETON	1	0	EMIGRANT AVE	W		UNKNOWN		N	WET FIX		PRVTE	SW W								000	040	00
						6P	PENDLTN UA	1.57		WB EF SOUTHGATE C1	05	0			N	DARK PDO		PSNGR CAR		01	DRVR	NONE	70	F	OR-Y		001	000		08
																									OR<25					
00770	N	N	N			11/26/2006	UMATILLA	1	14		INTER	3-LEG	N		Y	RAIN FIX OBJ	01	NONE 0	TURN-R										057	08
NO RPT						Sun	PENDLETON	1	0	EMIGRANT AVE	W		STOP SIGN		N	WET FIX		PRVTE	NE W								000	057	00
						7P	PENDLTN UA	1.57		WB EF SOUTHGATE C1	05	0			N	DARK PDO		PSNGR CAR		01	DRVR	NONE	53	F	OR-Y		002	000		08
																									OR>25					
00127	Y	N	N	N	N	02/22/2005	UMATILLA	1	14		INTER	CROSS	N		N	CLR ANGL-STP	01	NONE 0	TURN-R											01
CITY						Tue	PENDLETON	1	0	SOUTHGATE	NW		TRF SIGNAL		N	DRY TURN		PRVTE	NE NW								001		00
						12P	PENDLTN UA	1.57		WB EF SOUTHGATE C1	06	1			N	DAY PDO		PSNGR CAR		01	DRVR	NONE	27	M	OR-Y		047	017		01
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	NW SE								012		00
																		PSNGR CAR		01	DRVR	NONE	56	M	OR-Y		000	000		00
																									OR<25					
00828	N	N	N	N	N	11/16/2007	UMATILLA	1	14		INTER	CROSS	N		N	CLR ANGL-OTH	01	NONE 0	STRGHT											03
CITY						Fri	PENDLETON	1	0	SW EMIGRANT AVE	CN		STOP SIGN		N	DRY TURN		PRVTE	SW NE								000		00
						7P	PENDLTN UA	1.57		WB EX SOUTHGATE C2	03	1			N	DLIT INJ		PSNGR CAR		01	DRVR	INJC	25	F	OR-Y		000	000		00
																									OR<25					
																				02	PSNG	NO<5	03	F			000	000		00
																	02	NONE 0	TURN-L											
																		PRVTE	W NE								000		00
																		PSNGR CAR		01	DRVR	NONE	19	M	OR-Y		021	000		03
																									OR<25					
00894	N	N	N	N	N	12/05/2007	UMATILLA	1	14		INTER	3-LEG	N		N	CLD ANGL-OTH	01	NONE 0	STRGHT											03
CITY						Wed	PENDLETON	1	0	SW EMIGRANT AVE	CN		STOP SIGN		N	DRY ANGL		PRVTE	NE SW								000		00
						4P	PENDLTN UA	1.57		WB EX SOUTHGATE C2	03	0			N	DUSK INJ		PSNGR CAR		01	DRVR	INJC	18	F	OR-Y		000	000		00
																									OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	W E								000		00
																		PSNGR CAR		01	DRVR	NONE	25	F	OR-Y		021	000		03
																									OR>25					
																				02	PSNG	NO<5	03	F			000	000		00
																				03	PSNG	NO<5	01	F			000	000		00

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Southgate (Hwy 028) @ SW 30th Street
January 1, 2003 through December 31, 2007

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2006														
REAR-END	0	1	0	1	0	2	0	1	0	1	0	1	0	0
2006 TOTAL	0	1	0	1	0	2	0	1	0	1	0	1	0	0
YEAR: 2005														
PEDESTRIAN	0	1	0	1	0	2	0	1	0	0	1	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2005 TOTAL	0	1	1	2	0	2	0	2	0	1	1	2	0	0
YEAR: 2004														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	0	1	1	0	0
2004 TOTAL	0	0	2	2	0	0	0	2	0	1	1	2	0	0
FINAL TOTAL	0	2	3	5	0	4	0	5	0	3	2	5	0	0

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

028 PENDLETON-JOHN DAY

Southgate (Hwy 028) @ SW 30th Street
January 1, 2003 through December 31, 2007

SER# INVEST	SPEED	ALCOHOL	DRUG	SCHOOL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	SURF	WTHR LIGHT	CRASH TYP COLL TYP SVRTY	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00717	N	N	N			11/02/2005	UMATILLA	1	14		INTER	CROSS	N		N	CLR	PED	01	NONE 0	TURN-R											02
NONE						Wed	PENDLETON	0	0	SOUTHGATE	NE		TRF SIGNAL		N	DRY	PED		PRVTE	NE NW										016	00
						5P	PENDLTN UA	2.26		SW 30TH ST	06	0			N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	17	F	OR-Y		029	000	02
																										OR<25				
																				STRGHT	01	PED	INJC	37	F		01	000	035	00
																				NE SW										
																				STRGHT	02	PED	INJC	36	F		01	000	035	00
																				NE SW										
00124	N	N	N			02/18/2004	UMATILLA	1	14		INTER	CROSS	N		N	CLR	S-1STOP	01	NONE 0	STRGHT											27
NO RPT						Wed	PENDLETON	0	0	SOUTHGATE	SW		TRF SIGNAL		N	DRY	REAR		PRVTE	SW NE										000	00
						4P	PENDLTN UA	2.26		SW 30TH ST	06	0			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	24	M	OR-Y		026	025	27
																										OR<25				
																		02	TAXI 0	STOP										
																			PRVTE	SW NE									011	00
																			PSNGR CAR		01	DRVR	NONE	48	M	OR-Y		000	000	00
																										OR<25				
00095	N	N	N			02/06/2006	UMATILLA	1	14		INTER	CROSS	N		N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NO RPT						Mon	PENDLETON	0	0	SOUTHGATE	SW		TRF SIGNAL		N	DRY	REAR		PRVTE	SW NE										000	00
						3P	PENDLTN UA	2.26		SW 30TH ST	06	0			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	44	F	OR-Y		014	000	07
																										OR<25				
																		02	NONE 0	STOP										
																			PRVTE	SW NE									011	00
																			PSNGR CAR		01	DRVR	INJC	50	F	OR-Y		000	000	00
																										OR<25				
																					02	PSNG	INJC	15	F			000	000	00
00221	N	N	N	N	N	04/21/2005	UMATILLA	1	14		INTER	CROSS	N		N	CLR	ANGL-OTH	01	NONE 0	TURN-L											04
CITY						Thu	PENDLETON	0	0	SOUTHGATE	CN		TRF SIGNAL		N	DRY	TURN		PRVTE	NE SE										000	00
						3P	PENDLTN UA	2.26		SW 30TH ST	01	0			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	23	M	OR-Y		000	000	00
																										OR<25				
																		02	NONE 0	STRGHT										
																			PRVTE	SE NW									000	00
																			PSNGR CAR		01	DRVR	NONE	19	F	OR-Y		020	000	04
																										OR<25				
00879	N	N	N			12/29/2004	UMATILLA	1	14		INTER	CROSS	N		N	CLR	ANGL-OTH	01	NONE 0	STRGHT											04
NONE						Wed	PENDLETON	0	0	SOUTHGATE	CN		TRF SIGNAL		N	DRY	TURN		PRVTE	NE SW										000	00
						6A	PENDLTN UA	2.26		SW 30TH ST	03	0			N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	44	M	OR-Y		020	000	04
																										OR<25				
																		02	NONE 0	TURN-L										
																			PRVTE	NW NE									000	00
																			PSNGR CAR		01	DRVR	NONE	67	M	OR-Y		000	000	00
																										OR<25				

Appendix E

Technical Memorandum
#5/6 – Future Conditions

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

TECHNICAL MEMORANDUM #5/6

I-84 / US 395 Interchange IAMP

Future Conditions

Date: August 17, 2009 Project #: 9627.0

To: Patrick Knight, ODOT Region 5

From: Matt Hughart, AICP, Nick Foster, Marc Butorac, PE, PTOE

cc: Technical Advisory Committee (TAC)
Public Advisory Committee (PAC)

This memorandum documents the future land use as well as the forecast traffic volumes/operations in the vicinity of the I-84/US 395 interchange. It should be noted that the forecast traffic information contained in this memorandum is draft and subject to further refinement based on committee discussions and refined transportation demand model outputs.

FUTURE LAND USES

The following land use assumptions are based on the development potential of vacant or underdeveloped parcels in the IMSA, given the existing zoning and the development patterns demonstrated in Pendleton and other Oregon communities. The development assumptions will be reviewed for compatibility with previously assumed housing and employment projections, and if necessary, revisions will be made and incorporated in the modeling of future traffic conditions in the IMSA over the course of the 20-year planning horizon.

Future Uses

A review of future land uses has been performed to help establish a development profile for the IMSA over the next 20 years. While the majority of land within the immediate vicinity of the interchange is built out and will likely remain viable, there are several areas of vacant or underdeveloped land within the IMSA. These areas, as they develop, have the ability to significantly impact operations at the I-84/US 395 interchange and surrounding local roadway network. The following outline describes these areas while Figure 5-1 provides a graphical location summary.

1) One lot zoned Light Industrial (M-1), adjacent to and west of the Umatilla River, adjacent to and north of I-84, and south of the Eastern Oregon Correctional Institution.

2) One lot zoned Central Commercial (C-1) adjacent to and east of the Umatilla River, adjacent to and north of I-84, and west of SW Court Place.

3) One lot zoned Central Commercial (C-1) between SW Court Place and Wal-Mart.

4) One lot zoned Tourist Commercial (C-2), located in the southwest quadrant of the interchange and adjacent to Tutiulla Creek.

5) One large lot zoned a combination of Medium Density Residential (R-2) and Low Density Residential located southeast of the Olney Cemetery.

6) One lot zoned Service Commercial (C-3) located on the east side of US 395 (Southgate) and north of Abby's Pizza.

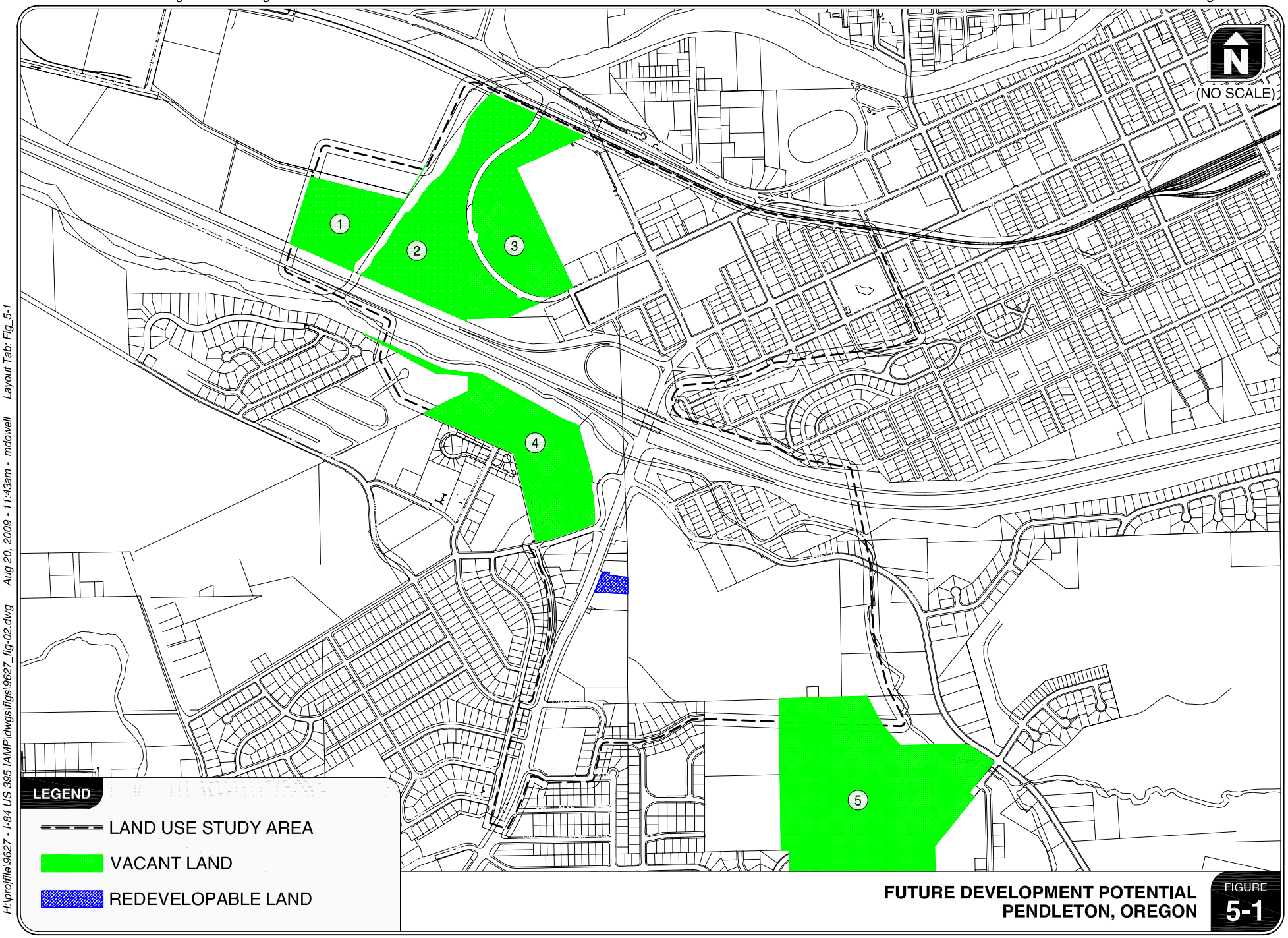
As shown in Table 1, for lots zoned for industrial and commercial use, a typical floor area ratio (FAR) – or lot coverage if single-storey construction is assumed – is used to estimate the amount of employment floor area that these lots may generate. The FAR or coverage percentage accounts for area needed for parking, landscaping, and any other code requirements. The gross area of the lots will be used except for those tax lots where information from City staff or tax maps indicate significant and estimable amounts of constrained land.

North of the Interchange

Industrial

The vacant industrial lot located on the west side of the Umatilla River and adjacent to I-84 encompasses about 10 acres. The City's light industrial (M-1) zone in this area does not prescribe minimum lot size or maximum lot coverage; it does require landscaping for screening.

A typical floor area ratio (FAR) or lot coverage for industrial development is 0.3 or 30%. As shown in Table 5-1, this translates into about 130,000 square feet of industrial development. However, as reported in Technical Memorandum #3, development on this lot and its ability to impact the I-84/US 395 interchange hinges on the construction of a bridge and road across the Umatilla River, a long-term project identified in the City's Transportation System Plan (TSP).



FUTURE DEVELOPMENT POTENTIAL
PENDLETON, OREGON

FIGURE **5-1**

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

H:\profile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_fig-02.dwg Aug 20, 2009 - 11:43am - mdowell Layout Tab: Fig_5-1

Commercial

The two vacant lots west of Wal-Mart and Court Place present the most commercial development potential in the IMSA. The acreage in these lots is close to 30 acres and 15 acres apiece. However, in the lot directly west of the Wal-Mart site, a significant finger of land on the north end of the lot appears undevelopable on the tax map due to its pinched and near separation from the rest of the lot. A rough estimate of the size of this area is four acres leaving about 10 potentially developable acres.

The City's code for the C-1 zone does not establish a minimum lot size or maximum lot coverage. Given a FAR or coverage rate of 0.25 for commercial development based on existing commercial development in the city and average rates in other communities, these 10 acres could support a single store of about 100,000 square feet or two stores of about 50,000 square feet each. The Safeway south of Wal-Mart appears to be about 50,000 square feet based on aerial map estimates.

The lot across Court Place includes significantly more acreage – almost 28 gross acres – yet is constrained by the levee for the Umatilla River. City staff estimates that the levee extends approximately 50 feet back from the Umatilla River. Given the length of the riverfront on that side of the lot, the levee and setback from the river account for just over two acres and will be considered undevelopable for future potential development. Assuming that roughly 25 developable acres remain, the site could potentially support a range of large to small commercial uses. As suggested in Table 5-1, maximizing this site for commercial uses could entail a combination of commercial uses, possibly including:

- Two 50,000-square-foot stores, similar to the size of the city's existing Safeway;
- Two 30,000-square-foot stores, which is typically the size of specialty grocery or other specialty retail stores;
- Three 10,000-square-foot buildings, particularly suited for restaurants;
- Six 5,000-square-foot stores, which could accommodate small restaurants, banks, and similar scale of commercial uses; and
- Ten 2,000-square-foot stores for small uses such as salons and other services.

South of the Interchange

Residential

The undeveloped parcel to the southeast of Olney Cemetery represents a sizable development potential for medium density residential. To estimate development potential for this lot, Table 1 shows potential residential units per acre for net lot area (assuming a reduction for infrastructure right-of-way) as well as the residential units assumed at 80% of the maximum allowable density. This provides a possible range for housing units, with the maximum allowable density used to calculate a "worse case" scenario in terms of traffic generation and the 80% of the maximum approximating more closely actual development densities.

Table 5-1 Development Potential in the Interchange Management Study Area

Tax lot	Acreage (Square Feet)	Type of Use / Zoning	Floor Area (Employment) or Number of Units (Housing)
North of the Interchange			
2N 32E Section 9 Lot 523 (Area #1)	10.0 acres 435,600 sf	Industrial M-1 zoning	Approx. 130,000 sf of light industrial development
2N 32E Section 9 Lot 810 (Area #2	27.6 acres 1,202,256 sf (approx. 2.2 acres undevelopable)	Commercial C-1 zoning	2 – 50,000 sf stores (approx. 10 acres total) 2 – 30,000 sf stores (approx. 6 acres total) 3 – 10,000 sf stores (approx. 3 acres total) 6 – 5,000 sf stores (approx. 3 acres total) 10 – 2,000 sf stores (approx. 2 acres total)
2N 32E Section 9 Lot 811 (Area #3)	14.4 acres 627,264 sf (approx. 4 acres undevelopable)	Commercial C-1 zoning	1 – 100,000 sf store or 2 – 50,000 sf stores (approx. 10 acres total)
South of the Interchange			
2N 32 Section 9 Lot 1700 (Area #4)	21.27 acres	Tourist Commercial C-2 zoning	Steep grades on this parcel have historically and will most likely minimize development potential.
2N 32 Section 15 Lot 119 (Area #5)	49.75 acres (assume 15 acres are needed for roadway ROW)	Residential R-2 zoning Residential R-1 zoning	487 units at 14 units/acre* 626 units at 18 units/acre**
2N 32E Section 15 Lot 900 (Area #6)	0.92 acres	Service Commercial C-3 zoning	1- 2,500 sf commercial use

* 14 units/acre is about 80% of the maximum allowable density in the R-2 zone, which approximates more realistic levels of development.
** 5-18 units/acre are permitted in the R-2 zone.

Commercial

The large undeveloped parcel located in the southwest quadrant of the interchange and south of Tutuilla Creek consists of 21.27 acres of Tourist Commercial land. Unfortunately, steep slopes have historically and are most likely to continue to restrict most forms of commercial development (which tend to favor flatter sights to accommodate parking). As such, no redevelopment is assumed for this parcel under the current Tourist Commercial zoning.

The 0.92 acre parcel located off of the east side of US 395 is considered to be underdeveloped for its Service Commercial(C-3) zoning. The City's code for C-3 zoned land is written to encourage development that is accessible to the entire community. Given the size of the parcel and its prominence along the US 395 corridor, the site is likely to redevelop as fast-food eating establishment.

FUTURE TRAFFIC CONDITIONS

Planned Transportation Improvements

A review of the City of Pendleton Transportation System Plan has determined that there are no planned transportation improvements identified for the immediate vicinity of the I-84/US 395 interchange that would have a significant impact on traffic patterns or operations. However, within the larger bounds of the IMSA, several local street and collector projects have been identified to better serve developable or undeveloped areas. These include the following:

- A new connecting roadway and bridge over the Umatilla River to connect the industrial zoned land south of the Eastern Oregon Correction Institution (via Westgate Drive) and SW Court Place.
- A new local street network to support future residential development located southeast of the Olney Cemetery. This would include extensions of SW Ladow Avenue and SW Perkins Avenue and new local street connections off of Tutuilla Road.

In addition to the roadway projects, there are several bicycle and pedestrian related projects identified for existing roadways or land areas near the interchange as outlined below.

- New sidewalks along SW Hailey Avenue west of US 395
- Sidewalk improvements along SW 20th Street and SW 17th Street
- Walking trails along Tutuilla Creek west of US 395.

Year 2030 No-Build Traffic Conditions

Year 2030 "No-Build" traffic volume forecasts for intersection turning movements and street segments were developed in order to analyze the effects of traffic growth on the I-84/US 395 Interchange and the surrounding transportation system. The year 2030 "No-Build" scenario was developed based on previously developed travel demand forecast model runs from the Pendleton Travel Demand Model. The remainder of this section describes the process used to development the 2030 forecasts.

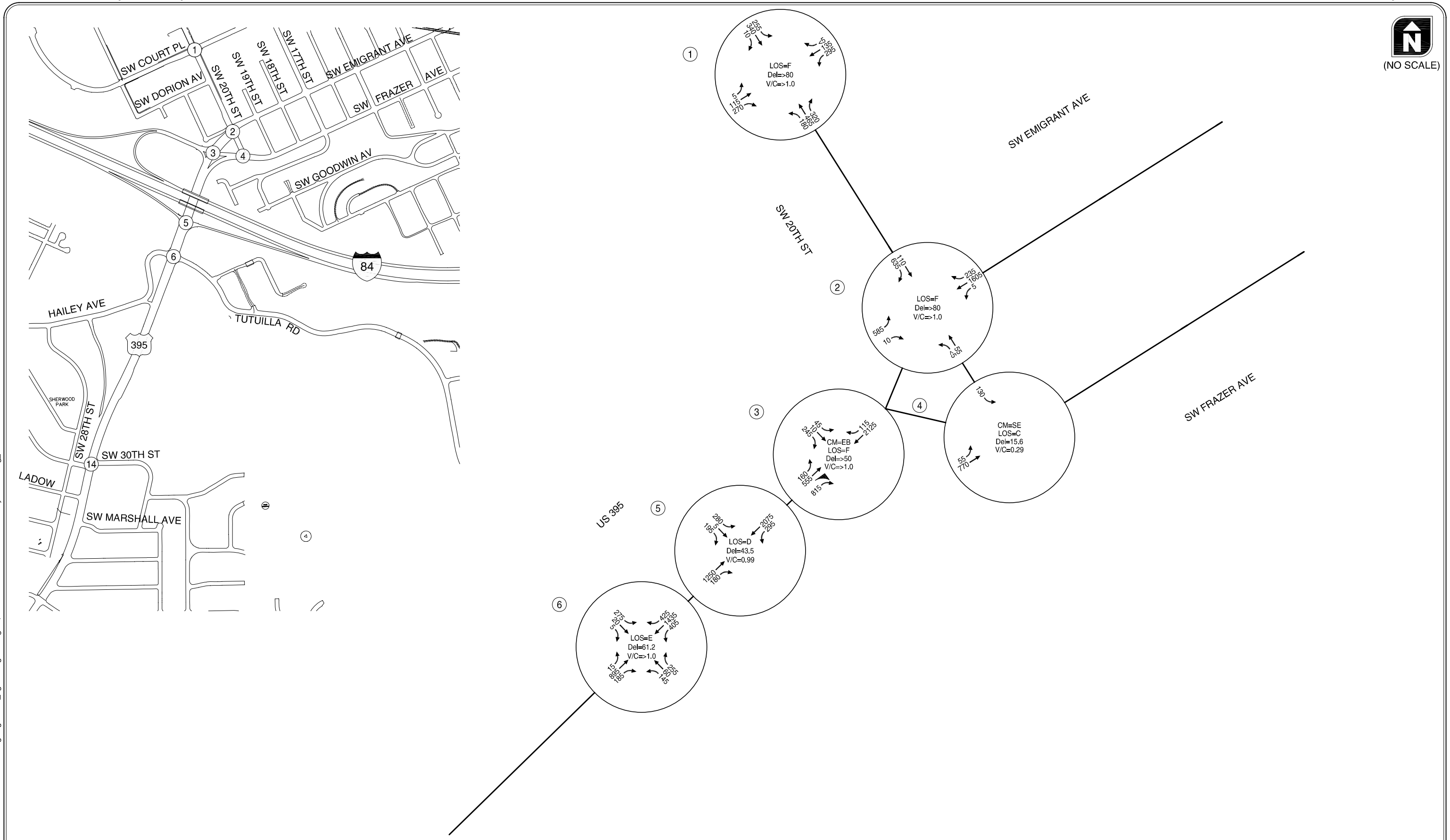
***Editors Note: The following traffic volumes were obtained from a previously developed travel demand model run for the City of Pendleton. As described in the following paragraphs, these model runs were preliminarily used in this analysis (with a few refinements) for the purposes of identifying general traffic growth for the I-84/US 395 interchange. Following committee

discussion, additional refinements to these traffic growth projections will be made and new inclusive travel demand model runs will be performed specifically for the IAMP.***

The volumes shown in Figure 5-2 represent the forecast 2030 design hour volumes at six key intersections focusing on the I-84/US 395 interchange terminals and the intersections immediately north and south of the interchange. The process to arrive at these volumes began with year 2025 forecast design hour volumes from a 2005 ODOT study of the I-84/US 395 interchange area, which examined these six intersections. These forecast volumes were adjusted slightly to recognize recent improvements to the interchange and add an additional five years of traffic growth.

As Figure 5-2 shows, local and regional traffic growth in Pendleton through the year 2030 is projected to have a substantial impact on the I-84/US 395 interchange. In general, traffic growth along the US 395 and SW Emigrant/SW Frazer Avenue corridors is forecast to grow approximately 1.3 percent per year through the year 2030. As a result of this traffic growth and limited amount of capacity available at the I-84/US 395 interchange, it is projected that five of the six critical study intersections will operate at or over capacity in the year 2030 if no improvements are made.

Detailed alternatives for addressing the forecast deficiencies will be provided in Technical Memorandum #7. These alternatives may include the realignment of intersections to improve spacing, changes to the interchange ramp configuration to better accommodate critical traffic flows, and changes to land use patterns that might help alleviate traffic demand at the interchange.



EXISTING 30TH HOUR TRAFFIC CONDITIONS
PENDLETON, OREGON

FIGURE **5-2**

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Appendix F

Technical Memorandum #7a – Alternatives Analysis

KITTELSON & ASSOCIATES, INC.
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TECHNICAL MEMORANDUM #7a

I-84 / US 395 Interchange Area Management Plan

Alternatives Analysis

Date: April 6, 2010 Project #: 9627.0

To: Patrick Knight, ODOT Region 5

From: Matt Hughart, AICP, Nick Foster, and Marc Butorac, P.E., P.T.O.E.

cc: Technical Advisory Committee (TAC)
Public Advisory Committee (PAC)

This technical memorandum documents the development and preliminary evaluation of the interchange design concepts that have been developed as part of the IAMP process. Included in this memorandum is a description of the process used to develop the initial concepts, a qualitative assessment of each interchange form concept, and a preliminary project team ranking of each concept.

The purpose of this memorandum is to provide the TAC and PAC committee members with an assessment and feasibility analysis of the initial interchange concepts, and to assist in the screening process that will pare the number of concepts down for a more detailed quantitative assessment.

A follow-up memorandum, Technical Memorandum #7b, will describe the recommendations made by the TAC and PAC members and include a more detailed quantitative analysis of the recommended concepts.

CONCEPT DEVELOPMENT PROCESS

Interchange concepts were developed in two stages: an initial development stage and then a refinement/additional concept development stage.

Initial Concept Development

The development of the initial interchange concepts for the IAMP began with three separate design workshops. The first two workshops were held for members of the TAC and PAC committees, while the third workshop was held for interested citizens, business owners, and landowners in a public open house setting. All three workshops were held on August 26, 2009.

Within each workshop, participants were presented with an overview of the existing and future traffic demand within the Interchange Management Study Area (IMSA), the identified operational and safety deficiencies, and the applicable interchange design forms and basic design parameters. Following these presentation overviews, participants were asked to sketch their ideas for improving circulation at the interchange and within the IMSA.

After the completion of the TAC, PAC, and public workshops, the project team took all of the individual design ideas and grouped them into various interchange forms. Each group was further sorted into common and unique interchange form and local circulation concepts. Based on this process, the project team made some technical refinements to the interchange form and local circulation concepts to ensure basic design parameters were being met. This process resulted in 23 different interchange form and local circulation concepts, which are presented in *Appendix "A"*. These concepts are divided into three different groups based on which side of the interchange they are concerned with: north side (12 concepts), south side (9 concepts), or west side (2 concepts).

Concept Refinement and Additional Concept Development

After a subsequent meeting of the TAC and PAC and a second public workshop on January 7, 2010, one concept (N11) was refined and four concepts were added (S10 – S13). Members of the TAC requested that Concept N11 include three different options (N11a, N11b, and N11c) for the relocation of the I-84 westbound ramp terminals in order to determine which area would be the least impactful to existing and future businesses. The four new concepts added were all on the south side of the interchange and they were all created with the goal of avoiding significant impacts to the Olney Cemetery. This came after many members of the public expressed their opinion that the cemetery should be avoided and ODOT staff determined that it would be difficult to connect a road through the cemetery. Additionally, a resident of Pendleton submitted an additional concept to the project team on the south side of the interchange (S14) on March 19, 2010, that was refined at a PAC meeting on March 31, 2010. These refined and additional concepts are also presented in *Appendix "A."*

Concept Summaries

The following is a brief summary of each of the concepts shown in *Appendix "A."*

North Side Concepts

N1

This concept consolidates the existing I-84 WB ramp terminals/US 395 and SW Emigrant Ave/SW 20th Street intersections into one intersection, with the SW Emigrant Avenue-SW Frazer Avenue couplet brought in directly across from the I-84 WB ramp terminals. It includes options for two different underpasses to relieve congestion at the consolidated intersection. Option A provides an

underpass connecting SW Court Place directly to SW Frazer Avenue and Option B allows traffic on SW Emigrant Avenue bound for US 395 to bypass the intersection and continue southbound on US 395.

N2

In this concept, SW Emigrant Avenue is rerouted between the I-84 WB ramp terminals and SW 20th Street. Traffic traveling from either I-84 WB or US 395 bound for SW 20th Street would enter the SW Emigrant Ave/SW 20th Street intersection at the existing southeastern SW 20th Street approach in front of Dean's Market. This converts what is a left-turning movement today into a through movement. The I-84 WB ramp terminals would also be signalized.

N3

Concept N3 is similar to Concept N1, but includes a roundabout instead of a signal at the consolidated I-84 WB ramp terminals/SW Emigrant Ave-SW Frazer Ave/SW 20th St intersection. The consolidated intersection would also be located further south at the existing I-84 WB ramp terminals intersection under this concept.

N4

This concept is similar to Concept N3, but with the roundabout in the same location as the signalized intersection in Concept N1.

N5

Concept N5 features a large "pinched" roundabout that would connect the I-84 WB ramp terminals/US 395 and SW Emigrant Ave/SW 20th Street intersections.

N6

This concept is similar to Concept N4, but also includes a grade-separated bypass connecting SW Court Place to SW Frazer Avenue as in N1 Option A.

N7

In this concept, SW Emigrant Avenue and SW Frazer Avenue are de-coupled between SW 20th Street and SW 17th Street. The connections from US 395 and the I-84 WB ramp terminals to SW Frazer Avenue are severed, thereby making SW Frazer Avenue serve as a local access road southwest of SW 17th Street. This also makes the I-84 WB ramp terminals/US 395 intersection a 3-legged intersection. Side-street access onto SW Emigrant Avenue southwest of SW 17th Street is limited to a right-in/right-out connection from the northwest SW 20th Street approach only.

N8

Concept N8 is similar to Concept N1. The difference between the two is that this concept includes a loop ramp onto I-84 WB from northbound US 395 south of the existing ramp terminals intersection. This loop ramp would climb a steep grade to connect with I-84 WB at the bridge over US 395.

N9

This concept eliminates the existing I-84 WB ramps and replaces them with a diamond configuration that intersects US 395 just north of the I-84 bridge. This creates a new signalized intersection on US 395 where the ramps come in. Similar to Concept N2, US 395 is rerouted to connect with SW Emigrant Avenue via the existing southeast SW 20th Street approach.

N10

Concept N10 does not make any substantial changes to the built environment. This concept seeks to maximize the efficiency of the existing infrastructure by converting SW 20th Street and SW 17th Street into a couplet between SW Court Avenue and SW Frazer Avenue. SW 20th Street would be one-way southeast-bound, while SW 17th Street would be one-way northwest-bound.

N11

In this concept, the I-84 WB ramp terminals are relocated to one of three locations northwest of their existing intersection with US 395. Under Option A, the ramp terminals would be directly behind Safeway and SW Court Place would be rerouted to intersect with the ramp terminals at this location. The ramp terminals would be located at the existing SW 23rd St/SW Dorion Ave intersection under Option B, though SW Dorion Avenue would not connect with the new intersection. SW 23rd Street would connect the ramp terminals to SW Court Place. Option C would have the ramp terminals connect with SW Court Place to the northwest of the Oxford Suites hotel. SW 23rd Street would be extended east to the existing I-84 WB ramp terminals intersection to provide a connection between US 395 and the new I-84 WB ramp terminals.

N12

Concept N12 is a single-point urban interchange (SPUI). Under this concept, both the EB and WB ramp terminals intersections with US 395 would come into a single intersection underneath the I-84 bridge over US 395.

South Side Concepts

S1

Concept S1 would realign SW Tutuilla Creek Road and SW Hailey Avenue such that they would intersect with US 395 approximately 1,000 feet south of the I-84 EB ramp terminals. The existing SW Hailey Avenue roadway would remain and its existing access to US 395 would be restricted to right-in/right-out movements. SW Tututilla Creek Road would dead-end west of the Denny's access.

S2

This concept would realign SW Tutuilla Creek Road and SW Hailey Avenue to approximately 800 feet south of the I-84 EB ramp terminals. This location would allow the SW Hailey Avenue approach to be aligned over an existing right-out only public access onto US 395. SW Hailey Avenue would maintain a right-in/right-out access onto US 395 at the existing intersection location; however, the roadway would dead-end just south of the Burger King access. Likewise, SW Tutuilla Creek Road would also have a right-in/right-out access onto US 395 at the existing intersection. Unlike Concept S1, SW Tutuilla Creek Road would retain its existing alignment as well under this concept.

S3

Under this concept SW Tutuilla Creek Road and SW Hailey Avenue would be realigned to approximately 1,100 feet south of the existing EB ramp terminals. Unique to this concept is that the EB ramp terminals would also be realigned approximately 300 feet south of their existing location in a Parclo B configuration. Due to relocation of the EB ramp terminals, the existing SW Hailey Avenue and SW Tutuilla Creek Road roadways would no longer have access to US 395 at their existing location.

S4

Concept S4 would relocate SW Tutuilla Creek Road and SW Hailey Avenue to nearly the same location as in Concept S1. This relocated intersection would have a roundabout instead of a traffic signal. Likewise, the EB ramp terminals would also have a roundabout at their intersection with US 395. the existing SW Tutuilla Creek Road and SW Hailey Avenue alignments would remain with right-in/right-out access onto US 395.

S5

This concept would realign SW Tutuilla Creek Road and SW Hailey Avenue to the same location as in Concept S1, with a roundabout at the intersection. Unlike in Concept S4, the existing SW

Tutuilla Creek Road and SW Hailey Avenue roadways would dead-end prior to their existing intersection with US 395. The EB ramp terminals would remain a signalized intersection.

S6

Concept S6 would relocate SW Hailey Avenue to the same spot as Concept S1; however, it would be a three-legged roundabout intersection as SW Tutuilla Creek Road would retain its existing alignment with a right-in/right-out access onto US 395. The existing SW Hailey Avenue roadway would maintain a right-in/right-out access onto US 395, but it would dead-end beyond the Burger King access. The EB ramp terminals would have a roundabout.

S7

SW Tutuilla Creek Road and SW Hailey Avenue are realigned to the same location as in Concept S3 under this concept. The unique component of this concept is a new on-ramp onto WB I-84 for northbound traffic on US 395. This on-ramp would depart US 395 approximately 100 feet south of the realigned SW Tutuilla Creek Road-SW Hailey Avenue intersection, pass over I-84 and US 395 at the I-84 bridge, and connect in with the existing on-ramp. This would require the existing SW Tutuilla Creek Road to dead-end west of the Denny's access. The existing SW Hailey Avenue access would be restricted to right-in/right-out movements.

S8

In Concept S8 SW Tutuilla Creek Road and SW Hailey Avenue would be realigned the same as in Concept S3. The I-84 EB ramp terminals would retain their diamond configuration, but would move approximately 300 feet south, which would necessitate the existing SW Tutuilla Creek Road and SW Hailey Avenue accesses to be removed. A new loop ramp onto I-84 EB for southbound US 395 traffic that departs from US 395 just south of the I-84 bridge and connects to I-84 at the bridge would be constructed.

S9

In this concept, SW Tutuilla Creek Road and SW Hailey Avenue would be relocated to approximately ¼-mile south of the I-84 EB ramp terminals. The existing SW Hailey Avenue roadway would dead-end just east of Burger King, with its access to US 395 removed. SW Tutuilla Creek Road would retain its existing access as a right-in/right-out access. The realigned SW Tutuilla Creek Road would use the alignment of the existing internal roadway within the cemetery.

S10

This concept seeks to avoid rerouting SW Tutuilla Creek Road through the Olney Cemetery while still addressing the forecast demand for southbound left-turns from US 395 onto SW Tutuilla

Creek Road by creating an under- or overpass of US 395. In this concept, southbound left-turns from US 395 would instead make a free right-turn onto a loop ramp that would cross US 395 at a separate grade and then merge back onto SW Tutuilla Creek Road. The creation of this ramp would require that SW Hailey Avenue be closed just west of Burger King, though it would retain signalized access onto US 395 at the existing location. Consequently a new signalized access for through traffic on SW Hailey Avenue would be provided at the location of the existing right-out access onto US 395 that was discussed under Concept S2. Traffic from SW Tutuilla Creek Road traveling to US 395 would retain full signalized access at its current location.

S11

Concept S11 creates a new frontage roadway paralleling US 395 to the east from a relocated SW Tutuilla Creek Road-SW Hailey Avenue intersection (approximately the same location as in Concept S1) to the existing SW Tutuilla Creek Road. This roadway would primarily use the existing space between US 395 and the Olney Cemetery. There are two options for this new roadway. Under Option A, it would serve one-way traffic from US 395 onto SW Tutuilla Creek Road, with traffic from SW Tutuilla Creek Road bound for US 395 using the existing signalized intersection. Option B, presented by ODOT staff, would have the new roadway serve two-way traffic traveling to and from SW Tutuilla Creek Road. The existing SW Tutuilla Creek Road approach to US 395 would be removed under this option. Under both options, SW Hailey Avenue would retain some form of access at the existing signalized intersection, though under Option B it is likely that it would be a right-in/right-out access.

S12

This concept would create a tunnel under I-84 and the neighborhoods in the northeast quadrant of the interchange to connect SW Tutuilla Creek Road to SW Frazer Avenue at some point between SW 20th Street and SW 17th Street. This would allow traffic traveling between SW Tutuilla Creek Road and the north side of the interchange to bypass US 395 altogether. The existing SW Tutuilla Creek Road-SW Hailey Avenue signalized intersection would be restricted to right-in/right-out access.

