

APPENDIX K

Noise Technical Memorandum

TECHNICAL MEMORANDUM

TO: Mike Blumen, Blumen Consulting Group, Inc.

FROM: Shannon Khounnala

DATE: September 24, 2008

RE: **SUPPLEMENTAL NOISE TECHNICAL MEMORANDUM
NEW WHATCOM REDEVELOPMENT PROJECT
PORT OF BELLINGHAM
BELLINGHAM, WASHINGTON**

INTRODUCTION

The purpose of this technical memorandum is to summarize the noise analysis and conclusions identified in the Draft Environmental Impact Statement (DEIS) and provide a discussion of the applicability of the original noise analysis effort to the proposed Preferred Alternative for the New Whatcom Redevelopment project.

This technical memorandum provides a brief summary of the findings from the Noise Technical Report (Landau Associates 2007) related to the analysis performed for the DEIS redevelopment alternatives. The methodology and discussion of the existing noise environment are presented in the DEIS Noise Technical Report. Existing conditions have not changed and are, therefore, not discussed further in this technical memorandum.

This document also provides a brief summary of the Preferred Alternative, and a discussion of the expected noise levels and any differences from the noise levels predicted for the redevelopment alternatives outlined in the DEIS.

NOISE EVALUATION

The DEIS Noise Technical Report (Landau Associates 2007) contained a description of the analysis methodology and applicable regulations used to assess the affected environment and evaluate the potential noise impacts of the New Whatcom Redevelopment. The discussion included an analysis of the existing noise conditions of the study area, thresholds to determine if the proposed project would result in significant impacts under any of the DEIS alternatives, anticipated impacts (direct, indirect, and cumulative), and mitigation measures.

The Noise Technical Report provided a qualitative review of existing and future non-traffic-related noise and a quantitative analysis of the traffic-related noise for both future onsite and offsite representative noise receivers. This analysis was completed for the No Action

Alternative, Alternative 1 (High Density Redevelopment Option), and Alternative 3 (Low Density Redevelopment Option). These alternatives were selected for detailed analysis in order to provide a bracketed “best-case” and “worst-case” noise assessment. Based on PM peak, worst-case, hourly traffic volumes for the two build alternatives and the no-action alternative provided in the Transportation Discipline Report (Transpo Group 2007), noise levels at most receivers within the surrounding offsite locations were found to currently exceed the Noise Abatement Criteria (NAC). The noise model identified that noise level increases through 2016 and 2026 would be generally limited to 1 to 2 A-weighted decibels (dBA) with or without the New Whatcom Redevelopment, due to the expected traffic growth in the Bellingham area. Traffic within the new, onsite roadway network would not be expected to pose significant impacts to existing, offsite sensitive receivers within the area due mainly to the distance between the future roadways (more than 500 feet) and the existing noise receivers.

The noise modeling effort identified the highest future noise increases would occur at the high-density residential units located near Laurel Street. These units are located adjacent to the planned Redevelopment Areas 5 and 7. Predicted increases ranged from a 3 dBA increase under the No Action Alternative, a 4 dBA increase under Alternative 3 (Low Density Redevelopment Option), and a 5 dBA increase under Alternative 1 (High Density Redevelopment Option). The No Action Alternative and Alternative 3 did not assume improvements to Laurel Street; however, roadway improvements to Laurel Street, designed to improve access to the New Whatcom site, were assumed and modeled for Alternative 1.

PREFERRED ALTERNATIVE

Based on the information provided in the DEIS, ongoing public input, additional analysis and master planning, and coordination between the Port of Bellingham (Port) and the City of Bellingham (City), as well as other agencies, groups and stakeholders, the Port staff prepared a recommended proposal to serve as the Preferred Alternative for analysis in the Draft Supplemental EIS. The Preferred Alternative is based on a modified street grid for long-term redevelopment of the Waterfront District. The new grid would be rotated at the top of the bluff that currently divides the Waterfront District from the existing downtown in order to provide efficient connection to the City and cost-effective engineering solutions for bridging the bluff and the Burlington Northern Santa Fe (BNSF) railroad corridor. The Preferred Alternative would feature approximately 2.7 million square feet of mixed-use redevelopment by 2016, and

approximately 6.0 million square feet of mixed use redevelopment by 2026; at buildout, the Preferred Alternative would provide 33 acres of open space and parks.

