

Wahl Extraction Area
Jefferson County
Shine, WA

Transportation Report

Prepared for
Fred Hill Materials

June 2003

Reid Middleton

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June 25, 2003

Prepared for
Fred Hill Materials

Prepared by

Reid Middleton

728 134th Street SW, Suite 200
Everett, WA 98204
425/741-3800 (Fax 425/741-3900)

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Executive Summary

Fred Hill Materials (FHM) proposes to expand operations into the Wahl Extraction Area in accordance with conditions set forth in the December 2002 Jefferson County approval of a Mineral Resource Lands Overlay for the Thorndyke Resource Operations Complex (T-ROC). FHM has nearly exhausted the gravel resource as currently permitted at the existing extraction site. FHM needs to expand into the Wahl site to continue operations. FHM estimates that it will increase production of gravel from the current 500,000 tons per year to a total of 750,000 tons per year in 10 years (2013) to serve growing demand in the local market.

It is estimated that the increase in production and the resultant export of gravel by truck over area roadways will result in a total of 98 net new average daily trips on area roadways during the peak delivery season from June to December. This includes trips generated by up to a total of 18 employees. Because gravel deliveries tend to be fairly constant over the course of a 10-hour workday, it is estimated that 10 new trips per hour will be generated by the increase in production.

Roughly 90 percent of all material exported by the site is trucked east, across the Hood Canal Bridge. Therefore, analysis of project impacts is limited to one intersection (SR 104 / SR 19 intersection) west of the site access (Rock-To-Go Road), three intersections on SR 104 to the east between the site access and Hood Canal Bridge, and one at the east end of Hood Canal Bridge. The complete list of intersections analyzed includes:

SR 104 / SR 19 (Beaver Valley Road), Milepost 8.87
SR 104 / Rock-To-Go Road (site access), Milepost 9.88
SR 104 / South Point Road, Milepost 11.00
SR 104 / Teal Lake Road (north) and Shine Road (south), Milepost 11.46
SR 104 / Paradise Bay Road (north) and Shine Road (south), Milepost 13.76
SR 104 / SR 3, Milepost 15.54

Traffic on SR 104 peaks in August of each year, primarily due to the influence of tourism. Turning movement counts were gathered at the intersections above during September of 2002 and April of 2003 and proportionally adjusted upward to account for the higher traffic volumes of August. Since the gravel hauling operation closes each day at 4 PM, only the morning peak hour traffic impact is analyzed.

Jefferson County predicts a 6.09 percent growth rate in traffic along the subject portion of SR 104 in the Transportation Element of their 1998 Comprehensive Plan. Application of this growth rate to current August roadway volumes results in an approximate 81 percent increase in traffic at all intersections analyzed at the end of the 10-year period when the full impact of new trips generated by the proposal is expected to occur.

Level of service calculations performed using projected year 2013 volumes without traffic generated by the proposal indicates that all minor intersection approach legs on the referenced intersections will operate at Level of Service "F" (failing). That is, vehicles attempting to enter onto SR 104 that have to wait for gaps in both directions of traffic to make their turn will have

what is considered an unacceptable length of time to wait. This will be due to the substantially increased volume of traffic on SR 104. All other turning movements are anticipated to operate at Level of Service "D" or above, with most operating at Level of Service "C" or above. Project-generated traffic is anticipated to be less than one-half of one percent of the total volume of traffic on SR 104 at year 2013. Levels of service for all turning movements for all intersections are unaffected by the addition of project-generated traffic.

The Olympic Region of the Washington State Department of Transportation (WSDOT) requires analysis of the site access onto SR 104 (intersection of Rock-To-Go Road with SR 104) as part of their Traffic Impact Analysis Checklist. WSDOT criteria are used to evaluate the need for a left-turn storage lane, acceleration lanes, right-turn lanes, and drop lanes. Due primarily to the low volume of traffic entering and leaving the site as part of weekday operations, delays associated with turning movements are acceptable and thus negate the need for these lane additions. One exception is the northbound left-turn movement onto SR 104, which is projected to experience substantial delay in year 2013. However, with only five vehicles per hour projected to make this turn, coupled with the fact that any delay experienced is limited to project-generated traffic (as opposed to the motoring public), the impact is negligible.

FHM occasionally operates on Saturday mornings based on customer demand. The need for the above-described lanes was evaluated for a Saturday morning assuming trip generation is the same as that generated by a weekday operation. WSDOT traffic counts for the peak month of August were used to project future traffic volumes along SR104 based on the previously referenced Jefferson County 6.09 percent growth factor. The northbound left-turn movement onto SR 104 from Rock-To-Go Road was found to fail in year 2010 and the westbound left-turn movement from SR 104 onto Rock-To-Go Road fails in year 2011. Both failures are due to a lack of adequate gaps in traffic along SR 104. Because the Saturday operations are sporadic and the number of trips generated relative to overall road system volume is very low, it is recommended that both traffic volumes on SR 104 and the frequency of FHM Saturday operations be monitored on an annual basis.

Location

Fred Hill Materials, Inc. (FHM) conducts its primary sand and gravel mining and processing operations in Jefferson County at the existing 144-acre Shine Pit, which is the Operations Hub for the Thorndyke Resource Operations Complex (T-ROC). T-ROC is located in Sections 31 and 32, Township 28 North, Range 1 East and Section 5, Township 27 North, Range 1 East, in east Jefferson County. T-ROC encompasses both existing and proposed expanded operations in and around the Shine Pit. The Wahl Extraction Area is one area of proposed expansion, and is wholly contained within the Jefferson County approved mineral Resource Lands (MRL) Overlay (Ordinance 14-1213-82). The Wahl Extraction Area is located in Section 1, Township 27 North, Range 1 West, W.M. See Figure 1 for vicinity map.

Site History

Mining of sand and gravel in the general area of Shine Pit began in 1959 to supply materials for the building of the Hood Canal Bridge western revetment. Since that time, various operators have mined sand and gravel in the same vicinity and provided truck delivery of materials. FHM assumed operation of the Shine Pit in December 1979 and obtained a Surface Mine Reclamation Permit (No. 70-011936) issued by the Washington State Department of Natural Resources. FHM has operated the Shine Pit continuously since that time. Trucks and truck-trailers currently move all excavated material; FHM uses both its own trucks and those of other haulers.

In June 1999, Ace Paving obtained a Jefferson County Conditional Use Permit (No. ZON98-0041) to operate a portable asphalt batch plant located on five acres within the Shine Pit. The asphalt is also hauled from the Pit by truck.

In December 2002, Jefferson County established a 690-acre Mineral Resource Land Overlay (MRL) in the Shine-Thorndyke area through Ordinance No. 14-1213-02. This overlay encompasses the 165-acre Wahl Extraction Area and the 525-acre Meridian Extraction Area. The MRL designation formally recognizes the existence of commercially viable deposits of sand and gravel; provides for appropriate notification of adjacent landowners regarding likely future mineral resource activities in this designated area; and allows FHM to apply for specific excavation permits for excavation areas greater than 10 acres in size under the requirements of the Jefferson County Unified Development Code (UDC).

The 2002 MRL Overlay approval included conditions regarding the specific excavation permit review process for the Wahl and Meridian expansion areas. With regard to traffic, Condition 2 c. of Ordinance No. 14-1213-02 states:

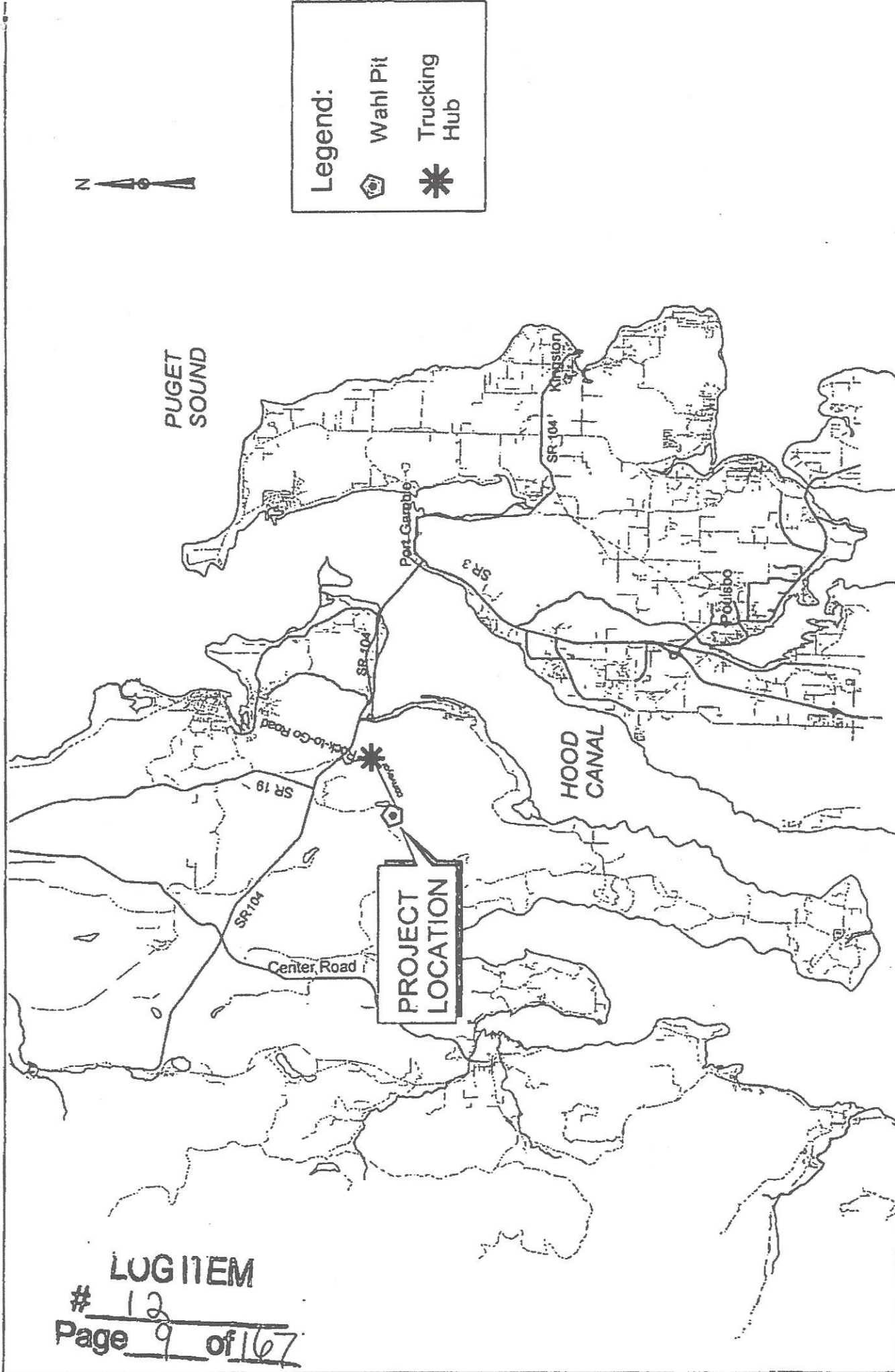
2.c. "Transportation options shall be fully studied in project action environmental review, including optimum hours for truck access to SR 104."