S13

Concept S13 would feature a realigned SW Hailey Avenue across from a jug handle allowing SB US 395 traffic to make a u-turn to access SW Tutuilla Creek Road in the near-term. This realignment would be relocated in approximately the same location as S3. In the long-term, it would include the construction of a new road connecting SW 30th Street to SW Tutuilla Creek Road.

S14

This concept realigns the I-84 EB off-ramp south of its existing alignment to connect with the existing SW Hailey Avenue alignment adjacent to the Burger King property. SW Hailey Avenue would be realigned to the south on US 395 as it is in Concept S11b. There would be no modifications to the alignment of SW Tutuilla Creek Road under this alignment. Likewise the I-84 EB on-ramp would remain in its current location.

West Side Concepts

W1

This concept would create a new roadway between the neighborhoods on the southwest side of the interchange to the north side of the interchange. The roadway would connect SW Court Place to SW 28th Street, with a side-street connection to SW Goodwin Avenue. A new overpass of I-84 would be constructed for the new roadway.

W2

Concept W2 would create a split-diamond interchange configuration. The western section of the new interchange would include a north-south roadway similar to the one included in Concept W2. SW Tutuilla Creek Road and SW Hailey Avenue would also be realigned in manner similar to Concept S2.

CONCEPT SCREENING

Initially, the concepts underwent two levels of screening. The first level was a high-level screening to determine if any of the concepts did not meet the basic purpose of the project. After these concepts were screened out, a second level was applied to the remaining concept involving a qualitative assessment of each concept based on the project's adopted evaluation criteria.

Preliminary Purpose and Problem Statement Screening

Once the initial set of interchange concepts were developed, the project team first performed a preliminary assessment to determine if any of the concepts were not meeting the basic intent of the project purpose and problem statement. The official Purpose and Problem Statement, as approved by the TAC and PAC is outlined below:

> ***Purpose of the Project:***
>
> *The IAMP is a strategic transportation plan that is designed to protect the long-term function of the Interstate 84 (I-84) / US 395 interchange by preserving the capacity of the interchange while providing safe and efficient operations between connecting roadways. The IAMP will identify land*

use management strategies, short-term and long-term transportation improvements, access management goals, and strategies to fund identified improvements.

Problem Statement:

Because of topographic constraints and the construction of I-84, there are only two existing opportunities for access between the areas of Pendleton to the north and south of I-84: US 395 and OR 11. The resulting level of cross-town traffic, especially in the vicinity of the I-84 interchange with US-395, makes it very difficult for motorists exiting the freeway to access downtown, and subsequently, both of the ramp termini operate over capacity. Queues on the eastbound off-ramp are forecast to back onto the mainline of I-84 by the year 2025. Traffic operations within the vicinity of the interchange are also poor. In particular the operations of the Tutuilla Creek/Hailey and 20th Street intersections of US 395 and the 20th Street/Court Place intersection will all need to be improved. There are several direct accesses from commercial properties onto US 395 south of the interchange. The Oregon Department of Transportation (ODOT) initiated the IAMP process to ensure that growth and development will occur in the interchange study area without compromising the operation of the interchange. The IAMP will identify long-term transportation improvements, land-use strategies, and implementation policies. The IAMP will satisfy the requirements of Oregon Administrative Rule (OAR) 734-051 and will be developed according to the ODOT IAMP guidelines.

Based on this initial screening it was determined that concepts that did not provide sufficient capacity for the long-term operations of the interchange did not meet the project's purpose. These concepts include those with a roundabout at the I-84 WB ramp terminals (N3, N4, N5, and N6), the single-point interchange (N12), and concepts with a roundabout at the US 395/SW Hailey Ave-SW Tutuilla Creek Rd intersection (S4, S5, and S6). *Appendix "B"* contains the operational analyses performed for these concepts.

Basic Qualitative Concept Screening

After the initial Purpose and Problem Statement screening, the next step was to begin a basic qualitative screening of the remaining concepts. To assist in the evaluation process, the project team reviewed the adopted evaluation criteria and developed a screening level evaluation process by which each of the interchange form and local circulation concepts could be evaluated at a high level qualitative perspective. As a part of this process, it was recognized that at this particular level of evaluation, certain evaluation criteria could not be applied to each concept because the criterion was determined to be too specific, required a higher level of detailed information, or was a non-differentiating factor. In these instances, a screening level evaluation was not applied to the concepts. The following outline lists the five screening level categories and the selected evaluation criteria within each category that were investigated as part of this process.

<u>Category #1 – Transportation</u>

Evaluation Criteria #1 – Improves the operations of the interchange and the adjacent local system

Evaluation Criteria #2 – Improves non-vehicular travel

Category #2 – Land Use

Evaluation Criteria #1 – Level of right-of-way (ROW) impacts

Category #3 – Cost

Evaluation Criteria #1 – Level of construction costs and feasibility

Category #4 – Environmental, Social, and Equity Factors

Evaluation Criteria #1 – Environmental impacts

Evaluation Criteria #2 – Compatibility

Category #5 – Accessibility

Evaluation Criteria #1 – Spacing standards

Based on the criteria outlined above, an evaluation matrix for each concept was created. These matrices are contained within *Appendix "C."* A summary of the qualitative screening process is provided in Tables 7-1a through 7-3a below. *(Note: In general, a + indicates the interchange concept is positively meeting the basic parameters of the evaluation criterion, a - indicates the interchange concept is not meeting the basic parameters of the evaluation criteria, and a 0 indicates the interchange concept is neither positively nor negatively meeting the basic intent of the evaluation criterion. See Appendix "C" for a detailed explanation of the screening level scoring definitions).*

Table 7a-1 Summary of Qualitative Screening Process (North of I-84 Concepts)

Evaluation Criteria	Concept								
	N1	N2	N7	N8	N9	N10	N11a	N11b	N11c
Operations	+	+	+	+	+	+	+	+	+
Non-Vehicular Travel	0	0	+	-	0	0	-	-	-
ROW Impacts	-	+	-	-	0	+	0	+	+
Cost and Feasibility	-	+	-	-	-	+	-	-	-
Environmental Impacts	+	+	+	-	+	+	+	+	+
Compatibility	+	+	-	-	-	+	-	-	-
Access Spacing	0	-	0	0	0	-	0	0	-

Table 7a-2 Summary of Qualitative Screening Process (South of I-84 Concepts)

Evaluation Criteria	Concept											
	S1	S2	S3	S7	S8	S9	S10	S11a	S11b	S12	S13	S14
Operations	+	+	+	+	+	+	+	+	+	+	+	+
Non-Vehicular Travel	0	0	0	-	-	0	-	0	0	0	0	0
ROW Impacts	-	0	-	-	-	-	0	0	-	0	-	0
Cost and Feasibility	-	-	-	-	-	-	-	-	-	-	-	-
Environmental Impacts	-	-	-	-	-	-	0	+	+	-	+	-
Compatibility	-	-	-	-	-	-	-	-	-	-	-	-
Access Spacing	0	0	0	0	0	+	-	0	0	0	0	0

Table 7a-3 Summary of Qualitative Screening Process (West of I-84 Concepts)

Evaluation Criteria	Concept	
	W1	W2
Operations	+	+
Non-Vehicular Travel	+	+
ROW Impacts	0	-
Cost and Feasibility	-	-
Environmental Impacts	-	-
Compatibility	-	-
Access Spacing	-	0

Preliminary Project Team Recommendations

Based on this qualitative screening process, the project team recommends that concepts N1 (without either Option A or B bypasses), N10, N11 (all options), S11a, S11b, S13, and S14 be considered for more detailed quantitative analysis. These concepts are the ones that have the greatest potential to be constructed while at the same time addressing the fundamental operational and access spacing issues facing the interchange area. Generally the eliminated concepts present substantial costs and impacts relative to the remaining concepts recommended for further evaluation. These concepts required:

1) the I-84 WB ramps to be realigned through a severe grade in the northeast quadrant of the interchange (N8, N9, and W2),

2) SW Emigrant Avenue and SW 17th Avenue to be widened, causing multiple property impacts and acquisitions (N7),

3) new ramp connections to be introduced that provided minimal operational benefit (S3, S7, S8, and N1 Option A bypass),

4) SW Tutuilla Creek Road to be rerouted through the Olney Cemetery (S1, S2, and S9),

5) features which posed significant engineering challenges that may make them uneconomical to construct (S10), or

6) cost-prohibitive improvements (N1 Option B bypass and S12).

In addition, Concepts N2 and W1 did not effectively address the existing and future capacity and access issues.

Based on these recommendations and concurrence from the TAC and PAC on February 18, 2010, the project team will prepare Technical Memorandum 7b,which will include a more detailed quantitative evaluation, including cost estimates of the three remaining north side and south side concepts.

Appendix A
Interchange Design Forms

NORTH INTERCHANGE IMPROVEMENT CONCEPT #N1
SINGLE LINE TAPING

FIGURE 7-N1

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NORTH INTERCHANGE IMPROVEMENT CONCEPT #N1A
SINGLE LINE TAPING

FIGURE
7-N1A

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NORTH INTERCHANGE IMPROVEMENT CONCEPT #N1B
SINGLE LINE TAPING

FIGURE
7-N1B

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NORTH INTERCHANGE IMPROVEMENT CONCEPT #N2
SINGLE LINE TAPING

FIGURE 7-N2

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NORTH INTERCHANGE IMPROVEMENT CONCEPT #N3
SINGLE LINE TAPING

FIGURE 7-N3

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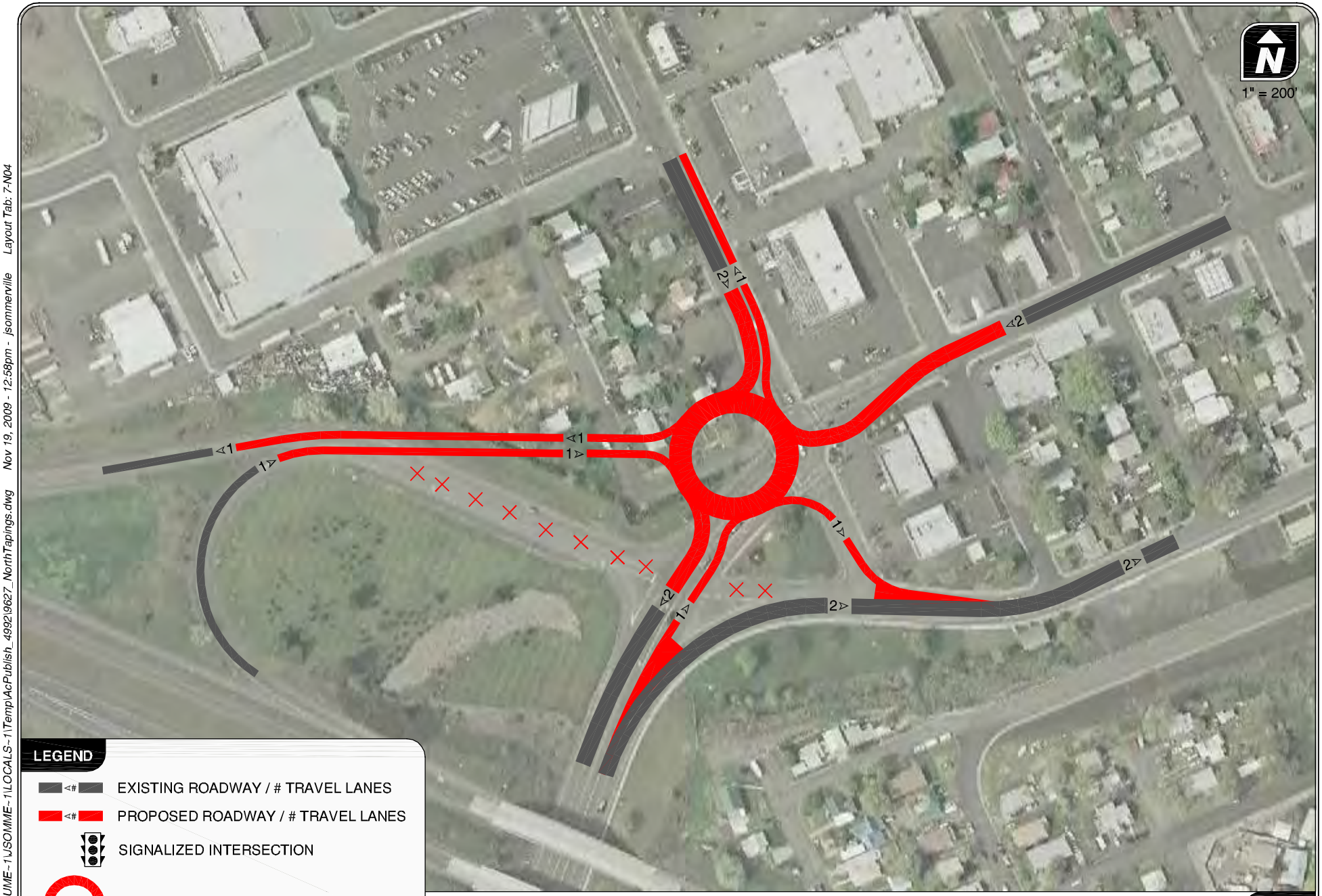

NORTH INTERCHANGE IMPROVEMENT CONCEPT #N4
SINGLE LINE TAPING

FIGURE
7-N4

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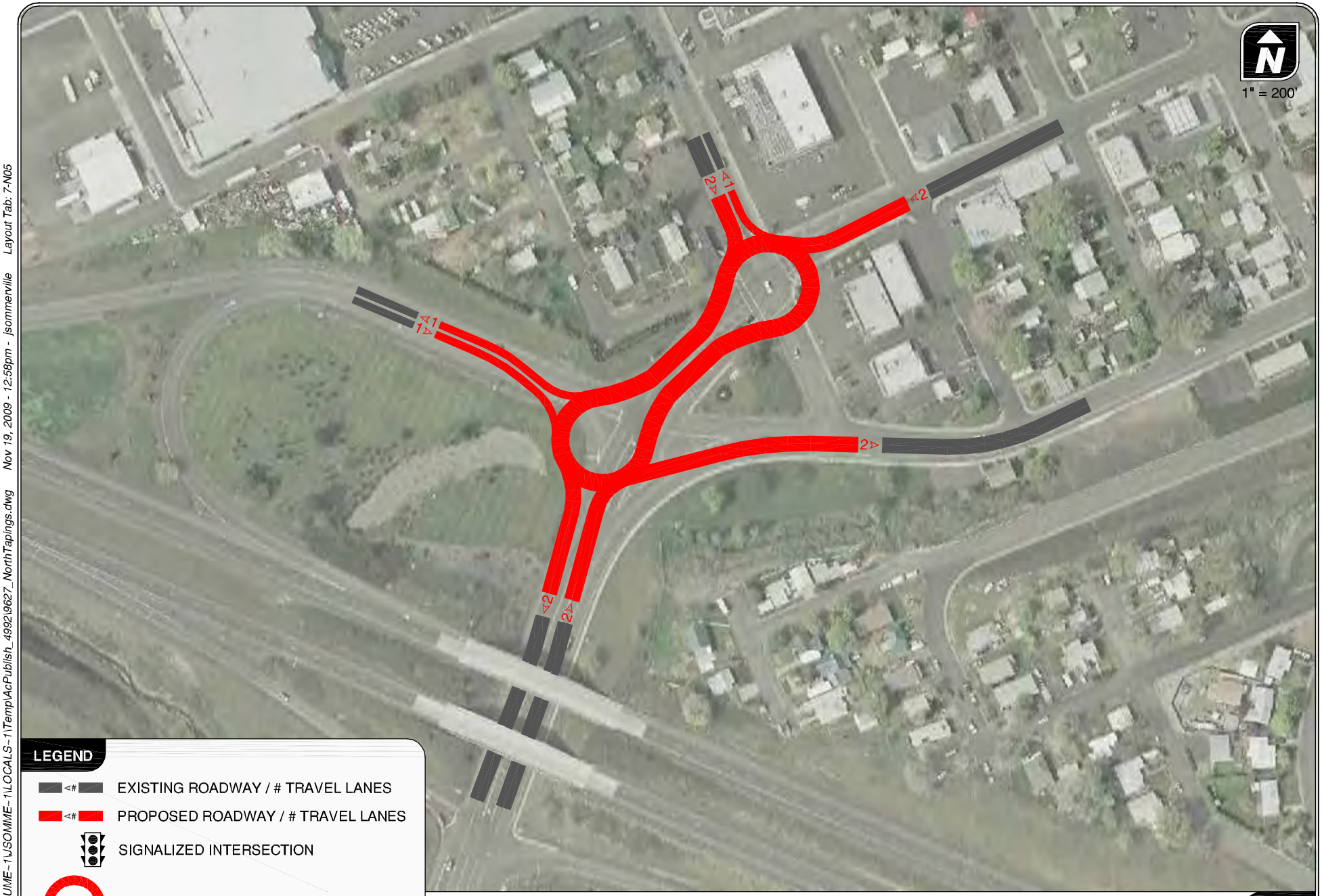

NORTH INTERCHANGE IMPROVEMENT CONCEPT #N5
SINGLE LINE TAPING

FIGURE 7-N5

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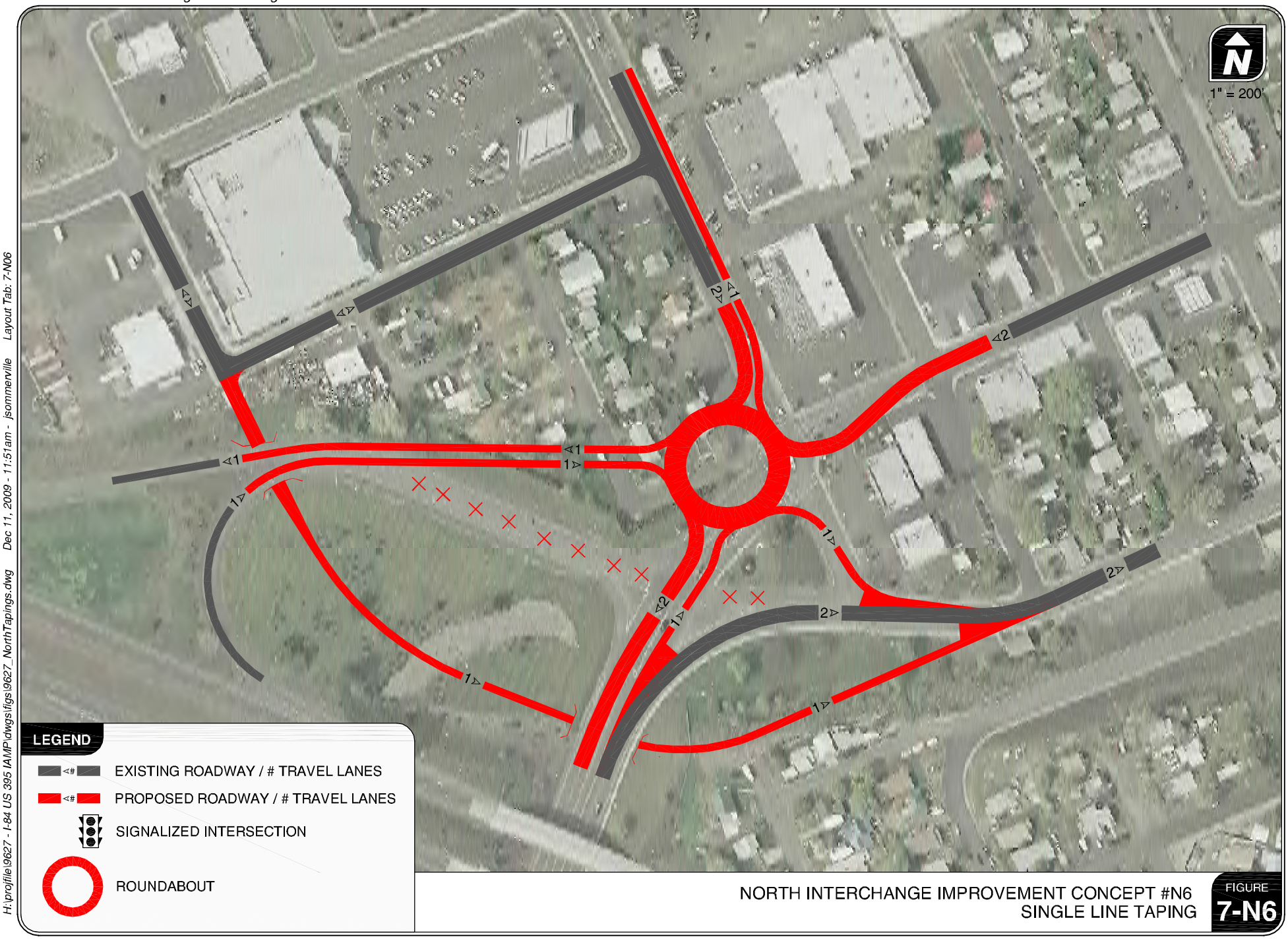


NORTH INTERCHANGE IMPROVEMENT CONCEPT #N6
SINGLE LINE TAPING

FIGURE 7-N6

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

H:\projfile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_NorthTapings.dwg Dec 11, 2009 - 11:51am - jsommerville Layout Tab: 7-N06

NORTH INTERCHANGE IMPROVEMENT CONCEPT #N7
SINGLE LINE TAPING

FIGURE
7-N7

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

C:\DOCUME~1\JSOMME~1\LOCALS~1\Temp\AcPublish_4992\9627_NorthTapings.dwg Nov 19, 2009 - 12:59pm - jsommerville Layout Tab: 7-N07

NORTH INTERCHANGE IMPROVEMENT CONCEPT #N8
SINGLE LINE TAPING

FIGURE 7-N8

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

C:\DOCUME~1\JSOMME~1\LOCALS~1\Temp\AcPublish_4992\9627_NorthTapings.dwg Nov 19, 2009 - 12:59pm - jsommerville Layout Tab: 7-N08

NORTH INTERCHANGE IMPROVEMENT CONCEPT #N9
SINGLE LINE TAPING

FIGURE 7-N9

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

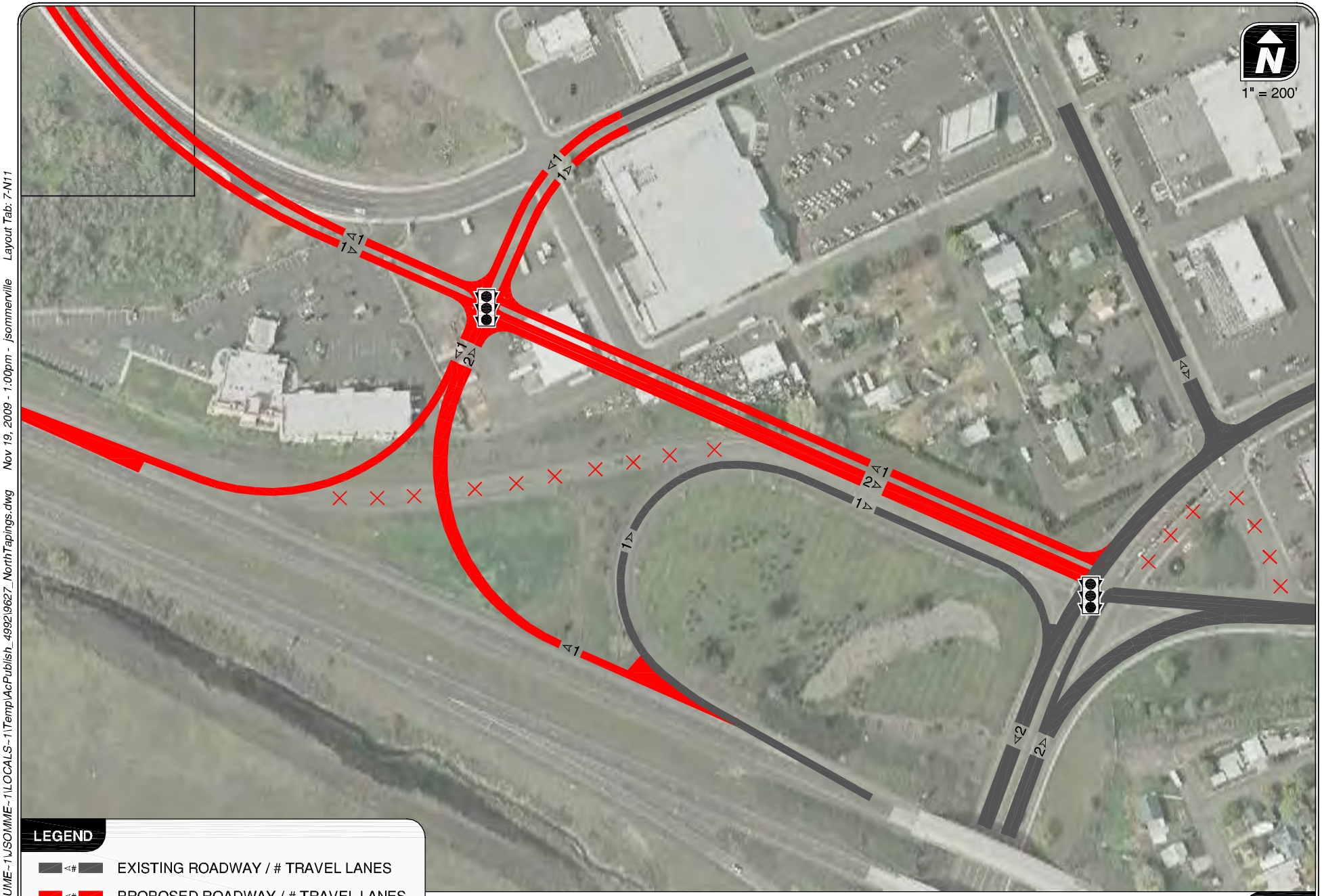
H:\projfile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_NorthTapings.dwg Dec 11, 2009 - 11:52am - jsommerville Layout Tab: 7-N09

NORTH INTERCHANGE IMPROVEMENT CONCEPT #N10
SINGLE LINE TAPING

FIGURE
7-N10

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

C:\DOCUME~1\JSOMME~1\LOCALS~1\Temp\AcPublish_4992\9627_NorthTapings.dwg Nov 19, 2009 - 12:59pm - jsommerville Layout Tab: 7-N10

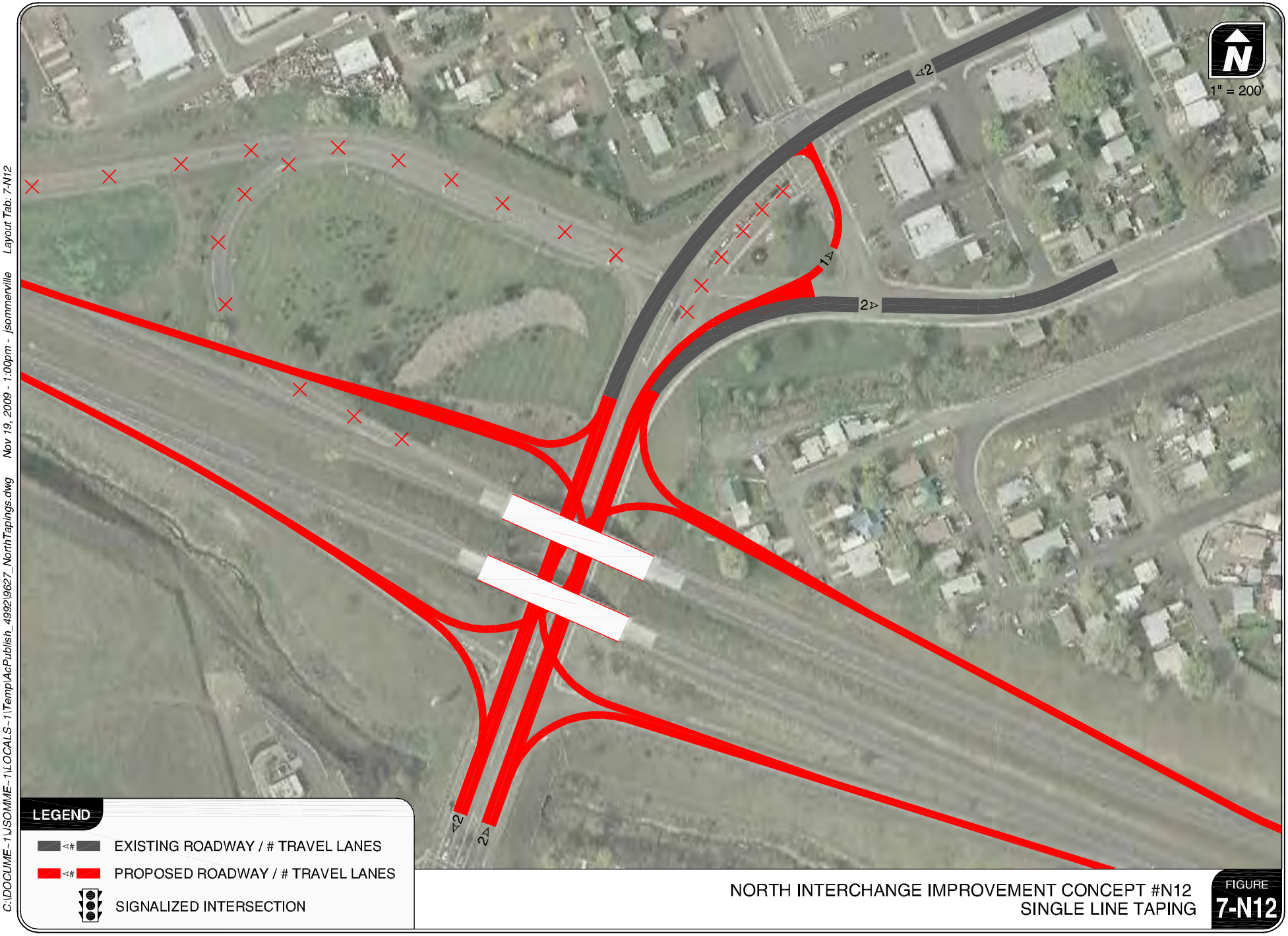


NORTH INTERCHANGE IMPROVEMENT CONCEPT #N11
SINGLE LINE TAPING

FIGURE 7-N11

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

C:\DOCUME~1\SOMME~1\LOCALS~1\Temp\AcPublish_4992\9627_NorthTapings.dwg Nov 19, 2009 - 1:00pm - jsommerville Layout Tab: 7-N11



NORTH INTERCHANGE IMPROVEMENT CONCEPT #N12
SINGLE LINE TAPING

FIGURE 7-N12

C:\DOCUME~1\JSOMME~1\LOCALS~1\Temp\AcPublish_4992\9627_NorthTapings.dwg Nov 19, 2009 - 1:00pm - jsommerville Layout Tab: 7-N12

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S1
SINGLE LINE DRAWING

FIGURE 7-S1

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S2
SINGLE LINE DRAWING

FIGURE 7-S2

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

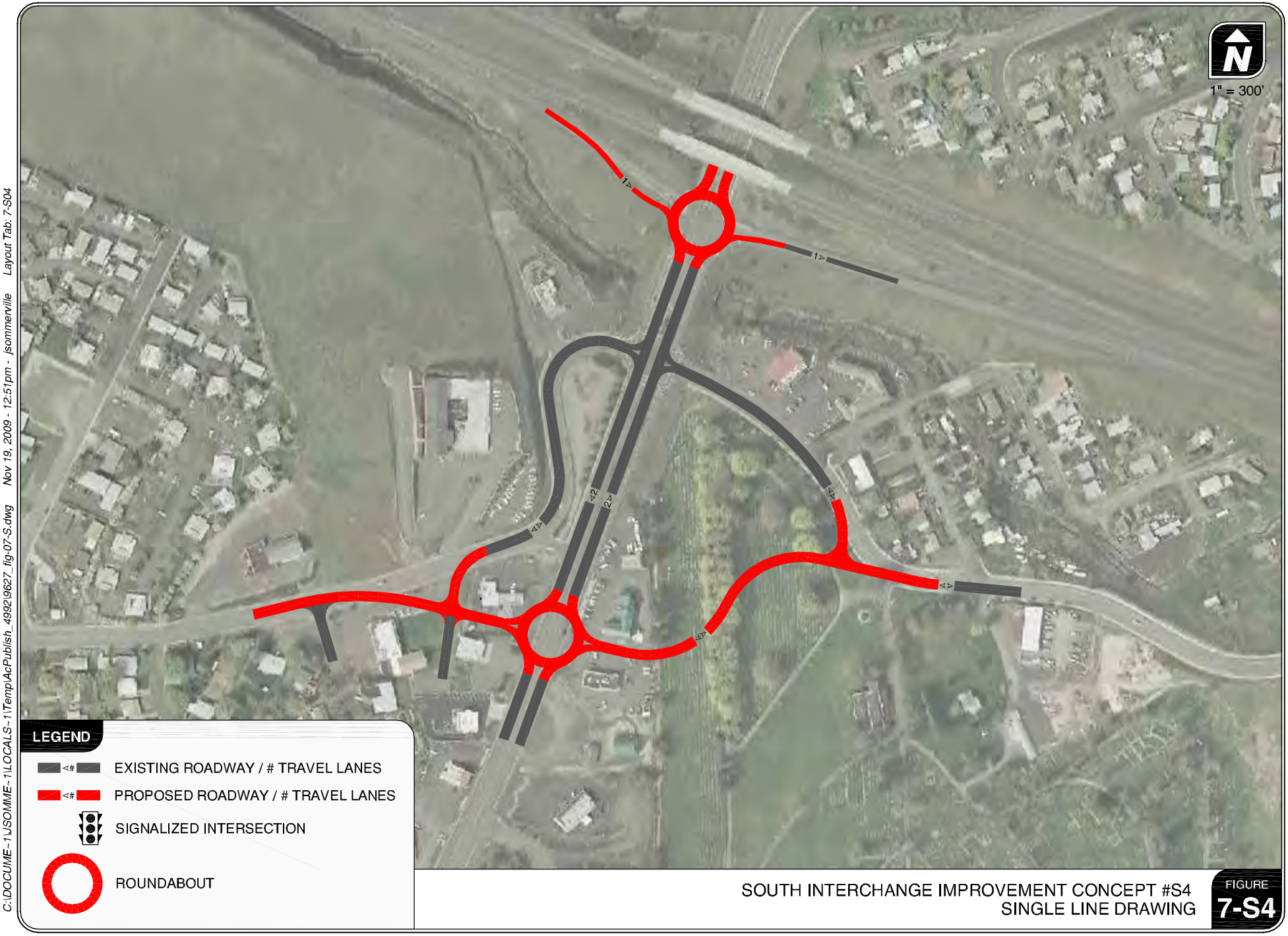
C:\DOCUME~1\JSOMME~1\LOCALS~1\Temp\AcPublish_4992\9627_fig-07-S.dwg Nov 19, 2009 - 12:51pm - jsommerville Layout Tab: 7-S02

SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S3
SINGLE LINE DRAWING

FIGURE 7-S3

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

C:\DOCUME~1\JSOMME~1\LOCALS~1\Temp\AcPublish_4992\9627_fig-07-S.dwg Nov 19, 2009 - 12:51pm - jsommerville Layout Tab: 7-S03

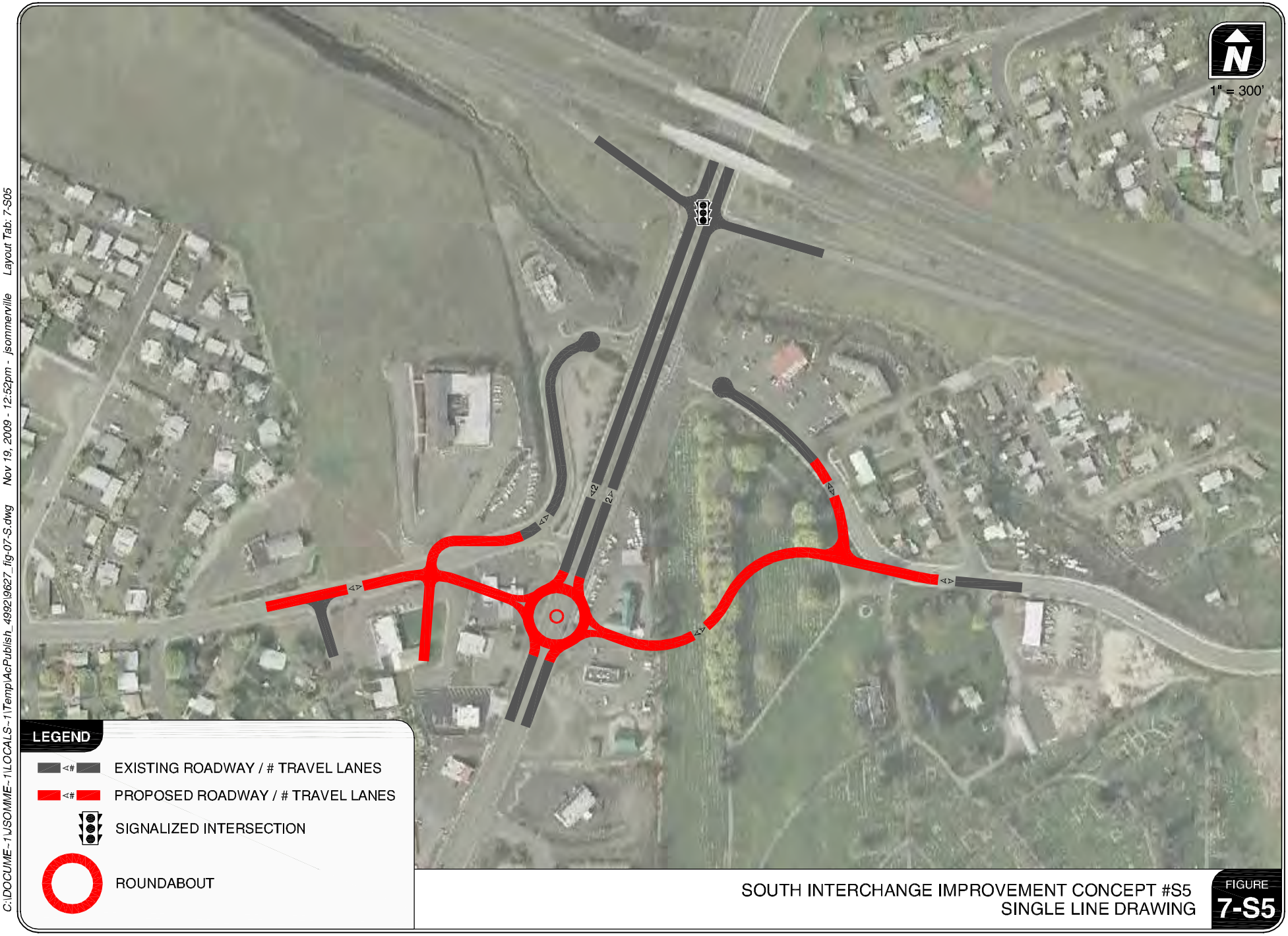


SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S4
SINGLE LINE DRAWING

FIGURE 7-S4

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

C:\DOCUME~1\JSOMME~1\LOCALS~1\Temp\AcPublish_4992\9627_fig-07-S.dwg Nov 19, 2009 - 12:51pm - jsommerville Layout Tab: 7-S04

