Oregon
Theodore R. Kulongoski, Governor

Department of Land Conservation and Development
635 Capitol Street, Suite 150
Salem, OR 97301-2540
(503) 373-0050
Fax (503) 378-5518
www.lcd.state.or.us

NOTICE OF ADOPTED AMENDMENT

07/15/2013

TO: Subscribers to Notice of Adopted Plan or Land Use Regulation Amendments

FROM: Plan Amendment Program Specialist

SUBJECT: City of Sheridan Plan Amendment
DLCD File Number 001-13

The Department of Land Conservation and Development (DLCD) received the attached notice of adoption. Due to the size of amended material submitted, a complete copy has not been attached. A Copy of the adopted plan amendment is available for review at the DLCD office in Salem and the local government office.

Appeal Procedures*

DLCD ACKNOWLEDGMENT or DEADLINE TO APPEAL: Friday, August 02, 2013

This amendment was submitted to DLCD for review prior to adoption pursuant to ORS 197.830(2)(b) only persons who participated in the local government proceedings leading to adoption of the amendment are eligible to appeal this decision to the Land Use Board of Appeals (LUBA).

If you wish to appeal, you must file a notice of intent to appeal with the Land Use Board of Appeals (LUBA) no later than 21 days from the date the decision was mailed to you by the local government. If you have questions, check with the local government to determine the appeal deadline. Copies of the notice of intent to appeal must be served upon the local government and others who received written notice of the final decision from the local government. The notice of intent to appeal must be served and filed in the form and manner prescribed by LUBA, (OAR Chapter 661, Division 10). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

*NOTE: The Acknowledgment or Appeal Deadline is based upon the date the decision was mailed by local government. A decision may have been mailed to you on a different date than it was mailed to DLCD. As a result, your appeal deadline may be earlier than the above date specified. NO LUBA Notification to the jurisdiction of an appeal by the deadline, this Plan Amendment is acknowledged.

Cc: Jim Jacks, City of Sheridan
Gordon Howard, DLCD Urban Planning Specialist
Angela Lazarean, DLCD Regional Representative
Gary Fish, DLCD Transportation Planner

<paa> YA

FORM 2

DLCD Notice of Adoption

This Form 2 must be mailed to DLCD within **20-Working Days after the Final Ordinance is signed** by the public Official Designated by the jurisdiction and all other requirements of ORS 197.615 and OAR 660-018-000

☐ In person ☐ electronic ☒ mailed

HAND DELIVERED

DEPT OF

JUL 12 2013

LAND CONSERVATION AND DEVELOPMENT

For Office Use Only

Jurisdiction: **City of Sheridan**

Local file number: **LA 2013-01**

Date of Adoption: **7/1/2013**

Date Mailed: **7/12/2013**

Was a Notice of Proposed Amendment (Form 1) mailed to DLCD? ☒ Yes ☐ No Date: 3/4/2013

☒ Comprehensive Plan Text Amendment

☐ Comprehensive Plan Map Amendment

☒ Land Use Regulation Amendment

☐ Zoning Map Amendment

☐ New Land Use Regulation

☐ Other:

Summarize the adopted amendment. Do not use technical terms. Do not write "See Attached".

The city returned to the W Sheridan Ind'l Area Transpo Refinement Plan which wasn't adopted in 2005 when the consultant's work was done. TheWSIATRP is now adopted. It amended the city's TSP to move a collector and designate a local street plan in the 300 acre area. The proposed access management standards were amended into the Development Code, but the proposed Light Industrial Overlay District with its standards was not amended into the Development Code.

Does the Adoption differ from proposal? Please select one

Yes. As noted above, the proposed Light Industrial Overlay District with its two sub-districts and development standards were not amended into the Development Code.

Plan Map Changed from: **na** to: **na**

Zone Map Changed from: **na** to: **na**

Location: **na** Acres Involved: **300**

Specify Density: Previous: **na** New: **na**

Applicable statewide planning goals:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐

Was an Exception Adopted? ☐ YES ☒ NO

Did DLCD receive a Notice of Proposed Amendment...

35-days prior to first evidentiary hearing? ☒ Yes ☐ No

If no, do the statewide planning goals apply? ☐ Yes ☐ No

If no, did Emergency Circumstances require immediate adoption? ☐ Yes ☐ No

DLCD file No. _____

Please list all affected State or Federal Agencies, Local Governments or Special Districts:

ODOT

Local Contact: **Jim Jacks** Phone: **(503) 540-1619** Extension:

Address: **100 High St. SE, Ste 200** Fax Number: **503-588-6094**

City: **Salem, OR** Zip: **97301-** E-mail Address: **jjacks@mwvcog.org**

ADOPTION SUBMITTAL REQUIREMENTS

This Form 2 must be received by DLCD no later than 20 working days after the ordinance has been signed by the public official designated by the jurisdiction to sign the approved ordinance(s)

per ORS 197.615 and OAR Chapter 660, Division 18

1. This Form 2 must be submitted by local jurisdictions only (not by applicant).
2. When submitting the adopted amendment, please print a completed copy of Form 2 on light **green paper if available.**
3. Send this Form 2 and **one complete paper copy** (documents and maps) of the adopted amendment to the address below.
4. Submittal of this Notice of Adoption must include the final signed ordinance(s), all supporting finding(s), exhibit(s) and any other supplementary information (ORS 197.615).
5. Deadline to appeals to LUBA is calculated **twenty-one (21) days** from the receipt (postmark date) by DLCD of the adoption (ORS 197.830 to 197.845).
6. In addition to sending the Form 2 - Notice of Adoption to DLCD, please also remember to notify persons who participated in the local hearing and requested notice of the final decision. (ORS 197.615).
7. Submit **one complete paper copy** via United States Postal Service, Common Carrier or Hand Carried to the DLCD Salem Office and stamped with the incoming date stamp.
8. Please mail the adopted amendment packet to:

ATTENTION: PLAN AMENDMENT SPECIALIST
DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT
635 CAPITOL STREET NE, SUITE 150
SALEM, OREGON 97301-2540

9. **Need More Copies?** Please print forms on **8½ -1/2x11 green paper only if available.** If you have any questions or would like assistance, please contact your DLCD regional representative or contact the DLCD Salem Office at (503) 373-0050 x238 or e-mail **plan.amendments@state.or.us**.

ORDINANCE 2013-04

AN ORDINANCE AMENDING THE SHERIDAN COMPREHENSIVE PLAN BY ADOPTING THE WEST SHERIDAN INDUSTRIAL AREA TRANSPORTATION REFINEMENT PLAN, AND AMENDING THE SHERIDAN DEVLEOPMENT CODE.

WHEREAS, on April 8, 2013, the Planning Commission conducted a public hearing regarding amendments to the Sheridan Comprehensive Plan and Sheridan Development Code (Planning File LA 2013-01) to adopt the West Sheridan Industrial Area Transportation Refinement Plan at which time the public was given a full opportunity to be present and heard on the matter; and

WHEREAS, on April 8, 2013, the Planning Commission considered the information provided by City staff, the testimony of the parties in attendance, and upon deliberation, voted to recommend to the City Council, approval of the proposed West Sheridan Industrial Area Transportation Refinement Plan, except for those portions of Chapter 12 under the headings "West Sheridan Industrial Area Refinement Plan Overlay," "Purpose," "Master Plan," "Sub-areas Within the District," "Where These Regulations Apply," "Permitted Uses," and "Development Standards;" and

WHEREAS, on May 20, 2013, the City Council conducted a public hearing regarding amendments to the Sheridan Comprehensive Plan and Sheridan Development Code (Planning File LA 2013-01) to adopt the West Sheridan Industrial Area Transportation Refinement Plan at which time the public was given a full opportunity to be present and heard on the matter; and

WHEREAS, on May 20, 2013, the City Council considered the information provided by City staff, the testimony of the parties in attendance, received the recommendation of the Planning Commission, and upon deliberation, voted to continue the matter until June 3, 2013; and

WHEREAS, on June 3, 2013, the City Council met to consider the proposed action, reopened the hearing, and considered the information provided by City staff, affected agencies and the public.

THE CITY OF SHERIDAN DOES ORDAIN AS FOLLOWS:

Section 1. The City Council of the City of Sheridan does hereby adopt those certain findings of fact and conclusionary findings and supporting documentation attached hereto as Exhibit "A" and by this reference made a part hereof.

Section 2. The City Council of the City of Sheridan does hereby adopt the West Sheridan Industrial Area Transportation Refinement Plan and the Technical Appendix, except for those portions of Chapter 12 under the headings "West Sheridan Industrial Area Refinement Plan Overlay," "Purpose," "Master Plan," "Sub-areas Within the District," "Where These Regulations Apply," "Permitted Uses," and "Development Standards" attached hereto as Exhibit "B" and by this reference made a part hereof.

Section 3. The City Council of the City of Sheridan does hereby amend the Transportation Systems Plan adopted per Ordinance 2000-05, Map 3 (City of Sheridan Street Functional Classification) to move the location of the Blair Street Collector corridor to the south between Richard Street and Rock Creek Road and designate the local street system corridors as shown on Figure 8-2, Concept Plan Option 2 With Airport Remaining (the preferred option) attached hereto as Exhibit "B" and by this reference made a part hereof.

Section 4. The City Council of the City of Sheridan does hereby amend the Development Code of the City of Sheridan, Oregon as shown in Exhibit "C."

PASSED by the City Council of the City of Sheridan, County of Yamhill and State of Oregon on the 1st day of July, 2013 by the following votes:

AYES: Acuff, Cain, Ehry, Cooley, Quinones

NAYS: None

ABSTAIN: None

ABSENT: McCandless

Approved by the Mayor this 1st day of July, 2013.

Val Adamson, Mayor

ATTEST: T. J. Henderson

Trish Henderson, City Recorder

EXHIBIT "A" - CITY COUNCIL FINDINGS

WEST SHERIDAN INDUSTRIAL AREA TRANSPORTATION REFINEMENT PLAN

PLANNING FILE: LEGISLATIVE AMENDMENT 2013-01

I. NATURE OF THE APPLICATION

This matter comes before the Sheridan City Council on the application of the City of Sheridan to amend the Sheridan Comprehensive Plan and Development Code to adopt the West Sheridan Industrial Area Transportation Refinement Plan which refines the Comprehensive Plan's Transportation Systems Plan.

II. BACKGROUND INFORMATION

The purpose of the proposed amendments is to adopt the West Sheridan Industrial Area Transportation Refinement Plan and the Technical Appendix, except for those portions of Chapter 12 under the headings "West Sheridan Industrial Area Refinement Plan Overlay," "Purpose," "Master Plan," "Sub-areas Within the District," "Where These Regulations Apply," "Permitted Uses," and "Development Standards" consistent with the State Transportation Planning Rule. This action will amend the Comprehensive Plan's Transportation System Plan to include the West Sheridan Industrial Area Transportation Refinement Plan and the Technical Appendix, except for those portions of Chapter 12 noted above. This action will also amend the Sheridan Development Code to add language related to access management as shown in Attachment "C" – Sheridan Development Code Amendments.

III. PUBLIC HEARING

A. Planning Commission Action

A public hearing was duly held on this application before the Sheridan Planning Commission on April 8, 2013. At that hearing, City Planning File LA 2013-01 was made a part of the record, including the proposed West Sheridan Industrial Area Transportation Refinement Plan with appendices and the October 2004 "Wetland Determination Study & Recommendations Associated With West Sheridan's Industrial Site" by Fernwood Environmental Services of Salem, Oregon. Notice of the hearing was published consistent with the requirements in Section 16.520 of the Sheridan Development Code. No objection was raised as to jurisdiction, conflicts of interest, or

to evidence or testimony presented at the hearing. The staff report dated April 8, 2013 was entered into the record and the Commission received an oral summary of the staff report and oral public testimony. At the conclusion of the public testimony portion of the hearing the hearing was closed and the Commission deliberated on the issues. The Commission accepted the staff recommendation in the staff report and voted to recommend the City Council approve the West Sheridan Industrial Area Transportation Refinement Plan and the Technical Appendix, except for those portions of Chapter 12 under the headings "West Sheridan Industrial Area Refinement Plan Overlay," "Purpose," "Master Plan," "Sub-areas Within the District," "Where These Regulations Apply," "Permitted Uses," and "Development Standards" and the proposed amendments to the Sheridan Development Code, as revised by staff, in the staff report. The Commission found the proposed changes consistent with the applicable decision criteria.

B. City Council Action

A public hearing was duly held on this application before the Sheridan City Council on May 20, 2013. At that hearing, City Planning File LA 2013-01 was made a part of the record. Notice of the hearing was published consistent with the requirements in Section 16.520 of the Sheridan Development Code. No objection was raised as to jurisdiction, conflicts of interest, or to evidence or testimony presented at the hearing. The Council received the staff report. No public testimony or evidence was presented during the course of the hearing. At the conclusion of the public testimony portion of the hearing, the Council voted to continue the matter until June 3, 2013 to allow for additional review time.

The Council re-opened the hearing on June 3, 2013, receiving the staff report dated June 3, 2013 and additional oral staff input. No public testimony or evidence was presented. At the conclusion of the hearing, the City Council deliberated on the issues and passed a motion to approve the West Sheridan Industrial Area Transportation Refinement Plan and Technical Appendix, except for those portions of Chapter 12 under the headings "West Sheridan Industrial Area Refinement Plan Overlay," "Purpose," "Master Plan," "Sub-areas Within the District," "Where These Regulations Apply," "Permitted Uses," and "Development Standards," and the proposed amendments to the Sheridan Development Code, as revised by staff, in the staff report. The Council found the proposed changes consistent with the applicable decision criteria.

IV. FINDINGS OF FACT-GENERAL

The Sheridan City Council, after careful consideration of the testimony and evidence in the record, adopts the following General Findings of Fact:

A. The applicant is the City of Sheridan.

B. The proposed amendments will amend the Sheridan Comprehensive Plan's Transportation System Plan setting forth a street plan for the subject area and amending the Sheridan Development Code for access management standards.

C. This action will amend the Comprehensive Plan and Development Code. Specific amending language is attached as Attachment "B" and Attachment "C"- Development Code.

D. Approval or denial of the request will be based on compliance with the Statewide Land Use Goals and the Sheridan Comprehensive Plan.

V. APPLICATION SUMMARY

A. Statewide Land Use Planning Goal 12 establishes the objectives regarding transportation planning. The policy objectives contained in Goal 12 are implemented through the Transportation Planning Rule (TPR) [OAR 660-12]. The TPR commits all levels of government to the development of a coordinated statewide transportation planning program. Each jurisdiction must prepare and adopt a Transportation System Plan (TSP) and implementing regulations. Transportation refinement plans may be adopted from time to time to refine a jurisdiction's Transportation Systems Plan. This action is to adopt a refinement plan into the Sheridan Transportation Systems Plan and to amend the Sheridan Development Code regarding access management standards.

B. The purpose of the proposed amendments is to adopt a transportation refinement plan for the City of Sheridan. The West Sheridan Industrial Area Transportation Refinement Plan and Technical Appendix establishes the fundamental background information and Figure 8-2 sets forth the planned street system to serve the approximately 300 acre western industrial area bounded by Richard Street on the east, W. Main on the south, Rock Creek Road on the west and the UGB on the north. The Development Code, which implements Plan policies, is amended to add access management standards. A brief summary of the material is noted below.

1. The Comprehensive Plan's Planning Atlas - The "Transportation" section of the Planning Atlas will be augmented with the West Sheridan Industrial Area Transportation Refinement Plan and Technical Appendix, except for those portions of Chapter 12 under the headings "West Sheridan Industrial Area Refinement Plan Overlay," "Purpose," "Master Plan," "Sub-areas Within the District," "Where These Regulations Apply," "Permitted Uses," and "Development Standards," to reflect the information related to the refinement plan. Findings include information on traffic, street classifications and conditions, traffic hazards, pedestrian and bicycle issues, and, long-range transportation needs. The West Sheridan Industrial Area Transportation Refinement Plan and Technical Appendix, except for those portions of Chapter 12 noted above will be incorporated as an appendix into the Sheridan Planning Atlas.

2. The Comprehensive Plan's Transportation Systems Plan is revised to move the Blair Street collector corridor to the south between Richard Street and Rock Creek

Road as shown on Figure 8-2 and is augmented to show the local street corridor system as shown on Figure 8-2.

3. Development Code (Attachment "C") - Several sections of the Development Code are revised and they are all related to access management.

C. The process was supervised by the Oregon Department of Transportation and the Department of Land Conservation and Development when it was being prepared in the 2003-2005 timeframe. Where appropriate, their comments were incorporated into the final document. Neither agency submitted comments in opposition to the final product.

VI. SHERIDAN PLANNING ATLAS

A. Section 16.501.050 of the Development Code states that legislative amendments to the comprehensive plan and/or map or development code text and/or zone map are to be processed as Type IV actions. This type of action must be initiated by City staff, Planning Commission, or City Council. This action was initiated by the Planning Commission and city staff to review the West Sheridan Industrial Area Transportation Refinement Plan dated August 2005 to ensure it was addressed by the Planning Commission and City Council and that a decision to approve, approve with changes or deny the document was achieved consistent with State requirements. Section 16.520 requires hearings to be held before the Commission and Council, with the Commission having an advisory role and the final decision rendered by the Council.

B. Amendments to the Planning Atlas reflect the available information and facts concerning transportation system issues for the western industrial area. The information is based on applicable data from numerous sources as well as field research. Based on the accumulated information, the Council finds the material an accurate representation of the west Sheridan area transportation system, including physical improvements and related long-range planning issues.

VII. SHERIDAN COMPREHENSIVE PLAN AND DEVELOPMENT CODE

A. Section 16.520 of the Development Code states that an amendment to laws or policies is subject to the procedural process for Type IV actions. This type of action must be initiated by City staff, Planning Commission, or City Council. Section 16.520 requires hearings to be held before both the Commission and Council, with the Commission having an advisory role and the final decision rendered by the Council.

FINDING: Legislative Amendment 2013-01 was initiated by city staff with the concurrence of the Planning Commission. A hearing was held by the Planning Commission on April 8, 2013 with a Commission recommendation to the City Council and by the City Council on May 20 and continued to June 3, 2013. Section 16.520 is met.

B. The Statewide Land Use Goals establish the basis for all planning within the State. All local plans and implementing ordinances are required to be consistent with the policies and objectives of the Statewide Goals.

FINDING: Compliance with the Statewide Goals is noted as follows:

Goal 1, Citizen Involvement: Public input was sought throughout the process. A "Measure 56" notice in accordance with ORS 227.168 was mailed to all property owners in the approximately 300 acre area at least 40 days prior to the first public hearing on April 8, 2013. Published notices of the Planning Commission public hearing on April 8 and the City Council public hearing on May20 were published in The Sun newspaper at least 20 days prior to the hearings. Public hearings on the proposed amendments will be held before both the Planning Commission and City Council. This is consistent with City procedures and the intent of the Goal. Goal 1 is met.

Goal 2, Land Use Planning: The proposal does not involve exceptions to the Statewide Goals. Adoption actions are consistent with the acknowledged Sheridan Development Code. The West Sheridan Industrial Area Transportation Refinement Plan is based on inventory work as set forth in Appendices 1 -11. Alternatives were considered. Goal 2 is met.

Goal 3, Agricultural Lands: Goal 3 is not applicable because the proposal does not involve or affect farm land. An exception to this goal is not required.

Goal 4, Forest Lands: Goal 4 is not applicable because the proposal does not involve or affect identified forest lands. An exception to this goal is not required.

Goal 5, Open Spaces, Scenic and Historic Areas, and Natural Resources: Goal 5 is not applicable because identified historic, cultural, or natural resources are not affected by the proposed changes.

Goal 6, Air, Water and Land Resource Quality: Goal 6 is not applicable because the proposed changes do not establish uses or activities which will adversely affect the environment. Some improvement in air quality is anticipated as alternative (non-automobile) forms are transportation will be encouraged through Plan policies and parking requirements.

Goal 7, Natural Hazards: Goal 7 is not applicable because development requirements for activities within the flood plain or on steep slopes would remain unaltered.

Goal 8, Recreational Needs: Goal 8 is not applicable because the proposed changes do not involve land or uses involving recreational opportunities.

Goal 9, Economic Development: The proposed Plan and the proposed access management

standards in the Sheridan Development Code may improve the marketability of the approximately 300 acre area because the local street plan will help to ensure public street access to all properties and provide a safe and accessible street system.

Goal 10, Housing: Goal 10 is not applicable because the proposed Plan revisions and amendments do not involve the supply or location of needed housing.

Goal 11, Public Facilities and Services: Goal 11 is not applicable because the proposed changes do not involve public facilities or create uses or activities that will impact existing public facilities.

Goal 12, Transportation: Goal 12 calls for local governments to "Provide for and encourage a safe, convenient and economic transportation system." The West Sheridan Industrial Area Transportation Refinement Plan calls for new street corridors (Fig. 8-2, p. 69) and access management provisions (p. 118). The proposals are based on significant inventory work and trip counts and analysis as shown in the Plan and the 11 Technical Appendices. The appendices address:

1. Trip Generation Worksheets.
2. Right & Left Turn Lanes Warrant Analysis Worksheet for Concept Plan II.
3. Traffic Signal Warrant Analysis Worksheets Concept Plan II.
4. Capacity Worksheets for Future 2025 Background Traffic Volumes.
5. Capacity Worksheets for Total Future 2025 Traffic Volumes with Build-out of Concept Planning II (100% Future Volumes Without Improvement).
6. Capacity Worksheets for Total Future 2025 Traffic Volumes with Build-out of Concept Planning II (75% Future Volumes Without Improvement).
7. Capacity Worksheets for Total Future 2025 Traffic Volumes with Build-out of Concept Planning II (100% Future Volumes With Improvement).
8. Capacity Worksheets for Total Future 2025 Traffic Volumes with Build-out of Concept Planning II (75% Future Volumes With Improvement).
9. Synchro/Simtraffic Analysis Worksheets for Concept Plan II (100% Future Volumes).
10. Synchro/Simtraffic Analysis Worksheets for Concept Plan II (75% Future Volumes).
11. Synchro/Simtraffic Analysis Worksheets for Concept Plan II (75% Future Volumes at the Intersection of Highway 18-B / Bridge Street With/out Eastbound and Westbound Left Turns).

The planned street network with new east/west and north/south local street corridors and one slightly relocated east/west collector corridor (Blair Street from Richard Street westerly to Rock Creek Road) will accommodate the forecast trips in the study area. The east/west streets and the relocated east/west collector (Blair Street) will relieve trips on W. Main Street, a State Highway (18B).

The Plan includes possible intersection improvements, including signals when warranted. Before any signals or right and left turning lanes are constructed, the ODOT process for new signals and turning lanes will be initiated and followed. All new traffic signal locations, marked crosswalks, and turning lanes on state highways require State Traffic Engineer approval per OAR 734-020-0400 and 0500. A crossing order is required to construct, relocate, alter or close a railroad / highway crossing per ORS 824.200 - .236.

The proposed access management standards to the Sheridan Development Code will help to improve safety along collectors and arterials, especially W. Main Street (Highway 18B).

The proposed changes will provide for and encourage a safe, convenient and economic transportation system. The West Sheridan Industrial Area Transportation Refinement Plan is consistent with Goal 12. Goal 12 is met.

Goal 13, Energy Conservation: Goal 13 is not applicable because the amendments are generally neutral with regard to energy conservation.

Goal 14, Urbanization: Goal 14 is not applicable because the proposal does not address urban growth boundary issues.

Goals 15 to 19, Willamette River Greenway, Estuarine Resources, Coastal Shores, beaches and Dunes, Ocean Resources: These goals are not applicable because the proposal does not involve land within the Willamette Greenway or coastal areas.

The proposed amendments to the Comprehensive Plan and Sheridan Development Code are either consistent with the intent of the Statewide Goals, or, do not directly affect issues addressed by the Goals.

C. The majority of the current transportation policies relate to agency coordination, funding, promotion of a variety of transportation uses (including mass transit) or address specific transportation concerns. These policies are not directly applicable to the proposed amendments but provide guidelines related to the long-term interests of the City. Policies 15 - 18 are applicable to the access management amendments and are noted below:

Policy 15 - Access control along highways can often provide the most cost-effective means of maintaining highway capacity, and shall be implemented whenever possible.

Policy 16 - New direct access to arterials shall be granted only after consideration is given to land use and traffic patterns in the area of development, not just at the specific site. Frontage roads and access collection points shall be implemented wherever feasible.

Policy 17 - Access control techniques shall be used to coordinate traffic and land use patterns, and to help minimize the negative impacts of growth.

Policy 18 - In order to maximize traffic flow and to promote safety, the number of access points to arterials shall be kept to a minimum.

FINDINGS: Consistent with these four policies, the proposed access management standards address access along highways and arterials, and where applicable, along local streets.

D. Based on these findings, the Council concludes the proposed amendments to the Comprehensive Plan's Transportation Systems Plan and Development Code are consistent with applicable Statewide Goals and Comprehensive Plan policies.

IIIV. CONCLUSION

It is hereby found that the proposed amendments to the Transportation section of Planning Atlas; the "Transportation" element of the Comprehensive Plan and the Development Code comply with state law and the City Comprehensive Plan for the reasons stated above.

THEREFORE, it is the decision of the Sheridan City Council to approve the proposed amendments to the Sheridan Planning Atlas, Comprehensive Plan and the Development Code.
]

EXHIBIT "B"
ORD 2013-04

West Sheridan Industrial Area

Transportation Refinement Plan

CITY OF SHERIDAN
On the Yamhill

Transportation and Growth Management Program

CTS Engineers

MITCHELL NELSON

OREGON DEPARTMENT OF TRANSPORTATION

This project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Transportation Equity Act for the 21st Century (TEA-21), local government and the State of Oregon funds.
The contents of this document do not necessarily reflect views or policies of the State of Oregon.

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Executive Summary

INTRODUCTION

This section of the West Sheridan Industrial Area Transportation Refinement Plan (TRP) presents a brief overview of the findings from each chapter of this report including:

- existing land uses, access management conditions, and transportation operations in the study area
- key issues and constraints to development of the West Sheridan industrial lands
- potential land use development plans and selection of a preferred plan
- projected future traffic conditions with and without the preferred plan development and recommended mitigation measures
- access management strategies for future development along Hwy. 18B
- estimated roadway and infrastructure costs to implement the preferred plan, and potential funding sources

STUDY AREA AND EXISTING TRANSPORTATION INFRASTRUCTURE

The West Sheridan Industrial Area Transportation Refinement Plan study area is centered on approximately 300 contiguous acres of industrial land located within the City's west side between Richards Street and Rock Creek Road, north of Hwy. 18B (West Main Street). The area is mostly undeveloped but contains some industrial/commercial uses with a few medium density residences located on either side of Hwy. 18B. This area represents a significant economic opportunity for the City of Sheridan, but is poorly served by the existing transportation system. Although the study area has several north/south local streets, Rock Creek Road (a collector) is the only street that provides circulation though the study area.

Hwy. 18B is a two-lane road without turn lanes. Based on its travel speed (45 mph posted speed limit), ODOT's access management policies require at least 500 feet between major intersections or driveways. Currently, most of the driveways along Hwy. 18B do not meet this criteria. Peak travel along Hwy. 18B during the critical weekday PM peak hour is about 500 vehicles per hour (vph) in both directions.

The Sheridan Airport is also located within the study area. The existing facility is not actively used, but the base grass runway offers the possibility of private aircraft service. The western end of the runway continues onto private land and is used for ultra-light aircraft landings and take offs.

Rail service is provided by Union and Pacific Railroad (formerly Willamette and Pacific Railroad), with the nearest connection to the Union Pacific Railroad at Brooklyn Yard in southeast Portland. There is currently no passenger rail service for this rail line.

Future development in the area is constrained by wetlands, which cover a significant portion of the undeveloped land.

RELEVANT STATE AND LOCAL PLANS AND POLICIES

Relevant plans and policies include State of Oregon Access Management standards and City of Sheridan Comprehensive Plan standards. ***Table S-1*** below lists the minimum access spacing standards (in feet) applicable to the section of Hwy. 18B analyzed in this plan. All distances are from center to center of adjacent access points. Deviations from these distances are considered by ODOT on a case-by-case basis based on a traffic analysis. It should be noted that the speed limit along Hwy. 18B is currently 45 mph, however this study is recommending lowering the limit to 35 mph as the study area builds out.

The City's Comprehensive Plan Transportation Element designates Blair Street as a future collector, which will provide an alternative east-west link on the north side of the City, connecting the West Main industrial area and Rock Creek Road with Cherry Hill Road.

Table S-1: Applicable Access Management Standards for Hwy. 18B in Sheridan

Posted Speed (mph)	Access Management Standard (ft)
≥ 55	700
50	550
40 & 45	500
30 & 35	400

EXISTING TRAFFIC OPERATIONS AND SAFETY

Existing weekday AM and PM peak hours were analyzed, as well as 30th highest design hour volumes (30th HV) required by ODOT for analysis of state facilities. The results, which are summarized in ***Table S-2***, show traffic operates at acceptable levels of congestion throughout the study area, with performance during the morning and evening peak hours comparable to 30th highest hour conditions. Future conditions were analyzed only for 30th HV conditions.

Table S-2: 2004 Weekday Peak Hour Existing Levels of Service

Intersection	AM Peak Hour			PM Peak Hour			30th Design Hour		
	Traffic Signal Control								
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ Bridge Street	10.5	0.21	B	12.5	0.50	B	12.3	0.47	B
	Minor Street Stop Control								
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ Richard Street (Critical Approach: SB)	9.9	0.01	A/B	11.7	0.01	B	11.5	0.01	B
Hwy. 18B/ NW Orchard Street (Critical Approach: SB)	9.7	0.01	A	11.4	0.01	B	11.2	0.01	B
Hwy. 18B/ Rock Creek Road (Critical Approach: SB)	9.7	0.03	A	11.3	0.04	B	11.1	0.03	B

Traffic safety was also evaluated by reviewing crash history and intersection geometric design features. Only 10 crashes were reported in the study area over the most recent three years of available data (2001 through 2003). A total of two crashes were reported along Hwy. 18B/NW Orchard Street and one crash at Hwy. 18B/NW Richard Street. Furthermore There do not appear to be any traffic safety issues in the study area beyond the need to improve intersection turning radii to accommodate trucks (particularly at Rock Creek Road and other streets as development occurs).

FUTURE CONDITIONS

Opportunities and Constraints for Industrial Development

Sheridan's population grew faster overall between 1990 and 2004 than Yamhill County and the State of Oregon, although this includes the prison population that began arriving in 1989. Although Sheridan's rate of growth has slowed from 2000 to 2004 to about one-fifth the rate of growth in Yamhill County and the State of Oregon, the City appears to be in what developers term the "path of growth" for the region. Aside from how the wetland areas impact the site, there are no significant factors that constrain development of the area. Sheridan should be able to offer several larger sites in the 5-10 acre range that would be attractive to company site selectors. The following list illustrates a range of probable industry types that are expected to consider locating facilities in Sheridan.

Agricultural Base

- Specialty Food Processing and Packaging
- Agricultural Equipment, Parts, Supplies, Repairs
- Agricultural Buildings and Other Structures

Forest Products Base

- Specialty Wood Products
- Secondary Wood Products
- Engineered Wood Products

Tourism Industry

- Recreational Vehicle Service and Repair
- RV Equipment Parts & Supplies
- RV Customizing and Modifications

Regional Markets

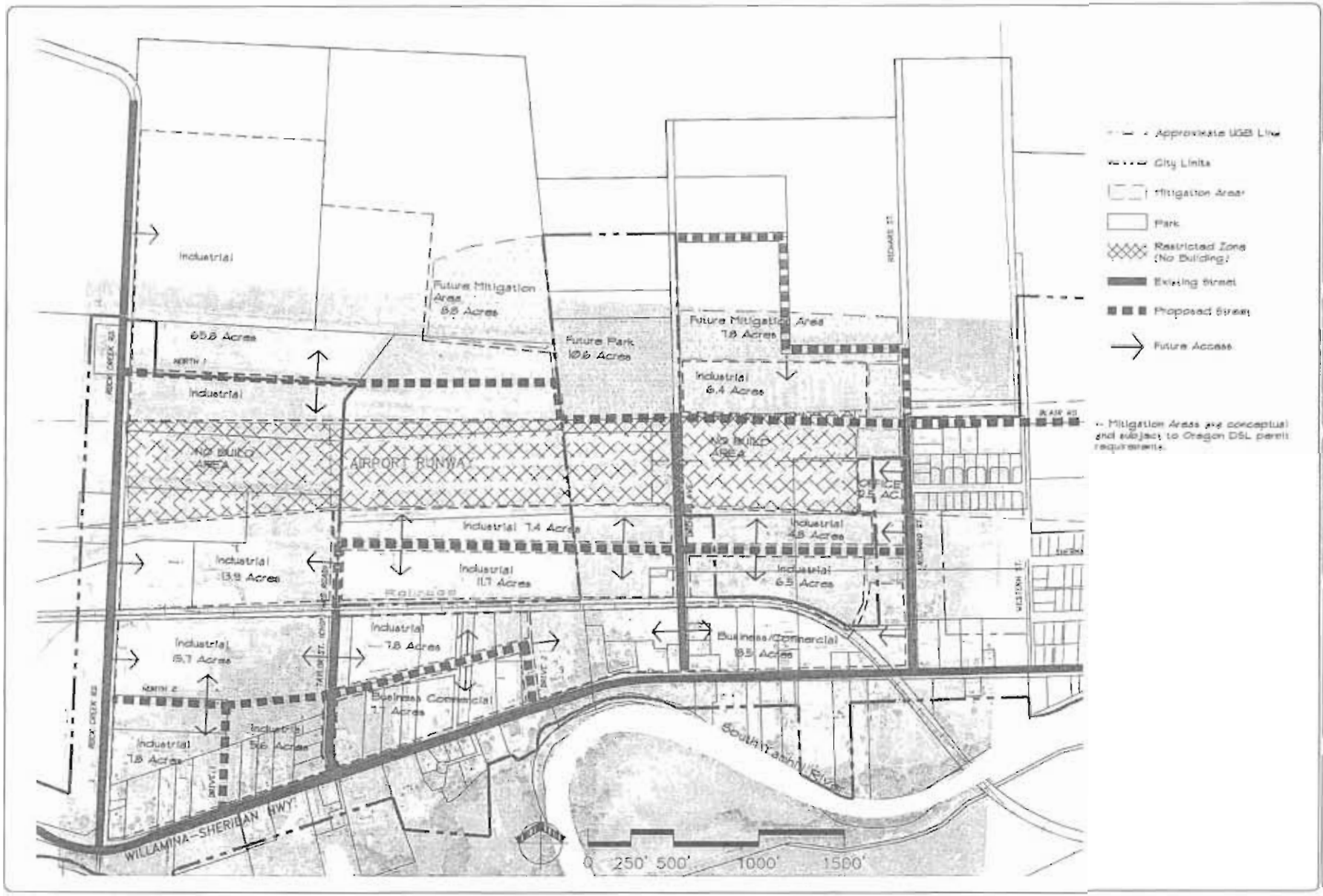
- Manufactured and Modular Housing
- Parts for Manufactured and Modular Housing
- Wood Structures

One factor influencing the development program is the realistic demand for industrial property and the community's ability to support that demand. An industrial land base of approximately 50-70 acres of development-ready property will meet an aggressive development plan of one lot per year for ten years, and a more conservative and realistic scenario of one lot every two years over the next twenty years.

Development Concept Plans

Two concept plan options were developed. Option 1 assumed the airport would be eliminated and redeveloped into industrial businesses. Option 2 assumed the airport remains and supports aviation based industries. Airport operations require significant no-build zones that result in a different development plan. The buildout of either of these plans will likely occur over time with new developments first occurring in the south (along Hwy. 18B), west (along Rock Creek Road) and east (Richard Street) and move towards the interior of the study area. Both Concept Plan options have similar roadway networks. An overlay district for the West Sheridan area is proposed to establish design standards for the area and guide its orderly economic development.

Based on input from the community and property owners, Concept Plan Option 2 (shown in ***Figure S-1***) was selected as the Preferred Concept Plan. This Preferred Concept plan yields approximately 182 acres of developable land, including 154 acres designated as industrial and 28 acres designated as business/commercial. The airport remains as it is now. Most people believed the airport is an asset that should be kept, but could be redeveloped later if warranted. It should be noted that the business/commercial land is not meant to be general retail such as a traditional shopping center, but support retail to serve the employees and businesses in the surrounding development.


Approximate UGB Line
City Limits
Mitigation Areas
Park
Restricted Zone (No Building)
Existing Street
Proposed Street
Future Access
** Mitigation Areas are conceptual and subject to Oregon DSL permit requirements.
Industrial
Future Mitigation Area 8.8 Acres
65.8 Acres
Future Park 10.6 Acres
Future Mitigation Area 7.8 Acres
Industrial 6.4 Acres
NO BUILD AREA
AIRPORT RUNWAY
Industrial 7.4 Acres
Industrial 13.9 Acres
Industrial 11.7 Acres
Industrial 4.8 Acres
Industrial 6.5 Acres
Industrial 15.7 Acres
Industrial 7.8 Acres
Business/Commercial 8.5 Acres
Business/Commercial 7.7 Acres
Industrial 5.6 Acres
Industrial 7.8 Acres
South Yamhill River
WILLAMINA-SHERIDAN HWY
0 250' 500' 1000' 1500'

Transportation Analysis of Future Conditions with Buildout of Study Area

Before evaluating the preferred concept plan, a background growth analysis was conducted assuming historic growth and no changes to the existing transportation system. In comparison with the existing conditions, analyses of these future volumes found that the study area intersections will continue to operate similar to existing conditions and well under ODOT's maximum V/C ratio threshold for Hwy. 18B of 0.80. Vehicle queues at the minor streets along Hwy. 18B were estimated to be minimal.

Detailed analysis was performed to estimate the numbers of trips that would be generated by the Preferred Concept Plan using standard trip rates from the ***ITE Trip Generation Report***. Based on these assumptions, ***Table S-2*** presents our trip generation estimates for each major parcel in the study area for the preferred Concept Plan. Based on standard trip rates and the assumptions discussed in detail in the main report about internal site trips, it is estimated that the preferred Concept Plan with the airport will generate approximately 16,275 vehicle trips during a typical weekday, including 1,425 trips during the AM peak hour and 1,910 vehicle trips during the PM peak hour. It should be noted that these trip estimates are very conservative (i.e., high) to potentially overstate possible congestion. Reasons for this include:

1) **Area Buildout:** The buildout of the study area is based on very optimistic development absorption assumptions as detailed in the Market Analysis. It is highly likely that actual buildout by 2025 will be at least 25 percent less than the approximately 200 acres assumed for this study.

2) **Industrial Trip Rates and Work Shifts:** As detailed above, this analysis assumed a high trip rate for the industrial land in the study area. If the area is developed with more heavy industrial or manufacturing uses that require large storage areas, trips generated by the study area will be significantly less (10 percent or more). Furthermore, many of these uses typically have work shifts. It will be possible to work with these businesses to create work shifts that are not all simultaneous during the traditional peak hours (7-9 AM and 4-6 PM). This could also reduce trips generated by these plans by 10 percent or more.

3) **Internal and Shared Trips:** In reviewing the numbers of trips generated by these concept plans, it is clear that the majority of these trips will come from people not living in Sheridan. Thus, many will have to travel into the area from McMinnville, Salem, or other cities on the Oregon Coast. Based on this, it is likely that workers will carpool or both spouses will work in the study area. This would then result in more internal site trips as each driver picks up a passenger/spouse. It is not unreasonable that this and other transportation demand management measures (e.g., sponsored vanpools, telecommuting, etc.) would account for at least 5 percent of trips to the site.

Considering all these factors, it is likely that the vehicle trip volumes in ***Table S-2*** overestimate travel to/from the study area by at least 25 percent. To test the importance of these assumptions on future capacity results and resulting roadway needs, we performed the future roadway capacity analysis based on two scenarios: worse-case trip generation as shown in ***Table S-4*** and applying a 25% reduction to future 2025 worst-case volumes.

Table S-2: Estimate of Trip Generation for Preferred Concept Plan - With Airport

Land Use/ Site Location (Acres)	Daily Trips	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
Business/ Commercial Land North of Hwy 18B between Chip Yard Rd (Taylor St) and Richard St							
Land North of Hwy 18B (7.7)	2,808	67	41	26	245	118	127
Land North of Hwy 18B (8.5)	3,100	74	45	29	271	130	141
Land/ North of Hwy 18B (9.5)	3,465	83	51	32	303	145	158
Business/ Commercial Land South of Hwy 18B between Rock Creek Rd and Richard St							
Land South of Hwy 18B	Minimal Growth						
Business/ Office Land West of Richard St							
Office Space/ West of Richard St (2.5)	1,403	34	21	13	123	59	64
Internal/Pass-by Trips 35%	3,772	90	55	35	330	158	172
Business/ Commercial Land Total (28.2)	**7,004**	**168**	**103**	**65**	**612**	**294**	**319**
Industrial Land between Rock Creek Rd and Chip Yard Rd (Taylor St)							
East of Rock Creek Rd (65.8)	4,153	563	467	96	582	122	460
East of Rock Creek Rd (13.9)	877	119	99	20	123	26	97
East of Rock Creek Rd (15.7)	991	134	111	23	139	29	110
East of Rock Creek Rd (7.8)	492	67	56	11	69	14	55
East of Rock Creek Rd (5.6)	353	48	40	8	50	11	39
Total	**6,866**	**931**	**773**	**158**	**963**	**202**	**761**
Industrial Land between Chip Yard Rd (Taylor St) and Orchard Ave							
East of Chip Yard (7.4)	467	63	52	11	65	14	51
East of Chip Yard (11.7)	738	100	83	17	103	22	81
East of Chip Yard (7.8)	492	67	56	11	69	14	55
Total	**1,697**	**230**	**191**	**39**	**237**	**50**	**187**
Industrial Land between Orchard Avenue and Richard St							
East of Orchard Ave (6.4)	404	55	46	9	57	12	45
East of Orchard Ave (4.8)	303	41	34	7	42	9	33
East of Orchard Ave (6.5)	410	56	46	10	57	12	45
Total	**707**	**96**	**80**	**16**	**99**	**21**	**78**
Industrial Land Total (153.4)	**9,270**	**1,257**	**1,044**	**213**	**1,299**	**273**	**1,026**
Grand Total (181.6)	16,274	1,425	1,147	278	1,911	567	1,345

In assessing future conditions with the Preferred Plan, we assumed that Hwy. 18B will be improved to a three-lane section that will provide for two through-travel lanes, a center left turn lane, bike lanes and sidewalks and several improvements are made to the minor streets in the study area as shown in ***Figures S-1 and S-2***. The cross section along Hwy. 18B are presented in ***Figures S-3 and S-4*** and include center medians along several sections to enhance pedestrian safety. It should be noted that these improvements can be accommodated within the existing right-of-way. However, if westbound right turn lanes are provided at any of the minor streets, additional right-of-way will have to be acquired. These transportation improvements could be funded by a combination of sources including grants from ODOT, traffic impact fees, forming a local improvement district, and/or direct construction by developers. Also recommended is reducing the posted speed limit along Hwy. 18B from 45 mph to 35 mph. Furthermore, an access management plan was proposed for Hwy. 18B that includes relocating many of the existing driveways and access routes to new planned roadways or combining them into a single driveway. These changes would only occur when parcels redevelop and the alternative access route can be provided. Implementation of the access management plan will require it to be formally acknowledged and incorporated into the City's development code. Finally, it must be noted that the analyses in this study are preliminary and do not formally justify installing a traffic signal at any of the location shown in ***Figure S-2***. As the study area developments, additional analyses needs to be conducted that will evaluate the actual traffic volumes, traffic operations and safety at each of these intersections to gain approval by ODOT for these improvements.

Analyses of future volumes with the Preferred Plan found that all the north-south minor streets need to be improved to two-lane roadways with curb and sidewalks. Furthermore, these streets should provide a three-lane section (separate southbound right and left turn lanes and one northbound lane) at their intersection with Hwy. 18B. As development occurs, traffic signals should be installed at these intersections. These intersections are spaced about 1,250 feet apart, which is adequate to accommodate vehicle queues and provide good signal coordination for smooth traffic flow along Hwy. 18B. ***Table S-3*** summarizes the performance of key intersections with the Preferred Concept Plan and implementation of the improvement plan outlined above. With 100% development, several intersections along Hwy. 18B would have V/C ratios just above the applicable performance standards. As mentioned, 100% development of the preferred Concept Plan is a very aggressive assumption. With 75% development over 20 years, which is more realistic given market and environmental conditions, all intersections in the immediate study area would meet applicable performance standards.

The only exception was at the intersection of Hwy. 18B and Bridge Street. Improvements recommended at this intersection include removing parking along Hwy. 18B on the west leg at its intersection with Bridge Street, and re-striping the eastbound approach to provide a separate right turn lane. Furthermore, we are recommending that eliminating left turns from Hwy. 18B at Bridge Street (which will be less than 50 vehicles during the critical PM peak hour) be considered, and rerouting them onto a side street to become through-movements along Bridge Street as shown in ***Figure S-5***.

Table S-3: 2025 30th DHV Level of Service (Preferred Concept Plan, with Mitigation)

Intersection	100% Development			75% Development		
	Traffic Signal Control					
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ Bridge Street (With EB & WB Left Turns)	92.9	1.29	F	28.1	0.87	C
Hwy. 18B/ Bridge Street (With No EB & WB Left Turns)	60.8	1.04	E	26.0	0.82	C
	Minor Street Stop Control					
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ NW Richard Street (Critical Approach: SB)	18.5	0.88	B	0.77	0.77	B
Hwy. 18B/ NW Orchard Street (Critical Approach: SB)	25.8	0.83	C	0.70	0.70	B
Hwy. 18B/ Rock Creek Road (Critical Approach: SB)	16.7	0.63	B	14.7	0.50	B

Cost Estimates and Potential Funding Sources

The total estimated cost for the construction of the entire internal roadway network is *$8,330,000*. It is assumed that ROW for this network will be contributed by the land owners through the permitting process as part of the redevelopment of the study area. It is also assumed that widening or reconstruction of the major roads (i.e., Hwy. 18B and Rock Creek Road) will be done via grants from ODOT or the County. All internal roadways are assumed to have sidewalks on both sides. Traffic signals (cost $150,000 each) are assumed at the intersections with Hwy. 18B at Taylor Street/Chip Yard Road, Orchard Avenue, and Richard Street. New/upgraded railroad crossings are assumed on Orchard Avenue and Taylor Street/Chip Yard Road (about $250,000 each). Finally, southbound left turn lanes at Hwy. 18B are assumed for all five north/south streets, which adds $70,000 to the estimated cost for each of the five streets.

The City will need to consider and implement a variety of funding sources to implement this roadway plan. Recent property tax limitations (Measures 5 and 50) have substantially reduced the ability to raise needed funds through local action such as increased property tax rates or higher property assessments. Pursuing ODOT-administered federal grant funding for economic development projects should be a high priority, particularly the Special Public Works Fund (SPWF) through the Oregon Economic and Community Development Department. The SPWF provides funding for a variety of infrastructure improvements that promote economic development. Since Western Yamhill and Sheridan are a designated State Enterprise Zone, they have a higher chance of receiving funds from this program. The SPWF is notable because they will fund mitigation for environmental conditions on industrial land. Due to the extent of wetlands in the plan area, this is critical for future development and should be the next step the city takes in implementing this master plan. Loans are available and grants up to $500,000 are given. The grants are based on the number of jobs created at $5,000 per job. Therefore, 50 new jobs created could result in a $250,000 grant. Local improvement districts and project-specific mitigation are the other two funding options likely to be most appropriate.

Cost estimates were also prepared for water, sanitary and storm sewer installation within the public right-of-way. The estimated total cost for all utilities is $3,727,000. Many of the funding options mentioned previously for roadway construction are applicable to the utility infrastructure costs, particularly the SPWF. Sanitary sewer and storm sewer system development charges can be imposed on new developments. Such costs, however, reduce the fiscal competitive edge that Sheridan offers for industrial development and may not be the optimal funding option

Figure S-2: Proposed Future Lane Configurations and Improvements

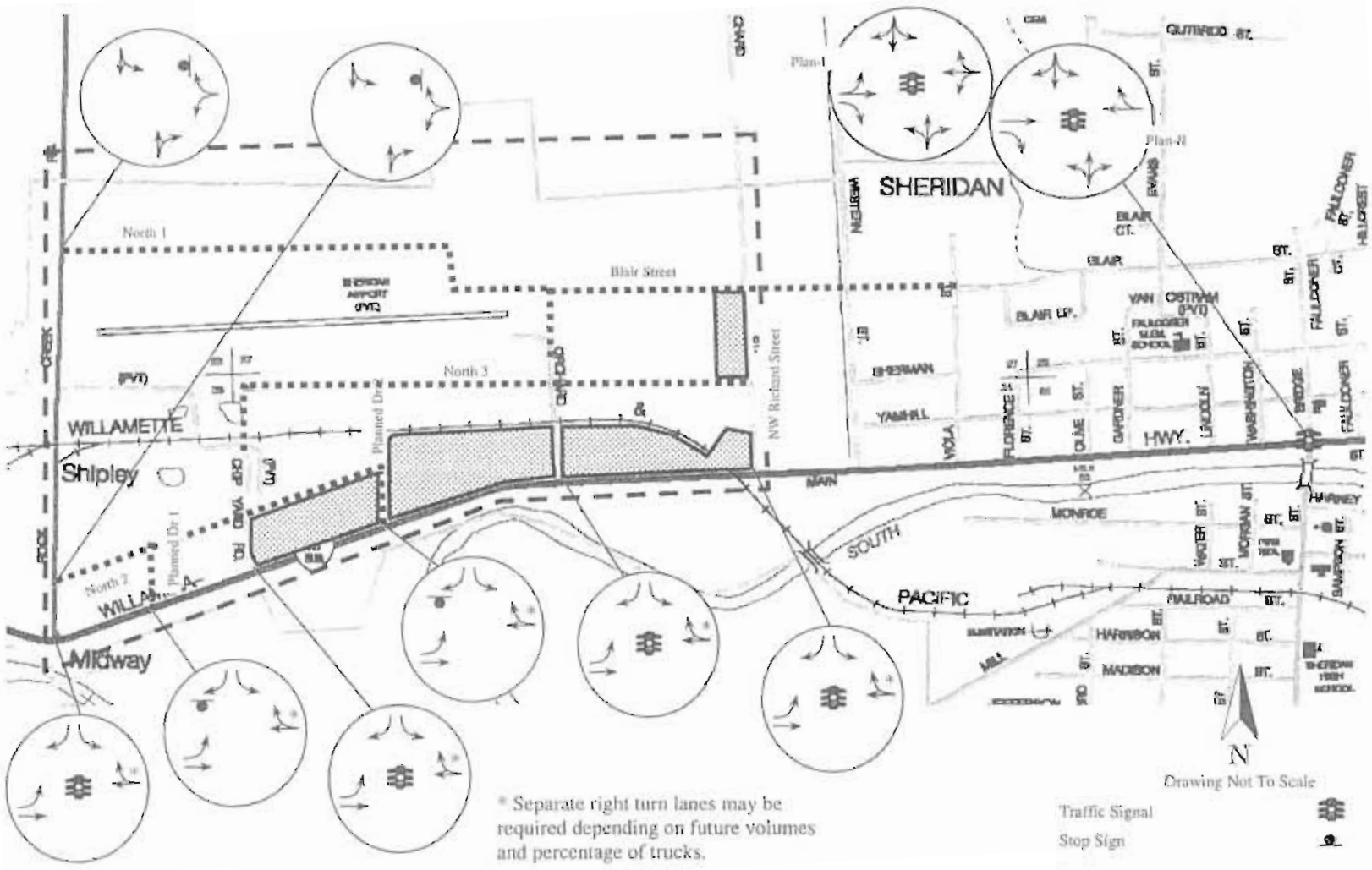


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Figure S-3: Typical Three Lane Section Along Highway 18B Plan

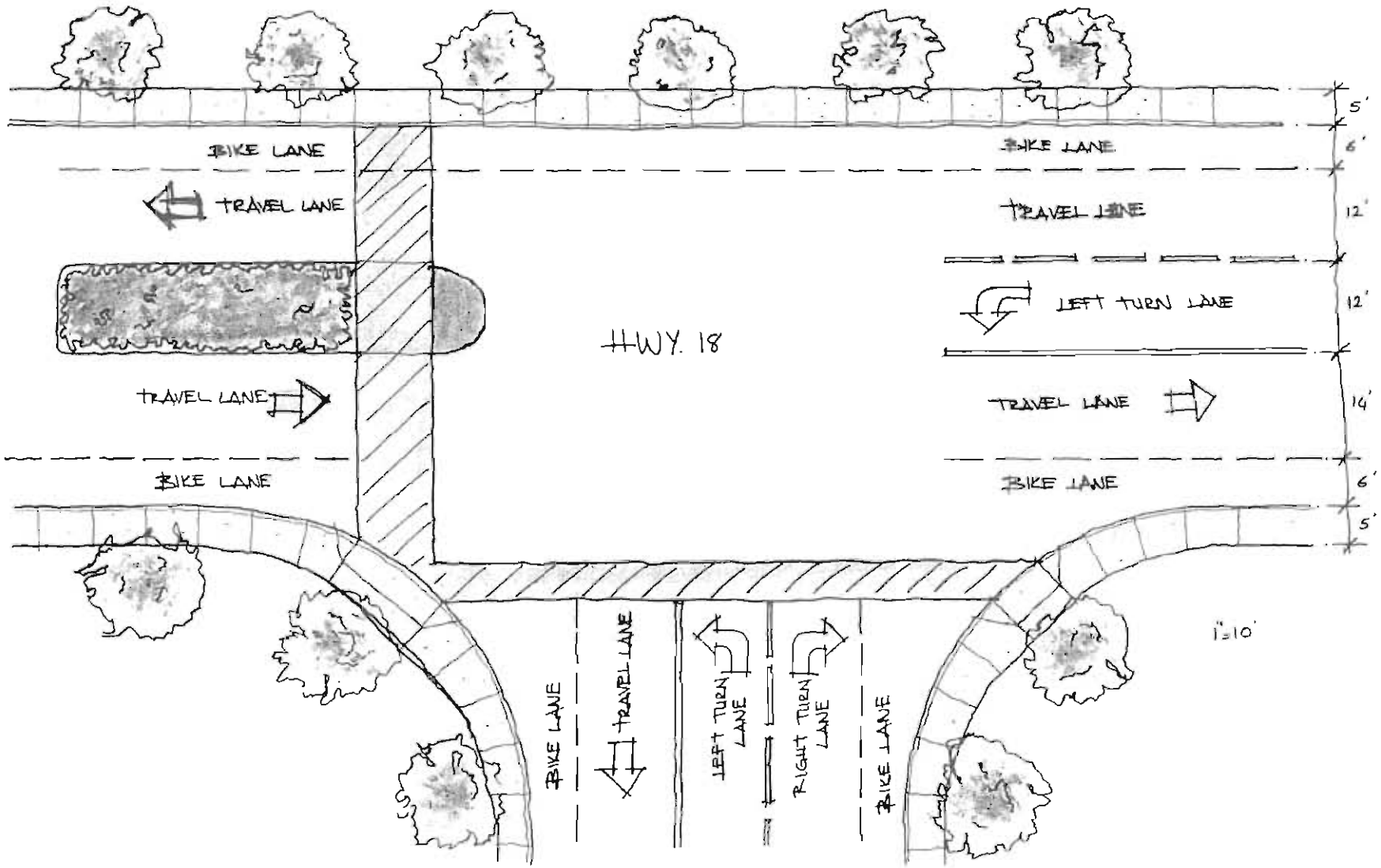

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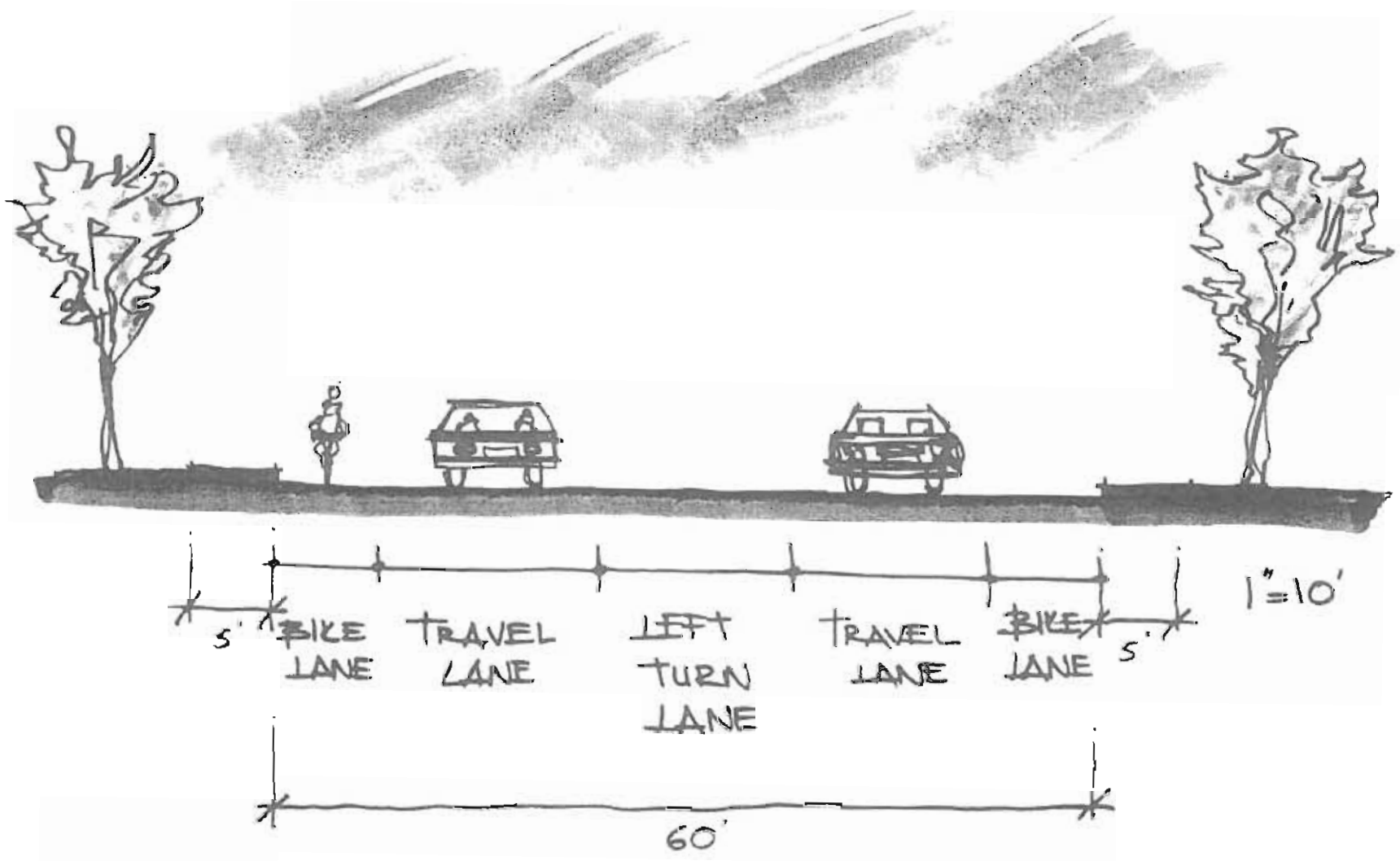
Figure S-4: Typical Three Lane Section Along Highway 18B Profile



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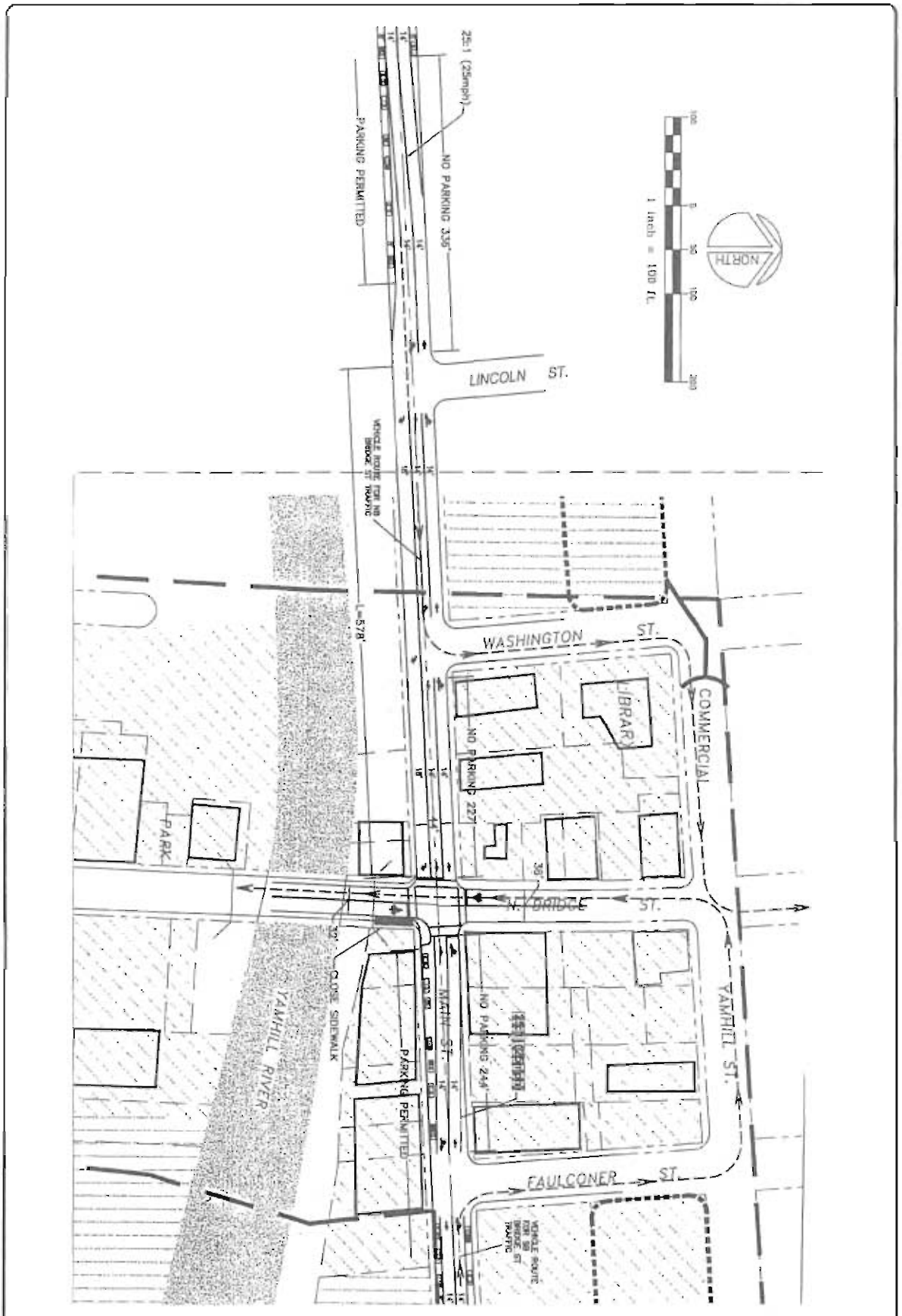

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CTS Engineers
CIVIL
TRANSPORTATION
STRUCTURAL
LAND SURVEYING

CITY OF SHERIDAN
TRANSP. REFINEMENT PLAN

YAMHILL COUNTY

FIGURE S-5
PROPOSED OVERALL IMPROVEMENT PLAN FOR THE MAIN ST AND BRIDGE ST INTERSECTION

OR04.065

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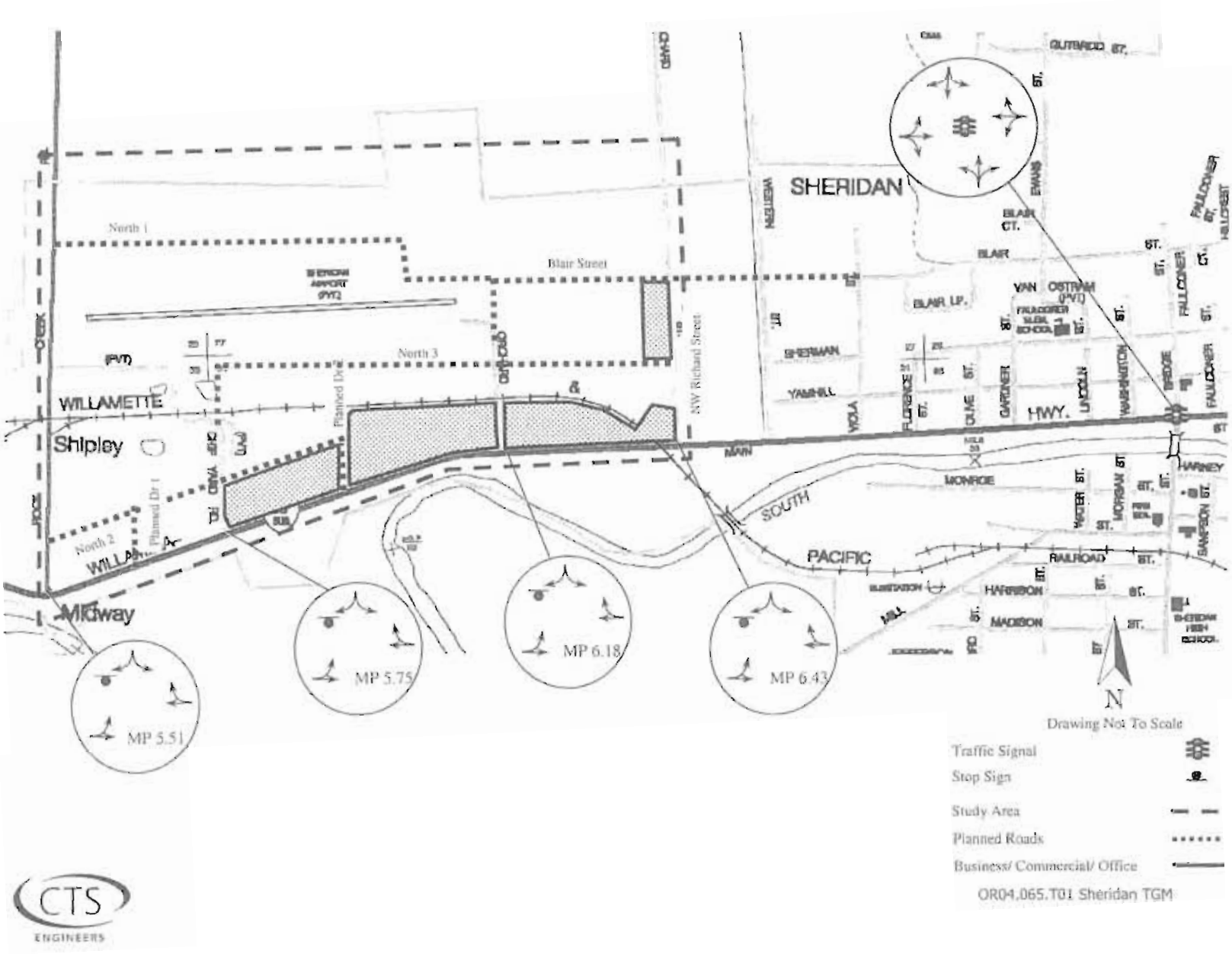
3

Chapter 1.0
STUDY AREA

The study area for the West Sheridan Industrial Area Transportation Refinement Plan is, as shown in ***Figure 1-1***, centered on approximately 300 contiguous acres of industrial land located within the City's west side between Richard Street and Rock Creek Road, north of Hwy. 18B (West Main Street). This study area represents a significant economic opportunity for the area but is poorly served by the existing transportation system. Besides being served by State Hwy. 18B, the project area has access to the Willamette and Pacific Railroad and includes the Sheridan Airport. The project area lies within, or is being considered for inclusion into, the West Yamhill County Enterprise Zone and is within the City's urban growth boundary (UGB). It should be noted that the traffic analysis for this study will also include the evaluation of traffic operations at the Bridge Street/Hwy. 18-B intersection.