With regard to the Wahl Extraction Area, transportation options are limited to ground-based transport (trucks).

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Growth of T-ROC Activities

FHM has undertaken a planning and development process to identify and then pursue its business objectives into the mid-21st century. As a result of this planning process, including analysis of the geologic resources and critical environmental areas within the Thorndyke Management Area (Thorndyke Block), FHM has embarked upon a series of proposals. If each proposal is granted the necessary permits and approvals, the result would be:

- Continued growth of existing activities (Shine Pit) for the indeterminate future, including opening of new extraction areas approximately one mile west and south of the Shine Pit (Wahl and Meridian Extraction Areas) within the approved MRL.
- Development of a marine transportation system for the expanded delivery of sand and gravel (Central Conveyor and Pier)

This application for approval of an excavation permit for the Wahl Extraction Area would implement FHM's objectives of meeting continued operations and growth of existing truck-based activities. Current truck-based operations are expected to deplete the sand and gravel extraction area at the existing Shine Pit by 2004, requiring the opening of a new extraction area in the near future to maintain existing operations and support business growth serviced by ground transportation.

The analysis of geological resources within the Thorndyke Block, combined with the public concern with the visual impacts of existing mining operations, led FHM to propose the 165-acre Wahl Extraction Area as the first expansion area. The Wahl Extraction Area, which is not visible from existing road or building structures, is estimated to have sufficient volumes of sand and gravel to provide a continued supply of material for truck-based operations for 40 years. After the Wahl Area is depleted, it is anticipated that mining will be extended into the Meridian Extraction Area.

An application for the Central Conveyor and Pier Conveyor also has been initiated and will be considered in parallel with this application for the Wahl Extraction Area. However, this study only addresses expansion into the Wahl Area and new traffic impacts of a net increase in traffic associated with delivering an increased volume of aggregates to the existing market area.

Scope of Project

T-ROC currently consists of the following five major activity components at the Shine Pit:

1. Sand and gravel extraction area
2. Operations Hub, including:
 - Portable crushing, washing, and sorting equipment for sand and gravel
 - Portable equipment for recycling of concrete waste
 - Stockpile areas
 - Trucks and loaders
 - Scale house, maintenance building, caretaker home, well, and outbuildings
 - An access road to State Route (SR) 104
3. Portable conveyors used to move sand and gravel from the extraction area to the Hub
4. Asphalt batch plant (operated by Ace Paving)
5. Mined acreage in various stages of reclamation

The FHM mining operation at T-ROC currently hauls approximately 500,000 tons of material by truck to its service area annually. The 500,000 tons includes asphalt hauled by Ace Paving. The service area includes Poulsbo, Silverdale and Bainbridge Island, Hansville, Kingston, and throughout Jefferson and Clallam counties.

T-ROC operates primarily on Mondays through Fridays, within the hours of 6:00 a.m. to 4:00 p.m. Truck trips to and from the Pit are distributed throughout the day; there is no significant peak in trip generation. FHM currently has ten trucks that begin and end the day at the operations hub; additional trucks used during the day belong to other haulers and those trucks do not overnight at T-ROC.

Until recently, all hauling occurred on weekdays. In response to new demands, limited hauling now also occurs on summer Saturdays. The sporadic nature of the Saturday business, combined with the short time during which FMC has offered this service has not established a predictable trip generation pattern.

Horizon Year

Due to increased demand, as well as FHM's increased market share, the existing T-ROC truck-based operations are expected to expand from the present 500,000 tons per year to 750,000 tons per year within 10 years. It is anticipated that the 750,000 tons per year will remain constant due to saturation of the local market. Therefore, the horizon year for this traffic study is 2013.

Type, Size, and Location of Development

The 165-acre Wahl Extraction Area is located roughly one mile west-southwest of the T-ROC Operations Hub.

Type of Access

Access from T-ROC to the public roadway system is provided via a private road known as the Rock-To-Go Road, which intersects SR 104 at milepost (MP) 9.85. All material from the Wahl Extraction Area will be moved via conveyor to the existing T-ROC hub for truck transport to local markets. SR 104, SR 3, and SR 305 serve as the primary T-ROC haul routes. No new access to the public roadway system is proposed as part of this project.

Existing Roadway Characteristics

State Route 104

The Washington State Department of Transportation (WSDOT) classifies SR 104 as a Highway of Statewide Significance (HSS) and Rural Principal Arterial. HSS facilities provide and support transportation functions that promote and maintain significant statewide travel and economic linkages.

On the west side of Puget Sound, SR 104 begins at its intersection with US Highway 101 (near Discovery Bay), extends eastward across Jefferson County and the Hood Canal Floating Bridge, and then continues farther east across Kitsap County to Port Gamble and the Kingston Ferry Terminal. SR 104 serves as a primary link for freight, tourist, and commuter traffic between the Northern Olympic Peninsula and the urban centers of Puget Sound. SR 104 is designated as a T2 Truck Route (i.e., 4 million to 10 million tons of freight are transported annually on this route).

SR 104, from the "Rock-To-Go-Road" east to the Hood Canal Bridge (MP 13.93), is a two-lane asphalt roadway (one, 11-foot-wide lane in each direction), with 9-foot-wide asphalt shoulders on both sides. A westbound truck-passing lane is located just west of the bridge, between MP 13.88 and MP 13.17. The WSDOT Roadway Log classifies the terrain along this portion of the route as "rolling," with a posted speed limit of 60 mph.

The portion of SR 104 in the vicinity of T-ROC is designated by WSDOT as "Partial Limited Access Control." All public roadways and private driveways accessing SR 104 are controlled and approved by WSDOT.

The Hood Canal Bridge marks the boundary between Jefferson and Kitsap counties. At the east end of the bridge, SR 104 intersects with SR-3, providing access to Silverdale/Bremerton and Poulsbo.

Continuing easterly on SR 104 from the east end of Hood Canal Bridge (MP 15.39), the asphalt roadway has one, 11-foot-wide lane in each direction. The asphalt shoulders vary in width from 5 to 6 feet. This portion of SR 104 is also classified as "rolling" with a posted speed limit of 45 mph until it reaches Port Gamble, at which point the speed limit is posted at 25 mph.

Hood Canal (William A. Bugge) Bridge

As stated, SR 104 traverses the Hood Canal Bridge. The Hood Canal Bridge provides the main transportation link between the northern portion of the Olympic Peninsula and Kitsap County, and urban areas to the east. The bridge serves commuters traveling to work, trucks hauling freight, tourists traveling to and from the Olympic Peninsula, and residents traveling for shopping, services, etc. The 1998 Washington State Department of Transportation (WSDOT) report titled *Results of the 1998 Hood Canal Bridge Origin and Destinations Study* calculated that the average daily number of vehicles crossing the bridge on weekdays was 14,915; on weekends, the daily average was 18,759.

The bridge accommodates one 11-foot lane in each direction with 3-foot shoulders. The overall bridge width ranges from 28 to 30 feet. The overall bridge length is 7,869 feet, including 560 feet of steel transition truss spans, 839 feet of concrete approach spans, and 6,470 feet of concrete floating pontoons.

Small watercraft pass under the steel-truss portion at the east end of the bridge. The bridge includes a split center draw span. This part of the bridge was originally designed to provide a 600-foot-wide navigation opening, when fully retracted, however, due to mechanical problems, the span currently only opens to 560 feet. WSDOT is continuing to address mechanical deficiencies to recover the full 600-foot opening.

T-ROC Access Road (Rock-To-Go Road)

The private T-ROC access road is commonly referred to as Rock-To-Go Road and is designated as forestry access road T-3100 by the Washington State Department of Natural Resources. Rock-To-Go Road intersects SR 104 from the south at MP 9.85 and provides automobile and truck access to the T-ROC operations hub. (For reference, MP 00 is at the intersection of SR 104 with SR 101, 9.85 miles west of the intersection of Rock-To-Go Road with SR 104.) As noted, this road will also be used by trucks hauling material from the future Wahl and Meridian extraction areas and for access to Pope Resources' forestlands.

The Rock-To-Go Road is an approximately 28-foot-wide asphalt road extending one mile from SR 104 to the operations site. The road widens to 63 feet as it approaches the intersection with SR 104. Grades along the access roadway vary from level to approximately 12+ percent.

With respect to use of the Rock-To-Go-Road for forestry access, no logging is currently being conducted in the area served by this access road. Foresters' use of the access road is very limited – approximately once or twice per month. It is anticipated that there will be sporadic logging in

the future. When active logging is underway, it typically lasts for approximately three to four months at a time and generates six to seven truck round trips per day, five days a week.

Intersection Characteristics

The following six intersections with SR 104 have been identified for analysis of impacts in conjunction with this project:

- SR 104/SR 19
- SR 104/Rock-To-Go Road
- SR 104/South Point Road
- SR 104/Teal Lake Road/Shine Road
- SR 104/Paradise Bay Road/Shine Road
- SR 104/SR 3

The location of the study intersections is shown in Figure 2.

SR 104/SR 19

The SR 104/SR 19 intersection at MP 8.87 is two-way stop controlled along SR 19, with westbound right-turn deceleration channelization, eastbound left-turn channelization, and an eastbound acceleration lane. The intersection operates as a T-intersection, since the south leg is a gravel driveway with negligible traffic. The intersection is illuminated.

SR 104/Rock-To-Go Road

The Rock-To Go-Road intersects SR 104 from the south at MP 9.85 and is offset with an access road for the Shine Quarry, which intersects SR 104 from the north. This northerly road also provides a connection to the Old Beaver Valley Road and continues through to the existing Beaver Valley Road. The intersection is two-way stop controlled and is not illuminated.

SR 104/South Point Road

South Point Road intersects SR 104 from the south at MP 11.00 and is stop sign controlled. The intersection is illuminated and provides westbound left-turn channelization and a westbound acceleration lane.

SR/104/Teal Lake Road and SR 104/Shine Road

Teal Lake Road and Shine Road both intersect SR 104 at MP 11.46; Teal Lake Road from the north and Shine Road from the south. The intersection is two-way stop sign controlled, and not illuminated. There is no left-turn channelization or acceleration lane provided at this intersection.