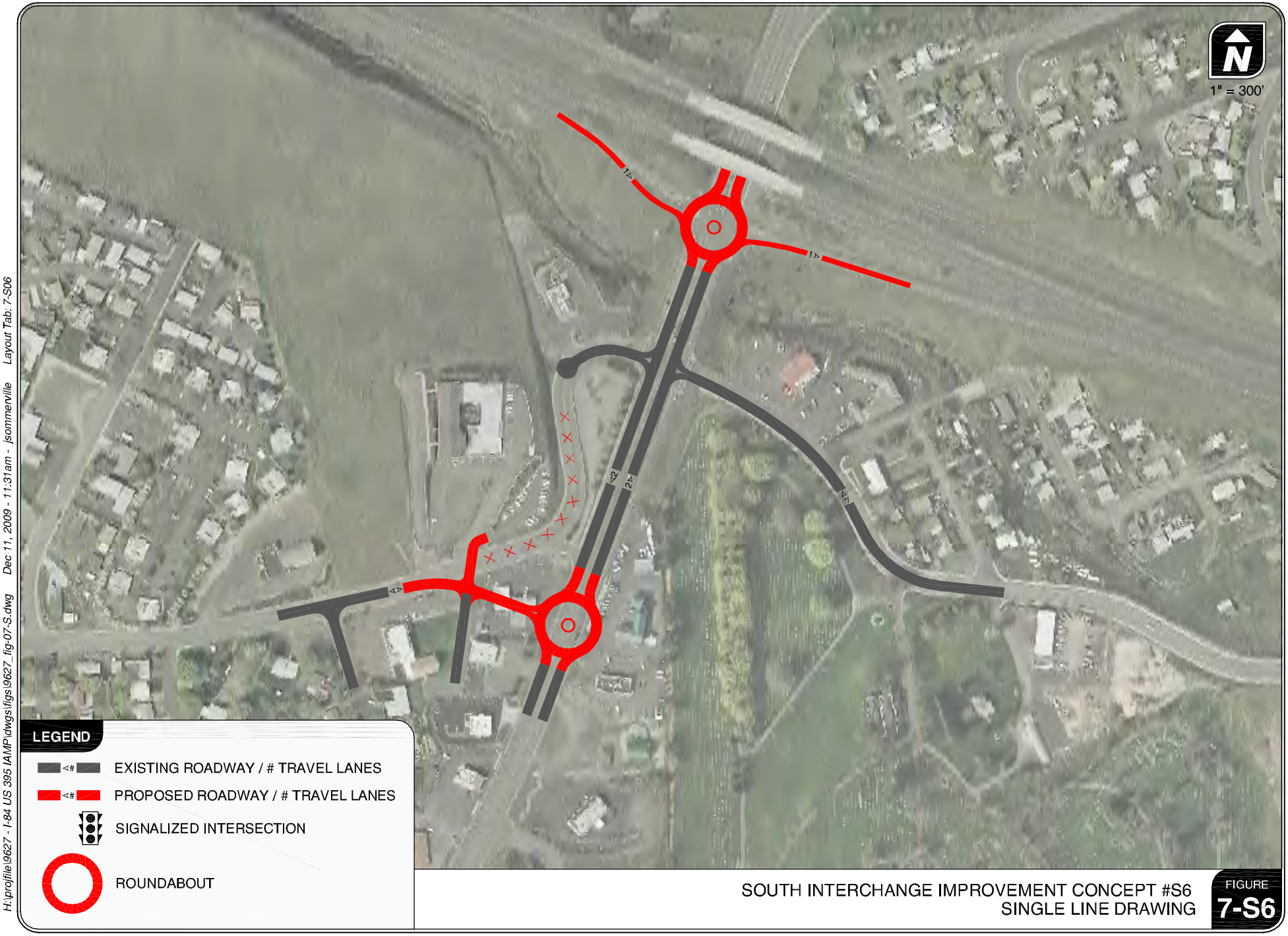


SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S5
SINGLE LINE DRAWING

FIGURE 7-S5

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

C:\DOCUME~1\JSOMME~1\LOCALS~1\Temp\AcPublish_4992\9627_fig-07-S.dwg Nov 19, 2009 - 12:52pm - jsommerville Layout Tab: 7-S05

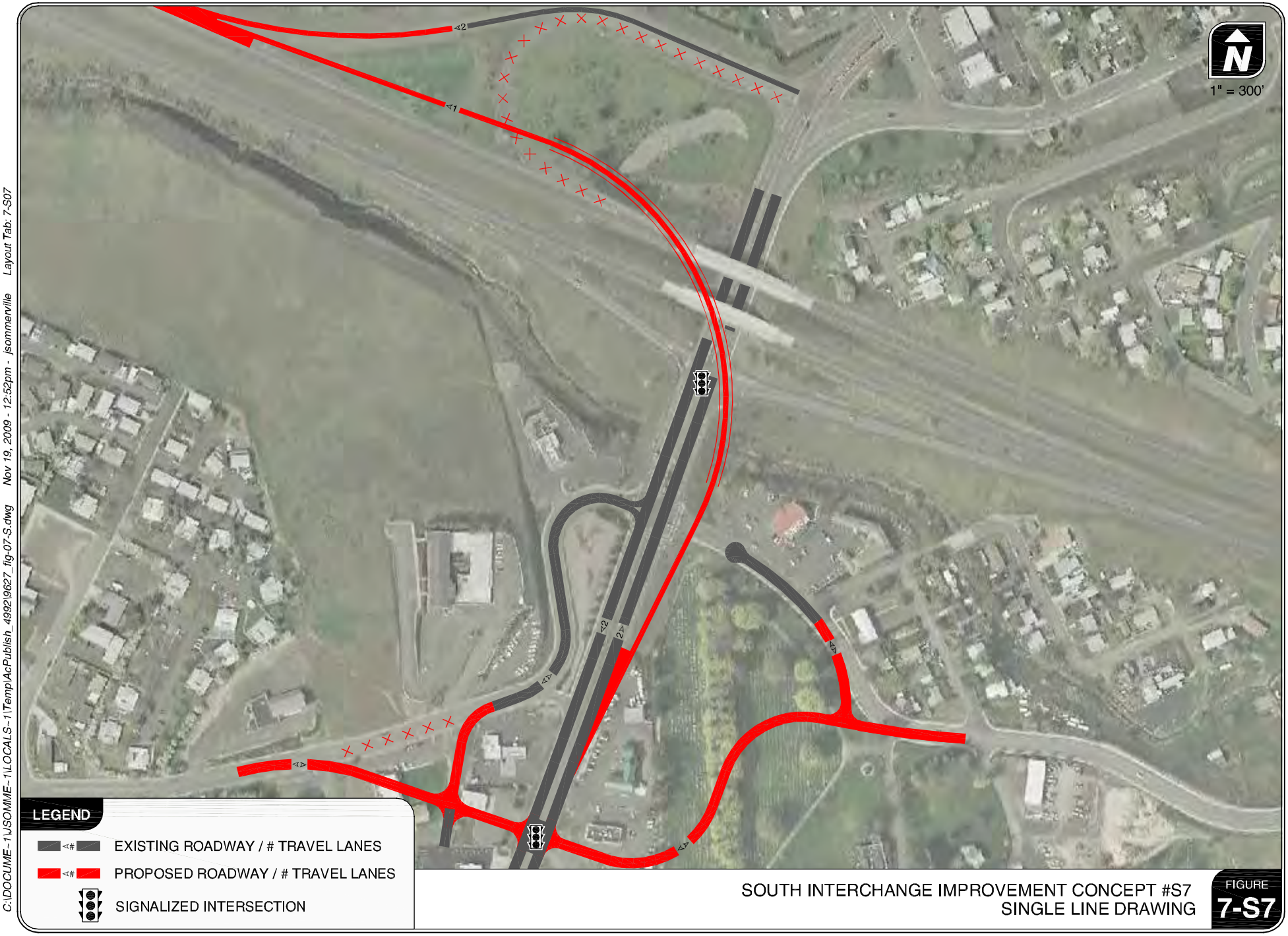


SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S6
SINGLE LINE DRAWING

FIGURE 7-S6

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

H:\projfile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_fig-07-S.dwg Dec 11, 2009 - 11:31am - jsommerville Layout Tab: 7-S06



SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S7
SINGLE LINE DRAWING

FIGURE 7-S7

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

C:\DOCUME~1\JSOMME~1\LOCALS~1\Temp\AcPublish_4992\9627_fig-07-S.dwg Nov 19, 2009 - 12:52pm - jsommerville Layout Tab: 7-S07

SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S8
SINGLE LINE DRAWING

FIGURE 7-S8

H:\projfile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_fig-07-S.dwg Dec 11, 2009 - 11:44am - jsommerville Layout Tab: 7-S08

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S9
SINGLE LINE DRAWING

FIGURE 7-S9

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

C:\DOCUME~1\JSOMME~1\LOCALS~1\Temp\AcPublish_4992\9627_fig-07-S.dwg Nov 19, 2009 - 12:53pm - jsommerville Layout Tab: 7-S09

SOUTH INTERCHANGE IMPROVEMENT CONCEPT #S13
SINGLE LINE DRAWING

FIGURE 7-S13

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

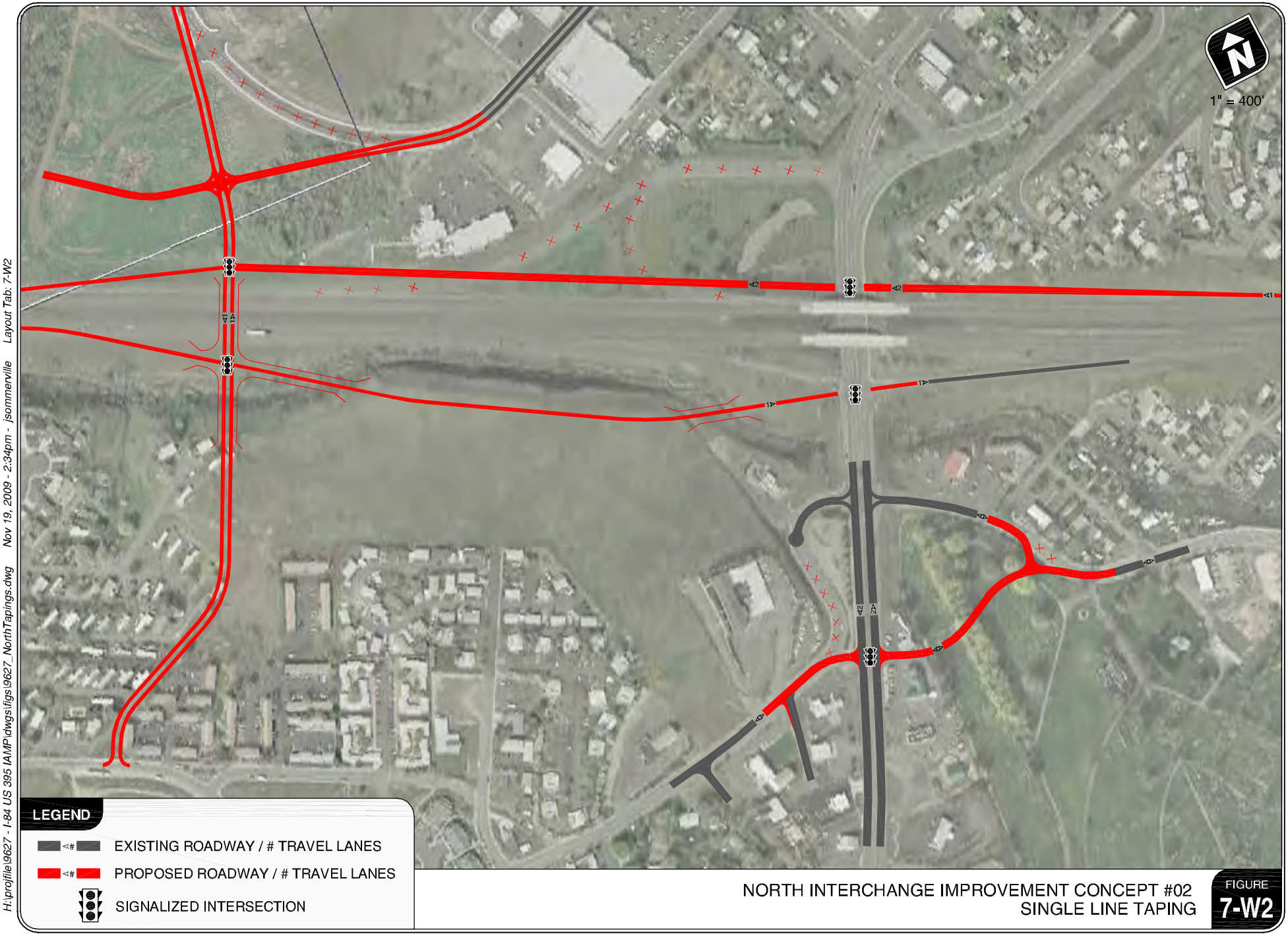
H:\projfile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_fig-07-S.dwg Mar 24, 2010 - 3:41pm - jsommerville Layout Tab: 7-S13

WEST INTERCHANGE IMPROVEMENT CONCEPT #W1
SINGLE LINE TAPING

FIGURE 7-W1

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

C:\DOCUME~1\JSOMME~1\LOCALS~1\Temp\AcPublish_4992\9627_NorthTapings.dwg Nov 19, 2009 - 1:00pm - jsommerville Layout Tab: 7-W1



NORTH INTERCHANGE IMPROVEMENT CONCEPT #02
SINGLE LINE TAPING

FIGURE 7-W2

H:\profile\9627 - I-84 US 395 IAMP\dwgs\figs\9627_NorthTaplings.dwg Nov 19, 2009 - 2:34pm - jsommerville Layout Tab: 7-W2

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

Appendix B
Operational Analyses Results for Initially Screened Out Concepts

SIDRA INTERSECTION

Movement Summary

I-84 WB/US 395/SW Emigrant Ave-SW Frazer Ave/SW 20th St

N3 (S3A2 Volumes)

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
US 395										
3L	L	148	2.0	0.646	13.6	LOS B	178	0.58	0.68	28.4
8T	T	673	1.9	0.646	6.5	LOS A	178	0.58	0.55	31.7
8R	R	705	2.0	0.645	7.7	LOS A	178	0.58	0.60	31.1
Approach		**1525**	**2.0**	**0.645**	**7.8**	**LOS A**	**178**	**0.58**	**0.59**	**31.1**
SW Emigrant - SW Frazer Ave										
1L	L	821	1.9	0.835	28.4	LOS C	309	0.98	1.28	22.6
6T	T	37	2.7	0.841	21.1	LOS C	309	0.98	1.27	24.8
6R	R	215	1.9	0.836	22.3	LOS C	309	0.98	1.26	24.2
Approach		**1072**	**2.0**	**0.835**	**26.9**	**LOS C**	**309**	**0.98**	**1.27**	**23.0**
SW 20th St										
7L	L	120	1.7	1.091	74.9	LOS E	792	1.00	2.09	13.2
4T	T	1042	2.0	1.088	67.3	LOS E	822	1.00	2.11	13.5
4R	R	48	2.1	1.091	68.2	LOS E	822	1.00	2.12	13.3
Approach		**1210**	**2.0**	**1.088**	**68.1**	**LOS E**	**822**	**1.00**	**2.11**	**13.5**
I-84 WB										
5L	L	48	2.1	0.255	25.7	LOS C	34	0.86	0.97	23.6
2T	T	5	16.7	0.261	18.7	LOS B	34	0.86	0.93	25.9
2R	R	201	2.0	0.510	17.8	LOS B	93	0.87	1.02	26.3
Approach		**255**	**2.4**	**0.510**	**19.3**	**LOS B**	**93**	**0.87**	**1.01**	**25.7**
All Vehicles		**4062**	**2.0**	**1.091**	**31.5**	**LOS C**	**822**	**0.83**	**1.25**	**20.8**

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue

SIDRA INTERSECTION

Movement Summary

I-84 WB/US 395/SW Emigrant Ave-SW Frazer Ave/SW 20th St

N4 (S3A2 Volumes)

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
US 395										
3L	L	148	2.0	0.362	13.2	LOS B	70	0.41	0.68	28.9
8T	T	673	1.9	0.362	6.1	LOS A	70	0.41	0.51	32.6
8R	R	705	2.0	0.443	6.1	LOS B#	18#	0.00	0.50	34.0
Approach		**1525**	**2.0**	**0.443**	**6.8**	**LOS A**	**70**	**0.22**	**0.52**	**32.7**
SW Emigrant - SW Frazer Ave										
1L	L	821	1.9	0.739	20.2	LOS C	184	0.83	1.09	25.9
6T	T	37	2.7	0.740	12.9	LOS B	184	0.83	1.04	29.1
6R	R	215	1.9	0.738	14.2	LOS B	184	0.83	1.06	28.3
Approach		**1072**	**2.0**	**0.739**	**18.7**	**LOS B**	**184**	**0.83**	**1.08**	**26.4**
SW 20th St										
7L	L	120	1.7	1.043	59.1	LOS E	653	1.00	1.88	15.4
4T	T	1042	2.0	1.041	51.6	LOS D	676	1.00	1.89	16.0
4R	R	48	2.1	1.043	52.4	LOS D	676	1.00	1.90	15.8
Approach		**1210**	**2.0**	**1.041**	**52.3**	**LOS D**	**676**	**1.00**	**1.89**	**15.9**
I-84 WB										
5L	L	48	2.1	0.264	26.4	LOS C	35	0.87	0.97	23.3
2T	T	5	16.7	0.261	19.3	LOS B	35	0.87	0.94	25.6
2R	R	201	2.0	0.529	18.8	LOS B	98	0.88	1.03	25.8
Approach		**255**	**2.4**	**0.529**	**20.2**	**LOS C**	**98**	**0.88**	**1.02**	**25.3**
All Vehicles		**4062**	**2.0**	**1.043**	**24.4**	**LOS C**	**676**	**0.66**	**1.11**	**23.5**

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue

SIDRA INTERSECTION

Movement Summary

I-84 WB/US 395/SW Emigrant Ave-SW Frazer Ave/SW 20th St

N5 (S3A2 Volumes) - North Intersection

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
South Intersection										
3L	L	869	2.0	0.275	12.7	LOS B	0	0.00	0.72	29.9
Approach		**869**	**2.0**	**0.275**	**12.7**	**LOS B**		**0.00**	**0.72**	**29.9**
SW Emigrant Ave										
4T	T	858	2.0	0.673	12.0	LOS B	148	0.75	0.97	29.7
4R	R	215	1.9	0.673	13.1	LOS B	148	0.75	0.99	28.9
Approach		**1072**	**2.0**	**0.673**	**12.2**	**LOS B**	**148**	**0.75**	**0.98**	**29.5**
SW 20th St										
2R	R	1211	2.0	0.978	34.3	LOS C	480	1.00	1.59	19.9
Approach		**1210**	**2.0**	**0.978**	**34.3**	**LOS C**	**480**	**1.00**	**1.59**	**19.9**
All Vehicles		**3151**	**2.0**	**0.978**	**20.8**	**LOS C**	**480**	**0.64**	**1.14**	**25.1**

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement

SIDRA SOLUTIONS

Site: NorthIntersection
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SIDRA INTERSECTION

Movement Summary

I-84 WB/US 395/SW Emigrant Ave-SW Frazer Ave/SW 20th St

N6 (S3A2 Volumes)

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
US 395										
3L	L	148	2.0	0.565	12.7	LOS B	152	0.34	0.63	29.1
8T	T	673	1.9	0.565	5.6	LOS A	153	0.34	0.44	33.0
8R	R	705	2.0	0.565	6.9	LOS A	153	0.33	0.50	32.2
Approach		**1525**	**2.0**	**0.565**	**6.9**	**LOS A**	**153**	**0.33**	**0.49**	**32.2**
SW Emigrant - SW Frazer Ave										
1L	L	821	1.9	0.784	25.4	LOS C	258	0.92	1.21	23.7
6T	T	37	2.7	0.787	18.1	LOS B	258	0.92	1.18	26.2
6R	R	215	1.9	0.784	19.4	LOS B	258	0.92	1.18	25.5
Approach		**1072**	**2.0**	**0.784**	**24.0**	**LOS C**	**258**	**0.92**	**1.20**	**24.1**
SW 20th St										
7L	L	12	8.3	1.000	42.3	LOS D	456	1.00	1.55	18.7
4T	T	1042	2.0	0.975	34.7	LOS C	469	1.00	1.56	19.9
4R	R	48	2.1	0.980	35.5	LOS D	469	1.00	1.56	19.6
Approach		**1102**	**2.1**	**0.974**	**34.9**	**LOS C**	**469**	**1.00**	**1.56**	**19.9**
I-84 WB										
5L	L	48	2.1	0.254	25.6	LOS C	33	0.86	0.97	23.7
2T	T	5	16.7	0.250	18.5	LOS B	33	0.86	0.93	26.0
2R	R	201	2.0	0.505	17.6	LOS B	92	0.87	1.02	26.4
Approach		**255**	**2.4**	**0.505**	**19.1**	**LOS B**	**92**	**0.87**	**1.01**	**25.8**
All Vehicles		**3954**	**2.0**	**1.000**	**20.1**	**LOS C**	**469**	**0.71**	**1.01**	**25.1**

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue

SIDRA INTERSECTION

Movement Summary

US 395 / I-84 SPUI

N12 (S1A1)

Single point interchange - Pretimed **Cycle Time = 120 seconds**

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
US 395										
3L	L	139	2.2	1.135	170.2	LOS F	376	1.00	1.28	8.0
8T	T	1243	2.0	1.027	54.1	LOS D	2416	1.00	1.29	15.5
8R	R	212	1.9	0.168	10.3	LOS B	39	0.08	0.68	34.6
Approach		**1595**	**2.0**	**1.136**	**58.4**	**LOS E**	**2416**	**0.88**	**1.21**	**15.3**
I-84 WB										
1L	L	192	2.1	1.063	148.4	LOS F	457	1.00	1.07	7.9
6R	R	62	1.6	0.129	41.1	LOS D	91	0.75	0.78	21.1
Approach		**255**	**2.0**	**1.063**	**122.3**	**LOS F**	**457**	**0.94**	**1.00**	**9.3**
US 395										
7L	L	92	2.2	1.070	106.5	LOS F	1029	1.00	1.34	11.6
4T	T	1684	2.0	1.071	74.7	LOS E	2664	1.00	1.39	12.5
4R	R	83	2.4	0.066	10.2	LOS B	16	0.08	0.67	34.6
Approach		**1860**	**2.0**	**1.071**	**73.4**	**LOS E**	**2664**	**0.96**	**1.36**	**12.9**
I-84 EB										
5L	L	79	2.5	0.195	46.4	LOS D	127	0.80	0.78	19.5
2R	R	311	1.9	0.646	54.6	LOS D	419	0.92	0.94	17.4
Approach		**391**	**2.0**	**0.646**	**52.9**	**LOS D**	**419**	**0.90**	**0.91**	**17.8**
All Vehicles		**4101**	**2.0**	**1.135**	**68.7**	**LOS E**	**2664**	**0.92**	**1.23**	**13.8**

Pedestrian Movements

Mov ID	Dem Flow (ped/h)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate
P1	2	36.0	LOS D	0	0.77	0.77

SIDRA INTERSECTION

Movement Summary

SW Hailey Ave-SW Tutuilla Creek Rd/US 395

S4 (S3A2)

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
US 395										
3L	L	13	7.7	0.684	19.5	LOS B	186	0.85	1.07	26.2
8T	T	920	2.0	0.697	12.4	LOS B	186	0.85	1.03	29.4
8R	R	96	2.1	0.696	13.6	LOS B	186	0.85	1.04	28.6
Approach		**1028**	**2.0**	**0.697**	**12.6**	**LOS B**	**186**	**0.85**	**1.03**	**29.3**
SW Tutuilla Creek Rd										
1L	L	66	1.5	0.451	20.2	LOS C	71	0.79	0.99	25.9
6T	T	39	2.6	0.453	13.1	LOS B	71	0.79	0.93	29.0
6R	R	81	2.4	0.453	14.2	LOS B	71	0.79	0.95	28.3
Approach		**186**	**2.2**	**0.452**	**16.1**	**LOS B**	**71**	**0.79**	**0.96**	**27.5**
US 395										
7L	L	279	2.1	0.851	13.9	LOS B	385	0.82	0.62	27.8
4T	T	1359	2.0	0.850	6.8	LOS A	387	0.81	0.56	30.6
4R	R	525	1.9	0.850	8.0	LOS A	387	0.80	0.58	30.2
Approach		**2164**	**2.0**	**0.850**	**8.0**	**LOS A**	**387**	**0.81**	**0.57**	**30.1**
SW Hailey Ave										
5L	L	383	2.1	0.694	31.4	LOS C	156	0.94	1.13	21.6
2T	T	48	2.1	0.696	23.2	LOS C	156	0.95	1.12	23.9
2R	R	6	14.3	0.700	24.4	LOS C	156	0.95	1.12	23.3
Approach		**439**	**2.3**	**0.695**	**30.4**	**LOS C**	**156**	**0.94**	**1.13**	**21.9**
All Vehicles		**3817**	**2.0**	**0.851**	**12.2**	**LOS B**	**387**	**0.84**	**0.78**	**28.5**

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue

SIDRA INTERSECTION

Movement Summary

US 395/SW Hailey Ave-Tutuilla Creek Rd

S5 (S3A2)

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
US 395										
3L	L	13	7.7	0.684	19.5	LOS B	186	0.85	1.07	26.2
8T	T	909	2.0	0.697	12.4	LOS B	186	0.85	1.03	29.4
8R	R	106	1.9	0.697	13.6	LOS B	186	0.85	1.04	28.6
Approach		**1028**	**2.0**	**0.697**	**12.6**	**LOS B**	**186**	**0.85**	**1.03**	**29.3**
Tutuilla Creek Rd										
1L	L	66	1.5	0.294	19.6	LOS B	40	0.76	0.94	26.1
6T	T	39	2.6	0.293	12.6	LOS B	40	0.76	0.88	29.3
6R	R	281	2.1	0.515	13.0	LOS B	93	0.81	0.97	29.0
Approach		**386**	**2.1**	**0.515**	**14.1**	**LOS B**	**93**	**0.80**	**0.96**	**28.5**
US 395										
7L	L	279	2.1	0.848	13.9	LOS B	383	0.81	0.62	27.8
4T	T	1359	2.0	0.849	6.8	LOS A	384	0.81	0.56	30.7
4R	R	525	1.9	0.850	8.0	LOS A	384	0.80	0.58	30.2
Approach		**2164**	**2.0**	**0.850**	**8.0**	**LOS A**	**384**	**0.80**	**0.57**	**30.1**
SW Hailey Ave										
5L	L	383	2.1	0.692	31.3	LOS C	155	0.94	1.13	21.7
2T	T	48	2.1	0.696	23.1	LOS C	155	0.95	1.12	23.9
2R	R	6	14.3	0.700	24.3	LOS C	155	0.95	1.12	23.4
Approach		**439**	**2.3**	**0.692**	**30.3**	**LOS C**	**155**	**0.94**	**1.13**	**21.9**
All Vehicles		**4017**	**2.0**	**0.850**	**12.2**	**LOS B**	**384**	**0.83**	**0.79**	**28.5**

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue

SIDRA INTERSECTION

Movement Summary

I-84 EB Ramps/US 395

S6 (S3A2)

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
US 395										
3L	L	105	1.9	0.802	20.4	LOS C	329	0.85	0.90	26.2
8T	T	1437	2.0	0.801	10.8	LOS B	329	0.85	0.85	30.5
8R	R	154	1.9	0.802	12.0	LOS B	329	0.85	0.86	29.6
Approach		**1696**	**2.0**	**0.801**	**11.5**	**LOS B**	**329**	**0.85**	**0.85**	**30.0**
US 395										
7L	L	168	1.8	0.804	13.6	LOS B	336	0.71	0.61	28.1
4T	T	1896	2.0	0.803	6.4	LOS A	338	0.70	0.53	31.1
Approach		**2064**	**2.0**	**0.804**	**7.0**	**LOS A**	**338**	**0.70**	**0.54**	**30.8**
I-84 EB										
5L	L	111	1.8	0.542	32.5	LOS C	88	0.92	1.07	21.3
2T	T	8	11.1	0.529	25.4	LOS C	88	0.92	1.04	23.0
2R	R	291	2.1	1.183	129.4	LOS F	642	1.00	2.03	8.4
Approach		**410**	**2.2**	**1.183**	**101.1**	**LOS F**	**642**	**0.98**	**1.75**	**10.3**
All Vehicles		**4170**	**2.0**	**1.183**	**18.1**	**LOS B**	**642**	**0.79**	**0.78**	**25.5**

Symbols which may appear in this table:

Following Degree of Saturation
x = 1.00 for Short Lane with resulting Excess Flow
* x = 1.00 due to minimum capacity

Following LOS
- Based on density for continuous movements

Following Queue
- Density for continuous movement

SIDRA SOLUTIONS

Site: I-84EB
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Appendix G

Technical Memorandum #7b – Quantitative Analysis of Screened Concepts

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DRAFT TECHNICAL MEMORANDUM 7b

I-84 / US 395 Interchange Area Management Plan

Quantitative Analysis of Screened Concepts

Date: March 29, 2010 Project : 9627.0

To: Patrick Knight, ODOT Region 5

From: Matt Hughart, AICP, Nick Foster, and Marc Butorac, P.E., P.T.O.E.

cc: Technical Advisory Committee (TAC)
Public Advisory Committee (PAC)

This technical memorandum is the second part of Technical Memorandum 7 that documents the evaluation and preliminary ranking of a select group of interchange/local circulation concepts. This group of interchange/local circulation concepts was chosen by the TAC and PAC committees from the original north-side and south-side concepts presented in Technical Memorandum 7a to undergo a more detailed technical assessment. Included in this memorandum is an overview of the screening process that pared the original set of twelve north-side, fourteen south-side, and two west-side concepts down to three north-side concepts and three south-side concepts.

The purpose of this memorandum is to provide the TAC and PAC committee members with a detailed assessment of the pared down north-side and south-side concepts, and to assist in the process that will ultimately select a preferred interchange and local circulation form for inclusion in the interchange area management plan (IAMP).

INITIAL NORTH-SIDE AND SOUTH-SIDE SCREENING RESULTS

As presented in Technical Memorandum 7a, twelve north-side and fourteen south-side interchange and local circulation concepts were developed through three separate workshop exercises involving members of the TAC, PAC, and attendees at a public open house held on August 26, 2009, as well as subsequent meetings with all three groups. These concepts represented a culmination of individual design ideas, roadway alignment preferences, and technical design parameters developed by the workshop participants and the consultant team. At two separate meetings on January 7, 2010 and February 18, 2010, the TAC and PAC were presented with general descriptions, graphical layout illustrations, and a qualitative assessment of the various advantages/disadvantages of the north-side and south-side concepts. Upon reviewing the preliminary interchange layouts and advantages and disadvantages of each, both

the TAC and PAC committee members assisted in the screening of concepts that would move forward for a more detailed quantitative evaluation.

After going through the screening process, the TAC and PAC committees deemed that there were a large number of concepts that either did not adequately address current and future operational/safety issues, had significant land use/property impacts, or posed significant cost/constructability problems. Those concepts and the main issues behind their elimination for further study are detailed in Technical Memorandum 7a. For summary purposes, they are briefly outlined in Table 7b-1 below.

While the consultant team and project committees eliminated the majority of interchange concepts for further study, a number of concepts were determined to have qualities that merited further technical evaluation. Concepts N1, N10, and N11c on the north side and Concepts S11a, S11b, and S13 were selected for further technical evaluation. Table 7b-1 below summarizes the concept recommendation process and lists the final set of concepts that were chosen to move forward in the next evaluation phase.

Table 7b-1 Recommended List of Concepts to Move Forward in the Evaluation Process

Concepts	Recommended for Further Evaluation by the TAC	Recommended for Further Evaluation by the PAC	Final Selection / Primary Disadvantages to Concept
North-Side Concepts			
N1	Yes	Yes	Yes
N1a	No	No	No – Does not address capacity issues, Constructability
N1b	No	No	No – Constructability, Cost
N2	No	No	No – Capacity, Safety
N3	No	No	No – Capacity
N4	No	No	No – Capacity
N5	No	No	No – Capacity
N6	No	No	No – Capacity, Does not address issues
N7	No	No	No – Land use impacts
N8	No	No	No – Constructability, Land use impacts
N9	No	No	No - Constructability, Land use impacts
N10	Yes	Yes	Yes
N11a	Further Policy Evaluation-[1]	Further Policy Evaluation -[1]	No – Policy, Constructability
N11b	Further Policy Evaluation -[1]	Further Policy Evaluation -[1]	No – Policy, Constructability
N11c	Further Policy Evaluation -[1]	Further Policy Evaluation -[1]	Yes
N12	No	No	No – Capacity, Constructability
South-Side Concepts			
S1	No	No	No – Impacts to Olney Cemetery

S2	No	No	No – Impacts to Olney Cemetery
S3	No	No	No – Impacts to Olney Cemetery
S4	No	No	No - Capacity, Constructability, Impacts to Olney Cemetery
S5	No	No	No - Capacity, Constructability, Impacts to Olney Cemetery
S6	No	No	No - Capacity, Constructability, Impacts to Olney Cemetery
S7	No	No	No – Does not address issues, Constructability
S8	No	No	No – Constructability, Impacts to Olney Cemetery
S9	No	No	No – Impacts to Olney Cemetery
S10	No	No	No – Constructability
S11a	Yes	Yes	Yes
S11b	Yes	Yes	Yes
S12	No	No	No – Constructability
S13	No	No	Yes
S14	No	No	No – Constructability
West-Side Concepts			
W1	No	No	No - Does not address interchange issues
W2	No	No	No – Constructability, Land use impacts

[1]Given the uniqueness of the interchange forms, the TAC and PAC committees requested that ODOT staff review Concepts N11a, N11b, and N11c to determine if state and federal policy criteria could be met. Based on this internal review, only Concept N11c was determined to have a form that could meet these criteria.

SELECTED INTERCHANGE/LOCAL CIRCULATION CONCEPTS

As previously stated, the TAC and PAC committees selected Concepts N1, N10, and N11c and Concepts S11a, S11b, and S13 to move forward for a more detailed quantitative evaluation. Based on this direction, the consultant team performed additional technical refinements to the roadway layouts and interchange design forms. While these refinements do not change the main design components of the original layouts, alignment and capacity modifications were made to better reflect geometric, topographical, and operational constraints. A description and illustration of the refined Concepts are provided in the sections below.

North-Side Concepts

Concept N1

Concept N1, as modified through the technical refinement process, is illustrated in Figure 7b-1. The basic elements of this concept do not change from the preliminary single-line drawing. In

essence, this concept aligns the SW 20th Street and US 395 travel corridors. A new I-84 WB ramp terminal/SW Emigrant Avenue intersection will be developed at the junction of these two alignments. Through the technical refinement process, a number of additions and modifications were made to address concerns and comments brought up in the previous committee discussions. These include:

- To achieve long-term capacity at the new I-84 WB ramp terminal/SW Emigrant Avenue intersection, the US 395/SW 20th Street alignment will need two northbound through travel lanes resulting in a full five-lane cross section on SW 20th Street.
- The SW Court Place/SW 20th Street intersection will need dual WB left-turn lanes from SW Court Place onto SW 20th Street to accommodate long-term traffic projections.
- A raised median will be needed along the new SW 20th Street alignment between SW Court Place and SW Emigrant Avenue. At a minimum, existing streets (SW Dorion Avenue) and commercial driveways would be limited to right-in/right-out movements along this roadway segment.

Concept N10

Concept N10, as modified through the technical refinement process, is illustrated in Figure 7b-2. In general, this concept creates a one-way couplet along the SW 17th Street and SW 20th Street corridors between SW Frazer Avenue and SW Court Place. Through the technical refinement process, a number of additions and modifications were made to address concerns and comments brought up in the previous committee discussions. These include:

- Signalization of the SW Frazer Avenue/SW 17th Street, SW Emigrant Avenue/SW 17th Street, and SW Court Place/SW 17th Street intersections. At the SW Court Place/SW 17th Street intersection, signalization will need to be coordinated with the adjacent rail line to ensure vehicle queue spillback concerns are accounted for.
- The SW Court Place/SW 20th Street intersection will need dual WB left-turn lanes from SW Court Place onto SW 20th Street to accommodate increased traffic volumes brought about by the couplet concept.

Concept N11c

Concept N11c, as modified through the technical refinement process, is illustrated in Figure 7b-3. This concept involves closing the existing WB ramp terminal intersection with US 395 and developing a new I-84 WB interchange terminal further to the west off of SW Court Place. Through the technical refinement process, a number of additions and modifications were made to address concerns and comments brought up in the previous committee discussions. These include:

- The ramp terminal intersection was moved further west along SW Court Place to increase the spacing for existing and future intersections and eliminate all impacts to the existing Oxford Suites hotel.

- The WB off-ramp was lengthened to better address the shorter deceleration distances provided under the original concept layout. The impacts of the off-ramp lengthening are somewhat accommodated by the repositioning of the ramp terminal intersection along SW Court Place.

South-Side Concepts

Concept S11a

Concept S11a, as modified through the technical refinement process, is illustrated in Figure 7b-4. This concept is designed to address the problematic southbound left-turn movement at the existing US 395/SW Hailey Avenue -SW Tutuilla Creek Road intersection. In general, the concept involves the development of a new US 395/SW Hailey Avenue intersection located approximately 1,100 feet south of the existing I-84/US 395 EB ramp terminal. This new intersection would be the primary US 395 connection for SW Hailey Avenue. In addition, the new intersection would include a connection to SW Tutuilla Creek Road via a new one-way northbound frontage road that would parallel US 395. This frontage road connection would allow the problematic southbound left-turn movement at the existing US 395/ SW Hailey Avenue -SW Tutuilla Creek Road intersection to be closed and moved to this location where there is a greater amount of storage length available. Through the technical refinement process, a number of additions and modifications were made to address concerns and comments brought up in the previous committee discussions. These include:

- The existing Denny's and Econo Lodge access driveways to SW Tutuilla Creek Road would need to be closed or modified to right-in/right-out access with a new full access connection provided off of the adjacent SW Hailey Avenue corridor.
- Northbound and southbound right-turn lanes would need to be developed along US 395 at the new SW Hailey Avenue intersection to better accommodate long-term traffic demand.

Concept S11b

Concept S11b, as modified through the technical refinement process, is illustrated in Figure 7b-5. This concept is similar to Concept S11a; however, it completely eliminates the existing US 395/ SW Hailey Avenue -SW Tutuilla Creek Road intersection by rerouting both directions of SW Tutuilla Creek Road further to the south via a new parallel roadway to US 395. The SW Tutuilla Creek Road reroute would connect to US 395 at a new signalized intersection located approximately 1,320 feet south of the existing EB ramp terminal intersection. This new signalized intersection would also accommodate a new alignment of SW Hailey Avenue. Through the technical refinement process these additions were made to address concerns and comments brought up in the previous committee discussions:

- Northbound and southbound right-turn lanes would need to be developed along US 395 at the new SW Hailey Avenue-SW Tutuilla Creek Road intersection to better accommodate long-term traffic demand.