Figure 1-1: Study Area Intersections And Existing Lane Configurations



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Chapter 2.0
RELEVANT STATE AND LOCAL PLANS AND POLICIES

This section addresses relevant state and local laws and policies that affect the development of the TRP. Key documents are Oregon's Transportation Planning Rule (TPR), the Oregon Highway Plan, and Sheridan's Comprehensive Plan and Transportation System Plan (TSP).

STATE RULES AND POLICIES

Oregon Transportation Planning Rule (TPR)

The TPR (OAR 660-12-000 through 070) was adopted in 1991 by the State Land Conservation and Development Commission (LCDC) to guide regional and local agencies in implementing Goal 12, Transportation, of Oregon's Statewide Planning Program. In response to the TPR, each agency must adopt and regularly update a Transportation System Plan (TSP) that includes:

1. A determination of transportation needs.
2. A road plan for arterials and collectors, and standards for the layout of local streets and other important non-collector street connections.
3. A public transportation plan.
4. A bicycle and pedestrian plan.
5. An air, rail, water and pipeline transportation plan.
6. Policies and land use regulations for implementing the TSP.

Section 660-12-045 of the TPR includes specific requirements for a jurisdiction's TSP implementation measures that affect the West Sheridan TRP, specifically the operation of Main Street/Hwy. 18B:

a) Access control measures. For example, driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;

b) Standards to protect future operation of roads, transit ways and major transit corridors;

c) A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors, or sites.

Access Management Standards (OAR 734-51)

The State's adopted access spacing standards in OAR 734-051 are determined based on the highway's posted speed functional classification and land use designation. Hwy. 18B is classified as a District Highway within the study area. In the period since the City completed its TSP, the State has updated their access spacing standards. Adopted standards now include minimum spacing standards that apply equally to public and private accesses and allowable maximum deviations that are generally slightly less/more relaxed for private accesses compared to public accesses. *Table 2-1* presents the minimum access spacing standards and maximum standard deviations (in feet) that are applicable to the section of Hwy. 18B, through the majority of the study area, which has a posted speed limit of 45 mph (the section of Hwy. 18B just east of Rock Creek Road has a 55 mph speed limit in the eastbound direction. ODOT may consider lowering this as the study area develops and more traffic turns onto and off of Hwy. 18B). All distances are from center to center of adjacent access points. Deviations from these distances are considered by ODOT on a case-by-case basis based on a traffic analysis.

Table 2-1: Applicable Access Management Standards for Hwy. 18B in Sheridan

Posted Speed (mph)	Access Management Standard (ft)
≥ 55	700
50	550
40 & 45	500
30 & 35	400

CITY PLANS

City of Sheridan Comprehensive Plan Findings, Goals and Policies

The City's Comprehensive Plan was adopted by the City Council in 1979 and acknowledged by LCDC in 1980. It has been amended since, with the last major amendment occurring in January 2003. Elements of the Comprehensive Plan relevant to this Transportation Refinement Plan are found in the Economy, Land Use and Urbanization, and Transportation sections of the Comprehensive Plan, and include the following findings, goals and policies:

Comprehensive Plan Findings

TRANSPORTATION

- Blair Street is designated as a future collector. It will provide an alternative east-west link on the north side of the City, connecting the West Main industrial area and Rock Creek Road with Cherry Hill Road.
- Willamette & Pacific Railroad tracks run in a general east-west direction through the City. The railroad is used for freight service only and it is likely this situation will not change.
- The Sheridan Airport, located on the west side of the City, provides only fair weather flying opportunities. The nearest available air service is the McMinnville Municipal Airport, and the nearest scheduled airline service is available at the Portland International Airport.
- The railroad spurs to the Taylor Lumber site in the western industrial area north of the river are important to the economic vitality of the city. Those industrial spurs on the south side of the river are of lesser importance to the economic vitality of the city but should not be abandoned until the current users relocate.

Comprehensive Plan Goals

ECONOMY

- To encourage desired economic growth, develop a stable community-based economy, promote greater employment opportunities for Sheridan citizens, and provide efficient, orderly and convenient economic development.

Comprehensive Plan Policies

ECONOMY

- Future industrial growth found to be incompatible with residential use shall be directed away from existing or proposed areas of residential development.
- The City shall encourage industry that will raise the wage scale in the community, and provide training opportunities in skills that can be transferred to other job categories and opportunities.
- The City shall require that industry pay its fair share for service required for its establishment and maintenance.
- The City shall, when appropriate and in the best interest of the community, cooperate with appropriate Regional, State and Federal agencies which assist communities in the area of economic development.

TRANSPORTATION

- The City shall coordinate with the Willamette and Pacific Railroad on any future need to expand rail service.
- The City shall coordinate with the Willamette and Pacific Railroad to ensure maximum safety at all street and railway intersections.
- Access control along highways can often provide the most cost-effective means of maintaining highway capacity, and shall be implemented whenever possible.
- New direct access to arterials shall be granted only after consideration is given to land use and traffic patterns in the area of development, not just at the specific site. Frontage roads and access collection points shall be implemented wherever feasible.
- Access control techniques shall be used to coordinate traffic and land use patterns, and to help minimize the negative impacts of growth.
- In order to minimize traffic flow and to promote safety, the number of access points to arterials shall be kept to a minimum.
- Airport operations and facilities should be permitted only on the land for which the airport runway is licensed, which in 1999 were tax lots 900 and 1300 of T5S R6W Sec.27.
- The city's and county's airport overlay districts should only be applied to the licensed runway.
- Expansion of the airport outside tax lots 900 and 1300 of T5S R6W Sec.27 should not be permitted without the approval of both the city and county.
- The existing railroad spurs in the western industrial area (Taylor Lumber location) should be retained; the railroad spurs on the south side of the river should be retained until there is a land use change that does not utilize the railroad spur.
- The City shall coordinate transportation planning and implementation with Yamhill County, the Oregon Department of Transportation and other agencies that provide transportation services or facilities.

- The City shall cooperate and coordinate with the Oregon Department of Transportation to improve the Hwy. 18/Hwy. 18B interchange to provide a full intersection as a secondary access across the Yamhill River.

- The City shall coordinate transportation planning and implementation with Yamhill County, the Oregon Department of Transportation and other agencies that provide transportation services or facilities.

LAND USE AND URBANIZATION

- Methods and devices the City shall consider for guiding urban land use include the following:

    - Tax incentives and disincentives;
    - Multiple use and joint development practices;
    - Fee and less-than-fee acquisition techniques; and
    - Capital improvement programming.

- West Main Industrial Area: To ensure that the future West Main Industrial Area is retained in large parcels prior to development, the following policies shall apply. Parcels within the designated future industrial area shall be retained in current County zones until:

    a. The City of Sheridan has completed a "Framework Plan" for the extension of facilities and services to the industrial area;

    b. Public facilities and services adequate to serve the proposed industrial development are available or can be provided; and

    c. The parcel(s) has (have) been annexed to the City of Sheridan for urban development.

City of Sheridan Transportation System Plan (TSP)

The City's TSP highlights the following access management objectives for Main Street/Hw. 18B:

- Improve safety by minimizing potential conflict points;
- Improve pedestrian and bicycle mobility;
- Maintain an acceptable level of vehicle service and mobility; and
- Minimize capital costs.

Other relevant material in the TSP applies to the Sheridan Airport and the Willamette-Pacific Railroad line.

Airport

An airport is designated within the urban growth boundary on the west side of town between Orchard and Rock Creek Road. Consequently, the local governments - Yamhill County and Sheridan - have a responsibility under State law to provide land use plans and regulations to accommodate airport zones and uses (ORS 836.610).

The Sheridan Airport, located west of the city, provides only fair weather flying opportunities. The nearest available air service is the McMinnville Municipal Airport. From a land use aspect, the present location of the airport creates more conflicts than benefits. For instance, the airport site separates existing industrial developed lands from additional industrial-designated flat land to the north. This land is the most natural area for industrial expansion due to proximity and the ability of the city to provide appropriate industrial services in a consolidated location.

The TSP calls into question whether the airport should continue in its existing location due to the sporadic use, location as a constraint to expansion of the industrial area, and zoning that is inconsistent with the licensing. The TSP further recommends a detailed study of the Sheridan airport relative to the southwest Yamhill County/northwest Polk County service area before the city or county accepts changes to or expansion of the airport.

Railroad Service

The TSP also reviews existing rail facilities in the TRP study area. Because of cost, physical constraints, and railroad traffic, it is unlikely that the at-grade crossings within the city limits will ever be converted to grade separation facilities. Thus, conflicts between the rail and vehicle traffic should remain at acceptable levels that can be accommodated by their exiting traffic control measures.

Chapter 3.0
STUDY AREA OVERVIEW

This section presents an overview of the study area related to its land uses, transportation facilities and other infrastructure. It will also discuss the impact of the wetlands in the study area. *Figure 3-1* presents a GIS map of the area with the relevant items that will be discussed in this section.

Land Uses

The project area primarily contains industrial/commercial uses with a few medium density residences located on either side of Hwy. 18B. Most the buildings in this area consist of general industrial and retail buildings. The City Hall, library, schools and other public buildings are located to the east of the study area along/near S. Bridge Street. In the region, Spirit Mountain Casino (SMC) along Hwy. 18 and the Federal Corrections Institution (FCI) to the south of S. Bridge Street are the two largest employers in the area. The main traffic generators in West Sheridan appear to be Willamina Lumber, Pacific Wood Preserving, and a few retail/industrial businesses. More and more residents are commuting to work outside of Sheridan, creating a "commuter" city.

Comprehensive Plan Designation

The study area is zoned Industrial. The industrial zone permits a broad range of industrial uses (including heavy and manufacturing uses) and "land extensive" commercial uses. The commercial uses are discouraged if they would 'hinder or impair industrial truck circulation'. The deference to industrial truck traffic discourages the establishment of business park-related activities such as training facilities or office uses. An allowance for business park uses within the industrial zone as a conditional use would allow positive flexibility, especially where industrial abuts residential development, and thus provide a smoother transition of uses.

Master Planning of the site can possibly be accomplished through a PUD process. The Sheridan code has a PUD chapter, but it applies to residential development. Use of the PUD process for industrial development requires amending the zoning code.

An alternative to a PUD is a city-adopted Master Plan suggesting street extensions and proposed land uses. Lot division can precede or follow development. Pre-existing lots will, however, be more marketable and timely for development.

Transportation Facilities

Roadways

The primary transportation facilities in the study area are roadway, with Hwy. 18B as the main highway serving the area. This highway is classified as a District Highway and connects to Hwy. 18 to the west through Willamina (5.5 miles) and to the east via Bridge Street (2.2 miles). This highway is the only significant east-west connection through the study area. As noted above under Comprehensive Plan findings, Blair Street has been proposed to be the key existing roadway that could be extended to the west all the way to Rock Creek Road. The study area has several north/south streets, but Rock Creek Road (a collector) is the only street that provides circulation through the study area. As one travels along these other streets, their pavement and travelways are in poor condition. *Table 3-1* contains a summary of the characteristics of these roadways and *Figure 3-2* presents the lane configurations at their intersections with Hwy. 18B. No intersections have any turn lanes.

Table 3-1: Summary of Area Roadway Characteristic

Street Name	Road Class	Paved Width (ft)	Posted Speed (MPH)	Sidewalks	Bike Lane	On-Street Parking
Hwy. 18B	Arterial	@ BS 44 @ RS 22 @ OS 22 @ RC 30	@ BS 25 45	No	No	Yes No No No
Bridge Street (BS)*	North- Collector South- Arterial	North-36 South-32	25	Yes	No	North-Yes South-No
NW Richard Street (RS)	Collector	25	25	No	No	Yes
NW Orchard Street (OS)	Local	25	-	No	No	Yes
Chip Yard Road	Local	25	-	No	No	No
SW Rock Creek Road (RC)	Collector	28	35	No	No	Yes

**Abbreviations of street names*

Hwy. 18B (Main Street)
Hwy. 18B primarily serves two small cities: Willamina and Sheridan to and from Salmon River Highway (Hwy. 18). It provides the primary route for through-traffic and as a result is classified as an arterial. It provides the main east/west arterial on the north side of the Yamhill River. Hwy. 18B gets the majority of vehicle trips that pass through the city without stopping since it serves as the connection to Willamina and to major locations outside of the City. As a State Highway, Hwy. 18B is under ODOT jurisdiction. However, the City has control over the land use adjacent to the street.

Bridge Street
Bridge Street serves the community as the core commercial street and north/south connection in Sheridan. It serves the important function as the only connection between the two commercial areas, which are on opposite sides of the Yamhill River. The bridge provides the only location within the city limits to cross the Yamhill River. The bridge width is narrower than the road leading up to it, which constricts vehicle traffic and limits the bike lane area. Bridge Street is classified as an arterial, which is used primarily to move traffic through the area and serves as the principal gate to the city.

Pedestrian and Bicycling Facilities

Only the downtown sections of Hwy. 18B and Bridge Street have sidewalks and marked pedestrian crosswalks. Other intersections in the study area do not have sidewalks; moreover, NW Richard Street is an unpaved segment to its end. No bicycle lanes are marked in the study area. Few pedestrians and/or bicyclists were observed in the West Sheridan portion of the study area. At the intersection of Main (Hwy. 18B) and Bridge Street, 30-50 pedestrian crossings were noted during each of the PM hours during ODOT's traffic counts. The majority were students/children walking to/from school and the downtown retail uses. Most pedestrian activities involved crossing the west leg of this intersection. No pedestrian crossings were noted along the east leg of this intersection during the 16 hour count. Finally, very few bicyclists were noted in West Sheridan or the downtown area.

Parking

Our field reconnaissance found that only the downtown area has marked/permitted on-street parking along Hwy. 18B. In addition, there are several off-street parking areas in the downtown core that could be used for special events. All the study area roadways do not have marked parking areas, although people do park along the shoulders of most of these roadways.

Public Transportation

The Yamhill Community Action Program (YCAP) operates a dial-a-ride service in the Sheridan area for $2 per ride. The service is fully American Disability Act compliant with wheel chair service. While seniors are about 66% of the customer base, the service is available to the general public and a typical month of service has about 8% disabled, 25% general public and the remainder is youth. The service is a dial-a-ride door-to-door service with a preferred 24-hour advance call notification from the rider. However, when possible, the service provides same-day response. All transportation services by YCAP are funded through Yamhill County, City of McMinnville, State of Oregon, Federal budgets, and fare box receipts. Greyhound Bus Lines provides morning and afternoon daily service both west and east from Oregon Wine Country Inc. at 985 SE Sheridan Road. The west bound service terminates in Lincoln City on the coast with the nearest intermediate stop being Willamina. The east bound service terminates in Portland with the nearest intermediate stop at McMinnville. Even though the Greyhound service is not commuter oriented, it does provide connections through Portland to all points within the North American continent.

Airport

The Sheridan Airport is also located within the study area. The existing facility is not actively used, but the base grass runway offers the possibility of private aircraft service. The western end of the runway continues onto private land and is used for ultra-light aircraft landings and take offs. The ultra-light facility is expanding to the north on Rock Creek Road. FAA regulations concerning runway clear zones, height restrictions and surrounding uses will influence the configuration of any future development. Any development within the airport overlay-zoning district requires review and clearance from the Oregon Aeronautics Division. The property is zoned Industrial and has an airport overlay district mapped on the City Zoning Map. The district bounds should be reviewed to insure that they apply to the authorized runway length of 1,990 feet rather than the original 2,880 feet of runway. The airport is designated as a fair weather airport.

Railroads

Rail service is provided by Union and Pacific Railroad (formerly Willamette and Pacific Railroad), which provide service west to Fort Hill and east to Portland, with the nearest connection to the Union Pacific Railroad at Brooklyn Yard in southeast Portland. There is currently no passenger rail service for this rail line. Fewer than one million gross tons of freight, principally timber and agriculture products, are carried annually on this line. The line is maintained to Federal Railway Administration (FRA) Class 1 standards (maximum speed of freight trains is 10 mph) and has weight limits west of Ballston. The freight service is to the mills in the western valley and provides a single train each direction on a daily basis on week days, and a demand basis on week ends and holidays. Spur service lines are provided to Willamette Cooperative and Pacific Fir on the south side of the river, and Taylor Lumber and Taylor Treating on the north side of the river. None of the three at-grade track crossings on the north side of Hwy. 18B have drop arms and only Main Street (Hwy. 18B) has lights and bells. Orchard Street and Rock Creek Road do not have enough traffic to warrant more than crossbucks signage.

Utility Infrastructure

Sanitary Sewer System

Existing sanitary sewer lines service much of the existing study area. There is an eight-inch line in Rock Creek Road almost to the end of the project area. Orchard Street has an existing sewer line from the airport runway area to the 'West Main Pump Station' on Hwy. 18B (Main Street). There is a line in Richard Street from Hwy. 18B north past Allayn Street and in Taylor Street almost to the railroad tracks. Sanitary sewer is available all along Hwy. 18B. The City's waste water pump station serving this area has been recently upgraded. Sanitary sewer service is adequate to serve new industries in this area.

Water

There is an existing eight-inch PVC water line in Hwy. 18B, a two-inch PVC line in Orchard Street, and an eight-inch PVC line in Richard Street. A new eight-inch PVC water line was installed within the project area in Taylor Street (Chip Yard Road) from Hwy. 18B north to about 800 feet north of the railroad crossing. The line turns west to Rock Creek Road and extends south about 700 feet on Rock Creek Road. The city 'Water Source/Supply Facility Plan' outlines a number of improvements the City is undertaking and planning in order to insure adequate water to meet the city's water demands at UGB full build out. The City plans to complete a looped water line at some time in the future.

Drainage

The site area is generally flat and has been historically drained via a system of ditches that flow into the drainage along Hwy. 18B. ODOT maintains the highway's drainage system. A number of large pipes carry the storm water from the north side of the highway to the south. The existing ditches on the study property have not been maintained in recent years, are not performing properly, and are not providing adequate drainage for the area. Consequently, large portions of the site are slow to dry after rainfall. Maintenance of the drainage system will improve the situation. Maintenance is being postponed until the status of the drainage system is clarified with the Oregon Department of State Lands.

Electric Power

Electric power is available along Hwy. 18B (Main Street) and is available to the industrial area.

Wetlands

In 2004, the City of Sheridan authorized Fernwood Environmental to conduct a preliminary assessment of potential wetlands in the study area for the West Sheridan Industrial Transportation Refinement Plan. Initial wetland areas of concern are shown in ***Figure 2***. Most, if not all, of the area identified as potential wetland has historically been cultivated for agricultural purposes, primarily ryegrass. The remaining areas preliminarily identified as potential wetland are narrow, linear segments along the perimeter of actively cultivated fields. These linear segments are nothing more than drainage ditches created to support the adjacent crops. Due to deferred ditch maintenance, these linear areas have become overgrown with vegetation. Very little of the study area that is not already developed appears to have ***not*** been historically graded for agricultural crops. Moreover, none of this undisturbed area was identified by the City's consultant as potential wetland. Final determination should be conducted in the future to absolve the area of hindrances.

Natural Gas

There is a four-inch natural gas main in Hwy. 18B. Gas is available in Rock Creek Road from Hwy. 18B to the railroad tracks. There is a gas substation at the intersection of Western Street and Hwy. 18B.

Chapter 4.0

EVALUATION OF EXISTING AND FUTURE BASELINE TRAFFIC FLOW THROUGH STUDY AREA

This section summarizes our assessment of existing and baseline future traffic flows along Hwy. 18B (Main Street) from west City limits of Sheridan (Rock Creek Road) to downtown Sheridan (Bridge Street). The objective of this task was to establish baseline traffic conditions and operational issues that will be used to assess future traffic volumes and needs throughout the study area.

EXISTING TRAFFIC VOLUMES AND PEAK HOUR OPERATIONS

Traffic Volumes

ODOT performed traffic volume counts for this study, but the reconnaissance of the site and its vicinity was conducted by CTS Engineers. ODOT provided 16-hour traffic volume counts performed during June 2004 along the intersections of Hwy. 18B/SW Rock Creek Road and Hwy. 18B/S. Bridge Street. Data from these counts are presented in ***Figure 4-1***. Traffic counts for the remaining two intersections (Hwy. 18B/NW Orchard Street and Hwy. 18B/NW Richard Street) were estimated from these counts. Peak hour turning movements at the intersections of NW Orchard Street and NW Richard Street with Hwy. 18B were estimated based on existing development. These turning movements are generally very low due to the extent of undeveloped land. These data revealed that the morning peak hour occurs between 8:00 and 9:00 AM and afternoon peak hour between 4:00 and 5:00 PM. For comparison, ***Figure 4-1*** also presents the peak hour data from 1999 that were reported in the TSP. Notably, these older volumes are not significantly different from the 2004 traffic counts.

Overall, truck traffic (single unit >2 axles and heavy semi-tractor trailers) ranged from approximately 5-25 percent of the total traffic during our 16-hour counts. The highest percentage of trucks was observed between 7:00 and 8:00 AM (approximately 25% of total traffic). The highest volume of trucks was observed between 12:00 noon and 2:00 PM (approximately 20% of total traffic). The majority of these trucks were single unit trucks. Further investigation of the noon to 2:00 PM period found that a majority of the trucks during the noon to 1:00 PM period were traveling from east to west, and vice versa between 1:00-2:00 PM. Almost all of these trucks are going through the area to eventually travel along Hwy. 18 to the east (87 trucks during a 16-hour count) or west (171 trucks during a 16-hour count). The most critical intersection for truck traffic is at Main (Hwy. 18B) and Bridge Street. The Bridge Street approach is very narrow and the turn from eastbound Hwy. 18B to travel south on Bridge Street is a small radius and not practical for large trucks. Close examination of the traffic counts at this intersection found that few trucks make this eastbound to southbound turn (only 1 large truck during a 16-hour count) or the northbound to westbound (4 large trucks during a 16-hour count) turn maneuvers. Thus, truck drivers appear to be well acquainted with the problem.

To evaluate intersections for existing and future operational deficiencies, ODOT requires analysis of 30th highest design hour volumes (30th DHV), which is the hourly volume of traffic that is exceeded only 29 hours over the entire year. To estimate 30th DHV, typical PM peak hour volumes are adjusted using a seasonal factor. The ODOT methodology contained in the TPAU Manual, *Developing Design Hour Volumes*, calls for averaging the most recent five years of seasonal factors after first tossing out the highest and lowest factors for each month. No automatic traffic recorders (ATRs) are located on Hwy. 18B. Based on discussions with TPAU staff concerning the most appropriate ATR to use for seasonal data, we averaged seasonal factors from ATR 22-010, which is located on Hwy. 226 east of Albany, Oregon. Hwy. 226 has operational, geometric and seasonal characteristics similar to Hwy. 18B. The ATR station along Hwy. 18 near Spirit Mountain was not used because it has significant seasonal peak characteristics that do not occur in Sheridan. Using these factors, which are shown in ***Table 4-1***, we developed a seasonal adjustment of approximately **1.06** (i.e., 111% / 104%). This factor was applied to the June 2004 PM peak hour traffic volumes at the two intersections where traffic counts were taken to develop 30th DHV for analysis purposes. ***Figure 4-2*** presents our estimates of current 30th hour volumes. Volumes greater than 25 vehicles per hour were rounded up to the nearest 5.

Figure 4-1: Recent 2004 Weekday Peak Hour Traffic Volumes along study Area Intersections

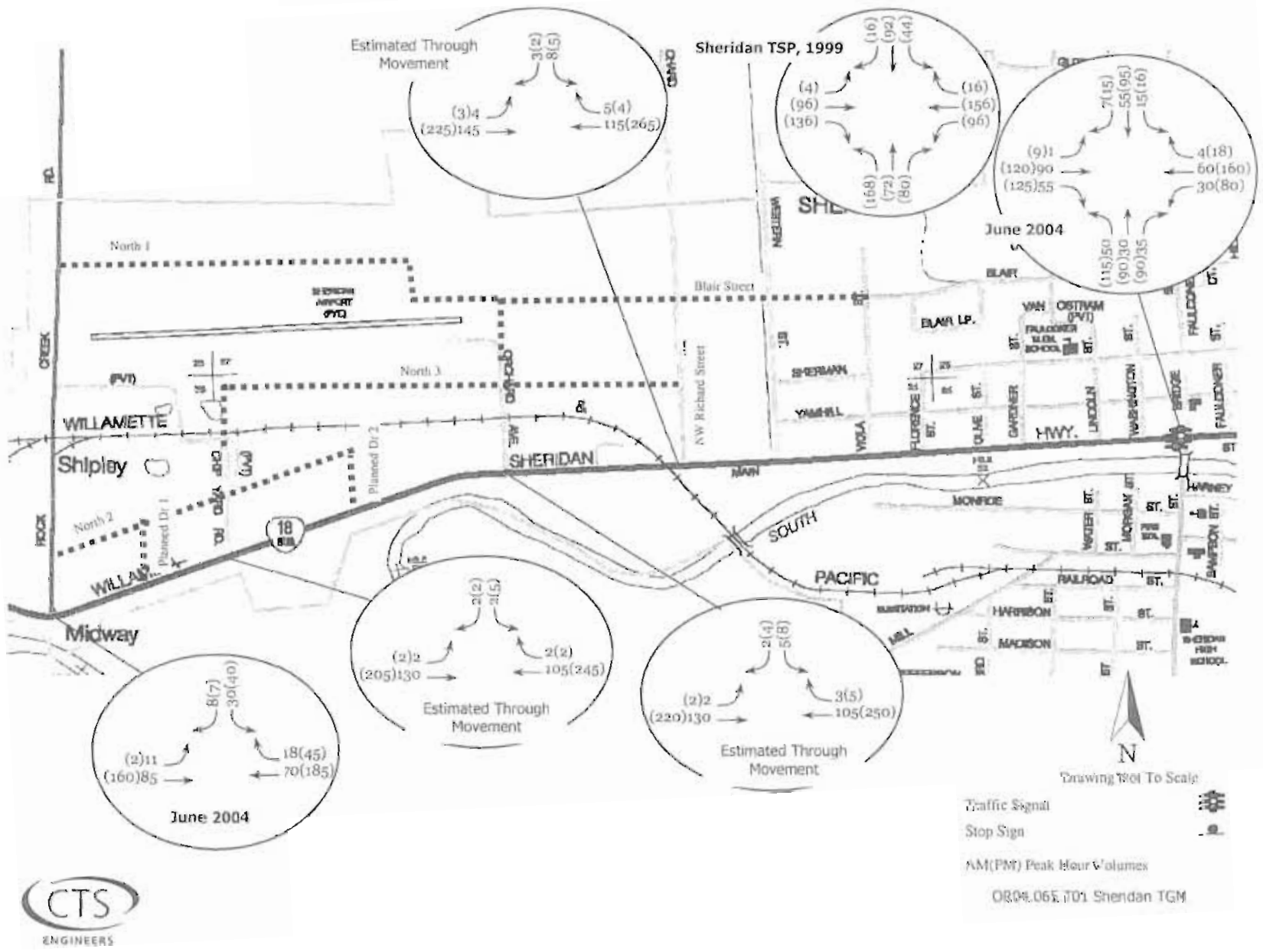


Table 4-1: Seasonal Adjustment Factors For OR 18-B (Based on ATR #22-010 on OR 226)

	2003	2002	2001	2000	1999	Average
June *(Peak hour count month)*	105%	109%	108%	106%	105%	106%
July *(Highest AWT)*	114%	113%	115%	107%	109%	111%

Peak Hour Traffic Operations

Both the existing and future traffic analyses in this study were conducted assuming existing roadway conditions. Traffic conditions were analyzed at the key study area intersections of Hwy. 18B/Bridge Street, Hwy. 18B/NW Richard Street, Hwy. 18B/NW Orchard Street and Hwy. 18B/Rock Creek Road. Analysis was done using weekday (AM and PM) peak hours and 30th hour volumes presented in ***Figures 4-1 and 4-2.*** Intersection operational analyses were conducted using the procedures in the ***2000 Highway Capacity Manual (HCM)*** for evaluating unsignalized intersections, which describe the traffic operations of an intersection in terms of its delay, queue length, and Level of Service (LOS). The Level of Service (LOS) criteria range from "A", which indicates little, if any, delay, to "F", which indicates that vehicles experience long delays. For unsignalized intersections, the intersection's LOS is stated relative to the most critical intersection maneuver, typically the left turns from the minor street approach. The 1999 Oregon Highway Plan (OHP) uses volume to capacity (V/C) ratios to evaluate mobility deficiencies and needs. The V/C ratio is the ratio of peak hour traffic volume to the maximum hourly volume of vehicles that a roadway section or approach can accommodate. In other words, V/C measures the percentage of the capacity of the roadway section that is utilized during the peak hour. Hwy. 18B is classified as a District Highway under the 1999 State Classification System (1999 SCS). The maximum acceptable v/c ratio for a District Highway outside the Portland Metro and not identified as a Special Transportation Area (STA) is 0.80. For portions identified as STA, the maximum v/c ratio is 0.85. ***Tables 4-2 and 4-3*** present the results of our intersection capacity analyses, and indicates that the study area intersections are estimated to currently operate at acceptable LOS B or better during the weekday AM and PM peaks and 30th DH volumes with V/C of approximately 0.50.

Table 4-2: 2004 Weekday Peak Hour Existing Levels of Service

Intersection	AM Peak Hour			PM Peak Hour		
	Traffic Signal Control					
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ Bridge Street	10.5	0.21	B	12.5	0.50	B
	Minor Street Stop Control					
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ NW Richard Street (Critical Approach: SB)	9.9	0.01	A/B	11.7	0.01	B
Hwy. 18B/ NW Orchard Street (Critical Approach: SB)	9.7	0.01	A	11.4	0.01	B
Hwy. 18B/ Rock Creek Road (Critical Approach: SB)	9.7	0.03	A	11.3	0.04	B

Figure 4-2: Estimated 2004 30th Design Hour Traffic Volumes at Study Area Intersections

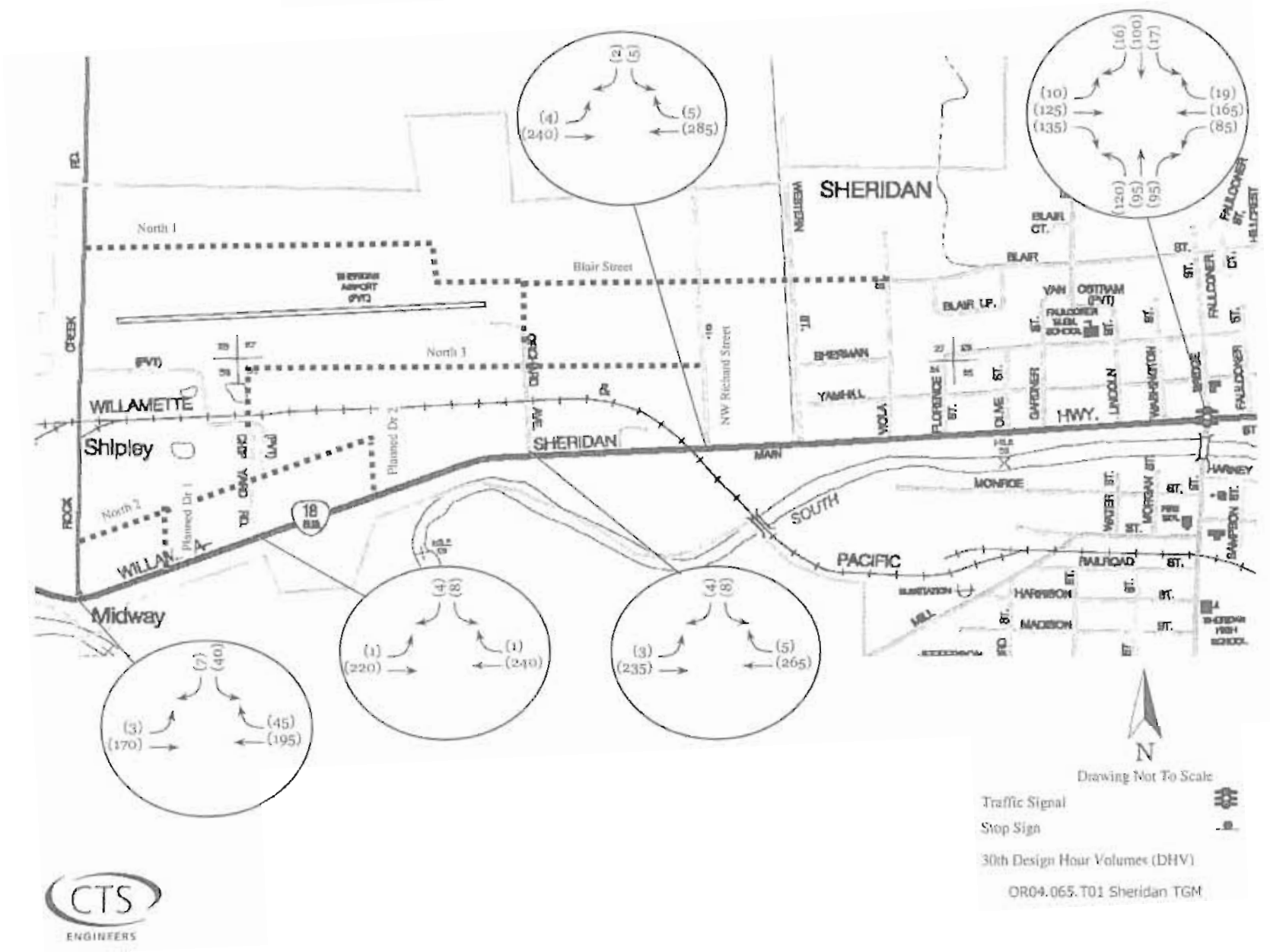


Table 4-3: 2004 30th DHV Level of Service

Intersection	30th Design Hour		
	Traffic Signal Control		
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ Bridge Street	12.3	0.47	B
	Minor Street Stop Control		
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ NW Richard Street (Critical Approach: SB)	11.5	0.01	B
Hwy. 18B/ NW Orchard Street (Critical Approach: SB)	11.2	0.01	B
Hwy. 18B/ Rock Creek Road (Critical Approach: SB)	11.1	0.03	B

TRAFFIC SAFETY

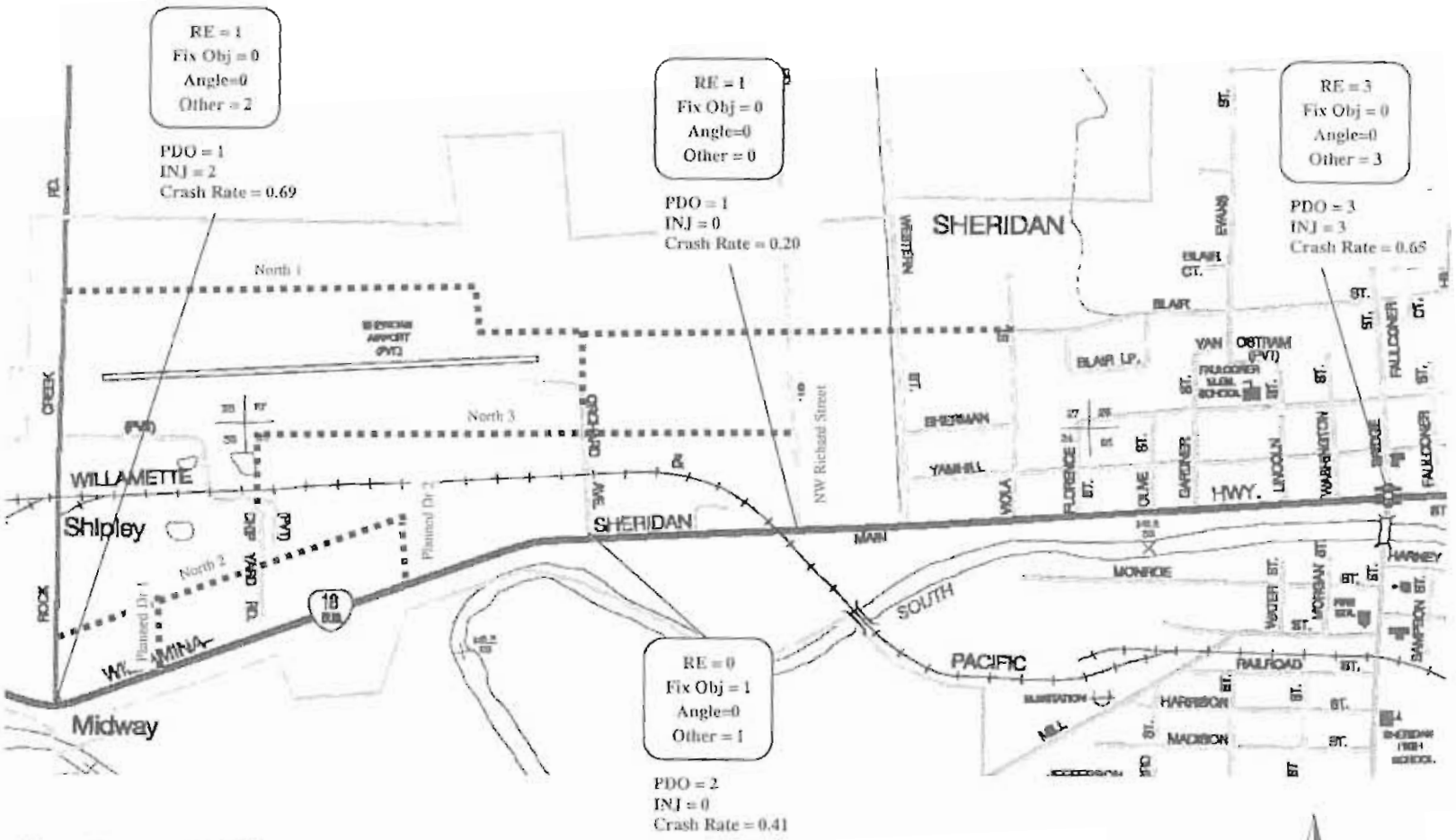
Crash records for the most recent three years of available data (January 2001 to December 2003) were obtained from ODOT files for Hwy. 18B. Only 6 crashes were reported in the immediate study area. ***Figure 4-3*** shows a summary of the crash data and location of the reported crashes. In addition six crashes were also reported to have occurred at Hwy. 18B/Bridge Street. Three of these crashes resulted in an injury while the remaining three involved property damage only. This equates to an average annual crash rate of 0.65 crashes per million entering vehicles. A total of three crashes were reported along Hwy. 18B/SW Rock Creek Road, which equates to an average annual crash rate of 0.69 crashes per million entering vehicles. Even so, several residents who attended the open house reported that this intersection was hazardous, in particular for southbound trucks making a right turn to head west on Hwy. 18B. This was related to the sharp right turn maneuver needed. A total of two crashes were reported along Hwy. 18B/NW Orchard Street and one crash at Hwy. 18B/NW Richard Street, which equates to 0.41 and 0.20 crashes per million entering vehicles respectively. Again considering truck turning radius, none of these intersections have adequate dimensions to accommodate large trucks. Finally, we compared the crashes rates along the entire corridor from Rock Creek to east city limits using ODOT's Crash Rate Tables. Over this 2.4 mile section, the crash rate ranged from 0.98 to 1.94 (with all but one year below 1.6) during 2000-2004. This is less than state-wide crash rate of 1.62 per million miles of travel for this category of roadway. These rates are typical of other urban arterial roadways throughout Oregon.

Sight Distance

A preliminary assessment of driver sight distance was evaluated along the study area intersections. Photos in the *Appendix* document available sight distance for all the intersections mentioned above. ODOT standards require that intersection sight distances conform to AASHTO criteria, which requires 610 feet of clear sight distance be available on a highway with a posted speed limit of 45 mph. The only intersection that appeared to have any concerns was along Hwy. 18B at Rock Creek Road. Although Hwy. 18B is relatively straight and flat to the east, to the west it has a slight curve. Our observations found that a driver's line of sight along Hwy. 18B is approximately just over 500 feet. But during springtime, the line of sight could be obstructed due to vegetation on either side of Rock Creek Road and may be somewhat less than 500 feet. This vegetation should be removed during further development of the study area. All other intersections in the study area exceed 500 feet.

Based on all the information presented in this section, there does not appear to be any traffic safety problems beyond improving intersection turning radii to accommodate trucks (particularly at Rock Creek and other streets as development occurs) in the vicinity of the study area.

Figure 4-3: Traffic Safety Patterns Throughout The Study Area
(Jan. 2001 to Dec. 2003)



FUTURE BASELINE BACKGROUND 2025 TRAFFIC VOLUMES

Planning studies such as this TRP are required to assess a 20-year horizon year. To estimate future 2025 volumes, we used data from ODOT's projections of 2023 future volumes on secondary highways that are presented in ***Table 4-4***. Projected growth in average daily traffic volumes on Hwy. 18B from 2003 to 2023 ranged from 17% just east of Rock Creek Road near the west end of the study area, to 22% just west of Bridge Street on the east end of the study area. Based on these data and discussions with the staff of ODOT's Transportation Planning Analysis Unit (TPAU), we used an average annual growth rate of 0.95 percent per year. Thus, future 2025 background traffic volumes were estimated by multiplying existing peak and 30th Design hour traffic volumes (shown in ***Figure 4-1***) by 1.20. The resulting future background 2025 volumes are shown in ***Figure 4-4***. ***It should be noted that this methodology does not incorporate major development of the study area, but addresses area-wide growth that is expected to increase travel along Hwy. 18B.***

Table 4-4: ODOT Projected Future Volumes on Hwy. 18B

Milepost	Location	2003 Daily Volume	Projected 2023 Daily Volume	20-Year % Change
5.59	0.08 miles east of Rock Creek Rd.	5,400	6,300	17%
6.52	0.02 miles west of Western Street	7,300	8,800	21%
7.10	0.01 miles west of Bridge Street	8,200	10,000	22%
7.12	0.01 miles east of Bridge Street	6,000	6,500	8%

Intersection capacity analyses were performed again at the study area intersections. Results of these analyses are shown in ***Table 4-5 and 4-6.*** In comparison with the existing conditions, the LOS results indicate that the study area intersections will continue to operate at LOS B or better during the weekday AM and PM peaks and 30th DHV with V/C of approximately 0.61. Vehicle queues at the minor streets are estimated to be minimal, 2-3 vehicles at most. Thus, all of these intersections will operate better than ODOT's 0.80 V/C ratio if only background growth occurs.

Table 4-5: 2025 Weekday Future Levels of Service

Intersection	AM Peak Hour			PM Peak Hour		
	Traffic Signal Control					
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ Bridge Street	10.7	0.26	B	14.0	0.61	B
	Minor Street Stop Control					
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ NW Richard Street (Critical Approach: SB)	10.3	0.01	B	12.6	0.01	B
Hwy. 18B/ NW Orchard Street (Critical Approach: SB)	10.0	0.01	A/B	12.3	0.02	B
Hwy. 18B/ Rock Creek Road (Critical Approach: SB)	10.0	0.03	A/B	12.2	0.05	B

Figure 4-4: Future Background 2025 30th Design Hour
Traffic Volumes along study Area Intersections

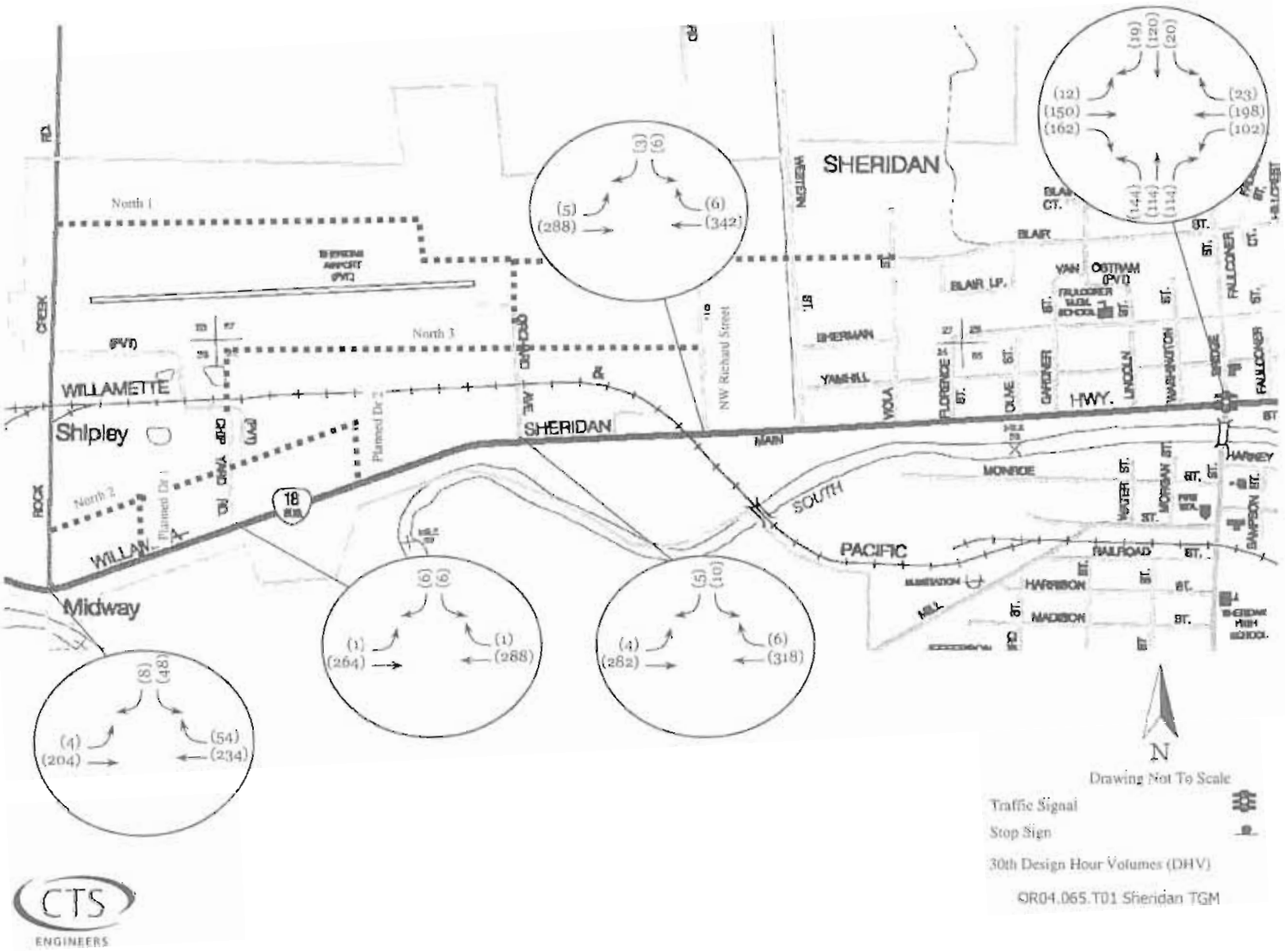


Table 4-6: 2025 30th DHV Level of Service

Intersection	30th Design Hour		
	Traffic Signal Control		
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ Bridge Street (Critical Approach: SB)	13.4	0.57	B
	Minor Street Stop Control		
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ NW Richard Street (Critical Approach: SB)	12.4	0.01	B
Hwy. 18B/ NW Orchard Street (Critical Approach: SB)	12.0	0.02	B
Hwy. 18B/ Rock Creek Road (Critical Approach: SB)	11.9	0.05	B

Turn Lane Warrants for Future Traffic along Hwy. 18B at Rock Creek Road

This section presents the results of our analysis of future 2025 DHV to determine if they meet ODOT's criteria for providing separate right and left turn lanes along Hwy. 18B at it major intersection with Rock Creek Road. All the other unsignalized intersections in the area have relatively low turn volumes and would obviously not meet ODOT's criteria. The turn lane warrant analysis worksheets are attached in the Appendix to this report. Analysis was conducted to determine if a separate westbound right turn lane would be warranted along Hwy. 18B at its intersection with Rock Creek Road during the 30th DHV for 2025 future traffic volumes based on ODOT criteria. As shown in ***Table 4-7***, this analysis found that traffic volumes turning right on Rock Creek Road from Hwy. 18B ***will not*** meet warrants for a separate right lane.

Table 4-7: Results of Right Turn Warrant Analysis for Future 2025 30th DHV

Projected 2025 30th HV			ODOT Design Manual	
Intersection	Total Approach Volume	Right Turns	Right Turn Volume Criteria	Warrant Met?
WB along Hwy. 18B at Rock Creek Road	288	54	65	No

Additional analysis was conducted to determine if a separate eastbound left turn lane is warranted along Hwy. 18B at Rock Creek Road during the 30th DHV for 2025 future traffic volumes based on ODOT criteria. These warrants are based on the number of vehicles turning left, the total approach volumes, and the opposing conflicting volumes during the 30th DHV. As shown in ***Table 4-8***, based on ODOT's volume criteria, projected future 2025 traffic volumes will ***not*** meet warrants for a separate eastbound left turn lane.

Table 4-8: Results of Left Turn Warrant Analysis for Future 2025 Background 30th DHV

Projected 2025 30th DHV			ODOT Design Manual	
Scenario	Total Approach Volume	Left Turns	Left Turn Volume Criteria	Warrant Met?
Eastbound along Hwy. 18B at Rock Creek	207	3	19	No

Furthermore, relatively few crashes were reported at this intersection. Even so, the above analysis only considered the 30th HDV, which is a PM peak hour. During the AM peak hour, the number of turns heading northbound along Rock Creek Road will be higher (particularly eastbound left turns) and will likely come close to meeting these warrants, especially if a major development occurs along Rock Creek Road. Based on all of the above, neither baseline background future 2025 traffic nor other special conditions formally meet warrants for providing separate left or right turn lanes, but this intersection should be monitored on an ongoing basis to determine if these improvements are needed.

Chapter 5.0
EXISTING ACCESS POINTS ALONG HWY. 18B

Access management is an important tool for maintaining a transportation system. Too many access points along arterial streets lead to an increased number of potential conflict points between vehicles entering and exiting driveways, and through-vehicles on the arterial streets. This leads to not only increased vehicle delay and deterioration in the level of service on the arterial, but also a reduction in safety. Access management standards vary depending on the functional classification and purpose of a given roadway. Roadways in the upper echelon of the functional classification system (i.e., arterials) tend to have stringent spacing standards, while facilities ranked lower in the functional classification system allow more closely-spaced accesses.

Figures 5-1a and 5-1b present the existing patterns of streets and driveways along Hwy. 18B, which is a District Highway. Based on this classification, the desirable spacing for access points is 500 feet. In reviewing this figure, it is clear that too many access streets and driveways are present along Hwy. 18B. ***Table 5-1*** presents data on whether these driveways have ODOT permits. About half of these driveways do not have permits. At the same time, considering the 500 foot spacing criteria, many of the driveways to the major existing uses are close to meeting this criteria or could be reconfigured with adjacent land uses to meet this distance. Also, provisions must be made for creating new access points that meet these criteria as parcels fronting Hwy. 18B redevelop. A future access management plan is discussed in Chapter 10.

Table 5-1: Access Management (A.M) Status along Hwy. 18B (M.P 5.51 - 6.18)

Milepost/Side	Approx Distance to next access*	Type of Access	Land Use	ODOT A.M Status
5.51/ N1	n/a	Public - SW Rock Creek Road	Pacific Wood Proc.	Permitted
5.53/ S1	190	Private - driveway	Sngl Fam Home	Permitted
5.57/ N2	115	Private - driveway	Sngl Fam Home	Unpermitted
5.58/ N3	25	Private - driveway	Sngl Fam Home	Unpermitted
5.59/ S2	75	Private - driveway	Head Start of Willamina Co.	Aprvd (Construct)
5.61/ N4	75	Private - driveway	Sngl Fam Home	Unpermitted
5.63/ S3	0	Private - driveway	Erickson Saw Service	Permitted
5.63/ N4	75	Private - driveway	Sngl Fam Home	Permitted
5.66/ N5	135	Private - driveway	Closed Business	Permitted
5.67/ S4	0	Private - driveway	Sngl Fam Home	Unpermitted
5.68/ N6	50	Private - driveway	Sngl Fam Home	Unpermitted
5.68/ S5	0	Private - driveway	Sngl Fam Home	Unpermitted
5.70/ N7	45	Private - driveway	Sngl Fam Home	Unpermitted
5.70/ S6	0	Private - driveway	Sngl Fam Home	Permitted
5.71/ N8	50	Private - driveway	Sngl Fam Home	Permitted
5.74/ S7	160	Private - driveway	School Bus Depot	Permitted
5.75/ N9	50	Public County Road (Taylor St)	Sheridan Forest Products	Permitted
5.77/ S8	110	Private - driveway	Deer Meadows Asst. Living	Permitted
5.77/ N10	0	Private - driveway	Sngl Fam Home	Unpermitted
5.81/ S9	210	Private - driveway	Sheridan Country Inn	Permitted
5.83/ N11	110	Private	"Owners of Pacific Place"	Aprvd (use)
5.85/ S10	110	Private - driveway	NW Pacific Place	Permitted
5.86/ N12	50	Private - driveway	Sngl Fam Home	Unpermitted
5.92/ N13	320	Private - driveway	Sngl Fam Home	Unpermitted
5.93/ N14	50	Private - driveway	Sngl Fam Home	Unpermitted
5.94/ S11	50	Public - NW Pacific Place	Industrial MFG	Permitted
5.95/ N15	50	Private - driveway	Jon's Automotive Repair	Permitted
5.96/ S12	50	Private - driveway	Sngl Fam Home	Unpermitted (Wide driveway)
5.99/ N16	160	Private - driveway	Carquest Auto Parts	Permitted
6.02/ S13	160	Private - driveway	2-Sngl Fam Homes	Permitted
6.06/ N17	210	Private - driveway	Sngl Fam Home	Unpermitted
6.12/ N18	320	Private - driveway	Sngl Fam Home	Unpermitted
6.13/ N19	50	Private - driveway	SUMCO Landscape Materials	Unpermitted (Wide driveway)
6.15/ N20	100	Private - driveway	Smith Body Design	Unpermitted

* From near edge to near edge

(table cont'd next page)

Table 5-1 cont'd: Access Management (A.M) Status along Hwy. 18B (M.P 6.18 – 6.43)

Milepost/Side	Approx Distance to next access*	Type of Access	Land Use	ODOT A.M Status
6.18/ S13	0	Private - driveway	2-Sngl Fam Homes	Unpermitted
6.18/ N21	160	Public - NW Orchard Street	2-Sngl Fam Homes	Permitted
6.22/ N22	210	Private - driveway	Sngl Fam Home	Unpermitted
6.23/ S14	50	Private - driveway	3-Sngl Fam Homes	Unpermitted
6.25/ S15	110	Private - driveway	Sngl Fam Home	Unpermitted
6.26/ S16	50	Private - driveway	Sngl Fam Home	Unpermitted
6.26/ N23	0	Private - driveway	Togstad Rentals	Unpermitted
6.28/ S17	110	Private - driveway	Field	Permitted
6.28/ N24	0	Private - driveway	Trailers/Houses	Unpermitted
6.30/ S18	110	Private - driveway	Seventh Day Adventist	Unpermitted
6.31/ N25	50	Private - driveway	Trailer Park	Permitted
6.32/ S19	50	Private - driveway	Sngl Fam Home	Permitted
6.32/ N26	0	Private - driveway	Briskey's Electronics	Unpermitted
6.34/ S20	110	Private - driveway	Sngl Fam Home	Permitted
6.35/ N27	50	Private - driveway	Briskey's Electronics	Unpermitted
6.36/ S21	50	Private - driveway	Sngl Fam Home	Unpermitted
6.36/ N28	0	Private - driveway	Sngl Fam Home	Unpermitted
6.38/ S22	110	Private - driveway	Sngl Fam Home	Unpermitted
6.38/ N29	0	Private - driveway	Sheridan Collision Center	Unpermitted
6.39/ S23	50	Private - driveway	Empty Lot	Permitted
6.43/ N30	110	Public - NW Richard Street	NW Heavy Equip.	Permitted

*From near edge to near edge

MATCH LINE (SEE FIGURE 5-1a)

CHAPTER 6.0
OPPORTUNITIES AND CONSTRAINTS IN DEVELOPING WEST SHERIDAN

This section reviews opportunities and constraints associated with the status of existing conditions in the West Sheridan Study area. Overall, outside of how the wetland areas may impact the site, there are no fatal flaw constraints. In developing the study area, there will be issues that need to be addressed, including zoning, creating an adequate roadway network, and developing an access management plan for Hwy. 18B. The opportunities are many in that the surrounding community has a large workforce and the site is virtually vacant and can be redeveloped to meet a wide range of potential business. Detailed discussions of these issues are presented below.

Wetlands

The most physically limiting feature of the study area is the potential wetland areas. Preliminary review of the site indicates significant wetlands north of the airport runway. A series of ditches have historically drained the site for farming, but they have not been maintained and are not functioning efficiently. The city is planning to clean out the ditches this year and they are hopeful that the wetland area will be reduced.

Market Absorption

Historically, the demand for industrial property in Sheridan and the community's ability to support that demand has been somewhat limited. The study area represents an industrial land base of approximately 50-70 acres of development-ready property. An aggressive development plan could absorb this at the rate of one lot/development per year for ten years, but a more conservative and realistic scenario would be the development of one lot/development every two years over the next twenty years.

Zoning

The study area is zoned Industrial, which permits a broad range of industrial uses and land-extensive commercial uses. Some commercial uses are discouraged if they would 'hinder or impair industrial truck circulation'. The deference to industrial truck traffic discourages the establishment of business park related activities, such as training facilities or office campus uses. An allowance for business park uses within the industrial zone as a conditional use would allow greater flexibility to attract a wider range of business, especially where industrial development abuts residential development because it would provide a smoother transition of uses.

Roadway Network

The study area has one major east-west route, Hwy. 18B, that runs through the entire area along its south boundary. It also has one major north-south route, Rock Creek Road, which runs along the area's west boundary. Although there are many other north-south streets, they do not connect to other streets and simply stub off of Hwy. 18B. In redeveloping the area, a complete network of streets needs to be provided that would include another major east-west route from Rock Creek Road to Richard Street, and possibly Western and/or Viola Streets. A secondary east-west road could also be provided in order to interconnect the industrial uses along Hwy. 18B that could address the access needs for these businesses. Also, the conditions of these stub north-south streets must be improved.

Access to Hwy. 18B

Hwy. 18B has too many access streets and driveways along its section through the study area. At the same time, considering the 500 foot spacing criteria, many of the driveways to the major existing uses are close to meeting this criteria or could be reconfigured with adjacent land uses to meet this distance. In addition, the plan should consider providing a secondary street/alleyway just north of Hwy. 18B and along the rear of these parcels to provide access via the existing north/south street system. This would permit some of the driveways onto Hwy. 18B to be removed or have restricted movements. Also, new access points should meet ODOT criteria as parcels fronting Hwy. 18B redevelop.

Roadway Capacity and Safety Along Hwy. 18B

Our analysis of existing and background traffic conditions found that there is sufficient roadway capacity to accommodate general growth trends through the study area. However, this analysis did not explicitly consider major redevelopment of the subject site. Furthermore, no traffic safety concerns were identified. As we progress through this plan and the study area is redeveloped, separate left and right turn lanes from Hwy. 18B onto Rock Creek and other north-south streets will likely be needed. In addition, capacity and truck turning movements at the Hwy. 18B and Bridge Street intersection need to be evaluated. This will be part of a later task of this Refinement Plan study.

Facilities for Bicycle and Pedestrian Travel

Currently, other modes of travel, specifically bicyclist and pedestrians, are not adequately provided for in the study area. With redevelopment of the study area, amenities such as sidewalks, bike lanes, and marked pedestrian crossings, including possibly median islands along Hwy. 18B, need to be provided.

School Bus traffic Along Hwy. 18B

During the school year, buses pick up and drop off students along Hwy. 18B, where the shoulders are generally narrow and there are no protected areas for bus pull-outs.

Limited Rail Access

The study area has direct rail service through the Willamette & Pacific rail line running east-west through the area. However, only one parcel in the study area has direct rail access. Measures are needed to increase direct rail access in order to enhance potential development of industrial properties.

Resolution of Sheridan Airport Status

The existing airport, which has been for sale for several years, is rarely used and is surrounded by potentially undevelopable wetlands. The airport has been identified as both a potentially valuable resource for development, and as a physical impediment to development of the lands along the runway.

Truck Travel Routes to Hwy. 18

Signs along Hwy. 18B (Main Street) direct traffic to Hwy. 18 via Bridge Street. As noted above, traffic can continue along Hwy. 18B to travel eastbound on Hwy. 18. This route is problematic for large tractor-trailer trucks that are unable to make turns at the Hwy. 18B/Bridge Street intersection (i.e. eastbound right turn from Hwy. 18B to southbound Bridge and northbound left turn from Bridge to westbound Hwy. 18B). Some trucks have to back up and realign to make the right turn maneuver. These difficulties are safety hazards and cause back-up traffic at this intersection. At the same time, traffic counts at this intersection found that very few large trucks make this turn maneuver or the opposite maneuver (i.e., northbound trucks turning left to travel west on Hwy. 18B). Possible mitigation measures include changing signed route or truck route signing, intersection improvements, relocating stop bars for approaches, and changes in signal timing.

Vehicle Speeds through Study Area

Vehicle speeds through the core area tend to be appropriate for a downtown area. However, vehicle speeds through West Sheridan along Hwy. 18B tend to be high as drivers adjust from highway travel to local travel. This will become more critical as this area redevelops. Possible mitigation measures include removing passing zones for at least 1,000 feet from city limits and installing entrance treatments at these fringe areas (i.e. median islands) which establish that the roadway characteristics have changed.