From this intersection, Shine Road loops east and intersects SR 104 at the Paradise Bay Road intersection with SR 104 near the west end of the Hood Canal Bridge (MP 13.76).

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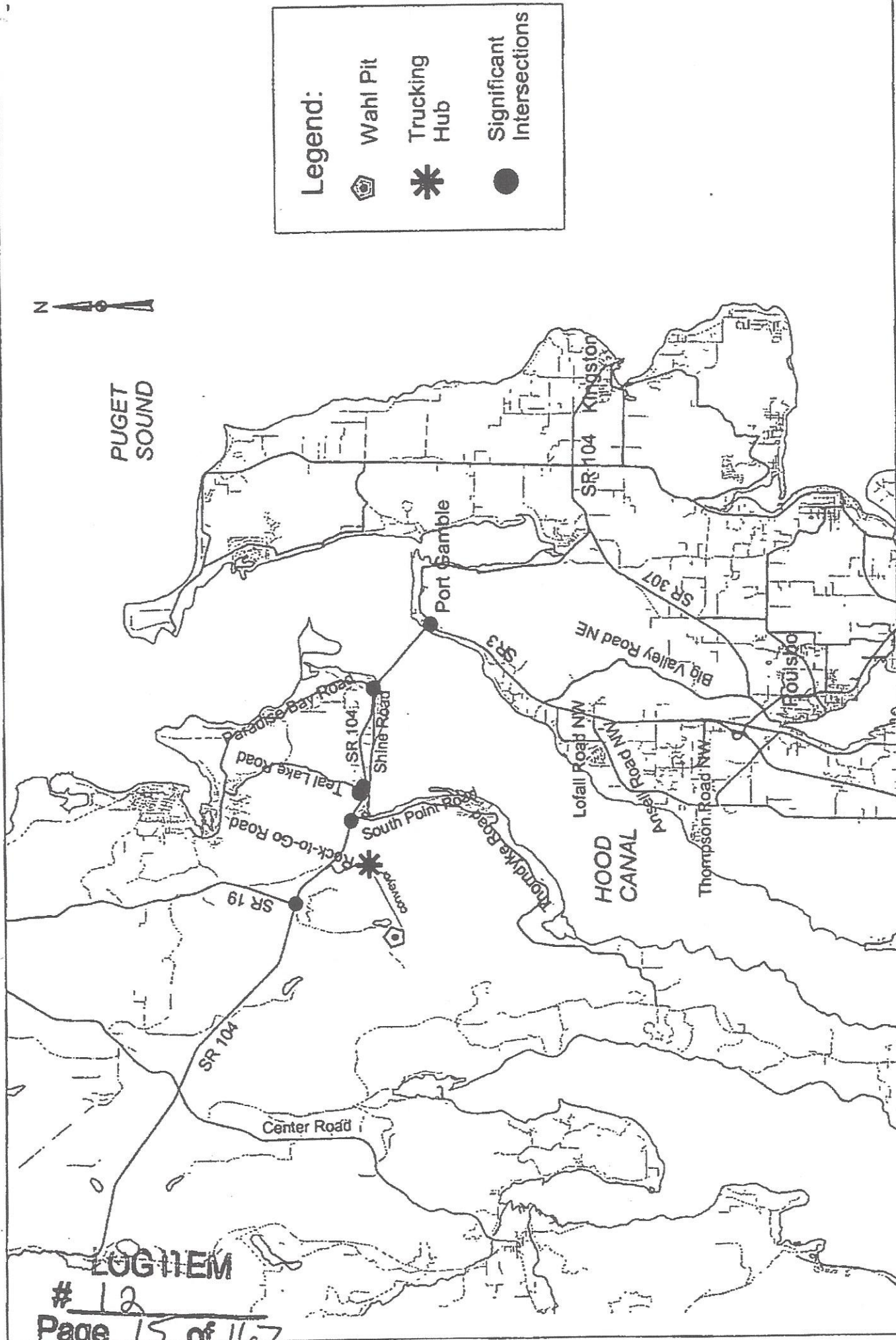


FIGURE 2
Study Intersections

Reid Middleton
April 2003

Wahl Extraction Area
Traffic Impact Analysis

SR 104/Paradise Bay Road/Shine Road

This intersection at MP 13.76 is also two-way stop sign controlled. Left-turn channelization for eastbound and westbound traffic is provided; the westbound direction has a right-turn deceleration lane, and no acceleration lane. Although the intersection itself is not illuminated, lighting for the approach to the Hood Canal Bridge begins approximately 100 feet east of the intersection. The beginning of the bridge is located at MP 13.93.

SR 104/SR 3

This intersection at MP 15.54 is a T-intersection, illuminated, and signalized with a yield control for the right-turn movements. A right-turn lane provides for merging onto SR 3. The intersection is located about 0.1 miles east of the eastern terminus of the Hood Canal Bridge.

Trip Generation

Servicing the growing local markets will result in an increase in the number of truck trips accessing SR 104 from the Rock-To-Go Road. The existing T-ROC truck-based operations are expected to expand from the present 500,000 tons per year to 750,000 tons per year within 10 years. Current and future volumes of sand and gravel transported by truck will be supported by the existing configuration of the T-ROC Operations Hub. All trucks will continue to access SR 104 via the existing Rock-To-Go Road.

The peak season for deliveries coincides with peak construction season from June to December, when approximately 70 percent of the trucking operations take place. Currently, about 350,000 tons are trucked out from June to December and about 150,000 tons from January to May (off-peak season).

To determine the number of trucks entering and leaving the site per day during the peak and off-peak seasons, projections were based on 16 tons of sand and gravel or asphalt being hauled per truckload, and that 85 percent of all materials leaving the mining operation are truck-trailer combinations that haul a combined total of 32 tons per load.

FHM currently employs 13 persons at T-ROC, who, together with vendor and customer related trips, generate an additional estimated 30 trips daily. The number of employees at T-ROC will increase from 13 to 16 – 18, as the volume of material trucked increases to 750,000 tons.

The existing and future number of daily truck trips generated has been calculated as shown in Appendix A.

As previously stated, T-ROC operates primarily during the weekdays; however, recently some sand and gravel has been hauled from the Shine Pit on Saturdays in response to customer demand. The amount of hauling on Saturdays is limited to morning hours, and future Saturday deliveries will depend on customer demand. In the interest of preparing a conservative analysis, it is assumed that the number of trips generated by Saturday operations would be the same as a weekday morning operation.

The T-ROC operational hours are continuous from 6:00 a.m. to 4:00 p.m., and the SR 104 PM peak hour is from 4:00 to 5:00 p.m. Therefore, the PM peak hour will not be addressed in this report and all traffic operations analysis will focus on the weekday AM peak hour conditions.

Tables 1 and 2 summarize the peak and off-peak season trip generation per 10-hour day and per hour. During the peak season, 85 percent of the traffic generated from the Pit is trucks and truck-trailer combinations.

Table 1 - Peak Season Trip Generation

	Existing 2003 Trips	Future 2013 Trips	Net New Trips	Net New Trips	Trips Entering	Trips Exiting
	Per 10 Hr-Day	Per 10 Hr-Day	Per 10 Hr-Day	Per Hour	Per Hour	Per Hour
Truck Trailers	126	190	64	6.4	3	3
Trucks	45	67	22	2.2	1	1
Employees/ Visitors	30	42	12	1.2	1	1
TOTAL	201	299	98	9.8	5	5

Table 2 - Off Peak Season Trip Generation

	Existing 2003 Trips	Future 2013 Trips	Net New Trips	Total New Trips	Trips Entering	Trips Exiting
	Per 10 Hr-Day	Per 10 Hr-Day	Per 10 Hr-Day	Per Hour	Per Hour	Per Hour
Truck Trailers	76	114	38	3.8	2	2
Trucks	27	40	13	1.3	1	0
Employees/ Visitors	30	42	12	1.2	0	1
TOTAL	133	196	63	6.3	3	3

By the year 2013, if market projections are realized, the number of total daily T-ROC trips would increase from 201 to 299 during the peak season (an increase of 98 daily trips) and from 133 to 196 during the off-peak season (an increase of 63 daily trips). Assuming an even distribution of trips over the 10 hours of daily operation, this approximately equates to 10 new trips entering and exiting per hour during the peak season and 6 new trips entering and exiting per hour during the off-peak season.

Trip Distribution

Approximately 90 percent of all aggregate leaving T-ROC is now trucked to markets on the east side of Hood Canal. Of this 90 percent, about one-third is trucked to the FHM Totten Road concrete batch plant, ("Poulsbo Plant") located east of Poulsbo on SR 305. Approximately 10 percent of all material is hauled to the west. Figure 3 shows the trip percentage distribution.

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Generation of a total of 10 new ground transportation trips during the AM peak hour are anticipated from T-ROC. WSDOT has established 10 peak hour trips as the low-end threshold for triggering analysis of an intersection in accordance with WSDOT guidelines (WSDOT Olympic Region Development Services, Traffic Study Distribution Analysis/Traffic Impact Analysis Checklist). The intersection of SR 104 and Rock-To-Go Road is the only intersection impacted by 10-peak hour development generated trips. However, this analysis carries the trips east to SR 3 and west to SR 19 (Beaver Valley Road). See Figure 4 for the new generated trips distribution.

Traffic Volumes

Existing Volumes

In the vicinity of T-ROC, peak SR 104 traffic volumes occur on weekend days (Friday, Saturday, and Sunday) in July and August. This traffic pattern reflects the presence of summer recreational traffic, as well as commuter and freight traffic. The Automated Data Collection Recorder Data Summary produced by WSDOT shows the average daily traffic for both directions along SR 104 (see Appendix B). Table 3 shows the average daily traffic for year 2001 (2002 data is incomplete).