Concept S13

Concept S13 focuses on the development of a new east-west collector roadway that would connect US 395 with SW Tutuilla Creek Road on a new alignment located at the southern edge of the Olney Cemetery. The alignment would connect to US 395 via the existing SW 30th Street corridor and to SW Tutuilla Creek Road south of the SW Marshall Avenue intersection. Figure 7b-6 illustrates Concept S13.

DETAILED QUANTITATIVE EVALUATION

After the technical refinement of the north-side and south-side interchange and local circulation concepts, a more detailed evaluation of each concept was performed. This detailed evaluation centered on the formally adopted set of evaluation criteria developed during the initial stages of the I-84/US 395 IAMP study process. These evaluation criteria were assembled to ensure that each concept would be evaluated for consistency with the overall adopted evaluation criteria. Five broad evaluation criteria were formally adopted as outlined below:

- Transportation Operations – This category consists of those criteria that assess the ability for motorized and non-motorized vehicles to travel through and within the study area.
- Land Use – This category consists of those criteria that assess right-of-way impacts, the consistency with adopted land use plans, and economic development impacts.
- Cost – This category consists of those criteria that assess the practicality of a concept from a construction cost and feasibility perspective.
- Environmental, Social, and Equity – This category consists of those criteria that assess the degree to which a concept is compatible with the natural and built environment.
- Accessibility – This category consists of those criteria that assess the degree to which a concept meets or moves toward ODOT's access spacing standards within the vicinity of an interchange.

Detailed descriptions of the five broad evaluation criteria along with the accompanying sub-criteria are provided in Appendix "A."

To help determine how to rank each of the Concepts according to the evaluation criteria, a scoring system was developed. In essence, each evaluation criterion was assigned a range of numerical values (+2, +1, 0, -1, -2 for example). A definition specific to the evaluation criterion was then assigned to each value, (i.e. "+2" for a "Significant Increase…" and a "-2" for a "Significant Decrease…"). The specific scoring definitions for each criterion are also provided in Appendix "A." Using the unique scoring system for each evaluation criterion, Concepts N1, N10, N11c, S11a, S11b, and S13 were carefully evaluated and scored by the consultant team. The following

paragraphs summarize the overall process that was undertaken for each evaluation criterion followed by the evaluation summary tables.

Transportation Operations Scoring

The transportation related evaluation criteria included the enhancement of intersection capacity, enhanced travel safety, accommodation of multi-modal options, and maintenance of a viable local circulation network. All four criteria were evaluated based on a thorough review of the Concept layouts and general transportation related observations. Table 7b-2 summarizes the Transportation Operations evaluation for each Concept.

Land Use Scoring

To characterize the land use impacts, the project team quantitatively assessed the estimated right-of-way and residential/business displacements for each concept. Qualitative assessments were made for the utility impacts, the consistency with adopted land use plans, and the ability of each concept to support continued or further economic development. Table 7b-3 summarizes the Land Use evaluation for each Concept.

Cost

To evaluate the overall cost component, a detailed preliminary cost estimate was prepared for each Concept. Summary worksheets associated with these estimates are provided in Appendix "B." The construction feasibility evaluation focused on the ability to build the new interchange and ramp features of each Concept while still maintaining the ability to accommodate existing traffic volumes. Table 7b-4 summarizes the Cost evaluation for each Concept.

Environmental / Social Impacts

To characterize the environment/social impacts, the project team conducted a high level windshield survey of basic environmental resources in the project area. Environmental resources included creeks, rivers, visible wetlands, public parks and recreation sites and other cultural/historical interests. Table 7b-5 summarizes the Environmental / Social Impacts evaluation for each Concept.

Accessibility

To evaluate the overall accessibility of properties and businesses within the study area, a qualitative thought process was applied to each concept that focused on the application of adopted access management policies in Oregon Administrative Rule 734-51 and the Oregon Highway Plan. Table 7b-6 summarizes the Accessibility evaluation for each concept.

Table 7b-2 Detailed Transportation Analysis

Evaluation Criterion: Transportation Operations

Concept Scoring						
	North-Side Concepts			South-Side Concepts		
Specific Criteria	**Concept N1**	**Concept N10**	**Concept N11c**	**Concept S11a**	**Concept S11b**	**Concept S13**
Provide Mobility with Adequate Capacity	+1	+1	+1	+1	+2	+1
Enhance Travel Safety for All Modes of Transportation	+2	+2	+2	+1	+2	+1
Enhance Multimodal Options	+1	0	0	0	-1	+1
Maintain a Local Circulation Network	0	+1	+1	0	0	-1
System Perspective (Average Score)	**1.0**	**1.0**	**1.0**	**0.5**	**0.75**	**0.50**

		Performance Evaluation Notes	
Concept	**Specific Criteria**	**Positives**	**Negatives**
Concept N1	Provide Mobility with Adequate Capacity	–	– While long-term capacity can be provided at the new WB ramp terminal intersection (v/c = 0.87), the intersection will not meet the Highway Design Manual standard of 0.70.
	Enhance Travel Safety for All Modes of Transportation	– The consolidation of multiple closely spaced intersections at the interchange will improve the overall efficiency of the north-side transportation network and resolve existing queue spillback and intersection blockage issues.	–
	Enhance Multimodal Options	– The concept provides enhanced connectivity for bicyclists and pedestrians between US 395 and SW 20th Street.	–
	Maintain a Local Circulation Network	– The alignment of SW 20th Street to US 395 can be done in a way that has minimal to no real impacts to the existing local circulation network..	–
Concept N10	Provide Mobility with Adequate Capacity	– The couplet concept can accommodate long-term capacity at the interchange ramp terminal (v/c = 0.74).The Highway Design Manual standard of 0.70 does not apply to this concept, since the interchange is not being redesigned.	–
	Enhance Travel Safety for All Modes of Transportation	– The rerouting of existing NB SW 20th Street traffic on to SW 17th Street will eliminate the existing queue spillback and intersection blockage issues.	–
	Enhance Multimodal Options	– The signalization of the WB ramp terminal will enhance bicycle and pedestrian crossings of the intersection.	– The couplet will result in some out-of-direction travel for bicyclists.
	Maintain a Local Circulation Network	– This concept modifies travel patterns on the local street network, but it does not restrict the use of any minor local streets. The one-way traffic pattern should improve operations at intersections along the local network.	–
Concept N11c	Provide Mobility with Adequate Capacity	– The new WB interchange ramp will have sufficient capacity (v/c = 0.43) and meet the standard set forth in the Highway Design Manual.	– The relocation of the interchange to SW Court Place will redistribute US 395, SW Emigrant Avenue, and SW 20th Street traffic creating a more circuitous and less conventional roadway network.
	Enhance Travel Safety for All Modes of Transportation	– The relocation of the WB interchange ramp will eliminate existing queue spillback concerns.	–
	Enhance Multimodal Options	– No significant changes will be made to the existing pedestrian and bicycle environment.	–
	Maintain a Local Circulation Network	– The concept will enhance the local street transportation network through the extension of SW 23rd Street.	–

Evaluation Criterion: Transportation Operations			
Concept S11a	Provide Mobility with Adequate Capacity	– Eliminating the US 395 SB left-turn and SW Hailey Avenue westbound through/left-turn movement from the signalized operations at the existing US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection will provide long-term capacity (v/c=0.86).	–
	Enhance Travel Safety for All Modes of Transportation	– The elimination of the US 395 SB left-turn movement onto SW Tutuilla Creek Road will eliminate the vehicle queue spillback concerns on US 395.	– The existing alignment of SW Hailey Avenue can be maintained for access to the Burger King property. However, its proposed new connection to the realigned SW Hailey Avenue roadway is too close to the US 395/SW Hailey Avenue intersection and will likely experience queue spillback issues at peak time periods.
	Enhance Multimodal Options	– This concept should not significantly affect the bicycle and pedestrian environment.	–
	Maintain a Local Circulation Network	– This concept does not significantly alter the local circulation network.	–
Concept S11b	Provide Mobility with Adequate Capacity	– Eliminating the US 395 SB left-turn, SW Hailey Avenue westbound through/left-turn movement, and the SW Tutuilla Creek Road approach from the existing US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection will allow traffic on US 395 to flow freely through this intersection.	–
	Enhance Travel Safety for All Modes of Transportation	– The removal of the signal at the existing US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection will eliminate vehicle queue spillback concerns on US 395.	–
	Enhance Multimodal Options	–	– Bicyclists traveling southbound on US 395 to SW Tutuilla Creek Road will have to travel out-of-direction up a steep grade to access the realigned SW Tutuilla Creek Road intersection unless a multi-use path on the east side of US 395 between the I-84 EB ramp terminals and SW Tutuilla Creek Road is provided.
	Maintain a Local Circulation Network	–	– This concept does not significantly alter the local circulation network; however it does create some minor out-of-direction travel for SW Tutuilla Creek Road.
Concept S13	Provide Mobility with Adequate Capacity	– Eliminating the US 395 SB left-turn and SW Hailey Avenue westbound through/left-turn movement from the signalized operations at the existing US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection will provide long-term capacity (v/c=0.86).	–
	Enhance Travel Safety for All Modes of Transportation	– The elimination of the US 395 SB left-turn movement onto SW Tutuilla Creek Road will eliminate the vehicle queue spillback concerns on US 395.	– The existing alignment of SW Hailey Avenue can be maintained for access to the Burger King property. However, its proposed new connection to the realigned SW Hailey Avenue roadway is too close to the US 395/SW Hailey Avenue intersection and will likely experience queue spillback issues at peak time periods.
	Enhance Multimodal Options	– The enhanced connectivity provided by this concept should reduce out-of-direction travel for bicyclists.	–
	Maintain a Local Circulation Network	– This concept will enhance the local circulation network by adding an additional connection between US 395 and Tutuilla Road.	– The existing Tutuilla Creek Road intersection at US 395 will be limited to right-in/right-out movements. This restriction will eliminate the left-turn movement from Tutuilla Creek Road to US 395 southbound, requiring out-of-direction travel to the new SW 30th Street corridor.

Table 7b-3 Detailed Land Use Analysis

Evaluation Criterion: Land Use

Concept Scoring						
	North-Side Concepts			South-Side Concepts		
Specific Criteria	**Concept N1**	**Concept N10**	**Concept N11c**	**Concept S11a**	**Concept S11b**	**Concept S13**
Right-of-Way Impacts / Displacements	-1	+1	-1	0	-1	-1
Supports Businesses and Future Economic Development	+1	0	+1	-1	-1	-2
System Perspective (Average Score)	**0.0**	**0.5**	**0.0**	**-0.5**	**-1.0**	**-1.5**

		Performance Evaluation Notes	
Concept	**Specific Criteria**	**Positives**	**Negatives**
Concept N1	Right-of-Way Impacts / Displacements	–	– The new alignment of US 395, SW 20th Street, and the WB on/off ramp would impact 15 separate tax lots and displace upwards of 9 properties currently being utilized for rental housing. – The need for dual WB left-turn lanes from SW Court Place onto SW 20th Avenue will require some right-of-way acquisition along SW Court Place. – Some roadway widening would be needed along SW 20th Street between SW Dorion Avenue and SW Court Place. – There maybe some circulation and parking impacts to the Bank of the West, Dean's Market & Deli and Wilcox Furniture properties.
	Supports Businesses and Future Economic Development	– The alignment of US 395 and SW 20th Avenue will provide a more direct connection to SW Court Place and the existing/future commercial businesses along this corridor.	–
Concept N10	Right-of-Way Impacts / Displacements	– The couplet concept will have minimal to no right-of-way needs along SW Frazer Avenue and SW 17th Street.	– The need for dual WB left-turn lanes from SW Court Place onto SW 20th Avenue will require some right-of-way acquisition along SW Court Place.
	Supports Businesses and Future Economic Development	– The efficiency of the couplet system will be a significant improvement from projected congested conditions.	– The couplet concept will create slightly longer/out-of-direction travel route for vehicles destined to the commercial corridor along SW Court Place.
Concept N11c	Right-of-Way Impacts / Displacements	–	– The development of a new interchange west of Oxford Suites will require substantial right-of-way acquisition and reduce the amount of future commercial development along SW Court Place. – The expansion of SW 23rd Street will likely require some right-of-way along the west side of the street and impact the existing Safeway truck delivery driveway.
	Supports Businesses and Future Economic Development	– The new interchange along SW Court Place would provide a more direct connection to the SW Court Place commercial corridor.	– The development of a new interchange west of Oxford Suites will reduce the amount of future commercial development along SW Court Place.
Concept S11a	Right-of-Way Impacts / Displacements	– The concept avoids a direct impact to the Olney Cemetery and existing burial sites.	– The new one-way frontage road connection to SW Tutuilla Creek Road on the east side of US 395 would displace two existing businesses (Time to Wash Car Wash and Kube Lube) and require a new access configuration to Wendy's that would likely impact two other adjacent land parcels to the south. – The realignment of SW Hailey Avenue would displace the existing 76 Gas Station and require modification to the First Church of God parking area.
	Supports Businesses and Future Economic Development	– Maintaining signalized access to the US 395/SW Tutuilla Creek Road intersection will help maintain the viability of the commercially zoned properties currently being occupied by Denny's and Econo Lodge.	– The frontage road connection to SW Tutuilla Creek Road on the east side of US 395 would eliminate existing and future commercial development. – On the west side of US 395, the SW Hailey Avenue realignment and intersection with US 395 would likely eliminate at least one commercially viable property (76 gas station).

Evaluation Criterion: Land Use			
Concept S11b	Right-of-Way Impacts / Displacements	– The concept avoids a direct impact to the Olney Cemetery and existing burial sites.	– The new two-way realignment of SW Tutuilla Creek Road on the east side of US 395 would impact five existing businesses (Denny's, Kube Lube, Time to Wash Car Wash, Wendy's, and Quis and Wells Realty) and require a new access/parking lot configuration at Econo Lodge. – The realignment of SW Hailey Avenue would directly impact the existing Starbucks, two single family homes, and require a modification to the First Church of God parking area.
	Supports Businesses and Future Economic Development	–	– The frontage road connection to SW Tutuilla Creek Road on the east side of US 395 would eliminate a larger swath of existing and future commercial development. – On the west side of US 395, the SW Hailey Avenue realignment and intersection with US 395 would likely eliminate at least one commercially viable property (Starbucks). – The elimination of the existing US 395/SW Tutuilla Creek Road intersection and subsequent rerouting of SW Tutuilla Creek Road to the south will impact the accessibility of businesses along SW Tutuilla Creek Road. – While it would still have access to US 395, the accessibility of the Burger King property for northbound vehicles on US 395 and for customers leaving the site to get back onto US 395 northbound will be impacted.
Concept S13	Right-of-Way Impacts / Displacements	– The concept avoids a direct impact to the Olney Cemetery and existing burial sites.	– The new jug handle on the east side of US 395 at the realigned SW Hailey Avenue intersection would displace two existing businesses (Time to Wash Car Wash and Kube Lube) and require a new access configuration to Wendy's that would likely impact two other adjacent land parcels to the south. – The realignment of SW Hailey Avenue would displace the existing 76 Gas Station and require modification to the First Church of God parking area. – The SW 30th Street extension would displace upwards of four existing single family homes.
	Supports Businesses and Future Economic Development	– A new east-west connection would provide additional travel alternatives between US 395 and Tutuilla Road.	– The jug handle on the east side of US 395 would eliminate existing and future commercial development. – On the west side of US 395, the SW Hailey Avenue realignment and intersection with US 395 would likely eliminate at least one commercially viable property (76 gas station). – While it would still have access to US 395, the accessibility of the Burger King property for northbound vehicles on US 395 and for customers leaving the site to get back onto US 395 northbound will be impacted. – The median at US 395/SW Tutuilla Creek Road will eliminate the left-turn movement from SW Tutuilla Creek Road on to US 395 southbound. This will reduce the viability (accessibility) of the commercially zoned properties.

Table 7b-4 Detailed Cost / Implementation Analysis

Evaluation Criterion: Cost / Implementation

Concept Scoring						
	North-Side Concepts			South-Side Concepts		
Specific Criteria	**Concept N1**	**Concept N10**	**Concept N11c**	**Concept S11a**	**Concept S11b**	**Concept S13**
Estimated Cost	-1	+1	-1	+1	+1	-1
Construction Feasibility	0	+1	-1	+1	+1	+1
System Perspective (Average Score)	**-0.5**	**1.0**	**-1.0**	**1.0**	**1.0**	**0.0**

		Performance Evaluation Notes	
Concept	**Specific Criteria**	**Positives**	**Negatives**
Concept N1	Estimated Cost	–	– Requires a substantial amount of new roadway and interchange ramp construction which results in a construction cost estimate of approximately $3,800,000.
	Construction Feasibility	– The bulk of the US 395/SW 20th Street alignment and on/off-ramp construction can be completed while maintaining traffic flow on the existing roadway infrastructure.	–
Concept N10	Estimated Cost	– Relatively low ($1,000,000) compared to the other two north-side concepts.	–
	Construction Feasibility	– Implementation of the SW 20th Street and SW 17th Street couplet will only require minimal infrastructure improvements and have minimal property impacts.	–
Concept N11c	Estimated Cost	–	– Overall highest cost of the north-side concepts with an estimated cost of approximately $6,400,000. – The new interchange would require the greatest amount of right-of-way acquisition. – Requires a widening of the I-84 bridge over the Umatilla River to accommodate the WB on-ramp.
	Construction Feasibility	– Constructing the main part of the new interchange off of SW Court Place can take place with minimal disruption to existing traffic flow patterns. This is not the case with the WB off-ramp and SW 23rd Street improvements as noted to the right.	– It will be difficult to maintain traffic on the existing WB off-ramp and on-ramp while constructing the new WB off-ramp. May require a construction staging plan. – Construction of the SW 23rd Street extension to US 395 can't be completed until the new interchange is open for traffic. This will require a complicated construction staging process that will create temporary traffic congestion problems.
Concept S11a	Estimated Cost	– Lowest cost of the three south-side concepts with an estimated construction cost of approximately $3,700,000.	–
	Construction Feasibility	– The new one-way frontage road connection to SW Tutuilla Creek Road on the east side of US 395 can be constructed with no disruption to current traffic patterns. – Retaining walls can be constructed to minimize impacts of the one-way frontage road on Olney Cemetery.	– A new access road to Wendy's would be difficult to construct across the two properties to the south due to grade differentials.
Concept S11b	Estimated Cost	–	– Approximately $1.5 million higher cost than Concept S11a due to a wider frontage road and a longer Hailey Avenue realignment.
	Construction Feasibility	– The new two-way realignment of SW Tutuilla Creek Road on the east side of US 395 can be constructed with no disruption to current traffic patterns. – Retaining walls can be constructed to eliminate impacts of the two-way realignment of SW Tutuilla Creek Road on Olney Cemetery.	–
Concept S13	Estimated Cost	–	– Highest cost ($11,000,000) of the three south-side concepts.

Evaluation Criterion: Cost/Implementation			
	Construction Feasibility	– The jug handle on the east side of US 395 can be constructed with no disruption to current traffic patterns.	– A new access road to Wendy's would be difficult to construct across the two properties to the south due to grade differentials.

Table 7b-5 Detailed Environmental/Social Impacts Analysis

Evaluation Criterion: Environmental/Social Impacts

Concept Scoring						
	North-Side Concepts			South-Side Concepts		
Specific Criteria	**Concept N1**	**Concept N10**	**Concept N11c**	**Concept S11a**	**Concept S11b**	**Concept S13**
Environmental Impacts	+2	+2	-1	-1	0	-1
Social/Equity Impacts	-1	+2	0	0	0	-1
System Perspective (Average Score)	**0.5**	**2.0**	**-0.5**	**-0.5**	**0.0**	**-1**

		Performance Evaluation Notes	
Concept	**Specific Criteria**	**Positives**	**Negatives**
Concept N1	Environmental Impacts	– There are no significant environmentally sensitive features that would be impacted by the concept. – More efficient traffic flow would reduce vehicle emissions.	–
	Social/Equity Impacts	–	– The alignment of US 395 and SW 20th Street will directly impact a upwards of eight properties currently being used for rental housing.
Concept N10	Environmental Impacts	– There are no significant environmentally sensitive features that would be impacted by the interchange/local circulation concept. – More efficient traffic flow would reduce vehicle emissions.	–
	Social/Equity Impacts	– The concept would not have any direct impact on property usage or require housing relocation.	–
Concept N11c	Environmental Impacts	–	– The construction of a widened I-84 bridge over the Umatilla River will impact the waterway.
	Social/Equity Impacts	– The new interchange would impact mostly vacant/undeveloped property rather than existing land uses or businesses.	–
Concept S11a	Environmental Impacts	–	– The SW Hailey Avenue realignment and intersection with US 395 will impact the existing 76 gas station, which may require additional evaluation of environmental impacts.
	Social/Equity Impacts	–	– The new one-way frontage road connection to SW Tutuilla Creek Road on the east side of US 395 will bisect existing commercial parcels, eliminating the potential for future redevelopment.
Concept S11b	Environmental Impacts	– There are no significant environmentally sensitive features that would be impacted by the concept.	–
	Social/Equity Impacts	–	– The new two-way realignment of SW Tutuilla Creek Road on the east side of US 395 will bisect existing commercial parcels, eliminating the potential for future redevelopment.
Concept S13	Environmental Impacts	–	– The SW Hailey Avenue realignment and intersection with US 395 will impact the existing 76 gas station, which may require additional evaluation of environmental impacts.
	Social/Equity Impacts	–	– The east-west roadway alignment would impact existing residences.

Table 7b-6 Detailed Accessibility Analysis

Evaluation Criterion: Accessibility Impacts

Concept Scoring						
	North-Side Concepts			South-Side Concepts		
Specific Criteria	**Concept N1**	**Concept N10**	**Concept N11c**	**Concept S11a**	**Concept S11b**	**Concept S13**
Balance local property access with function of US 395	+1	0	0	0	+1	+1
Provide future access to undeveloped parcels	+1	+1	-1	+1	+1	+1
System Perspective (Average Score)	**1.0**	**0.5**	**-0.5**	**0.5**	**1.0**	**1.0**

		Performance Evaluation Notes	
Concept	**Specific Criteria**	**Positives**	**Negatives**
Concept N1	Balance local property access with function of US 395	– The function of US 395, SW 20th Street, SW Emigrant Avenue, and SW Frazer Avenue are protected as through corridors and enhanced through minor access restrictions to public and private driveways.	– Access to SW 20th Street between SW Emigrant Avenue and SW Court Place will be restricted by a raised median and limited to right-in/right-out movements at a minimum.
	Provide future access to undeveloped parcels	– No undeveloped parcels are impacted by this concept.	–
Concept N10	Balance local property access with function of US 395	– The concept would not change the function of US 395 or implement local property access changes.	–
	Provide future access to undeveloped parcels	– No undeveloped parcels along the US 395 corridor are directly impacted by the concept.	–
Concept N11c	Balance local property access with function of US 395	–	– Although the interchange terminal would shift to SW Court Place, the function of US 395 as a limited access facility would not be implemented. In other words, the WB ramp terminals would be removed, but a new SW 23rd Street connection would take their place.
	Provide future access to undeveloped parcels	–	– The new WB ramp terminal along SW Court Place will provide more direct connectivity to undeveloped parcels along the SW Court Place commercial corridor. However, access spacing standard along SW Court Place in advance of the interchange ramp terminal will limit access to these undeveloped parcels.
Concept S11a	Balance local property access with function of US 395	– Access to parcels along the east of US 395 can be shifted to the local circulation network.	– Although SW Hailey Avenue and one direction of SW Tutuilla Creek Road is being realigned further south along US 395, the concept is only partially meeting the limited accessibility function of US 395. The SW Tutuilla Creek Road intersection and traffic signal still exist under this concept.
	Provide future access to undeveloped parcels	– No undeveloped parcels along the US 395 corridor are directly impacted.	–
Concept S11b	Balance local property access with function of US 395	– The function of US 395 is fully protected within ¼ mile of the EB ramp terminal by restricting public and private access. Meets OAR Division 51 access requirements. – Access to parcels along the east of US 395 can be shifted to the local circulation network.	–
	Provide future access to undeveloped parcels	– No undeveloped parcels along the US 395 corridor are directly impacted.	–
Concept S13	Balance local property access with function of US 395	– The concept by itself has no accessibility impacts to parcels along the entire length of the US 395 study corridor.	– Although SW Hailey Avenue is being realigned further south along US 395, the concept is only partially meeting the limited accessibility function of US 395. The SW Tutuilla Creek Road intersection and traffic signal still exist under this concept.
	Provide future access to undeveloped parcels	– The new east-west roadway from US 395 to Tutuilla Road will provide improved access to all of the undeveloped residential land south and east of the Cemetery.	–

EVALUATION CRITERIA SUMMARY

Based on the detailed assessment of each concept, a summary overview of the key findings are included in the following sections.

Transportation Operations

From a transportation operations perspective, the detailed assessment of each concept revealed the following:

- On the north side, all three concepts will improve the operations and safety of the existing interchange. Concept N1 will provide sufficient capacity, but the resulting interchange ramp will not meet Oregon's long-range capacity standard of 0.70. By creating a couplet network with SW 17th Street and SW 20th Street, Concept N10 will improve operations at the I-84 WB ramp terminals to a more sufficient long-range capacity.
- On the south side, all three concepts achieve the goal of eliminating the problematic southbound left-turn movement from US 395 to SW Tutuilla Creek Road.
- The north-side concepts should all improve bicycle and pedestrian comfort around the existing I-84 WB ramp terminals by providing signalized crossings. On the south side, concepts S11b and S13 eliminate the signalized crossing of US 395 at the existing SW Tutuilla Creek Road intersection, so a multi-use path along the east side of US 395 between SW Tutuilla Creek Road and the I-84 EB ramp terminals may be needed so bicyclists can avoid out-of-direction travel up a steep grade.
- While each of the concepts have impacts to the local circulation network, the goal of maintaining access to/from local streets can be achieved at varying levels. On the north-side, Concept N10 minimizes all impacts while Concepts N1 and N11c would require some restrictions and modifications. On the south-side, realignments of SW Hailey Avenue and SW Tutuilla Creek Road in Concepts S11a and S11b require re-routing of traffic, but all local street access and connectivity can be achieved with relatively minimal impacts. In Concept S13, median restrictions along US 395 would require lengthier out-of-direction travel and cut off some movements to/from SW Tutuilla Creek Road.

Land Use

From a land use perspective, the detailed assessment of each concept revealed the following:

- On the north side, Concept N10 has little to no right-of-way impacts while Concepts N1 and N11c require substantial right-of-way acquisition and displacements.
- On the south side, all of the concepts would require substantial amounts of right-of-way acquisition and result in some business displacements.
- On the north side, Concepts N1 and N11c would enhance and support economic development along the SW Court Place commercial corridor.

- On the south side, all of the concepts would improve circulation which would result in improved accessibility to businesses along the US 395 corridor. However, all three concepts would require land acquisition, which would impair the continued or future use of commercially zoned land.

Cost

Table 7b-7 provides a summary of the cost estimates for each concept.

Table 7b-7 Construction Cost Estimates

Concept	Preliminary Construction Cost Estimate[1]	Number of Properties Directly Impacted
N1	$3,800,000	17
N10	$1,000,000	2
N11c	$6,400,000	6
S11a	$3,700,000	6
S11b	$5,200,000	12
S13	$11,000,000	21

[1]Estimate does not contain right-of-way costs.

From a cost and constructability perspective, the detailed assessment of each concept revealed the following:

- On the north side, Concept N11c would be the most costly concept.
- On the south side, Concept S13 would be the most costly concept.
- On the north side, there would be some construction staging challenges associated with Concepts N1 and N11c while Concept N10 would be fairly simple to implement.
- On the south side, all three concepts could be constructed with little to no disruption to existing traffic patterns.

Environmental/Social

From an environmental/social impacts perspective, the detailed assessment of each concept revealed the following:

- On the north side, only Concept N11c would have a negative environmental impact due to the need for a widened I-84 bridge over the Umatilla River.
- On the south side, the realignment of SW Hailey Avenue at US 395 in Concept S11a and S13 will impact the existing 76 Gas Station, likely requiring further environmental study.
- On the north side, Concept N10 will have little to no social impacts compared to the other two concepts.

- On the south side, Concept S13 will have a significant social impact as the SW 30th Street extension would displace up to four existing single family homes.

Accessibility

From an accessibility perspective, the detailed assessment of each concept revealed the following:

- On the north side, Concept N1 does the best job at balancing local property access with the overall function of US 395.
- On the south side, Concept S11b works toward the OHP access spacing standards and ensures the best long-term function of US 395.
- On the north side, Concept N10 maintains accessibility to all properties located within the interchange vicinity.
- On the south side, Concept S11b provides the least impactive method of shifting private access from US 395 to the local street network.

After applying the specific evaluation criteria to each concept and applying equal weighting to each sub-category evaluation, an average score for each of the five primary evaluation criteria was calculated. Table 7b-8 summarizes the primary evaluation criteria scoring for each concept and also provides an overall total score based on the total of the averages of the five primary evaluation criteria. This process was followed to provide a basis for comparison between each concept, and was used to assist the consultant team in recommending a preferred concept to the TAC and PAC.

Table 7b-8 Evaluation Criteria Scoring Summary

Evaluation Criteria	Concept N1	Concept N10	Concept N11c	Concept S11a	Concept S11b	Concept S13
Transportation Operations	1.0	1.0	1.0	0.5	0.75	0.50
Land Use	0.0	0.5	0.0	-0.5	-1.0	-1.5
Cost/Implementation	-0.5	1.0	-1.0	1.0	1.0	0.0
Environmental/Social	0.5	2.0	-0.5	-0.5	0.0	-1
Accessibility	1.0	0.5	-0.5	0.5	1.0	1.0
Total Score	**2.0**	**5.0**	**-1.0**	**1.0**	**1.75**	**-1.0**

Based on all the information summarized in Table 7b-8, the consultant team has concluded that Concept N10 on the north-side most positively meets the established evaluation criteria. This can be attributed primarily to its minimal physical impacts on the surrounding transportation and land use network. As such, this concept is ideal for near-term implementation as the overall costs are comparatively minimal and implementation is relatively simple. While Concept N10 is ideal for near-term implementation, it should also be noted that Concept N1 has some significant long-term benefits. These benefits include the development of a more conventional interchange ramp design and a more efficient way of accommodating existing and future traffic flows. While the

cost of this concept is much greater, it is conceivable that Concept N10 could be implemented in the near-term and Concept N1 could be implemented at some point in the long-term when funding is available.

On the south-side, the consultant team has concluded that Concept S11b most positively meets the established evaluation criteria. Although the land use impacts and cost of this alternative is slightly higher than Concept S11a, this concept does a better job of balancing local access with the adopted access management policies for US 395. It should be noted that while Concept S13 did not score as well (primarily due to cost and greater land use impacts), the SW 30th Street component could be a separate long-term transportation improvement that the City of Pendleton may want to consider adding to their TSP. This connection could be coupled with Concept S11b to further enhance the overall circulation network.

NEXT STEPS

As previously stated, the purpose of the memorandum is to provide the TAC and PAC committee members with a quantitative assessment of the selected north-side and south-side concepts. Based on input from the TAC and PAC, one concept from the north and south sides will be selected to move forward as part of the formal I-84/US 395 IAMP.

Appendix A

Evaluation Criteria Descriptions and Scoring Definitions

EVALUATION CRITERIA DESCRIPTIONS AND SCORING DEFINITIONS

Transportation Operations

Mobility: Provide a transportation system that has sufficient capacity to serve all forms of vehicular traffic, including trucks. [Meets OHP Goal 1 (System Definition), Policy 1F (Highway Mobility Standards) and Highway Design Manual.

Safety: Provide an efficient system that safely accommodates all modes of transportation in all weather conditions by meeting design standards. [Meets OHP Goal 2 (System Management), Policy 2F (Traffic Safety)]

Multimodal: Enhance multimodal transportation options through the provision of an interconnected system of roadway, pedestrian, and bicycle facilities. [Meets OAR 660-012-0035(3)(d) and (3)(e)]

Local Circulation: Maintain an adequate local circulation network to meet the needs of adjacent land uses. [Meets OAR 660-012-0035(3)(a)]

LAND USE

Right-of-Way Impacts: Minimize displacements and right-of-way impacts to existing land uses.

Economic Development: Provide transportation improvements that support existing businesses and future economic development in the interchange area. [(Consistent the Transportation Planning Rule, OAR 660-012-0060 and meets OHP Goal 1 (System Definition), Policy 1G (Major Improvements)]

Cost

Cost/Implementation: Develop design alternatives that allow for a cost effective and timely implementation strategy that will efficiently meet permitting requirements.

Environmental/Social Impacts

Environmental/Social Impacts: Develop design alternatives that minimize the natural resource, air, noise, and cultural/historical impacts to the surrounding area. [Meets OAR 660-012-0035(3)(b) and Meets OHP Goal 5 (Environmental and Scenic Resources), Policy 5A (Environmental Resources)]

Accessibility

Local Properties: Balance local access to US 395 with the need to maintain the function and capacity of the Highway for area wide through traffic. [Meets OHP Goal 1 (System Definition), Policy 1G (Major Improvements)

Future Access to Undeveloped Properties: Provide property access via the local road network to support future development patterns.

EVALUATION CRITERIA SCORING DEFINITIONS

Transportation Operations

Provide Mobility with Adequate Capacity
+2 Provides More Than Adequate Roadway and Intersection Capacity
+1 Provides Adequate Roadway and Intersection Capacity
0 No Significant Change to the Existing Roadway and Intersection Capacity
-1 Decreases Roadway and Intersection Capacity
-2 Significantly Decreases Roadway and Intersection Capacity

Enhance Travel Safety for All Modes of Transportation
+2 Eliminates Existing Safety Concerns
+1 Improves Existing Safety Concerns
0 No Significant Change to Existing Safety Concerns
-1 Further Degrades Existing Safety Concerns
-2 Results in Unacceptable Safety Concerns

Provide Connectivity throughout the Local Road Network
+2 Significantly Enhances Local Street Connectivity within the Study Area
+1 Improves Local Street Connectivity within the Study Area
0 No Significant Change to Local Street Connectivity
-1 Decreases Local Street Connectivity within the Study Area
-2 Significantly Decreases Local Street Connectivity within the Study Area

Maintain a Local Circulation Network
+2 Significantly Enhances Local Street Circulation
+1 Improves Local Street Circulation
0 No Significant Change from Existing Conditions
-1 Decreases Local Street Circulation
-2 Significantly Decreases Local Street Circulation within the Study Area

Land Use

Right-of-Way Impacts
+1 No Right-of-Way Acquisitions or Displacements are Necessary
0 Right-of-Way Acquisitions and Displacements are Limited to Vacant/Undeveloped Properties and a Few Residents/Businesses
-1 Right-of-Way Acquisitions and Displacements are Necessary for Numerous Properties, Businesses, and Residents

Supports Existing Businesses and Future Economic Development
+2 Improvements Have No Impacts to Existing Businesses and Support Future Economic Development
+1 Improvements Have Some Impacts to Existing Businesses but Generally Supports Future Economic Development
0 No Change from Existing Conditions
-1 Improvements are Disruptive to Existing Businesses
-2 Improvements are Disruptive to Existing Businesses and Does Not Support Future Economic Development

Cost

Cost
+1 Least expensive or within 10% of the least expensive
0 Within 20% of the least expensive
-1 Greater than 20% of the least expensive

Construction Feasibility

+1 Limited impact on existing traffic flow and/or lowest anticipated complexity of construction staging activities.
0 Moderate Impact on existing traffic flows and/or moderate anticipated complexity of construction staging activities.
-1 Major impact on existing traffic flow and/or highest anticipated complexity of construction staging activities.

Social / Environmental

Environmental Impacts

+2 Creates No Environmental Impacts
+1 Environmental Impacts Are Minimal
0 No Significant Change from Existing Conditions
-1 Creates Some Negative Environmental Impacts
-2 Creates Significant Negative Environmental Impacts

Social Impacts

+2 Creates No Social Impacts
+1 Social Impacts Are Minimal
0 No Significant Change from Existing Conditions
-1 Creates Some Negative Social Impacts
-2 Creates Significant Negative Social Impacts

Accessibility

Balance Local Property Access with Function of US 395

+2 Maintains All Existing Local Property Access to US 395 While Maintaining the Function of the Highway
+1 Effectively Consolidates Local Property Access to US 395 While Maintaining the Function of the Highway
0 No Significant Change from Existing Conditions
-1 Consolidates Local Property Access to US 395 at the Expense of Compromising the Function of the Highway
-2 Maintains All Existing Local Property Access at the Expense of Compromising the Function of the Highway

Future Access to Undeveloped Properties

+1 Local Roadway Network Provides Adequate Access to Future Undeveloped Properties
0 Local Roadway Network Creates Minimal Access Opportunities to Undeveloped Properties
-1 Local Roadway Network Negates Access to Opportunities to Undeveloped Properties

Appendix H

Technical Memorandum #7c – Follow-up Analysis after TAC/PAC Meetings #6

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DRAFT TECHNICAL MEMORANDUM 7c

I-84 / US 395 Interchange Area Management Plan

Follow-up Analysis after TAC/PAC Meetings #6

Date: July 13, 2010 Project : 9627.0

To: Patrick Knight, ODOT Region 5

From: Matt Hughart, AICP, Nick Foster, and Marc Butorac, P.E., P.T.O.E.

cc: Technical Advisory Committee (TAC)
Public Advisory Committee (PAC)

This technical memorandum is the third part of the Technical Memorandum #7 series that documents the evaluation and preliminary ranking of a select group of interchange/local circulation concepts. The purpose of this memorandum is to address questions and comments provided during the TAC and PAC meetings held on April 15, 2010 regarding new interchange and local circulation concepts. Specifically, this memorandum includes an assessment of new Concepts N13, S14a, S14b, and S15, as well as a summary of the previous concepts that one or both committees still feels holds promise, which are Concepts N1, N11a, and S11b.

PREVIOUS CONCEPT DESCRIPTIONS

After the last set of meetings, one or both committees supported Concepts N1, N11a, and, S11b. These concepts were previously described and analyzed in Technical Memorandum #7b. Those descriptions are reproduced here for reference.

Concept N1

Concept N1, aligns the SW 20th Street and US 395 travel corridors. A new I-84 WB ramp terminal/SW Emigrant Avenue intersection will be developed at the junction of these two alignments. The US 395/SW 20th Street alignment will need two northbound through travel lanes resulting in a full five-lane cross section on SW 20th Street. A raised median will be needed along the new SW 20th Street alignment between SW Court Place and SW Emigrant Avenue. A northbound left-turn into SW Dorion Avenue from SW 20th Street could be maintained when Concept N1 is constructed. However, as traffic volumes increase, it will likely be restricted if queues on SW 20th Street begin to spill back from the US 395 intersection.