Chapter 7.0

MARKET ANALYSIS AND COMPETITIVE POSITION ASSESSMENT

This chapter presents the findings of the Market Trends/Demands Study and the Competitive Market Position Assessment for the West Sheridan Industrial Transportation Refinement Project (TRP).

MARKET TRENDS/DEMAND STUDY

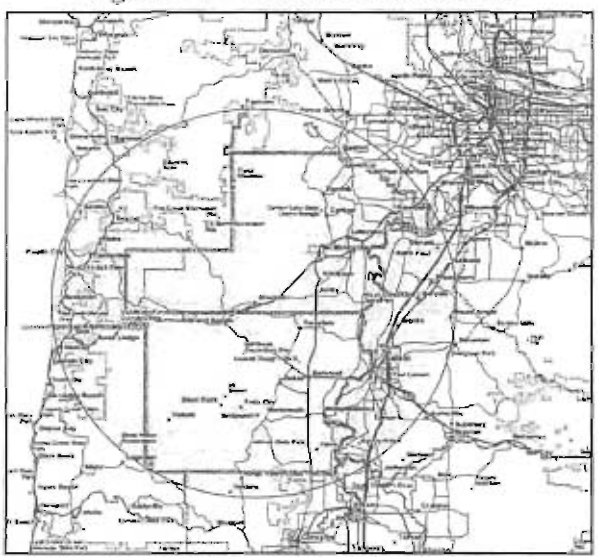
The first step of this study is to characterize Sheridan in terms of its regional linkages, population growth and economic profile and trends.

Regional Linkages

Location

Sheridan, Oregon, is located along Oregon Hwy. 18 (OR 18) approximately 15 miles southwest of the City of McMinnville, the County Seat of Yamhill County. It is about a one-hour drive southwest of Portland, northwest of Salem, and northeast of Lincoln City on the Oregon Coast. Its location is cited as the "West Valley" area of Yamhill County, identifying it within the Willamette Valley. The map below shows the location of Sheridan in relation to other cities in the region and the primary highway transportation systems that provide access. The circle represents the 30-mile radius around Sheridan, which includes its primary market area as well as its primary labor force area.

Figure 7-1: Sheridan Market Area



Transportation/Market Access

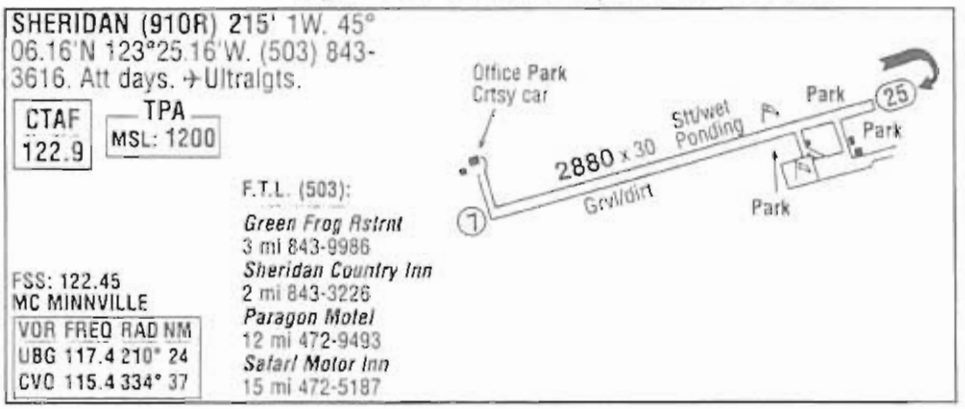
Highway/Trucking: OR 18 is the primary highway linking the Portland Metropolitan Area with the central Oregon coast. It offers a truck route that runs through the cities of McMinnville, Newberg and Tualatin to connect with the I-5 (northbound) and I-84 (eastbound) freeways in the Portland area. While there is a bypass around the City of McMinnville, the route through Newberg and Tualatin is often congested, adding time to the trip. About seven (7) miles west of Sheridan, OR 22 joins OR 18 near the community of Willamina. OR 22 runs east-west connecting with I-5 at Salem, Oregon's capital city, for southbound truck traffic. Oregon Hwy. 18 Business Route (OR 18B) runs through the West Sheridan TRP study area about one mile north of OR 18. Several commercial trucking companies serve Sheridan.

In terms of market access, the highway system provides Sheridan with adequate but not exceptional highway access to the major freeway systems in Oregon and the Northwest. This would make Sheridan better suited for low volume trucking requirements rather than heavy truck traffic.

Air (cargo and passenger): A full international air cargo and passenger terminal facility is located at Portland International Airport. According to DeLorme mapping software, the distance between Sheridan and PDX is 68 miles with a driving time of approximately two hours. Package express companies providing overnight delivery services serve Sheridan. The Sheridan Airport is a small general aviation airport with a turf runway, limited services and no instrument approaches. It is adequate for firms that operate their own light aircraft in VFR conditions. With some improvements, it could be expanded to become a more significant asset. Companies using their own corporate jet aircraft can utilize the McMinnville Airport located approximately 16 miles from Sheridan.

In terms of market access, Sheridan can be competitive with other communities in the region because of the overnight package express service capabilities. Firms with high volumes of air cargo requirements or high air passenger traffic requirements would probably prefer to locate closer to PDX.

Figure 7-2: Sheridan Airport Characteristics



Source: Sheridan Airport © 2004 Airguide Publications

Rail (Freight): Willamette and Pacific Railroad Company serves Sheridan and provides loading and unloading potential at the industrial properties. Specifics of the service have not been obtained, but companies needing rail service can be accommodated at Sheridan.

Water: The Port of Portland provides excellent cargo handling and shipping facilities to meet any requirements. Containers can be moved by truck or rail between the Port's waterfront facilities and the industrial properties at Sheridan. This offers a capability for the Sheridan properties, but not a unique advantage.

Telecommunications: Telecommunications is increasingly being considered as a factor in market access rather than as an operating utility. The Sheridan area offers high-speed broadband capabilities with T-1, DSL, and cable service.

Summary of Regional Linkages

Sheridan's location and transportation system makes the area suitable for companies that want to locate outside of the Portland Metropolitan Area but still have reasonable access to markets in the northern Willamette Valley and the I-5 corridor. Close-in local markets (e.g. Willamina, McMinnville) probably will not be major factors for companies locating at Sheridan. However, the ability of companies to access more distant markets through the Interstate highway system, the Port of Portland, and Portland International Airport adds capabilities beyond the region.

The question is why companies would want to locate along the OR 18B route in Sheridan instead of along the I-5 corridor or other competing locations, such as the industrial parks in McMinnville. The primary reasons would have to be related to one or more of the following:

- Centrality to markets, e.g., serving the Hwy. 101 corridor as well as the Willamette Valley
- Favorable terms for land acquisition, reducing costs vis-à-vis other locations
- Access to specific resources such as the byproducts of local lumber mills
- Personal lifestyle preferences, including the ability to utilize the Sheridan Airport
- Any of the above, combined with ability to access broader markets

A competitive position analysis showing how Sheridan compares with alternative locations in the area is provided later in this report.

Population Trends

The following data show the trends in population growth in Sheridan, Yamhill County, and the State of Oregon between 1980 and 2004. Earlier trends are not considered especially relevant to this study. Population changes in the City of McMinnville are included for comparison.

Table 7-1: Population Changes, 1980 - 2003

	1980	1990	2000	2004	% Change 1990-2004
City of Sheridan	2,249	3,979	5,561	5,620	41.2%
Yamhill County	55,332	65,551	84,992	89,200	36.1%
City of McMinnville	14,080	17,894	26,552	29,200	63.2%
State of Oregon	2,633,156	2,842,321	3,421,399	3,582,600	26.0%

Note: The US Census official web site shows a population in 2000 of 3,570. The Center for Population Research and Census (CPRC) shows the Sheridan "Census" population in 2000 as being 5,561. According to Arlene Wallace at the CPRC, the difference is in the population in the Federal Correctional Institution that opened in Sheridan in 1989. The Census did not account for the prison population when they took the count in 2000 but the figure was later adjusted to the 5,561 number. She observed that the web site has apparently not been corrected to show the adjustment.

In showing percentage changes in Table 7-1, 1990 is used as the base year instead of 1980 to avoid excessively inflating the growth trend because of the opening of the Sheridan Federal Correctional Institution in 1989 (the current population of the Sheridan Federal Correctional Institution is about 2,100 inmates).

When the more recent trends for the period 2000 to 2004 are compared, using the CPRC numbers, they show the following rates of growth.

City of Sheridan	1.1%
Yamhill County	5.0%
City of McMinnville	10.0%
State of Oregon	4.7%

The Oregon Office of Economic Analysis has projected that the population of Yamhill County will grow to 166,776 people by the year 2040, representing an increase of 81,784 persons or 96.2% over the period between 2000 and 2040. Forecasts are not available at the city level.

Summary of Population Data

Sheridan grew faster overall between 1990 and 2004 than Yamhill County and the State of Oregon, although this includes the prison population that began arriving in 1989. This is a positive indicator of Sheridan's future economic potential. However, Sheridan's rate of growth has slowed from 2000 to 2004 to about one-fifth the rate of growth in Yamhill County and the State of Oregon. However, Sheridan appears to be in what developers term the "path of growth" for the region. In 2000, the population in Sheridan represented 6.5% of the Yamhill County total while the City of McMinnville represented 31.2%. In 2004, Sheridan's population had dropped slightly to 6.3% while the population of McMinnville grew to 32.7%. As McMinnville is located only 15 miles northeast of Sheridan on OR 18, this shows a positive direction of population change in the direction of Sheridan. Sheridan is expected to share in the County's growth projected to 2040.

Economic Profile and Trends

Economic data for smaller cities is generally not available except for Census years. The following information provides a comparison of economic patterns and trends in Sheridan as a part of Yamhill County based on historical data. That is followed by more recent trend data for Yamhill County compared with the State of Oregon to show the county's share of overall state growth. From that, extrapolations for Sheridan's economic trends can be drawn.

The following table shows total employment and employment by industry in Sheridan and Yamhill County in 1990 and 2000, according to the US Census data:

Table 7-2: Employment by Industry, 1990 and 2000

	1990			2000		
	Sheridan	Yamhill	% Sheridan	Sheridan	Yamhill	% Sheridan
Civilian Labor Force	1,150	30,490	3.8%	1,638	41,865	3.9%
Employed	1,041	28,978	3.6%	1,493	39,196	3.8%
Agric., forestry, fishing, mining	22	2,156	1.0%	11	1,782	0.6%
Construction	76	1,861	4.1%	115	2,832	4.1%
Manufacturing	307	6,568	4.7%	304	7,600	4.0%
Transp., warehouse, utilities	74	1,764	4.2%	77	1,778	4.3%
Wholesale trade	50	1,189	4.2%	68	1,695	4.0%
Retail trade	157	4,736	3.3%	110	4,488	2.5%
Finance, insurance, real estate	29	1,291	2.2%	26	1,896	1.4%
Services	241	8,065	3.0%	621	15,192	4.1%
Government	85	1,348	6.3%	161	1,933	8.3%

Note: The Sheridan employment data for the year 2000are derived from the US Census reports that showed population to be 1,991 persons lower than the adjusted figure of 5,561. However, as the difference was comprised of the prison population, that should not have a significant effect on the employment numbers or breakdown by categories of employment.

Comparing changes over this ten-year period, Sheridan pretty much tracked the patterns in Yamhill County. Sheridan gained market share in Transportation, Warehousing and Utilities; Services; and Government (which includes federal correctional institution employees).

There was a significant decline in market share in Manufacturing. This appears to be due to the decline in the traditional Lumber & Wood Products sector in Sheridan, while other parts of the county maintained employment by diversifying their manufacturing industries. Sheridan also lost market share in Wholesale Trade; Retail Trade; and the Finance, Insurance & Real Estate sector.

If the US Census population figures are used instead of those from the CPRC, the 1990 – 2000 period was when Sheridan was losing a large part of its population base. Unfortunately, more up-to-date figures at the city level are not available to show what has happened during the more recent years when Sheridan's growth outpaced that of the county and the state.

Given the findings that (1) Sheridan pretty well tracks county business patterns, and (2) that Sheridan is in the direction of growth in Yamhill County, there is value in looking at the overall economic patterns in the county and the region.

The Oregon Employment Department provides data on the numbers of establishments and employment by sector each year. The following data in Table 7-3 is shown for the years 1993 and 2003 for Yamhill County, with the percentage changes calculated.

Table 7-3: Yamhill County Establishments & Employment, 1993-2003

	Establishments			Employment		
Sector	1993	2003	% Δ	1993	2003	% Δ
Total All Industries	1,637	2,279	39.2%	23,348	28,669	22.8%
Total Private Coverage	1,567	2,171	38.5%	19,680	24,724	25.6%
Ag, Forestry, Fish, Mining	97	132	36.1%	2,206	2,978	35.0%
Construction	203	309	52.2%	974	1,430	46.8%
Manufacturing	172	203	18.0%	5,593	5,434	-2.8%
Food & Kindred Products	27	55	103.7%	828	919	11.0%
Apparel & Textile	6	7	16.7%	39	61	56.4%
Lumber & Wood Products	53	23	-56.6%	1,220	842	-31.0%
Furniture & Fixtures[1]	3	17	466.7%	25	111	344.0%
Printing & Publishing	18	13	-27.8%	213	127	-40.4%
Chemicals & Allied Products	3	3	0.0%	14	5	-64.3%
Rubber & Misc. Plastic	8	11	37.5%	488	460	-5.7%
Stone, Clay & Glass Products	8	6	-25.0%	58	39	-32.8%
Fabricated Metal Products	8	26	225.0%	106	234	120.8%
Industrial Machinery	17	7	-58.8%	399	241	-39.6%
Electric & Electronic Equipment	7	9	28.6%	254	241	-5.1%
Transportation Equipment	3	4	33.3%	162	149	-8.0%
Instruments & Related Equipment	5	n/a	n/a	802	n/a	n/a
Miscellaneous Manufacturing	5	18	260.0%	159	1,162	630.8%
Other Manufacturing	8	6	-25.0%	850	844	-0.7%
Transportation, Comm., Utilities	68	64	-5.9%	735	619	-15.8%
Wholesale Trade	82	113	37.8%	635	623	-1.9%
Retail Trade	325	242	-25.5%	4,269	3,142	-26.4%
Finance, Insurance, Real Estate	114	184	61.4%	826	1,034	25.2%
Services	491	909	85.1%	4,418	9,429	113.4%
Non classifiable	16	15	-6.3%	26	36	38.5%
Government	60	109	81.7%	3,668	3,946	7.6%

Note: Furniture & Fixtures[1] are 1992 data as the classification was not listed in 1993. Some classifications changed between 1993 and 2003 because of the change from the Standard Industrial Classification (SIC) system to the North American Industrial Classification System (NAICS). For example, the sub-classification of Eating & Drinking Establishments was moved from the Retail Trade classification to the Services classification. That is reflected by declines shown in Retail Trade and large increases shown in Services. %d = % Change

OED's 2nd Quarter 2004 report showed that the total number of establishments in Yamhill County had increased to 2,358 and that the manufacturing sector represented 211 of those. Annual average figures were not available for year-to-year comparisons.

Summary of Economic Profile

One pattern clearly emerges from this table: The number of establishments has been increasing faster than overall employment. This was true in virtually all classifications, including several that saw growth in establishments but declines in employment. Demand for business sites is generally a function of the number of businesses (establishments) needing locations for their facilities. This means the demand for business sites is higher than the growth trend in employment. It also means that the average size of business sites is growing smaller as average employment per business shrinks.

The total number of establishments in Yamhill County grew by an average annual rate of 3.4% between 1993 and 2003. If Sheridan continues to represent about 4.0% of Yamhill County's total employment, then it can expect a similar share of that growth.

Continuing the trend of 1993 – 2003, Yamhill County would expect to have about 3,079 establishments in the year 2012, for a net addition of 800 new establishments. Sheridan's share of that growth would be about 32 new establishments.

The trend in growth of manufacturing establishments would add about 236 new facilities to the county total in 2012, and about 9 new manufacturing establishments in Sheridan.

REGIONAL MARKET STRENGTHS and WEAKNESSES

Population Size of the Regional Market

As of July 1, 2004, the CPRC estimate for the population of the three combined counties in Region 3 was 452,600. That was a 4.7% increase from the 2000 US Census count of 432,210. Yamhill County represented 19.7% of that total.

Population size of the region is not especially relevant to business development opportunities in Sheridan, primarily because the highway network orients Sheridan and Yamhill County more toward the Portland Metropolitan Area than to Marion and Polk counties. It is not likely that there will be much industrial growth in Sheridan based on concentrations of local populations. Instead, companies locating in Sheridan would be more likely to serve multi-regional and global markets where relative distances from those markets are less influential. However, being located in a region that has a growing market population offers more opportunities than being in a static or declining market.

Employment Characteristics of the Regional Market

The Oregon Employment Department places the City of Sheridan in its Region 3, which includes Marion, Polk, and Yamhill counties. Those three counties contain all of the major population centers in the 30-mile radius circle surrounding Sheridan, without slanting the data by including any major centers outside of that radius. The most recent report on economic conditions in Region 3 was published by OED in the fall of 2004. According to that report:

> *Region 3 tends to have slightly lower unemployment rates when compared with Oregon. After generally trending downward from a peak of more than 10.8% in 1982, the Mid-Willamette Valley's unemployment rate fell to 5.3% in 2000. The number of people estimated as unemployed rose from 11,583 in 2000 to 17,742 in 2003.*
>
> *During those years, the civilian labor force in Region 3 increased while total employment stayed about the same. The Mid-Willamette Valley's civilian labor force totaled 220,399 in 2000. By 2003, the civilian labor force had risen to 225,945 for an increase of 2.5%. In comparison, Oregon's civilian labor force increased by 1.8% between 2000 and 2003. Total employment in*

Region 3 stayed about the same, decreasing slightly from 208,816 in 2000 to 208,203. With the labor force growing faster than total employment, this helps explain the increase in the unemployment rate between 2000 and 2003 in the Mid-Willamette Valley.

Yamhill County's jobless rate tends to fluctuate more than that of Marion and Polk counties. This can be explained by its higher-than-average portion of manufacturing jobs compared with the region and the state. Manufacturing employment tends to be much more vulnerable to world market changes and economic recessions. In the early 1980s, Yamhill's jobless rate peaked at 12.1% while Marion (10.6%) and Polk (9.9%) counties peaked at somewhat lower levels. By the 1990s, Yamhill County's jobless rate fell below Marion and Polk counties and remained there until the 2001 recession.

From 2000 to 2003, all of the region's counties experienced sharp increases in unemployment. Yamhill County's unemployment rate climbed from a relatively low 4.6% in 2000 to 8.4% in 2003.

Region 3 likely will continue to have unemployment rates consistently below Oregon's, sometimes by as much as one full percentage point. Although the levels will differ, the jobless rate will continue to generally rise and fall with the state and nation. Monthly unemployment rates may fluctuate less and less on a monthly basis as the region's employment becomes less seasonal. Region 3 will continue to benefit from a more stable labor force than Oregon's rural counties that depend on seasonal employment in agriculture and tourism. The region's industry structure includes a higher-than-average portion of employment in government, which tends to be relatively stable year round. Additionally, Region 3's traditional resource-and agriculture-based manufacturing sectors are undergoing gradual structural changes, making employment in such industries as lumber and wood and food products more stable. Already in the food products industry, we are seeing fewer layoffs in the winter as manufacturers develop products that are less seasonal and more common to the modern diet – such as ready-to-eat frozen dinners, tortillas and organic potato chips. ***Yamhill County will likely continue to have low jobless rates as expansion from the Portland metro area spills into neighboring communities. With Portland having the most diversified economy in the state, Yamhill County residents will have access to a large number and variety of jobs*** *(emphasis added).*

As of September 2004, the Oregon Employment Department was reporting Yamhill County's unemployment rate at 6.7%, compared to 7.3% for the whole state of Oregon. This is consistent with the predictions quoted above that Yamhill County will perform better than the state as a whole. It also indicates Oregon's slow but steady return to more normal economic conditions following the recession of 2001 – 2003.

Current Drivers of the Regional Economy

The biggest employer in Region 3 is **government**, which accounts for 25 percent of the mid-valley's jobs (41,187). The state percentage is 16 percent. Government employment consists of all city, county, state, federal and tribal employees. It includes such basic services as fire, water, police and public education. The large concentration of employment in the state government sector has provided a degree of stability to the region's economy. State facilities in the region include the state capital, Western Oregon University and Chemeketa Community College.

The **natural resources and mining** industry is another Region 3 sector with a higher percentage of workers engaged in such activities (8%), compared with the state (3%). Under the new NAICS industry coding natural resources and mining includes agriculture, forestry, logging and fishing. Timber from the vast and productive forest lands in the Coast Range and the Cascades also have provided a wide range of forest products to local and global markets for many years. As noted earlier, the region remains a key agricultural producer with gross farm sales of more than $830 million in 2003, over 24 percent of the state's gross farm sales.

Private education and health services employment is the third broad industry category in Region 3 with a higher percentage of employment (12%) than the state (11%). This combination of education and health services is a new industry category under NAICS. It is Region 3's third-largest industry sector, employing more than 21,300 workers in 2002. Region 3 is home to four private colleges and universities – Western Baptist and Willamette in Salem, George Fox in Newberg and Linfield in McMinnville. **Yamhill County, as a result, has an industry mix not found in other areas of the state. Twenty percent of its employment is in private education and health services. Not only does it have the two private universities, it is considered a regional center for health services with a major hospital in McMinnville and other associated medical services.**

The **trade, transportation, and utilities** industry is the region's second-largest major sector with 26,495 workers or 15 percent of all Region 3 workers. This major industry sector includes wholesale trade, retail trade, warehousing, distribution centers, transportation, and utilities. The communities in Region 3 located along Interstate 5 are logical places for warehousing and distribution centers associated with ground transportation.

Manufacturing in Region 3 makes up 11 percent of the region's covered employment, with more than 19,600 workers in 2002. The importance of agriculture also is important in the region's manufacturing sector. Ranked by employment, food products remain the region's largest manufacturing employer, followed by lumber and wood products, and metals manufacturing. While the percentage of total manufacturing employment is below the statewide rate of 13 percent, the industry is perhaps one of the most important due to its higher-than-average wages and the support jobs that result in other local industries. In 2002, the average annual manufacturing wage in the Salem MSA (Marion and Polk) was $31,285, compared with $29,209 in all other industries. **In Yamhill County, manufacturing actually makes up just over 20 percent of all non-farm employment in the county. That's much greater than the statewide average. In 2002, Yamhill County's average annual manufacturing wage was $37,948, compared with $28,719 in all other industries. Much of Yamhill's manufacturing is in durable goods employment, which tends to pay higher wages than food processing which is part of nondurable goods and more prevalent in the Salem MSA (emphasis added).**

Forecast Drivers of the Regional Economy

What sectors of the region's economy are expected to add jobs over the next 10 years? Region 3 is expected to add 22,200 jobs from 2002 to 2012. This is slightly less than the almost 27,600 jobs created between 1992 and 2002.

Services industries are expected to account for about one-half of the region's job growth between 2002 and 2012. Services employment is forecast to grow by 23.9 percent, adding 10,200 new jobs over that time. Business and professional services is expected to be the fastest growing sector in the mid-valley, increasing by 33.3 percent (+2,600).

Health services are expected to be the second-fastest growing of any sector in the region, increasing by 26.8 percent and adding 3,400 jobs. Health services is a high-paying industry sector offering many new career opportunities for labor force entrants and those being laid off from declining industries.

Trade industries are expected to add 5,600 new jobs to the region's employment base over the coming decade. Trade employment is expected to grow slightly faster than the average for all industries at 15.9 percent. Trade employment often correlates with population growth. The rate of growth in trade employment may be even faster than our published forecast for this industry. Wholesale trade is more affected by broader industry and economic trends and has been impacted by the recent slowing of economic growth and the downturn in manufacturing industries over the past decade. As the economy rebounds and the rate of job loss in manufacturing slows over the coming decade, wholesale trade employment is forecast to increase by 16.7 percent.

Finance, insurance, and real estate industries are also expected to grow with the region's population, but this sector is also affected by broader economic forces such as interest rates and housing markets. Employment in this sector may have more cyclical swings than other components of the region's economy, but overall is expected to add 1,300 jobs over the coming decade for a growth rate of about 16.3 percent. Continuing mergers and consolidation in the banking industry, along with such technology-related changes as online banking, raises the risk for slowing job growth in that sector over the coming years.

Transportation and public utilities are expected to grow more slowly in the coming decade. This industry is expected to grow at 10.3 percent, adding 600 new jobs. Much of the growth in the 1990s was related to call center employment in the telecommunications sector. While some of the call center employment may level off due to the federal no-call list, many large companies continue to scout the region as potential locations for national and worldwide service centers.

Construction and mining was one of the fastest-growing industry segments in Region 3 over the past 10 years. In the coming 10 years, this sector is expected to grow more slowly, up by about 12.2 percent and adding about 1,000 new jobs. Between 1992 and 2002, the industry added almost 2,300 jobs, reaching a total of 8,200 workers in 2002. This projection may be a little conservative if the more robust population growth forecasts hold true. The increase in this sector was fueled by rapid population growth, a robust economy, and low interest rates over the past few years. The construction industry tends to be cyclical, but low interest rates have helped bolster job counts despite slowing in many other industries.

Manufacturing employment in Region 3 is expected to increase by 500 jobs or 2.3 percent from 2002 to 2012. This is a greater gain than the previous 10 years when Region 3's manufacturing sector increased by only 120 jobs. While several manufacturing sectors gained or held steady, such traditional manufacturing sectors such as food products, lumber and wood products took big hits in the 1990s. Lumber and wood products, which are part of durable goods manufacturing, is expected to decline by 6.5 percent (300 jobs) over the next decade. The biggest and most publicized loss has resulted from Weyerhaeuser's takeover of Portland-based Willamette Industries in 2002. Conditions in the high-tech sector have worsened and may be signaling a structural change in the region's overall industry mix. SUMCO, a silicon wafer manufacturer in Salem whose employment peaked at about 1,300 workers in 2000, announced more layoffs this October, reducing its workforce to about 400. In November, the company announced it will close its local plants in 2004. The area's agricultural and food processing sectors continue to struggle as they face national and international competition. Local prices for traditional food products have increased due to higher labor costs, rising energy costs and higher transportation costs compared with other areas of the country. Thus, food products manufacturing is expected to decline by 5.4 percent (-300) between 2002 and 2012. However, not all is bleak in the food products industry. For companies willing to specialize and find niche markets, the future is promising. Both Truitt Brothers and Puentes Brothers of Salem announced plant expansions over the past year. Truitt Brothers, originally specializing in canned goods, has expanded into ready-to-eat foods such as frozen dinners.

Government employment is forecasted to grow more slowly than the average of all industries in the coming decade, up by just 6.9 percent. National efforts to privatize some government jobs may slow growth in federal government employment. State budgets have been squeezed by declining revenue. Local government budgets will likely deal with declining Oregon and California timber receipt dollars, and the sunsetting of the safety net legislation designed to cushion the loss of those timber dollars will all have impacts on city, county and local education-related employment.

Strengths and Weaknesses of the Regional Market

The regional market in which Sheridan is located offers several strengths for expanding its industrial development, as well as several weaknesses. These are described below in broad categories that represent regional site location factors.

Market Size, Access, and Competition

Population in the three-county regional market is approximately 450,000, which is large enough to stand alone in supporting most economic activities. Region 3 also has good access to the much larger market of the Portland Metropolitan Area.

This factor is neutralized to some extent by competitive factors in the Portland area and along the I-5 corridor. Portland offers the only international airport in Oregon, although the Salem Airport has limited connections with PDX via shuttles with Horizon Airlines. Portland also has the advantage of an international port, as well as closer freeway routes to Seattle and markets to the east.

For these reasons, Region 3 needs to compete on other factors than its market size to recruit new industries.

Labor Force

According to a 2003 study by the Oregon Employment Department, Region 3, which includes Yamhill County, has a labor force that is highly capable and skilled. Following are key findings of that study regarding the quality of the labor force in Region 3.

- The fraction of Region 3 respondents suggesting their organizations had been affected by difficulty finding qualified applicants is lower than noted in the 2000 Oregon Employer Survey across nearly all possible options (e.g., increased cost of recruitment, lower productivity, reduced output or sales, caused my organization to lower the qualifications for new hires, reduced product or service quality, etc.).

- Compared with the 2000 Oregon Employer Survey, a smaller fraction of Region 3 respondents suggested that they had a high level of difficulty finding qualified job applicants with given skills at the level they felt they should.

- A majority of Region 3 respondents suggested that they had a low level of difficulty finding applicants with most of the skills listed on the survey. Less than half of the region's respondents suggested a low level of difficulty finding applicants with work ethic and problem solving and critical thinking skills.

While these findings apply to a three-county region, Sheridan can draw from this regional labor force to fill the needs of local employers. No data were found to suggest that Sheridan has any specific weaknesses in this key locational factor.

Resources

Region 3 has strong capabilities in some of the natural resource industries, especially agriculture and forest products. Although the region's dependence on natural resource industries has declined over time, it remains a key agricultural producer with nearly 30 percent of the state's gross farm sales. Strong growth of wine grapes and wine production has been a major component of Yamhill County's changing economy for many years.

Forest products are still a viable industry in Region 3 because of an available timber supply. While the industry has declined significantly throughout the state, several mills are still operating in Region 3 because they have converted to smaller diameter logs and/or changed their product mix to meet new market needs.

These resources are advantageous for industries that can utilize them. It is probable that Region 3 will continue to have natural resource industries as a large component of its overall economy.

Education and Advanced Research
The region contains one public and four private colleges and universities: Western Oregon University in Monmouth, Western Baptist and Willamette in Salem, George Fox in Newberg, and Linfield in McMinnville. While none of these are research universities, they give Region 3 a competitive strength for recruiting companies that need well-educated workers.

However, none of these colleges and universities provide degrees in engineering or advanced degrees in other technology fields. That makes Region 3 less competitive for recruiting companies in high tech industries.

Business Sites and Buildings
As growth has been pushing southwest from Portland along the OR 18 corridor, cities have responded by zoning tracts of land for industrial uses. These industrial sites typically have lower prices than their competitive sites in the Portland area. This gives the region a competitive advantage, or strength, in this locational factor.

Because many of these sites are relatively new, most of them do not have existing buildings that can be converted by companies that want to fast-track their operations. Accelerated permit processing can generally overcome this weakness.

ASSESS QUALITY OF LIFE FACTORS WITH SPECIFIC ATTENTION PAID TO TOURISM, RETAIL, RECREATION AND ENTERTAINMENT

Quality of Life: While this is a highly subjective site location factor, Region 3 is growing specifically because it can offer quality of life advantages over older and more densely-populated regions. Quality of life generally includes such components as housing options, good schools, access to medical care, access to recreation, diversity of shopping and services, and public safety considerations. In all of these, Region 3 is competitive by offering the advantages of rural or semi-rural living that is close to the amenities of larger cities.

Tourism is a major activity in Yamhill County as shown by the latest report of travel impacts released by Travel Oregon

Table 7-4

Yamhill County
Travel Impacts, 1991-2003

	1991	1998	1999	2000	2001	2002	2003
Total Direct Travel Spending ($Million)							
Visitor Spending at Destination	28.5	42.8	47.3	54.3	55.7	55.9	60.2
Other Travel*	0.6	0.9	0.9	0.9	0.9	0.7	0.6
Total Direct Spending	29.1	43.7	48.2	55.2	56.6	56.6	60.7
Visitor Spending by Type of Traveler Accommodation ($Million)							
Hotel, Motel	1.5	8.3	10.1	12.5	12.9	13.0	13.7
Private Campground	6.3	6.6	6.9	7.6	7.6	7.4	8.1
Public Campground	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Private Home	10.8	13.3	14.4	16.6	17.0	16.7	18.6
Vacation Home	0.3	0.7	0.8	1.0	1.0	1.0	1.1
Day Travel	9.6	13.8	14.9	16.6	17.2	17.5	18.6
Spending at Destination	28.5	42.8	47.3	54.3	55.7	55.9	60.2
Visitor Spending by Commodity Purchased ($Million)							
Accommodations	1.3	3.8	4.4	4.9	5.0	5.1	5.1
Food & Beverage Services	5.8	9.9	10.7	11.7	12.3	12.9	13.4
Food Stores	2.6	4.1	4.3	4.6	4.9	5.1	5.3
Ground Tran. & Motor Fuel	10.7	12.0	13.9	18.0	17.7	16.2	19.6
Arts, Entertainment & Recreation	2.7	5.0	5.4	6.0	6.3	6.6	6.7
Retail Sales	5.4	8.0	8.5	9.1	9.6	10.0	10.0
Air Transportation (visitor only)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spending at Destination	28.5	42.8	47.3	54.3	55.7	55.9	60.2
Industry Earnings Generated by Travel Spending ($Million)							
Accommodations & Food Service	2.7	5.1	5.6	6.2	6.4	6.7	6.9
Arts, Entertainment & Recreation	0.8	1.5	1.6	1.8	1.9	2.0	2.1
Retail**	1.4	2.1	2.2	2.4	2.4	2.4	2.6
Auto Rental & other ground tran.	a	0.1	0.1	0.1	0.1	0.1	0.1
Air Transportation (visitor only)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Travel*	0.3	0.5	0.5	0.5	0.5	0.4	0.3
Total Direct Earnings	5.3	9.3	10.1	11.0	11.4	11.6	12.0
Industry Employment Generated by Travel Spending (Jobs)							
Accommodations & Food Service	300	410	410	460	480	490	490
Arts, Entertainment & Recreation	130	190	180	200	220	210	210
Retail**	140	150	140	150	160	150	160
Auto Rental & other ground tran.	*b*	10	0	10	10	10	10
Air Transportation (visitor only)	0	0	0	0	0	0	0
Other Travel*	20	30	30	30	30	20	10
Total Direct Employment	600	790	770	850	890	870	870
Tax Receipts Generated by Travel Spending ($Million)							
Local Tax Receipts	a	0.1	0.1	0.1	0.1	0.1	0.1
State Tax Receipts	1.6	2.1	2.2	2.5	2.5	2.4	2.5
Total Direct Tax Receipts	1.6	2.2	2.3	2.6	2.6	2.5	2.6

Details may not add to totals due to rounding.
*Other Travel includes resident air travel and travel agency services. **Retail includes gasoline.
Less than $50,000 in spending, earnings or tax receipts = 'a'. Less than 5 employees = 'b'.

According to this report, released in February 2005, total direct travel spending in Yamhill County increased by 108.6% (in constant dollars) from 1991 to 2003, from $29.1 million to $60.7 million. The 2003 figure was 6.0% of all direct travel spending in the Willamette Valley region of Oregon.

Direct employment in the tourism industry grew from 600 workers in 1991 to 870 workers in 2003. This industry normally generates a multiplier of 0.8x in indirect employment, meaning that an additional 696 jobs could be attributed to tourism in 2003, for a total of 1,566 total jobs. That figure is 5.4% of the total jobs in Yamhill County in 2003.

While tourism is not one of the largest employment sectors in Yamhill County, the Spirit Mountain Casino and its associated lodge and restaurant facilities represent the largest single tourist attraction in the state of Oregon, surpassing even Multnomah Falls in numbers of tourist visits in 2003. Although it is located 12 miles from Sheridan in Polk County, which is part of Region 3, all of the Portland area traffic passes by Sheridan.

High volumes of business at the Spirit Mountain Casino have recently led to expansion of its lodging facilities. Spirit Mountain Lodge is adding 154 standard rooms and 12 suites on five floors, making a total of 254 rooms upon project completion. New areas include a continental breakfast room, gift shop, business center, and a renovated lobby for lodge guests. Each suite will include a jetted tub, 42-inch flat screen television, spacious bathroom and parlor.

The project completion date is April 2005. All existing lodge rooms will be fully remodeled upon completion of the current expansion.

Spirit Mountain Casino has offered shuttle service to/from several communities in the Willamette Valley, as well as the Portland area. On March 15, 2005, a new luxury bus service was instituted to replace the shuttles, with primary service from the Portland area only. This may have the effect of increasing vehicular traffic on OR 18.

It is not obvious how Sheridan can benefit from that tourism traffic. The casino is close enough to Sheridan that most visitors will not stop enroute unless there is a specific attraction they want to see. The Chinook Winds Casino at Lincoln City is also a major source of tourist traffic, but it also provides all destination facilities and activities, including national-name entertainment. Sheridan does have the closest airport to Spirit Mountain Casino, which may create opportunities for some fly-in activity. With its short, turf runway and no services, however, the Sheridan Airport has limited capability to handle any significant volume of traffic.

Retail development related to the tourism traffic could offer greater possibilities for economic activity in Sheridan. It was noted above that Sheridan is in an area of significant agricultural production, including a growing wine industry. The community of Dundee has developed a number of retail outlets for its agricultural commodities, especially varieties of nuts, as well as winery visits and outlets. Sheridan could develop a suitable location along OR 18 for a "farmer's market" or arts and crafts center to draw visitor traffic, or it could promote a downtown location that could steadily build a reputation as a destination stop for travelers on OR 18.

Recreation and **entertainment** appear to have limited economic growth capabilities in Sheridan. As noted, Sheridan is on the way to somewhere else for most travelers on OR 18. The concept of trying to build recreational or entertainment activities that will draw increased visitor traffic was examined, but was not considered to be a viable strategy for Sheridan.

Major industries and employers in the Sheridan area

According to the OECDD's Sheridan Community Profile, the largest employers in the Sheridan area in 2002 were:

Spirit Mountain Casino	1,000 employees
Federal Correctional Institution	500 employees
Willamina Lumber	140 employees
Pacific Wood Preserving	40 employees
Liberty Homes (Manufactured Homes)	100 employees

Spirit Mountain Casino has already been described as a regional tourism facility.

The Federal Correctional Institution does not appear to offer significant secondary economic benefits besides the incomes of the staff which translates into spendable income. Some of those staff live in Sheridan, while others live elsewhere and commute. Some short-term accommodations are utilized by relative of inmates, but this is a minor factor in Sheridan's economy and does not appear to offer any long-term opportunities.

The lumber and wood products industry in the region is currently stable after a long period of decline. Recent changes in federal policies toward management of the national forests are expected to increase the supplies of logs and, more importantly, provide greater levels of confidence in the supply to warrant further capital investment in the industry. This is currently a primary industry in Sheridan and opportunities to expand this manufacturing base are discussed later in this report.

Manufactured housing is part of the wood products industry under the new NAICS classifications. However, the industry is comprised of many specialties including metal fabrication of chassis, cabinets and other interior wood products manufacturing, and upholstery and fabrics products. Final products are generally assembled from component parts made by independent suppliers and shipped to the assembly point. This industry may also offer opportunities for Sheridan, which are discussed later in this report.

Strengths and Weaknesses of Sheridan in the Regional Market

In order to evaluate Sheridan's strengths and weaknesses for recruiting or developing new industries, *Table 7-5* provides a matrix that lists the 10 most common factors used by site selectors in choosing new facility locations. Each factor is ranked in terms of Sheridan's competitive position in its regional market. The rankings are subjective, but are based on extensive experience in business site evaluations.

Table 7-5: Assessment of Sheridan's Strengths and Weaknesses in its Competitive Market for Business Recruitment and Development

LOCATION FACTOR	STRENGTHS	WEAKNESSES	RANK
Market Size and Competition	Close proximity to large market areas, especially Portland and northern Willamette Valley	Small local market. Other locations are closer to the major metropolitan markets.	3
Market Access and Transportation	Adequate highway system, available rail, light airplane capabilities with airport.	Congestion on OR 18; distance to major airport and port facilities.	3
Labor Force	Ability to draw from regional labor market; above average quality in regional market.	Lack of technical and professional skills in local market.	4
Resources	Large agricultural resources in region, some supply of forest products	Applicable only to certain industrial sectors.	4
Utilities	Available capacity in City utilities; broadband capabilities.	Old water and sewer facilities; upgrades may be needed.	3
Business Supplies & Services; Capital	What is not available locally can be obtained from nearby communities	Competition from other cities, lack of local venture capital	3
Government, Taxes, Incentives	Government supportive of new businesses, low tax rates for some types of businesses; tax-increment financing is possible.	Other communities in region can offer similar incentives.	3
Education and Advanced Research	Nearby colleges and universities; good liberal arts programs.	Lack of a major research university nearby; limited technical programs.	3
Business Sites and Buildings	Available industrially-zoned land. Rail.	Sites not developed; wetlands issues; no marketing program; no spec buildings.	2
Quality of Life	Small town environment, good climate, close to amenities in larger nearby cities.	Local housing market small, lack of "big city" dynamics	3

Rankings: 5 = strong competitive advantage for all industries; 4 = competitive advantage for most industries; 3 = neither advantage nor disadvantages; 2 = competitive disadvantages for most industries; 1 = not available or competitive disadvantage for all industries.

The Strengths and Weaknesses matrix for Sheridan indicate that there are no outstanding competitive advantages that can be leveraged to recruit new businesses or develop new businesses locally. The only advantages identified are the community's access to a large labor force that is well qualified, except in engineering and technical skills, and its access to agricultural and forest resources that can be used by certain industries as raw materials.

Sheridan received a neutral ranking in most of the other factors, primarily because its resources are adequate but no better than can be found in other communities in the region.

The only competitive weakness shown in the matrix is in the category of industrial sites and buildings. The properties being evaluated in this study are zoned for industrial use but they are not developed as true industrial sites, as are found in McMinnville and other nearby communities. There has been no prior development, the properties have serious wetland issues that need to be remediated, and the sites are not being marketed. The Oregon Economic & Community Development Department lists 27 industrial properties on its web site in Region 3 but none of them are in Sheridan.

Chapter 8.0
Development Programs

By addressing industrial land issues, Sheridan should be able to offer several larger sites in the 5-10 acre range that would be attractive to company site selectors. The following list is not meant to be exclusive, but instead indicates a range of suitable companies that could be expected to consider locating facilities in Sheridan.

Suitable Industries for Recruiting to Sheridan

1. Linkages to the Region's Agricultural Base
   - Specialty Food Processing and Packaging
   - Agricultural Equipment, Parts, Supplies, Repairs
   - Agricultural Buildings and Other Structures

2. Linkages to the Region's Forest Products Base
   - Specialty Wood Products
   - Secondary Wood Products
   - Engineered Wood Products

3. Linkages to the Tourism Industry
   - Recreational Vehicle Service and Repair
   - RV Equipment Parts & Supplies
   - RV Customizing and Modifications

4. Linkages to Regional Markets
   - Manufactured and Modular Housing
   - Parts for Manufactured and Modular Housing
   - Wood Structures
   - Numerous other sectors could be listed as potential opportunities, but these appear to have the highest probability of success based on the analysis.

The most physically limiting feature of the study area is the potential wetland areas. Preliminary review of the site indicates significant wetlands north of the airport runway. A series of ditches have historically drained the site for farming, but they have not been maintained and are not functioning efficiently. The city states they plan to clean out the ditches this year and are hopeful that the wetland area will be reduced. Until the wetland issue is clarified, we are limiting the program area to include only the property south of the runway for potential industrial development.

The second factor influencing the development program is the realistic demand for industrial property and the community's ability to support that demand. An industrial land base of approximately 50-70 acres of development-ready property will meet an aggressive development plan of one lot per year for ten years, and a more conservative and realistic scenario of one lot every two years over the next twenty years.

Development Program Options

Sheridan's economic development options are best served by providing flexible strategies incorporating phasing at the lowest possible cost and minimal risk. Two such strategies are outlined as follows:

Option 1

Option 1 is shown in ***Figure 8-1***. It abandons the airport as a viable aviation facility and focuses on maximizing the use of the industrial area surrounding the existing airstrip. Eliminating the airstrip removes the clear zone and airport overlay restrictions and provides unhindered potential for development of the targeted industries. The existing ultra-light aircraft facility is not impacted by the airport removal since this mode of aircraft does not require an FAA-regulated landing strip to operate.

Wood products industries, agricultural/food-based industries, and recreation-based industries can find larger parcels north of the railroad tracks where outdoor storage and assembly are best suited to less visible locations. Commerce-based industries more in need of visibility would be best located along Hwy. 18B frontage. Access control and frontage improvements including sidewalks, planting strips, curbs and gutters, with shared access points, will enhance the business climate.

Focusing the first phase where existing infrastructure streets and utilities are most available will reduce costs for development. Existing businesses and undeveloped property along Orchard Street and Richard Street can provide a core of approximately fifty-five acres for industrial growth. Improvement to the existing streets and constructing an east/west connection between Orchard Street and Richard Street will provide site access and circulation. When fully built-out, this first phase site is serviced by an efficient street system that provides access to building sites with a variety of sizes. The nearly rectangular shape and compact size of this first phase lends itself to efficient and relatively inexpensive development. This option provides a logical westward extension of the built-up urban area of Sheridan. The remainder of the study area can be set aside as an industrial reserve. A set-aside for possible wetland mitigation will be needed as well as a set-aside for a public park.

Option 2

Option 2 is shown in *Figure 8-2* and capitalizes on the airstrip as a resource for development. The Oregon senate is considering a bill that will designate five rural airports as pilot projects to promote 'through the fence development' of industrial property adjacent to airports. The purpose of the bill is to promote family wage jobs in rural areas. State support of the pilot projects includes innovative funding and economic development programs.

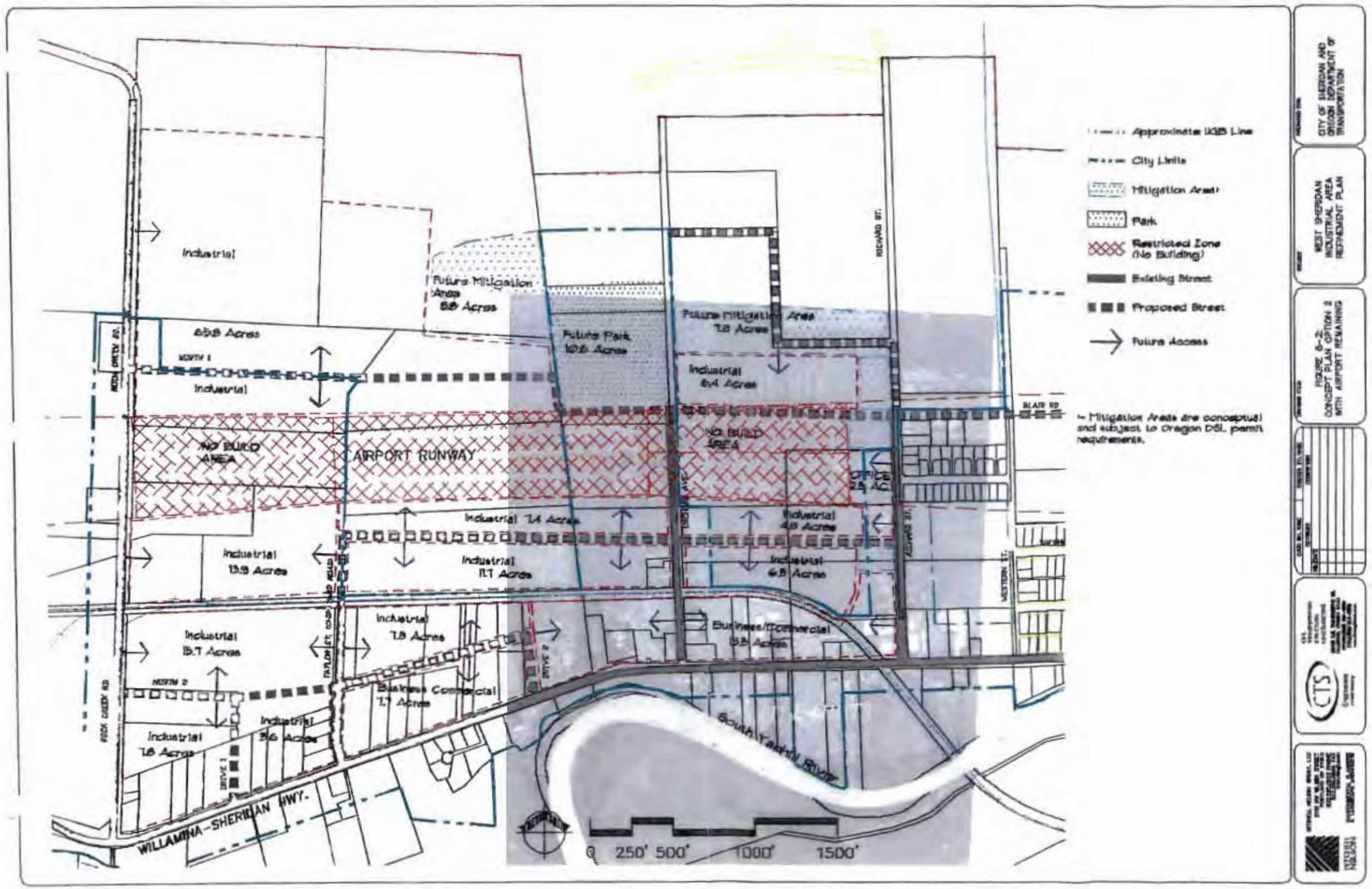
Maintaining the airport does not preclude the development of non-aviation related uses. The targeted industries can locate just north of the railroad and have the option of taking advantage of the east-west rail line. Commercial and business development can make use of Hwy. 18B as proposed in Option 1. The property near the airport forms a rectangle measuring roughly 4500 feet long and 880 feet deep containing 91 acres with the existing airstrip as an attraction for industry. There is an additional 22 acres that front Hwy. 18B as well. Like Option 1, development can proceed in phases, from either the west or east toward the center. The main accesses to the site are from Richard Street, Rock Creek Road, Orchard Avenue and off Hwy. 18B. This option requires significantly more new infrastructure initially than Option 1, as well as improvements to nearly 2040 feet of Rock Creek Road.

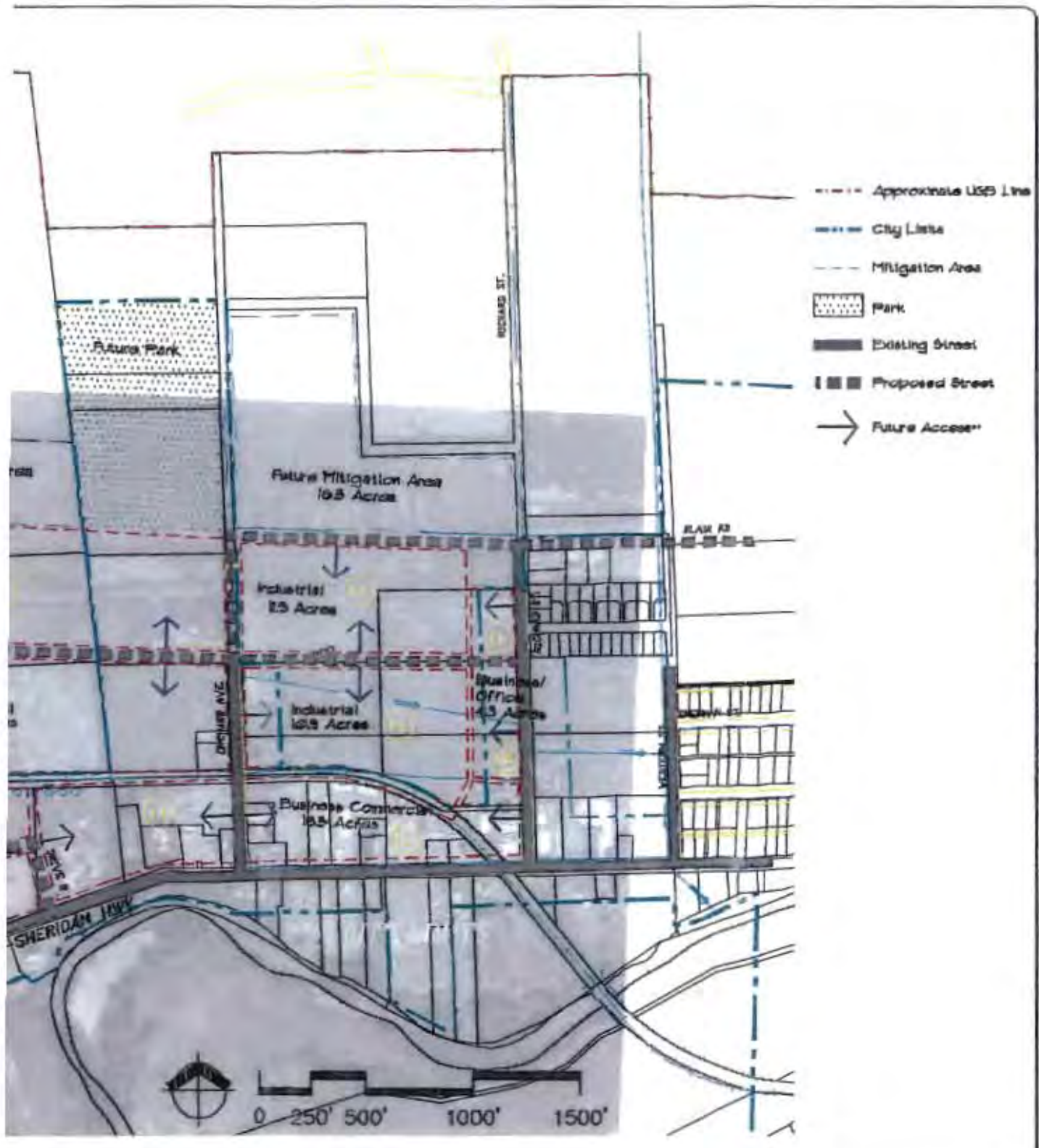
This option provides more rail-served land initially than Option 1 and offers the potential of serving industrial operations located on the less visible interior sites. In this capacity, this option may be attractive to industries requiring larger sites, rail access, runway use, and minimal visibility.

As in Development Program Option 1, a set-aside for possible wetland mitigation will be needed, as well as a set-aside for a public park.

Development Design Guidelines should be put in place as a zoning overlay. This will serve as a marketing tool by ensuring a standard of development for subsequent businesses. It can also be a method to provide a fast-track development review process. Preliminary criteria include:

- Restrictions for outdoor storage and screening criteria where it is allowed
- Parking and loading requirements including amounts, landscape buffer requirements for public right of way, spatial standards, and surfacing
- Setbacks for buildings, parking, and storage areas
- Designation of areas for light and heavy industrial uses


Approximate UGB Line
City Limits
Mitigation Area
Park
Restricted Zone (No Building)
Existing Street
Proposed Street
Future Access
~ Mitigation Areas are conceptual and subject to Oregon DSL permit requirements.
Industrial
65.8 Acres
Future Mitigation Area 58 Acres
Future Park 10.6 Acres
Future Mitigation Area 7.2 Acres
Industrial 6.4 Acres
NO BUILD AREA
AIRPORT RUNWAY
Industrial 7.4 Acres
Industrial 13.9 Acres
Industrial 11.7 Acres
Industrial 4.9 Acres
Industrial 6.8 Acres
Industrial 15.7 Acres
Industrial 7.8 Acres
Business Commercial 7.7 Acres
Industrial 3.6 Acres
Industrial 7.8 Acres
Business/Commercial 13.5 Acres
OFFICE 2.5 Acres
RICHARD ST.
BLAIR RD
FOX VALLEY RD
TAYLOR RD
DRIVE 1
DRIVE 2
DRIVE 3
WESTERN ST.
WILLAMINA-SHERIDAN HWY.
SOUTH YAMHILL RIVER
250' 500' 1000' 1500'
CITY OF SHERIDAN AND OREGON DEPARTMENT OF TRANSPORTATION
WEST SHERIDAN INDUSTRIAL AREA REFINEMENT PLAN
FIGURE 5-2: CONCEPT PLAN OPTION 2 WITH AIRPORT REMAINING



CITY OF SHERIDAN AND OREGON DEPARTMENT OF TRANSPORTATION

WEST SHERIDAN INDUSTRIAL AREA REFINEMENT PLAN

FIGURE 6-1: CONCEPT PLAN OPTION 1 WITH REDEVELOPMENT OF AIRPORT

Implementation Options

Option 1

Phase 1
Land adjacent to Hwy. 18 offers a low-risk, high reward initial phase. This land is highly visible and has excellent access. It is also served by rail which may broaden its market appeal. Most of the land is free of wetlands and is easily developed. Individual sites can be served from short distance improvements to Orchard Avenue and Richard Street. Highway frontage can be landscaped in an attractive and continuous buffer.

As a low-cost first phase, this land can offer a significant "front-door" to a larger, comprehensively planned, industrial district. It is expected that the land would be very attractive to businesses and in the short term would create momentum necessary to launch subsequent, and more costly, phases.

Phase 2
In the second phase, the previously-improved streets are extended, yielding over thirty-one acres of additional land. Existing wetlands can be mitigated off-site, to the north. If necessary, an east-west street can connect Richard Street with the northern terminus of Orchard Avenue.

Phase 3
If warranted by market conditions, additional land is available to the west of Phase 2 for development and to the northwest for additional mitigation area if needed.

Option 2

Phase 1
The initial phase of this option can be from either Rock Creek Road, on the west end, or Orchard Street, on the east end to gain access to the existing runway. Wetlands can be mitigated to the north. A lower proportion of wetlands per acre of site are found east of Rock Creek Road and north of the rail tracks, a factor favoring this area for the initial phase.

In either case, some existing infrastructure will need to be improved, as well as the construction of new infrastructure to serve development sites.

Phase 2
As it is not feasible to extend a new road from Rock Creek Road to the east beyond limits specified by the fire code, a second point of access is necessary. Therefore, this phase would necessitate a loop from Orchard Avenue or continuing the road to Richard Street. In either case, this represents a significant amount of infrastructure in relation to the supply of land created.

Absorption/Build-out Phasing

1. As a rule, all development should proceed on a phased basis starting from the perimeter. In either development program option, this will allow for a logical extension of services and roads. At a minimum, frontage improvements will be required along Hwy. 18B as well as improvements to Richard Street and Orchard Avenue. Rock Creek Road will need improving when major development occurs on the west end of the study area.

2. Four groups of industries are recommended in the Market Analysis. Groups represented are 1) agricultural, 2) forest products, 3) tourism, and 4) housing & wood structures. All groups are suitable for the subject site and are compatible with an industrial zoning classification. Hwy. 18B, as well as Richard Street frontage, will accommodate groups 1 and 3 industries. Interior sites, buffered from built-up areas and less visible from the highway, are appropriate for Groups 2 and 4.

All groups will generate truck traffic for receiving materials and pre-manufactured components, and for shipping finished products. Rail service may mitigate some traffic but this factor is speculative at best. Reserving sites for rail dependent businesses is not recommended because development opportunities may be lost to other communities.

Given assumptions about realistic land absorption rates, it is anticipated that the 50-net acres may be an adequate supply for a ten-year period. By starting development from Hwy. 18B and Richard Street, the initial phases should aim towards the agricultural and recreational vehicle industries, followed by wood-related industries on interior sites. Interior sites can also accommodate larger users, another factor minimizing the construction of infrastructure until feasible business proposals and offers are presented. This method of phasing will also allow adequate time for wetland mitigation that is necessary to prepare interior sites for marketing and development.

Chapter 9.0
PREFERRED CONCEPT PLAN

Briefly, for the preferred concept plan the airport remains as it is now. This plan ***(Figure 8-2)*** yields approximately 182 acres of developable land, including 154 acres designated as industrial and 28 acres designated as business/commercial. It should be noted that the business/commercial land is not meant to be *general* retail, such as a traditional shopping center, but *support* retail to serve the employees and businesses in the surrounding development.

The preferred plan was prepared based on community and property owner input and a review of the pros and cons of maintaining the operational capacity of the airport. Although the airport receives little use at the present time, its license is in place and it offers a landing facility. Since there is a substantial amount of land south of the airport and south of the airport's clear zone, industrial development can occur in these areas while the airport remains. If airport-related industries are attracted to the airport property, or if an airport-related residential development is presented, then an opportunity can be realized. If the airport does not attract airport-related industry and instead there is a demand for the land dedicated as clear zone, then the airport can be abandoned in the future. In the meantime, the airport can remain as a potential asset.

The industrial property is served by Willamette & Pacific Railroad, a short line that provides a 19.14-mile length of track running from Willamina to Whiteson (near Amity). The track in the Sheridan area was improved with 106 pound continuous welded rail which upgrades the section to a Class II railroad and allows speeds up to 25 miles per hour. Property adjacent to the track offers possible rail access and can be marketed as such.

Many of the industries projected for the area and based on the market assessment are those that could benefit from the short line railroad. Projects using wood products and other bulky regional natural resources will find economic benefit from proximity and access to the rail line.

Implementation/Build-Out Strategies

Implementation of the Refinement Plan is the product of a number of factors. They include:

- Market forces
- Provision of available land serviced with required infrastructure
- Land use entitlements are in place
- A willing seller
- A serious buyer
- A financially feasible business plan

Little can be done to impact most of the factors, but providing the infrastructure and land use entitlements can direct and facilitate growth. The properties in question, with the exception of the city's park property, are all in private ownership. Therefore, city improvements should occur within the existing public right-of-way. Orchard Avenue, Richard Street, Taylor Street (Chip Yard Road), and the intersection of Rock Creek Road and Hwy. 18B will provide the preliminary spines for access to the industrial land. Proposed cross-street construction will occur as development proceeds. As a city-adopted refinement plan, dedication of necessary right-of-way by the property owner to the city should be a condition of approval for development.

The city's recent installation of a new 8-inch water line in Chip Yard Road to about 800 feet north of the Railroad crossing, then west to Rock Creek Road and then 700 feet south on Rock Creek Road, is the basis for a looped water system. Property adjacent to and within the loop can be served with city water. Upgrades to the water and sewer lines, along with street improvements, will enhance the marketability of properties with frontage on the streets.

Phase 1

Land adjacent to Hwy. 18 offers a low-risk, high-reward initial phase. The Hwy. 18B property is designated for Business and Commercial uses east of Taylor Street. This land is highly visible and has excellent access. Lots north of Hwy. 18B that are accessed via Taylor Street, Rock Creek Road, and Orchard Avenue represent approximately 81 acres of industrial property, all south of the existing airport. The logical growth pattern will occur from the perimeter and work its way inward. In reality, individual owners may alter that pattern and begin development from an internal parcel. Railroad access available to some of the acreage may broaden its market appeal. Much of the land is free of wetlands and is easily developed. Individual sites can be served with short distance improvements to Orchard Avenue, Taylor Street (Chip Yard Road), and Richard Street.

The area served by the new water line and accessed via Taylor Street and Rock Creek Road represent industrial land with most of the infrastructure requirements in place.

Phase 2

Phase 2 development depends on the future of the airport. Airport-related development will require construction of a continuation of Blair Road to Rock Creek Road and the development of wetland mitigation areas. Additionally, Orchard Avenue should be extended to the Blair Street extension. This will yield an additional 72 industrial acres and area for mitigation.

Future Industrial Land Needs

Phase 1 and Phase 2 development areas provide approximately 150 acres of industrial land for the city of Sheridan. This total does not take into account the airport and the airport no-build zones. If the airport were to become defunct, the land area would increase by about 40 to 50 acres. Given the findings in the market analysis that the industrial growth in Sheridan will require 5-10 acres of industrial land every year or two, then using an average of 7.5 acres every year for twenty years, the industrial land requirement will be 150 acres. This reflects the more optimistic projection. If development occurs at a rate of 7.5 acres every two years, the land area requirement will be 75 acres. The available industrial land area provided in the master plan meets or exceeds the city's projected needs over the next 20 years. For that reason there does not appear to be a need to expand the urban growth boundary at this time.

Chapter 10.0
TOTAL FUTURE 2025 BUILD-OUT ANALYSIS OF PREFERRED CONCEPT PLAN

Based on the Preferred Concept Plan discussed in Chapter 9, we have performed an analysis of the potential traffic impacts associated with this program. Briefly, in this concept the airport remains as it is now and this plan yields approximately 182 acres of developable land, including 154 acres designated as industrial and 28 acres designated as business/commercial. It should be noted that the business/commercial land is not meant to be *general* retail, such as a traditional shopping center, but *support* retail to serve the employees and businesses in the surrounding development.

PREFERRED CONCEPT PLAN ROADWAY NETWORK

Table 10-1 contains a summary of the existing and proposed characteristics of roadways in the study area. ***Figure 10-1*** presents existing and planned intersection lane configurations for all the major intersections in the study area. The primary transportation facilities in the study area will still be Hwy. 18B and Rock Creek Road. The existing ROW for Hwy. 18B is 60 feet, which will provide a three-lane section (i.e. one through lane in each direction, center left turn lane, bike lanes and sidewalk). Typical plan view and cross section drawings illustrating these improvements are shown in ***Figures 10-2 and 10-3***. As part of this improvement and shown in ***Figure 10-2***, the corner radii at all these intersections needs to be at least 45-65 feet to accommodate the turning path of large trucks (i.e., WB 50 tractor trailer trucks). One concern is that the ROW along Hwy. 18B does not provide for westbound right turn lanes. The future need for this improvement is discussed in detail in later sections. The ROW along Rock Creek Road is also 60 feet, which will provide a three-lane section (i.e. one through lane in each direction, center left turn lane, bike lanes and sidewalk).