Table 3
SR 104 at Hood Canal Bridge (MP 13.92)
2001 Average Daily Traffic

Month	Average Friday	Average Weekday	Average Weekend Day
January	15,430	12,945	14,269
February	13,796	13,383	14,416
March	16,922	14,175	16,439
April	17,897	14,963	17,088
May	19,284	15,341	19,371
June	19,436	16,292	19,009
July	22,041	18,218	21,741
August	22,022	18,376	22,212
September	18,735	15,221	18,770
October	17,808	14,586	16,578
November	17,117	13,873	16,328
December	16,798	14,793	15,466

Source: WSDOT 2001 Peak Hour Report - Automated Data Collection Recorder Data Summary

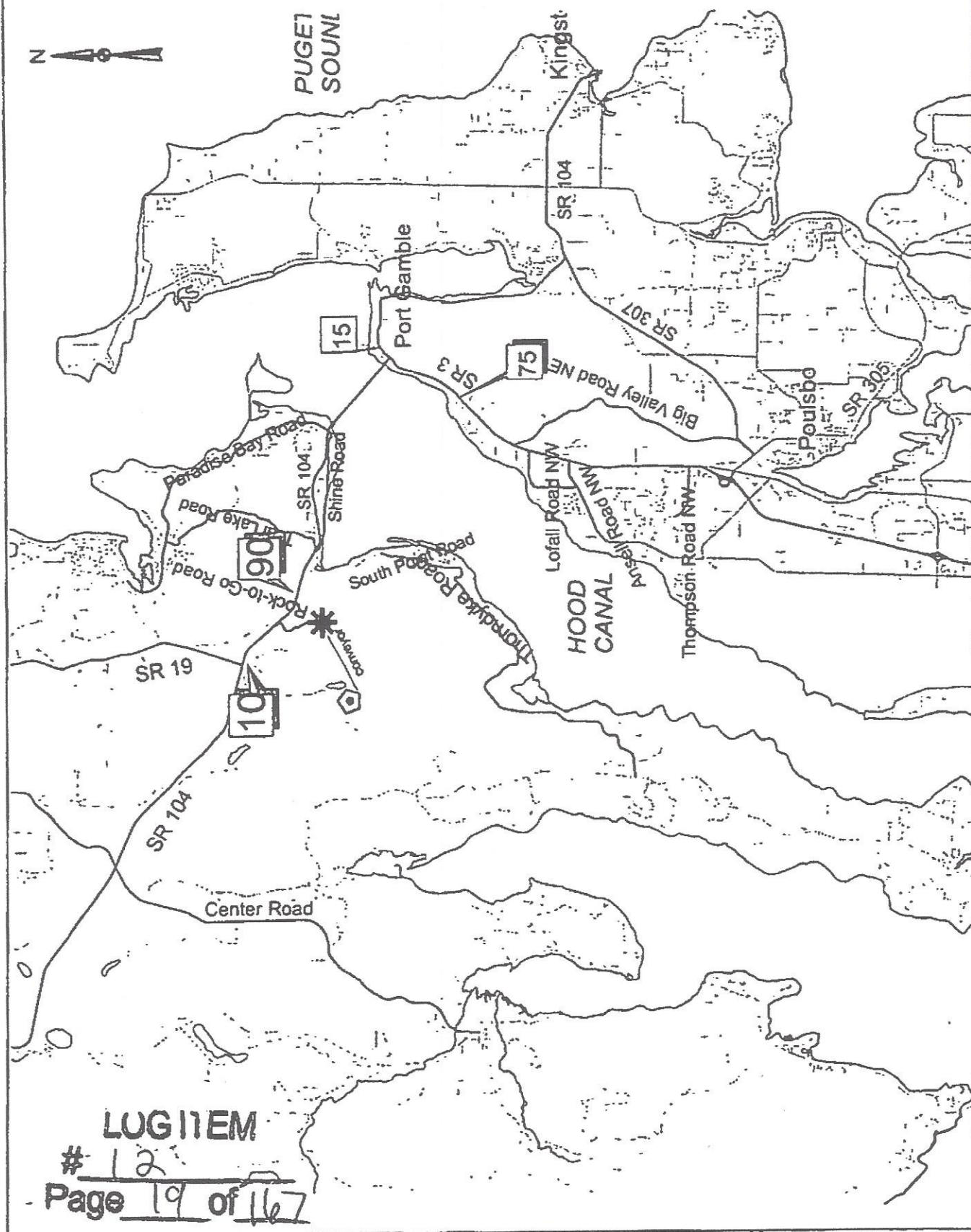


FIGURE 3
Percent Trip Generation

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April 2003

Wahl Extraction Area
Traffic Impact Analysis

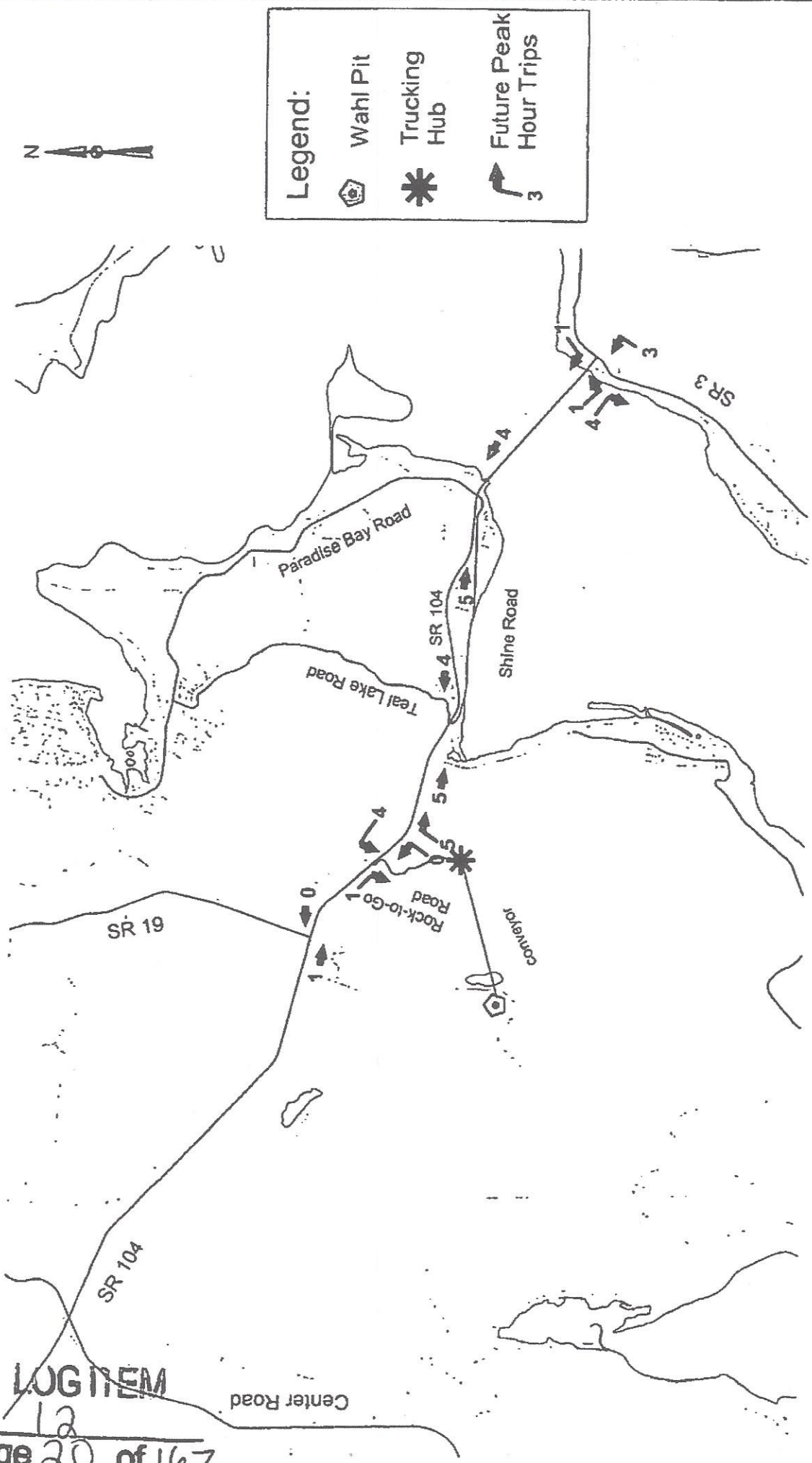


FIGURE 4
New Generated Trips Distribution

To supplement the WSDOT summer weekend day information, full-day traffic counts were taken by the applicant on a Friday, Saturday, Sunday, and Monday in August 2002 (Appendix C). The counts were collected on SR 104 at several locations as shown in Table 4, west of Paradise Bay Road and east and west of SR 19 (Beaver Valley Road). The counts are slightly lower but comparable to the 2001 counts in Table 3 considering the difference in count locations.

Table 4
SR 104 - 2002 Daily Traffic

Location	Friday	Average Weekend Day	Monday
SR 104 west of Paradise Bay Rd	19,525	18,948	16,685
SR 104 east of SR 19 (Beaver Valley Rd)	18,813	18,592	15,621
SR 104 west of SR 19 (Beaver Valley Rd)	11,867	12,270	9,593

Source: TRAFFICOUNT Inc., August 2002

Recent AM peak hour turning movement traffic volumes for the following intersections were collected in September 2002 by WSDOT and are shown in Appendix D.

- SR 104/SR 19
- SR 104/Rock-To-Go Road
- SR 104/South Point Road

The AM peak hour turning movement traffic volumes for the remaining three intersections, listed below, were collected in April 2003 by TRAFFICOUNT and are also shown in Appendix D.

- SR 104/Teal Lake Road-Shine Road
- SR 104/Paradise Bay Road
- SR 104/SR 3

WSDOT Automated Data Collection Recorder Data Summary as shown in Table 3 demonstrates that the highest SR 104 traffic volumes are recorded in the month of August. In order to analyze the higher summer volumes, adjustment factors of 1.18 and 1.23 were applied to the September and April peak hour volumes, respectively. Figure 5 shows the adjusted existing traffic volumes.

Annual Growth Rate

As reported in Table 10-6 of the Transportation Element of the *Jefferson County Comprehensive Plan*, Jefferson County anticipates an annual growth rate of 6.09 percent in background traffic along SR 104 in the subject study area. However, the actual historical traffic growth rate is 2.45 percent calculated based on the Annual Average Daily Traffic Volumes (AADT) over a nine-year period from 1992 to 2001. The historical data is obtained from the WSDOT Automated Data Collection Recorders (see Appendix B) at MP 13.92. Figure 6 shows the AADT over the nine-year period and a best-fit linear curve is drawn. Using the line equation, the AADT for years 1992 and 2001 were calculated, and then applied to calculations to determine the growth rate.