Concept N11a

Concept N11a, shown in the accompanying figure, involves closing the existing WB ramp terminal intersection with US 395 and developing a new I-84 WB interchange terminal further to the west to the property currently occupied by Cummins Northwest. SW Court Place is realigned to form the northern and eastern approaches to the realigned ramp terminals intersection. The western approach to this intersection is a new roadway (called SW 23rd Street for the purpose of this analysis) connecting the ramp terminal to the US 395/SW Emigrant Avenue intersection. The ramp terminals intersection could also be configured with offsetting "T" intersection. That is, the I-84 Westbound ramp terminals would intersect the SW 23rd Street extension in approximately the same location as described above, while SW Court Place would connect to SW 23rd Street to the northwest of the ramp terminals. This would avoid locating a local roadway directly across from a freeway ramp terminal.

Concept S11b

Concept S11b, shown in the accompanying figure, is designed to address the problematic southbound left-turn movement at the existing US 395/SW Hailey Avenue -SW Tutuilla Creek Road intersection. In general, the concept involves the development of a new US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection located approximately 1,320 feet south of the existing I-84/US 395 EB ramp terminal. This new intersection would be the primary US 395 connection for SW Hailey Avenue and SW Tutuilla Creek Road. SW Tutiuilla Creek Road would be aligned as a frontage road that would parallel US 395. This frontage road connection would allow the problematic southbound left-turn movement at the existing US 395/ SW Hailey Avenue -SW Tutuilla Creek Road intersection to be closed and moved to this location where there is a greater amount of storage length available. A right-turn only connection to US 395 would be provided from SW Tutuilla Creek Road at approximately the same location as the existing intersection.

NEW CONCEPT DESCRIPTIONS

Committee members and meeting attendees at the last TAC and PAC meetings requested that four new concepts be analyzed. These concepts include one new north side option (N13) and three new south side options (S14A, S14B, and S15). The following sections summarize and analyze these concepts consistent with the evaluation procedures for the previous interchange concepts in Technical Memorandum #7b.

Concept N13

Concept N13, shown in the accompanying figure, is a combination of Concepts N1 and N11a, which are discussed in greater detail in Technical Memorandum #7b. In this concept, the I-84 Westbound ramp terminal is relocated to the west to the property currently occupied by Cummins Northwest. SW Court Place is realigned to form the northern and eastern approaches to the realigned ramp terminals intersection. The western approach to this intersection is a new

roadway (called SW 23rd Street for the purpose of this analysis) connecting the ramp terminal to the new realigned intersection of US 395, SW 20th Street, and the SW Emigrant Avenue-SW Frazer Avenue couplet. The free right-turn movement from US 395 onto SW Frazer Avenue would be maintained. Similar to Concept N1, a northbound left-turn into SW Dorion Avenue from SW 20th Street could be maintained when Concept N13 is constructed. However, as traffic volumes increase, it may need to be restricted if queues on SW 20th Street begin to spill back from the US 395 intersection in front of SW Dorion Avenue.

Concept S14a

Concept S14a, shown in the accompanying figure, realigns the I-84 EB off-ramp south of its existing alignment to connect with US 395 at the location of the existing SW Hailey Avenue. SW Hailey Avenue would be realigned to the south on US 395 as it is in Concept S11B, approximately 1,320 feet south of the existing I-84 Eastbound ramp terminals. There would be no modifications to the alignment of SW Tutuilla Creek Road under this concept. Likewise the I-84 EB on-ramp would remain in its current location.

Concept S14b

Concept S14b, shown in the accompanying figure, is a variation of Concept S14a. Under this version of the concept, the existing I-84 Eastbound ramp terminals are both moved to the location of the existing SW Hailey Avenue approach to US 395. In order to accomplish this, the on-ramp to I-84 Eastbound would be constructed as an entering Parclo-A loop ramp in the southwest quadrant of the interchange. The existing alignment of SW Hailey Avenue would become a cul-de-sac to the northeast of the existing US Forest Service building where the current right-out access onto US 395 is provided. A new connection from SW Hailey Avenue to US 395 would be constructed approximately 800 feet south of the I-84 Eastbound ramp terminals. The alignment of Tutuilla Creek Road would remain unchanged and would form a four-way signalized intersection of US 395 with the I-84 Eastbound ramp terminals.

Concept S15

Concept S15, shown in the accompanying figure, does not involve the realignment of any roadways. This concept seeks to maximize the existing roadway system on the south side of I-84 through enhancing the existing US 395/SW Hailey Ave-Tutuilla Creek Road intersection. Under this concept, there would be dual left-turns from SW Hailey Avenue onto US 395 and from southbound US 395 onto Tutuilla Creek Road. The Tutuilla Creek Road approach would be widened to provide for one lane for each turning movement (left, through, and right).

SW 30TH STREET EXTENSION

Concept S13 introduced the idea of extending SW 30th Street from its current terminus east of US 395 all the way to SW Tutuilla Creek Road near SW Marshall Avenue. While Concept S13 has

been dismissed from the process by the committees and consultant team, the SW 30th Street extension is supported by members of both committees. Since it is not directly related to the interchange, it will need to be adopted into the City's transportation system plan (TSP). Therefore, the south side concepts are all analyzed with and without the extension of SW 30th Street. In order to be conservative, the analysis results scored in the *Concept Assessment* section below are without the extension.

At the last set of meetings, questions were raised regarding the location of the eastern end of the extension. Two different alignments were discussed. The first alignment would involve the SW 30th Street extension aligning directly across from SW Marshall Avenue. This alignment would directly impact the existing Herr Lumber business. The second alignment would involve the SW 30th Street extension skirting the southern Herr Lumber property line. This would create an offset intersection with SW Marshall Avenue, so the second alignment would also involve a more southerly realignment of SW Marshall Avenue so that it would connect to Tutuilla Creek Road across from the 30th Street alignment. Based on a preliminary assessment of right-of-way costs, it was found that the second scenario would be less than half the cost of the first scenario.

CONCEPT ASSESSMENT

A detailed evaluation of each of these concepts described above was performed. This evaluation was conducted using the same process that was applied to the other concepts described in Technical Memorandum #7b. The five broad evaluation criteria are outlined below for reference:

- Transportation Operations – This category consists of those criteria that assess the ability for motorized and non-motorized vehicles to travel through and within the study area. Detailed capacity and delay results, as well as illustrations of assumed lane configurations, are shown in *Attachment "A."*
- Land Use – This category consists of those criteria that assess right-of-way impacts, the consistency with adopted land use plans, and economic development impacts.
- Cost – This category consists of those criteria that assess the practicality of a concept from a construction cost and feasibility perspective.
- Environmental, Social, and Equity – This category consists of those criteria that assess the degree to which a concept is compatible with the natural and built environment.
- Accessibility – This category consists of those criteria that assess the degree to which a concept meets or moves toward ODOT's interchange access spacing standards.

Detailed descriptions of the five broad evaluation criteria along with the accompanying sub-criteria are provided in *Attachment "B."*

Table 7c-1 Detailed Transportation Analysis

Evaluation Criterion: Transportation Operations

Concept Scoring

	North Side Concept			South Side Concepts				
Specific Criteria	**Concept N1**	**Concept N11a**	**Concept N13**	**Concept S11b**	**Concept S14a**	**Concept S14b**	**Concept S15a***	**Concept S15b**
Provide Mobility with Adequate Capacity	+1	+1	+1	+2	0	+1	-2	0
Enhance Travel Safety for All Modes of Transportation	+2	+2	+2	+2	+1	+1	-1	0
Enhance Multimodal Options	+1	0	+1	-1	0	0	-1	0
Maintain a Local Circulation Network	0	+1	+1	0	0	0	0	0
System Perspective (Average Score)	**1.0**	**1.0**	**1.25**	**0.75**	**0.25**	**0.5**	**-2.0**	**0.0**

* The cells for Concept S15 are grayed out as it has been determined that this concept is fatally flawed.

Performance Evaluation Notes

Concept	Specific Criteria	Positives	Negatives
Concept N1	Provide Mobility with Adequate Capacity	–	– While long-term capacity can be provided at the new WB ramp terminal intersection (v/c = 0.83), the intersection will not meet the Highway Design Manual standard of 0.70.
	Enhance Travel Safety for All Modes of Transportation	– The consolidation of multiple closely spaced intersections at the interchange will improve the overall efficiency of the north-side transportation network and resolve existing queue spillback and intersection blockage issues	–
	Enhance Multimodal Options	– The concept provides enhanced connectivity for bicyclists and pedestrians between US 395 and SW 20th Street	–
	Maintain a Local Circulation Network	– The alignment of SW 20th Street to US 395 can be done in a way that has minimal to no real impacts to the existing local circulation network	–
Concept N11a	Provide Mobility with Adequate Capacity	– The new WB interchange ramp will have sufficient capacity (v/c = 0.44) and meet the standard set forth in the Highway Design Manual	– The relocation of the WB ramp terminal and realignment of SW Court Place makes for a less conventional roadway network and induces some circuitous routing for US 395 traffic and SW 20th Street traffic
	Enhance Travel Safety for All Modes of Transportation	– The relocation of the WB interchange ramp will eliminate existing queue spillback concerns	–
	Enhance Multimodal Options	– No significant changes will be made to the existing pedestrian and bicycle environment	–
	Maintain a Local Circulation Network	– The concept will enhance the local street transportation network through the extension of SW 23rd Street	–
Concept N13	Provide Mobility with Adequate Capacity	– The new WB interchange ramp will have sufficient capacity (v/c = 0.44) and meet the standard set forth in the Highway Design Manual	– The US 395/SW 20th Street/SW Emigrant Avenue-SW Frazer Avenue intersection will have limited capacity (v/c = 0.91)
	Enhance Travel Safety for All Modes of Transportation	– The consolidation of multiple closely spaced intersections and the relocation of the interchange will resolve existing queue spillback and intersection blockage issues	–
	Enhance Multimodal Options	– The concept provides enhanced connectivity for bicyclists and pedestrians between US 395 and SW 20th Street	–
	Maintain a Local Circulation Network	– The concept will enhance the local street transportation network through the extension of SW 23rd Street	–
Concept S11b	Provide Mobility with Adequate Capacity	– Eliminating the US 395 SB left-turn, SW Hailey Avenue westbound through/left-turn movement, and the SW Tutuilla Creek Road approach from the existing US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection will allow traffic on US 395 to flow freely through this intersection	–

Evaluation Criterion: Transportation Operations			
	Enhance Travel Safety for All Modes of Transportation	– The removal of the signal at the existing US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection will eliminate vehicle queue spillback concerns on US 395	–
	Enhance Multimodal Options	–	– Bicyclists traveling southbound on US 395 to SW Tutuilla Creek Road will have to travel out-of-direction up a steep grade to access the realigned SW Tutuilla Creek Road intersection unless a multi-use path on the east side of US 395 between the I-84 EB ramp terminals and SW Tutuilla Creek Road is provided
	Maintain a Local Circulation Network	–	– This concept does not significantly alter the local circulation network; however it does create some minor out-of-direction travel for SW Tutuilla Creek Road
Concept S14a	Provide Mobility with Adequate Capacity	– The relocation of the EB off-ramp terminal and SW Hailey Avenue will help reduce the severity and frequency of the existing queue spillback issue on US 395	– The southbound left-turn from US 395 to SW Tutuilla Creek Road will still occasionally spill back into the through lane on US 395. The new EB off-ramp terminal is forecast to operate at capacity (v/c = 0.99)
	Enhance Travel Safety for All Modes of Transportation	– The relocation of the EB off-ramp terminal and SW Hailey Avenue will help reduce the severity and frequency of the existing queue spillback issue on US 395	– The EB off-ramp terminal will be aligned across from SW Tutuilla Creek Road, which will put freeway traffic off onto a City street
	Enhance Multimodal Options	– No significant changes will be made to the existing pedestrian and bicycle environment	–
	Maintain a Local Circulation Network	– This concept does not significantly alter the local circulation network	–
Concept S14b	Provide Mobility with Adequate Capacity	– The relocation of SW Hailey Avenue and the EB ramp terminals will address the existing queue spillback issue on US 395	– While long-term capacity can be provided at the new EB ramp terminal intersection (v/c = 0.86), the intersection will not meet the Highway Design Manual standard of 0.70
	Enhance Travel Safety for All Modes of Transportation	– The relocation of SW Hailey Avenue and the EB ramp terminals will address the existing queue spillback issue on US 395	– The EB ramp terminals will be aligned across from SW Tutuilla Creek Road, which will put freeway traffic off onto a City street
	Enhance Multimodal Options	– No significant changes will be made to the existing pedestrian and bicycle environment.	–
	Maintain a Local Circulation Network	– This concept does not significantly alter the local circulation network	–
Concept S15a	Provide Mobility with Adequate Capacity	– Adding dual left-turns from US 395 onto Tutuilla Creek Road and from SW Hailey Avenue onto US 395 will enhance operations at that intersection and reduce the severity and frequency of the existing queue spillback issue on US 395	– Queues will still spillback from the SW Hailey Avenue-SW Tutuilla Creek Road intersection on US 395 through the EB ramp terminals intersection
	Enhance Travel Safety for All Modes of Transportation	–	– The dual left-turns from US 395 onto SW Tutuilla Creek Road will reduce the propensity for queues to back-up through the EB ramp terminal intersection, but queue spillback is still likely at peak times. This can lead to vehicle queue spillback on the EB off-ramp which is a significant safety concern.
	Enhance Multimodal Options	– No significant changes will be made to the existing pedestrian and bicycle environment.	–
	Maintain a Local Circulation Network	– This concept does not significantly alter the local circulation network	–
Concept S15b	Provide Mobility with Adequate Capacity	– Adding dual left-turns from US 395 onto Tutuilla Creek Road and realigning SW Hailey Avenue will enhance operations at the Tutuilla Creek Road intersection and reduce the severity and frequency of the existing queue spillback issue on US 395	– Additional improvements may be needed beyond 2030 to ensure that queues do not back up into the EB ramp terminal
	Enhance Travel Safety for All Modes of Transportation	– The dual left-turns from US 395 onto SW Tutuilla Creek Road and realigning SW Hailey Avenue will reduce the propensity for queues to back-up through the EB ramp terminal intersection.	– Additional improvements may be needed beyond 2030 to ensure that queues do not back up into the EB ramp terminal
	Enhance Multimodal Options	– No significant changes will be made to the existing pedestrian and bicycle environment.	–
	Maintain a Local Circulation Network	– This concept does not significantly alter the local circulation network	–

Table 7c-2 Detailed Land Use Analysis

Evaluation Criterion: Land Use

Concept Scoring								
	North Side Concept			South Side Concepts				
Specific Criteria	**Concept N1**	**Concept N11a**	**Concept N13**	**Concept S11b**	**Concept S14a**	**Concept S14b**	**Concept S15a**	**Concept S15b**
Right-of-Way Impacts / Displacements	-1	-1	-1	-1	0	0	+1	0
Supports Businesses and Future Economic Development	+1	+1	+1	-1	+1	+1	+2	+1
System Perspective (Average Score)	**0.0**	**0.0**	**0.0**	**-1.0**	**0.5**	**0.5**	**1.5**	**0.5**

		Performance Evaluation Notes	
Concept	**Specific Criteria**	**Positives**	**Negatives**
Concept N1	Right-of-Way Impacts / Displacements	–	– The new alignment of US 395, SW 20th Street, and the WB on/off ramp would impact 15 separate tax lots and displace upwards of 9 properties currently being utilized for rental housing. – The need for dual WB left-turn lanes from SW Court Place onto SW 20th Avenue will require some right-of-way acquisition along SW Court Place. – Some roadway widening would be needed along SW 20th Street between SW Dorion Avenue and SW Court Place. – There maybe some circulation and parking impacts to the Bank of the West, Dean's Market & Deli and Wilcox Furniture properties.
	Supports Businesses and Future Economic Development	– The alignment of US 395 and SW 20th Avenue will provide a more direct connection to SW Court Place and the existing/future commercial businesses along this corridor.	–
Concept N11a	Right-of-Way Impacts / Displacements	–	– The development of a new interchange near Oxford Suites will require substantial right-of-way acquisition from Cummins Northwest. – Safeway's existing loading area will be impacted and will need to be redesigned along SW Dorion Avenue.
	Supports Businesses and Future Economic Development	– The new interchange along SW Court Place/SW 23rd Street would provide a more direct connection to the SW Court Place commercial corridor.	–
Concept N13	Right-of-Way Impacts / Displacements	–	– The new alignment of US 395, SW 20th Street, and the WB on/off ramp would impact 15 separate tax lots and displace upwards of 9 properties currently being utilized for rental housing. – The need for dual WB left-turn lanes from SW Court Place onto SW 20th Avenue will require some right-of-way acquisition along SW Court Place. – Some roadway widening would be needed along SW 20th Street between SW Dorion Avenue and SW Court Place. The majority of the right-of-way acquisition would come from the existing Safeway parking lot. – There may be some circulation and parking impacts to the Bank of the West, Dean's Market & Deli and Wilcox Furniture properties. – The development of a new interchange east of Oxford Suites will require right-of way and displace the Cummins Northwest property. – The expansion of SW 23rd Street will likely require some right-of-way along the west side of the street and impact the existing Safeway truck delivery driveway.
	Supports Businesses and Future Economic Development	– The alignment of US 395 and SW 20th Avenue as well as the new SW 23rd street corridor will provide a more direct connection to SW Court Place and the existing/future commercial businesses along this corridor.	– The Cummins Northwest property will be displaced by the SW 23rd Street corridor.

Evaluation Criterion: Land Use			
Concept S11b	Right-of-Way Impacts / Displacements	– The concept avoids a direct impact to the Olney Cemetery and existing burial sites.	– The new two-way realignment of SW Tutuilla Creek Road on the east side of US 395 would impact five existing businesses (Denny's, Kube Lube, Time to Wash Car Wash, Wendy's, and Quis and Wells Realty) and require a new access/parking lot configuration at Econo Lodge. – The realignment of SW Hailey Avenue would directly impact the existing Starbucks, two single family homes, and require a modification to the First Church of God parking area.
	Supports Businesses and Future Economic Development	–	– The frontage road connection to SW Tutuilla Creek Road on the east side of US 395 would eliminate a larger swath of existing and future commercial development. – On the west side of US 395, the SW Hailey Avenue realignment and intersection with US 395 would likely eliminate at least one commercially viable property (Starbucks). – The elimination of the existing US 395/SW Tutuilla Creek Road intersection and subsequent rerouting of SW Tutuilla Creek Road to the south will impact the accessibility of businesses along SW Tutuilla Creek Road. – While it would still have access to US 395, the accessibility of the Burger King property for northbound vehicles on US 395 and for customers leaving the site to get back onto US 395 northbound will be impacted.
Concept S14a	Right-of-Way Impacts / Displacements	– This concept avoids any direct impacts to businesses located along the east side of US 395. – The concept avoids a direct impact to the Olney Cemetery and existing burial sites.	– The new EB off-ramp would directly impact and displace the existing Burger King property. – The realignment of SW Hailey Avenue would directly impact the existing Starbucks, two single family homes, and require a modification to the First Church of God parking area.
	Supports Businesses and Future Economic Development	– Businesses and redevelopment potential continue to exist along the east side of US 395.	– On the west side of US 395, the SW Hailey Avenue realignment and intersection with US 395 would likely eliminate at least one commercially viable property (Starbucks).
Concept S14b	Right-of-Way Impacts / Displacements	– This concept avoids any direct impacts to businesses located along the east side of US 395. – The concept avoids a direct impact to the Olney Cemetery and existing burial sites.	– The new EB on/off ramps would directly impact and displace the existing Burger King property. – The realignment of SW Hailey Avenue would directly impact the existing Starbucks, two single family homes, and require a modification to the First Church of God parking area.
	Supports Businesses and Future Economic Development	– Businesses and redevelopment potential continue to exist along the east side of US 395.	– On the west side of US 395, the SW Hailey Avenue realignment and intersection with US 395 would likely eliminate at least one commercially viable property (Starbucks).
Concept S15a	Right-of-Way Impacts / Displacements	– Right-of-way impacts and displacements are minimal compared to other concepts.	– A portion of the Denny's parking lot will be impacted and will necessitate an alternative access scenario via SW Hailey Avenue.
	Supports Businesses and Future Economic Development	– Does not directly impact or displace existing businesses along the east or west sides of US 395.	–
Concept S15b	Right-of-Way Impacts / Displacements	– This concept avoids any direct impacts to businesses located along the east side of US 395. – The concept avoids a direct impact to the Olney Cemetery and existing burial sites.	– A portion of the Denny's parking lot will be impacted and will necessitate an alternative access scenario via SW Hailey Avenue. – The realignment of SW Hailey Avenue would directly impact the existing Starbucks, First Church of God, and a vacant office building.
	Supports Businesses and Future Economic Development	– Businesses and redevelopment potential continue to exist along the east side of US 395.	– On the west side of US 395, the SW Hailey Avenue realignment and intersection with US 395 would likely eliminate at least two commercially viable properties (Starbucks and First Church of God).

Table 7c-3 Detailed Cost / Implementation Analysis

Evaluation Criterion: Cost / Implementation

Concept Scoring								
	North Side Concept			South Side Concepts				
Specific Criteria	**Concept N1**	**Concept N11a**	**Concept N13**	**Concept S11b**	**Concept S14a**	**Concept S14b**	**Concept S15a**	**Concept S15b**
Estimated Cost	-1	-1	-1	-1	-1	-1	+1	0
Construction Feasibility	+1	0	0	+1	-1	-1	+1	+1
System Perspective (Average Score)	**0.0**	**-0.5**	**-0.5**	**0.0**	**-1.0**	**-1.0**	**+1**	**0.5**

		Performance Evaluation Notes	
Concept	**Specific Criteria**	**Positives**	**Negatives**
Concept N1	Estimated Cost	–	– Requires a substantial amount of new roadway and interchange ramp construction which results in a construction cost estimate of approximately $4,000,000. ROW costs are estimated at approximately $4,000,000.
	Construction Feasibility	– The bulk of the US 395/SW 20th Street alignment and on/off-ramp construction can be completed while maintaining traffic flow on the existing roadway infrastructure.	–
Concept N11a	Estimated Cost	–	– High cost due to the construction of a new WB ramp terminal, realignment of SW Court Place, the construction of a new connection to US 395, and modification of the Safeway loading area. – Requires a new WB off-ramp lane and bridge structure over US 395, which is a significant cost element. – The new interchange would require right-of-way acquisition from the Cummins Northwest property and a handful of adjacent parcels. – The preliminary construction cost estimate is $9,000,000 with a ROW estimate of approximately $3,000,000.
	Construction Feasibility	– Constructing the main part of the new interchange off of SW Court Place can take place with minimal disruption to existing traffic flow patterns. This is not the case with the WB off-ramp and SW 23rd Street improvements as noted to the right.	– It will be difficult to maintain traffic on the existing WB off-ramp and on-ramp while constructing the new WB off-ramp. – Construction of the SW 23rd Street extension to US 395 can't be completed until the new interchange is open for traffic. This will require a complicated construction staging process that will create temporary traffic congestion problems.
Concept N13	Estimated Cost	–	– The combination of the N1 and N11a elements creates the most costly north-side concept. – The preliminary construction cost estimate is $12,000,000 with a ROW estimate of approximately $7,000,000.
	Construction Feasibility	–	– Due to the scale of the combined improvements, construction will lead to significant impacts to traffic flow patterns.
Concept S11b	Estimated Cost	–	– The Hailey Avenue realignment and Tutuilla Creek Road realignment are significant construction cost elements. The accompanying ROW acquisition is the most costly of any south side concept. – The preliminary construction cost estimate is $4,000,000 with a ROW estimate of approximately $12,000,000.
	Construction Feasibility	– The new two-way realignment of SW Tutuilla Creek Road on the east side of US 395 can be constructed with no disruption to current traffic patterns. – Retaining walls can be constructed to eliminate impacts of the two-way realignment of SW Tutuilla Creek Road on Olney Cemetery.	–

Evaluation Criterion: Cost/ Implementation			
Concept S14a	Estimated Cost	–	– The new EB off-ramp will require a costly cast-in-place design while ROW acquisition on the west side of US 395 will be significant. – The preliminary construction cost estimate is $4,000,000 with a ROW estimate of approximately $6,000,000.
	Construction Feasibility	– The new EB off-ramp can be constructed while maintaining traffic flow at the existing ramp terminal, minimizing disruptions during the construction process.	– The new EB off-ramp will require a complicated and expensive cast-in-place design that will be a challenge to construct in the narrow topographically constrained creek area.
Concept S14b	Estimated Cost	–	– The new EB off-ramp and looping on-ramp will require a costly cast-in-place design that results in the highest construction cost of any south side concept. – Like Concept S14a, ROW acquisition on the west side of US 395 will be significant. – The preliminary construction cost estimate is $18,000,000 with a ROW estimate of approximately $6,000,000.
	Construction Feasibility	– The new EB on/off ramps can be constructed while maintaining traffic flow at the existing ramp terminal, minimizing disruptions during the construction process.	– The new EB ramp terminals will require a complicated and expensive cast-in-place design that will be a challenge to construct in the narrow topographically constrained creek area.
Concept S15a	Estimated Cost	– With improvements limited to one intersection and no significant ROW needs, this concept has the lowest construction and ROW costs of any south side concepts.	– The preliminary construction cost estimate is $3,000,000 with a ROW estimate of approximately $500,000.
	Construction Feasibility	– There are no significant construction challenges with this concept aside from typical construction disruptions at major intersection improvements.	–
Concept S15b	Estimated Cost	–	– The preliminary construction cost estimate is $3,000,000 with a ROW estimate of approximately $3,000,000.
	Construction Feasibility	– There are no significant construction challenges with this concept aside from typical construction disruptions at major intersection improvements.	–

Table 7c-4 Detailed Environmental/Social Impacts Analysis

Evaluation Criterion: Environmental/Social Impacts

Concept Scoring

	North Side Concept			South Side Concepts				
Specific Criteria	**Concept N1**	**Concept N11a**	**Concept N13**	**Concept S11b**	**Concept S14a**	**Concept S14b**	**Concept S15a**	**Concept S15b**
Environmental Impacts	+2	+2	+2	0	-2	-2	-1	-1
Social/Equity Impacts	-1	-2	-2	-2	-1	-1	+2	+1
System Perspective (Average Score)	**0.5**	**0.0**	**0.0**	**-1.0**	**-1.5**	**-1.5**	**0.5**	**0.0**

Performance Evaluation Notes

Concept	Specific Criteria	Positives	Negatives
Concept N1	Environmental Impacts	– There are no significant environmentally sensitive features that would be impacted by the concept.	–
	Social/Equity Impacts	–	– The alignment of US 395 and SW 20th Street will directly impact upwards of eight properties currently being used for rental housing.
Concept N11a	Environmental Impacts	– There are no significant environmentally sensitive features that would be impacted by the concept.	–
	Social/Equity Impacts	–	– One existing business (Cummins Northwest) will be impacted by the new WB interchange ramp terminal and realignment of SW Court Street/SW 23rd Street. – Modifications to accommodate a new Safeway loading area off of SW Dorion Street will impact additional businesses and residential properties.
Concept N13	Environmental Impacts	– There are no significant environmentally sensitive features that would be impacted by the concept.	–
	Social/Equity Impacts	–	– The alignment of US 395 and SW 20th Street will directly impact a upwards of eight properties currently being used for rental housing. – One existing business (Cummins Northwest) will be impacted by the new WB interchange ramp terminal and realignment of SW Court Street/SW 23rd Street. – Modifications to accommodate a new Safeway loading area off of SW Dorion Street will impact additional businesses and residential properties.
Concept S11b	Environmental Impacts	– There are no significant environmentally sensitive features that would be impacted by the concept.	–
	Social/Equity Impacts	–	– A significant number of businesses and several homes would be impacted on both sides of US 395. – The new two-way realignment of SW Tutuilla Creek Road on the east side of US 395 will bisect existing commercial parcels, eliminating the potential for future redevelopment.
Concept S14a	Environmental Impacts	–	– The new EB exit ramp would run parallel to and traverse Tutuilla Creek, likely resulting in construction impacts to this environmental resource. – Lane widening along US 395 southbound is likely to have construction impacts adjacent to Tutuilla Creek.
	Social/Equity Impacts	– Direct roadway alignment impacts are only limited to the west side of US 395.	– The realignment of SW Hailey Avenue on the west side of US 395 will impact two existing residences.

Evaluation Criterion: Environmental/Social Impacts			
Concept S14b	Environmental Impacts	–	– The new EB exit ramp would run parallel to and traverse Tutuilla Creek, likely resulting in construction impacts to this environmental resource. – The EB entering loop ramp would traverse Tutuilla Creek, likely resulting in construction impacts to this environmental resource. – Lane widening along US 395 southbound is likely to have construction impacts adjacent to Tutuilla Creek.
	Social/Equity Impacts	– Direct roadway alignment impacts are only limited to the west side of US 395.	– The realignment of SW Hailey Avenue on the west side of US 395 will impact two existing residences.
Concept S15a	Environmental Impacts	–	– Lane widening along US 395 southbound is likely to have construction impacts adjacent to Tutuilla Creek.
	Social/Equity Impacts	– Most equitable concept as no one business or property is directly impacted.	–
Concept S15b	Environmental Impacts	–	– Lane widening along US 395 southbound is likely to have construction impacts adjacent to Tutuilla Creek.
	Social/Equity Impacts	– Direct roadway alignment impacts are only limited to the west side of US 395.	–

Table 7c-5 Detailed Accessibility Analysis

Evaluation Criterion: Accessibility Impacts

Concept Scoring

	North Side Concept			South Side Concepts				
Specific Criteria	**Concept N1**	**Concept N11a**	**Concept N13**	**Concept S11b**	**Concept S14a**	**Concept S14b**	**Concept S15a**	**Concept S15b**
Balance local property access with function of US 395	+1	0	0	+2	+1	+1	-2	-2
Provide future access to undeveloped parcels	+1	-1	-1	+1	+1	+1	+1	+1
System Perspective (Average Score)	**1.0**	**-0.5**	**-0.5**	**1.5**	**1**	**1**	**-0.5**	**-0.5**

Performance Evaluation Notes

Concept	Specific Criteria	Positives	Negatives
Concept N1	Balance local property access with function of US 395	– The function of US 395, SW 20th Street, SW Emigrant Avenue, and SW Frazer Avenue are protected as through corridors and enhanced through minor access restrictions to public and private driveways.	– Long-term access to Dorion Avenue off of SW 20th Street may need to be restricted to right-in/right-out movements.
	Provide future access to undeveloped parcels	– No undeveloped parcels are impacted by this concept.	–
Concept N11a	Balance local property access with function of US 395	–	– Although the interchange terminal would shift to the new SW Court Place/SW 23rd Street corridor, the function of US 395 as a limited access facility would not be implemented. In other words, the WB ramp terminals would be removed, but a new SW 23rd Street connection would take their place. – Access to properties along the SW Court Place/SW 23rd Street corridor will be restricted and will impact access to Safeway, Oxford Suites, and all other properties within ¼ mile of the ramp terminals.
	Provide future access to undeveloped parcels	–	– The new WB ramp terminal along SW Court Place /SW 23rd Street will provide more direct connectivity to undeveloped parcels along the SW Court Place commercial corridor. However, access spacing standard along SW Court Place in advance of the interchange ramp terminal will limit access to these undeveloped parcels.
Concept N13	Balance local property access with function of US 395	– The function of US 395, SW 20th Street, SW Emigrant Avenue, and SW Frazer Avenue are protected as through corridors and enhanced through minor access restrictions to public and private driveways.	– Long-term access to Dorion Avenue off of SW 20th Street may need to be restricted to right-in/right-out movements. – Access to properties along the SW Court Place/SW 23rd Street corridor will be restricted and will impact access to Safeway, Oxford Suites, and all other properties within ¼ mile of the ramp terminals.
	Provide future access to undeveloped parcels	–	– The new WB ramp terminal along SW Court Place /SW 23rd Street will provide more direct connectivity to undeveloped parcels along the SW Court Place commercial corridor. However, access spacing standard along SW Court Place in advance of the interchange ramp terminal will limit access to these undeveloped parcels.
Concept S11b	Balance local property access with function of US 395	– The function of US 395 is fully protected within ¼ mile of the EB ramp terminal by restricting public and private access. Meets OAR Division 51 access requirements. – Access to parcels along the west side of US 395 can be shifted to the local circulation network.	– Direct access to properties along the east and west sides of US 395 will be restricted, resulting in a more circuitous route.
	Provide future access to undeveloped parcels	– No undeveloped parcels along the US 395 corridor are directly impacted.	–
Concept S14a	Balance local property access with function of US 395	– Moves in the direction of meeting OAR Division 51 access requirements. – Access to parcels along the west of US 395 can be shifted to the local circulation network.	– Direct access to properties along the west side of US 395 will be restricted, resulting in a more circuitous route.
	Provide future access to undeveloped parcels	– No undeveloped parcels along the US 395 corridor are directly impacted.	–

Evaluation Criterion: Accessibility Impacts			
Concept S14b	Balance local property access with function of US 395	– Moves in the direction of meeting OAR Division 51 access requirements. – Access to parcels along the west of US 395 can be shifted to the local circulation network.	– Direct access to properties along the west side of US 395 will be restricted, resulting in a more circuitous route.
	Provide future access to undeveloped parcels	– No undeveloped parcels along the US 395 corridor are directly impacted.	–
Concept S15a	Balance local property access with function of US 395	– Access to existing businesses along the east and west sides of US 395 are not directly or indirectly impacted by this concept.	– The concept does not address the close spacing between the EB ramp terminal and the Hailey Avenue/Tutuilla Creek Road intersection. – The concept does not address or move in the direction of the OAR Division 51 access requirements.
	Provide future access to undeveloped parcels	– No undeveloped parcels along the US 395 corridor are directly impacted.	–
Concept S15b	Balance local property access with function of US 395	– Access to parcels along the west of US 395 can be shifted to the local circulation network.	– The concept does not completely address the close spacing between the EB ramp terminal and the Hailey Avenue/Tutuilla Creek Road intersection. – Direct access to properties along the west side of US 395 will be restricted, resulting in a more circuitous route.
	Provide future access to undeveloped parcels	– No undeveloped parcels along the US 395 corridor are directly impacted.	–

EVALUATION CRITERIA SUMMARY

Based on the detailed assessment of each concept, a summary overview of the key findings are included in the following sections.

Transportation Operations

Table 7C-6 provides a summary of the intersection operations study at the interchange ramp terminals and critical up-stream intersections.

Table 7c-6 Intersection Operations Summary Table

	North Side Concepts			South Side Concepts			
	N1	N11a	N13	S11b	S14a	S14b	S15
I-84 WB Ramp Terminal	0.83	0.36	0.44				
US 395/SW Emigrant Avenue		0.85	0.91				
I-84 EB Ramp Terminal				0.86	0.99	0.86	0.83
US 395/SW Hailey Avenue				0.86	0.72	0.72	0.78

From a transportation operations perspective, the detailed assessment of each concept revealed the following:

- On the north side, all three concepts will improve the operations and safety of the existing interchange. Concept N1 will provide sufficient capacity, but the resulting interchange ramp will not meet Oregon's long-range capacity standard of 0.70. Concepts N11a and N13 provide similar operations at the I-84 Westbound ramp terminals; however, Concept N11a provides additional capacity at the US 395/SW Emigrant Avenue intersection.
- On the south side, Concepts S11b and S14b completely address the existing queue spillback issue on US 395 southbound from SW Hailey Avenue back through the I-84 Eastbound ramp terminal. Both options provide similar levels of capacity. Concept S11b is not subject to the HDM capacity standard since it does not alter the configuration of the interchange. Concept S14a addresses some of the safety concerns associated with existing queue spillback issue by relocating the I-84 Eastbound off-ramp terminal. However, southbound left-turn queues are still forecast to occasionally back up into the southbound through lanes at the SW Tutuilla Creek Road intersection.
- While Concept S15 provides similar levels of long-term capacity at the US 395/Tutuilla Creek Road/SW Hailey Avenue intersection, vehicle queue spillback will still be a safety and operational problem given the close spacing to the Eastbound ramp terminal. In

addition, the lack of spacing will lead to the potential for vehicle queue spillback on the Eastbound ramp terminal. For these reasons, Concept S15 is considered to be ***fatally flawed***.

- The north-side concepts should all improve bicycle and pedestrian comfort around the existing I-84 WB ramp terminals by providing signalized crossings. On the south side, Concept S11b eliminates the signalized crossing of US 395 at the existing SW Tutuilla Creek Road intersection, so a multi-use path along the east side of US 395 between SW Tutuilla Creek Road and the I-84 EB ramp terminals may be needed so bicyclists can avoid out-of-direction travel up a steep grade.
- While each of the concepts have impacts to the local circulation network, the goal of maintaining access to/from local streets can be achieved at varying levels. On the north-side, all three concepts would require some restrictions and modifications. On the south-side, realignments of SW Hailey Avenue and SW Tutuilla Creek Road in Concept S11b requires re-routing of traffic, but all local street access and connectivity can be achieved with relatively minimal impacts.

Land Use

Table 7C-6 provides a summary of the preliminary right-of-way impacts associated with each concept. From a land use perspective, the detailed assessment of each concept revealed the following:

- On the north side, Concept N1 and N11a have fairly substantial right-of-way impacts that are compounded under the N13 concept.
- On the south side, Concept S11b has the greatest amount of right-of-way needs as improvements would impact both sides of US 395.

Table 7c-7 Preliminary Right-of-Way Impacts

Concept	Number of Properties Directly Impacted	Preliminary Right-of-Way Acquisition Estimate
N1	17	$4M
N11a	10	$3M
N13	27	$7M
S11b	12	$12M
S14a	5	$6M
S14b	5	$6M
S15	1	$.5M

Cost

Table 7c-7 provides a summary of the total cost estimate for each concept.

Table 7c-8 Construction Cost Estimates

	North Side Concepts			South Side Concepts			
	N1	N11a	N13	S11b	S14a	S14b	S15
Preliminary Construction Cost	$4M	$9M	$12M	$4M	$8M	$18M	$3M
Preliminary Right-of Way Cost	$4M	$3M	$7M	$12M	$6M	$6M	$0.5M
Total	**$8M**	**$12M**	**$19M**	**$16M**	**$14M**	**$24M**	**$3.5M**

From a cost and constructability perspective, the detailed assessment of each concept revealed the following:

- Concept N1 and S14a represent the lowest overall cost between the north and south sides.
- Compared to Concept N1, the construction costs of Concept N11a are estimated to be twice as expensive.
- Concept N13, which is essentially a combination of N1 and N11a is the most expensive north side concept.
- On the south side, Concept S14a and S14b are the most expensive due to the construction of new EB ramps.
- Concepts S14a and S14b would have some construction challenges associated with the EB ramps through, along, and over Tutuilla Creek.

Environmental/Social

From an environmental/social impacts perspective, the detailed assessment of each concept revealed the following:

- There are no significant environmental issues associated with any of the north side concepts.
- All three north side concepts would have varying degrees of social impacts associated with the residential properties located along SW 20th Street and SW Dorion Avenue.
- On the south side, Concepts S14a and S14b are likely to have substantial environmental impacts to Tutuilla Creek.

Accessibility

From an accessibility perspective, the detailed assessment of each concept revealed the following:

- On the north side, Concept N1 does the best job at balancing local property access with the overall function of US 395.
- On the south side, Concept S11b works toward the OHP access spacing standards and ensures the best long-term function of US 395.