Upgrades to the minor streets along Hwy. 18B are also needed, including providing adequate ROW (40-48 feet for interior of site to 60 feet at major intersection with Hwy. 18B or Rock Creek Road), and intersection corner turning radii (i.e. 65 feet) at these streets to accommodate large trucks. In addition, the city's Transportation Plan also calls for Blair Street to be extended west all the way to Rock Creek Road. It should be noted that there are two other important ROW dedications. The first is where we are proposing North 3 (see below) on the east side of Chip Yard Road, which runs approximately 700 feet to the east. The second is a 30 foot ROW that runs north-south at the end of the previous dedication, from the railroad tracks to Hwy. 18B.

Several new streets are proposed for this area including:

1) North 1 will run east/west and will intersect Rock Creek Road. It will also provide the extension of Blair Street to the west.

2) Drive 1 and North 2 will provide access and cross circulation access to the parcels on the northeast corner of Rock Creek Road and Chip Yard Road. North 2 also extends across Chip Yard Road and serves as an alley/secondary access route for parcels along the north side of Hwy. 18B and between Chip Yard Road and Orchard Avenue.

3) North 3 will serve as a back service road connection between Chip Yard Road and Richard Street.

Finally, as noted in ***Table 10-1*** and discussed earlier, the ROW and paved section at the Bridge Street/Hwy. 18B (Main Street) intersection is constrained, particularly on the south leg, by a bridge. To create additional ROW at this intersection would result in removal of one or more buildings and businesses. However, it is obvious that capacity needs to be increased. As an initial improvement at this intersection with minimal cost, parking could be eliminated along Hwy. 18B in the vicinity of this intersection to provide a separate eastbound right turn lane. Notably, there are several off-street parking lots and side streets that could accommodate the loss of on-street parking along Hwy. 18B. Currently, the Hwy. 18B approaches are striped along the centerline and provide only one lane of travel. ***Figure 10-4*** presents this intersection's existing configurations and the impact of an eastbound truck turning right to travel south on Bridge Street. ***Figure 10-5*** presents our recommended improvements to this intersection and along Hwy. 18B. This design shifts the through-lanes to the north in order to create room for the eastbound right turn lane. The proposed through-lanes would be at least 14 feet wide, which will also serve bicyclists as they are now accommodated. Again, the concern is trucks turning from the west leg onto Bridge Street. ***Figure 10-6*** presents a turning radius for a large tractor trailer truck (WB-50). Comparing the ability of trucks to turn right for the existing configuration with the proposed improvements reveals that under either condition, this movement is not desirable. At the same time, ODOT's traffic counts found that very few large trucks make this maneuver and drivers must be aware of its difficulty. Even so, in the future configuration, large trucks will come very close and possibly run over the curb on the east side of Bridge Street. The pedestrian counts from our June 2005 traffic volume counts found that very few, if any, pedestrians travel along this stretch of sidewalk. Therefore, we recommend this sidewalk be removed and all pedestrian activities be moved to the west side of Bridge Street. Finally, we are also recommending that left turns be prohibited from either Hwy. 18B (Main Street) approach onto Bridge Street. ***Figure 10-5*** shows how these left turns can be rerouted. As discussed later, eliminating these turns will significantly improve traffic operations at this intersection.

Figure 10-1: Proposed Future Lane Configurations and Improvements

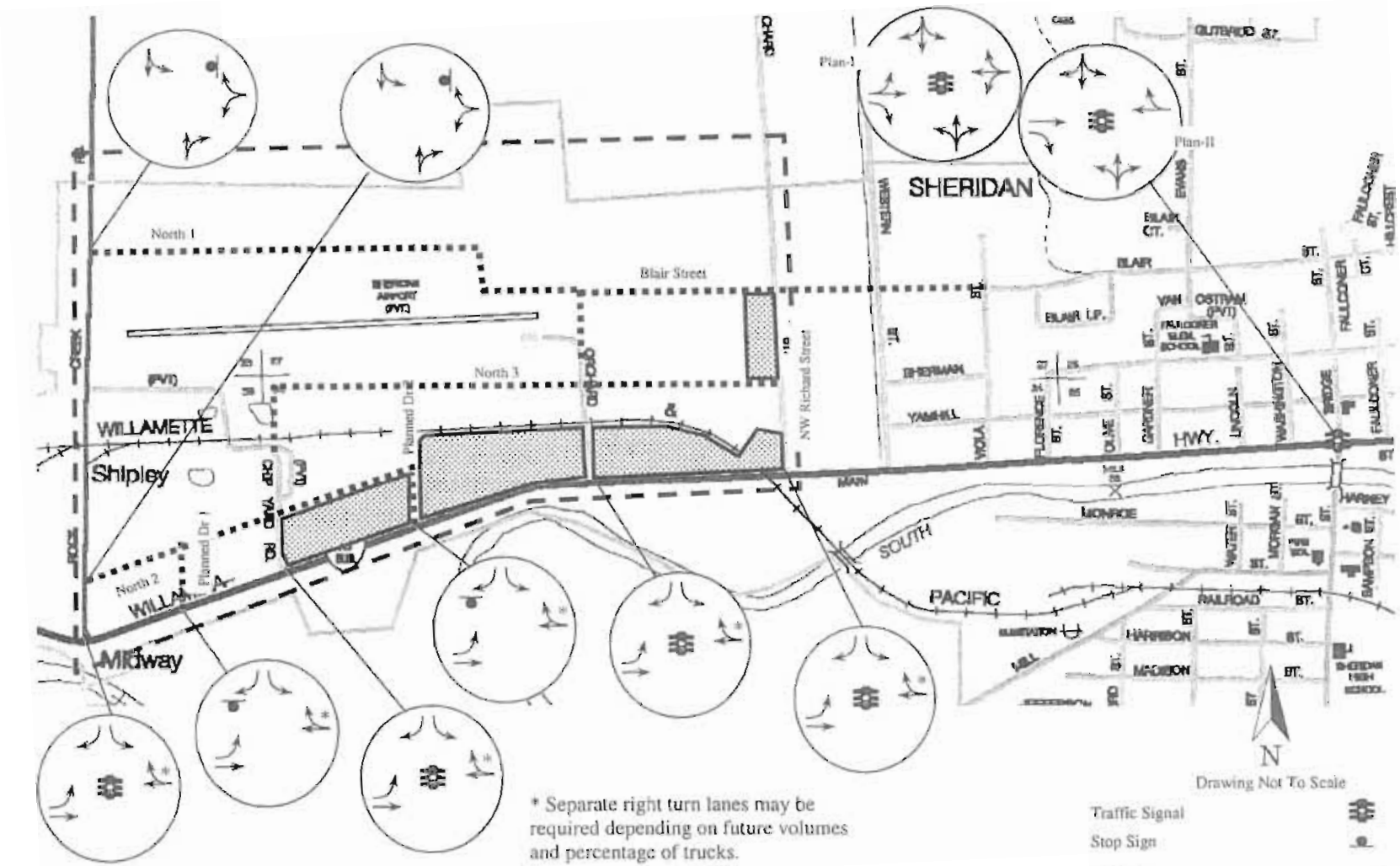


Figure 10-2: Typical Three Lane Section Along Highway 18B Plan

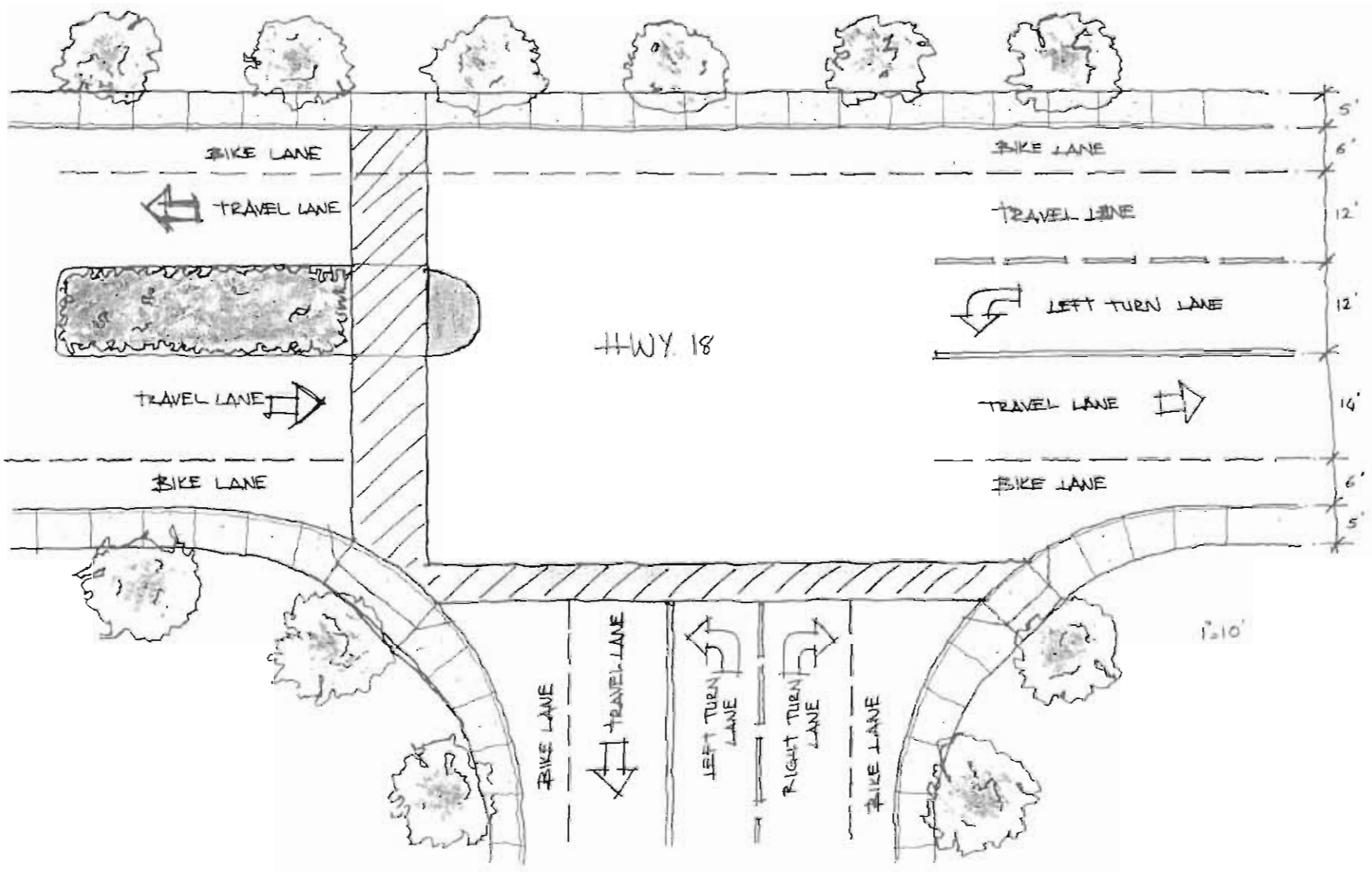


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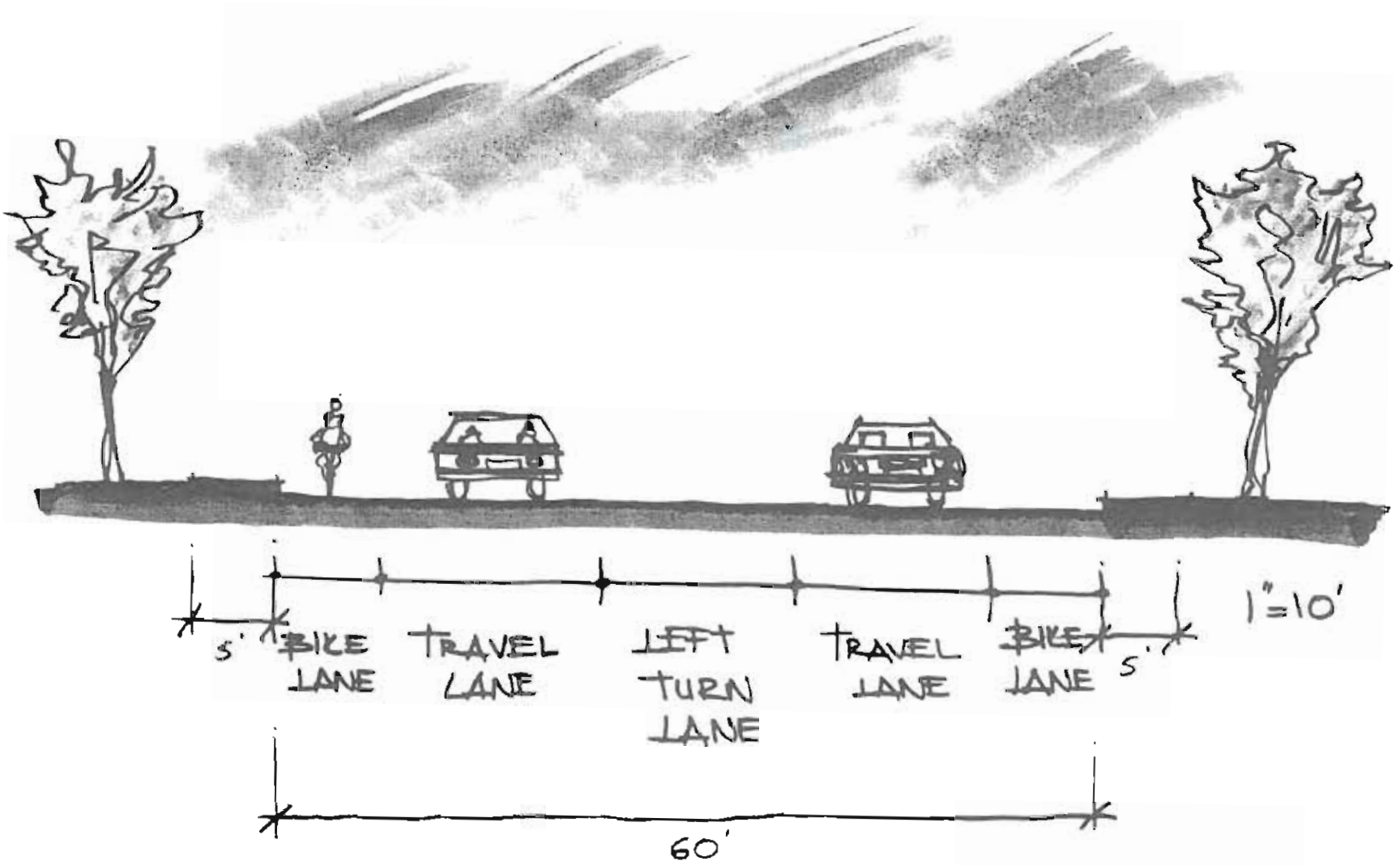
Figure 10-3: Typical Three Lane Section Along Highway 18B Profile



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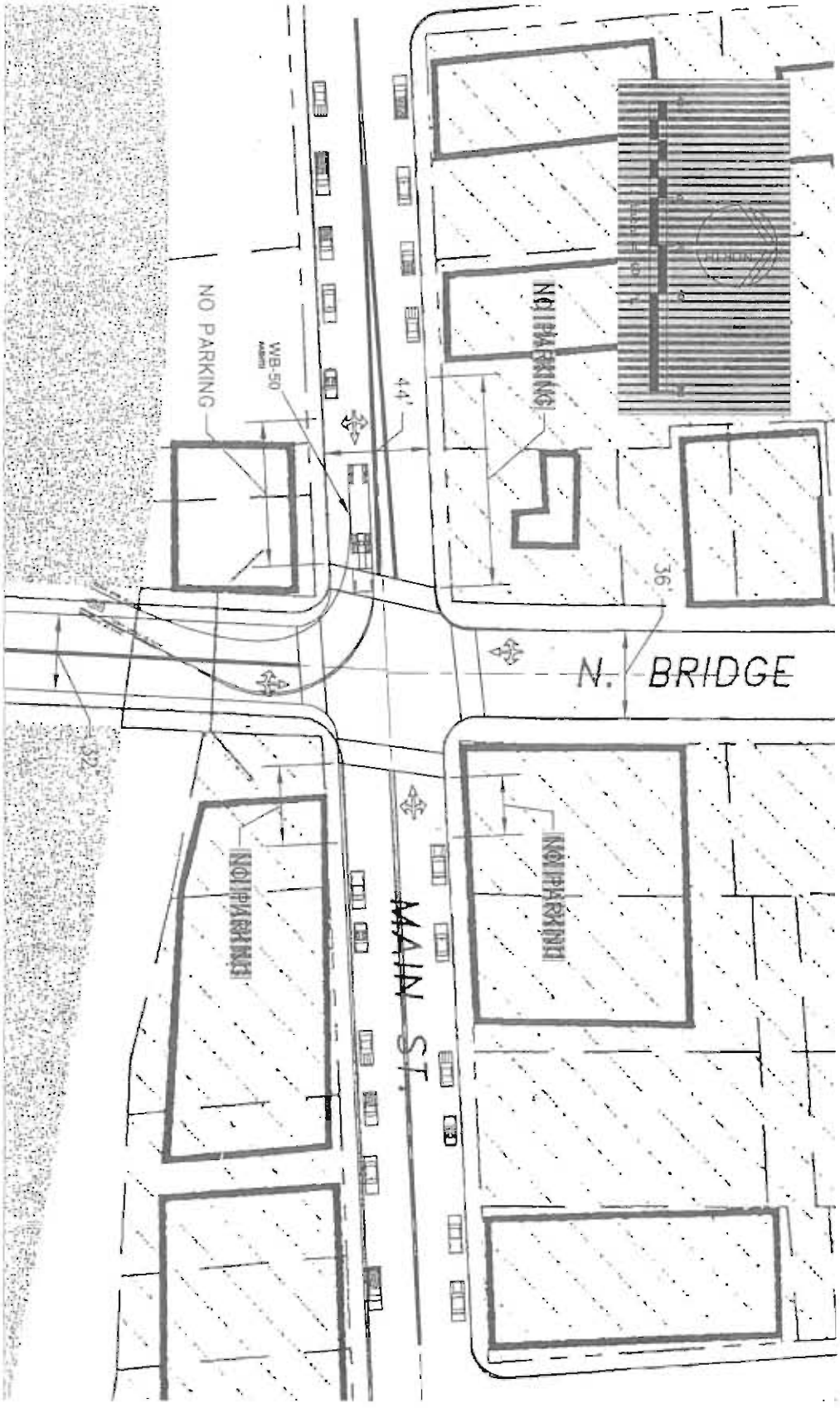

CITY OF SHERIDAN/ODOT
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TRANSPORTATION
STRUCTURAL
LAND SURVEYING

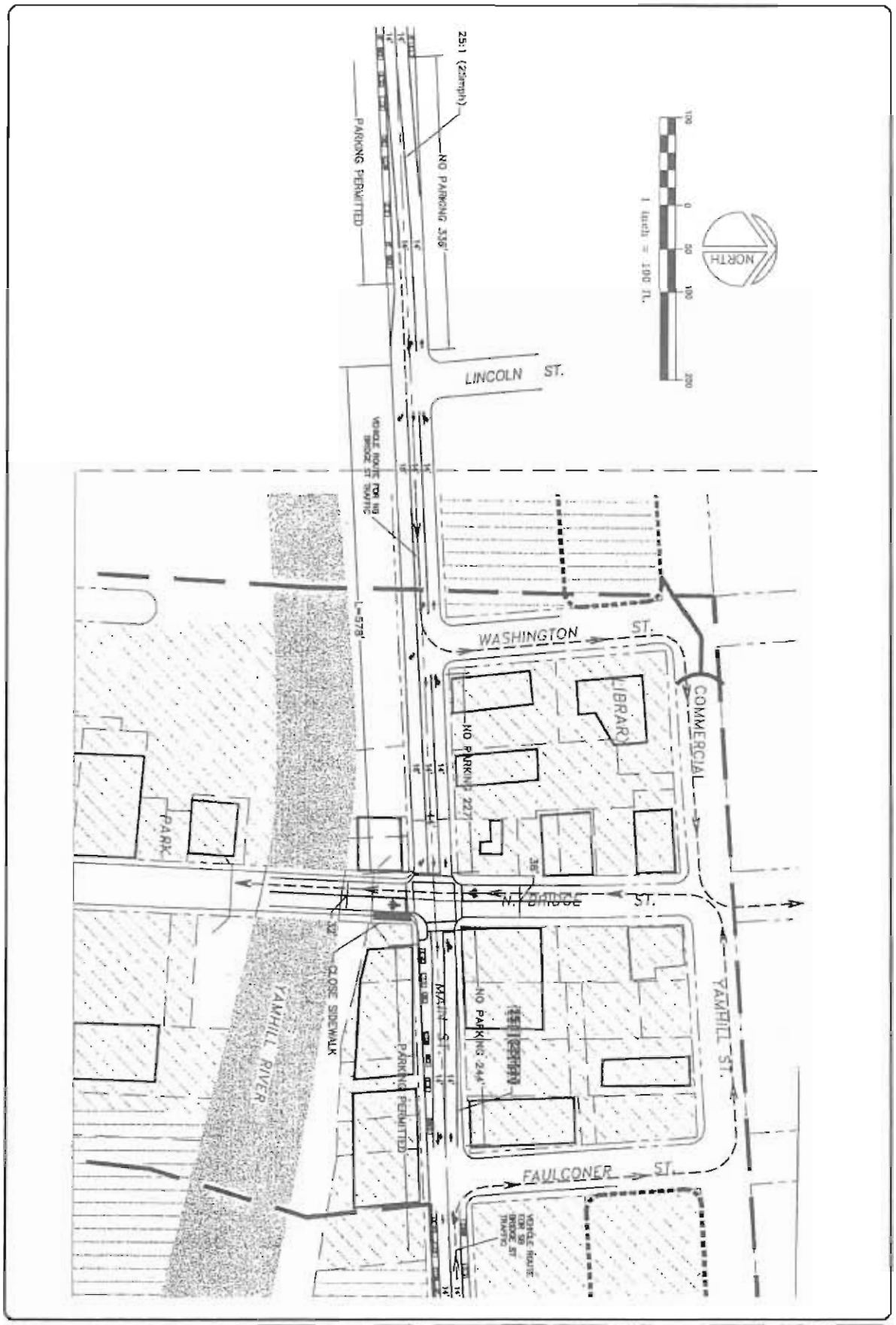
CITY OF SHERIDAN
TRANSP. REFINEMENT PLAN

YAMHILL COUNTY

FIGURE 10-4
EXISTING CONFIGURATION AND
TRUCK TURN MOVEMENT AT
MAIN ST AND BRIDGE ST

OR04.065

1 of 3



CITY OF SHERIDAN/ODOT 120 SW MILL STREET SHERIDAN, OR. 97378 (503)843-2347	CTS Engineers CIVIL TRANSPORTATION STRUCTURAL LAND SURVEYING	CITY OF SHERIDAN TRANSP. REFINEMENT PLAN YAMHILL COUNTY	FIGURE 10-5 PROPOSED OVERALL IMPROVEMENT PLAN FOR THE MAIN ST AND BRIDGE ST INTERSECTION	OR04.065 2 of 3

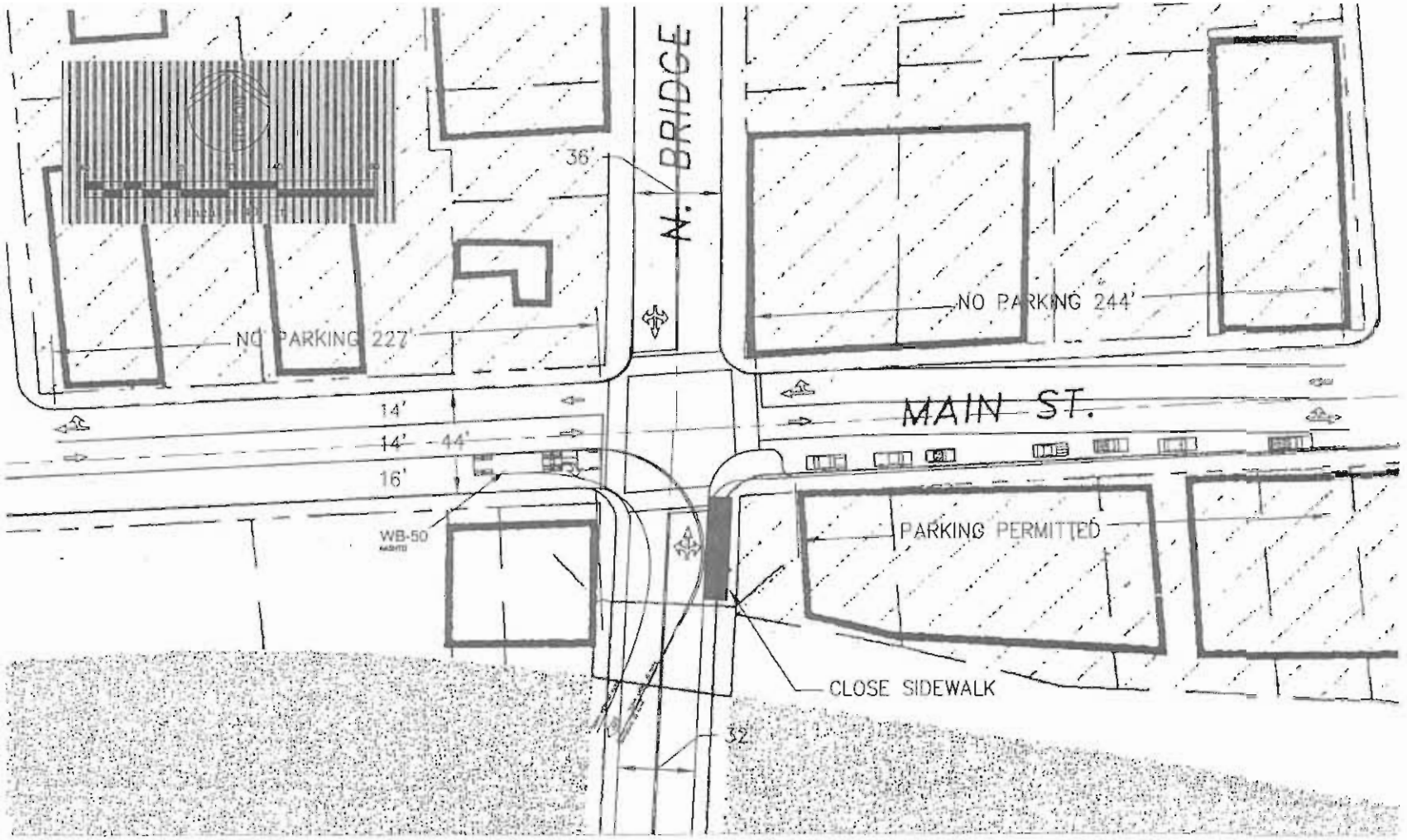


FIGURE 10-16
EASTBOUND TRUCK TURNING MOVEMENT FROM MAIN ST TO SOUTHBOUND ON BRIDGE ST

CITY OF SHERIDAN
TRANSP. IMPROVEMENT PLAN

SHERIDAN COUNTY

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Table 10-1: Summary of Existing and Proposed Roadway Characteristic

Street Name	Road Class	Paved Width (ft)	Posted Speed (MPH)	Sidewalks	Bike Lane	On-Street Parking
Hwy. 18B-Existing	Arterial (60 ft ROW)	@ BS 44 @ RS 22 @ OS 22 @ RC 30	@ BS 25 45	No	No	Yes No No
Proposed	*Arterial (60 ft ROW)+*	*@ BS 44 38 feet at others*	*@ BS 25 45/35 at others*	*Yes*	*Yes, Shared lane at BS*	*No*
Bridge Street (BS)*-Existing	North- Collector South- Arterial	North-36 South-32	25	Yes	No	North-Yes South-No
Proposed	*North- Collector South- Arterial*	*North-36 South-32+*	*25*	*West side only*	*No*	*North-Yes South-No*
NW Richard Street (RS) Existing	Collector (40 ft ROW)	25	25	No	No	Yes
Proposed	*Collector (38-60 ft ROW)+*	*28-44+*	*25-30*	*Yes*	*Maybe*	*Maybe*
NW Orchard Street (OS)	Local (50 ft ROW)	25	-	No	No	Yes
Proposed	*Local (38-60 ft ROW)+*	*28-44+*	*25-30*	*Yes*	*Maybe*	*Maybe*
NW Chip Yard Road (Taylor Street)	Local Varies	25	-	No	No	No
Proposed	*Local (38-60 ft ROW)+*	*28-44+*	*25-30*	*Yes*	*Maybe*	*Maybe*
SW Rock Creek Road (RC)	County Collector (60 ft ROW)+	28	35	No	No	No
Proposed	*County Collector (60 ft ROW)+*	*38 feet*	*35s*	*Yes*	*Yes*	*No*

**Abbreviations of street names + Depends on whether bike lanes and/or parking is provided. Will be wider at intersection with Hwy. 18B as shown on Figure X.*

ANALYSIS OF FUTURE BUILDOUT TRAFFIC FLOWS THROUGH STUDY AREA

This section summarizes our assessment of future traffic flows along Hwy. 18B (Main Street) from west City limits of Sheridan (Rock Creek Road) to Richards Street, and also includes the intersection of Hwy. 18B and Bridge Street in downtown Sheridan (Bridge Street). The objective of this task is to evaluate the traffic impact of full buildout of the study area and identify operational issues and needs throughout the study area. ***Chapter 4*** analyzed future traffic flows for the 2025 horizon year that included only general background traffic growth through the area, but no major redevelopment of the Concept Plan study area. In this future background 2025 analysis, we found that all study area intersections will continue to operate at LOS B or better during the critical weekday AM and PM peak hour periods or 30th HDV with volume to capacity (V/C) ratio of 0.61 or better ***with existing lane configurations***. Hwy. 18B is classified as a District Highway and its maximum acceptable v/c ratio is 0.80. For the analysis of the future buildout scenario with the Preferred Concept Plan, we assumed that study area roadways were built out to their currently planned ROW and lane configurations, as shown in ***Figure 10-1***. Specifically, Hwy. 18B and Rock Creek Road would have a three-lane section and all the minor street approaches onto these roadways will have separate right and left turn lanes.

Site-Generated Traffic Volumes

Figure 8-2 shows the Preferred Concept Plan. Briefly, this Concept Plan 2 with the airport was estimated to contain approximately 182 acres, including approximately 154 acres of industrial developments and 28 acres of business/ commercial developments.

Vehicle trips that would be generated by the Preferred Concept Plan were estimated using standard rates in the ***ITE Trip Generation Report (7th Edition)***. Trips generated by land designated as industrial were estimated using standard trip generation rates from ***ITE Land Use Code 130 - Industrial Park***. This rate was chosen because it best fits the description of uses that might be in the study area and is slightly higher than other ITE Land Use Codes that might apply to the site, as shown in ***Table 10-2***. For the industrial land, it was assumed that all these parcels would redevelop.

Table 10-2: Comparison of ITE Trip Rates for Industrial Types of Land Uses

Land Use	Trip Rate per Acre		
	Daily	AM Peak Hour	PM Peak Hour
General Light Industrial (ITE Code 110)	51.8	7.5	7.3
General Heavy Industrial (ITE Code 120)	1.98	2.0	2.2
Industrial Park (ITE Code 130)	63.1	8.6	8.8
Manufacturing (ITE Code 140)	38.9	7.4	8.4
Warehousing (ITE Code 150)	57.2	10.0	8.9

To estimate trips to/from the business/commercial areas, we used the basic rates for retail use (**ITE Land Use Code 820-Shopping Centers**) which would encompass a wide range of service and retail uses. The rates for this land use are higher than offices and auto part stores (which are typical retail uses currently in this area and permitted by the area's industrial zoning), but much lower than major retail uses, as shown in ***Table 10-3***. To estimate the buildout of each of these business/commercial parcels, we assumed that about 65 percent of the land north of Hwy. 18B might redevelop (due to existing developments that are viable) and that the size of the actual buildings in these developments will be about 30 percent of the site's gross acreage (to account for infrastructure such as parking lot areas).

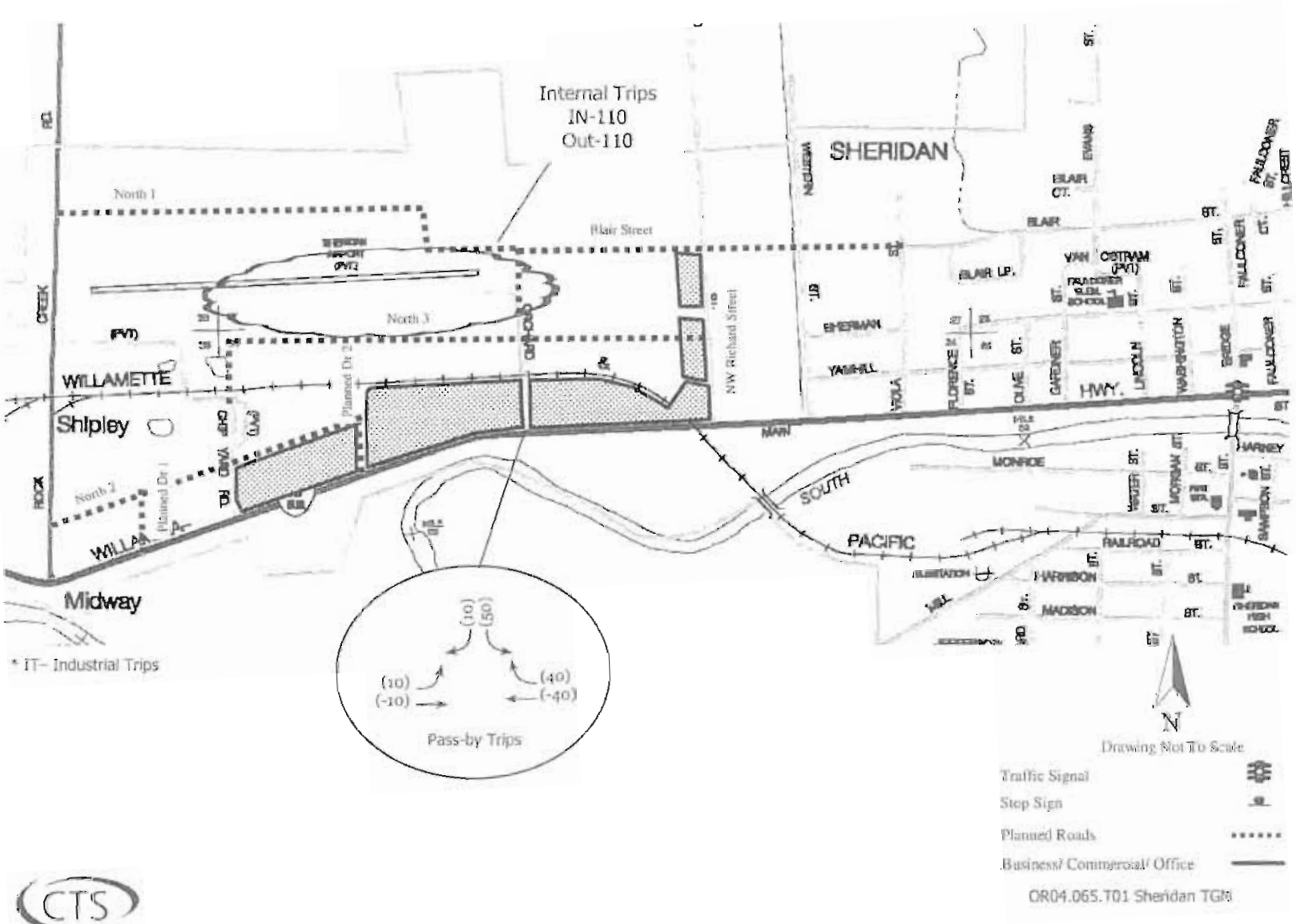
Table 10-3: Comparison of ITE Trip Rates for Business/Commercial Types of Land Uses

Land Use	Trip Rate per 1,000 GSF		
	Daily	AM Peak Hour	PM Peak Hour
General Office (ITE Code 710)	11	1.6	1.5
Shopping/Retail (ITE Code 820)	42.9	1.0	3.8
Hardware Store (ITE Code 816)	51.3	1.1	4.8
Auto Parts Sales (ITE Code 843)	61.9	2.2	6.0
Auto Care (ITE Code 942)	Not Available	2.9	3.4

Finally, it should be noted that the land south of Hwy. 18B throughout the study area is zoned residential, and most of these parcels already have uses on them that will likely remain. A small portion of this area could redevelop to provide additional 25 or so homes, which would generate relatively few additional trips. Traffic generated by these homes was assumed to be included in our background traffic growth rates and will not be added individually.

Based on these assumptions, ***Table 10-4*** presents our trip generation estimates for each major parcel in the study area for the Preferred Concept Plan. It should be noted that Technical Memorandum 3 prepared for this project included trip generation estimates for both concept plan options. This analysis revealed that the trip generation of Concept Plan 1 without the airport was slightly higher (see Appendix) and will generate about 17 percent more vehicle trips (2,244 vs. 1,912) during the critical PM peak hour. Due to the nature of commercial land uses and the location of the site, a full understanding of the trip types that will be traveling to/from the site is necessary. In evaluating the traffic impact of business and commercial uses, it is important to realize that a significant portion of vehicle trips to/from commercial uses will come from vehicles already on the road making trips for other purposes, such as getting to/from work. The first trip type, *pass-by trips*, comes from drivers who are already traveling along an adjacent street. As they pass by the site as part of their regular travel route, they turn into the site to make a purchase and then continue on their original route. The second trip type is *diverted trips* from other drivers already on the road, but who divert their route a few streets to enter the site. After they make their purchase they then return to their original route. The third trip type is totally *new trips* on the roadway system. These include nearby residents who leave their home or office and drive to make a purchase and then return home without making any other stops. As shown in ***Table 10-4***, we have assumed that about 35 percent of the total trips to these planned business and commercial land uses will come from pass-by and diverted trips. This estimate was based on the fact that many travel studies in urban areas have found that about 10-15 percent of PM peak hour work-to-home travel involves linked trips where the driver stops at one or more commercial use. Given the limited number of commercial businesses in Sheridan, it is likely that this ratio would be higher due to limited commercial uses. Also, this 35 percent factor was designed to represent the number of trips to/from the business/commercial areas that would come from employees working at the industrial uses or from traffic passing by the site. The 35% factor equates to about 160 people coming to these business commercial uses during the critical PM peak hour. Looking at the industrial trips in ***Table 10-4***, if these 160 trips came from local employees, this would be about 14 percent of the industrial trips, which matches the travel study data. It was further assumed that 110 of these trips (enter and exits) would be entirely internal to the Concept Plan area and the others would come from traffic along Hwy. 18B. ***Figure 10-7*** presents the assignment of these internal and pass-by trips. To simplify the analysis, it was assumed that all the pass-by traffic would occur at the intersection of Hwy. 18B and Orchard Avenue.

Figure 10-7: Weekday Internal and Pass-By Peak Hour Trips Generated By Business/ Commercial Developments (Concept Plan-II with Airport)



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Based on standard trip rates and the assumptions discussed above, it is estimated that the Preferred Concept Plan with the airport will generate approximately 16,275 vehicle trips during a typical weekday including 1,425 trips during the AM peak hour and 1,910 vehicle trips during the PM peak hour.

Finally, it should be noted that these trip estimates are very conservative (i.e., high) to potentially overstate any possible congestion. Reasons for this include:

1 4) **Area Buildout:** The buildout of the study area is based on very optimistic development absorption assumptions as detailed in the Market Analysis. It is highly likely that actual buildout by 2025 will be at least 25 percent less than the approximately 200 acres assumed for this study.

2 5) **Industrial Trip Rates and Work Shifts:** As detailed above, this analysis assumed a high trip rate for the industrial land in the study area. If the area is developed with more heavy industrial or manufacturing uses that require large storage areas, trips generated by the study area will be significantly less (10 percent or more). Furthermore, many of these uses typically have work shifts. It will be possible to work with these businesses to create work shifts that are not all simultaneous during the traditional peak hours. This could also reduce trips generated by these plans by 10 percent or more.

3 6) **Internal and Shared Trips:** In reviewing the number of trips generated by these concept plans, it is clear that the majority of these trips will come from people not living in Sheridan. Thus, many will have to travel into the area from McMinnville, Salem, or other cities on the Oregon Coast. Based on this, it is likely that workers will carpool or both spouses will work in the study area. This would then result in more internal site trips as each driver picks up a passenger/spouse. It is not unreasonable that this and other transportation demand management measures (e.g., sponsored vanpools, telecommuting, etc.) would account for at least 5 percent of trips to the site.

Considering all these factors, it is likely that the vehicle trip volumes in *Table 4* overestimate travel to/from the study area by at least 25 percent. To test the importance of these assumptions on future capacity results and resulting roadway needs, we performed the future roadway capacity analysis based on two scenarios: worst-case trip generation as shown in *Table 10-4*, and applying a 25% reduction to future 2025 worst-case volumes.

Directional Travel Distribution of Site-Generated Traffic

The travel pattern of vehicle trips to/from the study area was based on a review of the recent traffic counts and discussion with City staff. Traffic counts at Rock Creek Road reveal that the directional travel pattern to/from the study area is approximately 80 percent to the east and 20 percent to the west along Hwy. 18B. Based on traffic counts at the intersection of Bridge Street and Hwy. 18B and discussions with city staff about the location of existing and future residential development in Sheridan, we estimate that of the 80 percent to the east, approximately 10 percent will be to/from the residential area between the study area and Bridge Street, 35 percent with be to/from the east along Hwy. 18B, 30 percent to/from the south along the S. Bridge Street, and 5 percent along N. Bridge Street. *Figures 10-8a* and *10-8b* display the directional trip distribution that was derived from the analysis of vehicle trip patterns. These figures also show the resulting assignment of site-generated traffic during both peak hours based on the Preferred Concept Plan with the airport.

Table 10-4: Estimate of Trip Generation for Concept Plan 2-With Airport

Land Use/ Site Location (Acres)	Daily Trips	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
Business/ Commercial Land North of Hwy 18B between Chip Yard Rd (Taylor St) and Richard St							
Land North of Hwy 18B (7.7)	2,808	67	41	26	245	118	127
Land North of Hwy 18B (8.5)	3,100	74	45	29	271	130	141
Land/ North of Hwy 18B (9.5)	3,465	83	51	32	303	145	158
Business/ Commercial Land South of Hwy 18B between Rock Creek Rd and Richard St							
Land South of Hwy 18B	Minimal Growth						
Business/ Office Land West of Richard St							
Office Space/ West of Richard St (2.5)	1,403	34	21	13	123	59	64
Internal/Pass-by Trips 35%	3,772	90	55	35	330	158	172
Business/ Commercial Land Total (28.2)	**7,004**	**168**	**103**	**65**	**612**	**294**	**319**
Industrial Land between Rock Creek Rd and Chip Yard Rd (Taylor St)							
East of Rock Creek Rd (65.8)	4,153	563	467	96	582	122	460
East of Rock Creek Rd (13.9)	877	119	99	20	123	26	97
East of Rock Creek Rd (15.7)	991	134	111	23	139	29	110
East of Rock Creek Rd (7.8)	492	67	56	11	69	14	55
East of Rock Creek Rd (5.6)	353	48	40	8	50	11	39
Total	**6,866**	**931**	**773**	**158**	**963**	**202**	**761**
Industrial Land between Chip Yard Rd (Taylor St) and Orchard Ave							
East of Chip Yard (7.4)	467	63	52	11	65	14	51
East of Chip Yard (11.7)	738	100	83	17	103	22	81
East of Chip Yard (7.8)	492	67	56	11	69	14	55
Total	**1,697**	**230**	**191**	**39**	**237**	**50**	**187**
Industrial Land between Orchard Avenue and Richard St							
East of Orchard Ave (6.4)	404	55	46	9	57	12	45
East of Orchard Ave (4.8)	303	41	34	7	42	9	33
East of Orchard Ave (6.5)	410	56	46	10	57	12	45
Total	**707**	**96**	**80**	**16**	**99**	**21**	**78**
Industrial Land Total (153.4)	**9,270**	**1,257**	**1,044**	**213**	**1,299**	**273**	**1,026**
Grand Total (181.6)	**16,274**	**1,425**	**1,147**	**278**	**1,911**	**567**	**1,345**

Total Future 2025 Traffic Volumes with Buildout of Study Area

Total future 2025 peak hour traffic volumes were estimated by adding the background future baseline 30th HDV traffic volumes displayed in ***Figure 4-5*** to the volumes that would be generated by the total pass-by, new and diverted trips in ***Figures 10-7, 10-8a*** and ***10-8b***. Total future peak hour traffic volumes for 2025 with buildout of the study area based on Preferred Concept Plan 2 (with the airport) is presented in ***Figures 10-9A*** and ***10-9B*** for the typical weekday AM and PM peak hours and the 30th HDV scenarios, respectively. As discussed earlier, we also developed a second total future 2025 traffic scenario assuming that the site trip generation was about 25 percent less than the volumes shown in ***Table 10-4***. The resulting reduced volumes are also shown on ***Figures 10-9A*** and ***10-9B***.

Intersection capacity analyses were performed for each of these scenarios. The results are presented in ***Tables 10-5A*** and ***10-5B*** assuming the basic future intersection lane configurations shown in ***Figure 10-1 without traffic signals***. As noted earlier, ODOT's intersection performance criterion is a V/C ratio of 0.80 or lower. The baseline results indicate that many of the study area intersections will operate at LOS F and have a V/C ratio greater than 1.0, without additional improvements such as the installation of traffic signals. ***Tables 10-6a*** thru ***10-6d*** present the results of MUTCD traffic signal warrants at these intersections based on the reduced volumes (assuming the ADT along these roadways was 10-times the 30th HD volumes). The results in these tables reveal that all the major intersections along Hwy. 18B meet one or more of these signal warrants, except at Rock Creek, where the projected volumes are just slightly lower than criteria volumes. If the full buildout volumes were used or property on the west side of this roadway was redeveloped, the volumes along Rock Creek would meet the ***MUTCD*** traffic signal warrant criteria. Thus, we assumed that signals would eventually be installed at all of these intersections. Finally, it must be noted that the analyses in this study are preliminary and do not formally justify installing a traffic signal at any of these locations. As the study area developments, additional ***MUTCD*** analyses needs to be conducted that will evaluate the actual traffic volumes, traffic operations and safety at each of these intersections.

Tables 10-7a and ***10-7b*** present future capacity results at these intersections with traffic signals where warrants are met. ***Tables 10-8a*** thru ***10-8f*** present the results of the queuing analysis that was performed using Synchro and SimTraffic based on ODOT's procedures for the full buildout scenario. (Queue analysis for the intersection of Hwy. 18B and Bridge Street was considered unstable for the full buildout analysis because the V/C ratio exceeded 1.05). Similarly, ***Tables 10-9a*** thru ***10-9g*** present the results of queuing analyses for the reduced volume scenario. Comparing the results of the queue analysis between the scenarios finds that the recommended design queue lengths are almost the same at all intersections for both trip generation scenarios. Reviewing each of these intersections reveals the following:

1) **Bridge St./Hwy. 18B:** The critical movement at this intersection is the eastbound through and right turn maneuvers. For the full trip generation scenario, this intersection will still operate with a high V/C ratio. Prohibiting the left turns from Hwy. 18B will improve its operation. The next step in mitigation would be to widen Hwy. 18B to provide an additional through or turn lane, which would have a major impact on the downtown area and nearby buildings. For the 75% trip scenario, the intersection will operate at an acceptable V/C ratio with the proposed re-striping mitigation plan shown in ***Figure 10-6***. Parking will have to be eliminated for about two blocks west of Bridge Street and on the north side of one block east of Bridge Street. In addition, we recommend that left turns be prohibited in both directions along Hwy. 18B onto Bridge Street. These movements are relatively low and could be accommodated at an upstream intersection. Based on these findings, we recommend that the initial striping plan be implemented as congestion builds at this intersection (which will likely be after a couple of major developments occur in the study area), and that additional improvement/widening be held off as long as possible.

2) **Minor Streets/Hwy. 18B:** The critical maneuver at these intersections is the southbound minor street left turn onto Hwy. 18B to travel east. The largest volumes are southbound at Orchard Avenue and at Chip Yard Road. All the streets have volumes that would warrant installing traffic signals. ODOT guidelines are that the ideal distance between signalized intersections be at least ½ mile, but at a minimum of at least ¼ mile (about 1,250 feet). With these signals, all of these intersections will meet ODOT V/C ratio criteria for both trip scenarios. As a guideline, using 150 PM outbound /southbound trips as a trigger, a threshold for meeting signal warrants at any of these

intersections would be the development of 50-60 acres of land having access to one of these streets. Examining the vehicle queue results at these intersections reveals that-all the 95th percentile design queues can be accommodated without backing up into an upstream intersection.

3) **Right Turn Lanes along Hwy. 18B:** As presented in *Figure 10-1,* the ROW available along Hwy. 18B provides for a center left turn lane along the entire study area section, but not for right turn lanes that may be warranted in the westbound direction. *Tables 10-10* presents the results of evaluating ODOT's right turn lane warrants at these intersections. This analysis reveals that most of the minor streets along Hwy. 18B will meet warrants for separate westbound right turn lanes. However, implementing this may be very difficult and providing these lanes at all of these intersections may not be feasible or desirable. First, at many of these corners, these intersections already have viable businesses and acquiring the additional ROW will be very costly and might force the state/city to acquire the business itself. It should be noted that the typical length of a right turn lane will be at least 125 feet for storage and 235 feet for a taper area based on a 45 mph travel speed. Many people have been concerned about travel speeds and pedestrian safety along Hwy. 18B. Providing right turn lanes throughout the entire area will increase travel speeds and will make pedestrian crossings less safe. A compromise may be to establish one or two of these intersections as industrial intersection and then direct trucks to these intersections. Possible locations that would be industrial-oriented and where right turn lanes should be considered are at Chip Yard Road, Orchard Avenue, and Rock Creek Road. These intersections do not have significant development in the critical intersection area and would have significant truck traffic. It should be noted that the capacity analysis reported in *Tables 10-7a* and *10-7b* did not assume any right turn lanes except at Rock Creek Road. Thus, providing right turn lanes will not add significant capacity during the 30th HDV because it is during the PM peak hour when few trips will be entering the study area. The major benefit would be during the AM peak hour when workers are coming to the study area. However, this is a less critical time period.

Additioonal Traffic Operations Issues

Based on the analyses conducted, several other traffic operation issues need to be discussed:

1) **Character of Hwy. 18B and its Speed Limit:** With the buildout of the study area, the character of Hwy. 18B will be more urban and should have a speed limit less than 45 mph. We would recommend a speed limit of 35 mph.

2) **Pedestrian Considerations:** The cross section shown in *Figure 10-7* and the access management plan show that most of the major intersections along Hwy. 18B will be "T" intersections. It is likely that few pedestrians would want to cross Hwy. 18B for the west section of the study area. For the east portion of the study area, pedestrian considerations will be particularly important in the vicinity of Orchard Avenue and Richard Street. With a 3-lane section, the east side of these intersections could have medians that would shadow the left turn lanes in the eastbound direction. In addition, all the traffic signals will have striped crosswalks, pedestrians signal heads and push buttons.

3) **Railroad Crossings:** ODOT does not have any specific criteria to trigger the installation of full railroad crossing treatments, including signals and gates. However, it is clear that each of the crossings through the study area will have significant traffic volumes throughout the day. The cost of a typical full active crossing treatment is about $250,000 per location.

4) **Truck Routes:** As discussed above, most of the side streets such as Orchard Avenue and Chip Yard Road, as well as the study area's internal streets, will be designed to accommodate truck traffic. In contrast, truck traffic should be limited along Richard Street and Blair Road to the east of the study area.

Figure 10-8A: Weekday Peak Hour Traffic Volumes and Trip Distribution Pattern For Concept Plan-II with Airport (West of Chip Yard Rd)

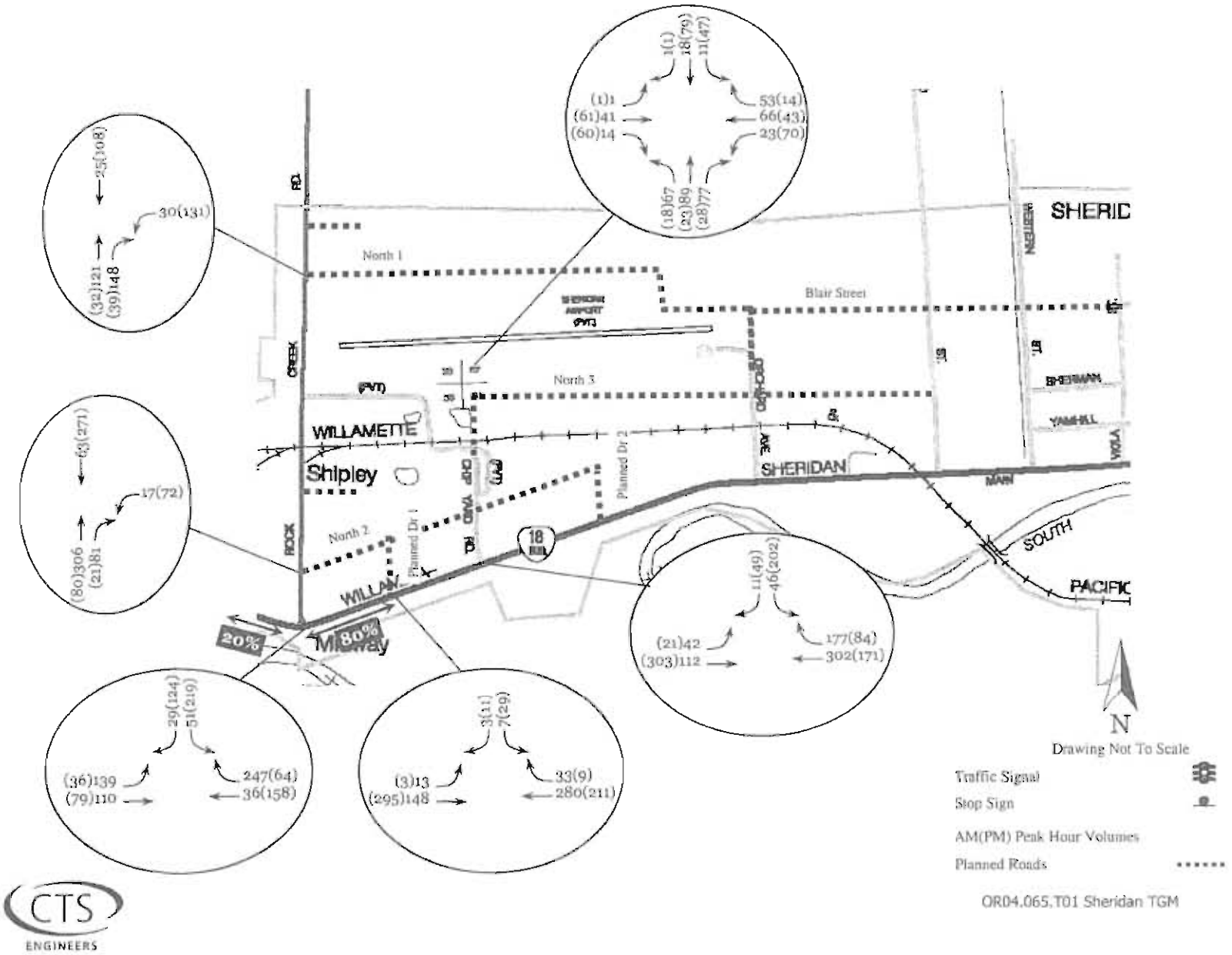

Figure 10-8B: Weekday Peak Hour Traffic Volumes and Trip Distribution Pattern For Concept Plan-II with Airport (East of Chip Yard Rd)

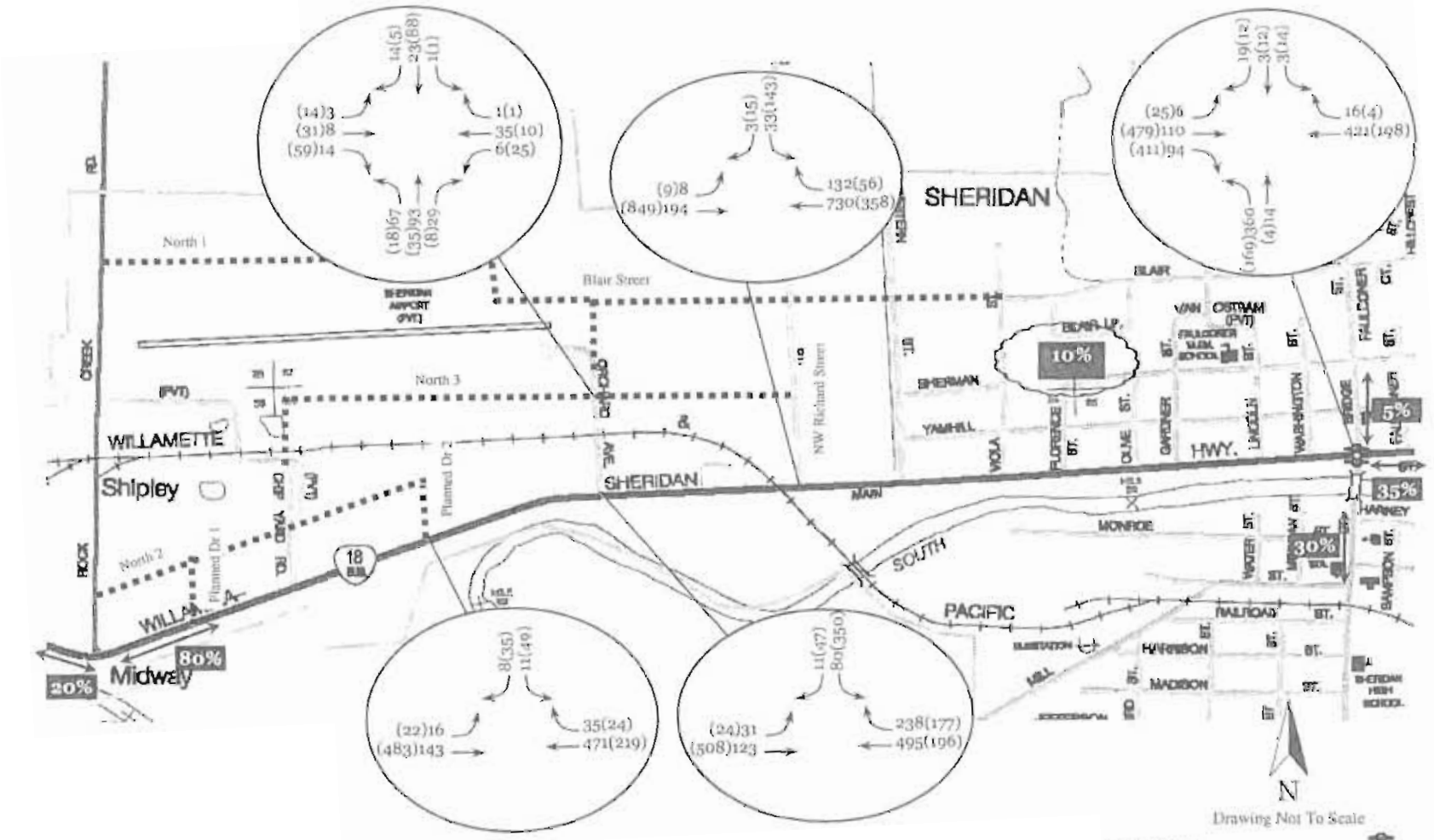

Figure 10-9A: Total Future 2025 30th Design Hour
Traffic Volumes with Buildout of Concept Plan-II (West of Chip Yard Rd)

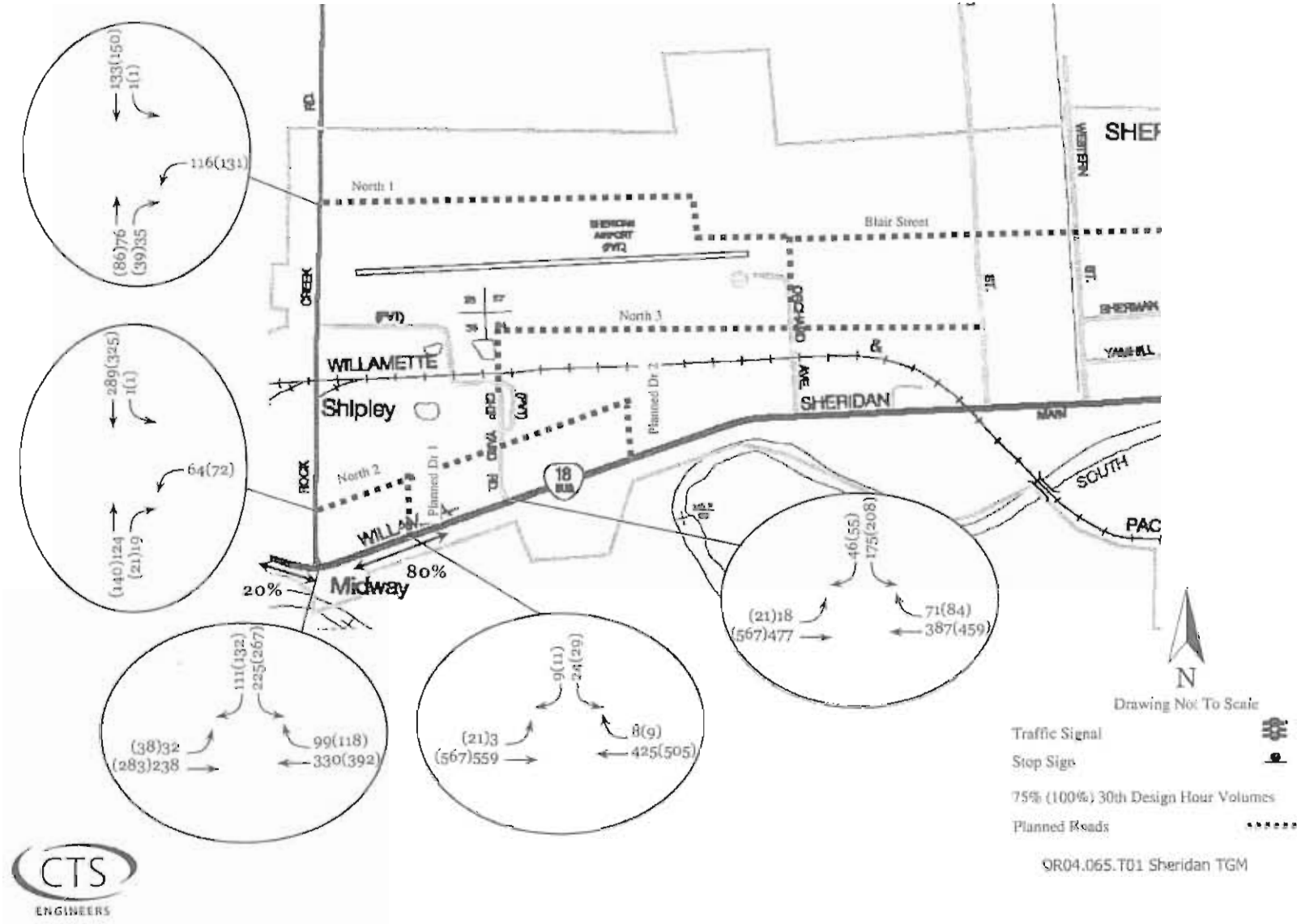

Figure 10-9B: Total Future 2025 30th Design Hour
Traffic Volumes with Buildout of Concept Plan-II (East of Chip Yard Rd)

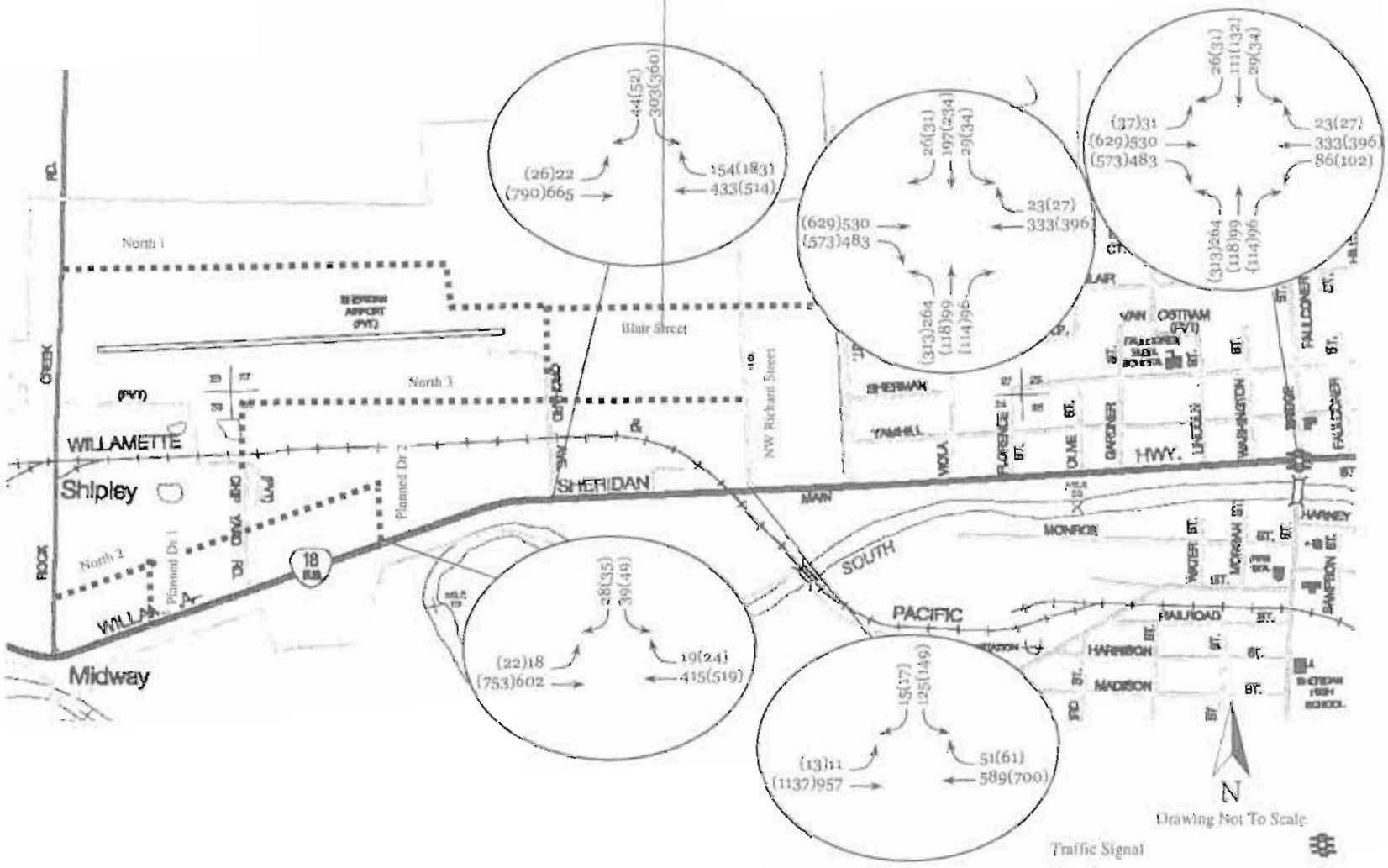

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Table 10-5a: Option-2 2025 30th DHV Level of Service (100% without Traffic Signals)

Intersection	30th Design Hour		
	Traffic Signal Control		
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ Bridge Street (With EB & WB Left Turns)	92.9	1.29	F
Hwy. 18B/ Bridge Street (With No EB & WB Left Turns)	60.8	1.04	E
	Minor Street Stop Control		
	Avg Vehicle Delay (Sec/Veh)	*V/C Ratio*	LOS
Hwy. 18B/ NW Richard St (Critical Approach: SB)	>50	2.43	F
Hwy. 18B/ NW Orchard St (Critical Approach: SB)	>50	3.04	F
Hwy. 18B/Driveway-2 (Critical Approach: SB)	29.1	0.34	D
Hwy. 18B/ Chip Yard Road (Critical Approach: SB)	>50	1.06	F
Hwy. 18B/Driveway-1 (Critical Approach: SB)	20.5	0.14	C
Hwy. 18B/ Rock Creek Road (Critical Approach: SB)	47	0.89	E
Rock Creek Road/ (North 2) (Critical Approach: WB)	13.5	0.16	B
Rock Creek Road/ North 1 (Critical Approach: WB)	11.4	0.20	B

Table 10-5b: Option-2 2025 30th DHV Level of Service (75% Without Traffic Signals)

Intersection	30th Design Hour		
	Traffic Signal Control		
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ Bridge Street (With EB & WB Left Turns)	28.1	0.87	C
Hwy. 18B/ Bridge Street (With No EB & WB Left Turns)	26.0	0.82	C
	Minor Street Stop Control		
	Avg Vehicle Delay (Sec/Veh)	*V/C Ratio*	LOS
Hwy. 18B/ NW Richard St (Critical Approach: SB)	>50	1.09	F
Hwy. 18B/ NW Orchard St (Critical Approach: SB)	>50	1.57	F
Hwy. 18B/Driveway-2 (Critical Approach: SB)	19.1	0.19	C
Hwy. 18B/ Chip Yard Road (Critical Approach: SB)	30.2	0.61	D
Hwy. 18B/Driveway-1 (Critical Approach: SB)	16.0	0.08	C
Hwy. 18B/ Rock Creek Road (Critical Approach: SB)	20.4	0.56	C
Rock Creek Road/ (North 2) (Critical Approach: WB)	11.9	0.11	B
Rock Creek Road/ North 1 (Critical Approach: WB)	10.5	0.15	B

Table 10-6a: Signal Warrant Analysis for 2025 Buildout Volumes based on Concept Plan 1-without Airport: Hwy. 18 B at Chip Yard Rd.