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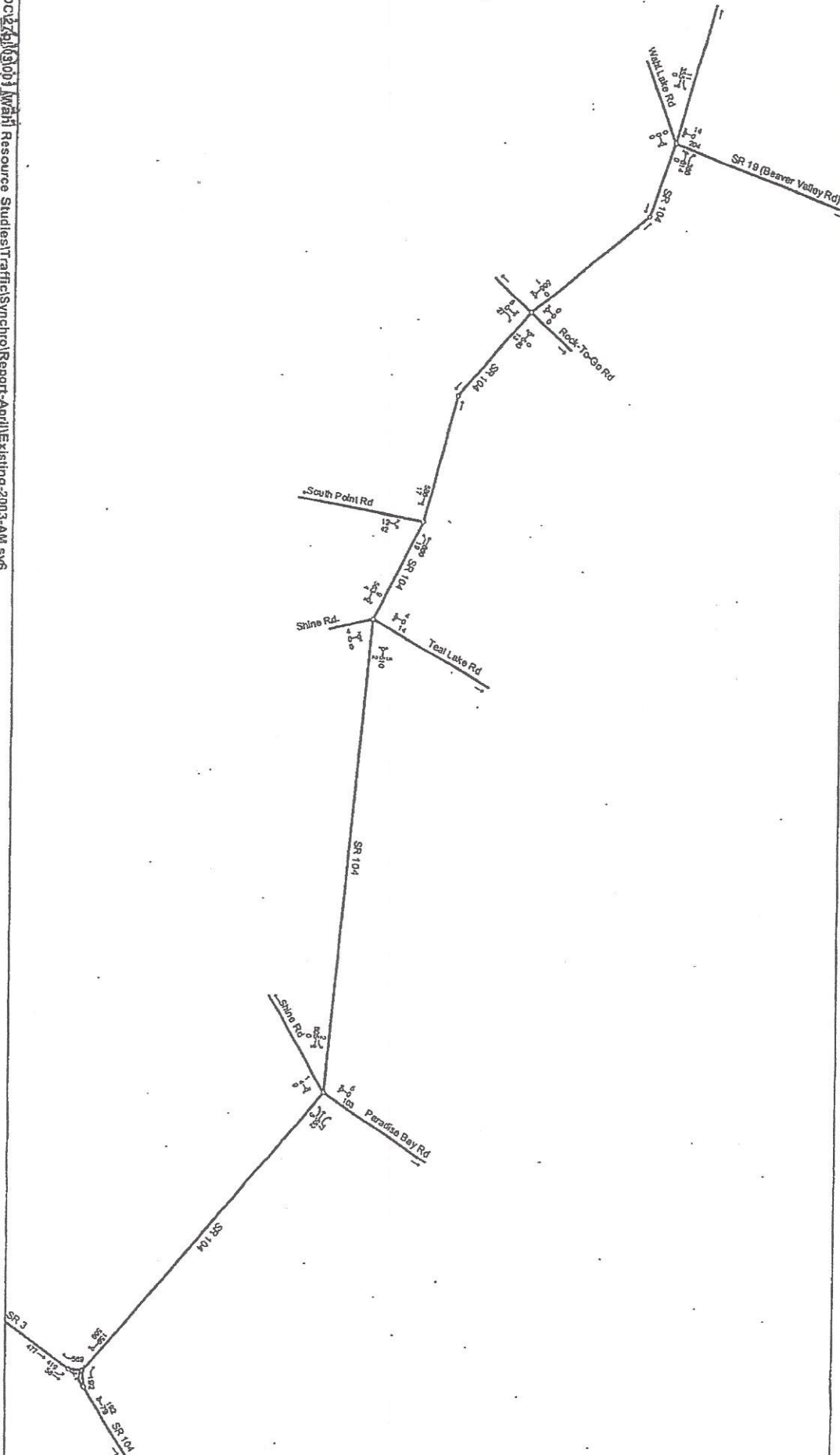


FIGURE 5
 Existing 2003 Adjusted AM Peak Hour Volumes

Historical Annual Average Daily Traffic Volumes (AADT) (Milepost 13.92 on SR 104)

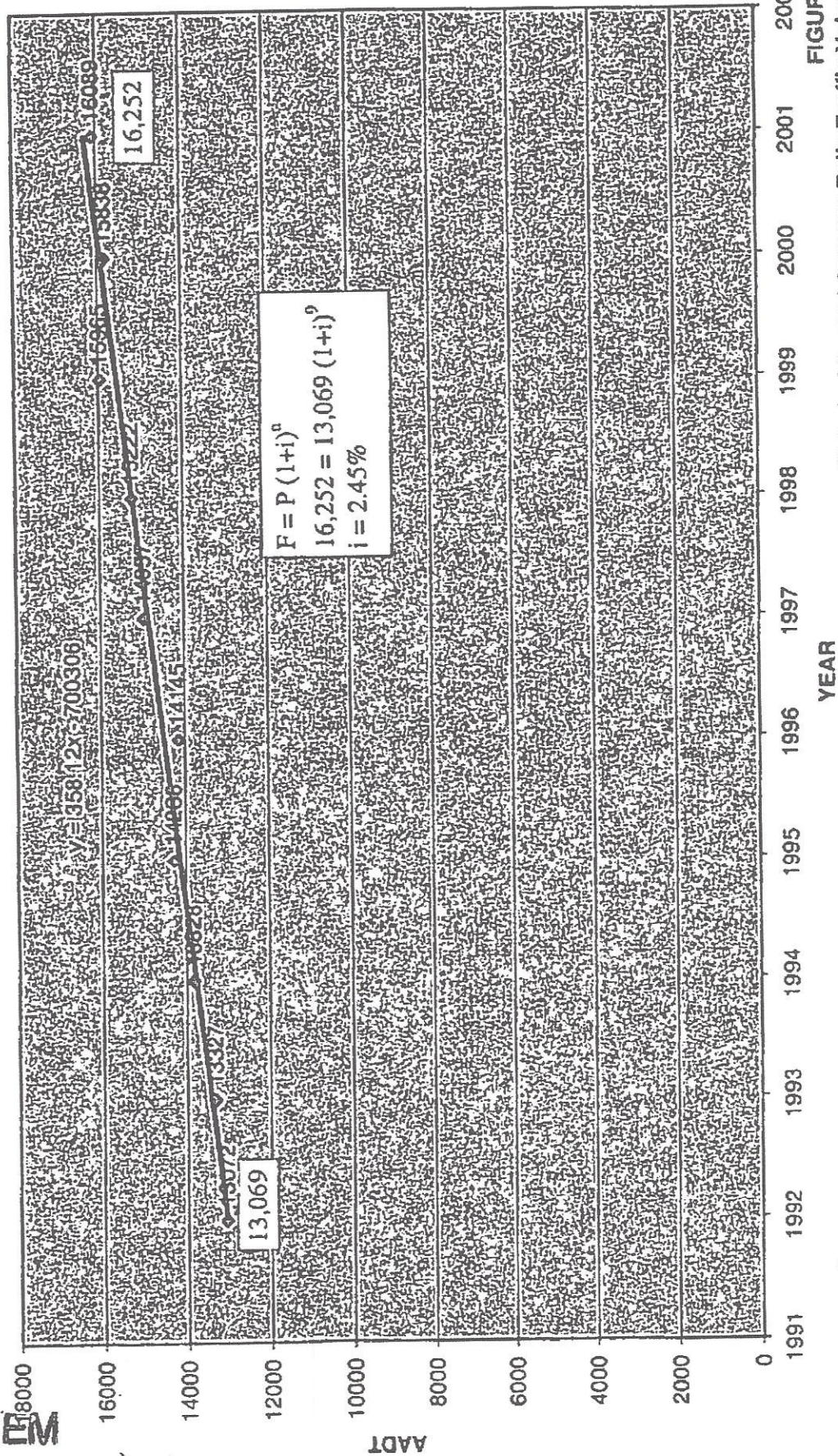


FIGURE 6
Historical Annual Average Daily Traffic Volumes

The following analysis is based on the Jefferson County growth rate in order to be consistent with the *Jefferson County Comprehensive Plan* and provide a more conservative traffic analysis. Reid Middleton recommends monitoring traffic along this corridor on an annual basis to determine if actual counts keep pace with the projected growth rate used by Jefferson County.

Future Volumes with and without Project

The stated Jefferson County growth rate was applied to the seasonally adjusted WSDOT and TRAFFICOUNT traffic volumes cited above to project existing traffic volumes and determine the future 2013 traffic volumes without traffic impacts associated with the Wahl expansion (see Figure 7). Table 5 shows the existing 2003 and future 2013 traffic volumes without the project based on application of the Jefferson County growth rate to seasonally adjusted traffic volumes as shown on Figure 5; an 81 percent increase in 10 years as a result of the 6.09 percent annual growth rate.

Table 5
Existing 2003 and Future 2013 without Project AM Peak Hour
Traffic Volume Summary

Intersection	Existing 2003 Volume	Future 2013 Volume Without Project	Percent Increase
SR 104 / SR 19 (Beaver Valley Road)	1584	2860	80.56
SR 104 / Rock-To-Go Road	1152	2044	77.43
SR 104 / South Point Road	1336	2413	80.61
SR 104 / Teal Lake Road – Shine Road	1115	2013	80.54
SR 104 / Paradise Bay Road	1363	2462	80.63
SR 104 / SR 3	1476	2666	80.62

*The Jefferson County growth rate was not applied to the traffic volumes entering/exiting from Rock-To-Go Road, but added the ten new trips generated from the Wahl Expansion.

Figure 8 shows the future 2013 traffic volumes with the 10 new peak hour trips generated from the Wahl expansion.