After applying the specific evaluation criteria to each concept and applying equal weighting to each sub-category evaluation, an average score for each of the five primary evaluation criteria was calculated. Table 7c-8 summarizes the primary evaluation criteria scoring for each concept and also provides an overall total score based on the total of the averages of the five primary evaluation criteria. This process was followed to provide a basis for comparison between each concept for the TAC and PAC.

Table 7c-9 Evaluation Criteria Scoring Summary

Evaluation Criteria	North Side Concepts			South Side Concepts			
	Concept N1	Concept N11a	Concept N13	Concept S11b	Concept S14a	Concept S14b	Concept S15
Transportation Operations	1.0	1.0	1.25	0.75	0.25	0.5	-2.0*
Land Use	0.0	0.0	0.0	-1.0	0.5	0.5	1.5
Cost/Implementation	0.0	-0.5	-0.5	0.0	-1.0	-1.0	1.0
Environmental/Social	0.5	0.0	0.0	-1.0	-1.5	-1.5	0.5
Accessibility	1.0	-0.5	-0.5	1.5	1.0	1.0	-0.5
Total Score	**2.5**	**0.0**	**0.25**	**0.25**	**-0.75**	**-0.5**	**0.5**

***** As documented in the transportation operations matrix, Concept S15 is considered to be a fatally flawed concept.

In reviewing the summary evaluation information presented above, the following conclusions can be made:

North Side Concepts

Concepts N1, N11a, and N13 can all adequately serve the long-term traffic demands on the interchange and surrounding land uses. As a result, the north side concepts can essentially be broken down to which concept has the fewest land use impacts, is the least costly, and best meets the accessibility and access needs of the interchange and surrounding local street network. When reviewed from a cost/implementation and accessibility perspective, Concept N1 starts to stand out more than the others. This is particularly true when you consider the construction costs of Concepts N11a and N13 are more than double that of Concept N1 and have no substantial benefits in any of the other evaluation categories.

South Side Concepts

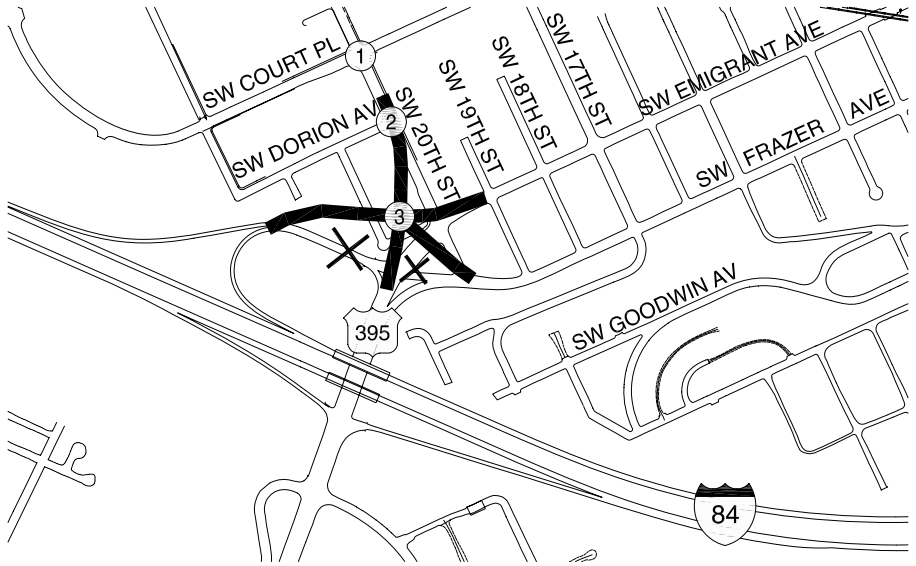
Although it scores well in the cost and land use categories, Concept S15 has significant operational and safety concerns that are considered to be fatally flawed in the long-term. As a result, only Concepts S11b, S14a, and S14b have long-term potential. Amongst these three remaining concepts, Concept S11b has a lower overall cost but a considerably higher land use impact. Concepts S14a and S14b have comparably lower land use impacts with considerably higher costs and environmental impacts.

NEXT STEPS

As previously stated, the purpose of the memorandum is to provide the TAC and PAC committee members with a quantitative assessment of the new north-side and south-side concepts. This memorandum will be reviewed with the TAC and PAC on May 5, 2010, in Pendleton, Oregon.

Appendix A

Forecast 2030 Traffic Operations and Lane Configurations



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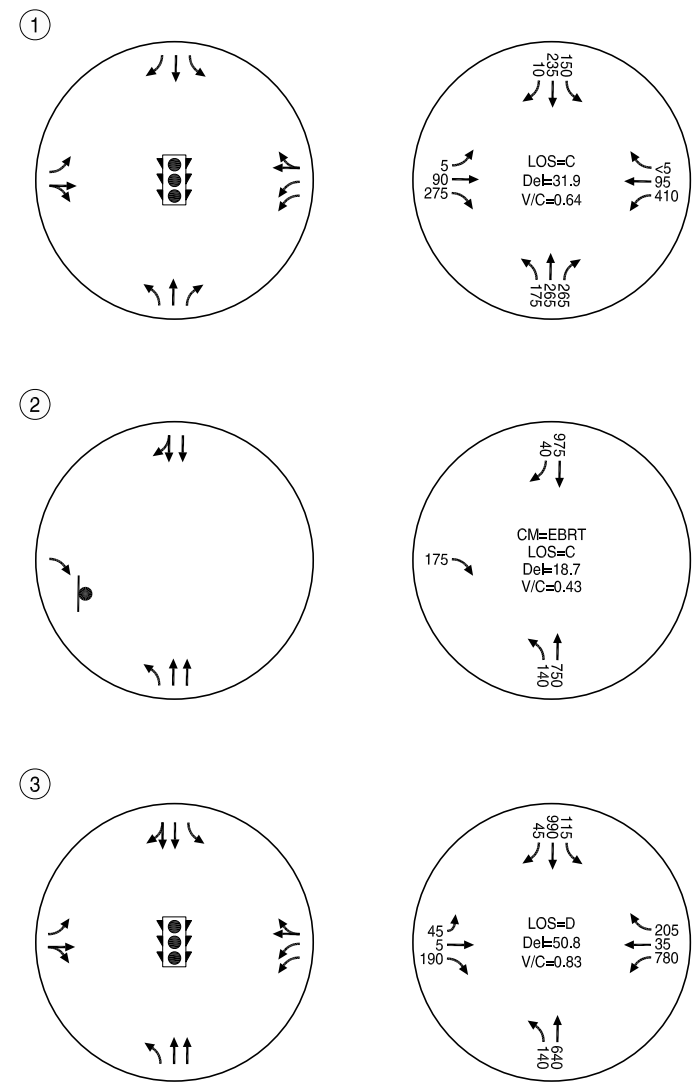

LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

CONCEPT N1 2030 TRAFFIC OPERATIONS, 30TH HIGHEST HOUR
LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
PENDLETON, OREGON

FIGURE **N1**

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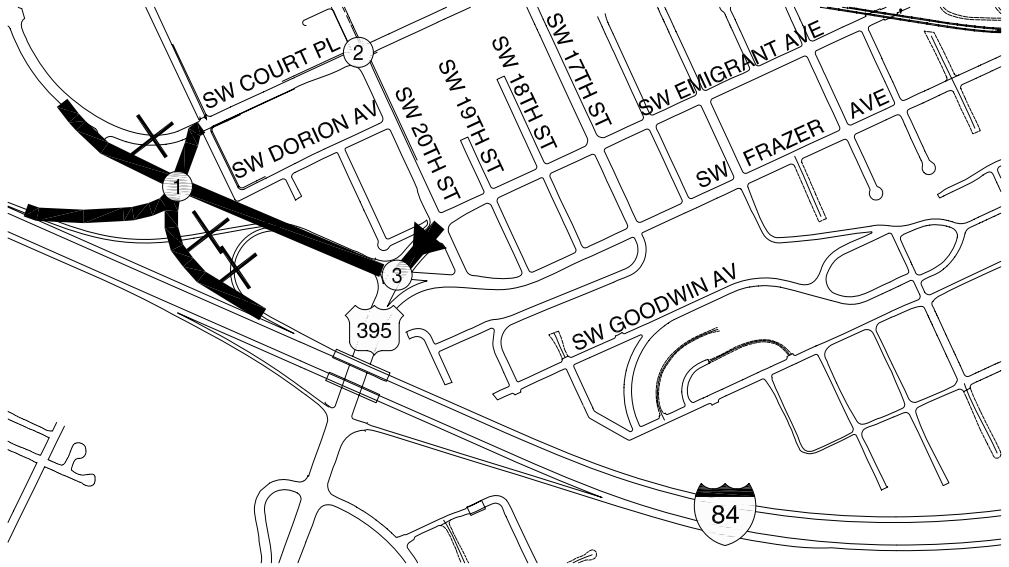

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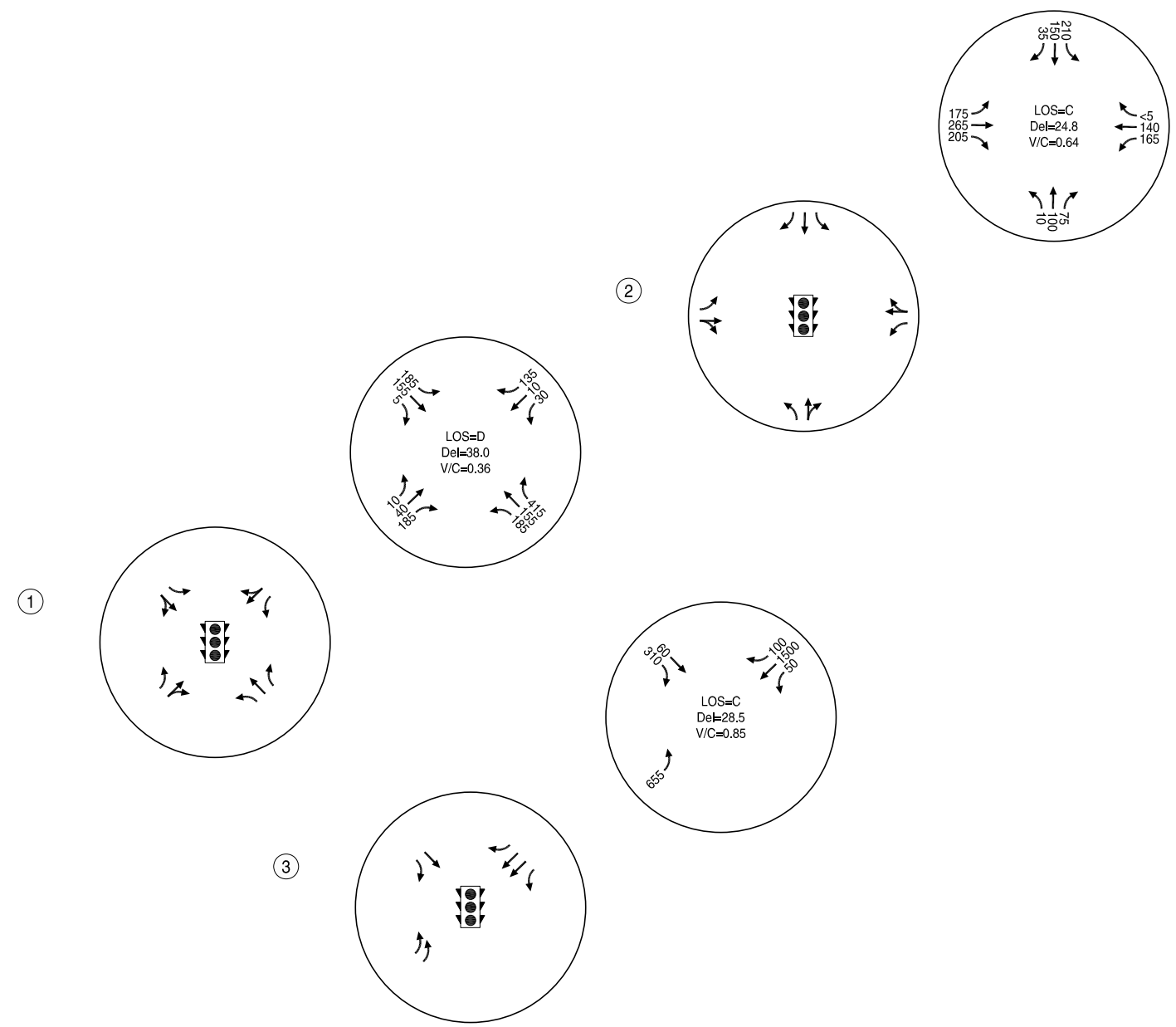

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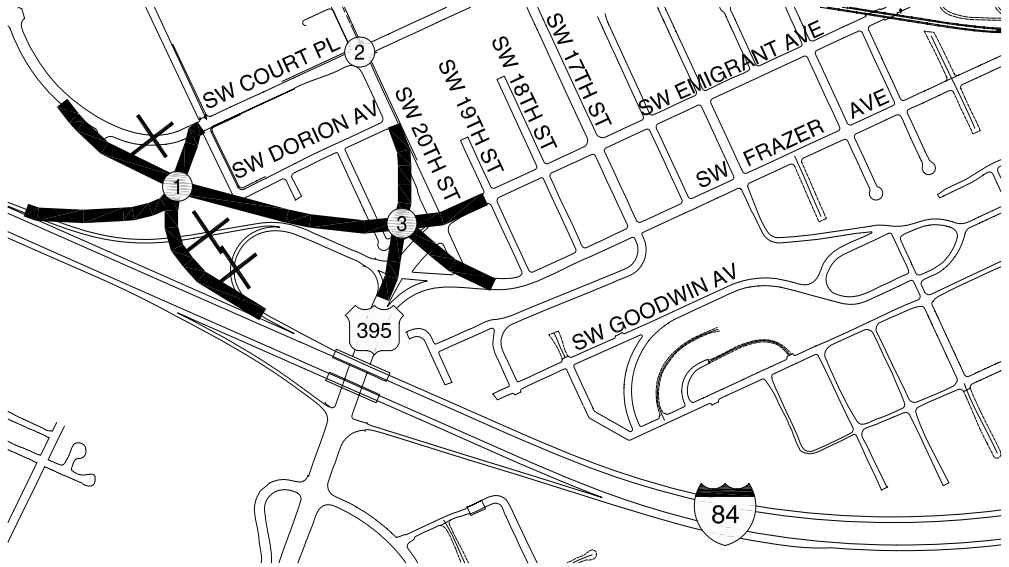
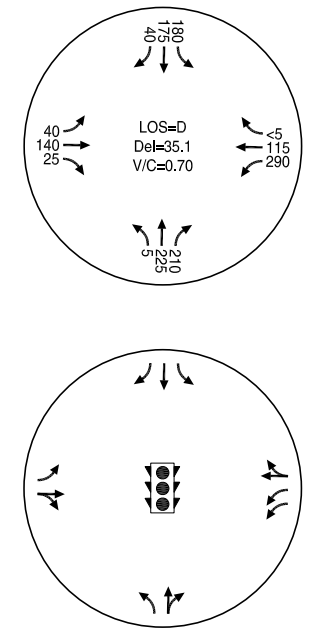
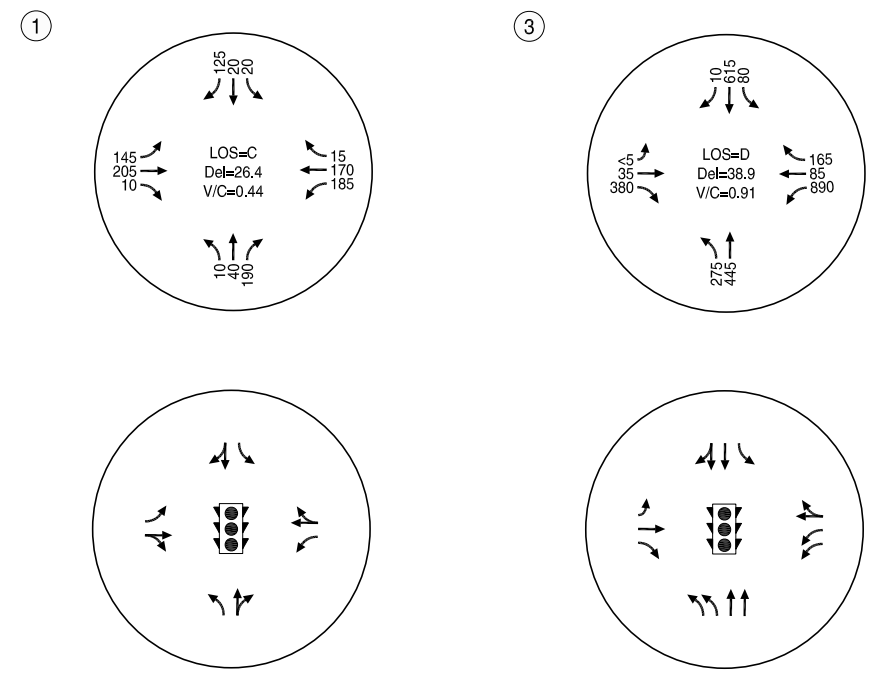
CONCEPT N11A 2030 TRAFFIC OPERATIONS, 30TH HIGHEST HOUR
TRAFFIC CONTROL DEVICES AND LANE CONFIGURATION DEVICES
PENDLETON, OREGON

FIGURE
N11A

(NO SCALE)







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- TRAFFIC SIGNAL

CONCEPT N13 2030 TRAFFIC OPERATIONS, 30TH HIGHEST HOUR
TRAFFIC CONTROL DEVICES AND LANE CONFIGURATION DEVICES
PENDLETON, OREGON

FIGURE
N13

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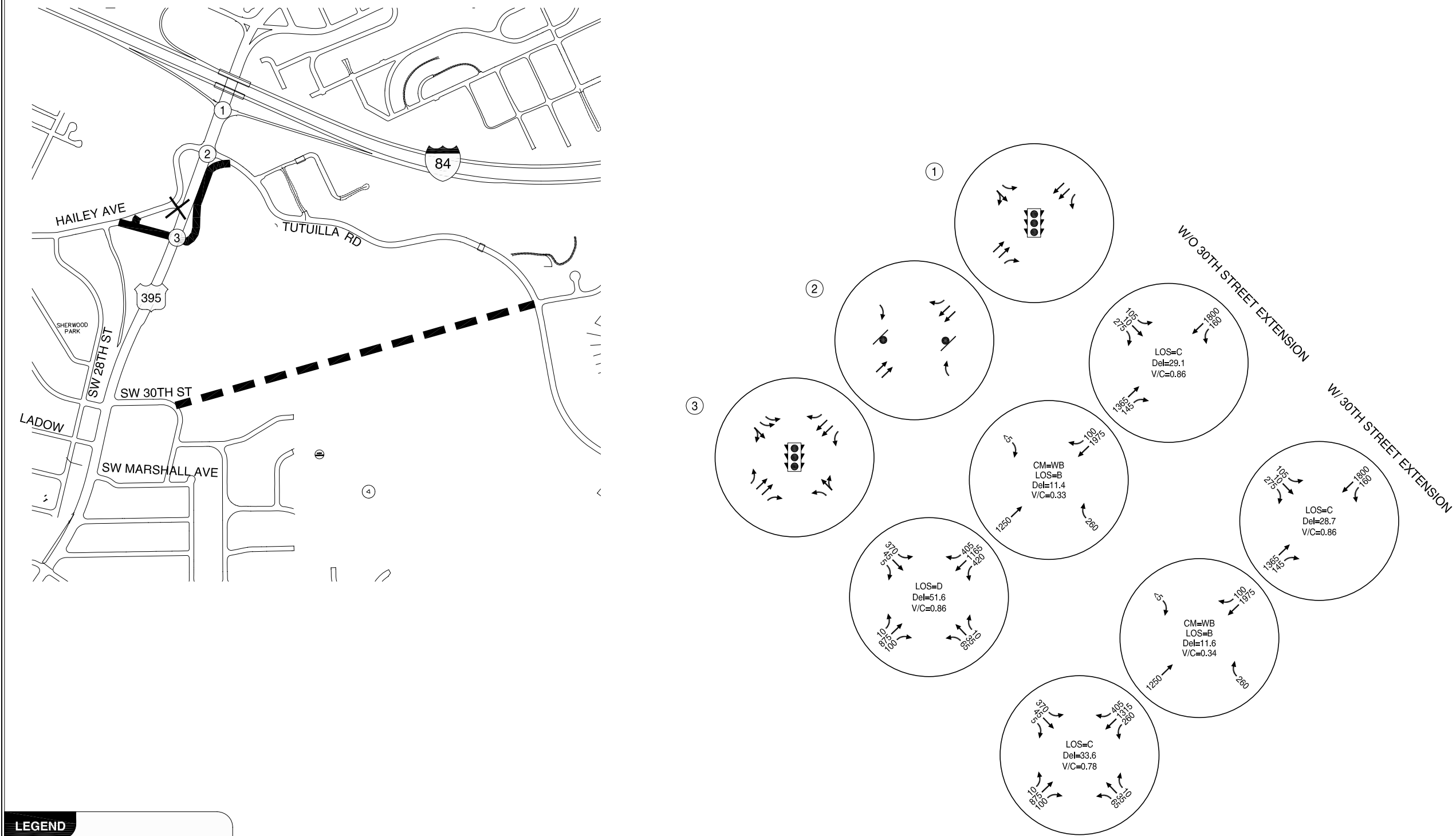

LEGEND

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- TRAFFIC SIGNAL

CONCEPT S11B 2030 TRAFFIC OPERATIONS, 30TH HIGHEST HOUR
LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
PENDLETON, OREGON

FIGURE **S11B**

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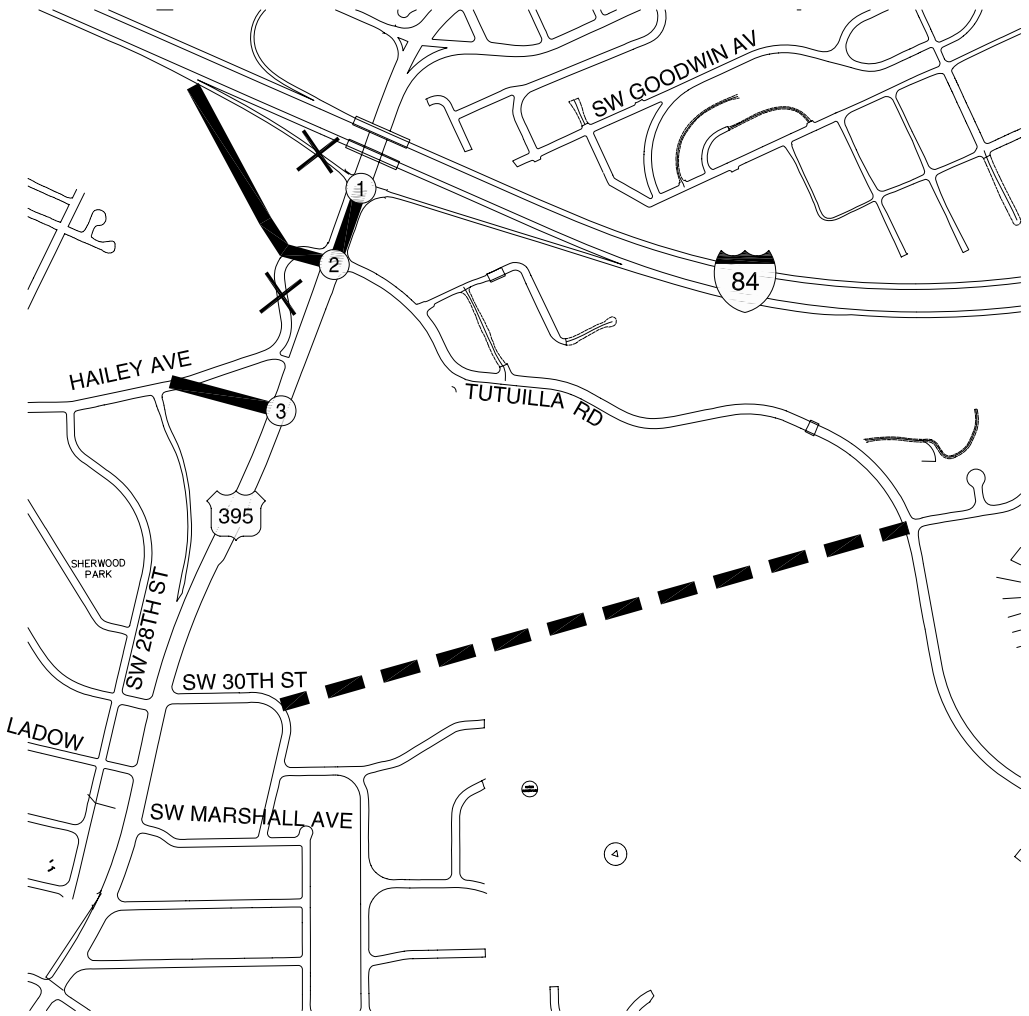
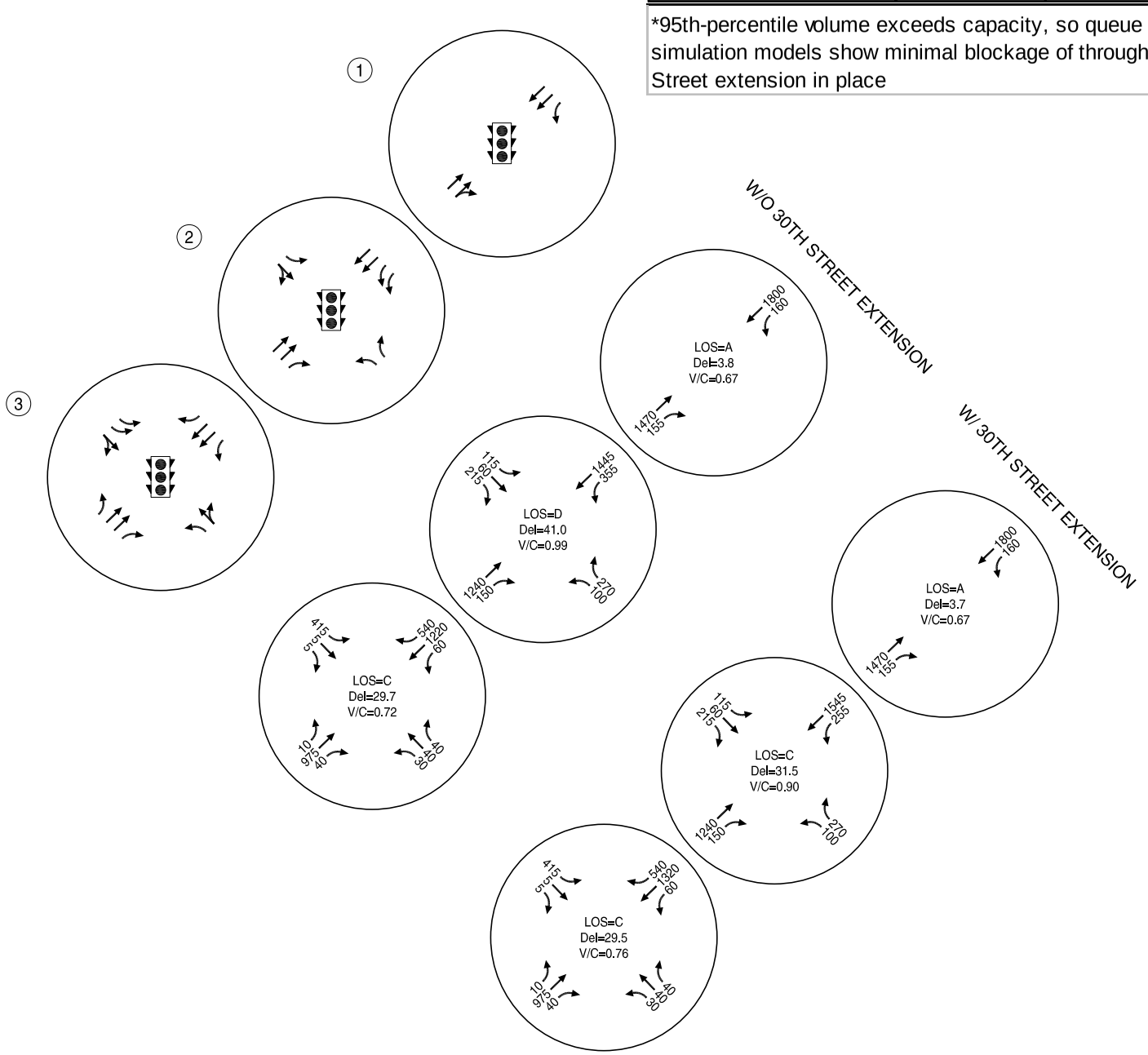
(NO SCALE)

95th-percentile Queuing Summary

	95th-Percentile Queue (FT)	Storage Available (FT)	Adequate Space Available?
W/O 30TH ST Extension	<200	150	No
W/ 30TH ST Extension	150*	150	Yes*

*95th-percentile volume exceeds capacity, so queue may be longer. However, simulation models show minimal blockage of through lanes with the SW 30th Street extension in place





LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

CONCEPT S14A 2030 TRAFFIC OPERATIONS, 30TH HIGHEST HOUR LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES PENDLETON, OREGON

FIGURE **S14A**

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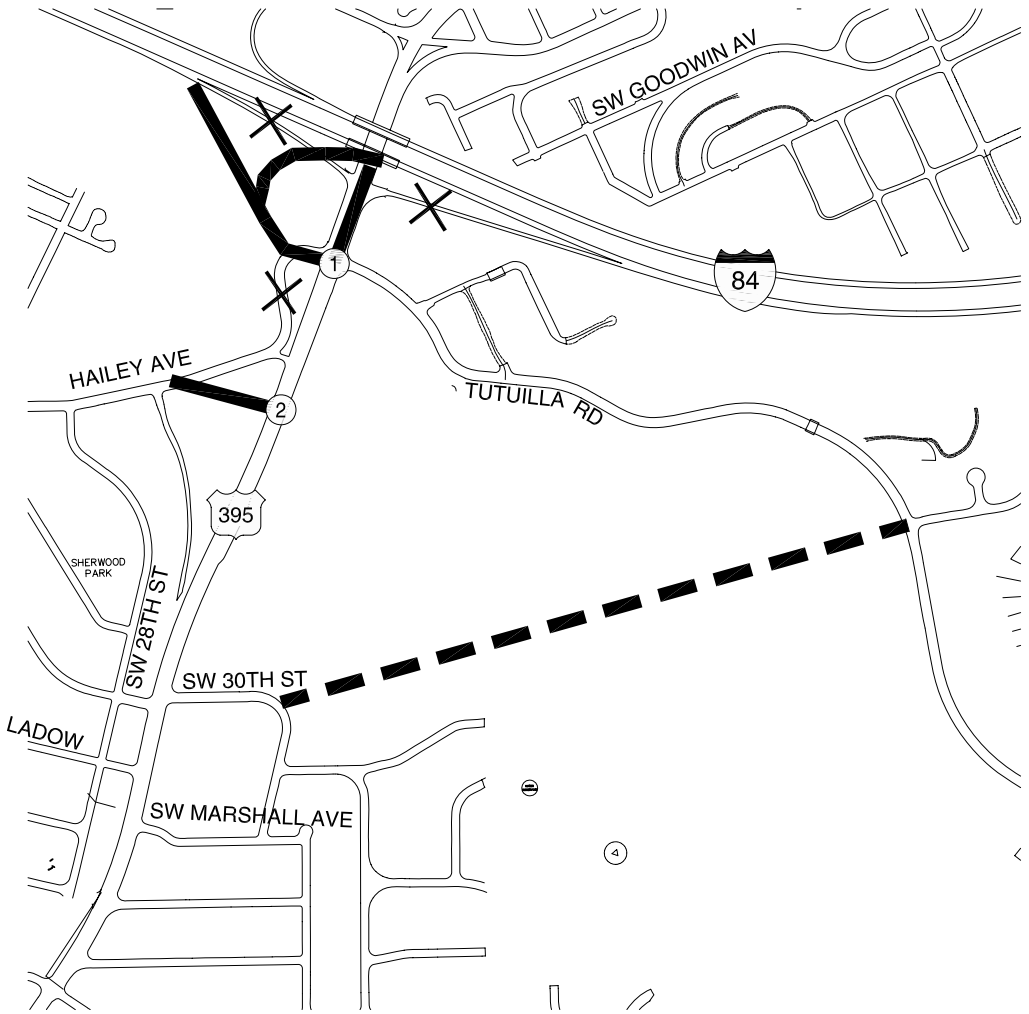
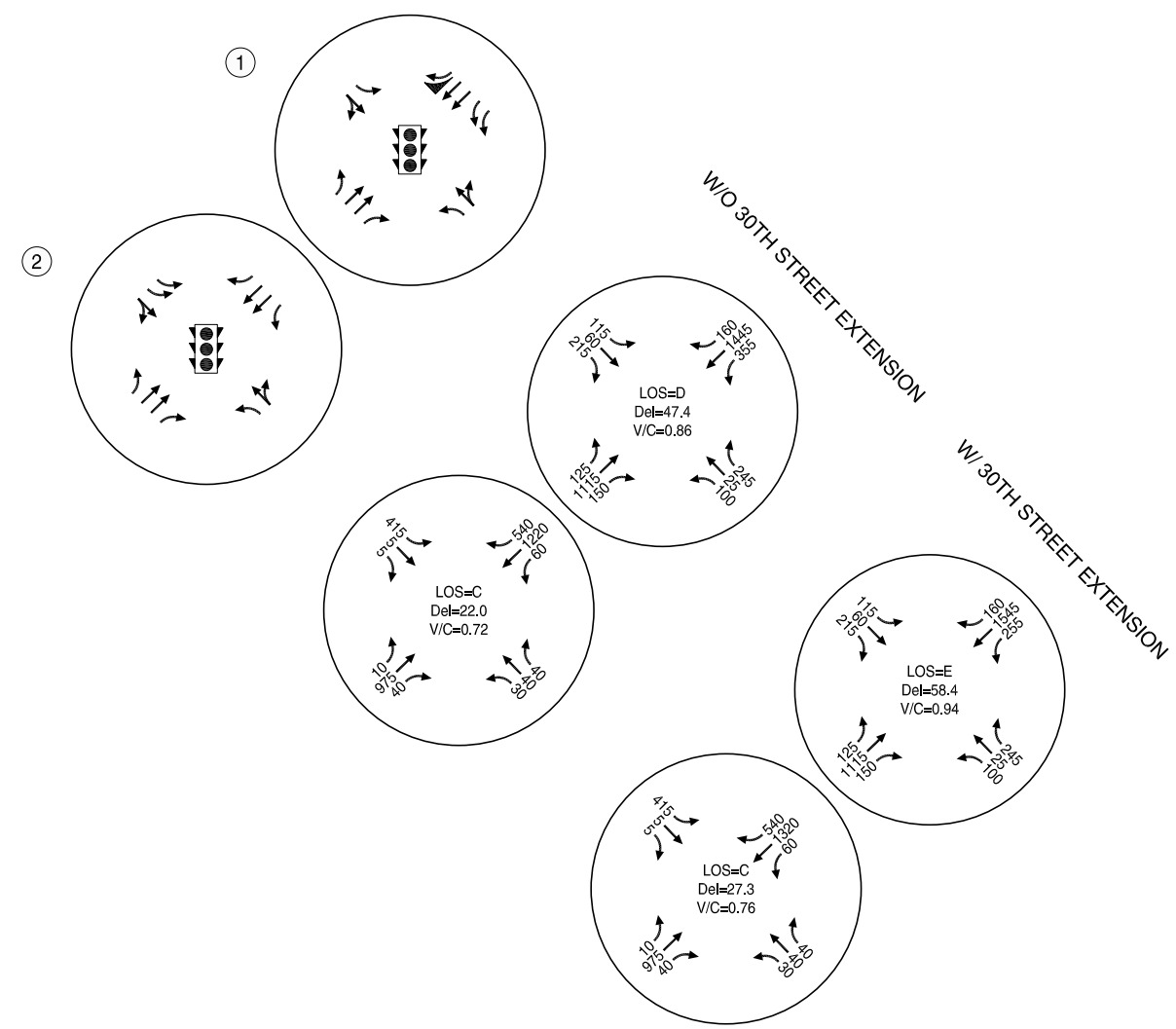
TRANSPORTATION ENGINEERING / PLANNING

(NO SCALE)





LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

CONCEPT S14B 2030 TRAFFIC OPERATIONS, 30TH HIGHEST HOUR
LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
PENDLETON, OREGON

FIGURE **S14B**

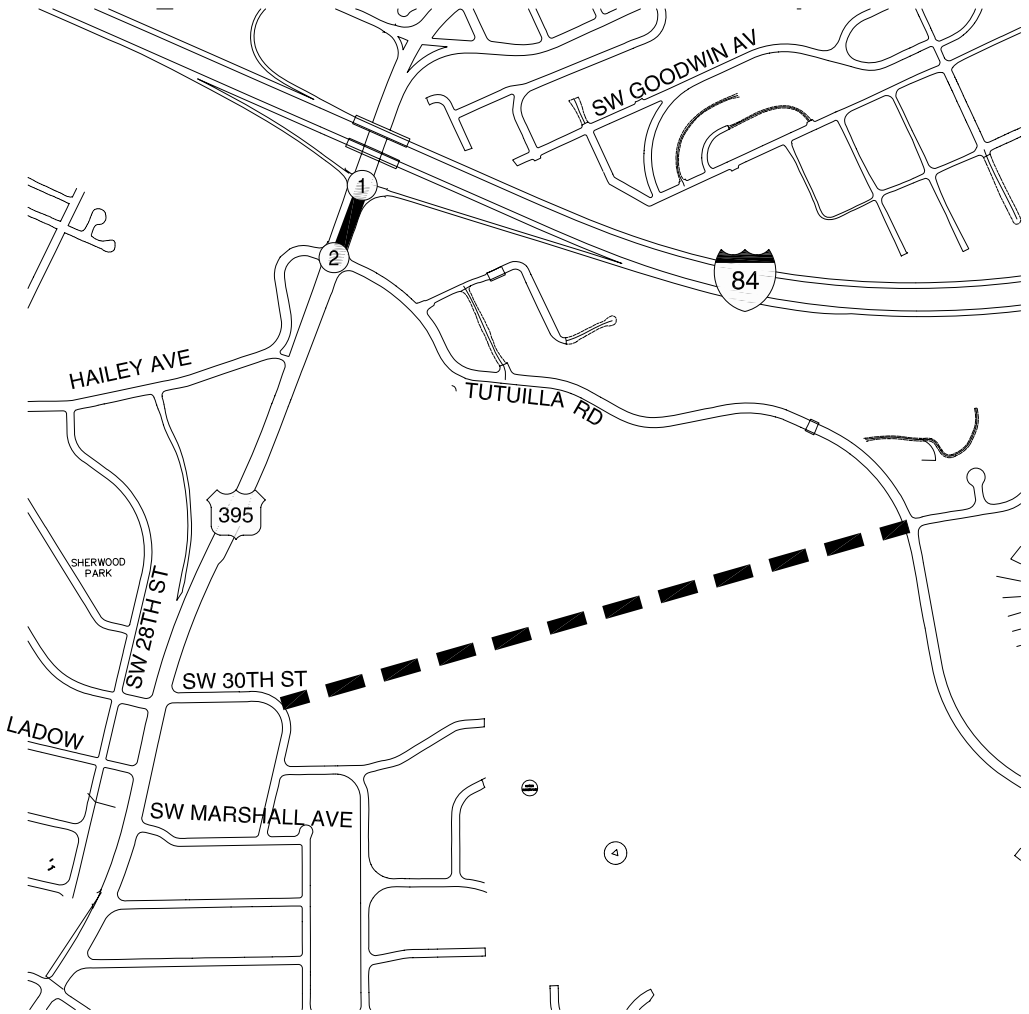
KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

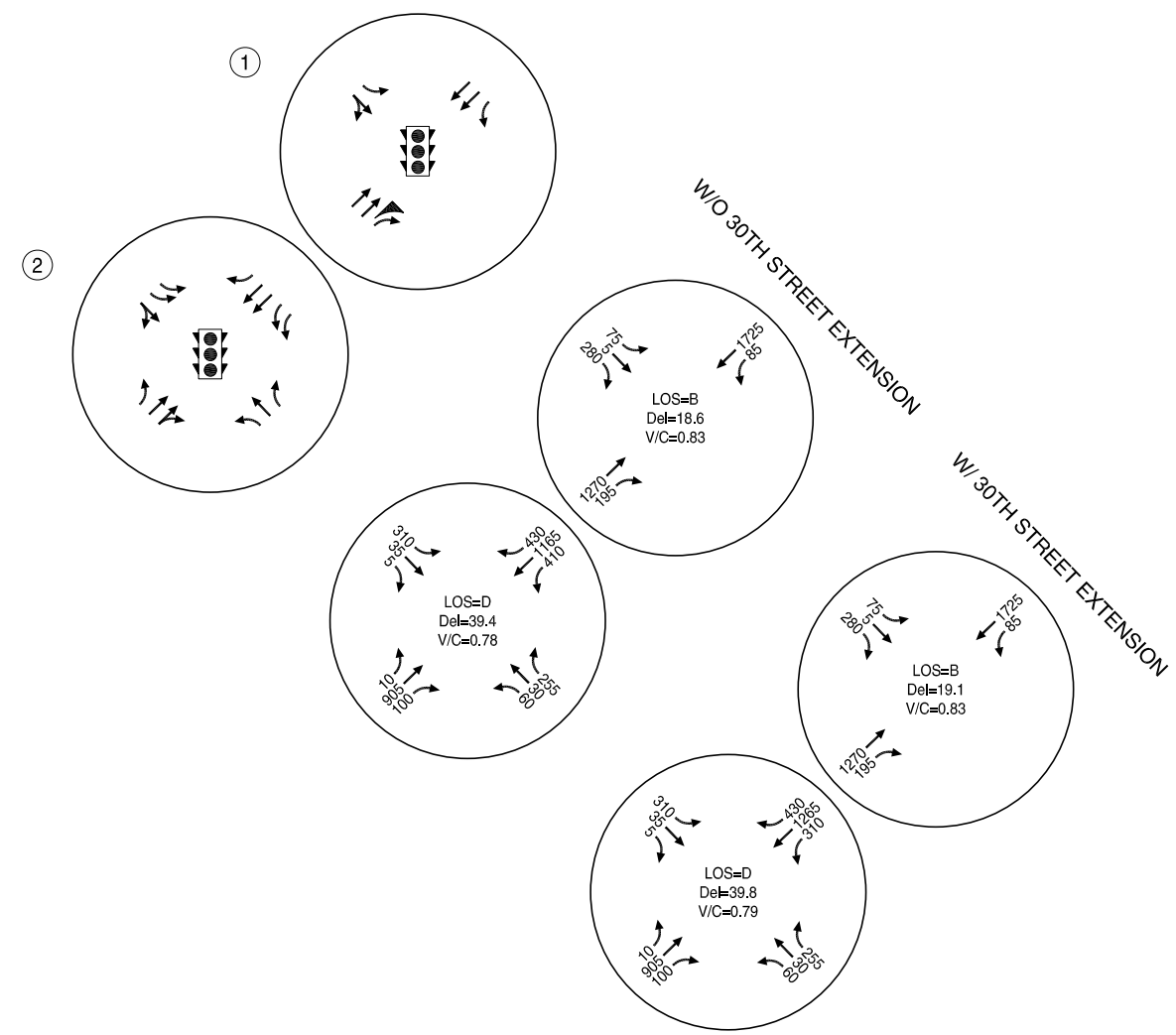
(NO SCALE)

95th-percentile Queuing Summary

	95th-Percentile Queue (FT)	Storage Available (FT)	Adequate Space Available?
W/O 30TH ST Extension	125*	150	Yes*
W/ 30TH ST Extension	100*	150	Yes*

*Queue is metered by an upstream signal and may be longer in actuality. Simulation models show significant blockage of I-84 Eastbound ramp terminals/US 395 intersection without the SW 30th Street extension and moderate blockage with the extension.





LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

CONCEPT S15 2030 TRAFFIC OPERATIONS, 30TH HIGHEST HOUR LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES PENDLETON, OREGON

FIGURE **S15**

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Appendix B

Evaluation Criteria Descriptions and Scoring Definitions

EVALUATION CRITERIA DESCRIPTIONS AND SCORING DEFINITIONS

Transportation Operations

Mobility: Provide a transportation system that has sufficient capacity to serve all forms of vehicular traffic, including trucks. [Meets OHP Goal 1 (System Definition), Policy 1F (Highway Mobility Standards) and Highway Design Manual.

Safety: Provide an efficient system that safely accommodates all modes of transportation in all weather conditions by meeting design standards. [Meets OHP Goal 2 (System Management), Policy 2F (Traffic Safety)]

Multimodal: Enhance multimodal transportation options through the provision of an interconnected system of roadway, pedestrian, and bicycle facilities. [Meets OAR 660-012-0035(3)(d) and (3)(e)]

Local Circulation: Maintain an adequate local circulation network to meet the needs of adjacent land uses. [Meets OAR 660-012-0035(3)(a)]

LAND USE

Right-of-Way Impacts: Minimize displacements and right-of-way impacts to existing land uses.

Economic Development: Provide transportation improvements that support existing businesses and future economic development in the interchange area. [(Consistent the Transportation Planning Rule, OAR 660-012-0060 and meets OHP Goal 1 (System Definition), Policy 1G (Major Improvements)]

Cost

Cost/Implementation: Develop design alternatives that allow for a cost effective and timely implementation strategy that will efficiently meet permitting requirements.

Environmental/Social Impacts

Environmental/Social Impacts: Develop design alternatives that minimize the natural resource, air, noise, and cultural/historical impacts to the surrounding area. [Meets OAR 660-012-0035(3)(b) and Meets OHP Goal 5 (Environmental and Scenic Resources), Policy 5A (Environmental Resources)]

Accessibility

Local Properties: Balance local access to US 395 with the need to maintain the function and capacity of the Highway for area wide through traffic. [Meets OHP Goal 1 (System Definition), Policy 1G (Major Improvements)

Future Access to Undeveloped Properties: Provide property access via the local road network to support future development patterns.

EVALUATION CRITERIA SCORING DEFINITIONS

Transportation Operations

Provide Mobility with Adequate Capacity
+2 Provides More Than Adequate Roadway and Intersection Capacity
+1 Provides Adequate Roadway and Intersection Capacity
0 No Significant Change to the Existing Roadway and Intersection Capacity
-1 Decreases Roadway and Intersection Capacity
-2 Significantly Decreases Roadway and Intersection Capacity

Enhance Travel Safety for All Modes of Transportation
+2 Eliminates Existing Safety Concerns
+1 Improves Existing Safety Concerns
0 No Significant Change to Existing Safety Concerns
-1 Further Degrades Existing Safety Concerns
-2 Results in Unacceptable Safety Concerns

Provide Connectivity throughout the Local Road Network
+2 Significantly Enhances Local Street Connectivity within the Study Area
+1 Improves Local Street Connectivity within the Study Area
0 No Significant Change to Local Street Connectivity
-1 Decreases Local Street Connectivity within the Study Area
-2 Significantly Decreases Local Street Connectivity within the Study Area

Maintain a Local Circulation Network
+2 Significantly Enhances Local Street Circulation
+1 Improves Local Street Circulation
0 No Significant Change from Existing Conditions
-1 Decreases Local Street Circulation
-2 Significantly Decreases Local Street Circulation within the Study Area

Land Use

Right-of-Way Impacts
+1 No Right-of-Way Acquisitions or Displacements are Necessary
0 Right-of-Way Acquisitions and Displacements are Limited to Vacant/Undeveloped Properties and a Few Residents/Businesses
-1 Right-of-Way Acquisitions and Displacements are Necessary for Numerous Properties, Businesses, and Residents

Supports Existing Businesses and Future Economic Development
+2 Improvements Have No Impacts to Existing Businesses and Support Future Economic Development
+1 Improvements Have Some Impacts to Existing Businesses but Generally Supports Future Economic Development
0 No Change from Existing Conditions
-1 Improvements are Disruptive to Existing Businesses
-2 Improvements are Disruptive to Existing Businesses and Does Not Support Future Economic Development

Cost

Cost
+1 Least expensive or within 10% of the least expensive
0 Within 20% of the least expensive
-1 Greater than 20% of the least expensive

Construction Feasibility

+1 Limited impact on existing traffic flow and/or lowest anticipated complexity of construction staging activities.
0 Moderate Impact on existing traffic flows and/or moderate anticipated complexity of construction staging activities.
-1 Major impact on existing traffic flow and/or highest anticipated complexity of construction staging activities.

Social/Environmental

Environmental Impacts

+2 Creates No Environmental Impacts
+1 Environmental Impacts Are Minimal
0 No Significant Change from Existing Conditions
-1 Creates Some Negative Environmental Impacts
-2 Creates Significant Negative Environmental Impacts

Social Impacts

+2 Creates No Social Impacts
+1 Social Impacts Are Minimal
0 No Significant Change from Existing Conditions
-1 Creates Some Negative Social Impacts
-2 Creates Significant Negative Social Impacts

Accessibility

Balance Local Property Access with Function of US 395

+2 Maintains All Existing Local Property Access to US 395 While Maintaining the Function of the Highway
+1 Effectively Consolidates Local Property Access to US 395 While Maintaining the Function of the Highway
0 No Significant Change from Existing Conditions
-1 Consolidates Local Property Access to US 395 at the Expense of Compromising the Function of the Highway
-2 Maintains All Existing Local Property Access at the Expense of Compromising the Function of the Highway

Future Access to Undeveloped Properties

+1 Local Roadway Network Provides Adequate Access to Future Undeveloped Properties
0 Local Roadway Network Creates Minimal Access Opportunities to Undeveloped Properties
-1 Local Roadway Network Negates Access to Opportunities to Undeveloped Properties

Appendix I

Operational Analysis of South-Side Phased Improvements Memorandum

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610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

MEMORANDUM

Date: June 23, 2010 Project #: 9627.0

To: Patrick Knight, ODOT Region 5

From: Nick Foster; Matt Hughart, AICP; and Marc Butorac, PE, PTOE

Project: I-84/US 395 IAMP

Subject: Operational Analysis of South-Side Phased Improvements

This memorandum provides a summary of the operational analysis performed for the recommended concepts for the I-84/US 395 Interchange Area Management Plan (IAMP). We have performed analyses of the south side concepts with and without an extension of SW 30th Street between US 395 and Tutuilla Creek Road. Analyses have been performed for year 2030 planning horizon conditions for the north side concept. On the south side, analyses have been performed for existing conditions for Phase 1 (previously referenced as Concept S15a), interim year 2020 conditions for Phases 1 and 2 (previously referenced as Concept S15b), and year 2030 planning horizon conditions for all phases, including Phase 3A (previously referenced as Concept S14b) and 3B (previously referenced as Concept S11b).

NORTH SIDE IMPROVEMENTS

Concept N1, as shown in Figure 7d-1 and in Attachment "A," is the recommended concept for the north side of the I-84/US 395 interchange. This concept aligns the SW 20th Street and US 395 travel corridors. A new I-84 WB ramp terminal/SW Emigrant Avenue intersection will be developed at the junction of these two alignments. The US 395/SW 20th Street alignment will need two northbound through travel lanes resulting in a full five-lane cross section on SW 20th Street. A raised median will be needed along the new SW 20th Street alignment between SW Court Place and SW Emigrant Avenue. A northbound left-turn into SW Dorion Avenue from SW 20th Street could be maintained when Concept N1 is constructed. However, as traffic volumes increase, it will likely be restricted if queues on SW 20th Street begin to spill back from the US 395 intersection.

As Figure 7d-1 shows, this concept will provide adequate capacity for projected year 2030 volumes at the I-84 WB ramp terminal. The primary driving force behind needing to improve the I-84 WB ramp terminal is that queues from the SW 20th Street/SW Emigrant Avenue intersection back-up in front of the ramp terminal today. As traffic volumes increase, this problem will be exacerbated. This concept addresses this problem by consolidating these two closely spaced intersections into one intersection.

North Side Cost Estimates

Table 1 summarizes the construction and right-of-way cost estimates for the identified north side improvement (Concept N1). The cost estimate is presented as a total project cost as there is no incremental phasing associated with the improvement.

Table 1
North Side Improvement Cost Estimate

	Concept N1
Preliminary Construction Costs	$4M
Preliminary Right-of-Way Costs	$4M
Total	$8M

Possible Exceptions/Deviations from Standards

There are two potential exceptions/deviations that will be required as part of the N1 north side improvement. First, the realigned US 395/SW 20th Street corridor and its intersection with SW Emigrant Avenue/WB ramp terminal will be the new interchange access point. The development of this intersection will be new construction and as such, the operational performance standard falls under the guidance of the Oregon Highway Design Manual (HDM). The applicable volume to capacity (v/c) ratio for a new interchange ramp terminal in the HDM is 0.70. As shown in Figure 7d-1, the projected operational performance of the intersection is forecast to be a v/c ratio of 0.83 under 2030 volumes. This difference will likely require a deviation from the performance standard to be adopted as part of the IAMP.

The second major deviation is related to the access spacing standards outlined under Oregon Administrative Rule 734, Division 51 and the Oregon Highway Plan (OHP). While the north side improvement significantly improves the long-term operational performance of the interchange ramp terminal, the surrounding roadway infrastructure does not allow for the full implementation of the desired ¼-mile access management standard for interchanges (although it is an improvement over existing conditions). As such, the IAMP will likely need to incorporate an access management plan with allowances for near- to mid-term access along the SW 20th Street, SW Emigrant, and SW Frazer Avenue corridors.

SOUTH SIDE IMPROVEMENTS

Unlike the north side improvements, the south side improvements have been identified as a phased set of projects that can be implemented over time to address operational deficiencies.

Phase 1

Existing Conditions

Phase 1, as shown in Figure 7d-2 and in Attachment "A," involves the widening of the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection. Widening the intersection would increase its capacity and reduce the potential for southbound left-turn queues to back up on US 395 from this intersection through the I-84 Eastbound ramp terminals. As Figure 7d-2 shows, under existing conditions, Phase 1 is forecast to provide ample capacity with sufficient storage for the 95th-percentile queues for the southbound left-turn.

Since the widened intersection may necessitate split-phasing on the SW Hailey Avenue and SW Tutuilla Creek Road approaches to avoid left-turns overlapping paths, a progression analysis was also conducted. Split phasing would require that the cycle length be increased in order to accommodate the additional phases. The progression analysis was conducted to determine if adequate bandwidth would still be available if Phase 1 were implemented under today's conditions. Table 2 shows the results of this analysis.

Table 2 Phase 1 Progression Analysis – Existing Volumes

Scenario	Bandwidth (sec)
Existing Configuration	33 (SB), 20 (NB)
Phase 1	48 (SB), 38 (NB)

As Table 2 shows, the bandwidth available along the coordinated section of the corridor would increase under Phase 1 conditions. This is due in part to the increase in the cycle length. This increase in cycle length will also increase the average platoon size. However, the increase in platoon size will be approximately 25%, compared to an increase in bandwidth capacity of more than 50% in both directions. Therefore, progression should still be able to be maintained under the Phase 1 traffic control and lane configuration.

Interim Year 2020 Conditions

Phase 1 was also analyzed under interim year 2020 conditions in order to determine the expected lifespan of the improvement. Year 2020 volumes assume linear growth between existing volumes and forecast year 2030 volumes, which are based on the Pendleton travel demand model. Figure 7d-3 shows the results of this analysis. As the figure shows, the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection is forecast to have adequate capacity when examined in

isolation. The analysis also reveals that the 95th-percentile queue for the southbound left-turn on US 395 at the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection is projected to be at its capacity, assuming the SW 30th Street extension is not constructed at this time. Thus, Phase 1 is anticipated to have a lifespan of approximately 8-10 years before additional improvements will be needed.

Figure 7d-3 also shows the anticipated operational conditions assuming that the SW 30th Street extension is constructed in this timeframe. The analysis shows that this additional east-west connectivity in the SW Tutuilla Creek Road area will likely provide enough relief at this intersection that southbound left-turn queues will not back-up through the I-84 Eastbound ramp terminals. As the Phase 2 analysis below shows, this enhanced connectivity is not projected to be sufficient through 2030, even with Phase 2 improvements in place. Therefore it is likely that when combined with Phase 1, the enhanced connectivity provided by the extension of SW 30th Street will increase the lifespan of Phase 1 by five years or less.

Phase 2

Interim Year 2020 Conditions

The Phase 2 analysis begins with year 2020 conditions, since that is the approximate time that it is anticipated that it will be needed. Phase 2, as shown in Figure 7d-4 and Attachment "A," involves the relocation of the SW Hailey Avenue approach to US 395 from its current location to approximately 800 feet to the south. This would create a new signalized intersection on US 395 at this location. The benefit of this phase is that by removing the eastbound SW Hailey Avenue approach from its existing location, additional green time at the existing signal may be allocated to the southbound US 395 approach, thereby reducing the possibility of queues backing up through the I-84 Eastbound ramp terminals.

Figure 7d-4 shows analysis without the SW 30th Street extension. Without the extension, the US 395/SW Tutuilla Creek Road and US 395/SW Hailey Avenue intersections are forecast to operate acceptably. It is also forecasted that there will be sufficient storage to accommodate the 95th-percentile queue of southbound left-turning traffic from US 395 onto SW Tutuilla Creek Road. Given this, conditions with the SW 30th Street extension are not analyzed for year 2020 conditions, since it is assumed that the extension would only improve these conditions.

Year 2030 Conditions

Figure 7d-5 illustrates the projected year 2030 conditions with and without the SW 30th Street extension. As the figure shows, either with or without the SW 30th Street extension it is anticipated that the storage for southbound left-turns from US 395 onto SW Tutuilla Creek Road will be at capacity. Therefore, it can be assumed that by 2030 additional improvements may be needed beyond Phase 2.

Phase 3

Phase 3 has two options: Phase 3a (previously referenced as Concept S14b) and Phase 3b (previously referenced as Concept S11b). These options are shown in Figures 7d-6 and 7d-7, with double line drawings provided in Attachment "A." Both options build-off the work outlined in Phases 1 and 2. Queuing in front of the I-84 Eastbound ramp terminals is not an issue under either option since intersection spacing is substantially improved. As shown in Figures 7d-6 and 7d-7, both options are forecast to operate acceptably under 2030 conditions. Therefore, either option could provide the long-term capacity needed for this area. The IAMP will likely require that City Council and Oregon Transportation Commission decide on which option to proceed with at the time that the either the project development process or need for Phase 3 is initiated. Each option is summarized below

Phase 3a

Phase 3a involves the closure of the existing I-84 Eastbound ramp terminal. It is replaced with a new eastbound off-ramp and entering Parclo A loop ramp that would connect to the east leg of the modified US 395/SW Tutuilla Creek Road intersection. The old alignment of SW Hailey Avenue would remain as a local access road for the property currently occupied by the US Forest Service.

The primary issues with this option are the increased impacts to local businesses (i.e. the existing Burger King property), the alignment of a local roadway across from the I-84 ramp terminals, and that it may trigger the need to go through the NEPA environmental review process due to the crossing of Tutuilla Creek and the change in ramp access points to I-84.

Phase 3b

Phase 3b would mostly close the US 395/SW Tutuilla Creek Road intersection. Right-turns from US 395 would still be allowed to and from SW Hailey Avenue and a right-turn access from SW Tutuilla Creek Road onto US 395 could potentially be provided. A new alignment of SW Tutuilla Creek Road would be constructed that would parallel US 395 from the new SW Hailey Avenue location to approximately its current location where it would curve into the existing alignment.

The primary issue with this option is that it impacts all the existing businesses along the east side of US 395 between the new realigned Hailey Avenue intersection and Tutuilla Creek Road as well as the restaurant and hotel properties located in the southeast quadrant of the interchange.

South Side Cost Estimates

Table 3 summarizes the construction and right-of-way cost estimates for the south side improvements. As the improvements have been presented in a phased approach, the cost estimate summary has been prepared to outline the added costs associated with moving to the next improvement phase.

Table 3 South Side Improvement Cost Estimate

	Phase 1	Phase 2	Phase 3A	Phase 3B
Preliminary Construction Costs	$4M	$3M	$16M	$4M
Preliminary Right-of-Way Costs	$0.5M	$3M	$3M	$9M
Total	$4.5M	$6M	$19M	$13M

Note: The total costs reflect the addition of improvements associated only with that particular phase and do not roll over the costs from the previous phase(s).

Possible Exceptions/Deviations from Standards

There are two potential exceptions/deviations that will be required as part of the south side improvements. First, the US 395/EB ramp terminal is forecast to operate at a maximum volume to capacity ratio of 0.86 under 2030 volumes. This exceeds the HDM standard of 0.70 and will likely require a deviation from the performance standard to be adopted as part of the IAMP.

The second major deviation is related to the access spacing standards. Under Phase 1 and 2, the IAMP will need to incorporate an access management plan that recognizes the close spacing between the existing EB ramp terminal and the SW Hailey Avenue/SW Tutuilla Creek Road intersection. Beyond Phase 2, the IAMP will need to incorporate an access management plan that recognizes 800 feet as the maximum spacing between the EB ramp terminal and the next full access intersection (realigned SW Hailey Avenue intersection).

CONCLUSION

North Side

The primary driving force behind needing to improve the I-84 WB ramp terminal are the existing queues from the SW 20th Street/SW Emigrant Avenue intersection back-up in front of the ramp terminal. Given that these conditions occur under existing traffic conditions, the problem will be exacerbated as traffic volumes increase due to general growth or new development. As such, improving the north side is a critical step to ensuring the long-term performance and safety of the I-84/US 395 interchange. The north side Concept N1 is the recommended long-term improvement and it will provide adequate capacity for projected 2030 traffic volumes.

South Side

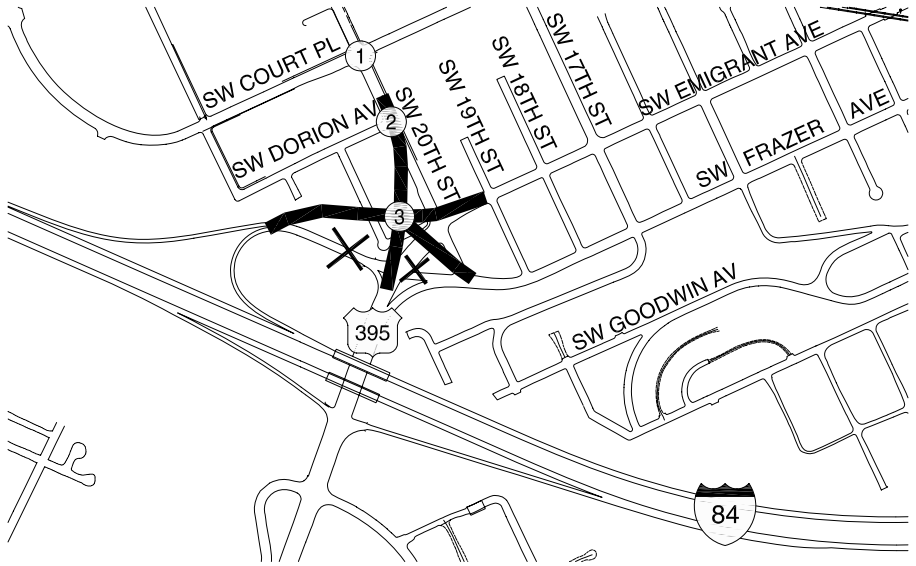
Based on the operational analysis presented herein, it is forecasted that the implementation timeline presented in Table 4 represents the anticipated lifespan for each of the phased improvements on the south side of the I-84/US 395 interchange.

Table 4 Projected Phasing Plan

Phase	Implementation Timeframe	Anticipated Lifespan (from Existing Conditions)
Phase 1	Near-term (1-3 years)	8-10 years
Phase 2	Mid-term (8-10 years)	15-20 years
Phase 3a	Long-term (15-20 years)	20+ years
Phase 3b	Long-term (15-20 years)	20+ years

These implementation estimates are based on current traffic projections and assume linear growth in traffic volumes. The forecasted future volumes and the pace in which they grow over the next 20 years may shorten or extend the anticipated lifespans for Phases 1 and 2 (e.g. east-west connectivity improvements have a greater or lesser effect than anticipated, development patterns change from what is currently planned, etc…). Thus, operational triggers will be developed to monitor the need and ultimate implementation of each phase based on the 95th-percentile southbound left-turn queue at the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection. Since Phase 2 and the SW 30th Street extension have the potential to provide 20 years of operational life and the impacts of the Phase 3 options may change over the subsequent timeframe, it is recommended that Phase 3 be placed in the IAMP's Vision Plan (20-year plus). The Vision Plan will require future action by the City of Pendleton City Council and the Oregon Transportation Commission to determine the most appropriate Phase 3 option when it is warranted. The warrant for Phase 3 will be based on future in field conditions or near-term traffic forecasts that clearly indicate that the 95th-percentile southbound left-turn at the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection spills into the US 395 through lanes and backs up into the I-84 Eastbound ramp terminal.

Attachment A
Double Line Drawings



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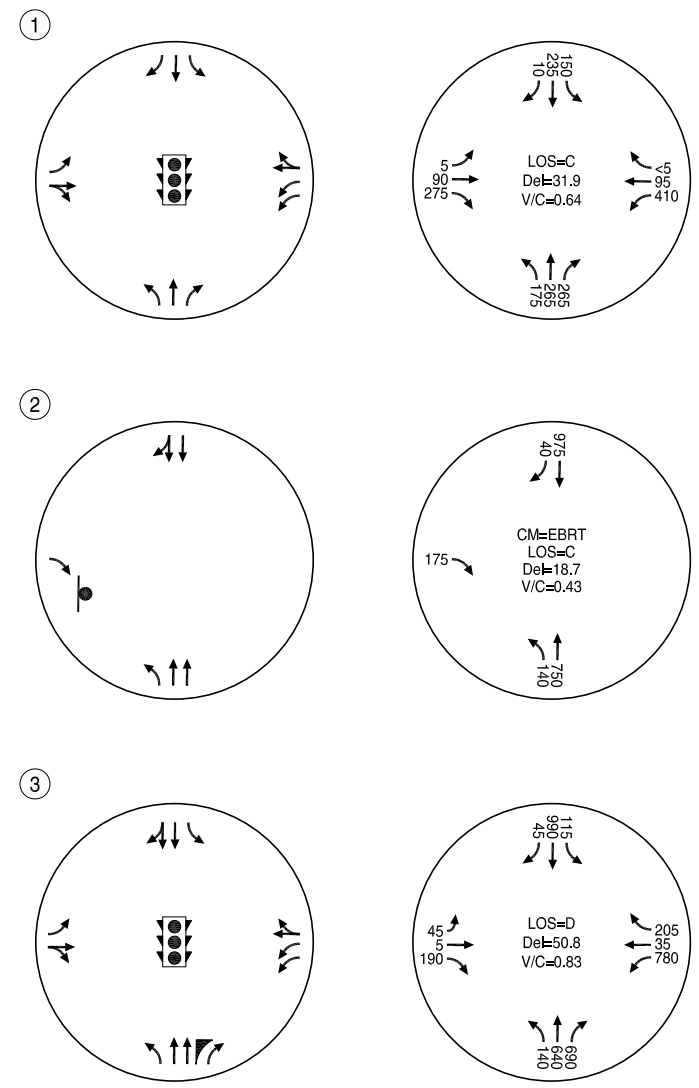


LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

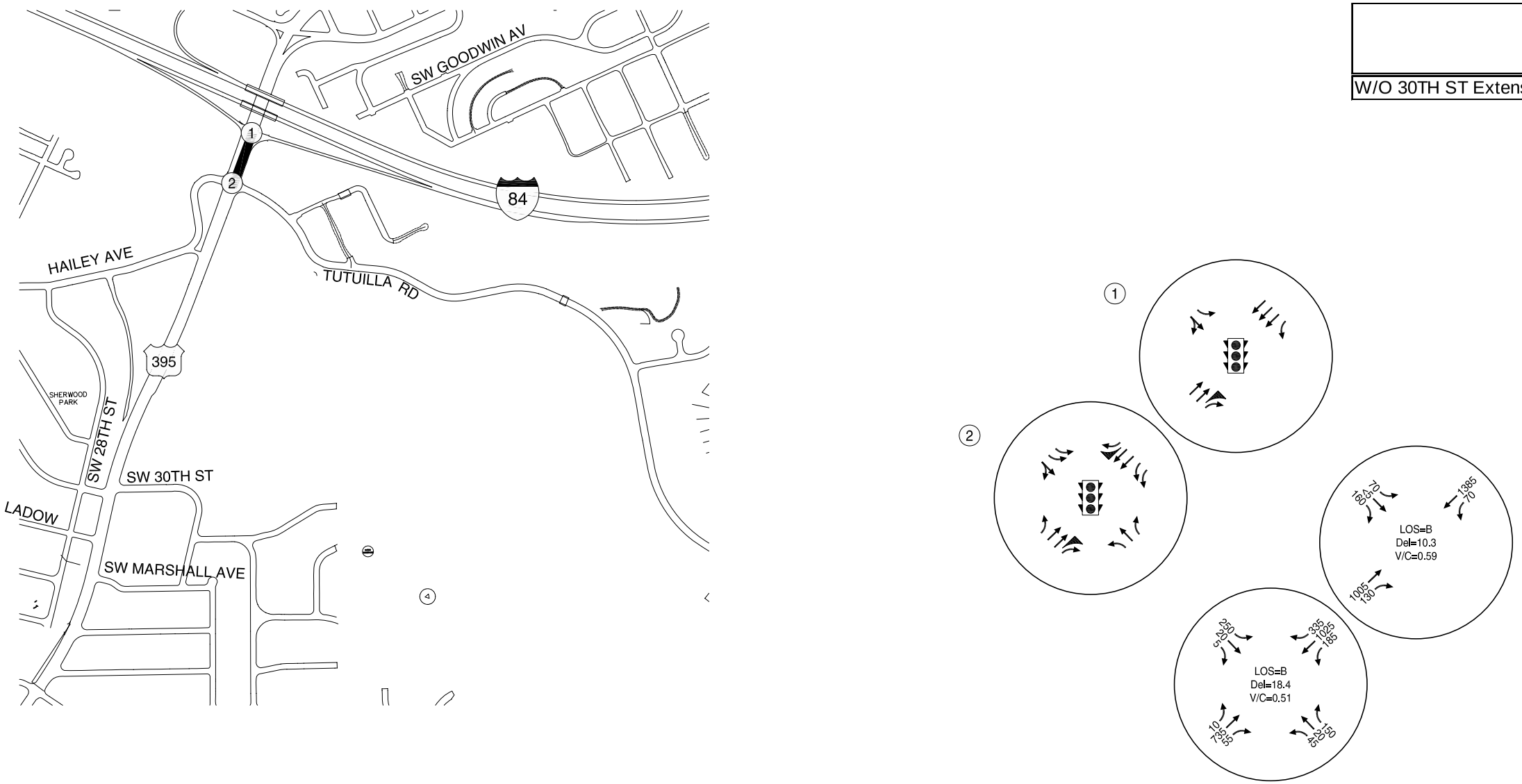
CONCEPT N1 OPERATIONS UNDER YEAR 2030 30TH HIGHEST HOUR VOLUMES
LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
PENDLETON, OREGON

FIGURE **7d-1**

(NO SCALE)

95th-percentile Queuing Summary (SB Left-turn at US 395/SW Tutuilla Creek Rd)

	95th-Percentile Queue (FT)	Storage Available (FT)	Adequate Space Available?
W/O 30TH ST Extension	100	125	Yes



LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

PHASE 1 OPERATIONS UNDER EXISTING 30TH HIGHEST HOUR VOLUMES
LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
PENDLETON, OREGON

FIGURE **7d-2**

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TRANSPORTATION ENGINEERING / PLANNING

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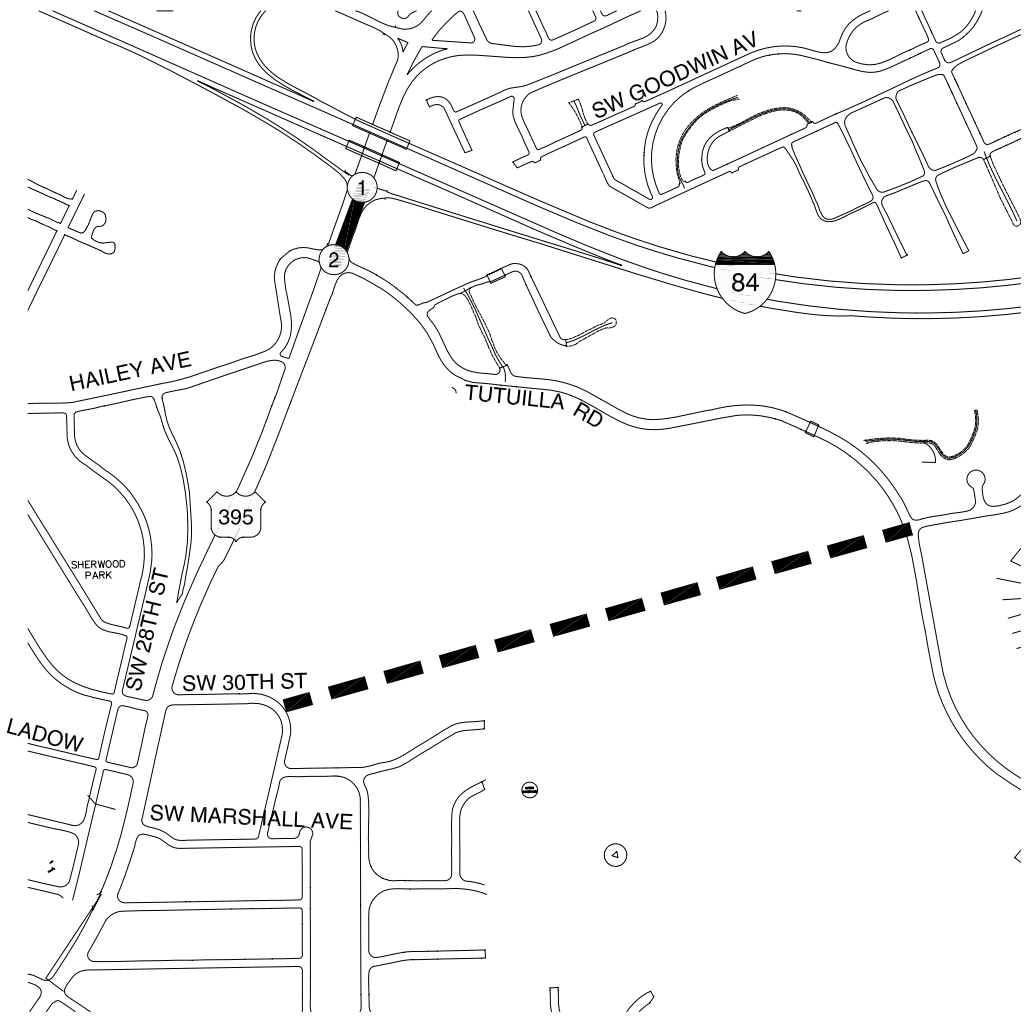
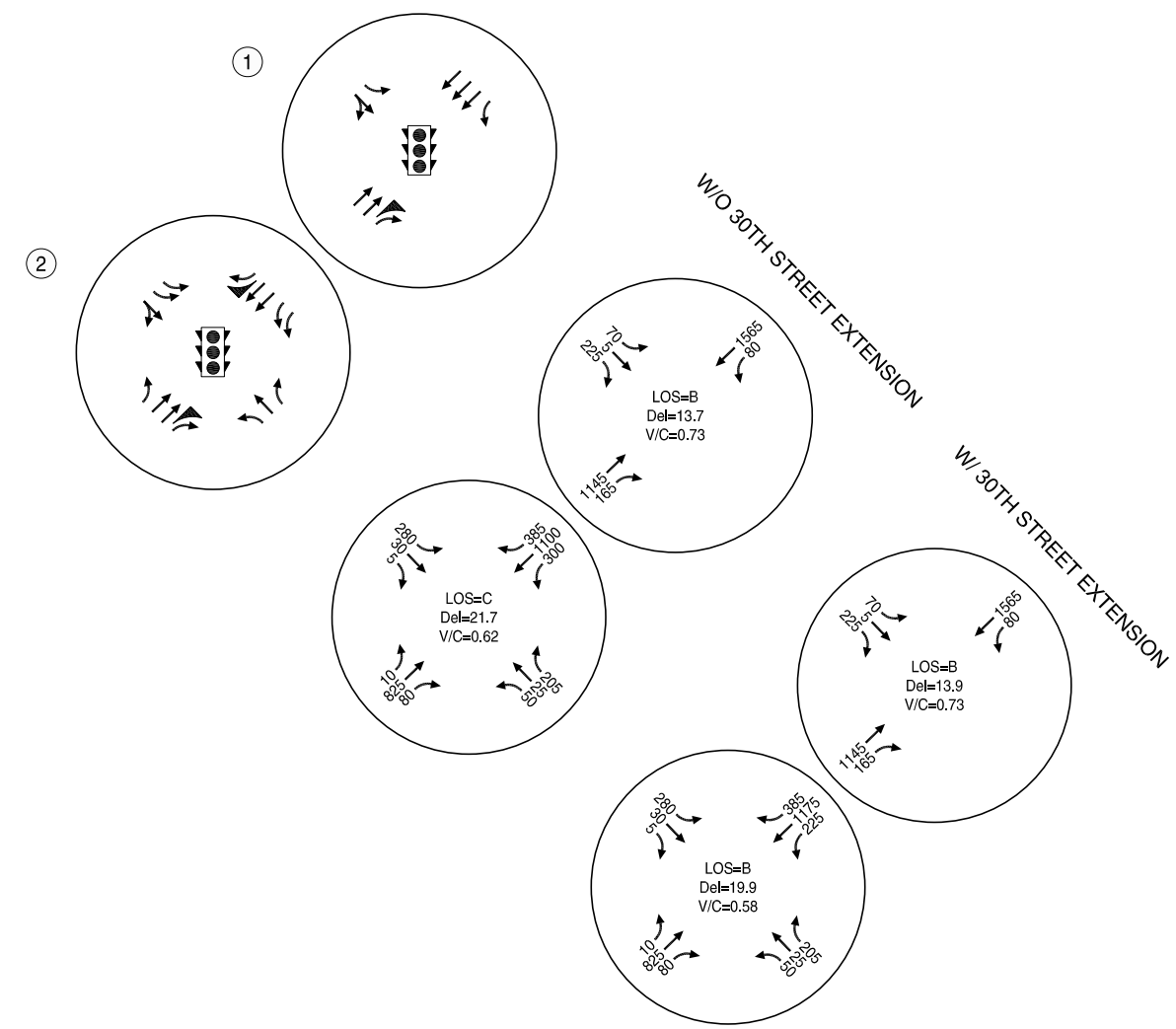