Warrant 1, Eight-Hour Vehicular Volume	Warrant Volumes (ADT)		Approach Volumes (ADT)		Warrant Met?
	Major Street	Minor Street	Major Street	Minor Street	
Condition A. Minimum Volume *	6,200	2,500	9,530	1,750	No
Condition B. Interruption of Continuous Flow *	9,300	1,250	9,530	1,750	Yes

* 70 percent of standard warrants used (speed in excess of 40 mph.)

Table 10-6b: Signal Warrant Analysis for 2025 Buildout Volumes based on Concept Plan 1-without Airport: Hwy. 18 B at Richard St.

Warrant 1, Eight-Hour Vehicular Volume	Warrant Volumes (ADT)		Approach Volumes (ADT)		Warrant Met?
	Major Street	Minor Street	Major Street	Minor Street	
Condition A. Minimum Volume *	6,200	2,500	16,080	1,250	No
Condition B. Interruption of Continuous Flow *	9,300	1,250	16,080	1,250	Yes

* 70 percent of standard warrants used (speed in excess of 40 mph.)

Table 10-6c: Signal Warrant Analysis for 2025 Buildout Volumes based on Concept Plan 1-without Airport: Hwy. 18 B at Orchard Ave.

Warrant 1, Eight-Hour Vehicular Volume	Warrant Volumes (ADT)		Approach Volumes (ADT)		Warrant Met?
	Major Street	Minor Street	Major Street	Minor Street	
Condition A. Minimum Volume *	6,200	2,500	12,740	3,030	Yes
Condition B. Interruption of Continuous Flow *	9,300	1,250	12,740	3,030	Yes

* 70 percent of standard warrants used (speed in excess of 40 mph.)

Table 10-6d: Signal Warrant Analysis for 2025 Buildout Volumes based on Concept Plan 1-without Airport: Hwy. 18 B at Rock Creek Rd.

Warrant 1, Eight-Hour Vehicular Volume	Warrant Volumes (ADT)		Approach Volumes (ADT)		Warrant Met?
	Major Street	Minor Street	Major Street	Minor Street	
Condition A. Minimum Volume *	6,200	2,500	6,990	2,250	No
Condition B. Interruption of Continuous Flow *	9,300	1,250	6,990	2,250	No

* 70 percent of standard warrants used (speed in excess of 40 mph.)

Table 10-7a: Option-2 2025 30th DHV Level of Service (100% with Mitigation)

Intersection	30th Design Hour		
	Traffic Signal Control		
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ Bridge Street (With EB & WB Left Turns)	92.9	1.29	F
Hwy. 18B/ Bridge Street (With No EB & WB Left Turns)	60.8	1.04	E
Hwy. 18B/ NW Richard St	18.5	0.88	B
Hwy. 18B/ NW Orchard St	25.8	0.83	C
Hwy. 18B/ Chip Yard Road	13.5	0.59	B
Hwy. 18B/ Rock Creek Road	16.7	0.63	B
	Minor Street Stop Control		
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ Driveway-1 (Critical Approach: SB)	20.5	0.14	C
Hwy. 18B/ Driveway-2 (Critical Approach: SB)	29.1	0.34	D
Rock Creek Road/ North 1 (Critical Approach:: WB)	11.4	0.20	B
Rock Creek Road/ North 2 (Critical Approach: WB)	13.5	0.16	B

Table 10-7b: Option-2 2025 30th DHV Level of Service (75% With Mitigation)

Intersection	30th Design Hour		
	Traffic Signal Control		
	Avg Vehicle Delay (Sec/Veh)	V/C Ratio	LOS
Hwy. 18B/ Bridge Street (With EB & WB Left Turns)	28.1	0.87	C
Hwy. 18B/ Bridge Street (With No EB & WB Left Turns)	26.0	0.82	C
Hwy. 18B/ NW Richard St	10.8	0.77	B
Hwy. 18B/ NW Orchard St	17.0	0.70	B
Hwy. 18B/ Chip Yard Road	11.9	0.48	B
Hwy. 18B/ Rock Creek Road	14.7	0.50	B
	Minor Street Stop Control		
	Avg Vehicle Delay (Sec/Veh)	*V/C Ratio*	LOS
Hwy. 18B/ Driveway-1 (Critical Approach: SB)	16.0	0.08	C
Hwy. 18B/ Driveway-2 (Critical Approach: SB)	19.1	0.19	C
Rock Creek Road/ North 1 (Critical Approach: WB)	10.5	0.15	B
Rock Creek Road/ North 2 (Critical Approach: WB)	11.9	0.11	B

Table 10-8a: Estimate of Vehicle Queues at Route 18 Bus/Rock Creek Rd. Intersection Based on 30th Design Hour Volumes (100%)

Movement/Approach (Number of Lanes)	Volume (Veh/Hr)	Queue Length (feet)		Upstream Intersection (feet)	Recommended Storage (feet)
		Average Queues	Estimated 95th Percentile		
Eastbound Left (1)	38	50	100	---	150
Eastbound Thru (1)	283	100	200	---	---
Westbound Thru(1)	392	150	325	830	---
Westbound Right (1)	118	50	150	830	150
Southbound Left (1)	267	175	300	---	250
Southbound Right (1)	132	50	100	---	150

Table 10- 8b: Estimate of Vehicle Queues at Route 18 Bus/Driveway 1 Intersection Based on 30th Design Hour Volumes (100%)

Movement/Approach (Number of Lanes)	Volume (Veh/Hr)	Queue Length (feet)		Upstream Intersection (feet)	Recommended Storage (feet)
		Average Queues	Estimated 95th Percentile		
Eastbound Left (1)	3	0	0	830	150
Southbound Left (1)	29	25	75	---	150
Southbound Right (1)	11	0	50	---	150

Table 8c: Estimate of Vehicle Queues at Route 18 Bus/Chip Yard Rd. Intersection Based on 30th Design Hour Volumes (100%)

Movement/Approach (Number of Lanes)	Volume (Veh/Hr)	Queue Length (feet)		Upstream Intersection (feet)	Recommended Storage (feet)
		Average Queues	Estimated 95th Percentile		
Eastbound Left (1)	21	25	75	600	150
Eastbound Thru (1)	567	250	525	600	
Westbound Thru/Right (1)	543	200	400	1260	
Southbound Left (1)	208	150	325	---	150
Southbound Right (1)	55	25	100	---	150

Table 10-8d: Estimate of Vehicle Queues at Route 18 Bus/Driveway 2 Intersection Based on 30th Design Hour Volumes (100%)

Movement/Approach (Number of Lanes)	Volume (Veh/Hr)	Queue Length (feet)		Upstream Intersection (feet)	Recommended Storage (feet)
		Average Queues	Estimated 95th Percentile		
Eastbound Left (1)	22	25	75	1260	150
Southbound Left (1)	49	175	375	---	150
Southbound Right (1)	35	75	225	---	150

Table 10-8e: Estimate of Vehicle Queues at Route 18 Bus/Orchard Ave. Intersection Based on 30th Design Hour Volumes (100%)

Movement/Approach (Number of Lanes)	Volume (Veh/Hr)	Queue Length (feet)		Upstream Intersection (feet)	Recommended Storage (feet)
		Average Queues	Estimated 95th Percentile		
Eastbound Left (1)	36	50	150	910	150
Eastbound Thru (1)	790	725	1075	910	
Westbound Thru/Right (1)	697	650	1275	1320	
Southbound Left (1)	375	525	950	---	
Southbound Right (1)	52	200	800	---	

Table 10-8f: Estimate of Vehicle Queues at Route 18 Bus/Richard St. Intersection Based on 30th Design Hour Volumes (100%)

Movement/Approach (Number of Lanes)	Volume (Veh/Hr)	Queue Length (feet)		Upstream Intersection (feet)	Recommended Storage (feet)
		Average Queues	Estimated 95th Percentile		
Eastbound Left (1)	13	25	75	1320	150
Eastbound Thru (1)	1137	1000	1525	1320	
Westbound Thru/Right (1)	761	275	575	3690	
Southbound Left (1)	149	125	225	---	250
Southbound Right (1)	17	25	50	---	150

Table 10-9a: Estimate of Vehicle Queues at Route 18 Bus/Rock Creek Rd. Intersection Based on 30th Design Hour Volumes (75%)

Movement/Approach (Number of Lanes)	Volume (Veh/Hr)	Queue Length (feet)		Upstream Intersection (feet)	Recommended Storage (feet)
		Average Queues	Estimated 95th Percentile		
Eastbound Left (1)	32	25	75	---	150
Eastbound Thru (1)	238	50	150	---	
Westbound Thru(1)	330	125	250	830	
Westbound Right (1)	99	25	125	830	150
Southbound Left (1)	225	150	250	---	250
Southbound Right (1)	111	50	75	---	150

Table 10-9b: Estimate of Vehicle Queues at Route 18 Bus/Driveway 1 Intersection Based on 30th Design Hour Volumes (75%)

Movement/Approach (Number of Lanes)	Volume (Veh/Hr)	Queue Length (feet)		Upstream Intersection (feet)	Recommended Storage (feet)
		Average Queues	Estimated 95th Percentile		
Eastbound Left (1)	3	0	0	830	150
Southbound Left (1)	24	25	75	---	150
Southbound Right (1)	9	0	50	---	150

Table 10-9c: Estimate of Vehicle Queues at Route 18 Bus/Chip Yard Rd. Intersection Based on 30th Design Hour Volumes (75%)

Movement/Approach (Number of Lanes)	Volume (Veh/Hr)	Queue Length (feet)		Upstream Intersection (feet)	Recommended Storage (feet)
		Average Queues	Estimated 95th Percentile		
Eastbound Left (1)	18	25	75	600	150
Eastbound Thru (1)	477	125	275	600	
Westbound Thru/Right (1)	458	150	300	1260	
Southbound Left (1)	175	125	200	---	250
Southbound Right (1)	46	25	75	---	150

Table 10-9d: Estimate of Vehicle Queues at Route 18 Bus/Driveway 2 Intersection Based on 30th Design Hour Volumes (75%)

Movement/Approach (Number of Lanes)	Volume (Veh/Hr)	Queue Length (feet)		Upstream Intersection (feet)	Recommended Storage (feet)
		Average Queues	Estimated 95th Percentile		
Eastbound Left (1)	18	0	25	1260	150
Southbound Left (1)	39	25	100	---	150
Southbound Right (1)	28	25	75	---	150

Table 10-9e: Estimate of Vehicle Queues at Route 18 Bus/Orchard Ave. Intersection Based on 30th Design Hour Volumes (75%)

Movement/Approach (Number of Lanes)	Volume (Veh/Hr)	Queue Length (feet)		Upstream Intersection (feet)	Recommended Storage (feet)
		Average Queues	Estimated 95th Percentile		
Eastbound Left (1)	22	25	100	910	150
Eastbound Thru (1)	665	250	525	910	
Westbound Thru/Right (1)	587	225	450	1320	
Southbound Left (1)	303	225	400	---	350
Southbound Right (1)	44	25	125	---	150

Table 10-9f: Estimate of Vehicle Queues at Route 18 Bus/Richard St. Intersection Based on 30th Design Hour Volumes (75%)

Movement/Approach (Number of Lanes)	Volume (Veh/Hr)	Queue Length (feet)		Upstream Intersection (feet)	Recommended Storage (feet)
		Average Queues	Estimated 95th Percentile		
Eastbound Left (1)	11	25	50	1320	150
Eastbound Thru (1)	957	325	800	1320	
Westbound Thru/Right (1)	640	150	325	3690	
Southbound Left (1)	125	100	200	---	200
Southbound Right (1)	15	25	50	---	150

Table 10-9g: Estimate of Vehicle Queues at Route 18 Bus/Bridge St. Intersection Based on 30th Design Hour Volumes (75%)

Movement/Approach (Number of Lanes)	Volume (Veh/Hr)	Queue Length (feet)		Upstream Intersection (feet)	Recommended Storage (feet)
		Average Queues	Estimated 95th Percentile		
Eastbound Thru (1)	530	900	1800	250	---
Eastbound Right (1)	483	300	625	---	500
Westbound Thru/Right (1)	356	200	375	250	---
Northbound Thru/Left/Right (1)	459	750	1250	400	---
Southbound Thru/Left/Right (1)	197	125	225	275	---

Table 10-10: Right Turn Lane Warrant Analysis 2025 Buildout Volumes based on Concept Plan 1- with Airport

Projected 2025 30th HV			ODOT Design Manual	
Intersection	Total Approach Volume	Right Turns	Right Turn Volume Criteria	Warrant Met?
WB along Hwy. 18B at Rock Creek Road	551	114	40	Yes
WB along Hwy. 18B at Chip Yard Road	590	115	35	Yes
WB along Hwy. 18B at Orchard Avenue	731	189	15	Yes
WB along Hwy. 18B at Richard Street	818	87	15	Yes
WB along Hwy. 18B at Driveway-1	557	8	39	No+
WB along Hwy. 18B at Driveway-2	590	23	35	No+

+Yes, considering AM peak hour volumes

Cost Estimates of Proposed Roadways

This section presents cost estimates of providing the internal streets and upgrades to the existing minor streets. These estimates are for construction or reconstruction of these roadways and do not include right-of-way (ROW) costs. It is assumed that ROW will be contributed by the land owners through the permitting process as part of the redevelopment of the study area. It is also assumed that widening or reconstruction of the major roads (i.e., Hwy. 18B and Rock Creek Road) will be done via grants from ODOT or the County. Cost estimates in ***Table 10-11*** are based on a unit cost factor of $375 per linear lane of roadway, which is based on a typical 3-lane cross section of 36 to 40 feet. A lower unit cost of $300 per linear foot was used for the few local streets that are not expected to have a need for parking and/or bike lanes, or are expected to carry little if any truck traffic.

Table 10-11: Summary of Construction Cost Estimates for Internal and Minor Street Network

Street Name/Description	Assumed Road Class	Assumed Paved Width (ft)	Length (ft)	Basic Estimated Cost	Additional Cost Item(s)	Item(s) Estimated Cost	Total Estimated Cost
North/South Roadways (listed from west to east)							
Drive 1 (west end, east of Rock Creek Road)	Local	40	625	$235,000	Left turn lane	$70,000	$305,000
Taylor Street (Chip Yard Road)	Local	40	1,375	$515,000	RR xing, traffic signal, left turn lane	$470,000	$985,000
Drive 2 (between Taylor & Orchard)	Local	40	375	$140,000			$140,000
Orchard Avenue (excluding No Build area)	Local	40	1,000	$375,000	RR xing, traffic signal, left turn lane	$470,000	$845,000
Orchard Avenue (through No Build area)	Local	28	500	$150,000			$150,000
Richard Street (Hwy 18B north to Blair Rd.)	Collector	42	1,500	$565,000	Traffic signal, left turn lane	$220,000	$785,000
Richard Street (north of Blair Rd.)	Local	32	375	$115,000			$115,000
East/West Roadways (listed from south to north)							
North 2 (just north of Hwy 18B)	Local	40	2,400	$900,000			$900,000
North 3 (between airport and railroad)	Local	40	3,250	$1,220,000			$1,220,000
Blair Road (extension west of Richard St. to existing Blair Rd.)	Collector	42	2,000	$750,000			$750,000
North 1 (from Blair Rd. to Rock Creek Rd.)	Collector	42	2,600	$975,000			$975,000
North 4 (parking assumed one side only)	Local	32	700	$210,000			$210,000
North 5 (far north end, includes a 650' north/south section)	Local	36	1,275	$385,000			$385,000
TOTAL ESTIMATED INTERNAL ROADWAY NETWORK COST							$8,330,000

All internal roadways were assumed to have sidewalks on both sides. Traffic signals at $150,000 each are assumed at the intersections with Hwy. 18B at Taylor Street/Chip Yard Road, Orchard Avenue, and Richard Street. New/upgraded railroad crossings are assumed on Orchard Avenue and Taylor Street/Chip Yard Road, at $250,000 each. Finally, southbound left turn lanes at Hwy. 18B are assumed for all five north/south streets, which adds $70,000 to the estimated cost for each of the five streets. Left turn lanes were assumed to be 12 feet wide, with a 150-foot left turn pocket and a 90-foot transition back to a two-lane cross-section. With these assumptions, the total estimated cost for the internal roadway network is ***$7,800,000***.

Funding Sources

The following section summarizes potential funding mechanisms that could be used to implement the local network. In order to finance the roadway and other transportation improvements recommended for the West Sheridan Industrial area, the City will need to consider and implement a variety of funding sources. Recent property tax limitations (Measures 5 and 50) have substantially reduced the ability to raise needed funds through local action such as increased property tax rates or higher property assessments. The revenue sources described in this section may not all be appropriate in Sheridan, but they represent the range of financial sources currently available to fund transportation improvements in Oregon. They have been arranged generally in priority of their appropriateness for the West Sheridan Industrial area. Pursuing ODOT-administered federal grant funding for economic development projects should be a high priority. Local improvement districts and project-specific mitigation are the other two funding options likely to be most appropriate for the West Sheridan Industrial area.

For many projects, joint funding will need to be pursued with ODOT and the County. In 2002, the Oregon legislature created a task force to explore options to replace the gas tax, due to concerns over the gas tax revenue stream flattening or decreasing due to better fuel economy, more hybrid vehicles and the volatility of gas prices, which affects fuel consumption. The City should track the progress of this and other new funding measures. The City should also pursue opportunities to apply joint public/private financing for economic development projects.

ODOT Funds

ODOT provides funding for highway-related or highway-benefiting improvements through the Statewide Transportation Improvement Program (STIP). The STIP sets out a four-year funding cycle for transportation plans and is updated every two years. The STIP is funded through federal transportation funding. Following the first two rounds (ISTEA and TEA-21), passage of the third iteration (TEA-3) of the federal government's 1991 surface transportation act is expected sometime in 2005. ODOT's allocations of federal transportation revenues increasingly target those improvements that provide economic benefit to a jurisdiction or region. The City of Sheridan should aggressively pursue funding for priority improvements that would benefit the West Sheridan Industrial Area through the STIP process, which requires coordinated action through the Mid-Willamette Valley Area Commission on Transportation (Mid-Willamette ACT). The ACTs are the advisory bodies responsible for determining STIP projects for each region, and include representatives from counties, cities, and various interest groups. The Mid-Willamette ACT includes five representatives from the small cities of Marion, Polk and Yamhill counties; the City should pursue gaining one of these positions for each STIP cycle.

ODOT's Oregon Transportation Improvement Act (OTIA) bonding program has contributed the greatest influx of new transportation funds over the past few years. OTIA is presently in its third and largest round (OTIA III), which focuses on repairing and replacing aging state and local bridges across the state. With the passage of ISTEA, its successor, TEA-21, and the imminent passage of TEA-3, federal funding administered by ODOT will continue to be one of the primary resources for funding capital improvements.

Local Improvement Districts

State law allows jurisdictions to fund public improvements through the development of Local Improvement Districts (LIDs). This source allows either property owners or local jurisdictions to approve an LID as a method of funding street, sidewalk, or other improvements. An LID allows the cost of improvements to be shared among those benefit most from the improvement. Costs are normally assessed either by property frontage, building square footage, or other methods. Property owners usually have the option of paying for the improvement up front or apportioning the costs out over a specified term by financing through the jurisdiction. The city must adopt an LID Ordinance to identify the LID boundary and the repayment provisions. A difficulty of LIDs is that sufficient support among affected property owners must first be obtained to approve its implementation. However, given that the bulk of the study area is undeveloped or underdeveloped, a LID could be a viable option.

Project Mitigation

The City should pursue project mitigation to offset the transportation impacts from large developments in the West Sheridan Industrial area, particularly concerning the installation of traffic signals. Proposed developments should be required to submit a traffic impact analysis (TIA), which will analyze and identify impacts created on the transportation system. Mitigation needed to offset the development's impacts could be provided either as mitigation payments or by the developer completing improvements to affected facilities. Any mitigation made a condition of development approval must be in rough proportion to the impact of the development.

Special Public Works Funds

The State of Oregon through the OEDD supports economic development and job creation by providing grants and loans to construct, upgrade, or repair public infrastructure. Special public works funds (SPWF) have been used to construct capital facilities such as water, sewer, and street improvements. Funding is limited to projects that are associated with economic development of a community and the creation of family-wage jobs. SPWF loans are a funding source that could be worth further investigation by the City for the West Sheridan area.

Transportation System Development Charges

A transportation system development charge (SDC), also referred to as a transportation impact fee (TIF), is a fee charged to new developments to offset a portion of the costs for necessary transportation improvements to the entire system. SDCs are also applicable to water and sewer. The fee is usually based on the number of new trips generated by a development, either during a peak hour or on a daily basis. ORS 223.297 to 223.314 describe the requirements that a SDC must meet and the method of determining the amount of the fee, which is based on the total cost of eligible improvements over the planning timeframe, typically 20 years. Generally, SDCs can only be applied to transportation projects identified in a jurisdiction's capital facilities plans. Developments that are conditioned to improve specific facilities to mitigate the development's impact can receive a credit against their SDC, subject to rules governing which facilities are eligible for SDC credits and the specific components of improvements for which the developer can receive a credit. For example, a developer might be conditioned to widen an adjacent roadway or install a traffic signal at a nearby intersection and could receive a credit for the cost of that work up to the amount of that development's SDC assessment. Should the City elect to enact transportation SDCs, a traffic impact analysis (TIA) should be required of new developments over a certain minimum threshold to assess the impact on existing facilities that need to be upgraded to accommodate the preferred alternative. The City can then collect SDC fees based on the number of trips generated by new developments and use the funds to construct or maintain the roadway system. Creating an SDC program first requires a broad analysis of future transportation system needs, improvement costs, potential development, and the extent to which future development should be responsible for those costs. Considering future development in Sheridan, the biggest potential for development is the West Sheridan study area. Thus, implementing an SDC would be similar in ways to forming an LID, assuming each parcel develops in a similar intensity.

Gasoline Taxes

The state of Oregon currently provides funds from the sale of gasoline, vehicle registration, and weight/mile taxes to provide jurisdiction's funds to maintain and improve street facilities. Gasoline taxes are collected for every gallon purchased by the consumer. An allocation formula based partially on population divides available funds among the state's counties and incorporated cities. State law also allows voters within a jurisdiction to approve additional gasoline taxes for use in funding street maintenance and improvements. A vote of the City's residents would be needed to enact a county-wide increase to the gasoline tax. A local gas tax would not be expected to raise much additional revenue. Unfortunately, this source has limited potential in Sheridan because of relatively few gas stations.

Financing Options

Financing would allow the City to accrue debt in order to fund roadway improvements, which it would then pay back as revenue sources become available. This allows the City to initiate roadway improvements sooner or provide a local match to additional funding sources so that the improved roadway network can be used to attract new businesses and residents that should increase its tax base. There are two main types of financing available: general obligation bonds and revenue bonds. They are listed here primarily for informational purposes, as financing is typically not a practical option for smaller jurisdictions.

General Obligation Bonds

General obligation bonds are bond issues that are repaid by a voter-approved property tax levy. Whether voters approve a property tax levy to fund repayment of the bond depends on whether the project(s) are perceived as being a benefit to a majority of the county residents. A general obligation bond would require an education and outreach effort to inform voters about the general benefit of developing employment uses in the West Sheridan area.

Revenue Bonds

On the other hand, revenue bonds are sold by a jurisdiction and repaid with "revenue" from an enterprise fund. The most common examples are for sewer or water facilities where service rates are used to repay the bond. The bond's rating and interest rate is generally based on the reliability of the revenue source. While revenue bonds could be sold by the City of Sheridan to fund improvements with a portion of vehicle fuel tax revenues used as the method of repayment, it is unlikely that local bonds could raise a substantial amount.

Vehicle Registration Fees

Like gasoline taxes, vehicle registration fees are collected by the state and then distributed to cities and counties. Under state law, counties are allowed to impose an additional vehicle registration surcharge on all vehicles residing within the county. Funds collected are required to be used to either maintain or improve roads within the County. To implement an additional vehicle registration fee within the City of Sheridan would require voter approval and may not be legally feasible. The City would need to develop mechanisms to distribute the funds for city roadway projects. The complications of such an effort outweigh the additional revenue that could be gained.

Property Taxes

Property taxes are often considered as a primary revenue source for raising general funds. Revenue from property taxes can be used to fund transportation improvements through general fund transfers. Property taxes may be permanent (tax base levies), directed to specific projects (bond levies), or for a limited amount of time (serial levies). Tax base levies are the most common type used. Over the last two decades, the use of property taxes for raising general fund revenues has been restricted through a series of ballot initiatives. The first, Measure 5, restricted the non-school tax districts to $10 per $1,000 of assessed value and the total tax to $15 per $1,000 of assessed value. In May 1997, Measure 50 passed, which rolled back property taxes to 1994-95 levels and limited future increases to three percent annually, while requiring that jurisdictions prioritize funding for public education and safety. These restrictions typically decrease the amount of funds available to cities and counties for application to the transportation system. Given that property tax revenues will likely continue to be limited for all governmental uses, transportation projects will have to compete with other government services. The City should not consider property taxes to be a major source of new roadway improvement funds.

Estimated Costs and Potential Funding Sources for other Infrastructure Improvements

Infrastructure for utilities such as domestic water, sanitary sewer, storm sewer, and power sources should be upgraded or installed as part of and in conjunction with the roadway and circulation improvements. Although there are improved water lines within Taylor Street (Chip Yard Road) and Rock Creek Road, the lines within Orchard and Richard Street should be replaced to provide connections to the properties accessed by the proposed street network. Additionally, the line in Rock Creek Road should be extended to Hwy. 18B to provide a looped water system for increased efficiency.

Much the same is true for the sanitary sewer system lines. The city recently upgraded the pump station that serves this section of the city, but the existing lines within Orchard, Richard, and Taylor Streets should be upgraded to serve the new development and connect to the new streets' sewer lines. Gas lines and electrical lines should be installed as well to provide full service for potential industrial development.

Table 10-12 outlines the estimated costs for water, sanitary and storm sewer installation costs within the public right-of-way.

Many of the funding options mentioned previously for roadway construction are applicable to the utility infrastructure costs. Sanitary sewer and storm sewer system development charges can be imposed on new developments. Such costs, however, reduce the fiscal competitive edge that Sheridan offers for industrial development and may not be the optimal funding option.

The Special Public Works Fund (SPWF) through the Oregon Economic and Community Development Department provides funding for a variety of infrastructure improvements that promote economic development. Since Western Yamhill and Sheridan are designated State Enterprise Zones, they have a higher chance of receiving funds from the program. The SPWF is notable because they will fund mitigation for environmental conditions on industrial land. This is critical for the future of this industrial development and should be the next step the city takes in implementing this master plan. Loans are available and grants up to $500,000 are given. The grants are based on the number of jobs created at $5,000 per job. Therefore, 50 newly-created jobs could result in a $250,000 grant.

Community Blocks Grants, Revenue Bonds, Local Improvement Districts, General Obligation Bonds, and Property Taxes are all traditional means of payment for construction of improvement by public entities. The alternative for new road and infrastructure development is via private development. Again, because Sheridan is in a state enterprise zone, there are a number of programs to encourage economic development. A coup of these include the Business Development Fund to assist businesses with up to $500,000 or 40% of project costs, and the Oregon Capital Assistance Program which helps provide low cost loans and funding for business development.

The state also has a Safe Drinking Water Financing Program for public domestic water improvements. The program is a revolving loan fund with special provisions for disadvantaged communities. The City's plan to obtain additional wells could receive funding from this program.

Table 10-12: Summary of Construction Cost Estimates for Associated Infrastructure within Proposed Street Network

Street Name/Description	New water line (ft)	Estimated Cost	New sanitary Sewer (ft)	Estimated Cost	Drainage (ft)	Estimated Cost	Total Estimated Cost
North/South Roadways (listed from west to east)							
Drive 1 (west end, east of Rock Creek Road)	625	$36,000.00	625	$37,000.00	625	$32,200.00	$105,200.00
Taylor Street (Chip Yard Road)	0	$	1,375	$83,000.00	1375	$70,800.00	$154,800.00
Drive 2 (between Taylor & Orchard)	375	$21,000.00	375	$21,600.00	375	$19,400.00	$62,000.00
Orchard Avenue	1500	$87,000.00	1500	$89,250.00	1500	$75,800.00	$252,050.00
Richard Street (Hwy 18B north to Blair Rd.)	1500	$87,000.00	1500	$89,250.00	1500	$75,800.00	$252,050.00
Richard Street (north of Blair Rd.)	375	$21,000.00	375	$21,600.00	375	$19,400.00	$62,000.00
East/West Roadways (listed from south to north)							
North 2 (just north of Hwy 18B)	2400	$139,200.00	2400	$142,800.00	2400	$120,350.00	$402,350.00
North 3 (between airport and railroad)	3250	$189,000.00	3250	$193,850.00	3250	$162,900.00	$545,750.00
Blair Road (extension west of Richard St. to existing Blair Rd.)	2000	$117,000.00	2000	$119,950.00	2000	$101,470	$338,420.00
North 1 (from Blair Rd. to Rock Creek Rd.)	2600	$151,800.00	2600	$178,500.00	2600	$150,030.00	$480,330.00
North 4 (parking assumed one side only)	700	$39,600.00	700	$40,700.00	700	$35,200.00	$115,500.00
North 5 (far north end)	1275	$73,200.00	1,275	$75,150.00	1,275	$63,900.00	$212,250.00
TOTAL Utility Cost		$961,800.00		$1,092,600.00		$927,270.00	$2,981,670.00
Soft Costs at 25 %							$745,400.00
ESTIMATED COST FOR ALL UTILITIES							$3,727,070.00

Chapter 11.0
ACCESS MANAGEMENT STRATEGIES ALONG HWY. 18B

This chapter discusses the status of all existing access points along Hwy. 18B from Rock Creek Road to Richards Street. It will also discuss general access management principles and make recommendations for the future concerning these access driveways, as well as access options for future development based on the Preferred Concept Plan.

General Principles

Access management is a tool used for controlling existing and future points of connection to major transportation facilities. It is intended to maintain or enhance safety and operational performance at less cost than adding capacity to the facility. Adding access points to an arterial can reduce its functional capability, causing delays and increased safety concerns created by turning movements. Specifically, access management is a set of strategies that will minimize the impact of turning movements (i.e., vehicles entering and exiting driveways and side streets) on through-traffic along a major roadway. Controlling these movements increases capacity of the major roadway and lowers the number of potential conflict points where accidents can occur. It also prevents these turning maneuvers and associated vehicle queues from overlapping between two or more access points.

ODOT has an extensive access management program. ODOT controls access based on the type of facility, level of importance (state, regional, or district), and whether the facility is in an urban or rural area. This program, directed toward the management of state facilities, has been used to protect access along state facilities. Implementing these access management measures will improve travel safety for motorists, pedestrians and bicyclists.

Strategies and Techniques

Access Management strategies include using one or more of these following techniques:

- Provide minimum spacing between access points (minor streets and driveways) based on the type of development and arterial classification
- Limit maneuvers at closely spaced driveways
- Consolidate looping/closely-spaced driveways serving individual parcels into a single access point
- Encourage adjoining properties to share a single access point
- Provide driveway access to collector or local roadways rather than state highway where possible
- Construct frontage roads for separation of local and through-traffic
- Provide service driveways/streets to reduce increased vehicle queues onto major roadways
- Provide acceleration, deceleration, and separate left and right turn lanes as warranted
- Use T-intersections with appropriate spacing to create driveway offsets, which reduce the number of conflict points with through traffic
- Place median barriers to control conflicts with left turn movements

Access Standards along Hwy. 18B

Access management standards for all state facilities are included in section 731-054 of the Oregon Administrative Rules (OAR). Applicable standards for Hwy. 18B in Sheridan are shown in ***Table 11-1***. Hwy. 18B is classified as a District Highway within the study area. In the period since the City completed its Transportation System Plan (TSP), the State has updated its access spacing standards. Throughout the majority of the study area, Hwy. 18B, has a posted speed limit of 45 mph (the section of Hwy. 18B just east of Rock Creek Road has a 55 mph speed limit in the eastbound direction). Thus, the basic criterion is that there should be at least 500 feet between access points along Hwy. 18B. (All distances are from center to center of adjacent access points). Deviations from this distance are considered by ODOT on a case-by-case basis based on a traffic analysis. As discussed above, when the study area is built out, we are recommending that the speed limit be lowered to 35 mph. However, this will not significantly affect our evaluation of viable access points along Hwy. 18B as this changes the spacing to 400 feet rather than 500 feet.

Table 11-1: Applicable Access Management Standards for Hwy. 18B

Posted Speed (mph)	Access Management Standard (ft)
> 55	700
50	550
40 & 45	500
30 & 35	400

Review of Access Points along Hwy. 18B

This section reviews the status of all access points along Hwy. 18B and makes recommendations for implementing future access management strategies. The city and these property owners are not required to immediately meet ODOT's Access Management standards or these recommendations. Generally, access management standards do not eliminate existing intersections or driveways, but apply to the creation of new access points as development occurs and modification of existing accesses as redevelopment occurs. As the ongoing redevelopment of West Sheridan occurs, access to Hwy. 18B should meet these guidelines. Where safety has been compromised, as evidenced by an unusually high number of collisions or other difficulties, these access management standards and techniques can be applied using a "staged implementation" approach to improve an existing roadway. A "staged" approach might involve providing shared or consolidated driveway connections, eliminating left turns from selected driveways onto the highway, installing a center median to limit access to right-in/right-out only (RIRO), and ultimately closing the access when it becomes possible to provide an alternate access point.

Table 11-2 presents the distances between the major streets along Hwy. 18B and location of major driveways relative to these streets. It should also be kept in mind that the marketing study (Technical Report 2) concluded that this area is likely to develop in approximately 5-acres sites. A square site this large would be approximately 470 feet x 470 feet, which coincidentally matches ODOT's 500-foot access spacing criteria along Hwy. 18B. Based on the pattern of existing driveways, the location of streets, and the development potential of land on both sides of Hwy. 18B, ***Table 11-2*** outlines the logic for new access points as reflected in the Concept Plans as shown in ***Figures 8-2*** and ***8-3***. Both of these Concept Plans recommend the same roadway network and access scheme for parcels along Hwy. 18B. In general, these plans propose only two new major access points in the long term along Hwy. 18B; one between Rock Creek and Chip Yard Road and one between Chip Yard Road and Orchard Avenue. They also recommend several new east-west connections. As new developments and/or redevelopment occurs, their site plans should be required, if feasible, to share one of the existing access points and/or design the layout of their sites and buildings to accommodate one of the planned future street/access paths.

Figure 11-1a and *11-1b* present the existing patterns of streets and driveways along Hwy. 18B and recommendations for future modifications for this pattern. ***Tables 11-3a*** and *3b* also present data on whether these driveways have ODOT permits and how they should be accommodated in the future. Also, provisions must be made for creating new access points that meet these criteria as parcels fronting Hwy. 18B redevelop. The predominate recommendation is for existing driveways to be consolidated with adjacent driveways, which are often only 100 feet away, and/or for existing driveways to be eliminated where new access driveways can be established to/from an existing or planned minor street.

Table 11-2: Distances between Existing Major Streets along Hwy. 18B and Future Street Recommendations

Street	Approximate Distance between Heading East (Center to Center)	Comments
Cedar Creek	0	1) New N-S access street could be provided between streets; ideal location is about midway 2) Most property on north could redevelop 3) About half of property to south not developed.
Chip Yard Road	1,350 feet	
Orchard Avenue	2,150 feet	1) New N-S access street could be provided between streets; ideal location is about midway, east of Carquest. 2) Most property on north could redevelop 3) Most of property to south and west of Carquest is developed and not likely to redevelop, so providing a new access here would not met spacing. 4) Most of property to south and east of Carquest has limited development potential due to proximity of river. 5) Property just west of Orchard could redevelop and take access from Orchard rather than highway.
Richard Street	1325	1) No new major n-s street is recommended due to limited area to north and constraint of RR track, and existing driveways that will not likely redevelop. 2) Basic strategy should be to condense/merge driveways when opportunities occur.

Table 11-3a: ODOT Access Management (AM) Status along Hwy. 18B (M.P 5.51 - 6.18) and Recommendations for Future

Milepost/Side	Approx Distance to next access	Type of Access	Land Use	ODOT A.M Status	Recommendation for Future with Redevelopment
5.51/ N1	n/a	Public - SW Rock Creek Road		Permitted	
5.53/ S1	190	Private - driveway		Permitted	East part of loop driveway should be eliminated or aligned with Rock Creek
5.57/ N2/3	115	Private - driveway		Unpermitted	Loop driveway should be eliminated and new shared access/cross-circulation be provided
5.59/ S2	25	Private - driveway	Head Start of Willamina Co.	Permitted	Remain, but shared if possible in future
5.61/ N4	75	Private - driveway		Unpermitted	Should be eliminated new access route to new n-s street be provided
5.63/ S3	0	Private - driveway	Erickson Saw Service	Permitted	Should be shared and realigned with new n-s street on north side of Hwy. 18B
5.66/ N5	135	Private - driveway		Permitted	Should be eliminated new access route to new n-s street be provided
5.67/ S4	0	Private - driveway		Unpermitted	Should be combined with S4,S5, and S6, and possibly S3 to align with new n-s street on north side of Hwy. 18b
5.68/ N6	60	Private - driveway		Unpermitted	Should be eliminated new access route to new n-s street be provided
5.68/ S5	0	Private - driveway		Unpermitted	Should be combined with S4,S5, and S6, and possibly S3 to align with new n-s street on north side of Hwy. 18b
5.70/ N7	45	Private - driveway		Unpermitted	Should be eliminated new access route to new n-s street be provided
5.70/ S6	0	Private - driveway		Permitted	Should be combined with S4,S5, and S6, and possibly S3 to align with new n-s street on north side of Hwy. 18b
5.71/ N8	50	Private - driveway		Permitted	Should be eliminated new access route to new n-s street be provided
5.74/ S7	160	Private - driveway	School Bus Depot	Permitted	Remain, but opportunity to combine access with adjacent parcels should be

MATCH LINE (SEE FIGURE 11-1a)

					investigated
N9		Public County Road (Chip Yard Road/Taylor St)		Permitted	
5.77/ N10	0	Private - driveway		Unpermitted	Eliminated and access should be from Chip Yard Road and/or alley road
5.81/ S8	210	Private - driveway	Deer Meadows Asst Living Center	Permitted	Remain, possibly combine with S-9
5.83/ N11	110	Private	"Owners of Pacific Place"	Permitted	Eliminated and access should be from Chip Yard Road and/or alley road
5.85/ S9	110	Private - driveway	Sheridan Country Inn	Permitted	Remain, possibly combine with S-8
5.86/ N12	50	Private - driveway		Unpermitted	Eliminated and access should be from Chip Yard Road and/or alley road
5.92/ N13	320	Private - driveway		Unpermitted	Eliminated and access shared with N14 and/or from alley road
5.93/ N14	50	Private - driveway		Unpermitted	Eliminated and access shared with N13 and/or from alley road
5.94/ S10	50	Public - NW Pacific Place		Permitted	Remain
5.95/ N15	50	Private - driveway	Jon's Automotive Repair	Permitted	Remain/combined with N14
5.96/ S11	50	Private - driveway	Industrial Use	Unpermitted (Wide driveway)	West side closed, and east side align with new n-s street
5.99/ N16	160	Private - driveway	Carquest driveway	Permitted	Relocated to new n-s street to east
6.02/ S12	160	Private - driveway		Permitted	Eliminated and access shared with S11
6.06/ N17	210	Private - driveway		Unpermitted	Closed, and access to west with new n-s street
6.12/ N18	320	Private - driveway		Unpermitted	Eliminated and access should be from Orchard Avenue and/or alley road
6.13/ N19	50	Private - driveway	Sumco Landscaping	Unpermitted (Wide driveway)	Eliminated and access should be from Orchard Avenue and/or alley road
6.18/ N20	260	Public - NW Orchard Street		Permitted	

Table 11-3b: ODOT Access Management (A.M) Status along Hwy. 18B (M.P 6.18 – 6.43) and Future Recommendations

Milepost/ Side	Approx Distance to next access	Type of Access	Land Use	ODOT A.M Status	
6.18/ S13	0	Private - driveway		Unpermitted	Opposite Orchards, could remain and combined with S14 and S15
6.23/ S14	50	Private - driveway		Unpermitted	Combined with S 13, S15, S16, and/or S17
6.25/ S15	110	Private - driveway		Unpermitted	Combined with S 13, S14, S16 and/or S17
6.26/ S16	50	Private - driveway		Unpermitted	Combined with S 13, S14, S15, and/or S17
6.26/ N22	0	Private - driveway		Unpermitted	Close and have access via Orchard or shared with N23
6.28/ S17	110	Private - driveway		Permitted	Shared with adjacent parcels
6.28/ N23	0	Private - driveway	Togstad Rentals	Unpermitted	Remain/share with adjacent parcels
6.30/ S18	110	Private - driveway	Seventh Day Adventist Church	Permitted	Shared with adjacent parcels
6.31/ N24	50	Private - driveway	Industrial	Unpermitted	Combined with N23 or N25
6.32/ S19	50	Private - driveway		Permitted	Combine with S20, S21, S22,
6.32/ N25	0	Private - driveway		Unpermitted	Consolidate with N26, N27, and N28
6.34/ S20	110	Private - driveway		Permitted	Combine with S19, S21, S22,
6.35/ N26	50	Private - driveway		Unpermitted	Consolidate with N25, N27, and N28
6.36/ S21	50	Private - driveway		Unpermitted	Combine with S19, S20, S22,
6.36/ N27	0	Private - driveway		Unpermitted	Consolidate with N, 25, N26, and N28
6.38/ S22	110	Private - driveway		Unpermitted	Combine with S19, S20, S21
6.38/ N28	0	Private - driveway		Unpermitted	Consolidate with N25, N26,and N27
6.41/ S23	110	Private - driveway		Unpermitted (Wide driveway)	Combine with parcels to east
6.43/ N29	110	Public - NW Richard Street		Permitted	

Chapter 12.0

MODIFICATIONS TO CITY CODES AND ORDINANCES

Based on the Concept Plans developed and our discussions with Walt Wendolowski, City Planner for Sheridan, we have identified only two areas of the City's Codes and Ordinances that require revision to implement the Concept Plans and the Access Management Plan.

The first modification is to recognize the proposed Access Management Plan in a formal manner as well as incorporate specific language into the City's Development Code. The code changes will require new developments and redevelopment of existing uses to consider sharing access and/or requiring access to a lower classification roadway. Below is language from DLCD Model Ordinances that has been incorporated into Sheridan's Development Code.

Add to Sheridan Development Code Section:

2.204.08 Access Management

a. The City or other agency with access permit jurisdiction may require as a condition of development approval any of the following:
   1. The closing or consolidation of existing curb cuts or other vehicle access points,
   2. If practicable, the owner/developer may be required to close or consolidate an existing access point as a condition of approving a new access
   3. Recording of reciprocal access easements (i.e., for shared driveways),
   4. Development of a frontage street,
   5. Installation of traffic control devices and/or,
   6. Other mitigation as a condition of granting an access permit, to ensure the safe and efficient operation of the street and highway system.

B. Access to and from off-street parking areas shall not permit backing onto a public street.

C. Subdivisions and Partitions Fronting Onto an Arterial Street
New land divisions fronting onto an arterial street shall be required to provide alleys or secondary (local or collector) streets for access to individual lots. When alleys or secondary streets cannot be constructed due to topographic or other physical constraints, access may be provided by consolidating driveways for clusters of two or more lots (e.g., includes flag lots and mid-block lanes.

D. Special Provisions for All Streets
Direct street access may be restricted for some land uses. Where access consolidation, shared access, and/or access separation greater than that specified by the City, County or ODOT for the purpose of protecting the function, safety and operation of the street is not feasible, then, the permitting agency may allow construction of an access connection along the property line farthest from an intersection. In such cases, directional connections, such as right in/out, right in only, or right out only, may be required. These access points may be considered temporary until an alternative access route is available.

E. Shared Driveways
The number of driveway and private street intersections with public streets shall be minimized by the use of shared driveways with adjoining lots where feasible. The City shall require shared driveways as a condition of land division or site design review, as applicable, for traffic safety and access management purposes in accordance with the following standards:

1. Shared driveways and frontage streets may be required to consolidate access onto a collector or arterial street. When shared driveways or frontage streets are required, they shall be stubbed to adjacent developable parcels to indicate future extension. "Stub" means that a driveway or street temporarily ends at the property line, but may be extended in the future as the adjacent parcel develops. "Developable" means that a parcel is either vacant or it is likely to receive additional development (i.e., due to infill or redevelopment potential).

2. Access easements - (i.e., for the benefit of affected properties) shall be recorded for all shared driveways, including pathways, at the time of final plat approval or as a condition of site development approval.

3. Exception Shared driveways are not required when existing development patterns or physical constraints (e.g., topography, parcel configuration, and similar conditions) prevent extending the street/driveway in the future.

4. Spacing: Driveway, street, and alley access to city streets shall be separated by the following distances:

Street Classification	Access Spacing
Arterial	150 feet (+/-20%)
Collector	75 feet
Local	15 feet

The second reviston and addition to the City Development Code will establish an overlay district for the West Sheridan Industrial area as described below:

West Sheridan Industrial Area Refinement Plan Overlay

Purpose - The West Sheridan Industrial Area is established to:

- Provide for economic development opportunities in an orderly and aesthetically pleasing manner
- Establish design and maintenance standards within the overlay district

The development of such properties will meet the following goals:

1) Create an attractive and functionally efficient business environment
2) Provide a mix of land uses that offer a variety of uses; business offices, industrial and distribution facilities and supportive commercial services
3) Promote the Sheridan Municipal Airport as a commercial aviation center
4) Promote sound economic development

Master Plan - The Airport Overlay District, Section 2.109 is the current document that governs and directs the improvement and growth of the airport's aviation land and facilities. The West Sheridan Industrial Area Refinement Plan will govern land use, development, and permitting procedures for the Airport's non-aviation land. Development within the Industrial Zone must also comply with City of Sheridan, State of Oregon, and Federal requirements for site development and building construction.

Not adopted by Ord 2013-04

Sub-areas within the District

Business Commercial – The Business Commercial sub-district is intended to provide business-related services and commerce.

Industrial - The Industry areas are intended to provide a suitable location for manufacturing, assembly, fabrication, processing, packing, storage and wholesale and distribution activities for the manufactured product.

Where these regulations apply - These regulations apply to all areas defined in the West Sheridan Industrial Area Refinement Plan Document.

Permitted Uses

Allowed Use - All uses allowed in Section 2.106.02 for the Industrial Sub-area and all the allowed uses in Section 2.105.02 A. – F. for the Business/Commercial sub-area.

Conditional Uses - Conditional uses are uses not listed.

Uses Not Listed - Uses not categorized are subject to Planning Commission interpretation. Appeals of decision may be made to the City Council.

General Restricted Activities

- Maximum noise levels shall not exceed the City standards
- Vibration discernable at the property line without the use of measuring instruments is prohibited
- Air emissions shall not exceed Federal air quality standards
- Emissions of odorous gases or matter beyond the property of the industrial activity are prohibited
- Any activity that interferes with aviation communications and navigation are prohibited

Restricted Activities in the Business/Commercial Sub-district:

1. Odors, noise, vibrations or other emissions are controlled within the confines of the building or structure
2. Do not entail outdoor storage of raw materials or finished products
3. Do not entail movement of heavy equipment on and off the site, except truck deliveries
4. Do not involve bringing live animals or the waste or by product of dead animals to the site
5. Do not involve outdoor testing of products or processes on the site
6. Do not involve highly combustible, explosive or hazardous materials or waste
7. Examples of uses which normally meet all of the above characteristics include but are not limited to: printing, publishing and allied arts, communications equipment, electronic components, measuring, auto repair and parts, analyzing and controlling instruments manufacturing

Development Standards - All requirements contained in this section represent minimum standards. To insure a prompt and efficient review process, a check list of design standards will be used to insure compliance with design requirements. The check list application, along with a Site Plan application, will be processed by the City Planner for approval or comment. Complying applications will be forwarded to the building permit and engineering review process.

Temporary Structures

1. Temporary buildings or other temporary structures shall not be allowed within the Industrial Park
2. Construction trailers and construction related temporary buildings will be allowed on site during construction periods
3. The structures must be removed within 30 days of construction completion
4. Temporary construction structures shall be located as inconspicuously as possible and shall cause no inconvenience to owners and occupants of neighboring parcels

Construction Activities

1. Construction activities shall not disrupt business and the operations of adjacent parcels
2. Construction activity shall not block access to any other parcel
3. The developer shall be responsible for the repair of any street, public feature, or adjoining property damaged during the course of construction
4. The developer is responsible for street cleaning necessitated by construction activity
5. The developer shall maintain a dust suppression program, water erosion prevention measures and wind erosion stabilization measures

Site Development Requirements

1. ***Building Setbacks***
   a. All buildings are to be set back from the property line to insure that adequate space is provided between buildings for safety, screening, and visual appeal. Setbacks vary from sub-district to sub-district. Table 2 indicates the requirements for each sub-district.
   b. All setback areas, except those where parking is allowed and exists, shall be landscaped.
   c. Landscape areas within the setback can be plant material or attractive hard-scape for pedestrian use.
   d. Setbacks are measured from the property line.

Table 12-1 -Site Development Requirements

	Business / Commercial	Industrial
Minimum Area (in SF)	NA	20,000
Minimum Lot Dimensions		
Width	60'	60'
Depth	60'	100'
Building Setback		
Front	30'	20'
Rear	10'	10'
Side	10'	10'
Corner	20'	10'
Maximum Building Height	45'	60'
Parking & Loading Setback		
Front	5'	5'
Rear	5'[1]	5'[2]
Side	5'[3]	5'[4]
Corner	5'	5'
Minimum Landscape Area	10%	5%

1) If parking and loading is shared between two rear lot lines then no parking set back is required
2) If parking and loading is shared between two rear lot lines then no parking set back is required
3) If parking and loading is shared between two side lot lines then no parking set back is required
4) If parking and loading is shared between two side lot lines then no parking set back is required

2. *Parking Setbacks from Buildings* - All parking will be set back 5 feet from the front, side or rear of buildings in the Business/Commercial sub-districts. The setback area shall have landscape material or pedestrian amenities.
3. *Buffers between Sub Districts* - Property that abuts a less intense sub-district will provide a 10-foot wide landscape buffer.
4. *Landscape Area Requirement* - All unpaved property on developed sites will be landscaped. Bare ground is not acceptable.

Building Design

1. All buildings in the **Business Commercial Sub-district** shall be built to contemporary Business standards as found in competitive locations.
2. Buildings shall be designed to be visually interesting.
3. The use of canopies, parapets, fascias and cornices shall indicate pedestrian entry areas. Such features shall be in proportion to the rest of the building.
4. The front façade shall have more than one color or material.

Building Materials in the Business Commercial Sub-district - Buildings shall be constructed from a combination of tilt-up concrete, brick, concrete block, metal, and glass.

1. Tilt-up Concrete Buildings: When used as the sole material, tilt-up panels facing a public street or occupied neighboring building shall be punctuated by window and door openings.
2. Masonry Block/Brick Buildings: Brick and split face masonry block should use coordinating colors and textures for interest and variety in the street facing facades.
3. Metal Buildings:
    a. The metal building façades shall incorporate concrete or masonry block wainscoting or walls in the Commercial / Business Sub-District.
    b. Acceptable exterior metal walls and roof panels shall be anodized aluminum, weathering steel, and galvanized steel.
    d. Galvanized and coated steel shall have factory applied baked paint finish, resistant to chalking, fading and failure. Exterior finishes shall not cause glare.
    e. Metal panels shall have sufficient gauge and quality to ensure a rigid surface.
    f. Structural members and fastening devises shall be on the interior.

Circulation, Parking and Loading - The site design for each lot will comply with the Development Standards outlined in this document and Section 2.205 of the City of Sheridan development.

1. *Pedestrian Circulation*
    a. Safe, direct, and all-weather access will be provided throughout the development.
    b. Materials used for pedestrian paths and sidewalks shall be of a contrasting material when adjacent to paved surfaces and separated by a concrete curb.
    c. All pedestrian walkways will be accessible to people with disabilities.
    d. Pedestrian crosswalks shall be clearly marked and meet the needs of individuals with disabilities.
    e. Clear and direct pedestrian access shall be provided from the public right-of-way to the main entries of all buildings.

2. *Vehicular Access*
    a. Vehicular Access shall be provided to each lot. Shared driveways between abutting lots shall be employed where feasible.
    b. No more than one curb cut per lot will be allowed without Planning Commission approval and demonstration of need.
3. *Parking* - The number and size of parking stalls for employees and visitors will be determined on a case-by-case basis, using the City of Sheridan Section 2.205 as a guide, and will meet the following standards:
    a. Rows of parking stalls shall be separated from drive aisles with a curbed landscape island at least 8-feet wide.
4. *Loading and Service Access* - The intent of this section is to reduce and mitigate direct visibility of service and loading activities.
    a. Business/Commercial loading will located in the side or rear yard, or if in the front yard, shall be screened from the public Right of Way.
    b. Loading facilities should be located so that they are screened from less intense zones or uses.

Landscaping – All previous surfaces shall be landscaped with healthy and well-maintained plant materials in a manner consistent with and complimentary to the native landscape. All landscaped surfaces shall be properly maintained and contribute to the visual appeal of the development and surroundings.

Buffers

1. Parking areas shall be visually screened from public streets by vegetation or attractive walls. A combination of hedges, informal screens, and mounds shall be employed to perform this function. Hedging should be no higher than 42" to ensure visual access to the building for security purposes. Taller shrubs and trees are allowed sporadically along the frontage.
2. Plant material should be appropriate to the climate.
3. The landscape buffer for loading and service areas shall be 5-feet minimum.

Parking Lot Islands - All islands shall be landscaped with ground covers and shrubs. Deciduous shade trees can be installed in islands to reduce heat and reflection where space allows. Islands will be edged with a 6" concrete curb.

Trash and Outdoor Storage

1. Materials, supplies or equipment shall not be stored outside within the Business / Commercial sub-district unless screened from a neighboring parcel or street.
2. Waste and recycling dumpsters shall be screened from view on all sides by durable, high quality and sight obscuring fence, at least six feet high.

Fencing and Walls - Fencing and walls are allowed if they are attractive and placed appropriately. They are not allowed in the front yards in the Business/Commercial Sub-district.

Signs - Signs shall conform to the provisions of Section 2.208 of the Sheridan Development Code and signs may not be used for advertising of other businesses.