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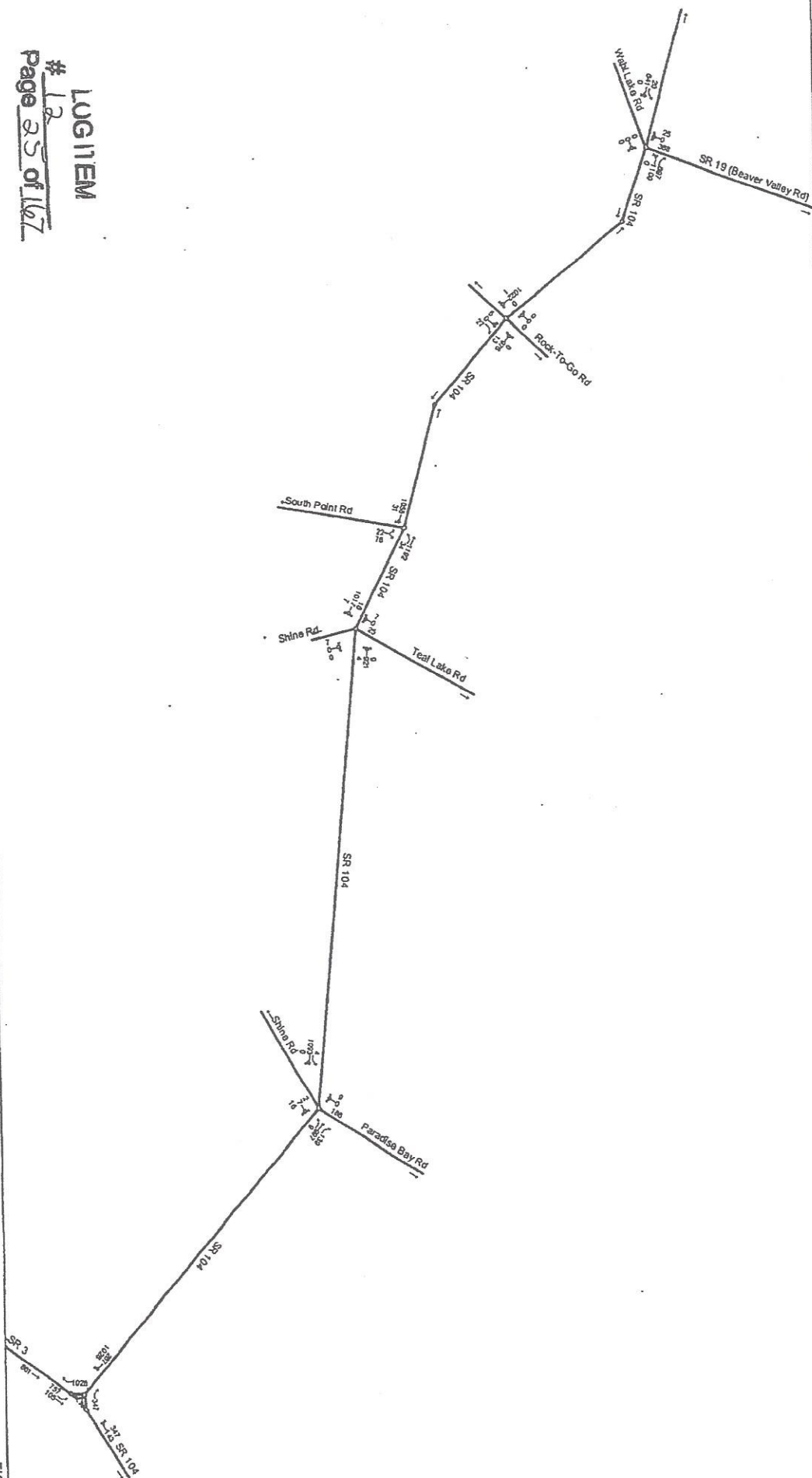


FIGURE 7
Future 2013 AM Peak Hour without Project Volumes

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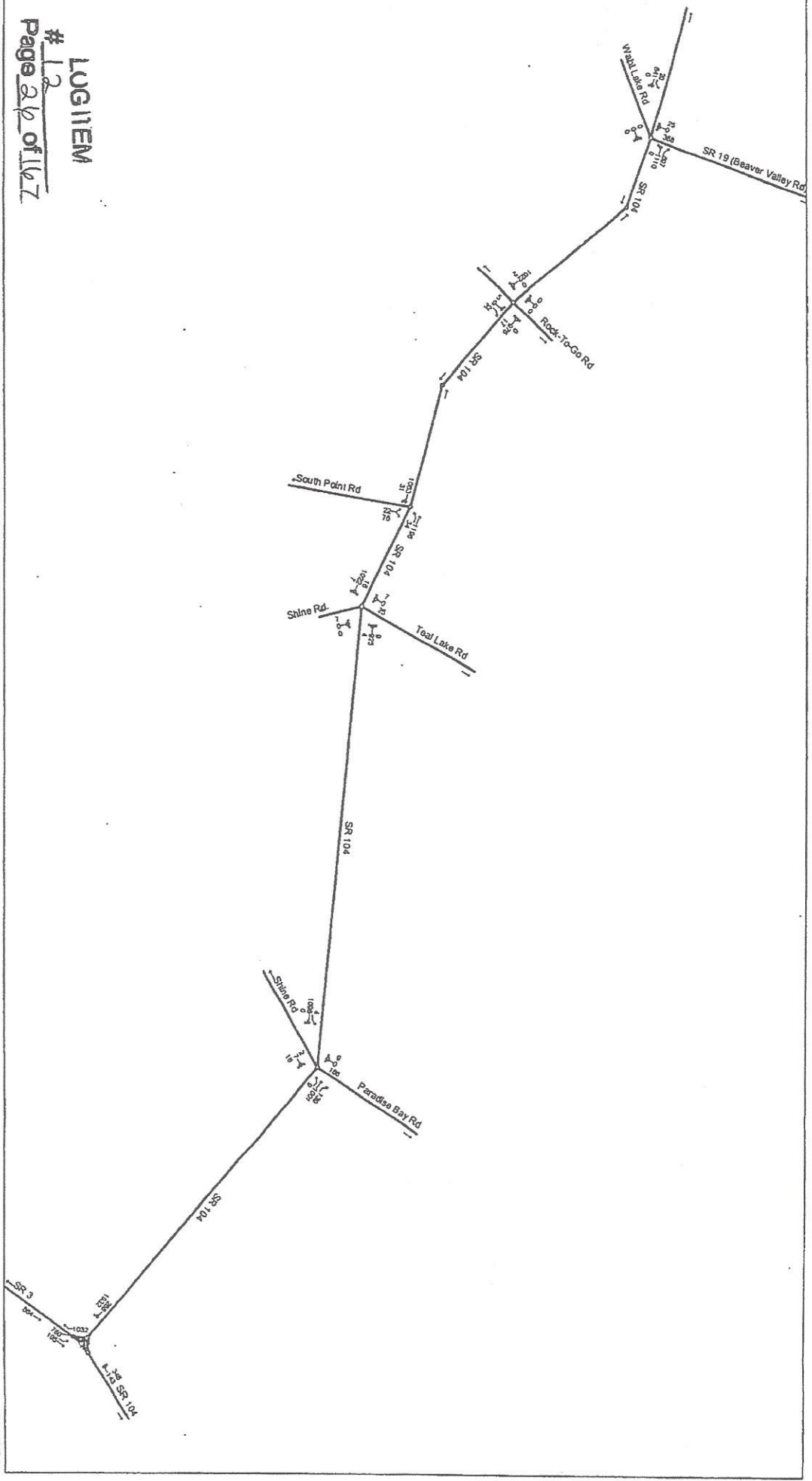


FIGURE 8
 Future 2013 AM Peak Hour with Project Volumes

Table 6 shows the number of new trips added to the intersections and the future traffic volumes with and without the project.

Table 6
Future with and without Project 2013 AM Peak Hour
Traffic Volume Summary

Intersection	Future 2013 Volume Without Project	New Trips	Future 2013 Volume With Project	Percent Increase
SR 104 / SR 19 (Beaver Valley Road)	2860	1	2861	0.03
SR 104 / Rock-To-Go Road	2044	10	2054	0.49
SR 104 / South Point Road	2413	9	2422	0.37
SR 104 / Teal Lake Road – Shine Road	2013	9	2022	0.45
SR 104 / Paradise Bay Road	2462	9	2471	0.37
SR 104 / SR 3	2666	9	2675	0.34

Level of Service Analysis

The quality of traffic flow is defined by level of service (LOS). For intersection analysis, LOS is a measure of the average peak hour control delay (deceleration, stop, and acceleration) imposed on motor vehicles at a given intersection. The signalized and stop-controlled intersection delays are equated to an LOS as shown in Table 7. The LOS is designated with letters ranging from LOS A, which represents free-flow conditions, to LOS F, which represents extreme congestion and delay.

Per Jefferson County, LOS D is the standard level of service in the Shine/Paradise Bay planning area along SR 104 from SR 19 (Beaver Valley Road) to the Kitsap/Jefferson County Line.

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Table 7
Level of Service (LOS) Criteria

LOS	Signalized Intersection Control Delay Per Vehicle (seconds)	Stop-Controlled Intersection Control Delay Per Vehicle (seconds)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

The *Highway Capacity Manual 2000* (Transportation Research Board Special Report 209, 2000) is the recognized source for techniques used to measure transportation facility performance. Synchro®, version 5.0, a widely accepted traffic analysis software, is used to evaluate the traffic operations based on the Highway Capacity Manual (HCM) methodologies.

LOS is typically measured for the most congested hour of the day (i.e., AM peak hour and/or PM peak hour). The AM peak hour at the intersections varies between 9:00 and 11:00 a.m. due to the mainline traffic volumes.

The percentages of heavy vehicles, as recorded in the turning movement counts, have been entered into the Synchro model to represent the actual conditions. As noted in the trip distribution section earlier, 85 percent of the traffic entering or exiting the Pit is heavy vehicles.

The intersection of SR 104/SR 3 is a signalized intersection with a yield control for the right-turn movements. All other intersections included in the analysis are stop controlled on the minor street. Intersection delay and LOS is not defined for two-way stop controlled intersections. The average delay and LOS are only calculated for the controlled approaches and approaches with conflicting movements.

The existing 2003 AM peak hour HCM capacity analysis reports for the subject intersections are included in Appendix E.

The AM peak hour movement and intersection delays and LOS for the existing 2003 traffic volumes are summarized in Table 8.

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Table 8
Existing 2003 AM Peak Hour -
Movement and Intersection Delay (Sec/Veh) and LOS

Intersection	Movement	Existing 2003	
		Movement Delay & LOS	Intersection Average Delay & LOS
SR 104 / SR 19 (Beaver Valley Road)	EB LT	11.6 - B	29.2 (LOS - N/A)
	NB	0.0 - A	
	SB	240.7 - F	
SR 104 / Rock-To-Go Road	EB	0.0 - A	1.0 (LOS - N/A)
	WB	0.6 - A	
	NB LT	42.2 - E	
	NB RT	16.0 - C	
SR 104 / South Point Road	SB	0.0 - A	1.4 (LOS - N/A)
	WB LT	9.3 - A	
	NB	25.5 - D	
SR 104 / Teal Lake Road - Shine Road	EB LT	0.3 - A	1.3 (LOS - N/A)
	WB LT	0.1 - A	
	NB	37.9 - E	
	SB	35.9 - E	
SR 104 / Paradise Bay Road	EB LT	9.6 - A	21.2 (LOS - N/A)
	WB LT	9.2 - A	
	NB	23.7 - C	
	SB	263.7 - F	
SR 104 / SR 3 ¹	EB LT	44.6 - D	13.9 - B
	WB RT	18.8 - C	
	NB LT	4.3 - A	
	NB	2.8 - A	
	SB	10.4 - B	
	SB RT	18.9 - C	

¹ Signalized intersection

The stop-controlled approaches must yield for the mainline traffic along SR 104 waiting for an acceptable gap in traffic therefore experiencing some delays. The longest delays as shown in Table 8 are the southbound approaches at Paradise Bay Road and SR 19 (Beaver Valley Road) operating at LOS F, then northbound and southbound approaches at Teal Lake Road - Shine Road operating at LOS E. All other approaches currently operate at LOS C or better.