95th-percentile Queuing Summary (SB Left-turn at US 395/SW Tutuilla Creek Rd)

	95th-Percentile Queue (FT)	Storage Available (FT)	Adequate Space Available?
W/O 30TH ST Extension	125	125	At Capacity
W/ 30TH ST Extension	100	125	Yes



LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

PHASE 1 OPERATIONS UNDER YEAR 2020 30TH HIGHEST HOUR VOLUMES
LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
PENDLETON, OREGON

FIGURE **7d-3**

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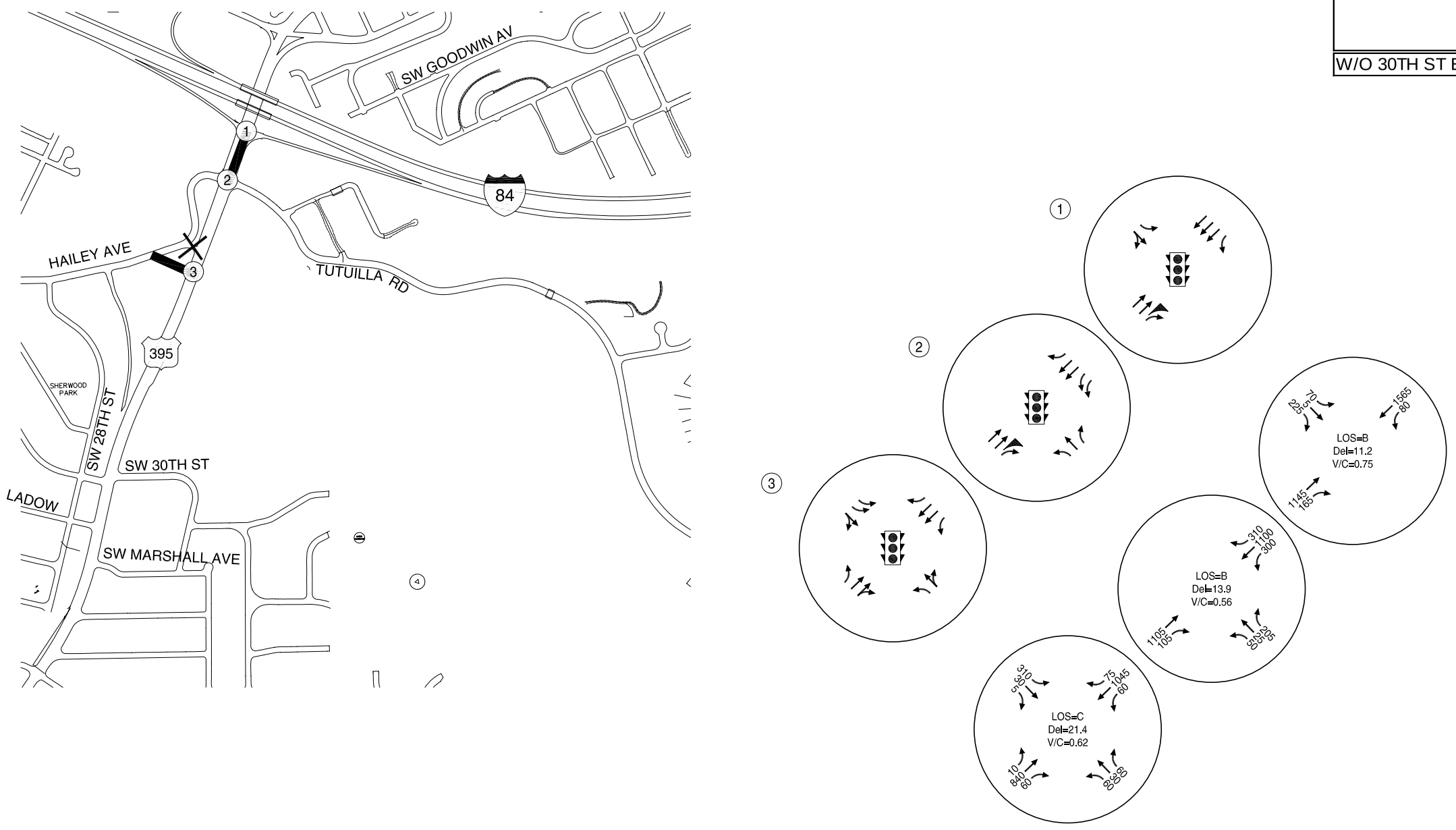
(NO SCALE)

95th-percentile Queuing Summary (SB Left-turn at US 395/SW Tutuilla Creek Rd)

	95th-Percentile Queue (FT)	Storage Available (FT)	Adequate Space Available?
W/O 30TH ST Extension	100	125	Yes



LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

PHASE 2 OPERATIONS UNDER YEAR 2020 30TH HIGHEST HOUR VOLUMES
LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
PENDLETON, OREGON

FIGURE **7d-4**

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TRANSPORTATION ENGINEERING / PLANNING

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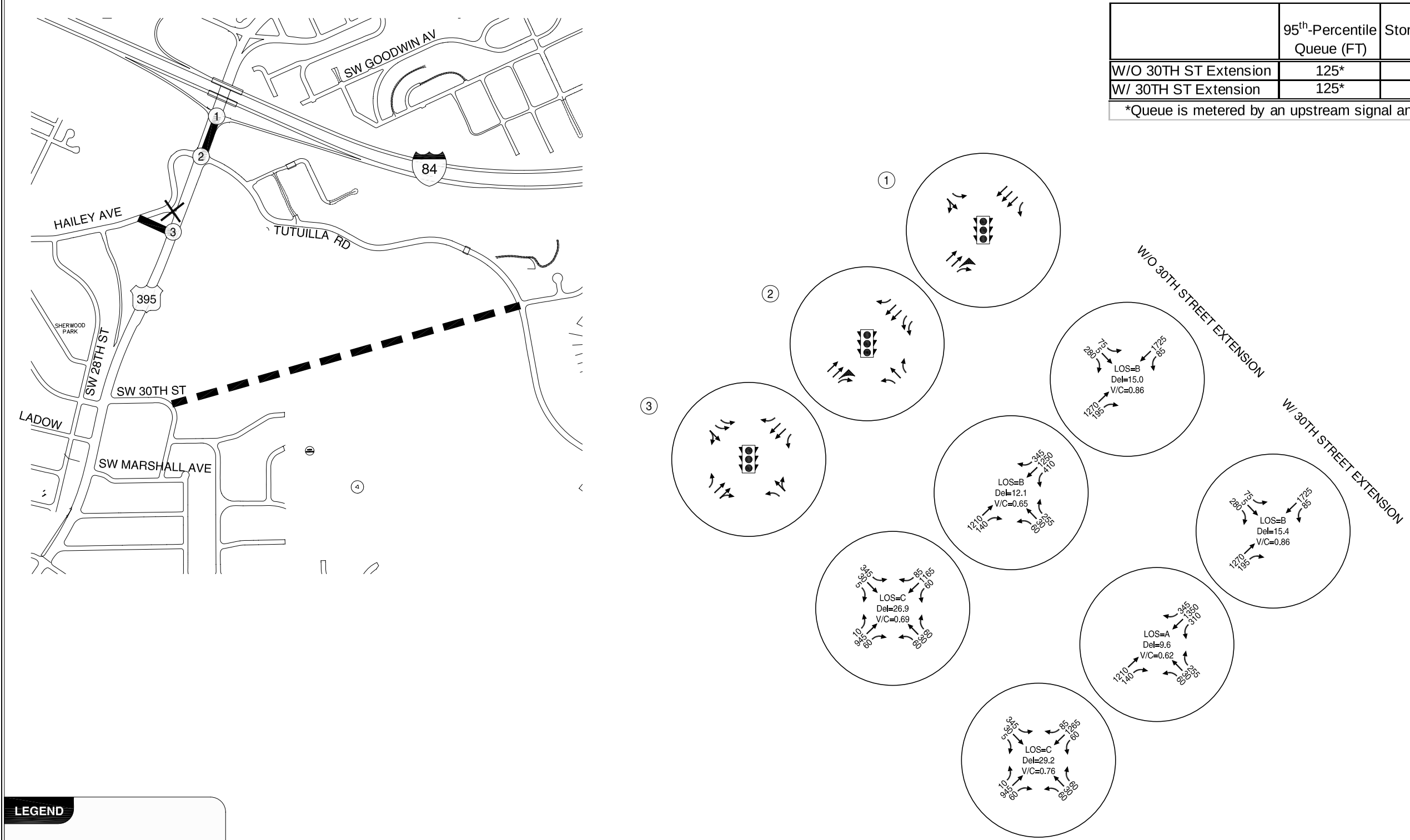
(NO SCALE)

95th-percentile Queuing Summary (SB Left-turn at US 395/SW Tutuilla Creek Rd)

	95th-Percentile Queue (FT)	Storage Available (FT)	Adequate Space Available?
W/O 30TH ST Extension	125*	125	At Capacity*
W/ 30TH ST Extension	125*	125	At Capacity*

*Queue is metered by an upstream signal and may be longer in actuality.



LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

PHASE 2 OPERATIONS UNDER YEAR 2030 30TH HIGHEST HOUR VOLUMES
LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
PENDLETON, OREGON

FIGURE **7d-5**

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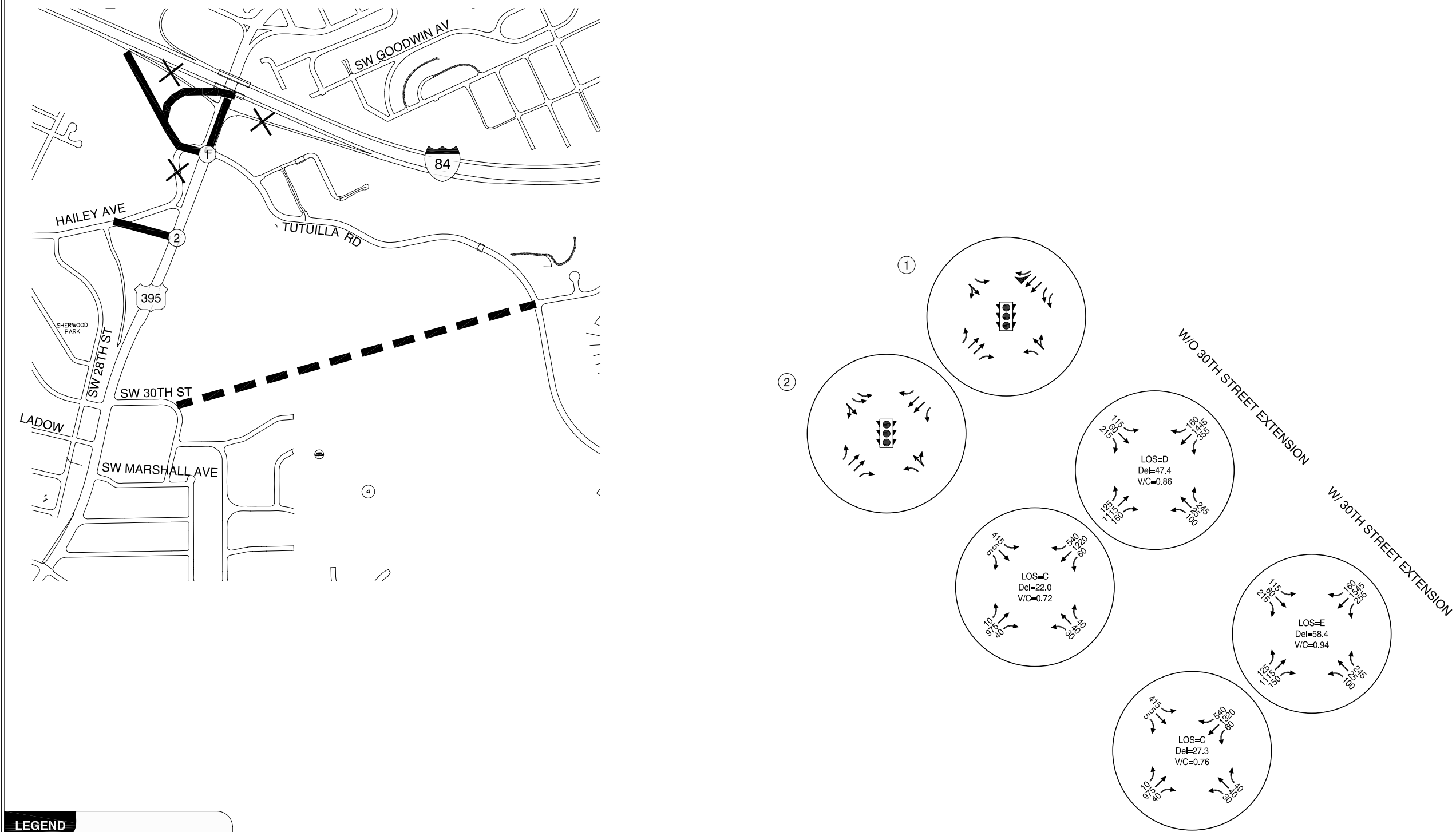

LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

PHASE 3A OPERATIONS UNDER YEAR 2030 30TH HIGHEST HOUR VOLUMES
LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
PENDLETON, OREGON

FIGURE **7d-6**

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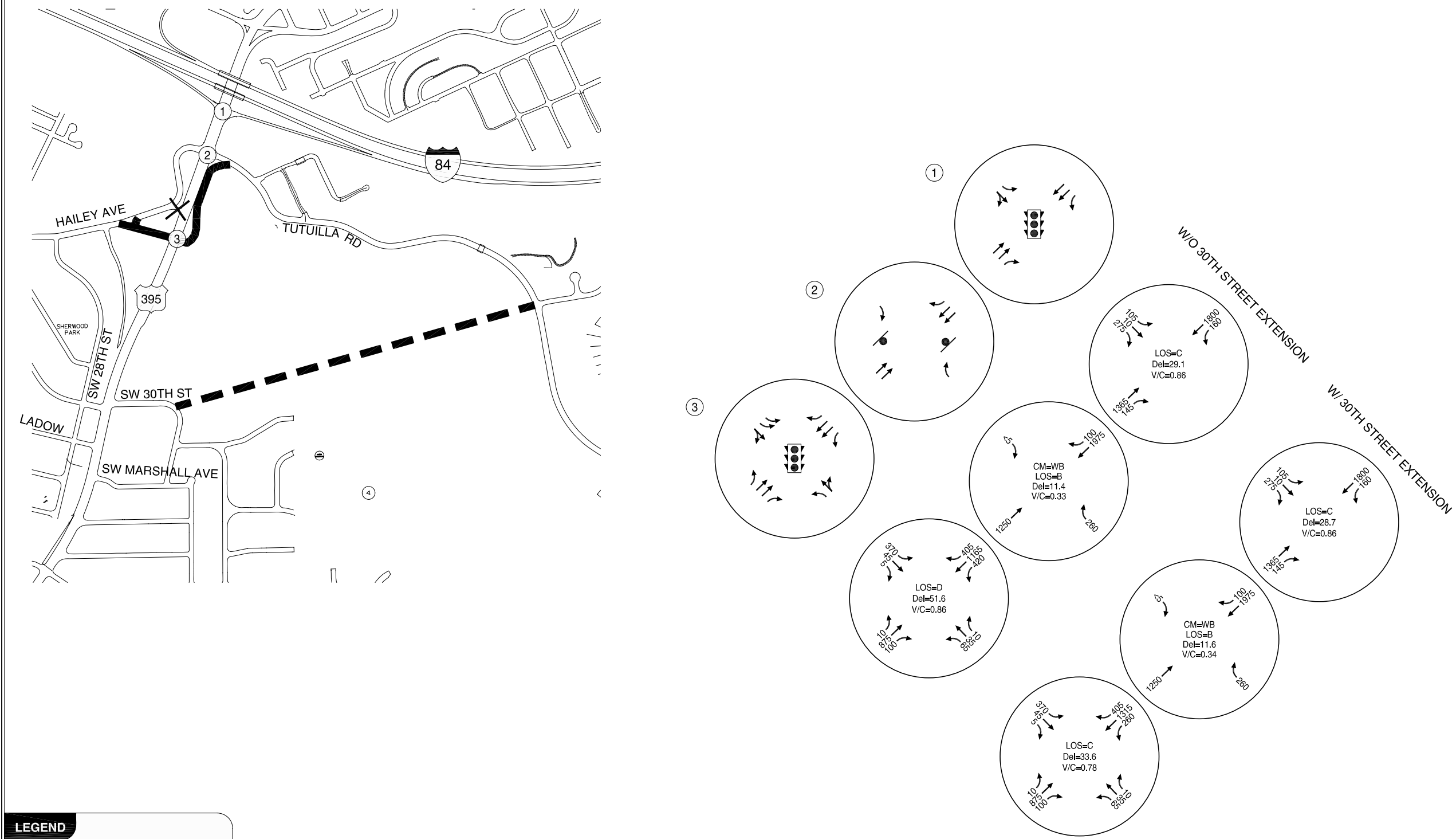

LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

PHASE 3B OPERATIONS UNDER YEAR 2030 30TH HIGHEST HOUR VOLUMES
LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
PENDLETON, OREGON

FIGURE **7d-7**

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TRANSPORTATION ENGINEERING / PLANNING

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Appendix J

Proposed IAMP Policies and Code Amendments Memorandum

Memorandum

Date: September 16, 2010

To: I-84/US 395 IAMP Project Team
From: Shayna Rehberg, AICP
Darci Rudzinski, AICP
Re: I-84/US 395 Interchange Area Management Plan
Proposed IAMP Policies and Code Amendments

Overview

This memorandum presents proposed regulatory language that, once adopted, will be used to implement the I-84/US 395 Interchange Area Management Plan (IAMP). Proposed language is being provided in conformance with Oregon Administrative Rule (OAR) 734-051-0155(2), which states "prior to adoption by the Oregon Transportation Commission, the Department will work with local governments on any amendments to local comprehensive plans and transportation system plans and local land use and subdivision codes to ensure the proposed… Interchange Area Management Plan is consistent with the local plan and codes."

The IAMP and its implementing measures must also comply with the Transportation Planning Rule (TPR). The TPR requires that local governments adopt land use regulations consistent with state and federal requirements "to protect transportation facilities, corridors, and sites for their identified functions (OAR 660-012-0045(2))." To comply with OAR 734-051 and OAR 660-012 and ensure that local land use actions are consistent with the transportation facility planning within the IAMP, it is recommended that the City adopt policy language in the IAMP and a new section in its Zoning Ordinance for an interchange zoning overlay district.

Overlay Districts

A zoning overlay district defines an area in which special regulations apply. The use and development standards of the underlying zoning district typically continue to apply, with the provision that if there is a conflict between the two districts, the overlay district shall prevail. In the case of interchange-related overlay districts, the special regulations tend to address additional access management and impact study requirements for the interchange area, in accordance with the TPR requirements that transportation facilities be protected for their identified function.

An additional transportation system development charge (SDC) may also apply in an interchange area but these requirements are established in a separate ordinance and not in the code language for the interchange overlay district. The applicable area for a supplemental transportation SDC may also have different boundaries than the overlay district.

Adoption Process

As described in Section 8 of the IAMP, a legislative process for Comprehensive Plan text amendments will be required for the City of Pendleton to amend its Transportation System Plan (TSP) and Comprehensive Plan to incorporate the I-84/US 395 IAMP. As part of this legislative process, the City will also need to amend its Development Code (Zoning Ordinance) and its Comprehensive Plan Land Use Map and Zoning Map to include the new overlay district. The maps will be amended to reflect the interchange management study area (IMSA) as shown in Figure 1.

For Discussion: *The IMSA to the south of the interchange currently extends to SW 30th Street. The IMSA is sufficient for purposes of determining access management, but does not capture the extent of the area where future development will likely occur. Given the development potential south of the current study area that would use the interchange, particularly the relocation of St. Anthony Hospital, the City may wish to extend the overlay district boundary to include land along the US 395 corridor and Tutuilla Road south to the city limits. Consideration should be given any new development on the south side of the interstate – generally addressed in 3481.*

This memorandum presents proposed and recommended policy and code language to be adopted as part of the IAMP process. As done above, where there are elements of the policy and code recommendations that need to be discussed or otherwise reviewed, those issues are identified by a change in font and in the subsections beginning "For Discussion" or "For Review."

Proposed Policy Language

The IAMP should include policy language that clearly states the function and purpose of the interchange. A statement of the function of the I-84/US 395 Interchange has been developed during the IAMP process in collaboration with the Technical and Public Advisory Committees. It is included in Section 8 of the IAMP, and once an adopted part of the City's TSP and Comprehensive Plan, all subsequent land use actions will need to be consistent with this function and policy statement.

> The transportation function of the I-84/US 395 Interchange is principally to provide safe and efficient access to downtown Pendleton and the residential and commercial areas south of I-84, including local traffic traveling between these two areas. In addition to this primary function, the I-84/US 395 Interchange remains an important facility for accessing the Eastern Oregon Correctional Facility, Blue Mountain Community College, the residential areas north of downtown, and the planned relocation of St. Anthony Hospital. The interchange also serves regional traffic coming from/going to US 395 south of Pendleton, and both OR 11 and OR 37 north of downtown.

Proposed policies may also identify strategies such as alternative mobility standards and trip allocations or budgets that serve to protect the identified function of the interchange. Trip allocations and budgets present more of an administrative burden, and in the case of the I-84/US 395 Interchange, it is recommended that only alternative mobility standards be adopted to assist in protecting interchange function.

While standard volume-to-capacity (v/c) ratios are established in the Oregon Highway Plan (OHP), there are cases in which more permissive or restrictive standards are needed to accomplish adopted transportation and land use goals. It is recommended that the following alternative mobility standards be incorporated into the IAMP implementation section and be adopted as part of the IAMP and, as a facility plan, as an amendment to the OHP.

- A volume-to-capacity ratio of 0.86 along US 395 from the I-84 Westbound ramp terminal to the realigned SW Hailey Avenue intersection.

Proposed Code Language for the City of Pendleton Development Ordinance

Pursuant to the City's existing Zoning Ordinance, site plan review is required primarily for multi-family housing development and development within some of the City's special use zoning subdistricts such as the Airport Industrial (AI) and Business Park (BP) subdistricts. The proposed Interchange Overlay District (IOD) would require site plan review for all development and redevelopment in the overlay district, so as to ensure the application of special access management and impact study requirements in the district.

For Review: *Currently, there is not a discrete and global section in the City's code regarding Site Plan Review or pre-application requirements. If these sections are developed in the future, references in the proposed IOD shall be updated.*

The City has existing adopted standards for traffic impact studies (TISs) in Ordinance 3481 (Building Standards), Section 5 (Development Requirements). A TIS is required for all development that is projected to have an impact on transportation corridors or intersections identified to be of local or regional significance. Intersections of significance include all intersections with arterial or collector roadway functional classifications as established in the City's TSP. These existing standards provide for extensive application of TIS requirements, and the overlay district should ensure universal application of these requirements for all development and redevelopment in the district. Redevelopment shall be defined in the code language in terms of the extent of redevelopment and its potential for generating traffic. Similarly, zone changes and/or Comprehensive Plan amendments would also be required to prepare and submit a TIS pursuant to the requirements and references in the new overlay district.

The recommended language also addresses TPR Section -0060, which requires that amendments to functional plans, acknowledged Comprehensive Plans, and land use regulations that significantly affect an existing or planned transportation facility ensure that the allowed land uses are consistent with the identified function, capacity, and performance standards of the facility.

Finally, to reflect the collaboration required in planning for and managing the interchange area, adopting the following recommended code language will codify how the City will coordinate with ODOT in reviewing land use and development applications in the Pendleton Interchange Overlay District. Monitoring and updates to the IAMP will occur according to specific terms established in the implementation section (Section 8) of the IAMP and an intergovernmental agreement (IGA) between the City of Pendleton and ODOT. General terms for monitoring and updates are provided in the following proposed code language.

ARTICLE XVI. INTERCHANGE OVERLAY DISTRICT (IOD)

Note: *Code numbering and lettering will be modified as needed to be incorporated into the City's existing Zoning Ordinance. City staff anticipates a new Article will be inserted at the end of the Ordinance, beginning at Section 175.*

SECTION 97. PURPOSE

The purpose of the Exit 209 Interchange Overlay District (Exit 209 IOD) is the long-range preservation of operational efficiency and safety of the I-84/US 395 Interchange. "The transportation function of the I 84/US 395 Interchange is principally to provide safe and efficient access to downtown Pendleton and the commercial and residential areas south of I 84, including local traffic traveling between these two areas. In addition to this primary function, the I 84/US 395 Interchange remains an important facility for accessing the Eastern Oregon Correctional Facility, Blue Mountain Community College, the residential areas north of downtown, and the planned relocation of St. Anthony Hospital. The interchange also serves regional traffic coming from/going to US 395 south of Pendleton, and both OR 11 and OR 37 north of downtown."

SECTION 98. APPLICABILITY

The provisions of this Article shall apply to any administrative, quasi-judicial, or legislative land use application for a parcel wholly or partially within the Exit 209 IOD, as defined in this section. These provisions shall apply to all new development and redevelopment applications that meet one or more of the following conditions:

a) New residential, commercial, public/institutional or industrial development.

b) Expansion of single-family or duplex residential development valued in excess of thirty (30%) percent of the most recent assessed value of the improvements on the property.

c) Reconstruction of a single-family or duplex residential casualty loss valued in excess of one hundred thirty (130%) percent of the most recent assessed value of the structure.

d) Expansion of multiple family, commercial, public/institutional or industrial development valued in excess of fifteen (15%) percent of the most recent assessed value of the improvements on the property.

e) Reconstruction of multiple family, commercial, public/institutional or industrial casualty loss in excess of one hundred fifteen (115%) percent of the most recent assessed value of the structure.

f) Change in use (occupancy class) of a building as defined by the Uniform Building Code.

Development values within this section shall be determined by the City Manager based on the Building Valuation Data published and updated periodically by the State of Oregon Building Codes Agency for use in determining building permit valuations and the records of the Umatilla County Assessor's Office.

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Any conflict between the standards of the IOD and those contained within other chapters of the Zoning or Subdivision Ordinance shall be resolved in favor of the IOD.

The boundary of the Exit 209 IOD is shown on the Pendleton Comprehensive Land Use Plan Map and Zoning Map.

For Discussion: *The IAMP study area (Figure 1), which is also the proposed IOD, extends south to SW 30th Street. Given the development potential south of the current study area that would use the interchange, determine whether to extend the IOD boundary to include land along the US 395 corridor south to the city limits. Also, confirm that the definitions of redevelopment in a-f, which are taken from existing City requirements (Ordinance 3481, Construction and Building, Section 4), are appropriate here.*

SECTION 99. PERMITTED LAND USES

Uses permitted outright or conditionally in the underlying zoning district are permitted subject to other applicable provisions in the Zoning and Subdivision Ordinance.

SECTION 100. ACCESS MANAGEMENT

In addition to the requirements of OAR 734-051, parcels wholly or partially within the Exit 209 IOD are governed by the Access Management Plan in the I-84/US 395 Interchange Area Management Plan (IAMP). The following applies to all land use and development applications for parcels within the IAMP Overlay District as defined in Section 98.

A. Access Approval

1. Access to local streets within the Exit 209 IOD shall be subject to joint review by the City and the Oregon Department of Transportation (ODOT). Coordination of this review will occur pursuant to Section 102.

2. Approval of an access permit is an administrative action and is based on the standards contained in this Article and the Access Management Plan in the I-84/US 395 IAMP.

For Discussion: *Transportation study requirements proposed in Section 102 should be sufficient to demonstrate compliance with the IAMP and its Access Management Plan, and a set of amendments to create local access management standards citywide are not required at this time. It is understood that ODOT access management standards apply to US 395 in the IMSA.*

SECTION 101. SUPPLEMENTAL TRANSPORTATION SYSTEM DEVELOPMENT CHARGE

Development or redevelopment of parcels within the IOD will be assessed a Supplemental Transportation System Development Charge (STSDC) that will be dedicated to transportation improvements in the vicinity of the I-84/US 395 Interchange, as identified in the adopted I-84/US 395 IAMP. The STSDC will be based on weekday p.m. peak hour trips generated by a proposed development and calculated pursuant to TIS requirements in Ordinance 3481 (Building Standards), Section 5 of the City's code, and referred to in Section 102.

For Discussion: *A supplemental transportation SDC for the IAMP area needs to be discussed. A separate ordinance or set of ordinance amendments would need to be developed, including definition*

of the area to which the supplemental SDC would apply, the methodology for calculating the SDC, and the list of projects in the interchange area for which the SDC would be eligible. Peak hour trips in this area are often the result of parents driving kids to Sunridge Middle School, which may result in a peak longer than an hour in both the a.m. and p.m.

SECTION 102. ADMINISTRATION

This section establishes the responsibilities of the City and ODOT to monitor and evaluate vehicle trip generation and impacts on the I-84/US 395 Interchange from development approval under this section.

A. Transportation Assessment Report

For all development applications subject to Section 98 of this Article and located within the Exit 209 IOD, the applicant shall prepare and submit to the City a Transportation Assessment Report that documents the following:

1. Expected weekday p.m. peak hour trip generation.

2. Identifies how the development complies with the IAMP and what off-site improvements will be constructed as part of the development.

3. Reviews proposed site-access driveways and streets to ensure compliance with the IAMP Access Management Plan/Strategy and that adequate intersection sight distance and traffic control will be provided.

4. Reviews on-site parking and circulation plan to ensure safe and efficient travel for all modes of travel and includes AutoTurn analyses for anticipated trucks and emergency service vehicles.

B. Transportation Impact Study

1. A Transportation Impact Study (TIS) shall be required for all zone change and comprehensive plan amendments that result in an increase in trips as compared to uses permitted under the existing designation and for all development applications for parcels partially or wholly within the Exit 209 IOD.

2. The TIS shall be developed according to the requirements of Section 5 (Development Requirements) of Ordinance 3481 (Construction and Building), shall document all elements required as part of the Transportation Assessment Report, Section 102(A) of this Article, and shall demonstrate the level of impact of the proposed development on the surrounding street system and the I-84/US 395 Interchange.

3. The scope of the TIS and determination of impact or effect shall be coordinated with the City of Pendleton and ODOT.

For Discussion: *For simplicity, existing TIS requirements are referred to in the proposed language above rather than being written out in full. The only additional specification being proposed here is requiring a TIS for zone changes and plan amendments, a level of analysis that is already necessary to comply with the TPR. The City may want to reconsider whether TIS requirements can be waived by*

the Public Works Director in the Exit 209 IOD, as is currently permitted in Ordinance 3481, Section 5, Subsection B(1).

C. Agency Coordination

1. The City shall not deem the land use application complete unless the application includes a Traffic Assessment Report or, if required, a TIS prepared in accordance with the requirements of Section 5 (Development Requirements) of Ordinance 3481 (Building Standards).

2. The City shall provide written notification to ODOT once the application is deemed complete. This notice shall include an invitation to ODOT to participate in the City's site review meeting(s), pursuant to City pre-application requirements.

3. ODOT shall have at least 10 days, measured from the date the notice to agencies was mailed, to provide written comments to the City. If ODOT does not provide written comments during this 10-day period, the City staff report will be issued without consideration of ODOT comments.

For Discussion: *For consistency and ease of administration, the time period suggested in C.3 above is consistent with the City's current notification and review process.*

D. Monitoring Responsibilities

The details of City monitoring responsibilities will be established in the I-84/US 395 Interchange Area Supplemental Transportation SDC (STSDC) Ordinance and the approved I-84/US 395 IAMP City of Pendleton/Oregon Department of Transportation Intergovernmental Agreement (IGA).

1. The City will develop an Annual IAMP Report that details program management issues and recommends index adjustments to the STSDC rates for the coming year. The City will provide the Annual IAMP Report to ODOT to allow for coordination of management issues, such as updating the monitoring process and the timing for the next IAMP update.

2. The agencies will review the IAMP pursuant to the review triggers. This review shall be conducted through a meeting initiated by the City of Pendleton or ODOT and shall include all affected agencies.

3. IAMP review triggers may be based on criteria such as set time periods, queuing thresholds, and alternative mobility standards. They shall be specified in the implementation section of the IAMP and in the City/ODOT IGA.

   IAMP Review Triggers

   a. Periodically, the implementation program shall be evaluated to ensure it is accomplishing the goals and objectives of the IAMP.

   b. Events that will trigger an IAMP review include:

      1) Every fifth year from the date of IAMP adoption or latest update.

2) Plan map and zone changes that have a "significant effect" per the Transportation Planning Rule and impact the I-84/US 395 Interchange, or that are located within the IOD.
3) The 95th-percentile northbound left-turn queue at the existing SW Emigrant Avenue/SW 20th Street intersection backs past the I-84/US 395 Westbound ramp terminal.
4) The 95th-percentile southbound left-turn queue at the US 395/SW Hailey Avenue-SW Tutuilla Creek Road intersection spills into the US 395 through lanes and backs up into the I-84/US 395 Eastbound ramp terminal.
5) Mobility measures at the I-84 ramp terminals exceed the adopted alternative mobility standard of a volume-to-capacity ratio of 0.86 along US 395 from the I-84 Westbound ramp terminal to the realigned SW Hailey Avenue intersection.

For Discussion: *Review triggers may be codified (as proposed above), could be adopted at the policy level through the IAMP document itself, and/or could be enacted through the provisions of an intergovernmental agreement (IGA) between the City and ODOT.*

4. In addition to the established triggers for IAMP review, the agencies can request a review of the IAMP at any time if, in their determination, specific land use or transportation changes warrant a review of the underlying assumptions and/or recommendations within the IAMP.

5. If the participants in the IAMP review meeting agree that an IAMP amendment is not warranted after examining the impacts of the conditions that triggered the review, a recommendation of "no action" may be documented and submitted in the form of a letter to the City of Pendleton City Council and the Oregon Transportation Commission (OTC).

6. If the need for an update to the plan is found during IAMP review, review participants will initiate an IAMP update process. Initial steps in updating the IAMP will include scoping the planning process, identifying funding, and outlining a schedule for plan completion. Once completed, IAMP updates shall be required to be legislatively adopted as amendments to the City of Pendleton TSP and Comprehensive Plan and as an update to the OHP, requiring a City Council public hearing and an OTC hearing.

SECTION 103. COMPREHENSIVE PLAN AND ZONING MAP AND TEXT AMENDMENTS

This section applies to all Comprehensive Plan Map and Zoning Map amendments for parcels wholly or partially within the IOD and code amendments that affect development within the IOD.

A. Transportation Planning Rule Requirements. Applications for Comprehensive Plan amendments, Zoning Map amendments, or development regulation amendments shall determine whether the proposed change will significantly affect a collector or arterial transportation facility and must meet the requirements of Oregon Administrative Rule (OAR) 660-012-0060.

For Discussion: *While it is implicit that local Comprehensive Plan and code amendments will be required to comply with state land use and transportation planning regulations, it is recommended to make this explicit in the City's code, particularly in the interchange overlay district. The City's existing code regarding amendments (Article XII) does not currently make explicit reference to the TPR.*

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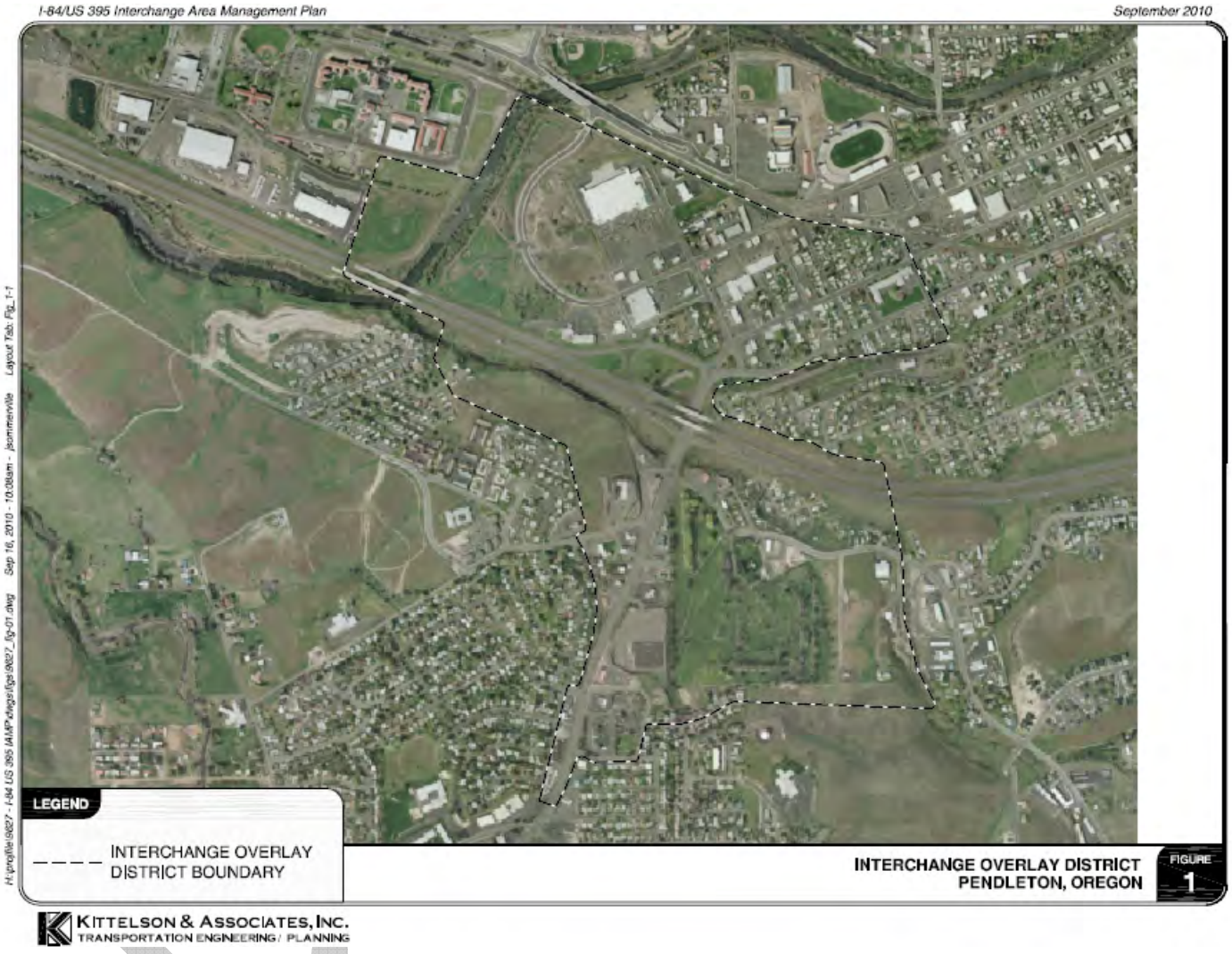
Figure 1. Interchange Management Study Area (IMSA) – Proposed Interchange Overlay District