TECHNICAL APPENDIX

Attached is the Technical Appendix for CTS Engineers traffic impact study for Project OR04.065.T01, Sheridan TRP. It includes the following information:

1) Trip Generation Worksheets

2) Right and Left Turn Lanes Warrant Analysis Worksheet for Concept Plan-II

3) Traffic Signal Warrant Analysis Worksheets Concept Plan-II

4) Capacity Worksheets for Future 2025 Background Traffic Volumes

5) Capacity Worksheets for Total Future 2025 Traffic Volumes with Buildout of Concept Plan-II (100% Future Volumes Without Improvement)

6) Capacity Worksheets for Total Future 2025 Traffic Volumes with Buildout of Concept Plan-II (75% Future Volumes Without Improvement)

7) Capacity Worksheets for Total Future 2025 Traffic Volumes with Buildout of Concept Plan-II (100% Future Volumes With Improvement)

8) Capacity Worksheets for Total Future 2025 Traffic Volumes with Buildout of Concept Plan-II (75% Future Volumes With Improvement)

9) Synchro/ Simtraffic Analysis Worksheets for Concept Plan-II (100% Future Volumes)

10) Synchro/ Simtraffic Analysis Worksheets for Concept Plan-II (75% Future Volumes)

11) Synchro/ Simtraffic Analysis Worksheets for Concept Plan-II (75% Future Volumes at the intersection of Hwy 18B/ Bridge ST With/out EB and WB left turns)

Trip Generation Worksheets for Concept Plan-II (With Airport)

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TRIP GENERATION WORKSHEET
AVERAGE RATES

Development:
Size: Acres

ITE Land Use Code: Industrial Park, Code 130 (7th Edition)

Variable: Per Acre (A)

Total Weekday Trips
T = 63.11x(A)

	Enter	Exit	Total
Vehicle Trips	2077	2076	4153
Site Distribution	50%	50%	100%

Weekday AM Peak Hour Trips
T = 8.55x(A)

	Enter	Exit	Total
Vehicle Trips	467	96	563
Site Distribution	83%	17%	100%

Weekday PM Peak Hour Trips
T= 8.84x(A)

	Enter	Exit	Total
Vehicle Trips	122	460	582
Site Distribution	21%	79%	100%

TRIP GENERATION WORKSHEET

AVERAGE RATES

Development:
Size: Acres

iTE Land Use Code: Industrial Park, Code 130 (7th Edition)

Variable: Per Acre (A)

Total Weekday Trips
T = 63.11x(A)

	Enter	Exit	Total
Vehicle Trips	439	438	877
Site Distribution	50%	50%	100%

Weekday AM Peak Hour Trips
T = 8.55x(A)

	Enter	Exit	Total
Vehicle Trips	99	20	119
Site Distribution	83%	17%	100%

Weekday PM Peak Hour Trips
T= 8.84x(A)

	Enter	Exit	Total
Vehicle Trips	26	97	123
Site Distribution	21%	79%	100%

TRIP GENERATION WORKSHEET
AVERAGE RATES

Development:
Size: Acres

ITE Land Use Code: Industrial Park, Code 130 (7th Edition)

Variable: Per Acre (A)

Total Weekday Trips
T = 63.11x(A)

	Enter	Exit	Total
Vehicle Trips	919	918	1837
Site Distribution	50%	50%	100%

Weekday AM Peak Hour Trips
T = 8.55x(A)

	Enter	Exit	Total
Vehicle Trips	207	42	249
Site Distribution	83%	17%	100%

Weekday PM Peak Hour Trips
T= 8.84x(A)

	Enter	Exit	Total
Vehicle Trips	54	203	257
Site Distribution	21%	79%	100%

TRIP GENERATION WORKSHEET

AVERAGE RATES

Development:
Size: Acres

ITE Land Use Code: Industrial Park, Code 130 (7th Edition)

Variable: Per Acre (A)

Total Weekday Trips
T = 63.11x(A)

	Enter	Exit	Total
Vehicle Trips	234	233	467
Site Distribution	50%	50%	100%

Weekday AM Peak Hour Trips
T = 8.55x(A)

	Enter	Exit	Total
Vehicle Trips	52	11	63
Site Distribution	83%	17%	100%

Weekday PM Peak Hour Trips
T= 8.84x(A)

	Enter	Exit	Total
Vehicle Trips	14	51	65
Site Distribution	21%	79%	100%

TRIP GENERATION WORKSHEET
AVERAGE RATES

Development:
Size: Acres

ITE Land Use Code: Industrial Park, Code 130 (7th Edition)

Variable: Per Acre (A)

Total Weekday Trips
T = 63.11x(A)

	Enter	Exit	Total
Vehicle Trips	369	369	738
Site Distribution	50%	50%	100%

Weekday AM Peak Hour Trips
T = 8.55x(A)

	Enter	Exit	Total
Vehicle Trips	83	17	100
Site Distribution	83%	17%	100%

Weekday PM Peak Hour Trips
T= 8.84x(A)

	Enter	Exit	Total
Vehicle Trips	22	81	103
Site Distribution	21%	79%	100%

TRIP GENERATION WORKSHEET
AVERAGE RATES

Development:
Size: Acres

ITE Land Use Code: Industrial Park, Code 130 (7th Edition)

Variable: Per Acre (A)

Total Weekday Trips
T = 63.11x(A)

	Enter	Exit	Total
Vehicle Trips	246	246	492
Site Distribution	50%	50%	100%

Weekday AM Peak Hour Trips
T = 8.55x(A)

	Enter	Exit	Total
Vehicle Trips	56	11	67
Site Distribution	83%	17%	100%

Weekday PM Peak Hour Trips
T= 8.84x(A)

	Enter	Exit	Total
Vehicle Trips	14	55	69
Site Distribution	21%	79%	100%

TRIP GENERATION WORKSHEET
AVERAGE RATES

Development:
Size: Acres

ITE Land Use Code: Industrial Park, Code 130 (7th Edition)

Variable: Per Acre (A)

Total Weekday Trips
T = 63.11x(A)

	Enter	Exit	Total
Vehicle Trips	202	202	404
Site Distribution	50%	50%	100%

Weekday AM Peak Hour Trips
T = 8.55x(A)

	Enter	Exit	Total
Vehicle Trips	46	9	55
Site Distribution	83%	17%	100%

Weekday PM Peak Hour Trips
T= 8.84x(A)

	Enter	Exit	Total
Vehicle Trips	12	45	57
Site Distribution	21%	79%	100%

TRIP GENERATION WORKSHEET

AVERAGE RATES

Development:
Size: Acres

ITE Land Use Code: Industrial Park, Code 130 (7th Edition)

Variable: Per Acre (A)

Total Weekday Trips
T = 63.11x(A)

	Enter	Exit	Total
Vehicle Trips	152	151	303
Site Distribution	50%	50%	100%

Weekday AM Peak Hour Trips
T = 8.55x(A)

	Enter	Exit	Total
Vehicle Trips	34	7	41
Site Distribution	83%	17%	100%

Weekday PM Peak Hour Trips
T= 8.84x(A)

	Enter	Exit	Total
Vehicle Trips	9	33	42
Site Distribution	21%	79%	100%

TRIP GENERATION WORKSHEET

AVERAGE RATES

Development:
Size: Acres

ITE Land Use Code: Industrial Park, Code 130 (7th Edition)

Variable: Per Acre (A)

Total Weekday Trips
T = 63.11x(A)

	Enter	Exit	Total
Vehicle Trips	205	205	410
Site Distribution	50%	50%	100%

Weekday AM Peak Hour Trips
T = 8.55x(A)

	Enter	Exit	Total
Vehicle Trips	46	10	56
Site Distribution	83%	17%	100%

Weekday PM Peak Hour Trips
T= 8.84x(A)

	Enter	Exit	Total
Vehicle Trips	12	45	57
Site Distribution	21%	79%	100%

TRIP GENERATION WORKSHEET

RATES

Development:
Size: GSF (2.5 Acres)

ITE Land Use Code: Shopping Center, Code 820 (7th Edition)

Variable: Per 1,000 GSF (G)

Total Weekday Trips

R = 42.94 x (G)

		Enter	Exit	Total
Vehicle Trips		701	702	1403
Site Distribution		50%	50%	100%
0%	Pass-by Trips	0	0	0
0%	Diverted Trips	0	0	0
100%	New Trips	701	702	1403

Weekday AM Peak Hour Trips

R = 1.03 x (G)

		Enter	Exit	Total
Vehicle Trips		21	13	34
Site Distribution		61%	39%	100%
0%	Pass-by Trips	0	0	0
0%	Diverted Trips	0	0	0
100%	New Trips	21	13	34

Weekday PM Peak Hour Trips

R = 3.75 x (G)

		Enter	Exit	Total
Vehicle Trips		59	64	123
Site Distribution		48%	52%	100%
0%	Pass-by Trips	0	0	0
0%	Diverted Trips	0	0	0
100%	New Trips	59	64	123

TRIP GENERATION WORKSHEET

RATES

Development:
Size: GSF (7.7 Acres)

ITE Land Use Code: Shopping Center, Code 820 (7th Edition)

Variable: Per 1,000 GSF (G)

Total Weekday Trips

R = 42.94 x (G)

		Enter	Exit	Total
Vehicle Trips		1404	1404	2808
Site Distribution		50%	50%	100%
0%	Pass-by Trips	0	0	0
0%	Diverted Trips	0	0	0
100%	New Trips	1404	1404	2808

Weekday AM Peak Hour Trips

R = 1.03 x (G)

		Enter	Exit	Total
Vehicle Trips		41	26	67
Site Distribution		61%	39%	100%
0%	Pass-by Trips	0	0	0
0%	Diverted Trips	0	0	0
100%	New Trips	41	26	67

Weekday PM Peak Hour Trips

R = 3.75 x (G)

		Enter	Exit	Total
Vehicle Trips		118	127	245
Site Distribution		48%	52%	100%
0%	Pass-by Trips	0	0	0
0%	Diverted Trips	0	0	0
100%	New Trips	118	127	245

TRIP GENERATION WORKSHEET

RATES

Development:
Size: GSF (18.5 Acres)

ITE Land Use Code: Shopping Center, Code 820 (7th Edition)

Variable: Per 1,000 GSF (G)

Total Weekday Trips

R = 42.94 x (G)

		Enter	Exit	Total
Vehicle Trips		3374	3374	6748
Site Distribution		50%	50%	100%
0%	Pass-by Trips	0	0	0
0%	Diverted Trips	0	0	0
100%	New Trips	3374	3374	6748

Weekday AM Peak Hour Trips

R = 1.03 x (G)

		Enter	Exit	Total
Vehicle Trips		99	63	162
Site Distribution		61%	39%	100%
0%	Pass-by Trips	0	0	0
0%	Diverted Trips	0	0	0
100%	New Trips	99	63	162

Weekday PM Peak Hour Trips

R = 3.75 x (G)

		Enter	Exit	Total
Vehicle Trips		283	306	589
Site Distribution		48%	52%	100%
0%	Pass-by Trips	0	0	0
0%	Diverted Trips	0	0	0
100%	New Trips	283	306	589

Right and Left Turn Lanes Warrant Analysis Worksheets

Concept Plan-II (With Airport)

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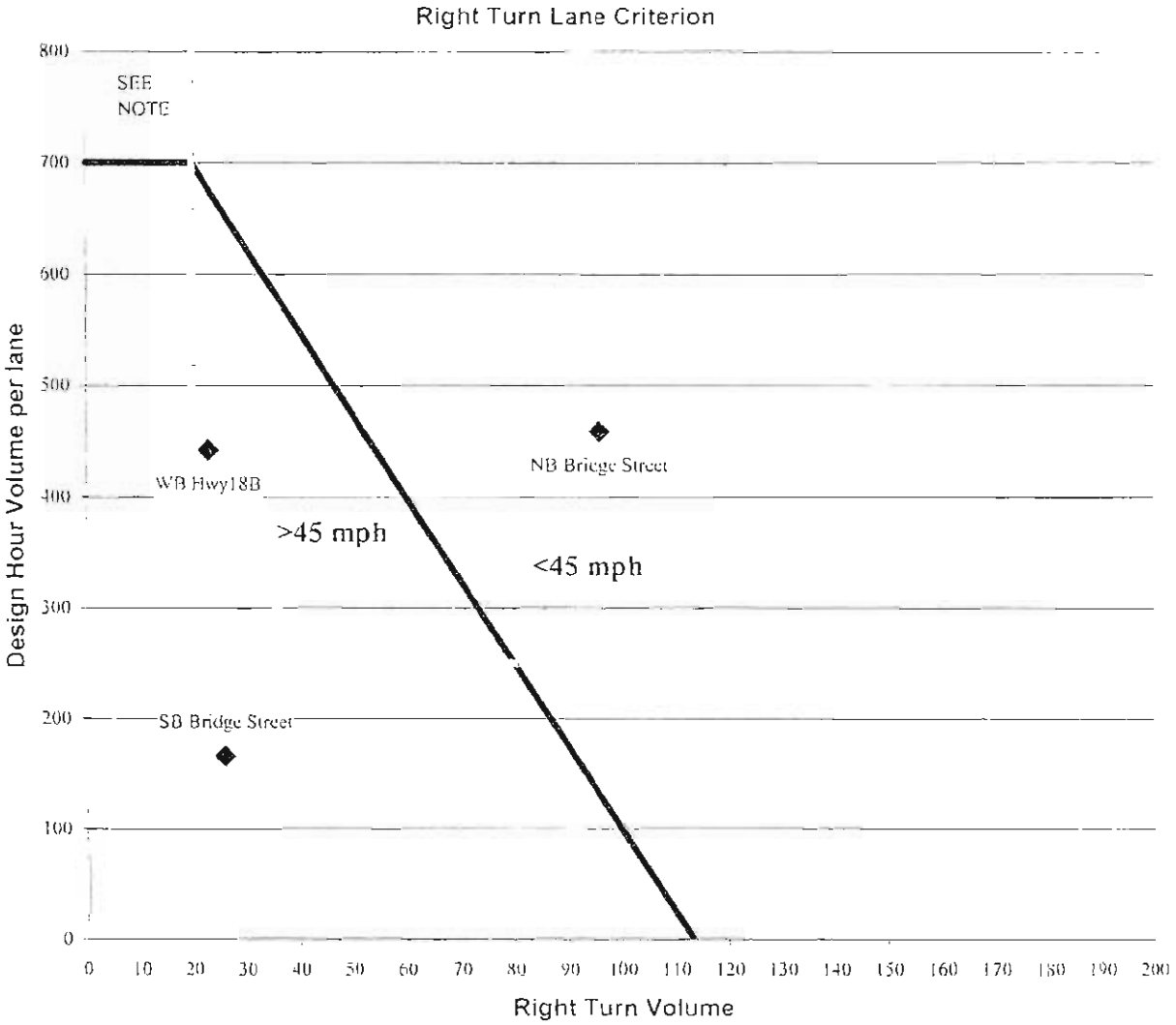

NOTE: If there is no right turn lane, a shoulder needs to be provided.
If this intersection is in a rural area and is connected to a public street, a right turn lane is needed.

Right Turn Criterian

Approach	Right-Turn Volume (vph)	Design Hour Volume (vph per Lane)	Minimum Criteria (Right Turns-vph)	Criterion Met
NB Bridge Street	96	459	52	YES
SB Bridge Street	26	166	91	NO
EB Hwy18B	483	1044	15	YES
WB Hwy18B	23	442	54	NO

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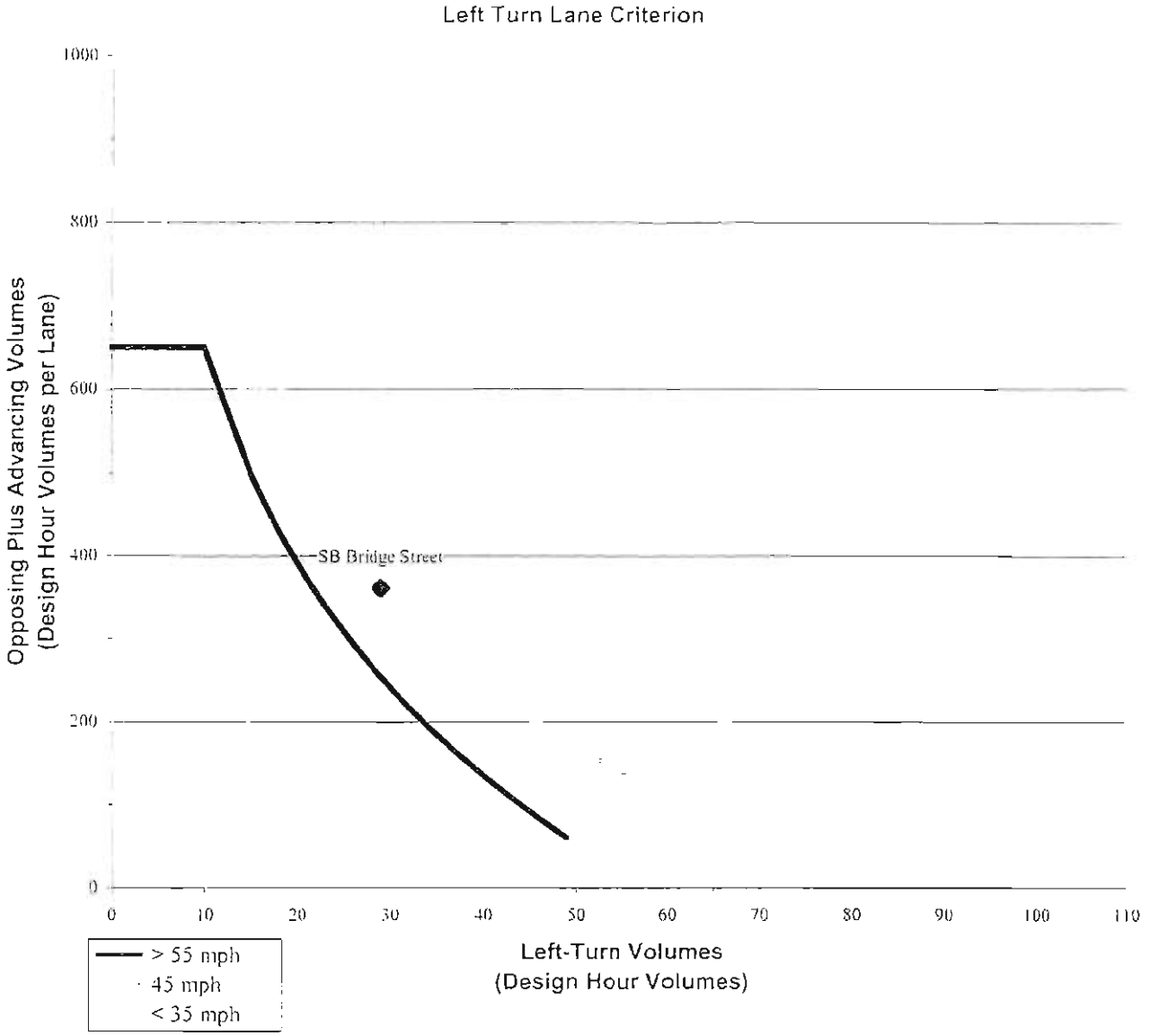

Left Turn Criterion

Approach	Left Turns (vph)	Opposing Plus Advancing Volumes (vph/Lane)	Minimum Criteria (Left Turns-vph)	Criterion Met
NB Bridge Street	264	596	18	Yes
SB Bridge Street	29	361	39	Yes for Speed > 35 mph
EB Hwy18B	31	1400	1	YES
WB Hwy18B	86	1455	1	YES

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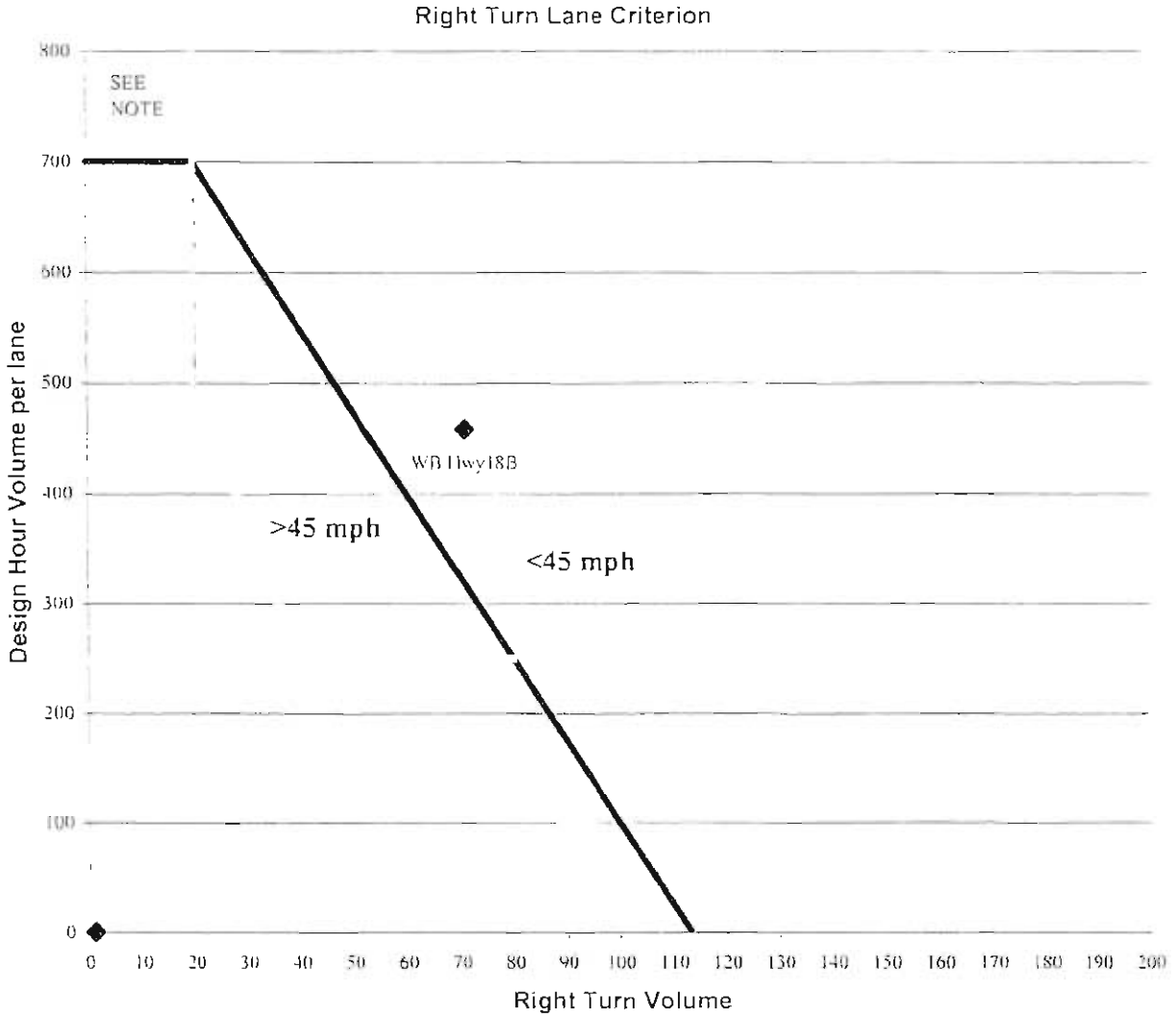

NOTE: If there is no right turn lane, a shoulder needs to be provided.
If this intersection is in a rural area and is connected to a public street, a right turn lane is needed.

Right Turn Criterian

Approach	Right-Turn Volume (vph)	Design Hour Volume (vph per Lane)	Minimum Criteria (Right Turns-vph)	Criterion Met
WB Hwy18B	71	458	23	YES

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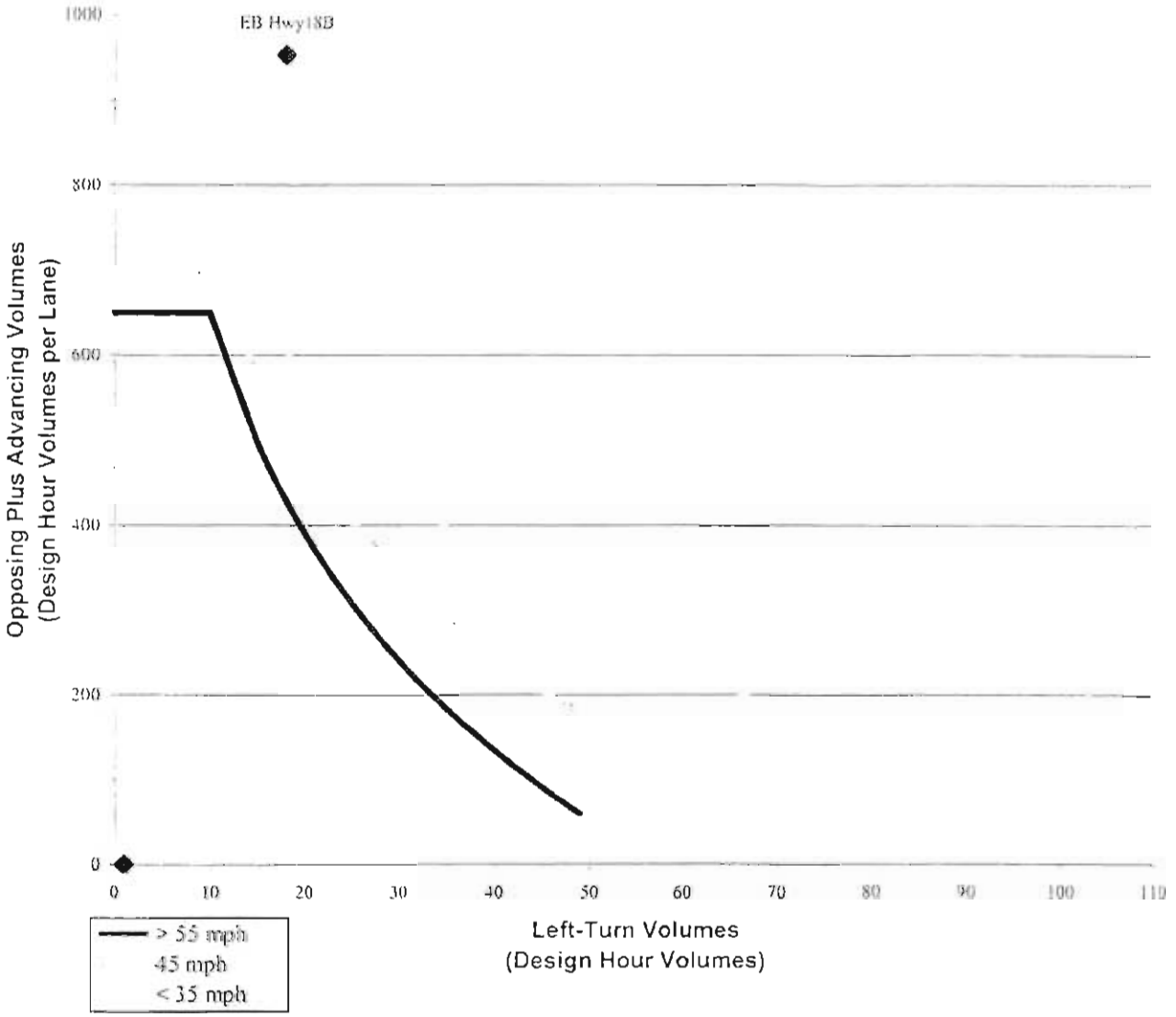
Left Turn Lane Criterion



Left Turn Criterion

Approach	Left Turns (vph)	Opposing Plus Advancing Volumes (vph/Lane)	Minimum Criteria (Left Turns-vph)	Criterion Met
EB Hwy18B	18	953	5	YES

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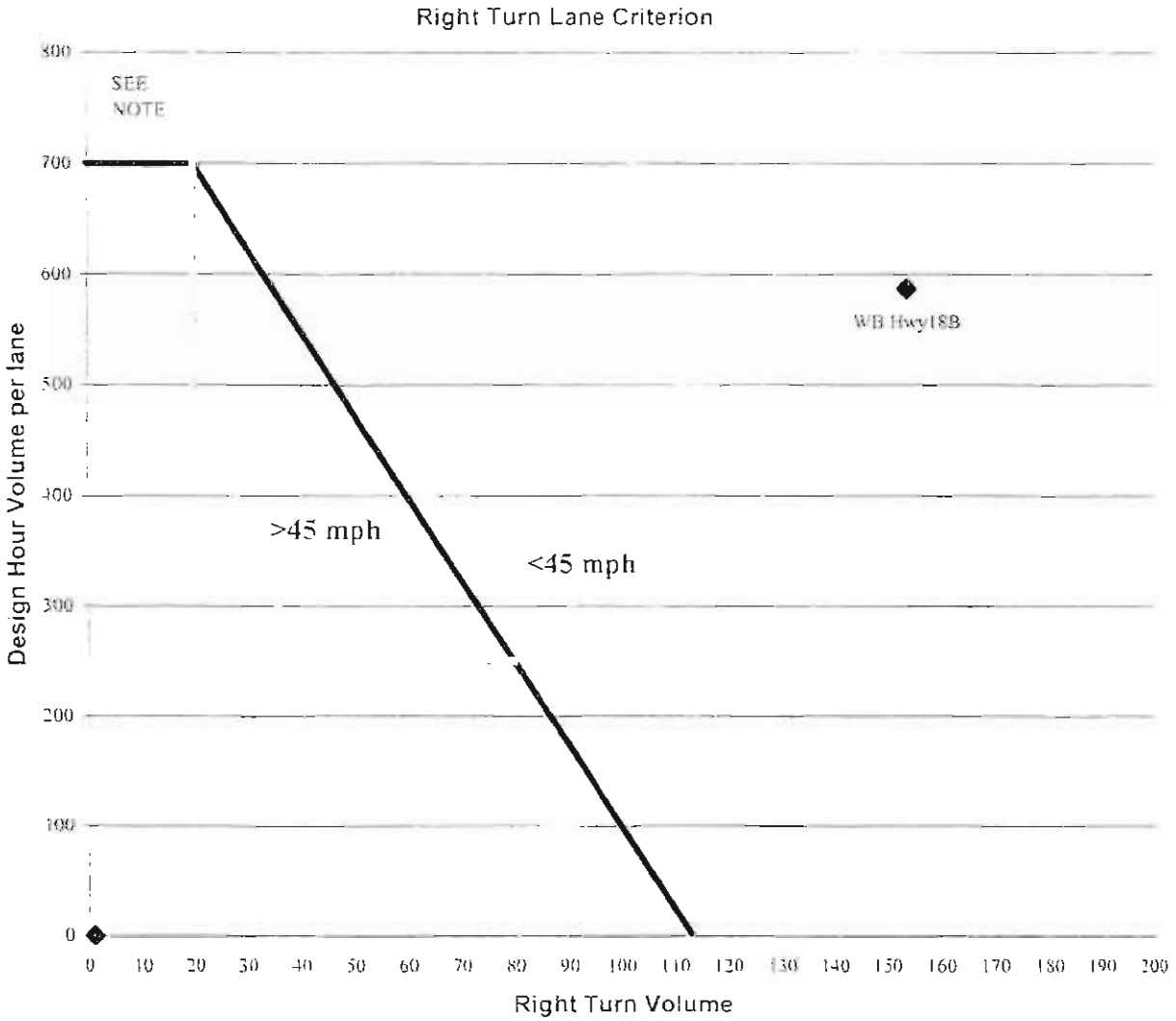


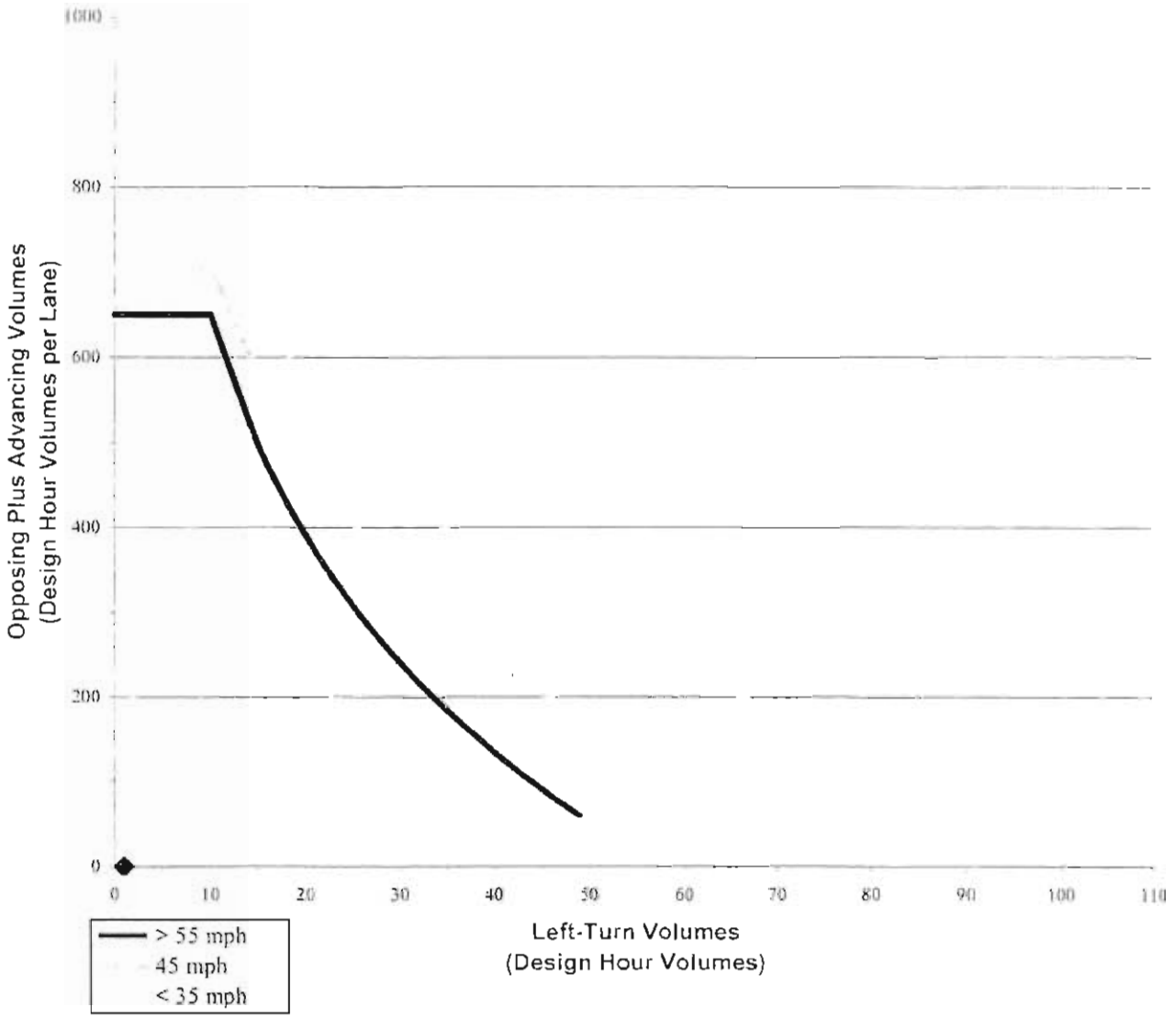
NOTE: If there is no right turn lane, a shoulder needs to be provided.
If this intersection is in a rural area and is connected to a public street, a right turn lane is needed.

Right Turn Criterian

Approach	Right-Turn Volume (vph)	Design Hour Volume (vph per Lane)	Minimum Criteria (Right Turns-vph)	Criterion Met
WB Hwy18B	154	587	15	YES

CTS ENGINEERS

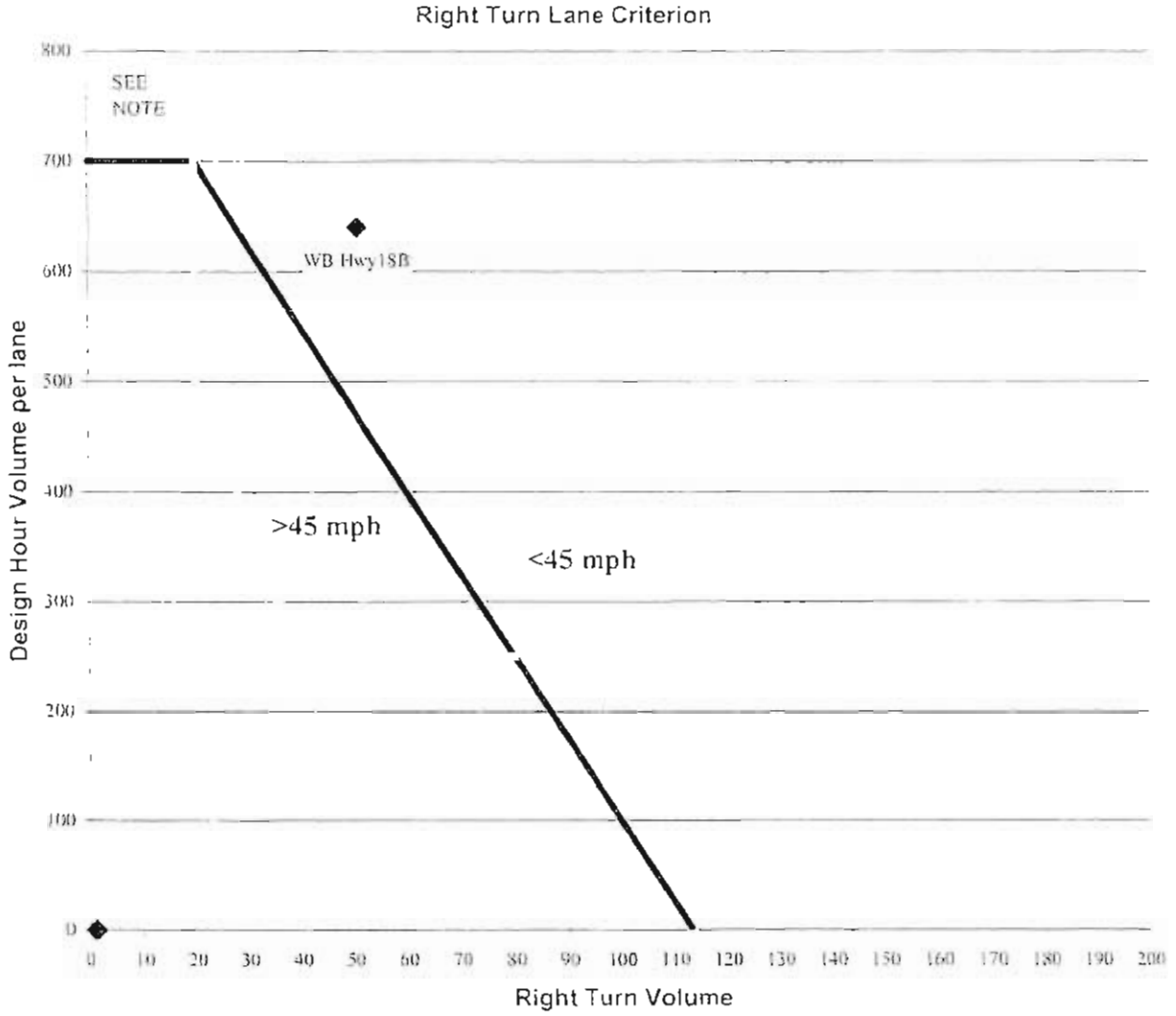
Left Turn Lane Criterion



Left Turn Criterion

Approach	Left Turns (vph)	Opposing Plus Advancing Volumes (vph/Lane)	Minimum Criteria (Left Turns-vph)	Criterion Met
EB Hwy18B	22	1274	2	YES

CTS ENGINEERS



NOTE: If there is no right turn lane, a shoulder needs to be provided.
If this intersection is in a rural area and is connected to a public street, a right turn lane is needed.

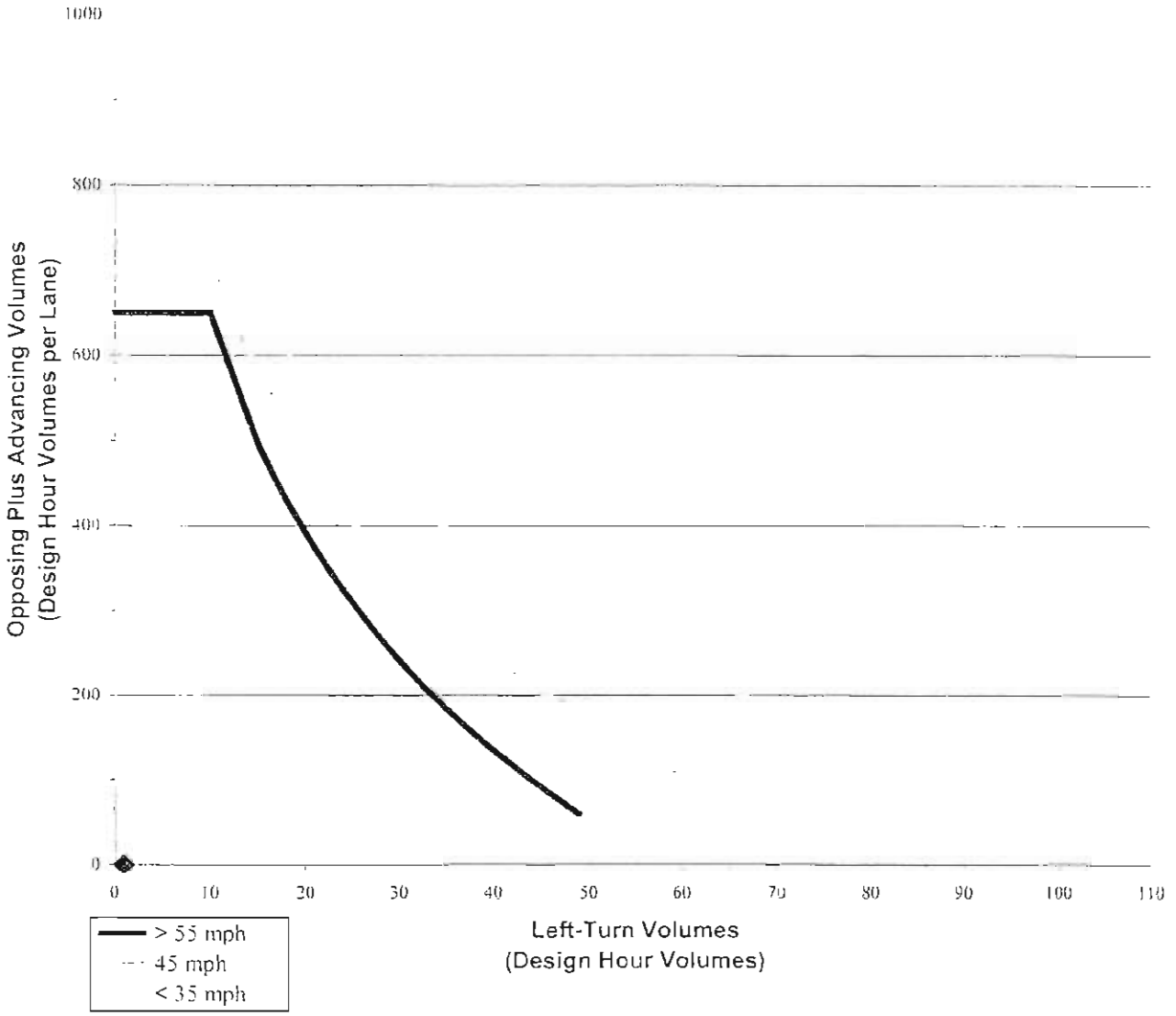
Right Turn Criterian

Approach	Right-Turn Volume (vph)	Design Hour Volume (vph per Lane)	Minimum Criteria (Right Turns-vph)	Criterion Met
WB Hwy18B	51	640	15	YES

CTS ENGINEERS

Sheridan TRP OR04.065.T01
June 29, 2005
Hwy 18B / Richard Street
Total Future 2025 (75%)

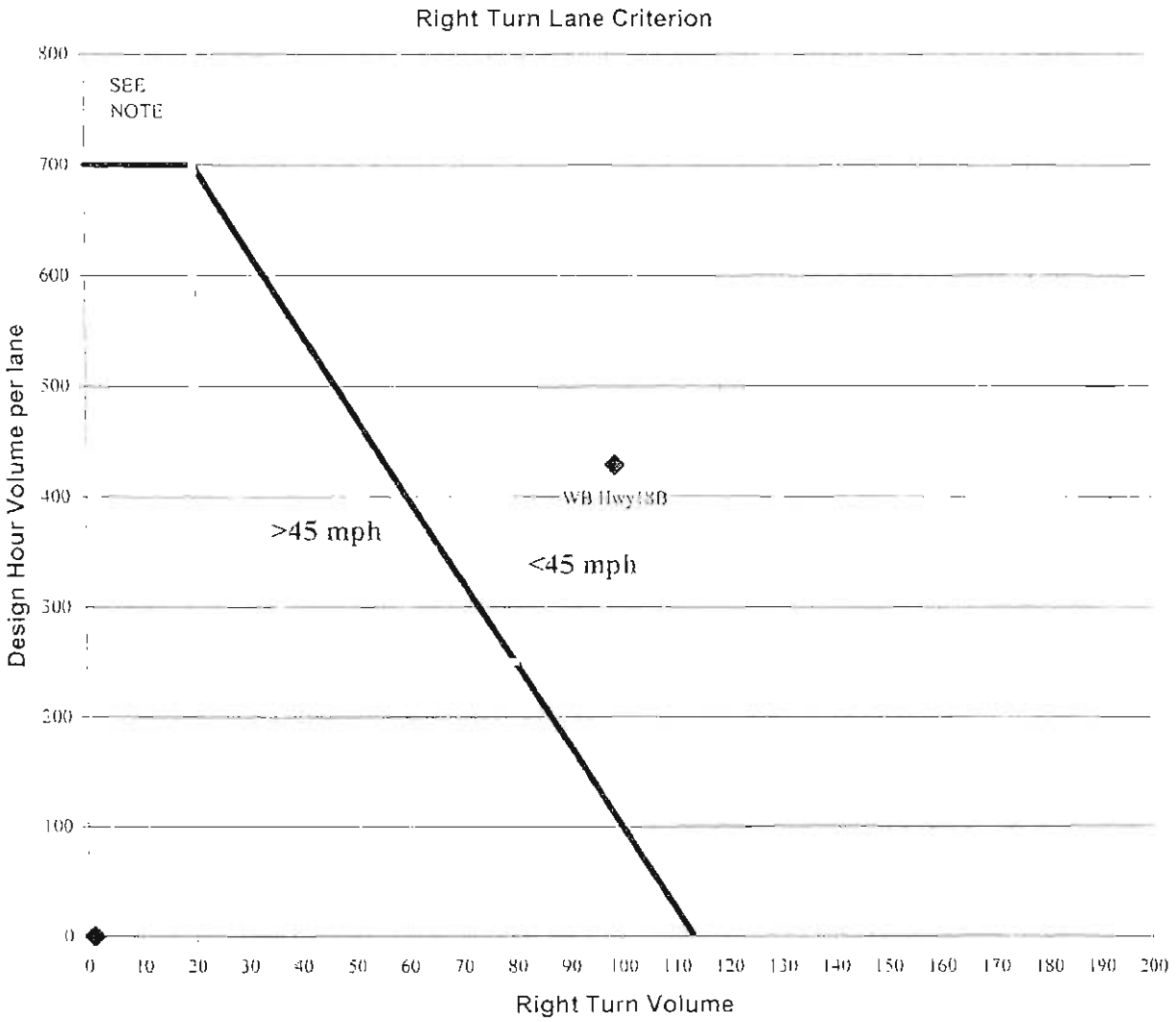
Left Turn Lane Criterion



Left Turn Criterion

Approach	Left Turns (vph)	Opposing Plus Advancing Volumes (vph/Lane)	Minimum Criteria (Left Turns-vph)	Criterion Met
EB Hwy18B	11	1608	1	YES

CTS ENGINEERS



NOTE: If there is no right turn lane, a shoulder needs to be provided.
If this intersection is in a rural area and is connected to a public street, a right turn lane is needed.

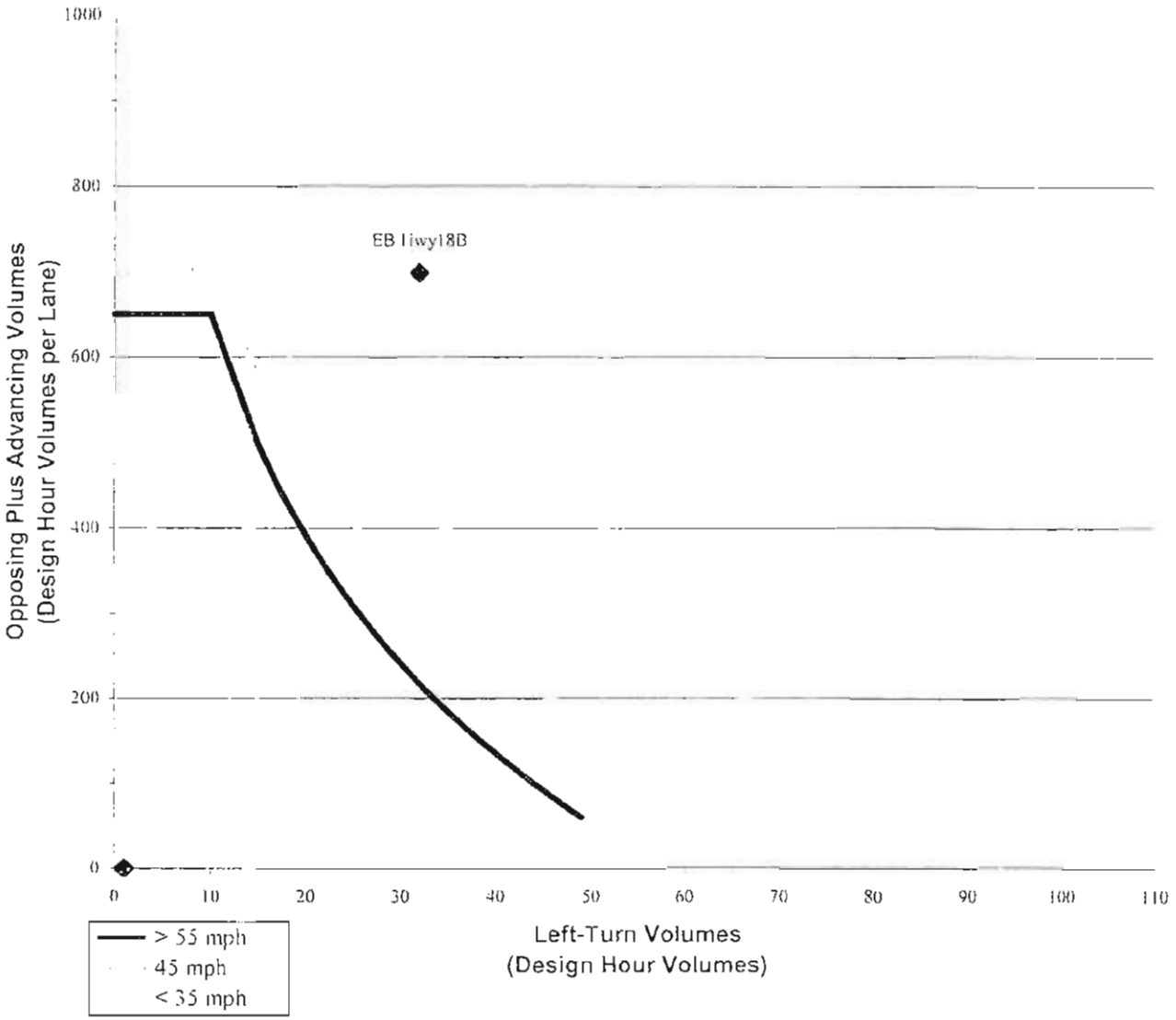
Right Turn Criterian

Approach	Right-Turn Volume (vph)	Design Hour Volume (vph per Lane)	Minimum Criteria (Right Turns-vph)	Criterion Met
WB Hwy18B	99	429	26	YES

CTS ENGINEERS

Sheridan TRP OR04.065.T01
June 29, 2005
Hwy 18B / Rock Creek RD
Total Future 2025 (75%)

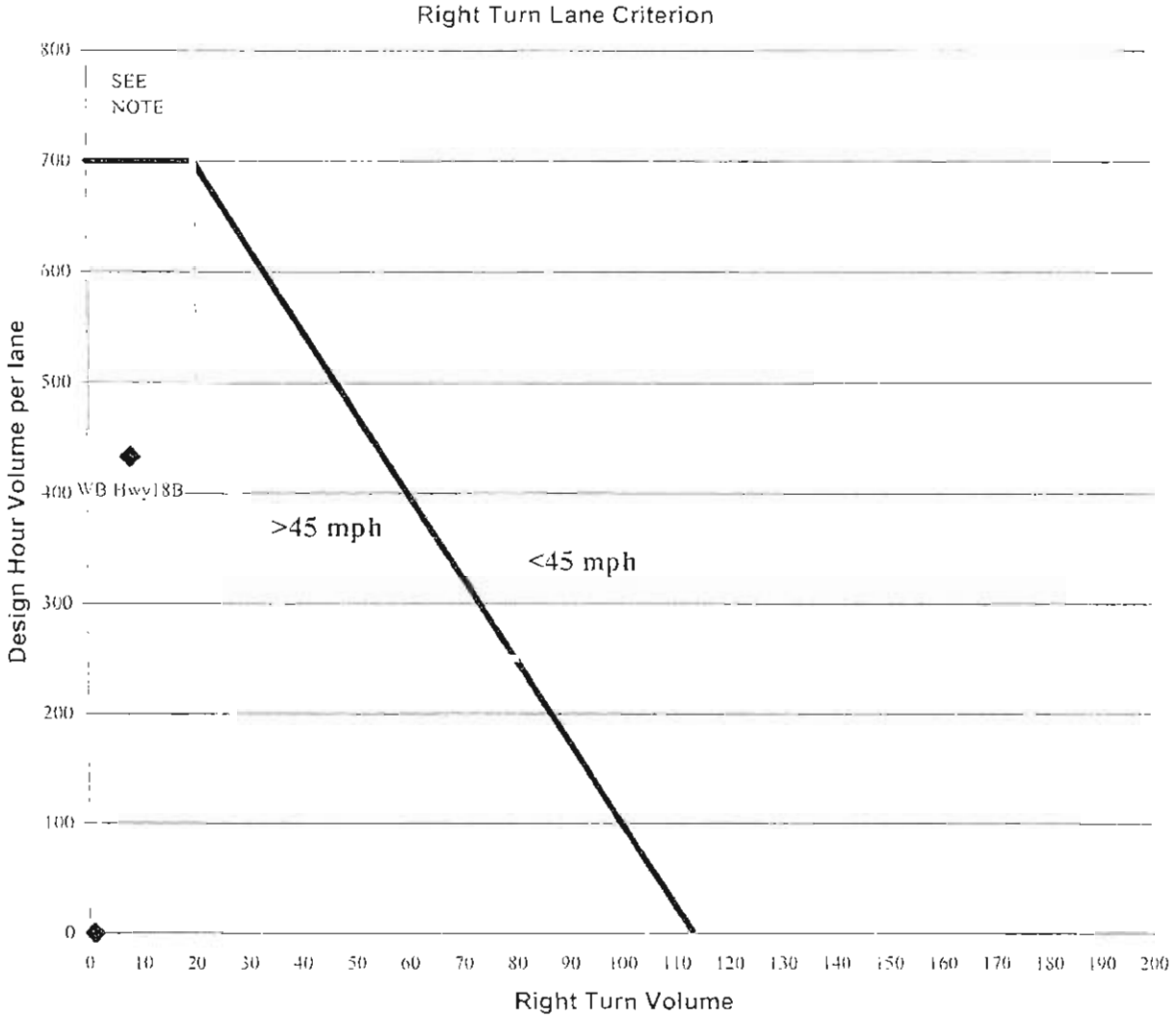
Left Turn Lane Criterion



Left Turn Criterion

Approach	Left Turns (vph)	Opposing Plus Advancing Volumes (vph/Lane)	Minimum Criteria (Left Turns-vph)	Criterion Met
EB Hwy18B	32	699	11	YES

CTS ENGINEERS

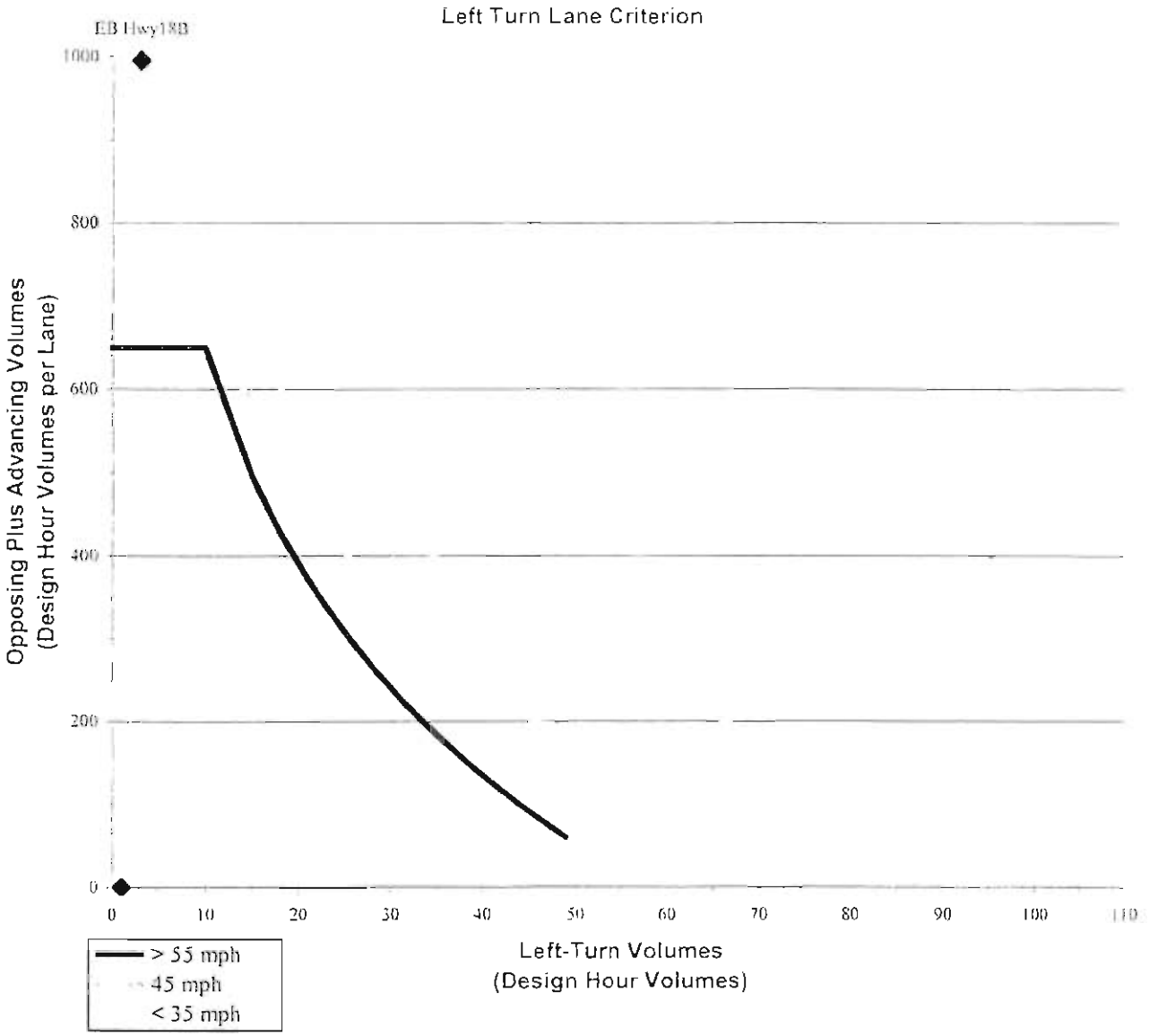


NOTE: If there is no right turn lane, a shoulder needs to be provided.
If this intersection is in a rural area and is connected to a public street, a right turn lane is needed.

Right Turn Criterian

Approach	Right-Turn Volume (vph)	Design Hour Volume (vph per Lane)	Minimum Criteria (Right Turns-vph)	Criterion Met
WB Hwy18B	8	433	25	NO

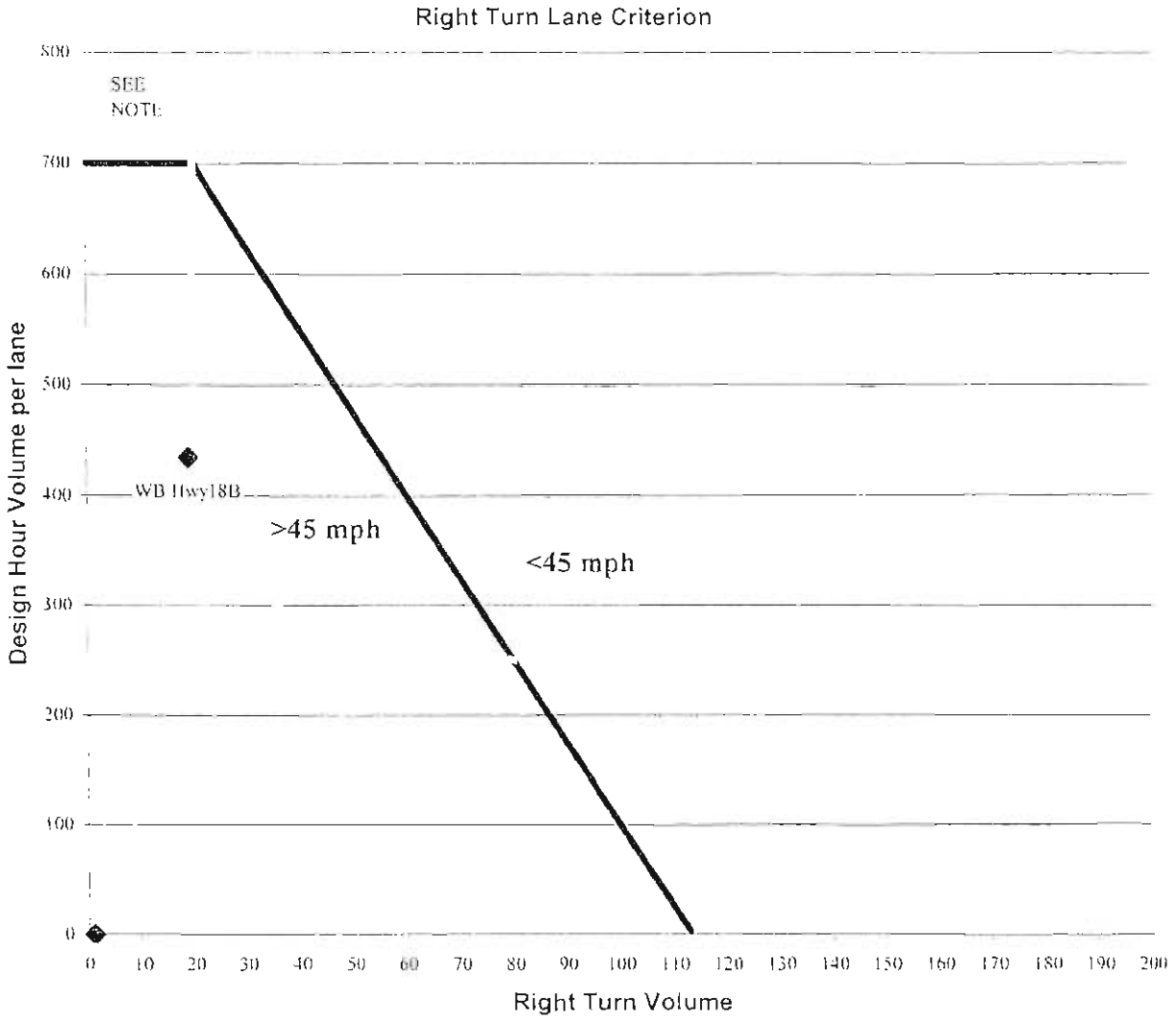
CTS ENGINEERS



Left Turn Criterion

Approach	Left Turns (vph)	Opposing Plus Advancing Volumes (vph/Lane)	Minimum Criteria (Left Turns-vph)	Criterion Met
EB Hwy18B	3	995	4	Check

CTS ENGINEERS



NOTE: If there is no right turn lane, a shoulder needs to be provided.
If this intersection is in a rural area and is connected to a public street, a right turn lane is needed.