HCM intersections' capacity analysis reports for the future 2013 AM peak hour Without Project, are included in Appendix F. The HCM capacity analysis With Project reports are included in Appendix G.

The future 2013 AM peak hour with and without project movement and intersection delays and LOS are summarized in Table 9.

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Table 9
Future 2013 AM Peak Hour With and Without Project -
Movement and Intersection Delays (Sec/Veh) and LOS

Intersection	Movement	Future 2013 Without Project		Future 2013 With Project	
		Movement Delay & LOS	Intersection Average Delay & LOS	Movement LOS	Intersection Average Delay & LOS
SR 104 / SR 19 (Beaver Valley Road)	EB LT	22.2 - C	1208.1 ² (LOS - N/A)	22.2 - C	1207.6 ² (LOS - N/A)
	NB	0.0 - A		1.0 - A	
	SB	Err - F ²		Err - F ²	
SR 104 / Rock-To-Go Road	EB	0.0 - A	2.3 (LOS - N/A)	0.0 - A	2.7 (LOS - N/A)
	WB	1.5 - A		2.0 - A	
	NB LT	306.9 - F		317.4 - F	
	NB RT	31.2 - D		32.7 - D	
	SB	0.0 - A		0.0 - A	
SR 104 / South Point Road	WB LT	12.5 - B	51.4 (LOS - N/A)	12.5 - B	52.3 (LOS - N/A)
	NB	1013.8 - F		1035.8 - F	
SR 104 / Teal Lake Road - Shine Road	EB LT	1.6 - A	24.0 (LOS - N/A)	1.6 - A	24.5 (LOS - N/A)
	WB LT	0.4 - A		0.4 - A	
	NB	492.8 - F		506.6 - F	
	SB	888.5 - F		911.6 - F	
SR 104 / Paradise Bay Road	EB LT	13.1 - B	793.4 ² (LOS - N/A)	13.2 - B	790.7 ² (LOS - N/A)
	WB LT	11.9 - B		12.0 - B	
	NB	346.9 - F		356.7 - F	
	SB	Err - F ²		Err - F ²	
SR 104 / SR 3 ¹	EB LT	129.0 - F	49.4 - D	130.2 - F	49.9 - D
	WB RT	254.3 - F		256.8 - F	
	NB LT	27.7 - C		28.0 - C	
	NB	3.6 - A		3.6 - A	
	SB	39.1 - D		39.6 - D	
	SB RT	349.0 - F		354.5 - F	

¹ Signalized intersection

² Excessive delays

Using future traffic volumes projected on the basis of the Jefferson County annual growth rate, the majority of the stop-controlled approaches experience excessive delay to the point of failure.

Saturday Operations

As noted earlier, FHM occasionally has demand for delivery of product on Saturday mornings. Table 10 shows the AM peak hour traffic counts collected in August 2002 (Appendix C) on SR 104 east of SR 19 (Beaver Valley Road). For purposes of determining the impact of Saturday operations, the project is assumed to generate the same number of trips as on a weekday. Table 10 also shows the projected increase of traffic both with and without the project at the project horizon year using the same growth rate applied earlier. Traffic on SR 104 increases substantially on a Saturday morning while the number of trips generated by the project remains the same, thus decreasing the project-generated total as a percentage of total overall traffic.

Table 10
SR 104 & Rock-To-Go Road
Existing & Future Saturday AM Peak Hour Traffic Volume Summary

Approach	Movement	Existing Volumes	Future 2013 Volume Without Project	New Trips	Future 2013 Volume With Project
Northbound	NBL	5	5	0	5
	NBT	0	0	0	0
	NBR	27	27	5	32
Southbound	SBL	0	0	0	0
	SBT	0	0	0	0
	SBR	0	0	0	0
Eastbound	EBL	0	0	0	0
	EBT	633	1143	0	1143
	EBR	1	1	1	2
Westbound	WBL	13	13	4	17
	WBT	1011	1826	0	1826
	WBR	0	0	0	0
Intersection Total		1690	3015	10	3025

As with the level-of-service analysis above, level of service changes due to project-generated traffic at all intersections other than the project access (Rock-To-Go Road) are either insignificant or are not measurable and were therefore not calculated. However, the increased level of background traffic does impose additional delay at the Rock-To-Go Road / SR 104 intersection, as reported in Table 11 and discussed in the following section.

Table 11
SR 104/Rock-To-Go Road
Existing and Future Saturday AM Peak Hour
Movement Delay (Sec/Veh) and Level of Service

Approach	Existing	Future 2013 Without Project	Future 2013 With Project
EB LT	NA	NA	NA
WB LT	0.8 - A	Err	Err
NB LT	126.5 - F	Err	Err
NB RT	17.4 - C	39.1 - E	41.6 - E
SB	NA	NA	NA
Intersection Average Delay	1.4	20.6	20.0

¹ Excessive Delays

Years 2009 through 2011 with project generated trips, were also examined and will be discussed in the following section. The existing and future Saturday AM peak hour HCM intersections' capacity analysis reports are included in Appendix H.

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Rock-To-Go Road / SR 104 Improvements Analysis

As required for compliance with WSDOT Traffic Impact Analysis (TIA) guidelines, the following analyzes traffic operations at the intersection of Rock-To-Go Road with SR 104 to determine if mitigating improvements are justified.

Left Turn Storage Lane

The total Directional Hourly Volume (DHV) at the subject intersection is 1,998 vehicles and the percent of total DHV turning left is 0.9 percent at the Year 2013 project horizon date. Using the Left-Turn Storage Guidelines for two-lane road at an unsignalized intersection (*WSDOT Design Manual*, Figures 910-9a) the intersection falls above the 60-mph curve. Further analysis, as dictated by the intersection position above the 60-mph curve, indicates that there is no sight distance restriction for westbound left turning vehicles. Based on the HCM analysis, the single westbound lane of SR 104 experiences low delay as a result of the left turning vehicles, an average of 2 seconds delay per vehicle. Therefore, a left-turn storage lane is not required based on analysis of the weekday operation.

Analysis of a Saturday morning operation during the month of August requires consideration of higher volumes of traffic on SR 104 as reported above. On such a Saturday morning, the total Directional Hourly Volume (DHV) at the subject intersection is 2,986 vehicles and the percent of total DHV turning left is 0.57 percent at the Year 2013 project horizon date. Based on the HCM analysis, the single westbound lane of SR 104 experiences long delays as a result of the left turning vehicles waiting for a gap in the opposing traffic. Recalculation using the HCM analysis indicates that the unacceptable level of delay occurs in year 2011, but is acceptable up until that year.

The year 2013 excessive delay of westbound traffic would indicate a need for a left-turn storage lane. However, the volume of FHM-generated traffic anticipated in that year coupled with the infrequent nature of Saturday operations does not provide adequate justification to build the lane. FHM therefore proposes to monitor annual SR 104 traffic volumes as well as the frequency and traffic generation characteristics of their own Saturday operations. These findings, together with an analysis of the need for a left-turn storage lane, will be summarized in a report submitted annually to Jefferson County and/or WSDOT

REID & REID
ANALYST

Acceleration Lanes

The required sight distance for combination trucks turning left or right onto a two-lane highway from a stopped position is 1,390 ft. The sight distance was calculated using the sight distance equation for grade intersection with stop control (*WSDOT Design Manual*, Figure 910-18a). Field measurements indicate that a vehicle at Rock-To-Go Road accessing SR 104 has a clear sight distance of approximately 1,690 feet to the west and 2,006 feet to the east.

As noted in Table 9, northbound left turning movements on Rock-To-Go Road experience a delay of 317.4 seconds per vehicle. The intersection is considered as failing if it takes longer

than 50 seconds to make the turn. However, the number of northbound left turning vehicles is only 5 vehicles per hour, representing 0.2 percent of the total volume entering the intersection of SR 104 and Rock-To-Go Road. The impact of this delay is negligible. In addition, the delay affects only project-related traffic; there are no delays to the motoring public. Therefore, a westbound acceleration lane is not justified by weekday operations of the proposal.

As with the left-turn storage lane analysis above, the increase of traffic on SR 104 on a Saturday morning exacerbates delays experienced by northbound left turning vehicles entering onto SR 104 during Saturday operations. By the year 2009, this turning movement experiences a 781.6 second delay, or 13.1 minutes, as it waits for an acceptable gap in traffic. Even though the traffic affected by this delay is project-related, the amount of delay becomes intolerable even for the small number of vehicles making this turning movement

As with the left-turn storage analysis above, FHM therefore proposes to monitor annual SR 104 traffic volumes as well as the frequency and traffic generation characteristics of their own Saturday operations. These findings, together with an analysis of the need for an acceleration lane, will be summarized in a report submitted annually to Jefferson County and/or WSDOT

The number of northbound right turning vehicles is 32 vehicles per hour, representing 1.6 percent of the total volume entering the intersection during the weekday in year 2013. These vehicles experience an acceptable average delay of 32.7 seconds per vehicle. On a Saturday AM peak hour, the northbound right turning vehicles will be experiencing a delay of 41.6 seconds per vehicle as shown in Table 11. Therefore, an eastbound acceleration lane is not required.

Right-Turn Lanes and Drop Lanes

The number of vehicles heading eastbound turning right onto Rock-To-Go Road is two vehicles per hour, therefore not requiring a right-turn or taper lane.

Highway Access Connection Reviews / Access Permits

No new access to SR 104 is proposed as part of this project.

Accident Analysis

The available three-year accident data from 1999 through 2001 has been obtained from WSDOT (see Appendix I).

Table 12 shows the number of accidents that occurred at the intersections of interest per year during the 3-year period through year 2001, the last year for which data is currently available.

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The intersection of SR 104/SR 19 (Beaver Valley Road) is identified as a high accident location per WSDOT a total of 32 accidents during the 3-year period. The highest number of accidents was 16 in year 2000.

Table 12 – Intersection Accidents Per Year

Intersection	1999	2000	2001	TOTAL
SR 104 – SR 19 (Beaver Valley Road)	11	16	5	32
SR 104 – Rock-To-Go Road	1	1	1	3
SR 104 – South Point Road	0	1	0	1
SR 104 – Teal Lake Road/Shine Road	3	2	0	5
SR 104 – Paradise Bay Road/Shine Road	4	6	4	14
SR 104 – SR 3	6	3	4	13
Totals	25	29	14	68

Along the SR 104 corridor between SR 19 (Beaver Valley Road) and SR 3, a total of 115 accidents occurred, 68 of which occurred at intersections as noted above. Figure 9 reflects the total number of accidents along the subject portion of SR 104 by type per year. Rear-end and enter at angle accidents are the predominant type of accidents, each contributing about 30 percent of the total number of accidents. The accident data does not provide information on types of vehicles involved in recorded accidents.