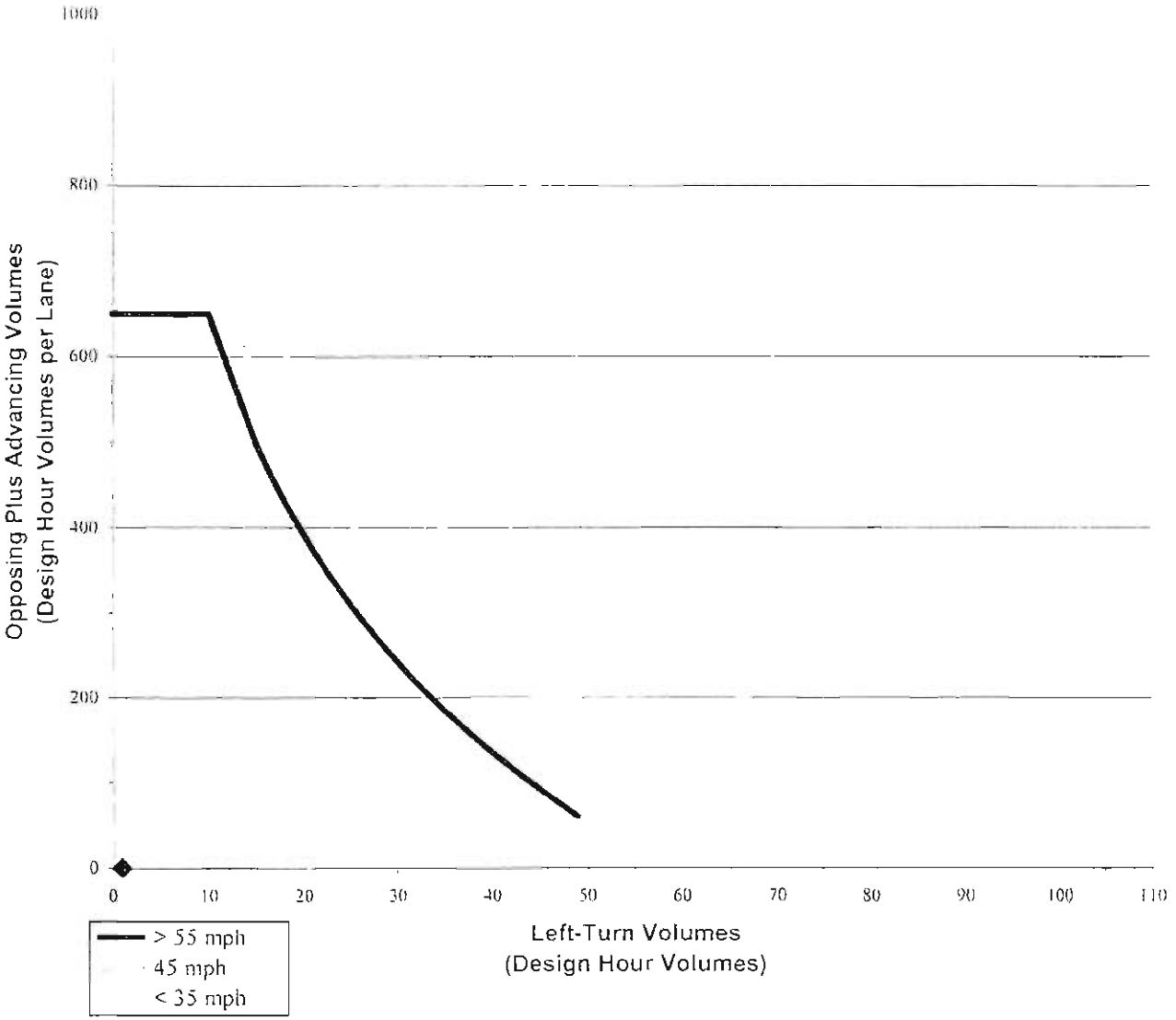
Right Turn Criterian

Approach	Right-Turn Volume (vph)	Design Hour Volume (vph per Lane)	Minimum Criteria (Right Turns-vph)	Criterion Met
WB Hwy18B	19	434	25	NO

CTS ENGINEERS

Sheridan TRP OR04.065.T01
June 29, 2005
Hwy 18B / Driveway 2
Total Future 2025 (75%)

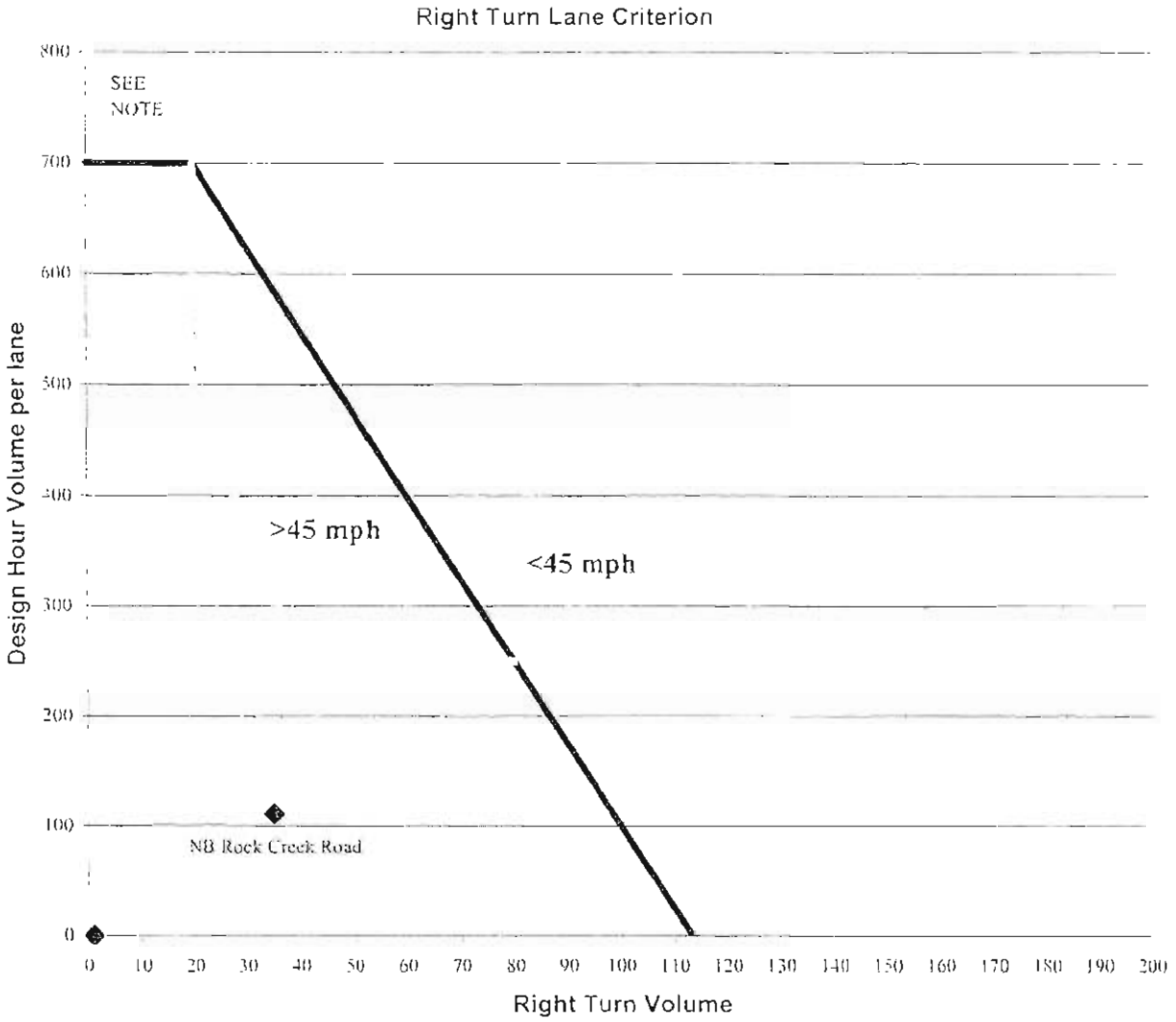
Left Turn Lane Criterion



Left Turn Criterion

Approach	Left Turns (vph)	Opposing Plus Advancing Volumes (vph/Lane)	Minimum Criteria (Left Turns-vph)	Criterion Met
EB Hwy18B	18	1054	4	YES

CTS ENGINEERS



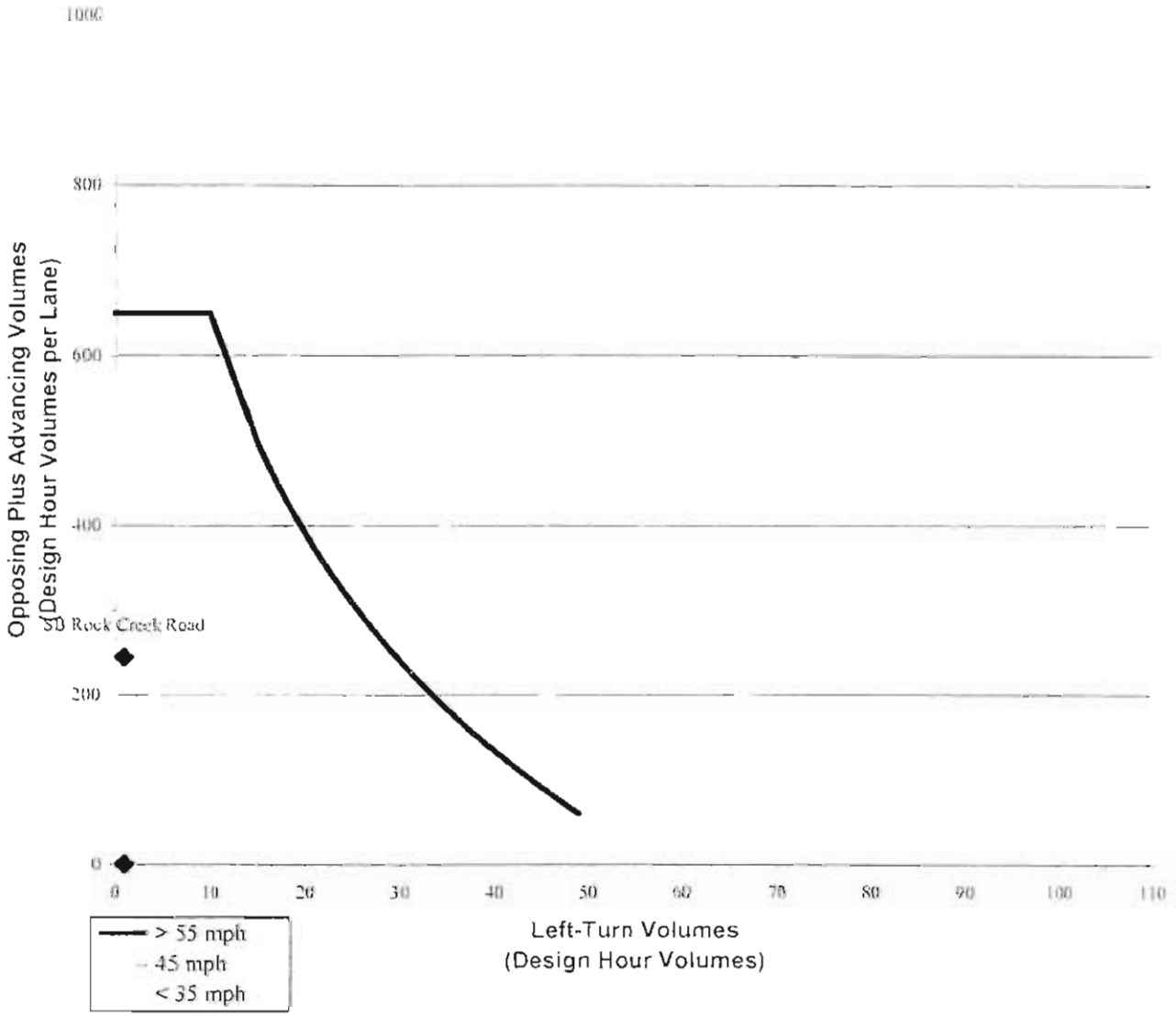
NOTE: If there is no right turn lane, a shoulder needs to be provided.
If this intersection is in a rural area and is connected to a public street, a right turn lane is needed.

Right Turn Criterian

Approach	Right-Turn Volume (vph)	Design Hour Volume (vph per Lane)	Minimum Criteria (Right Turns-vph)	Criterion Met
NB Rock Creek Road	35	111	99	NO

CTS ENGINEERS

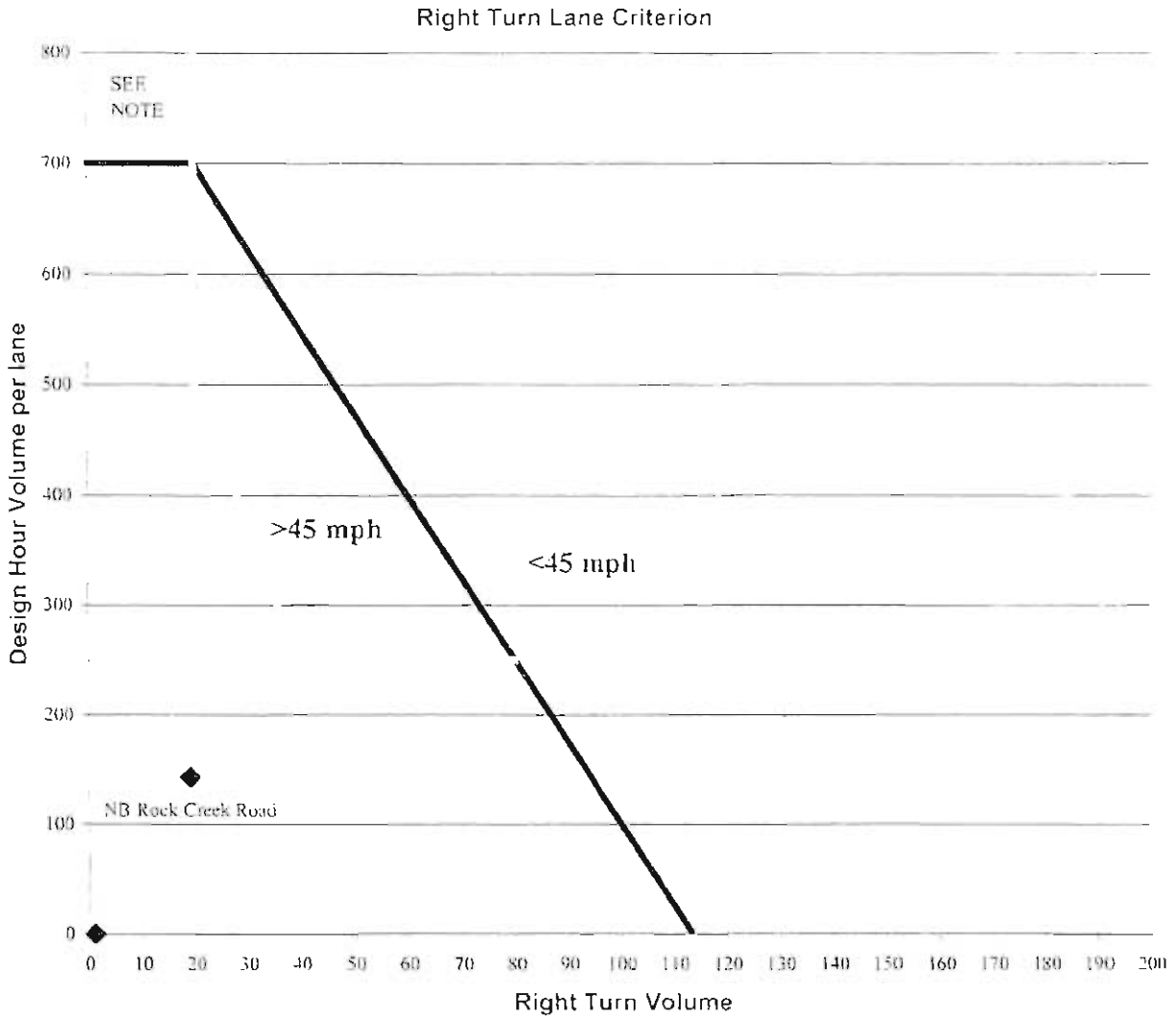
Left Turn Lane Criterion



Left Turn Criterion

Approach	Left Turns (vph)	Opposing Plus Advancing Volumes (vph/Lane)	Minimum Criteria (Left Turns-vph)	Criterion Met
SB Rock Creek Road	1	245	57	NO

CTS ENGINEERS



NOTE: If there is no right turn lane, a shoulder needs to be provided.
If this intersection is in a rural area and is connected to a public street, a right turn lane is needed.

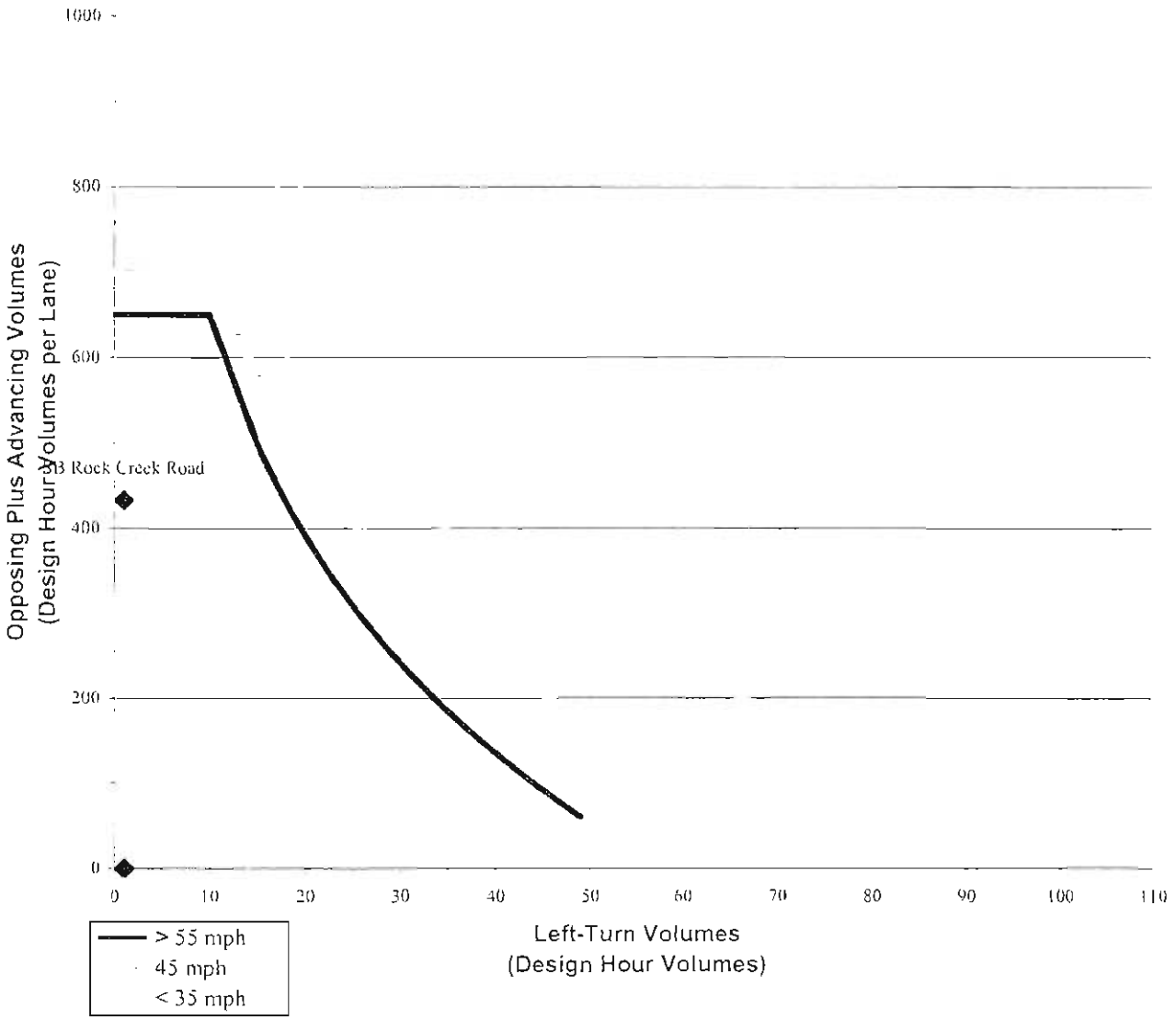
Right Turn Criterian

Approach	Right-Turn Volume (vph)	Design Hour Volume (vph per Lane)	Minimum Criteria (Right Turns-vph)	Criterion Met
NB Rock Creek Road	19	143	94	NO

CTS ENGINEERS

Sheridan TRP OR04.065.T01
June 29, 2005
Rock Creek RD/ North 2
Total Future 2025 (75%)

Left Turn Lane Criterion



Left Turn Criterion

Approach	Left Turns (vph)	Opposing Plus Advancing Volumes (vph/Lane)	Minimum Criteria (Left Turns-vph)	Criterion Met
SB Rock Creek Road	1	433	31	NO

CTS ENGINEERS

Traffic Signal Warrant Analysis Worksheets

Concept Plan-II (With Airport)

CTS ENGINEERS

OR04.065.T01 SHERIDAN TRP

Project: OR04.055.T01 - Sheridan TRP

ODOT Traffic Signal Warrant Analysis

ADT Calculations - Total Future 2025

Location: Hwy 18B @ Rock Creek Road

Total Intersection (All Approaches):

30th Hour	1,035		
ADT	10,350	Assumed to be 30th Highest divided by:	10.0%

Major Approach:
Total volume approaching from both directions, including all turn movements.

	Eastbound			Westbound		
	Left	Thru	Right	Left	Thru	Right
30th Hour by Movement:	32	238	0	0	330	99

Warrant Approach Volume: 699

ADT: 6,990 Assumed to be 30th Highest divided by: 10.0%

Minor Approach: *Exclusive right-turn lane*

Highest approaching volume including some or none of the right turn volumes discussed below. Considering the exclusive right-turn lane, the right turn discount is 85% of the HCM right turn lane capacity result. This right turn discount is subtracted from the total right turn volume to determine the number of right turns to include in the warrant. If the remainder is less than or equal to zero, do not include any of the right turns in the approach ADT.

	Southbound		
	Left	Thru	Right
30th Hour by Movement:	225	0	111

Capacity from HCM:	661
85% of Capacity (Discount):	562
Right Turns for Warrant:	0

Warrant Approach Volume: 225

ADT: 2,250 Assumed to be 30th Highest divided by: 10.0%

OREGON DEPARTMENT OF TRANSPORTATION
TRAFFIC MANAGEMENT SECTION
PRELIMINARY TRAFFIC SIGNAL WARRANT ANALYSIS

Project: OR04.065 T01 Sheridan TRP		Count date:
City: Sheridan	County: Yamhill	Milepoint: 5.51
Major Street: Hwy 18B	Minor Street: SW Rock Creek Road	Region:

PRELIMINARY TRAFFIC SIGNAL WARRANT VOLUMES

Number of approach lanes		ADT on major street from both directions *percent of standard warrant*		ADT on minor street highest approaching volume *percent of standard warrant*	
Major Street	Minor Street	100	70	100	70
WARRANT 1: Minimum Vehicular Traffic					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 2: Interruption of Continuous Traffic					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Based on 8th highest hourly volume being equal to 5.65% of ADT

	100 percent of standard warrants used.
	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or intersection within an isolated community with a population less than 10,000.

PRELIMINARY TRAFFIC SIGNAL WARRANT CALCULATIONS

Year: 2025	Alternative: Total Future Concept Plan-II with Airport (75%)

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Condition Met?	Warrant Met?
Warrant #1	Major	1	6,200	6,990	Yes	No
	Minor	2	2,500	2,250	No	
Warrant #2	Major	1	9,300	6,990	No	No
	Minor	2	1,250	2,250	Yes	

Analyst & Date: Arshad Syed (06/29/05)	Reviewer & Date:

Project: OR04.065.T01 - Sheridan TRP

ODOT Traffic Signal Warrant Analysis

ADT Calculations - Total Future 2025

Location: Hwy 18B @ Chipyard Road

Total Intersection (All Approaches).

30th Hour	1,174		
ADT	11,740	Assumed to be 30th Highest divided by:	10.0%

Major Approach:
Total volume approaching from both directions, including all turn movements.

	Eastbound			Westbound		
	Left	Thru	Right	Left	Thru	Right
30th Hour by Movement:	18	477	0	0	387	71

Warrant Approach Volume: 953

ADT: 9,530 Assumed to be 30th Highest divided by: 10.0%

Minor Approach: *Exclusive right-turn lane*

Highest approaching volume including some or none of the right turn volumes discussed below. Considering the exclusive right-turn lane, the right turn discount is 85% of the HCM right turn lane capacity result. This right turn discount is subtracted from the total right turn volume to determine the number of right turns to include in the warrant. If the remainder is less than or equal to zero, do not include any of the right turns in the approach ADT.

	Southbound		
	Left	Thru	Right
30th Hour by Movement:	175	0	46

Capacity from HCM:	625
85% of Capacity (Discount):	531
Right Turns for Warrant:	0

Warrant Approach Volume: 175

ADT: 1,750 Assumed to be 30th Highest divided by: 10.0%

OREGON DEPARTMENT OF TRANSPORTATION
TRAFFIC MANAGEMENT SECTION
PRELIMINARY TRAFFIC SIGNAL WARRANT ANALYSIS

Project: OR04.065 T01 Sheridan TRP		Count date:
City: Sheridan	County: Yamhill	Milepoint: 5.77
Major Street: Hwy 18B	Minor Street: Chip Yard Road	Region:

PRELIMINARY TRAFFIC SIGNAL WARRANT VOLUMES

Number of approach lanes		ADT on major street from both directions *percent of standard warrant*		ADT on minor street highest approaching volume *percent of standard warrant*	
Major Street	Minor Street	100	70	100	70
WARRANT 1: Minimum Vehicular Traffic					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 2: Interruption of Continuous Traffic					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Based on 8th highest hourly volume being equal to 5.65% of ADT

	100 percent of standard warrants used.
	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or intersection within an isolated community with a population less than 10,000.

PRELIMINARY TRAFFIC SIGNAL WARRANT CALCULATIONS

Year: 2025	Alternative: Total Future Concept Plan-II with Airport (75%)

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Condition Met?	Warrant Met?
Warrant #1	Major	1	6,200	9,530	Yes	No
	Minor	2	2,500	1,750	No	
Warrant #2	Major	1	9,300	9,530	Yes	Yes
	Minor	2	1,250	1,750	Yes	

Analyst & Date: Arshad Syed (06/29/05)	Reviewer & Date:

Project: OR04.065.T01 - Sheridan TRP

ODOT Traffic Signal Warrant Analysis

ADT Calculations - Total Future 2025

Location: Hwy 18B @ Orchard Ave

Total Intersection (All Approaches):

30th Hour	1,621		
ADT	16,210	Assumed to be 30th Highest divided by:	10.0%

Major Approach:
Total volume approaching from both directions, including all turn movements.

	Eastbound			Westbound		
	Left	Thru	Right	Left	Thru	Right
30th Hour by Movement:	22	665	0	0	433	154

Warrant Approach Volume: 1,274

ADT: 12,740 Assumed to be 30th Highest divided by 10.0%

Minor Approach: *Exclusive right-turn lane*
Highest approaching volume including some or none of the right turn volumes discussed below
Considering the exclusive right-turn lane, the right turn discount is 85% of the HCM right turn lane capacity result. This right turn discount is subtracted from the total right turn volume to determine the number of right turns to include in the warrant. If the remainder is less than or equal to zero, do not include any of the right turns in the approach ADT

	Southbound		
	Left	Thru	Right
30th Hour by Movement:	303	0	44

Capacity from HCM:	558
85% of Capacity (Discount):	474
Right Turns for Warrant:	0

Warrant Approach Volume: 303

ADT: 3,030 Assumed to be 30th Highest divided by: 10.0%

OREGON DEPARTMENT OF TRANSPORTATION
TRAFFIC MANAGEMENT SECTION
PRELIMINARY TRAFFIC SIGNAL WARRANT ANALYSIS

Project: OR04.065 T01 Sheridan TRP		Count date:
City: Sheridan	County: Yamhill	Milepoint: 6.18
Major Street: Hwy 18B	Minor Street: Orchard Ave	Region

PRELIMINARY TRAFFIC SIGNAL WARRANT VOLUMES

Number of approach lanes		ADT on major street from both directions *percent of standard warrant*		ADT on minor street highest approaching volume *percent of standard warrant*	
Major Street	Minor Street	100	70	100	70
WARRANT 1: Minimum Vehicular Traffic					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 2: Interruption of Continuous Traffic					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Based on 8th highest hourly volume being equal to 5.65% of ADT

	100 percent of standard warrants used.
	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or intersection within an isolated community with a population less than 10,000.

PRELIMINARY TRAFFIC SIGNAL WARRANT CALCULATIONS

Year: 2025	Alternative: Total Future Concept Plan-II with Airport (75%)

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Condition Met?	Warrant Met?
Warrant #1	Major	1	6,200	12,740	Yes	Yes
	Minor	2	2,500	3,030	Yes	
Warrant #2	Major	1	9,300	12,740	Yes	Yes
	Minor	2	1,250	3,030	Yes	

Analyst & Date: Arshad Syed (06/29/05)	Reviewer & Date:

Project: OR04.065.T01 - Sheridan TRP

ODOT Traffic Signal Warrant Analysis

ADT Calculations - Total Future 2025

Location: Hwy 18B @ Richard Street

Total Intersection (All Approaches):

30th Hour	1,748		
ADT	17,480	Assumed to be 30th Highest divided by:	10.0%

Major Approach:
Total volume approaching from both directions, including all turn movements.

	Eastbound			Westbound		
	Left	Thru	Right	Left	Thru	Right
30th Hour by Movement:	11	957	0	0	589	51

Warrant Approach Volume: 1,608

ADT: 16,080 Assumed to be 30th Highest divided by: 10.0%

Minor Approach: *Exclusive right-turn lane*

Highest approaching volume including some or none of the right turn volumes discussed below. Considering the exclusive right-turn lane, the right turn discount is 85% of the HCM right turn lane capacity result. This right turn discount is subtracted from the total right turn volume to determine the number of right turns to include in the warrant. If the remainder is less than or equal to zero, do not include any of the right turns in the approach ADT.

	Southbound		
	Left	Thru	Right
30th Hour by Movement:	125	0	15

Capacity from HCM:	486
85% of Capacity (Discount):	413
Right Turns for Warrant:	0

Warrant Approach Volume: 125

ADT: 1,250 Assumed to be 30th Highest divided by: 10.0%

OREGON DEPARTMENT OF TRANSPORTATION
TRAFFIC MANAGEMENT SECTION
PRELIMINARY TRAFFIC SIGNAL WARRANT ANALYSIS

Project: OR04.065 T01 Sheridan TRP		Count date:
City: Sheridan	County: Yamhill	Milepoint: 6.43
Major Street: Hwy 18B	Minor Street: Richard Street	Region:

PRELIMINARY TRAFFIC SIGNAL WARRANT VOLUMES

Number of approach lanes		ADT on major street from both directions *percent of standard warrant*		ADT on minor street highest approaching volume *percent of standard warrant*	
Major Street	Minor Street	100	70	100	70
WARRANT 1: Minimum Vehicular Traffic					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 2: Interruption of Continuous Traffic					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Based on 8th highest hourly volume being equal to 5.65% of ADT

	100 percent of standard warrants used.
	70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or intersection within an isolated community with a population less than 10,000.

PRELIMINARY TRAFFIC SIGNAL WARRANT CALCULATIONS

Year: 2025	Alternative: Total Future Concept Plan-II with Airport (75%)

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Condition Met?	Warrant Met?
Warrant #1	Major	1	6,200	16,080	Yes	No
	Minor	2	2,500	1,250	No	
Warrant #2	Major	1	9,300	16,080	Yes	Yes
	Minor	2	1,250	1,250	Yes	

Analyst & Date: Arshad Syed (06/29/05)	Reviewer & Date:

Capacity Worksheets for
Future Background 2025 Traffic Volumes

Future Background 2025 30th Design Hour Traffic Volumes

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 B-18/Bridge St

Cycle (sec):	120	Critical Vol./Cap. (X):	0.464
Loss Time (sec):	8 (Y+R = 4 sec)	Average Delay (sec/veh):	23.7
Optimal Cycle:	30	Level Of Service:	C

Street Name:	Bridge St.						W Main/ B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 1	0	0 1	1 0	0	1 0
Volume Module: 30th DHV												
Base Vol:	120	95	95	17	100	16	10	125	135	85	165	19
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	144	114	114	20	120	19	12	150	162	102	198	23
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	144	114	114	20	120	19	12	150	162	102	198	23
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	152	120	120	21	126	20	13	158	171	107	208	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	152	120	120	21	126	20	13	158	171	107	208	24
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	152	120	120	21	126	20	13	158	171	107	208	24
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.74	0.74	0.74	0.87	0.87	0.87	0.93	0.93	0.81	0.53	0.94	0.94
Lanes:	0.39	0.30	0.31	0.13	0.75	0.12	0.07	0.93	1.00	1.00	0.90	0.10
Final Sat.:	513	406	406	201	1182	189	124	1547	1457	951	1514	174
Capacity Analysis Module:												
Vol/Sat:	0.30	0.30	0.30	0.11	0.11	0.11	0.10	0.10	0.12	0.11	0.14	0.14
Crit Moves:		****									****	
Green/Cycle:	0.64	0.64	0.64	0.64	0.64	0.64	0.30	0.30	0.30	0.30	0.30	0.30
Volume/Cap:	0.46	0.46	0.46	0.17	0.17	0.17	0.34	0.34	0.39	0.38	0.46	0.46
Delay/Veh:	11.7	11.7	11.7	9.0	9.0	9.0	33.5	33.5	34.2	34.3	35.1	35.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.7	11.7	11.7	9.0	9.0	9.0	33.5	33.5	34.2	34.3	35.1	35.1
DesignQueue:	4	3	3	1	3	1	1	8	8	5	10	1

Future Background 2025 30th Design Hour Traffic Volumes

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #6 B-18/Richard St

****

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: B[12.8]

****

Street Name:	Richard Street						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		1 0	0 0	1	1 0	1	0 0	0 0	0 1	0
Volume Module: 30th DHV												
Base Vol:	0	0	0	5	0	2	3	240	0	0	285	4
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	6	0	2	4	288	0	0	342	5
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	6	0	2	4	288	0	0	342	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	6	0	3	4	303	0	0	360	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	6	0	3	4	303	0	0	360	5
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	673	xxxx	363	365	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	416	xxxx	676	1177	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	415	xxxx	676	1177	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.02	xxxx	0.00	0.00	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	0.0	xxxx	0.0	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	13.8	xxxx	10.3	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	B	*	B	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			12.8			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Future Background 2025 30th Design Hour Traffic Volumes

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 B-18/Orchard St

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: B[12.4]

Street Name: Orchard St B-18

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 0 1 0		
Volume Module: >> Count Date: 1 Jan 2000 << 30th DHV												
Base Vol:	0	0	0	8	0	4	2	235	0	0	265	5
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	10	0	5	2	282	0	0	318	6
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	10	0	5	2	282	0	0	318	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	10	0	5	3	297	0	0	335	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	10	0	5	3	297	0	0	335	6
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	640	xxxx	338	341	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	435	xxxx	697	1201	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	434	xxxx	697	1201	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.02	xxxx	0.01	0.00	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	0.1	xxxx	0.0	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	13.5	xxxx	10.2	8.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	B	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			12.4			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Future Background 2025 30th Design Hour Traffic Volumes

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 B-18/Chip Yard Rd.

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: B[11.4]

Street Name:	Chip Yard Rd.						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0	0 0	1 0	0	0 1	1 0	1	0 0	0 0	1	0 0
Volume Module: 30th DHV												
Base Vol:	0	0	0	5	0	5	0	220	0	0	240	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	6	0	6	0	264	0	0	288	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	6	0	6	0	264	0	0	288	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	6	0	6	0	278	0	0	303	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	6	0	6	0	278	0	0	303	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	581	xxxx	303	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	471	xxxx	730	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	471	xxxx	730	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	0.0	xxxx	0.0	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	12.7	xxxx	10.0	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	B	*	A	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			11.4			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Future Background 2025 30th Design Hour Traffic Volumes

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 B-18/SW Rock Creek Rd.

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: B[12.1]

Street Name:	SW Rock Creek Rd.						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0	0 0	1	0	0 0 1	1	0	1 0 0	0	0	0 1 0
Volume Module: 30th DHV												
Base Vol:	0	0	0	40	0	7	2	170	0	0	195	45
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	48	0	8	2	204	0	0	234	54
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	48	0	8	2	204	0	0	234	54
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	51	0	9	3	215	0	0	246	57
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	51	0	9	3	215	0	0	246	57
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	495	xxxx	275	303	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	529	xxxx	757	1241	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	528	xxxx	757	1241	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.10	xxxx	0.01	0.00	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	0.3	xxxx	0.0	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	12.5	xxxx	9.8	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	B	*	A	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			12.1			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Capacity Worksheets for
Total Future 2025 Traffic Volumes
With Buildout of Concept Plan-II
(100% Future Volumes Without Improvement)

CTS ENGINEERS

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 100% Future Volumes) 1

Scenario Report

Scenario:	30th DHV
Command:	30th DHV
Volume:	30th DHV
Geometry:	PM Peak
Impact Fee:	Default Impact Fee
Trip Generation:	PM Peak
Trip Distribution:	PM Peak
Paths:	Default Paths
Routes:	Default Routes
Configuration:	Default Configuration

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 100% Future Volumes)

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 B-18/Bridge St

Cycle (sec):	120	Critical Vol./Cap. (X):	1.291
Loss Time (sec):	8 (Y+R = 4 sec)	Average Delay (sec/veh):	92.9
Optimal Cycle:	120	Level Of Service:	F

Street Name:	Bridge St.						W Main/ B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 1	0 0	1	0 0	1! 0	0
Volume Module: 30th DHV												
Base Vol:	120	95	95	17	100	16	10	125	135	85	165	19
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	144	114	114	20	120	19	12	150	162	102	198	23
Added Vol:	169	4	0	14	12	12	25	479	411	0	198	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	313	118	114	34	132	31	37	629	573	102	396	27
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	329	124	120	36	139	33	39	662	603	107	417	28
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	329	124	120	36	139	33	39	662	603	107	417	28
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	329	124	120	36	139	33	39	662	603	107	417	28
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.61	0.61	0.61	0.82	0.82	0.82	0.90	0.90	0.81	0.45	0.45	0.45
Lanes:	0.57	0.22	0.21	0.17	0.67	0.16	0.06	0.94	1.00	0.19	0.76	0.05
Final Sat.:	628	237	229	256	983	232	90	1528	1457	158	612	41
Capacity Analysis Module:												
Vol/Sat:	0.52	0.52	0.52	0.14	0.14	0.14	0.43	0.43	0.41	0.68	0.68	0.68
Crit Moves:		****									****	
Green/Cycle:	0.41	0.41	0.41	0.41	0.41	0.41	0.53	0.53	0.53	0.53	0.53	0.53
Volume/Cap:	1.29	1.29	1.29	0.35	0.35	0.35	0.82	0.82	0.79	1.29	1.29	1.29
Delay/Veh:	182.6	183	182.6	25.0	25.0	25.0	30.1	30.1	28.3	175.8	176	175.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	182.6	183	182.6	25.0	25.0	25.0	30.1	30.1	28.3	175.8	176	175.8
DesignQueue:	14	5	5	1	6	1	1	23	21	4	14	1

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Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 100% Future Volumes)
With No EB and WB Left Turn Lanes

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 B-18/Bridge St

Cycle (sec): 120 Critical Vol./Cap. (X): 1.044
Loss Time (sec): 8 (Y+R = 4 sec) Average Delay (sec/veh): 60.8
Optimal Cycle: 120 Level Of Service: E

Street Name:	Bridge St.						W Main/ B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 1	0 0	1	0 0	0 1	0
Volume Module: 30th DHV												
Base Vol:	120	95	95	17	100	16	0	125	135	0	165	19
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	144	114	114	20	120	19	0	150	162	0	198	23
Added Vol:	169	4	0	14	12	12	25	479	411	0	198	4
Diverted Tr:	0	0	0	0	102	0	0	0	0	0	0	0
Initial Fut:	313	118	114	34	234	31	25	629	573	0	396	27
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	329	124	120	36	246	33	26	662	603	0	417	28
Reduct Vol:	0	0	0	0	0	0	30	0	0	0	0	0
Reduced Vol:	329	124	120	36	246	33	0	662	603	0	417	28
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	329	124	120	36	246	33	0	662	603	0	417	28
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.57	0.57	0.57	0.85	0.85	0.85	1.00	0.95	0.81	1.00	0.94	0.94
Lanes:	0.57	0.22	0.21	0.11	0.79	0.10	0.00	1.00	1.00	0.00	0.94	0.06
Final Sat.:	588	222	214	175	1192	159	0	1714	1457	0	1591	108
Capacity Analysis Module:												
Vol/Sat:	0.56	0.56	0.56	0.21	0.21	0.21	0.00	0.39	0.41	0.00	0.26	0.26
Crit Moves:		****							****			
Green/Cycle:	0.54	0.54	0.54	0.54	0.54	0.54	0.00	0.40	0.40	0.00	0.40	0.40
Volume/Cap:	1.04	1.04	1.04	0.39	0.39	0.39	0.00	0.97	1.04	0.00	0.66	0.66
Delay/Veh:	78.1	78.1	78.1	16.5	16.5	16.5	0.0	63.6	85.5	0.0	32.0	32.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	78.1	78.1	78.1	16.5	16.5	16.5	0.0	63.6	85.5	0.0	32.0	32.0
DesignQueue:	11	4	4	1	8	1	0	29	26	0	18	1

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 100% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 B-18/Richard St

Average Delay (sec/veh): 56.8 Worst Case Level Of Service: F[708.1]

Street Name:	Richard Street						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	1 0 0	0	1	1 0 1	0	0	0 0 0	1	0
Volume Module: 30th DHV												
Base Vol:	0	0	0	5	0	2	3	240	0	0	285	4
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	6	0	2	4	288	0	0	342	5
Added Vol:	0	0	0	143	0	15	9	849	0	0	358	56
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	149	0	17	13	1137	0	0	700	61
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	157	0	18	13	1197	0	0	737	64
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	157	0	18	13	1197	0	0	737	64
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1992	xxxx	769	801	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	65	xxxx	396	809	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	64	xxxx	396	809	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	2.43	xxxx	0.05	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	15.4	xxxx	0.1	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	789.1	xxxx	14.5	9.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	F	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			708.1			xxxxxx			xxxxxx		
ApproachLOS:	*			F			*			*		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 100% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 B-18/Orchard St

Average Delay (sec/veh): 185.9 Worst Case Level Of Service: F[869.0]

Street Name:	Orchard St						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		1 0 0	0 1		1 0 1	0 0		0 0 0	1 0	
Volume Module: >> Count Date: 1 Jan 2000 << 30th DHV												
Base Vol:	0	0	0	8	0	4	2	235	0	0	265	5
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	10	0	5	2	282	0	0	318	6
Added Vol:	0	0	0	350	0	47	24	508	0	0	196	177
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	360	0	52	26	790	0	0	514	183
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	379	0	55	28	832	0	0	541	193
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	379	0	55	28	832	0	0	541	193
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1525	xxxx	637	734	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	128	xxxx	472	858	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	125	xxxx	472	858	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	3.04	xxxx	0.12	0.03	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	35.7	xxxx	0.4	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	992.2	xxxx	13.6	9.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	F	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			869.0			xxxxxx			xxxxxx		
ApproachLOS:	*			F			*			*		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 100% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 B-18/Chip Yard Rd.

Average Delay (sec/veh): 19.6 Worst Case Level Of Service: F[103.1]

Street Name:	Chip Yard Rd.						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 0 1 0		
Volume Module: 30th DHV												
Base Vol:	0	0	0	5	0	5	0	220	0	0	240	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	6	0	6	0	264	0	0	288	0
Added Vol:	0	0	0	202	0	49	21	303	0	0	171	84
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	208	0	55	21	567	0	0	459	84
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	219	0	58	22	597	0	0	483	88
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	219	0	58	22	597	0	0	483	88
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1168	xxxx	527	572	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	211	xxxx	545	986	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	207	xxxx	545	986	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	1.06	xxxx	0.11	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	9.8	xxxx	0.4	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	127.1	xxxx	12.4	8.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	F	*	B	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			103.1			xxxxxx			xxxxxx		
ApproachLOS:	*			F			*			*		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 100% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 B-18/SW Rock Creek Rd.

Average Delay (sec/veh): 15.5 Worst Case Level Of Service: E[47.0]

Street Name:	SW Rock Creek Rd.						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	1 0 0	0	1	1 0 1	0	0	0 0 0	1	0
Volume Module: 30th DHV												
Base Vol:	0	0	0	40	0	7	2	170	0	0	195	45
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	48	0	8	2	204	0	0	234	54
Added Vol:	0	0	0	219	0	124	36	79	0	0	158	64
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	267	0	132	38	283	0	0	392	118
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	281	0	139	40	298	0	0	413	124
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	281	0	139	40	298	0	0	413	124
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	853	xxxx	475	537	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	325	xxxx	584	1016	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	315	xxxx	584	1016	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.89	xxxx	0.24	0.04	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	8.3	xxxx	0.9	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	63.8	xxxx	13.1	8.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	F	*	B	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			47.0			xxxxxx			xxxxxx		
ApproachLOS:	*			E			*			*		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 100% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 North 2/ Rock Creek Rd

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: B[12.6]

Street Name:	Rock Creek Rd						North 2					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 0		
Volume Module:												
Base Vol:	0	50	0	0	45	0	0	0	0	0	0	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	60	0	0	54	0	0	0	0	0	0	0
Added Vol:	0	80	21	0	271	0	0	0	0	72	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	140	21	0	325	0	0	0	0	72	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	140	21	0	325	0	0	0	0	72	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	140	21	0	325	0	0	0	0	72	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	476	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	543	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	543	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.13	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.5	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	12.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			12.6		
ApproachLOS:	*			*			*			B		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 100% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #21 North 1/ Rock Creek Rd

Average Delay (sec/veh): 3.5 Worst Case Level Of Service: B[10.9]

Street Name:	Rock Creek Rd						North 1					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 0		
Volume Module:												
Base Vol:	0	45	0	0	35	0	0	0	0	0	0	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	54	0	0	42	0	0	0	0	0	0	0
Added Vol:	0	32	39	0	108	0	0	0	0	131	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	86	39	0	150	0	0	0	0	131	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	86	39	0	150	0	0	0	0	131	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	86	39	0	150	0	0	0	0	131	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	256	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	738	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	738	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.18	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.6	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	10.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			10.9		
ApproachLOS:	*			*			*			B		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 100% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #27 B-18/ Driveway 2

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: D[25.8]

Street Name:	Planned Dr 2						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	1 0	0	0 1	1 0	1	0 0	0 0	0	1 0
Volume Module: 30th DHV												
Base Vol:	0	0	0	0	0	0	0	225	0	0	250	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	0	0	0	0	270	0	0	300	0
Added Vol:	0	0	0	49	0	35	22	483	0	0	219	24
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	49	0	35	22	753	0	0	519	24
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	49	0	35	22	753	0	0	519	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	49	0	35	22	753	0	0	519	24
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1328	xxxx	531	543	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	169	xxxx	542	1011	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	166	xxxx	542	1011	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.30	xxxx	0.06	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	1.2	xxxx	0.2	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	35.6	xxxx	12.1	8.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	E	*	B	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			25.8			xxxxxx			xxxxxx		
ApproachLOS:	*			D			*			*		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 100% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #54 B-18/ Driveway 1

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: C[20.5]

Street Name:	Planned Dr						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	1 0	0	0 1	1 0	1	0 0	0 0	0	1 0
Volume Module: 30th DHV												
Base Vol:	0	0	0	0	0	0	0	220	0	0	245	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	0	0	0	0	264	0	0	294	0
Added Vol:	0	0	0	29	0	11	3	295	0	0	211	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	29	0	11	3	559	0	0	505	9
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	31	0	12	3	588	0	0	532	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	31	0	12	3	588	0	0	532	9
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1131	xxxx	536	541	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	222	xxxx	539	1013	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	221	xxxx	539	1013	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.14	xxxx	0.02	0.00	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	0.5	xxxx	0.1	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	23.8	xxxx	11.8	8.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			20.5			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Capacity Worksheets for
Total Future 2025 Traffic Volumes
With Buildout of Concept Plan-II
(75% Future Volumes Without Improvement)

CTS ENGINEERS

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

2

Scenario Report

Scenario:	30th DHV
Command:	30th DHV
Volume:	30th DHV
Geometry:	PM Peak
Impact Fee:	Default Impact Fee
Trip Generation:	PM Peak
Trip Distribution:	PM Peak
Paths:	Default Paths
Routes:	Default Routes
Configuration:	Default Configuration

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 B-18/Bridge St

Cycle (sec):	90	Critical Vol./Cap. (X):	0.875
Loss Time (sec):	8 (Y+R = 4 sec)	Average Delay (sec/veh):	28.1
Optimal Cycle:	85	Level Of Service:	C

Street Name:	Bridge St.						W Main/ B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	0 0	1! 0	0	0 1	0 0	1	0 0	1! 0	0
Volume Module: 30th DHV												
Base Vol:	120	95	95	17	100	16	10	125	135	85	165	19
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	144	114	114	20	120	19	12	150	162	102	198	23
Added Vol:	169	4	0	14	12	12	25	479	411	0	198	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	313	118	114	34	132	31	37	629	573	102	396	27
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	264	99	96	29	111	26	31	530	483	86	333	23
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	264	99	96	29	111	26	31	530	483	86	333	23
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	264	99	96	29	111	26	31	530	483	86	333	23
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.67	0.67	0.67	0.83	0.83	0.83	0.91	0.91	0.81	0.59	0.59	0.59
Lanes:	0.57	0.22	0.21	0.17	0.67	0.16	0.06	0.94	1.00	0.19	0.76	0.05
Final Sat.:	693	261	252	261	1002	237	91	1552	1457	206	801	54
Capacity Analysis Module:												
Vol/Sat:	0.38	0.38	0.38	0.11	0.11	0.11	0.34	0.34	0.33	0.42	0.42	0.42
Crit Moves:		****									****	
Green/Cycle:	0.44	0.44	0.44	0.44	0.44	0.44	0.48	0.48	0.48	0.48	0.48	0.48
Volume/Cap:	0.87	0.87	0.87	0.25	0.25	0.25	0.72	0.72	0.70	0.87	0.87	0.87
Delay/Veh:	38.3	38.3	38.3	16.4	16.4	16.4	22.0	22.0	21.6	36.7	36.7	36.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	38.3	38.3	38.3	16.4	16.4	16.4	22.0	22.0	21.6	36.7	36.7	36.7
DesignQueue:	8	3	3	1	3	1	1	15	14	2	9	1

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)
With No EB and WB Left Turn Lanes

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 B-18/Bridge St

Cycle (sec):	90	Critical Vol./Cap. (X):	0.817
Loss Time (sec):	8 (Y+R = 4 sec)	Average Delay (sec/veh):	26.0
Optimal Cycle:	67	Level Of Service:	C

Street Name:	Bridge St.						W Main/ B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 1	0	0 1	0 0	0	1 0
Volume Module: 30th DHV												
Base Vol:	120	95	95	17	100	16	0	125	135	0	165	19
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	144	114	114	20	120	19	0	150	162	0	198	23
Added Vol:	169	4	0	14	12	12	25	479	411	0	198	4
Diverted Tr:	0	0	0	0	102	0	0	0	0	0	0	0
Initial Fut:	313	118	114	34	234	31	25	629	573	0	396	27
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	264	99	96	29	197	26	21	530	483	0	333	23
Reduct Vol:	0	0	0	0	0	0	28	0	0	0	0	0
Reduced Vol:	264	99	96	29	197	26	0	530	483	0	333	23
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	264	99	96	29	197	26	0	530	483	0	333	23
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.62	0.62	0.62	0.87	0.87	0.87	1.00	0.95	0.81	1.00	0.94	0.94
Lanes:	0.57	0.22	0.21	0.11	0.79	0.10	0.00	1.00	1.00	0.00	0.94	0.06
Final Sat.:	638	241	232	180	1223	163	0	1714	1457	0	1591	108
Capacity Analysis Module:												
Vol/Sat:	0.41	0.41	0.41	0.16	0.16	0.16	0.00	0.31	0.33	0.00	0.21	0.21
Crit Moves:		****							****			
Green/Cycle:	0.51	0.51	0.51	0.51	0.51	0.51	0.00	0.41	0.41	0.00	0.41	0.41
Volume/Cap:	0.82	0.82	0.82	0.32	0.32	0.32	0.00	0.76	0.82	0.00	0.52	0.52
Delay/Veh:	27.8	27.8	27.8	13.3	13.3	13.3	0.0	28.0	32.5	0.0	20.8	20.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.8	27.8	27.8	13.3	13.3	13.3	0.0	28.0	32.5	0.0	20.8	20.8
DesignQueue:	7	3	3	1	5	1	0	17	15	0	10	1

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 B-18/Richard St

Average Delay (sec/veh): 13.3 Worst Case Level Of Service: F[165.5]

Street Name:	Richard Street						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 0 1 0		
Volume Module: 30th DHV												
Base Vol:	0	0	0	5	0	2	3	240	0	0	285	4
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	6	0	2	4	288	0	0	342	5
Added Vol:	0	0	0	143	0	15	9	849	0	0	358	56
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	149	0	17	13	1137	0	0	700	61
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	125	0	15	11	957	0	0	589	51
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	125	0	15	11	957	0	0	589	51
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1594	xxxx	615	641	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	116	xxxx	486	929	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	115	xxxx	486	929	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	1.09	xxxx	0.03	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	7.6	xxxx	0.1	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	183.3	xxxx	12.6	8.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	F	*	B	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			165.5			xxxxxx			xxxxxx		
ApproachLOS:	*			F			*			*		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 B-18/Orchard St

Average Delay (sec/veh): 61.1 Worst Case Level Of Service: F[285.1]

Street Name:	Orchard St						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	1 0	0	0 1	1 0	1	0 0	0 0	0	1 0
Volume Module: >> Count Date: 1 Jan 2000 << 30th DHV												
Base Vol:	0	0	0	8	0	4	2	235	0	0	265	5
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	10	0	5	2	282	0	0	318	6
Added Vol:	0	0	0	350	0	47	24	508	0	0	196	177
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	360	0	52	26	790	0	0	514	183
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	303	0	44	22	665	0	0	433	154
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	303	0	44	22	665	0	0	433	154
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1220	xxxx	510	587	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	196	xxxx	558	973	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	193	xxxx	558	973	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	1.57	xxxx	0.08	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	19.6	xxxx	0.3	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	324.5	xxxx	12.0	8.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	F	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			285.1			xxxxxx			xxxxxx		
ApproachLOS:	*			F			*			*		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #8 B-18/Chip Yard Rd.

****

Average Delay (sec/veh): 5.8 Worst Case Level Of Service: D[30.2]

****

Street Name:	Chip Yard Rd.						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		1 0 0	0 1		1 0 1	0 0		0 0 0	1 0	
Volume Module: 30th DHV												
Base Vol:	0	0	0	5	0	5	0	220	0	0	240	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	6	0	6	0	264	0	0	288	0
Added Vol:	0	0	0	202	0	49	21	303	0	0	171	84
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	208	0	55	21	567	0	0	459	84
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	175	0	46	18	477	0	0	387	71
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	175	0	46	18	477	0	0	387	71
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	935	xxxx	422	457	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	291	xxxx	625	1088	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	287	xxxx	625	1088	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.61	xxxx	0.07	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	3.7	xxxx	0.2	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	35.3	xxxx	11.2	8.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	E	*	B	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			30.2			xxxxxx			xxxxxx		
ApproachLOS:	*			D			*			*		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #9 B-18/SW Rock Creek Rd.

Average Delay (sec/veh): 6.9 Worst Case Level Of Service: C[20.4]

Street Name:	SW Rock Creek Rd.						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 0 1 0		
Volume Module: 30th DHV												
Base Vol:	0	0	0	40	0	7	2	170	0	0	195	45
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	48	0	8	2	204	0	0	234	54
Added Vol:	0	0	0	219	0	124	36	79	0	0	158	64
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	267	0	132	38	283	0	0	392	118
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	225	0	111	32	238	0	0	330	99
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	225	0	111	32	238	0	0	330	99
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	683	xxxx	380	429	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	410	xxxx	661	1114	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	401	xxxx	661	1114	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.56	xxxx	0.17	0.03	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	3.3	xxxx	0.6	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	24.8	xxxx	11.6	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			20.4			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 North 2/ Rock Creek Rd

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: B[11.4]

Street Name:	Rock Creek Rd						North 2					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 0		
Volume Module:												
Base Vol:	0	50	0	0	45	0	0	0	0	0	0	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	60	0	0	54	0	0	0	0	0	0	0
Added Vol:	0	80	21	0	271	0	0	0	0	72	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	140	21	0	325	0	0	0	0	72	0	0
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	112	17	0	260	0	0	0	0	58	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	112	17	0	260	0	0	0	0	58	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	380	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	616	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	616	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.09	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.3	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			11.4		
ApproachLOS:	*			*			*			B		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #21 North 1/ Rock Creek Rd

Average Delay (sec/veh): 3.3 Worst Case Level Of Service: B[10.3]

Street Name:	Rock Creek Rd							North 1					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 0		
Volume Module:												
Base Vol:	0	45	0	0	35	0	0	0	0	0	0	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	54	0	0	42	0	0	0	0	0	0	0
Added Vol:	0	32	39	0	108	0	0	0	0	131	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	86	39	0	150	0	0	0	0	131	0	0
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	69	31	0	120	0	0	0	0	105	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	69	31	0	120	0	0	0	0	105	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	204	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	789	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	789	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.13	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.5	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	10.3	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			10.3		
ApproachLOS:	*			*			*			B		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #27 B-18/ Driveway 2

****

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: C[17.9]

****

Street Name:	Planned Dr 2						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			1 0 0 0 1			1 0 1 0 0			0 0 0 1 0		
Volume Module: 30th DHV												
Base Vol:	0	0	0	0	0	0	0	225	0	0	250	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	0	0	0	0	270	0	0	300	0
Added Vol:	0	0	0	49	0	35	22	483	0	0	219	24
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	49	0	35	22	753	0	0	519	24
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	39	0	28	18	602	0	0	415	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	39	0	28	18	602	0	0	415	19
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1062	xxxx	425	434	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	244	xxxx	623	1109	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	241	xxxx	623	1109	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.16	xxxx	0.04	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	0.6	xxxx	0.1	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	22.8	xxxx	11.0	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			17.9			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Total Future 2025 30th Design Hour Traffic Volumes (Without Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #54 B-18/ Driveway 1

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: C[16.0]

Street Name:	Planned Dr						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		1 0	0 0	1	1 0	1 0	0	0 0	0 1	0
Volume Module: 30th DHV												
Base Vol:	0	0	0	0	0	0	0	220	0	0	245	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	0	0	0	0	264	0	0	294	0
Added Vol:	0	0	0	29	0	11	3	295	0	0	211	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	29	0	11	3	559	0	0	505	9
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	24	0	9	3	471	0	0	425	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	24	0	9	3	471	0	0	425	8
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	905	xxxx	429	433	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	303	xxxx	620	1111	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	303	xxxx	620	1111	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.08	xxxx	0.01	0.00	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	0.3	xxxx	0.0	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	17.9	xxxx	10.9	8.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			16.0			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Capacity Worksheets for
Total Future 2025 Traffic Volumes
With Buildout of Concept Plan-II
(100% Future Volumes With Improvement)

CTS ENGINEERS

Total Future 2025 30th Design Hour Traffic Volumes (With Traffic Signals)
Option-2 (Airport Scenario With 100% Future Volume)

3.

Scenario Report

Scenario:	30th DHV
Command:	30th DHV
Volume:	30th DHV
Geometry:	PM Peak
Impact Fee:	Default Impact Fee
Trip Generation:	PM Peak
Trip Distribution:	PM Peak
Paths:	Default Paths
Routes:	Default Routes
Configuration:	Default Configuration

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	Arshad Syed	Intersection	Hwy 18B/ Bridge St.
Agency or Co.	CTS Engineers	Area Type	CBD or Similar
Date Performed	6/29/2005	Jurisdiction	Sheridan, OR
Time Period	30th DHV	Analysis Year	2025
		Project ID	With EB and WB left Turns (75 /)

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_l	0	1	1	0	1	0	0	1	0	0	1	0
Lane group		LT	R		LTR			LTR			LTR	
Volume, V (vph)	31	530	483	86	333	23	264	99	96	29	111	26
% Heavy vehicles, %HV	0	5	5	0	5	5	5	5	5	5	5	5
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1		2.0	2.0		2.0			2.0			2.0	
Extension of effective green, e		2.0	2.0		2.0			2.0			2.0	
Arrival type, AT		3	3		3			3			3	
Unit extension, UE		3.0	3.0		3.0			3.0			3.0	
Filtering/metering, I		1.000	1.000		1.000			1.000			1.000	
Initial unmet demand, Q_b		0.0	0.0		0.0			0.0			0.0	
Ped / Bike / RTOR volumes	0		100	0		0	0		0	0		0
Lane width		12.0	12.0		12.0			12.0			12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B		0	0		0			0			0	
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 43.0	G =	G =	G =	G = 39.0	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v		591	403		466			483			175	
Lane group capacity, c		713	626		460			492			589	
v/c ratio, X		0.83	0.64		1.01			0.98			0.30	
Total green ratio, g/C		0.48	0.48		0.48			0.43			0.43	
Uniform delay, d_1		20.3	17.7		23.5			25.1			16.6	
Progression factor, PF		1.000	1.000		1.000			1.000			1.000	
Delay calibration, k		0.37	0.22		0.50			0.49			0.11	
Incremental delay, d_2		8.1	2.3		45.3			35.7			0.3	
Initial queue delay, d_3												
Control delay		28.4	20.0		68.8			60.9			16.9	
Lane group LOS		C	B		E			E			B	
Approach delay	25.0			68.8			60.9			16.9		
Approach LOS	C			E			E			B		
Intersection delay	42.1			X_c = 1.00			Intersection LOS			D		

Total Future 2025 30th Design Hour Traffic Volumes (With Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)
With No EB and WB Left Turn Lanes

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 B-18/Bridge St

Cycle (sec):	90	Critical Vol./Cap. (X):	0.817
Loss Time (sec):	8 (Y+R = 4 sec)	Average Delay (sec/veh):	26.0
Optimal Cycle:	67	Level Of Service:	C

Street Name:	Bridge St.						W Main/ B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 1	0	0 1	0 0	0	1 0
Volume Module: 30th DHV												
Base Vol:	120	95	95	17	100	16	0	125	135	0	165	19
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	144	114	114	20	120	19	0	150	162	0	198	23
Added Vol:	169	4	0	14	12	12	25	479	411	0	198	4
Diverted Tr:	0	0	0	0	102	0	0	0	0	0	0	0
Initial Fut:	313	118	114	34	234	31	25	629	573	0	396	27
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	264	99	96	29	197	26	21	530	483	0	333	23
Reduct Vol:	0	0	0	0	0	0	25	0	0	0	0	0
Reduced Vol:	264	99	96	29	197	26	0	530	483	0	333	23
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	264	99	96	29	197	26	0	530	483	0	333	23
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.62	0.62	0.62	0.87	0.87	0.87	1.00	0.95	0.81	1.00	0.94	0.94
Lanes:	0.57	0.22	0.21	0.11	0.79	0.10	0.00	1.00	1.00	0.00	0.94	0.06
Final Sat.:	638	241	232	180	1223	163	0	1714	1457	0	1591	108
Capacity Analysis Module:												
Vol/Sat:	0.41	0.41	0.41	0.16	0.16	0.16	0.00	0.31	0.33	0.00	0.21	0.21
Crit Moves:		****							****			
Green/Cycle:	0.51	0.51	0.51	0.51	0.51	0.51	0.00	0.41	0.41	0.00	0.41	0.41
Volume/Cap:	0.82	0.82	0.82	0.32	0.32	0.32	0.00	0.76	0.82	0.00	0.52	0.52
Delay/Veh:	27.8	27.8	27.8	13.3	13.3	13.3	0.0	28.0	32.5	0.0	20.8	20.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.8	27.8	27.8	13.3	13.3	13.3	0.0	28.0	32.5	0.0	20.8	20.8
DesignQueue:	7	3	3	1	5	1	0	17	15	0	10	1

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	Arshad Syed	Intersection	Hwy 18B/ Bridge St.
Agency or Co.	CTS Engineers	Area Type	CBD or Similar
Date Performed	6/29/2005	Jurisdiction	Sheridan, OR
Time Period	PM Peak	Analysis Year	2025
		Project ID	With No EB and WB left turns (75%)

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_l	0	1	1	0	1	0	0	1	0	0	1	0
Lane group		T	R		TR			LTR			LTR	
Volume, V (vph)		530	483		333	23	264	99	96	29	197	26
% Heavy vehicles, %HV		5	5		5	5	5	5	5	5	5	5
Peak-hour factor, PHF		0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Pretimed (P) or actuated (A)		A	A		A	A	A	A	A	A	A	A
Start-up lost time, l_1		2.0	2.0		2.0			2.0			2.0	
Extension of effective green, e		2.0	2.0		2.0			2.0			2.0	
Arrival type, AT		3	3		3			3			3	
Unit extension, UE		3.0	3.0		3.0			3.0			3.0	
Filtering/metering, I		1.000	1.000		1.000			1.000			1.000	
Initial unmet demand, Q_b		0.0	0.0		0.0			0.0			0.0	
Ped / Bike / RTOR volumes	0		100	0		0	0		0	0		0
Lane width		12.0	12.0		12.0			12.0			12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B		0	0		0			0			0	
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	Thru & RT	02	03	04	NS Perm	06	07	08
Timing	G = 37.0	G =	G =	G =	G = 45.0	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =

Duration of Analysis, T = 0.25 | Cycle Length, C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v		558	403		375			483			265	
Lane group capacity, c		634	539		629			521			709	
v/c ratio, X		0.88	0.75		0.60			0.93			0.37	
Total green ratio, g/C		0.41	0.41		0.41			0.50			0.50	
Uniform delay, d_1		24.5	22.5		20.7			21.0			13.8	
Progression factor, PF		1.000	1.000		1.000			1.000			1.000	
Delay calibration, k		0.41	0.30		0.19			0.44			0.11	
Incremental delay, d_2		13.5	5.7		1.6			22.9			0.3	
Initial queue delay, d_3												
Control delay		38.0	28.2		22.2			43.9			14.2	
Lane group LOS		D	C		C			D			B	
Approach delay	33.9			22.2			43.9			14.2		
Approach LOS	C			C			D			B		
Intersection delay	31.6			X_c = 0.91			Intersection LOS			C		

Total Future 2025 30th Design Hour Traffic Volumes (With Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)
With No EB and WB Left Turn Lanes

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 B-18/Bridge St

Cycle (sec): 90 Critical Vol./Cap. (X): 0.817
Loss Time (sec): 8 (Y+R = 4 sec) Average Delay (sec/veh): 26.0
Optimal Cycle: 67 Level Of Service: C

Street Name:	Bridge St.						W Main/ B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	1! 0	0	0	1! 0	0	0	1 0	1	0	0
Volume Module: 30th DHV												
Base Vol:	120	95	95	17	100	16	0	125	135	0	165	19
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	144	114	114	20	120	19	0	150	162	0	198	23
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Tr:	169	4	0	14	114	12	0	479	411	0	198	4
Initial Fut:	313	118	114	34	234	31	0	629	573	0	396	27
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	264	99	96	29	197	26	0	530	483	0	333	23
Reduct Vol:	0	0	0	0	0	0	25	0	0	0	0	0
Reduced Vol:	264	99	96	29	197	26	0	530	483	0	333	23
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	264	99	96	29	197	26	0	530	483	0	333	23
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.62	0.62	0.62	0.87	0.87	0.87	1.00	0.95	0.81	1.00	0.94	0.94
Lanes:	0.57	0.22	0.21	0.11	0.79	0.10	0.00	1.00	1.00	0.00	0.94	0.06
Final Sat.:	638	241	232	180	1223	163	0	1714	1457	0	1591	108
Capacity Analysis Module:												
Vol/Sat:	0.41	0.41	0.41	0.16	0.16	0.16	0.00	0.31	0.33	0.00	0.21	0.21
Crit Moves:		****							****			
Green/Cycle:	0.51	0.51	0.51	0.51	0.51	0.51	0.00	0.41	0.41	0.00	0.41	0.41
Volume/Cap:	0.82	0.82	0.82	0.32	0.32	0.32	0.00	0.76	0.82	0.00	0.52	0.52
Delay/Veh:	27.8	27.8	27.8	13.3	13.3	13.3	0.0	28.0	32.5	0.0	20.8	20.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.8	27.8	27.8	13.3	13.3	13.3	0.0	28.0	32.5	0.0	20.8	20.8
DesignQueue:	7	3	3	1	5	1	0	17	15	0	10	1

Total Future 2025 30th Design Hour Traffic Volumes (With Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 B-18/Richard St

Cycle (sec):	70	Critical Vol./Cap. (X):	0.767
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	10.8
Optimal Cycle:	63	Level Of Service:	B

Street Name:	Richard Street						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	1 0	0 0	1	1 0	1 0	0	0 0	0 1	0
Volume Module: 30th DHV												
Base Vol:	0	0	0	5	0	2	3	240	0	0	285	4
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	6	0	2	4	288	0	0	342	5
Added Vol:	0	0	0	143	0	15	9	849	0	0	358	56
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	149	0	17	13	1137	0	0	700	61
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	125	0	15	11	957	0	0	589	51
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	125	0	15	11	957	0	0	589	51
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	0	0	125	0	15	11	957	0	0	589	51
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	1.00	0.90	1.00	0.81	0.90	0.95	1.00	1.00	0.94	0.94
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.92	0.08
Final Sat.:	0	0	0	1628	0	1457	1628	1714	0	0	1559	135
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.08	0.00	0.01	0.01	0.56	0.00	0.00	0.38	0.38
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.10	0.00	0.11	0.01	0.73	0.00	0.00	0.72	0.72
Volume/Cap:	0.00	0.00	0.00	0.77	0.00	0.09	0.53	0.77	0.00	0.00	0.53	0.53
Delay/Veh:	0.0	0.0	0.0	50.1	0.0	28.1	58.3	8.8	0.0	0.0	5.0	5.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	50.1	0.0	28.1	58.3	8.8	0.0	0.0	5.0	5.0
DesignQueue:	0	0	0	4	0	1	0	12	0	0	7	1

Total Future 2025 30th Design Hour Traffic Volumes (With Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 B-18/Orchard St

Cycle (sec): 70 Critical Vol./Cap. (X): 0.693
Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 17.0
Optimal Cycle: 54 Level Of Service: B

Street Name:	Orchard St						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	1	0
Volume Module: >> Count Date: 1 Jan 2000 << 30th DHV												
Base Vol:	0	0	0	8	0	4	2	235	0	0	265	5
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	10	0	5	2	282	0	0	318	6
Added Vol:	0	0	0	350	0	47	24	508	0	0	196	177
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	360	0	52	26	790	0	0	514	183
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	303	0	44	22	665	0	0	433	154
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	303	0	44	22	665	0	0	433	154
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	0	0	303	0	44	22	665	0	0	433	154
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	1.00	0.90	1.00	0.81	0.90	0.95	1.00	1.00	0.92	0.92
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.74	0.26
Final Sat.:	0	0	0	1628	0	1457	1628	1714	0	0	1218	434
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.19	0.00	0.03	0.01	0.39	0.00	0.00	0.36	0.36
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.27	0.00	0.29	0.02	0.56	0.00	0.00	0.54	0.54
Volume/Cap:	0.00	0.00	0.00	0.69	0.00	0.10	0.66	0.69	0.00	0.00	0.66	0.66
Delay/Veh:	0.0	0.0	0.0	27.8	0.0	18.3	72.9	13.3	0.0	0.0	13.3	13.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	27.8	0.0	18.3	72.9	13.3	0.0	0.0	13.3	13.3
DesignQueue:	0	0	0	9	0	1	1	13	0	0	8	3

Total Future 2025 30th Design Hour Traffic Volumes (With Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #8 B-18/Chip Yard Rd.