Table 13 is a summary of the property damage, injury, and fatal accidents that occurred in the study area per year. Six fatal accidents occurred at various locations along the corridor; three were intersection accidents and three were non-intersection accidents.

Table 13 – Property Damage and Injury Accidents Per Year

	YEAR			TOTAL
	1999	2000	2001	
Property Damage Accidents	14	26	11	51
Injury Accidents	23	22	13	58
Fatal Accidents	4	2	0	6
TOTAL NUMBER OF ACCIDENTS	41	50	24	115

NUMBER OF ACCIDENTS BY TYPE
 PER YEAR

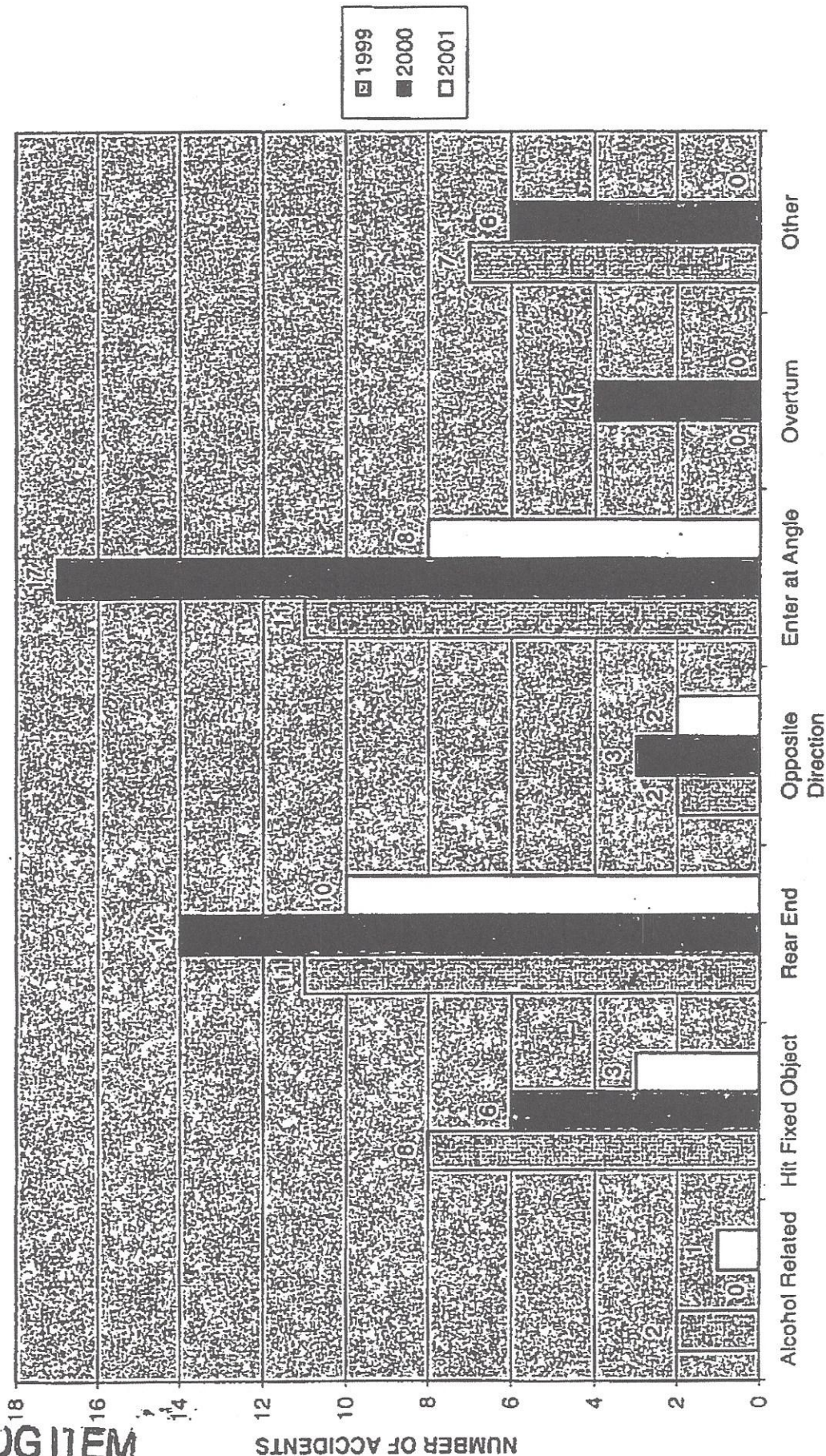


FIGURE 9
 Number of Accidents by Type Per Year

A total of three accidents occurred within 0.1 miles of the intersection of SR 104 and Rock-To-Go Road (MP 9.75 to MP 9.95). Two accidents were vehicle hit fixed objects (earth bank and sign post) resulting in two injuries and one rear-end accident (westbound vehicle stopped, hit by second vehicle) with no injuries. Per WSDOT, the intersection is not identified as a High Accident Location.

Other

Transit

Jefferson Transit serves eastern Jefferson County and provides connections to Clallam and Kitsap Transit, with connections to Port Angeles, Silverdale, Poulsbo, Bremerton, and Seattle. The closest bus routes in the vicinity of T-ROC run along Center Road (Route 1 – Brinnon/Quilcene/Tri Area) and Oak Bay Road/Paradise Road (Route 7 – Port Ludlow/Poulsbo/Tri Area). Route 7 crosses the Hood Canal Bridge. No bus routes are located on SR 104 between the Hood Canal Bridge and the SR 104/SR 20 intersection at Discovery Bay.

Non-Motorized Transportation

Non-motorized transportation in the vicinity of T-ROC consists primarily of bicycle traffic accessing the Olympic Peninsula. Given the absence of adjacent development in this area, pedestrian traffic is extremely limited.

Both touring and recreational bicyclists use SR 104, primarily those described as “advanced” or “experienced.” The volume of cycling use is not documented, but the greatest use is in the summer months, with some year-round use.

The existing nine-foot-wide, paved shoulders on SR 104 in the vicinity of T-ROC are considered by WSDOT to be adequate to accommodate bicycles. *The Final Bicycle/Pedestrian Plan and Recreation Facilities Discipline Report* (March 2002) prepared for the unpublished *SR 104 EIS: US 101 to Kingston* used the Bicycle Compatibility Index (BCI), to measure favorable roadway conditions for bicycles. The BCI rating for this segment of SR 104 was “Moderately Low,” due to existing high traffic volumes and long, steep grades along much of the route.

WSDOT also plans and develops non-motorized facilities. WSDOT currently designates SR 101 as a Washington State Bicycle Touring Route (the “Olympic Peninsula” Bicycle Touring Route). The WSDOT Bicycling Pedestrian Advisory Committee is considering expansion of the State’s Rural Bike Touring Routes; SR 104 is a candidate for designation because it provides a connection between the Kitsap Peninsula and SR 101.

As part of the Hood Canal Bridge West Half Retrofit and East Half Replacement Project, the bridge shoulders width will be increased from the existing 3 feet, to 8 feet. The wider shoulders will enhance bicycle safety on the bridge.

The Jefferson County *Non-Motorized Transportation and Recreational Trails Plan* (September 2002) includes an inventory of existing non-motorized facilities and a listing of potential additional facilities. This Plan designates the 14.0-mile stretch of SR 104 extending from the Hood Canal Bridge west to the intersection with Highway 101 at the south end of Discovery Bay, as an existing "On-Road Bicycle Route." The Plan proposes a 2.5-mile extension of this "On-Road Route" from the Kitsap Peninsula, west to Termination Point and Shine Tideland's State Park.

Related Transportation Improvements

WSDOT initiated an SR 104 Corridor Improvement Project to analyze proposed SR 104 transportation improvements from the SR 104 junction with US Highway 101 to the Kingston Ferry Terminal in Kingston. This study has since been suspended due to lack of funding.

Shine Pit Park and Ride

A temporary Park and Ride lot and transit facility will be constructed by WSDOT at the Shine Pit during the six to eight week closure of the Hood Canal Bridge in 2006. This facility will include 800 – 1,200 parking stalls, a boarding area to serve up to four standard 40-foot buses, passenger waiting shelters, a 15 car passenger pick-up/drop-off, and an Americans With Disabilities Act (ADA) parking area. Shuttle buses from this lot will transport people to and from the temporary South Point ferry landing.

Hood Canal Bridge West Half Retrofit and East Half Replacement Project

Retrofitting of the west half of the Hood Canal Bridge and replacement of the east half of the Bridge will occur from 2003 to 2007. The bridge will be designed to withstand the most severe storm on record and will include two, 12-foot travel lanes and 8-foot shoulders to improve safety and mobility for all users. The new draw span will re-establish the original 600-foot opening.

Traffic delays may occur during various construction phases. The most significant impacts to traffic will occur during a six to eight week period in the spring of 2006, when the bridge will be closed and during two additional three-day weekend closures.

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Conclusions

1. Turning movements across both lanes of traffic from minor leg approaches of all intersections analyzed will operate at Level of Service "F" in the year 2013 using Jefferson County predictions of increases in traffic volumes without consideration of project-related impacts. All other movements operate at Level of Service "D" or above.
2. Addition of new trips generated by the project does not measurably deteriorate calculated Levels of Service for all intersections.
3. Additional lane construction on SR 104 at the project access (Rock-To-Go Road) for all but one turning movement is not justified based on WSDOT requirements for intersection analysis. The northbound left-turn movement onto SR 104 will experience substantial delay, but only five project-related trips per hour are affected, making the impact negligible.
4. If projected traffic increases on SR 104 on a Saturday morning during the August peak traffic period materialize, then safe access to SR 104 from Rock-To-Go Road for occasional FHM Saturday operations will become untenable due to lack of adequate gaps in traffic along SR 104 for vehicles using Rock-To-Go Road. The northbound left-turn movement onto SR 104 from Rock-To-Go Road will fail in year 2010 with the westbound left-turn movement onto Rock-To-Go Road from SR 104 failing the following year.

Recommendations

Reid Middleton recommends that:

1. Traffic volume along SR 104 be monitored on an annual basis to determine if actual increases in August Saturday traffic volume are occurring as projected.
2. A record of Saturday FHM operations be maintained, including hours of operation and number of trips generated during those hours, for annual evaluation.
3. The intersection of Rock-To-Go Road and SR 104 should be evaluated on an annual basis in accordance with WSDOT Traffic Impact Analysis checklist requirements.