Cycle (sec):	70	Critical Vol./Cap. (X):	0.472
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	11.9
Optimal Cycle:	37	Level Of Service:	B

Street Name:	Chip Yard Rd.						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0	0 0	1 0	0	0 1	1 0	1	0 0	0 0	0	1 0
Volume Module: 30th DHV												
Base Vol:	0	0	0	5	0	5	0	220	0	0	240	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	6	0	6	0	264	0	0	288	0
Added Vol:	0	0	0	202	0	49	21	303	0	0	171	84
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	208	0	55	21	567	0	0	459	84
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0 80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	175	0	46	18	477	0	0	387	71
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	175	0	46	18	477	0	0	387	71
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	0	0	175	0	46	18	477	0	0	387	71
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	1.00	0.90	1.00	0.81	0.90	0.95	1.00	1.00	0.93	0.93
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.85	0.15
Final Sat.:	0	0	0	1628	0	1457	1628	1714	0	0	1418	260
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.11	0.00	0.03	0.01	0.28	0.00	0.00	0.27	0.27
Crit Moves:				****			****				****	
Green/Cycle:	0.00	0.00	0.00	0.23	0.00	0.25	0.02	0.60	0.00	0.00	0.58	0.58
Volume/Cap:	0.00	0.00	0.00	0.47	0.00	0.13	0.47	0.46	0.00	0.00	0.47	0.47
Delay/Veh:	0.0	0.0	0.0	24.3	0.0	20.4	42.9	8.1	0.0	0.0	9.0	9.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	24.3	0.0	20.4	42.9	8.1	0.0	0.0	9.0	9.0
DesignQueue:	0	0	0	5	0	1	1	8	0	0	7	1

Total Future 2025 30th Design Hour Traffic Volumes (With Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #9 B-18/SW Rock Creek Rd.

Cycle (sec):	70	Critical Vol./Cap. (X):	0.503
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	14.7
Optimal Cycle:	39	Level Of Service:	B

Street Name:	SW Rock Creek Rd.								B-18			
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	1	0	0	1	0	1	0	0	0	0	1	0
Volume Module: 30th DHV												
Base Vol:	0	0	0	40	0	7	2	170	0	0	195	45
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	48	0	8	2	204	0	0	234	54
Added Vol:	0	0	0	219	0	124	36	79	0	0	158	64
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	267	0	132	38	283	0	0	392	118
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	225	0	111	32	238	0	0	330	99
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	225	0	111	32	238	0	0	330	99
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	0	0	225	0	111	32	238	0	0	330	99
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	1.00	1.00	1.00	0.90	1.00	0.81	0.90	0.95	1.00	1.00	0.92	0.92
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.77	0.23
Final Sat.:	0	0	0	1628	0	1457	1628	1714	0	0	1276	384
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.14	0.00	0.08	0.02	0.14	0.00	0.00	0.26	0.26
Crit Moves:				****			****				****	
Green/Cycle:	0.00	0.00	0.00	0.27	0.00	0.31	0.04	0.55	0.00	0.00	0 51	0.51
Volume/Cap:	0.00	0.00	0.00	0.50	0.00	0.24	0.50	0.25	0.00	0.00	0.50	0.50
Delay/Veh:	0.0	0.0	0.0	22.3	0.0	18.1	39.1	8.2	0.0	0.0	11.6	11.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	22.3	0.0	18.1	39.1	8.2	0.0	0.0	11.6	11.6
DesignQueue:	0	0	0	7	0	3	1	4	0	0	7	2

Total Future 2025 30th Design Hour Traffic Volumes (With Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #54 B-18/ Driveway 1

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: C[16.0]

Street Name:	Planned Dr						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	1 0 0	0	1	1 0 1	0	0	0 0 0	1	0
Volume Module: 30th DHV												
Base Vol:	0	0	0	0	0	0	0	220	0	0	245	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	0	0	0	0	264	0	0	294	0
Added Vol:	0	0	0	29	0	11	3	295	0	0	211	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	29	0	11	3	559	0	0	505	9
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	24	0	9	3	471	0	0	425	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	24	0	9	3	471	0	0	425	8
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	905	xxxx	429	433	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	303	xxxx	620	1111	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	303	xxxx	620	1111	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.08	xxxx	0.01	0.00	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	0.3	xxxx	0.0	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	17.9	xxxx	10.9	8.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			16.0			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Total Future 2025 30th Design Hour Traffic Volumes (With Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #27 B-18/ Driveway 2

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: C[17.9]

Street Name:	Planned Dr 2						B-18					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	1 0	0	0 1	1 0	1	0 0	0 0	0	1 0
Volume Module: 30th DHV												
Base Vol:	0	0	0	0	0	0	0	225	0	0	250	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	0	0	0	0	0	0	270	0	0	300	0
Added Vol:	0	0	0	49	0	35	22	483	0	0	219	24
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	49	0	35	22	753	0	0	519	24
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	39	0	28	18	602	0	0	415	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	39	0	28	18	602	0	0	415	19
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.3	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1062	xxxx	425	434	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	244	xxxx	623	1109	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	241	xxxx	623	1109	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.16	xxxx	0.04	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	0.6	xxxx	0.1	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	22.8	xxxx	11.0	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	C	*	B	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			17.9			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Total Future 2025 30th Design Hour Traffic Volumes (With Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #21 North 1/ Rock Creek Rd

Average Delay (sec/veh): 3.4 Worst Case Level Of Service: B[10.5]

Street Name:	Rock Creek Rd						North 1					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1 0 0			0 0 0 0 0			1 0 0 0 0		
Volume Module:												
Base Vol:	0	45	0	0	35	0	0	0	0	0	0	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	54	0	0	42	0	0	0	0	0	0	0
Added Vol:	0	32	39	0	108	0	0	0	0	131	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	86	39	0	150	0	0	0	0	131	0	0
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	0	76	35	0	133	0	0	0	0	116	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	76	35	0	133	0	0	0	0	116	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	227	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	766	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	766	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.15	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.5	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	10.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			10.5		
ApproachLOS:	*			*			*			B		

Total Future 2025 30th Design Hour Traffic Volumes (With Traffic Signals)
Option-2 (Airport Scenario with 75% Future Volumes)

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 North 2/ Rock Creek Rd

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: B[11.9]

Street Name:	Rock Creek Rd									North 2		
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 1	0	0 0	1 0	0	0 0	0 0	0	1 0	0 0	0
Volume Module:												
Base Vol:	0	50	0	0	45	0	0	0	0	0	0	0
Growth Adj:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Initial Bse:	0	60	0	0	54	0	0	0	0	0	0	0
Added Vol:	0	80	21	0	271	0	0	0	0	72	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	140	21	0	325	0	0	0	0	72	0	0
User Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	0	124	19	0	289	0	0	0	0	64	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	124	19	0	289	0	0	0	0	64	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	423	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	582	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	582	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.11	xxxx	xxxx
Level Of Service Module:												
Queue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.4	xxxx	xxxxx
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			11.9		
ApproachLOS:	*			*			*			B		

Synchro/ Simtraffic Analysis Worksheets
For Concept Plan-II (100% Future Volumes)

CTS ENGINEERS

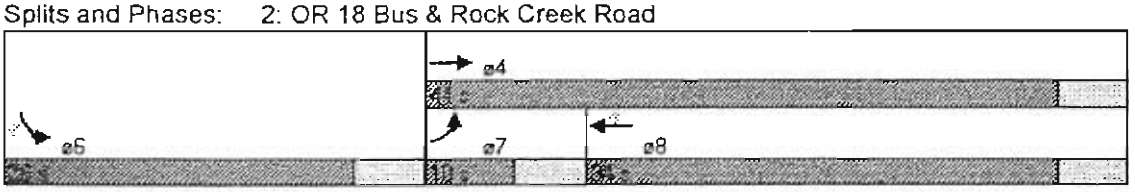
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	150			150	0	0
Storage Lanes	1			1	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1487	1565	1565	1330	1487	1330
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1487	1565	1565	1330	1487	1330
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				124		139
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40	40		40	
Link Distance (ft)		480	848		788	
Travel Time (s)		8.2	14.5		13.4	
Volume (vph)	38	283	392	118	267	132
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	40	298	413	124	281	139
Lane Group Flow (vph)	40	298	413	124	281	139
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phases	7	4	8	8	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	21.5	21.5	21.5	23.5	23.5
Total Split (s)	10.0	44.0	34.0	34.0	26.0	26.0
Total Split (%)	14.3%	62.9%	48.6%	48.6%	37.1%	37.1%
Maximum Green (s)	5.5	39.5	29.5	29.5	21.5	21.5
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		10.0	10.0	10.0	12.0	12.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effct Green (s)	7.0	44.4	37.4	37.4	17.6	17.6
Actuated g/C Ratio	0.10	0.63	0.53	0.53	0.25	0.25
v/c Ratio	0.27	0.30	0.49	0.16	0.75	0.32
Control Delay	33.9	7.7	9.3	1.3	29.3	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	7.7	9.3	1.3	29.3	5.2
LOS	C	A	A	A	C	A
Approach Delay		10.8	7.4		21.3	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach LOS		B	A		C	
Queue Length 50th (ft)	16	52	57	0	110	0
Queue Length 95th (ft)	45	106	165	3	177	35
Internal Link Dist (ft)		400	768		708	
Turn Bay Length (ft)	150			150		
Base Capacity (vph)	149	992	847	777	467	513
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	0.27	0.30	0.49	0.16	0.60	0.27

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow, Master Intersection
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 12.8 Intersection LOS: B
Intersection Capacity Utilization 50.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: OR 18 Bus & Rock Creek Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1487	1565	1562	0	1487	1330
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1487	1565	1562	0	1487	1330
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40	40		40	
Link Distance (ft)		848	600		400	
Travel Time (s)		14.5	10.2		6.8	
Volume (vph)	3	595	505	9	29	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	3	626	532	9	31	12
Lane Group Flow (vph)	3	626	541	0	31	12
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 43.1% ICU Level of Service A
Analysis Period (min) 15

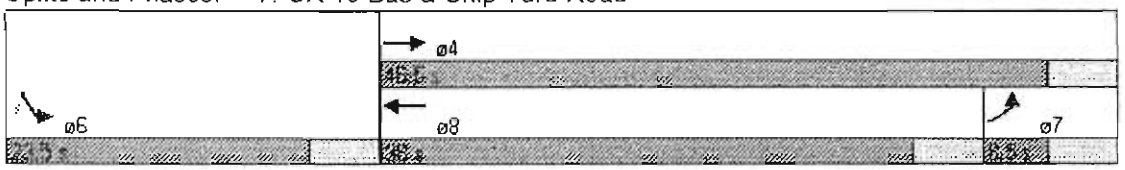
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.979			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1487	1565	1532	0	1487	1330
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1487	1565	1532	0	1487	1330
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			18			219
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40	40		40	
Link Distance (ft)		600	1256		721	
Travel Time (s)		10.2	21.4		12.3	
Volume (vph)	21	567	459	84	55	208
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	597	483	88	58	219
Lane Group Flow (vph)	22	597	571	0	58	219
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Detector Phases	7	4	8		6	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	8.5	21.5	21.5		23.5	23.5
Total Split (s)	8.5	46.5	38.0	0.0	23.5	23.5
Total Split (%)	12.1%	66.4%	54.3%	0.0%	33.6%	33.6%
Maximum Green (s)	4.0	42.0	33.5		19.0	19.0
Yellow Time (s)	4.5	4.5	4.5		4.5	4.5
All-Red Time (s)	0.0	0.0	0.0		0.0	0.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Min	C-Min		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		12.0	12.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	5.6	53.0	49.6		9.0	9.0
Actuated g/C Ratio	0.08	0.76	0.71		0.13	0.13
v/c Ratio	0.18	0.50	0.52		0.30	0.61
Control Delay	32.0	4.9	4.6		27.3	7.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	32.0	4.9	4.6		27.3	7.0
LOS	C	A	A		C	A
Approach Delay		5.9	4.6		11.2	

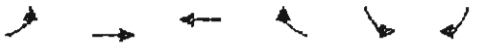
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach LOS		A	A		B	
Queue Length 50th (ft)	8	32	7		23	0
Queue Length 95th (ft)	m25	162	m133		51	53
Internal Link Dist (ft)		520	1176		641	
Turn Bay Length (ft)	150					
Base Capacity (vph)	119	1185	1091		414	528
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.18	0.50	0.52		0.14	0.41

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 48 (69%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 6.4 Intersection LOS: A
Intersection Capacity Utilization 51.1% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: OR 18 Bus & Chip Yard Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1487	1565	1556	0	1487	1330
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1487	1565	1556	0	1487	1330
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40	40		40	
Link Distance (ft)		1256	912		336	
Travel Time (s)		21.4	15.5		5.7	
Volume (vph)	22	753	519	24	49	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	23	793	546	25	52	37
Lane Group Flow (vph)	23	793	571	0	52	37
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 51.8% ICU Level of Service A
Analysis Period (min) 15

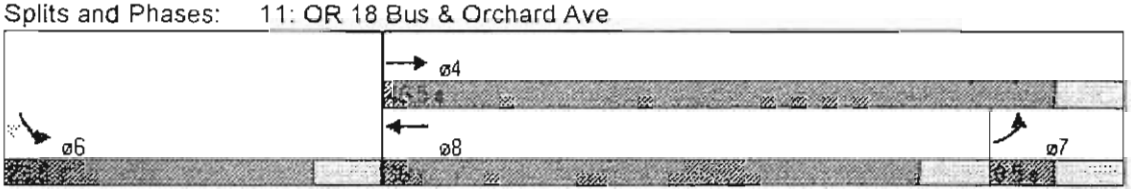
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.965			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1487	1565	1510	0	1487	1330
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1487	1565	1510	0	1487	1330
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			36			55
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40	40		40	
Link Distance (ft)		912	1296		808	
Travel Time (s)		15.5	22.1		13.8	
Volume (vph)	36	790	514	183	360	52
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	832	541	193	379	55
Lane Group Flow (vph)	38	832	734	0	379	55
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Detector Phases	7	4	8		6	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	8.5	21.5	21.5		23.5	23.5
Total Split (s)	8.5	46.5	38.0	0.0	23.5	23.5
Total Split (%)	12.1%	66.4%	54.3%	0.0%	33.6%	33.6%
Maximum Green (s)	4.0	42.0	33.5		19.0	19.0
Yellow Time (s)	4.5	4.5	4.5		4.5	4.5
All-Red Time (s)	0.0	0.0	0.0		0.0	0.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Min	C-Min		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		12.0	12.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	4.5	42.0	36.9		20.0	20.0
Actuated g/C Ratio	0.06	0.60	0.53		0.29	0.29
v/c Ratio	0.40	0.89	0.90		0.89	0.13
Control Delay	40.1	21.7	23.3		49.1	7.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	40.1	21.7	23.3		49.1	7.0
LOS	D	C	C		D	A
Approach Delay		22.5	23.3		43.8	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach LOS		C	C		D	
Queue Length 50th (ft)	16	225	280		157	0
Queue Length 95th (ft)	m35	#525	#168		#313	24
Internal Link Dist (ft)		832	1216		728	
Turn Bay Length (ft)	150					
Base Capacity (vph)	96	955	813		430	424
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.40	0.87	0.90		0.88	0.13

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 69 (99%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 27.3 Intersection LOS: C
Intersection Capacity Utilization 71.6% ICU Level of Service C
Analysis Period (min) 15
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.

Splits and Phases: 11: OR 18 Bus & Orchard Ave



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.989			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1487	1565	1548	0	1487	1330
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1487	1565	1548	0	1487	1330
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			9			18
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40	40		40	
Link Distance (ft)		1296	3684		832	
Travel Time (s)		22.1	62.8		14.2	
Volume (vph)	13	1137	700	61	149	17
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	14	1197	737	64	157	18
Lane Group Flow (vph)	14	1197	801	0	157	18
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Detector Phases	7	4	8		6	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	8.5	21.5	21.5		23.5	23.5
Total Split (s)	8.5	46.5	38.0	0.0	23.5	23.5
Total Split (%)	12.1%	66.4%	54.3%	0.0%	33.6%	33.6%
Maximum Green (s)	4.0	42.0	33.5		19.0	19.0
Yellow Time (s)	4.5	4.5	4.5		4.5	4.5
All-Red Time (s)	0.0	0.0	0.0		0.0	0.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Min	C-Min		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		12.0	12.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	6.4	52.4	50.4		12.6	12.6
Actuated g/C Ratio	0.09	0.75	0.72		0.18	0.18
v/c Ratio	0.10	1.02	0.72		0.59	0.07
Control Delay	29.8	39.6	15.9		28.0	10.4
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	29.8	39.6	15.9		28.0	10.4
LOS	C	D	B		C	B
Approach Delay		39.5	15.9		26.2	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach LOS		D	B		C	
Queue Length 50th (ft)	5	~587	167		63	0
Queue Length 95th (ft)	m6	m#809	#596		108	14
Internal Link Dist (ft)		1216	3604		752	
Turn Bay Length (ft)	150					
Base Capacity (vph)	136	1171	1116		414	383
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.10	1.02	0.72		0.38	0.05

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 48 (69%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 29.8 Intersection LOS: C
Intersection Capacity Utilization 78.5% ICU Level of Service D
Analysis Period (min) 15

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

Splits and Phases: 13: OR 18 Bus & Richard St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		800	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)		50	50		50		50	50		50	50	
Trailing Detector (ft)		0	0		0		0	0		0	0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.992			0.972			0.986	
Flt Protected								0.972			0.994	
Satd. Flow (prot)	0	1565	1330	0	1553	0	0	1479	0	0	1534	0
Flt Permitted								0.629			0.908	
Satd. Flow (perm)	0	1565	1330	0	1553	0	0	957	0	0	1401	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			597		4			22			10	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		3684			1264			1048			600	
Travel Time (s)		62.8			21.5			17.9			10.2	
Volume (vph)	0	629	573	0	396	27	313	118	114	34	234	31
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
Adj. Flow (vph)	0	662	603	0	417	28	329	124	120	36	246	33
Lane Group Flow (vph)	0	662	603	0	445	0	0	573	0	0	315	0
Turn Type			Perm				Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases			4				2			6		
Detector Phases		4	4		8		2	2		6	6	
Minimum Initial (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)		21.5	21.5		23.5		23.5	23.5		23.5	23.5	
Total Split (s)	0.0	39.0	39.0	0.0	39.0	0.0	51.0	51.0	0.0	51.0	51.0	0.0
Total Split (%)	0.0%	43.3%	43.3%	0.0%	43.3%	0.0%	56.7%	56.7%	0.0%	56.7%	56.7%	0.0%
Maximum Green (s)		34.5	34.5		34.5		46.5	46.5		46.5	46.5	
Yellow Time (s)		4.5	4.5		4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Recall Mode		Min	Min		Min		None	None		None	None	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		10.0	10.0		10.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)		0	0		0		0	0		0	0	
Act Effct Green (s)		35.0	35.0		35.0			47.0			47.0	
Actuated g/C Ratio		0.39	0.39		0.39			0.52			0.52	
v/c Ratio		1.09	0.68		0.73			1.12			0.43	
Control Delay		91.1	6.5		32.0			101.6			15.0	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		91.1	6.5		32.0			101.6			15.0	
LOS		F	A		C			F			B	
Approach Delay		50.8			32.0			101.6			15.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			C			F			B	
Queue Length 50th (ft)		~428	2		210			~375			101	
Queue Length 95th (ft)		#637	83		329			#579			166	
Internal Link Dist (ft)		3604			1184			968			520	
Turn Bay Length (ft)			800									
Base Capacity (vph)		609	882		606			510			736	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		1.09	0.68		0.73			1.12			0.43	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 54.4 Intersection LOS: D
Intersection Capacity Utilization 94.1% ICU Level of Service F
Analysis Period (min) 15

~: 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.

Splits and Phases: 15: OR 18 Bus & Bridge St

Intersection: 2: OR 18 Bus & Rock Creek Road, Interval #1

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	128	189	286	130	287	87
Average Queue (ft)	53	81	145	46	171	38
95th Queue (ft)	122	177	307	128	307	94
Link Distance (ft)		430	780		740	740
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150			150		
Storage Blk Time (%)	0.02	0.01	0.06	0.00		
Queuing Penalty (veh)	6	0	8	0		

Intersection: 2: OR 18 Bus & Rock Creek Road, Interval #2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	160	418	506	164	411	167
Average Queue (ft)	54	128	168	56	175	47
95th Queue (ft)	138	328	397	150	323	123
Link Distance (ft)		430	780		740	740
Upstream Blk Time (%)		0.03	0.00			
Queuing Penalty (veh)		9	0			
Storage Bay Dist (ft)	150			150		
Storage Blk Time (%)		0.11	0.08	0.00		
Queuing Penalty (veh)		4	9	0		

Intersection: 2: OR 18 Bus & Rock Creek Road, All Intervals

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	178	418	506	176	421	187
Average Queue (ft)	54	116	162	53	174	45
95th Queue (ft)	134	300	378	145	319	116
Link Distance (ft)		430	780		740	740
Upstream Blk Time (%)		0.02	0.00			
Queuing Penalty (veh)		7	0			
Storage Bay Dist (ft)	150			150		
Storage Blk Time (%)	0.01	0.09	0.07	0.00		
Queuing Penalty (veh)	2	3	9	0		

Intersection: 4: OR 18 Bus & Driveway 1, Interval #1

Movement	EB	SB	SB
Directions Served	L	L	R
Maximum Queue (ft)	14	77	50
Average Queue (ft)	2	22	16
95th Queue (ft)	15	63	54
Link Distance (ft)		366	366
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: OR 18 Bus & Driveway 1, Interval #2

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	19	659	13	238	127
Average Queue (ft)	1	293	1	96	43
95th Queue (ft)	9	871	11	299	206
Link Distance (ft)		780	532	366	366
Upstream Blk Time (%)		0.08		0.09	0.07
Queuing Penalty (veh)		43		0	0
Storage Bay Dist (ft)	150				
Storage Blk Time (%)		0.27			
Queuing Penalty (veh)		1			

Intersection: 4: OR 18 Bus & Driveway 1, All Intervals

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	26	659	13	238	138
Average Queue (ft)	1	222	0	78	36
95th Queue (ft)	11	767	9	263	181
Link Distance (ft)		780	532	366	366
Upstream Blk Time (%)		0.06		0.07	0.05
Queuing Penalty (veh)		33		0	0
Storage Bay Dist (ft)	150				
Storage Blk Time (%)		0.20			
Queuing Penalty (veh)		1			

Intersection: 7: OR 18 Bus & Chip Yard Road, Interval #1

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	59	380	404	223	61
Average Queue (ft)	20	194	227	128	28
95th Queue (ft)	61	366	427	211	67
Link Distance (ft)		532	1186	685	685
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150				
Storage Blk Time (%)		0.07			
Queuing Penalty (veh)		1			

Intersection: 7: OR 18 Bus & Chip Yard Road, Interval #2

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	190	605	458	364	88
Average Queue (ft)	32	369	167	171	27
95th Queue (ft)	112	711	359	307	68
Link Distance (ft)		532	1186	685	685
Upstream Blk Time (%)		0.25			
Queuing Penalty (veh)		155			
Storage Bay Dist (ft)	150				
Storage Blk Time (%)	0.00	0.37			
Queuing Penalty (veh)	0	8			

Intersection: 7: OR 18 Bus & Chip Yard Road, All Intervals

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	190	605	485	364	88
Average Queue (ft)	29	327	182	161	27
95th Queue (ft)	102	660	380	290	67
Link Distance (ft)		532	1186	685	685
Upstream Blk Time (%)		0.19			
Queuing Penalty (veh)		116			
Storage Bay Dist (ft)	150				
Storage Blk Time (%)	0.00	0.29			
Queuing Penalty (veh)	0	6			

Intersection: 9: OR 18 Bus & Driveway 2, Interval #1

Movement	EB	EB	SB	SB
Directions Served	L	T	L	R
Maximum Queue (ft)	58	306	154	62
Average Queue (ft)	20	125	87	28
95th Queue (ft)	89	554	234	64
Link Distance (ft)		1186	301	301
Upstream Blk Time (%)			0.06	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)	150			
Storage Blk Time (%)		0.07		
Queuing Penalty (veh)		2		

Intersection: 9: OR 18 Bus & Driveway 2, Interval #2

Movement	EB	EB	SB	SB
Directions Served	L	T	L	R
Maximum Queue (ft)	159	1220	337	333
Average Queue (ft)	24	878	227	117
95th Queue (ft)	116	1594	409	338
Link Distance (ft)		1186	301	301
Upstream Blk Time (%)		0.18	0.53	0.26
Queuing Penalty (veh)		136	0	0
Storage Bay Dist (ft)	150			
Storage Blk Time (%)		0.43		
Queuing Penalty (veh)		10		

Intersection: 9: OR 18 Bus & Driveway 2, All Intervals

Movement	EB	EB	SB	SB
Directions Served	L	T	L	R
Maximum Queue (ft)	188	1220	338	333
Average Queue (ft)	23	696	193	95
95th Queue (ft)	110	1542	394	299
Link Distance (ft)		1186	301	301
Upstream Blk Time (%)		0.13	0.41	0.19
Queuing Penalty (veh)		102	0	0
Storage Bay Dist (ft)	150			
Storage Blk Time (%)		0.34		
Queuing Penalty (veh)		8		

Intersection: 11: OR 18 Bus & Orchard Ave, Interval #1

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	113	811	608	488	246
Average Queue (ft)	52	656	384	344	98
95th Queue (ft)	111	964	695	605	345
Link Distance (ft)		843	1229	1173	1173
Upstream Blk Time (%)		0.09			
Queuing Penalty (veh)		73			
Storage Bay Dist (ft)	150				
Storage Blk Time (%)	0.00	0.42			
Queuing Penalty (veh)	0	16			

Intersection: 11: OR 18 Bus & Orchard Ave, Interval #2

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	160	876	720	850	776
Average Queue (ft)	41	844	315	535	220
95th Queue (ft)	114	970	665	957	757
Link Distance (ft)		843	1229	1173	1173
Upstream Blk Time (%)		0.38		0.00	0.00
Queuing Penalty (veh)		297		0	0
Storage Bay Dist (ft)	150				
Storage Blk Time (%)	0.00	0.51			
Queuing Penalty (veh)	3	18			

Intersection: 11: OR 18 Bus & Orchard Ave, All Intervals

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	172	876	760	874	781
Average Queue (ft)	44	798	332	489	191
95th Queue (ft)	114	1028	676	901	682
Link Distance (ft)		843	1229	1173	1173
Upstream Blk Time (%)		0.30		0.00	0.00
Queuing Penalty (veh)		241		0	0
Storage Bay Dist (ft)	150				
Storage Blk Time (%)	0.00	0.49			
Queuing Penalty (veh)	2	17			

Intersection: 13: OR 18 Bus & Richard St, Interval #1

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	70	1246	383	217	52
Average Queue (ft)	19	1020	196	120	12
95th Queue (ft)	75	1506	392	220	52
Link Distance (ft)		1229	3622	798	798
Upstream Blk Time (%)		0.06			
Queuing Penalty (veh)		70			
Storage Bay Dist (ft)	150				
Storage Blk Time (%)		0.23			
Queuing Penalty (veh)		3			

Intersection: 13: OR 18 Bus & Richard St, Interval #2

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	108	1255	454	312	84
Average Queue (ft)	18	1167	187	122	17
95th Queue (ft)	79	1466	379	232	58
Link Distance (ft)		1229	3622	798	798
Upstream Blk Time (%)		0.14			
Queuing Penalty (veh)		163			
Storage Bay Dist (ft)	150				
Storage Blk Time (%)		0.32			
Queuing Penalty (veh)		4			

Intersection: 13: OR 18 Bus & Richard St, All Intervals

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	137	1255	486	329	96
Average Queue (ft)	18	1131	189	122	16
95th Queue (ft)	78	1500	383	230	56
Link Distance (ft)		1229	3622	798	798
Upstream Blk Time (%)		0.12			
Queuing Penalty (veh)		140			
Storage Bay Dist (ft)	150				
Storage Blk Time (%)		0.29			
Queuing Penalty (veh)		4			

Synchro/ Simtraffic Analysis Worksheets
For Concept Plan-II (75% Future Volumes)

CTS ENGINEERS

OR04.065.T01 SHERIDAN TRP

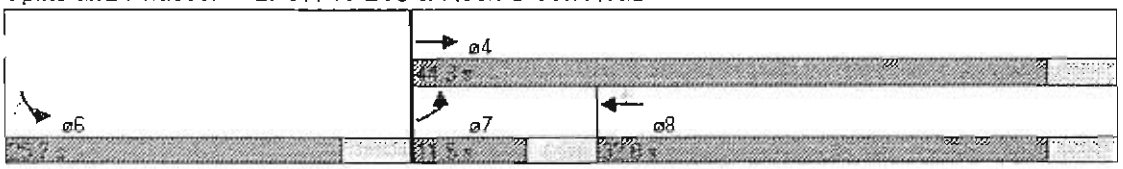
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	150			150	0	0
Storage Lanes	1			1	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1487	1565	1565	1330	1487	1330
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1487	1565	1565	1330	1487	1330
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				99		111
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40	40		40	
Link Distance (ft)		480	848		788	
Travel Time (s)		8.2	14.5		13.4	
Volume (vph)	32	238	330	99	225	111
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	238	330	99	225	111
Lane Group Flow (vph)	32	238	330	99	225	111
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Detector Phases	7	4	8	8	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.5	21.5	21.5	21.5	23.5	23.5
Total Split (s)	11.5	44.3	32.8	32.8	25.7	25.7
Total Split (%)	16.4%	63.3%	46.9%	46.9%	36.7%	36.7%
Maximum Green (s)	7.0	39.8	28.3	28.3	21.2	21.2
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		10.0	10.0	10.0	12.0	12.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effct Green (s)	7.1	46.3	41.4	41.4	15.7	15.7
Actuated g/C Ratio	0.10	0.66	0.59	0.59	0.22	0.22
v/c Ratio	0.21	0.23	0.36	0.12	0.67	0.29
Control Delay	31.4	6.5	3.6	0.4	27.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	6.5	3.8	0.4	27.4	5.6
LOS	C	A	A	A	C	A
Approach Delay		9.4	3.0		20.2	

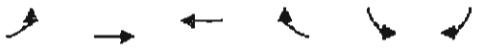
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach LOS		A	A		C	
Queue Length 50th (ft)	13	35	11	0	89	0
Queue Length 95th (ft)	37	85	28	0	138	32
Internal Link Dist (ft)		400	768		708	
Turn Bay Length (ft)	150			150		
Base Capacity (vph)	165	1038	931	831	464	492
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.23	0.35	0.12	0.48	0.23

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow, Master Intersection
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 10.3 Intersection LOS: B
Intersection Capacity Utilization 44.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: OR 18 Bus & Rock Creek Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1487	1565	1562	0	1487	1330
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1487	1565	1562	0	1487	1330
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40	40		40	
Link Distance (ft)		848	600		400	
Travel Time (s)		14.5	10.2		6.8	
Volume (vph)	3	471	425	8	24	9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	471	425	8	24	9
Lane Group Flow (vph)	3	471	433	0	24	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.2%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.979			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1487	1565	1532	0	1487	1330
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1487	1565	1532	0	1487	1330
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			18			46
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40	40		40	
Link Distance (ft)		600	1256		721	
Travel Time (s)		10.2	21.4		12.3	
Volume (vph)	18	477	387	71	175	46
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	477	387	71	175	46
Lane Group Flow (vph)	18	477	458	0	175	46
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Detector Phases	7	4	8		6	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	8.5	21.5	21.5		23.5	23.5
Total Split (s)	8.5	46.5	38.0	0.0	23.5	23.5
Total Split (%)	12.1%	66.4%	54.3%	0.0%	33.6%	33.6%
Maximum Green (s)	4.0	42.0	33.5		19.0	19.0
Yellow Time (s)	4.5	4.5	4.5		4.5	4.5
All-Red Time (s)	0.0	0.0	0.0		0.0	0.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Min	C-Min		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		12.0	12.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	6.2	48.5	46.8		13.5	13.5
Actuated g/C Ratio	0.09	0.69	0.67		0.19	0.19
v/c Ratio	0.14	0.44	0.44		0.61	0.16
Control Delay	29.0	5.6	5.9		28.1	7.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	29.0	5.6	5.9		28.1	7.7
LOS	C	A	A		C	A
Approach Delay		6.5	5.9		23.8	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach LOS		A	A		C	
Queue Length 50th (ft)	7	47	9		70	0
Queue Length 95th (ft)	m22	134	292		116	22
Internal Link Dist (ft)		520	1176		641	
Turn Bay Length (ft)	150					
Base Capacity (vph)	131	1084	1030		414	404
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.14	0.44	0.44		0.42	0.11

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 48 (69%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 9.5 Intersection LOS: A
Intersection Capacity Utilization 43.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: OR 18 Bus & Chip Yard Road

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1487	1565	1556	0	1487	1330
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1487	1565	1556	0	1487	1330
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40	40		40	
Link Distance (ft)		1256	912		336	
Travel Time (s)		21.4	15.5		5.7	
Volume (vph)	18	602	415	19	39	29
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	602	415	19	39	29
Lane Group Flow (vph)	18	602	434	0	39	29
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 43.4% ICU Level of Service A
Analysis Period (min) 15

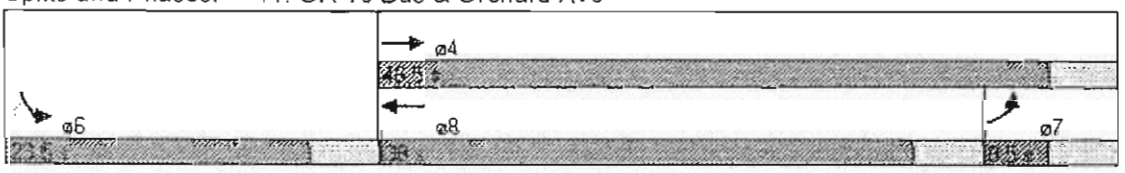
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.965			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1487	1565	1510	0	1487	1330
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1487	1565	1510	0	1487	1330
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			36			44
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40	40		40	
Link Distance (ft)		912	1296		808	
Travel Time (s)		15.5	22.1		13.8	
Volume (vph)	22	665	433	154	303	44
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	665	433	154	303	44
Lane Group Flow (vph)	22	665	587	0	303	44
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Detector Phases	7	4	8		6	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	8.5	21.5	21.5		23.5	23.5
Total Split (s)	8.5	46.5	38.0	0.0	23.5	23.5
Total Split (%)	12.1%	66.4%	54.3%	0.0%	33.6%	33.6%
Maximum Green (s)	4.0	42.0	33.5		19.0	19.0
Yellow Time (s)	4.5	4.5	4.5		4.5	4.5
All-Red Time (s)	0.0	0.0	0.0		0.0	0.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Min	C-Min		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		12.0	12.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	5.6	44.4	41.0		17.6	17.6
Actuated g/C Ratio	0.08	0.63	0.59		0.25	0.25
v/c Ratio	0.18	0.67	0.65		0.81	0.12
Control Delay	31.6	11.5	10.1		36.4	7.4
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	31.6	11.5	10.1		36.4	7.4
LOS	C	B	B		D	A
Approach Delay		12.1	10.1		32.7	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach LOS		B	B		C	
Queue Length 50th (ft)	10	179	182		118	0
Queue Length 95th (ft)	m22	178	#29		#229	22
Internal Link Dist (ft)		832	1216		728	
Turn Bay Length (ft)	150					
Base Capacity (vph)	120	993	899		414	402
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.18	0.67	0.65		0.73	0.11

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 69 (99%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 15.8 Intersection LOS: B
Intersection Capacity Utilization 61.3% ICU Level of Service B
Analysis Period (min) 15
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.

Splits and Phases: 11: OR 18 Bus & Orchard Ave



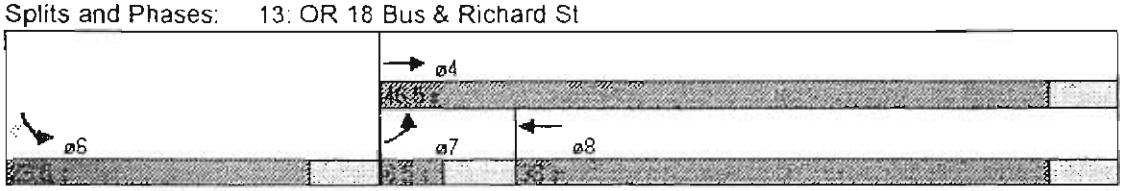
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50
Trailing Detector (ft)	0	0	0		0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.989			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1487	1565	1548	0	1487	1330
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1487	1565	1548	0	1487	1330
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			9			15
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40	40		40	
Link Distance (ft)		1296	3684		832	
Travel Time (s)		22.1	62.8		14.2	
Volume (vph)	11	957	589	51	125	15
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	957	589	51	125	15
Lane Group Flow (vph)	11	957	640	0	125	15
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Detector Phases	7	4	8		6	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	8.5	21.5	21.5		23.5	23.5
Total Split (s)	8.5	46.5	38.0	0.0	23.5	23.5
Total Split (%)	12.1%	66.4%	54.3%	0.0%	33.6%	33.6%
Maximum Green (s)	4.0	42.0	33.5		19.0	19.0
Yellow Time (s)	4.5	4.5	4.5		4.5	4.5
All-Red Time (s)	0.0	0.0	0.0		0.0	0.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Min	C-Min		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		12.0	12.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	6.7	53.7	51.3		11.2	11.2
Actuated g/C Ratio	0.10	0.77	0.73		0.16	0.16
v/c Ratio	0.08	0.80	0.56		0.53	0.07
Control Delay	27.5	13.9	11.0		28.0	12.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	27.5	13.9	11.0		28.0	12.0
LOS	C	B	B		C	B
Approach Delay		14.0	11.0		26.3	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach LOS		B	B		C	
Queue Length 50th (ft)	4	299	99		50	0
Queue Length 95th (ft)	m6	#616	#422		92	14
Internal Link Dist (ft)		1216	3604		752	
Turn Bay Length (ft)	150					
Base Capacity (vph)	142	1201	1138		414	381
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.08	0.80	0.56		0.30	0.04

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 48 (69%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 67.1% ICU Level of Service C
Analysis Period (min) 15
\# 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.

Splits and Phases: 13: OR 18 Bus & Richard St



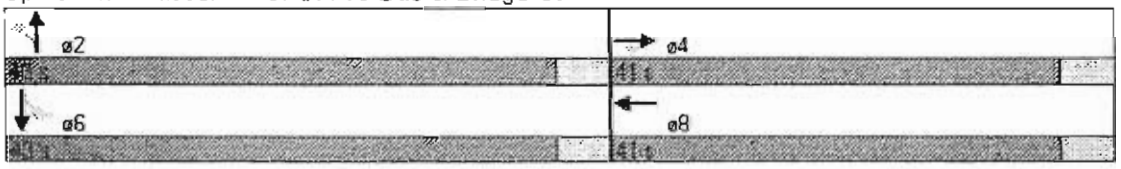
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	0		800	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)		50	50		50		50	50		50	50	
Trailing Detector (ft)		0	0		0		0	0		0	0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.991			0.972			0.982	
Flt Protected								0.972			0.993	
Satd. Flow (prot)	0	1565	1330	0	1551	0	0	1479	0	0	1526	0
Flt Permitted								0.711			0.910	
Satd. Flow (perm)	0	1565	1330	0	1551	0	0	1082	0	0	1399	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			483		5			21			12	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		3684			1264			1048			600	
Travel Time (s)		62.8			21.5			17.9			10.2	
Volume (vph)	0	530	483	0	333	23	264	99	96	29	142	26
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	530	483	0	333	23	264	99	96	29	142	26
Lane Group Flow (vph)	0	530	483	0	356	0	0	459	0	0	197	0
Turn Type			Perm				Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases			4				2			6		
Detector Phases		4	4		8		2	2		6	6	
Minimum Initial (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)		21.5	21.5		23.5		23.5	23.5		23.5	23.5	
Total Split (s)	0.0	41.0	41.0	0.0	41.0	0.0	49.0	49.0	0.0	49.0	49.0	0.0
Total Split (%)	0.0%	45.6%	45.6%	0.0%	45.6%	0.0%	54.4%	54.4%	0.0%	54.4%	54.4%	0.0%
Maximum Green (s)		36.5	36.5		36.5		44.5	44.5		44.5	44.5	
Yellow Time (s)		4.5	4.5		4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Recall Mode		Min	Min		Min		None	None		None	None	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		10.0	10.0		10.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)		0	0		0		0	0		0	0	
Act Effct Green (s)		29.2	29.2		29.2			33.1			33.1	
Actuated g/C Ratio		0.41	0.41		0.41			0.46			0.46	
v/c Ratio		0.83	0.58		0.56			0.90			0.30	
Control Delay		27.7	4.4		20.6			27.6			12.9	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		27.7	4.4		20.6			27.6			12.9	
LOS		C	A		C			C			B	
Approach Delay		16.6			20.6			27.6			12.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			C			C			B	
Queue Length 50th (ft)		249	0		141			205			58	
Queue Length 95th (ft)		#444	61		236			#399			103	
Internal Link Dist (ft)		3604			1184			968			520	
Turn Bay Length (ft)			800									
Base Capacity (vph)		754	891		750			609			781	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.70	0.54		0.47			0.75			0.25	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 71.6
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 19.4 Intersection LOS: B
Intersection Capacity Utilization 77.8% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 15: OR 18 Bus & Bridge St



Intersection: 2: OR 18 Bus & Rock Creek Road, Interval #1

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	80	102	250	98	267	95
Average Queue (ft)	35	52	96	31	134	46
95th Queue (ft)	81	106	249	92	254	99
Link Distance (ft)		430	780		740	740
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150			150		
Storage Blk Time (%)		0.00	0.04			
Queuing Penalty (veh)		0	4			

Intersection: 2: OR 18 Bus & Rock Creek Road, Interval #2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	122	205	284	129	302	99
Average Queue (ft)	34	69	103	27	147	41
95th Queue (ft)	87	159	235	82	254	88
Link Distance (ft)		430	780		740	740
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150			150		
Storage Blk Time (%)	0.00	0.01	0.03	0.00		
Queuing Penalty (veh)	0	0	3	0		

Intersection: 2: OR 18 Bus & Rock Creek Road, All Intervals

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	128	205	324	137	321	101
Average Queue (ft)	34	65	101	28	144	42
95th Queue (ft)	85	148	239	84	255	91
Link Distance (ft)		430	780		740	740
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150			150		
Storage Blk Time (%)	0.00	0.01	0.03	0.00		
Queuing Penalty (veh)	0	0	3	0		

Intersection: 4: OR 18 Bus & Driveway 1, Interval #1

Movement	EB	SB	SB
Directions Served	L	L	R
Maximum Queue (ft)	6	56	36
Average Queue (ft)	1	19	9
95th Queue (ft)	9	56	35
Link Distance (ft)		366	366
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: OR 18 Bus & Driveway 1, Interval #2

Movement	EB	SB	SB
Directions Served	L	L	R
Maximum Queue (ft)	13	76	44
Average Queue (ft)	1	23	8
95th Queue (ft)	10	61	33
Link Distance (ft)		366	366
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: OR 18 Bus & Driveway 1, All Intervals

Movement	EB	SB	SB
Directions Served	L	L	R
Maximum Queue (ft)	13	76	50
Average Queue (ft)	1	22	8
95th Queue (ft)	10	60	33
Link Distance (ft)		366	366
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: OR 18 Bus & Chip Yard Road, Interval #1

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	75	242	369	294	85
Average Queue (ft)	19	131	168	142	27
95th Queue (ft)	70	251	355	306	74
Link Distance (ft)		532	1186	685	685
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150				
Storage Blk Time (%)	0.00	0.05			
Queuing Penalty (veh)	0	1			

Intersection: 7: OR 18 Bus & Chip Yard Road, Interval #2

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	106	433	360	282	75
Average Queue (ft)	25	142	141	116	28
95th Queue (ft)	78	313	305	223	61
Link Distance (ft)		532	1186	685	685
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150				
Storage Blk Time (%)		0.05			
Queuing Penalty (veh)		1			

Intersection: 7: OR 18 Bus & Chip Yard Road, All Intervals

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	117	433	433	343	94
Average Queue (ft)	24	139	147	122	28
95th Queue (ft)	76	299	318	247	65
Link Distance (ft)		532	1186	685	685
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150				
Storage Blk Time (%)	0.00	0.05			
Queuing Penalty (veh)	0	1			

Intersection: 9: OR 18 Bus & Driveway 2, Interval #1

Movement	EB	SB	SB
Directions Served	L	L	R
Maximum Queue (ft)	37	72	55
Average Queue (ft)	10	28	21
95th Queue (ft)	43	66	56
Link Distance (ft)		301	301
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: OR 18 Bus & Driveway 2, Interval #2

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	61	17	95	73
Average Queue (ft)	7	1	31	24
95th Queue (ft)	37	11	72	59
Link Distance (ft)		843	301	301
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	150			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: OR 18 Bus & Driveway 2, All Intervals

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	62	17	99	82
Average Queue (ft)	8	1	30	24
95th Queue (ft)	39	9	71	59
Link Distance (ft)		843	301	301
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	150			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: OR 18 Bus & Orchard Ave, Interval #1

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	115	424	426	290	62
Average Queue (ft)	34	241	225	200	27
95th Queue (ft)	114	465	455	332	66
Link Distance (ft)		843	1229	773	773
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150				
Storage Blk Time (%)		0.13			
Queuing Penalty (veh)		3			

Intersection: 11: OR 18 Bus & Orchard Ave, Interval #2

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	166	513	529	416	83
Average Queue (ft)	30	232	218	199	24
95th Queue (ft)	101	453	442	352	66
Link Distance (ft)		843	1229	773	773
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150				
Storage Blk Time (%)		0.10			
Queuing Penalty (veh)		2			

Intersection: 11: OR 18 Bus & Orchard Ave, All Intervals

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	190	522	573	419	84
Average Queue (ft)	31	234	220	199	25
95th Queue (ft)	104	456	445	347	66
Link Distance (ft)		843	1229	773	773
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150				
Storage Blk Time (%)		0.11			
Queuing Penalty (veh)		2			

Intersection: 13: OR 18 Bus & Richard St, Interval #1

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	72	656	309	150	45
Average Queue (ft)	15	381	160	101	17
95th Queue (ft)	59	918	332	171	49
Link Distance (ft)		1229	3622	798	798
Upstream Blk Time (%)		0.01			
Queuing Penalty (veh)		6			
Storage Bay Dist (ft)	150				
Storage Blk Time (%)		0.12			
Queuing Penalty (veh)		1			

Intersection: 13: OR 18 Bus & Richard St, Interval #2

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	128	846	388	217	80
Average Queue (ft)	21	278	145	93	17
95th Queue (ft)	80	675	334	181	52
Link Distance (ft)		1229	3622	798	798
Upstream Blk Time (%)		0.00			
Queuing Penalty (veh)		0			
Storage Bay Dist (ft)	150				
Storage Blk Time (%)		0.08			
Queuing Penalty (veh)		1			

Intersection: 13: OR 18 Bus & Richard St, All Intervals

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	131	874	398	217	80
Average Queue (ft)	19	303	149	95	17
95th Queue (ft)	75	744	334	180	51
Link Distance (ft)		1229	3622	798	798
Upstream Blk Time (%)		0.00			
Queuing Penalty (veh)		2			
Storage Bay Dist (ft)	150				
Storage Blk Time (%)		0.09			
Queuing Penalty (veh)		1			

Intersection: 15: OR 18 Bus & Bridge St, Interval #1

Movement	EB	EB	WB	NB	SB
Directions Served	T	R	TR	LTR	LTR
Maximum Queue (ft)	485	237	311	652	178
Average Queue (ft)	289	138	193	391	99
95th Queue (ft)	512	242	318	677	187
Link Distance (ft)	3622		1218	990	572
Upstream Blk Time (%)				0.01	
Queuing Penalty (veh)				2	
Storage Bay Dist (ft)		500			
Storage Blk Time (%)	0.01				
Queuing Penalty (veh)	3				

Intersection: 15: OR 18 Bus & Bridge St, Interval #2

Movement	EB	EB	WB	NB	SB
Directions Served	T	R	TR	LTR	LTR
Maximum Queue (ft)	1544	565	459	957	181
Average Queue (ft)	721	236	210	648	90
95th Queue (ft)	1909	544	374	1149	166
Link Distance (ft)	3622		1218	990	572
Upstream Blk Time (%)				0.08	
Queuing Penalty (veh)				37	
Storage Bay Dist (ft)		500			
Storage Blk Time (%)	0.09	0.00			
Queuing Penalty (veh)	46	0			

Intersection: 15: OR 18 Bus & Bridge St, All Intervals

Movement	EB	EB	WB	NB	SB
Directions Served	T	R	TR	LTR	LTR
Maximum Queue (ft)	1544	565	459	957	196
Average Queue (ft)	616	212	206	586	92
95th Queue (ft)	1701	494	361	1079	171
Link Distance (ft)	3622		1218	990	572
Upstream Blk Time (%)				0.06	
Queuing Penalty (veh)				29	
Storage Bay Dist (ft)		500			
Storage Blk Time (%)	0.07	0.00			
Queuing Penalty (veh)	35	0			

Synchro/ Simtraffic Analysis Worksheets
For Concept Plan-II
(75% Future Volumes With/out EB and WB left turns)

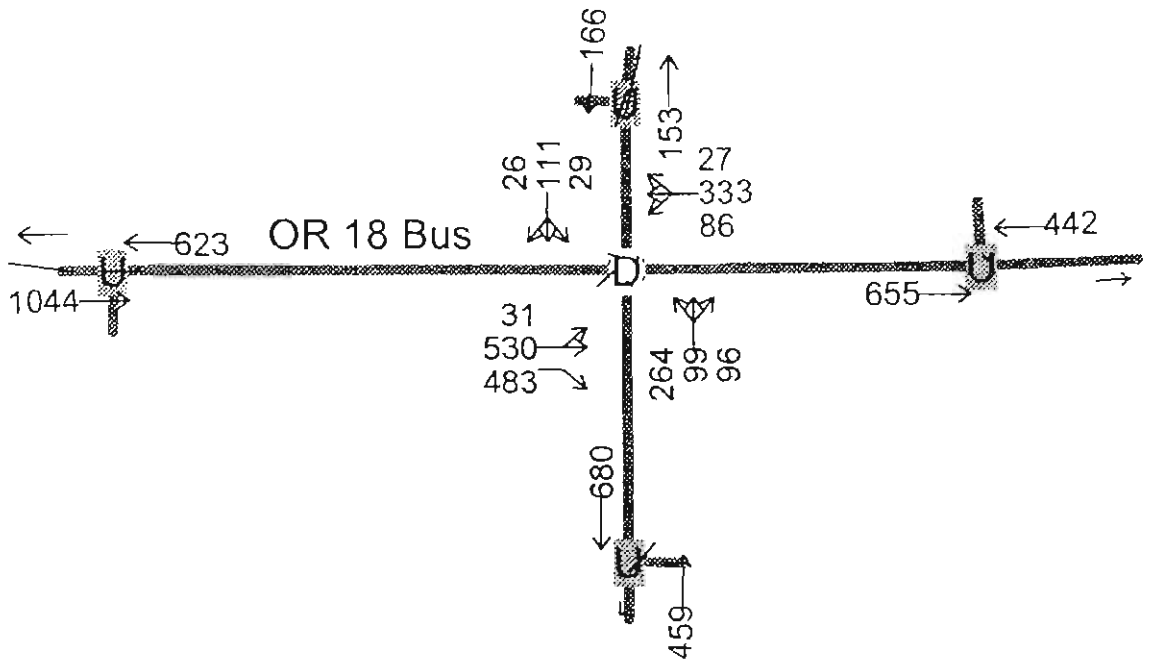
CTS
ENGINEERS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0	4.0		4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.99			0.97			0.98	
Flt Protected		1.00	1.00		0.99			0.97			0.99	
Satd. Flow (prot)		1561	1330		1538			1478			1519	
Flt Permitted		0.96	1.00		0.61			0.72			0.89	
Satd. Flow (perm)		1503	1330		947			1093			1368	
Volume (vph)	31	530	483	86	333	27	264	99	96	29	111	26
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	33	558	508	91	351	28	278	104	101	31	117	27
RTOR Reduction (vph)	0	0	258	0	3	0	0	10	0	0	7	0
Lane Group Flow (vph)	0	591	250	0	467	0	0	473	0	0	168	0
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		40.5	40.5		40.5			33.9			33.9	
Effective Green, g (s)		41.0	41.0		41.0			34.4			34.4	
Actuated g/C Ratio		0.49	0.49		0.49			0.41			0.41	
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)		739	654		466			451			564	
v/s Ratio Prot												
v/s Ratio Perm		0.39	0.19		c0.49			c0.43			0.12	
v/c Ratio		0.80	0.38		1.00			1.05			0.30	
Uniform Delay, d1		17.8	13.3		21.2			24.5			16.4	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		6.1	0.4		42.5			55.8			0.3	
Delay (s)		23.8	13.6		63.7			80.3			16.7	
Level of Service		C	B		E			F			B	
Approach Delay (s)		19.1			63.7			80.3			16.7	
Approach LOS		B			E			F			B	

Intersection Summary			
HCM Average Control Delay	41.6	HCM Level of Service	D
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	83.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	106.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Future 2025 - 100% With Left Turns E/W
Sheridan - TGM

OR 18 Bus & Bridge St
6/30/2005



30th Design Hour (75%)
CTS Engineers

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0	4.0		4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.99			0.97			0.99	
Flt Protected		1.00	1.00		1.00			0.97			0.99	
Satd. Flow (prot)		1565	1330		1552			1478			1535	
Flt Permitted		1.00	1.00		1.00			0.67			0.92	
Satd. Flow (perm)		1565	1330		1552			1013			1425	
Volume (vph)	0	530	483	0	333	23	264	99	96	29	197	26
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	558	508	0	351	24	278	104	101	31	207	27
RTOR Reduction (vph)	0	0	307	0	3	0	0	11	0	0	4	0
Lane Group Flow (vph)	0	558	201	0	372	0	0	472	0	0	261	0
Turn Type			Perm				Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)		31.4	31.4		31.4			40.2			40.2	
Effective Green, g (s)		31.9	31.9		31.9			40.7			40.7	
Actuated g/C Ratio		0.40	0.40		0.40			0.50			0.50	
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)		619	526		614			512			720	
v/s Ratio Prot		c0.36			0.24							
v/s Ratio Perm			0.15					c0.47			0.18	
v/c Ratio		0.90	0.38		0.61			0.92			0.36	
Uniform Delay, d1		22.9	17.3		19.4			18.5			12.1	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		16.3	0.5		1.7			22.2			0.3	
Delay (s)		39.2	17.8		21.0			40.7			12.4	
Level of Service		D	B		C			D			B	
Approach Delay (s)		29.0			21.0			40.7			12.4	
Approach LOS		C			C			D			B	

Intersection Summary			
HCM Average Control Delay	28.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	80.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

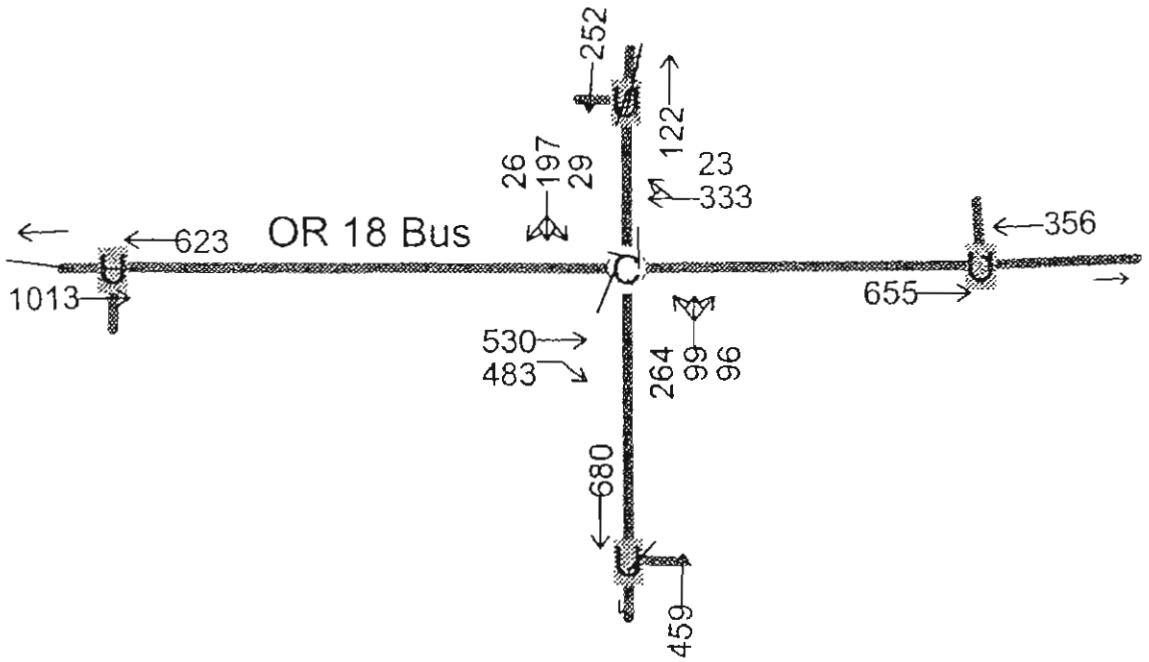

252
122
26
197
29
23
333
OR 18 Bus
623
1013
356
655
530
483
264
99
96
680
459

EXHIBIT "C"

SHERIDAN DEVELOPMENT CODE ACCESS MANAGEMENT AMENDMENTS

PLANNING FILE: LEGISLATIVE AMENDMENT 2013-01

I. Sheridan Development Code, Section 16.380.080, Access Management, is hereby amended to read:

16.380.080 Access management.

A. Special Provisions for All Streets.

1. Direct street access may be restricted or prohibited. Where access consolidation, shared access, or access separation greater than that specified by the City, County or ODOT for the purpose of protecting the function, safety and operation of the street is not feasible, the decision authority may allow an access at least two feet from the property line farthest from an intersection. Right in/out, right in only, or right out only, may be required. An access point may be temporary until a permanent access is available.

B. Shared Driveways.

1. The number of driveway and private street intersections with public streets shall be minimized by the use of shared driveways with adjoining lots where feasible.

2. The decision authority may require shared driveways as a condition of development application approval for traffic safety and access management purposes in accordance with the following standards:

a. Shared driveways and frontage streets may be required to consolidate access onto a collector or arterial street. When shared driveways or frontage streets are required, they shall be stubbed to adjacent developable parcels to indicate future extension. "Stub" means that a driveway or street temporarily ends at the property line, but may be extended in the future as the adjacent parcel develops. "Developable" means that a parcel is either vacant or it is likely to receive additional development.

b. Access easements shall be recorded for all shared driveways, accessways and pathways, at the time of final plat approval for subdivisions and partitions or before issuance of a final occupancy permit for all other development approvals.

c. Exception: Shared driveways are not required when existing development patterns or physical constraints, including, but not limited to topography, parcel configuration, and similar conditions, prevent extending the driveway in the future.

C. Driveway, street and alley access to streets shall be separated by the following distances:

Street Classification	Access Spacing
Arterial	150 feet (+/- 20%)
Collector	75 feet
Local	15 feet

(Ord. 2000-5 App. E § 3 (part), 2000)

II. Sheridan Development Code, Section 16.502.050, Conditions of Approval, is hereby amended to read:

16.502.050 Conditions of approval.

A. Conditions of approval for Type I, II, III and IV actions may be imposed by the decision authority to:

1. Ensure compliance with the standards of this title;
2. Ensure compliance with the decision criteria;
3. Address potential or actual affects or demands created by the proposed application; and
4. Protect the public health, safety and general welfare.

B. The conditions may include, but are not limited to:

1. Access location, construction and width;
2. Access consolidation, shared access, or access separation greater than specified by the city, county or ODOT;
3. Accessway location, construction and width;
4. Driveway location, construction and width;
5. Recording of reciprocal access easements;
6. Construction of a frontage street;
7. Installation of traffic control devices;
8. Mitigation as a condition of granting an access permit, to ensure the safe and efficient operation of the street and highway system.
9. Construction of on-site or off-site public sanitary sewer, storm drain, water, street, curb, gutter, sidewalk, street signage, street signals, and street tree planting strip facilities;
10. Dedication of rights-of-way and easements;
11. Berms and buffering;
12. Fencing, landscaping and screening;
13. Setbacks;

14. Structure location, height, size and shape;
15. Providing additional information including but not limited to a traffic impact analysis, wetland analysis, geo-technical analysis; and
16. Review and acceptance of construction plans by the City Engineer without the need for further review by the decision authority.

C. When the appeal period for a decision has lapsed, a request for changes or alterations of conditions of approval shall be submitted as a new application and fee using the same process that was used for the original decision.

D. Conditions of approval required by the City shall be completed consistent with the timing set forth in the condition of approval or prior to the issuance of an occupancy permit. When an applicant provides information demonstrating it is not practicable to fulfill all conditions prior to issuance of such permit, the City Manager or designee may allow a performance bond or other guarantee to ensure compliance with the provisions of this title or fulfillment of required conditions in accordance with Section 16.502.100, Performance Guarantees, below. (Ord. 2000-5 App. E § 8 (part), 2000; Ord. 95-2 Exh. A § 3, 1995; Ord. 93-5 Exh. A § 3.201.01, 1993)

III. Sheridan Development Code, Section 16.315.030, Standards for Lots or Parcels, is hereby amended to read:

16.315.030 Standards for lots or parcels.

A. Minimum Lot Area. Minimum lot area shall conform to the requirements of the zoning district in which the lot or parcel is located.

B. Access.

1. All lots or parcels created after the effective date of the ordinance codified in this title shall provide a minimum of 25 feet of frontage on an existing or proposed public street, except that residential lots or parcels, created in accordance with the provisions of Section 16.290, Hillside Development Overlay District, shall be accessed via a private street developed in accordance with the provisions of Section 16.380, Street Standards. Where a lot or parcel fronts on a public street right-of-way meeting the standard width set forth in this title and existing on the date the application was submitted, it may be allowed to access the public street.

2. New land divisions fronting onto a collector or arterial street shall provide alleys or secondary (local street) access to individual lots. When alleys or secondary streets cannot be constructed due to topographic or other physical constraints, access may be provided by consolidating driveways for two or more lots or parcels, including but not limited to flag lots and mid-block lanes.

[C. – G. No change.]