The Preferred Alternative is intended to be a medium-density, sustainable development that features a diversity of uses that are complementary to the downtown Bellingham Central Business District; an infrastructure network that integrates with and connects the waterfront to surrounding areas; and a system of parks, trails, and open space that opens up the Waterfront to the community. Redevelopment under the Preferred Alternative would be within the range of redevelopment assumed for the EIS Alternatives in the January 2008 DEIS. Redevelopment under the Preferred Alternative would mix and match elements of the EIS Alternatives. As an example, the redevelopment density under the Preferred Alternative would be comparable to that under EIS Alternatives 2/2a (up to 6 million square feet of office, institutional, marine industrial, residential, and retail uses). The amount of parks, trails, and habitat area under the Preferred Alternative would be similar to that assumed under Alternative 1 (approximately 33 acres). The Preferred Alternative also assumes relocation of the BNSF railroad corridor by 2016 (Figure 1).

As an option to the Preferred Alternative, the Straight Street Grid is also being considered. The Straight Street Grid would have a similar onsite land use and density as well as offsite street system as the Preferred Alternative; however, the onsite street network would be oriented differently (Figure 2).

IMPACTS

Construction Impacts

As reported for Alternative 1 (High Density Redevelopment Option) through Alternative 3 (Low Density Redevelopment Option) in the DEIS Noise Technical Report, all redevelopment alternatives are expected to have some level of initial and ongoing phased construction as the area is changed from an industrial land use to a mixed use. For purposes of environmental review, it was determined that the infrastructure projects would be generally similar for all DEIS redevelopment alternatives. Despite slight changes to the roadway infrastructure outlined in the Preferred Alternative, the Preferred Alternative will include similar forms of construction activities such as clearing, grading, excavating, demolition, material supply delivery, and heavy equipment usage as the DEIS alternatives. Similarly, the Preferred Alternative includes various forms of new roadway development, marina and in-water development, and recreational

development (parks and trails) that will be implemented in an initial phase to be completed by 2016 with additional development to be completed by 2026.

From a noise perspective, however, the combination and timing of the improvements discussed for the DEIS Redevelopment Alternatives (Alternatives 1 through 3) compared to the Preferred Alternative do not pose significant differences. As discussed in the DEIS Technical Noise Report, the most prevalent noise sources during construction would be pile driving. Although the specific type of pile driving, drilled or driven, is not yet known, it is recognized that pile driving will generate noise impacts on a temporary basis. Other general construction activities, however, have limited ability to significantly impact the existing study area receivers that are located more than 500 feet from a given site being constructed at any given time. Therefore, the Preferred Alternative construction noise levels would be similar to those outlined in the DEIS and would not be considered a significant impact during daytime hours.

Operational Impacts

Non-Traffic Noise

The Preferred Alternative, like all redevelopment alternatives described in the DEIS, provides for a variety of onsite uses that are expected to contribute some form of noise. These sources and noise they generate, such as railroad activity, marine terminal use, light industrial business, and water recreation, all can be considered part of the existing, ambient noise environment that is typical of an urban, waterfront community and are expected to increase as a result of the New Whatcom redevelopment. However, the Preferred Alternative does not include any developments or improvements that would result in non-traffic noise considerations that would be significantly different than those described for Alternatives 1 through 3, as outlined in the DEIS. Therefore, non-traffic noise (railroad, marine, and other ongoing operational noise) impacts would be similar to those described in the DEIS. Significant impacts to offsite noise receivers would not be expected.

Traffic Noise

As stated earlier, the Preferred Alternative most closely resembles Alternative 2/2a in the DEIS for the amount of mixed-use commercial and residential development and roadways. In order to evaluate the applicability of the original noise modeling effort to the Preferred Alternative, a review of the Supplemental DEIS Transportation Discipline Report (Transpo Group 2008) was completed. This review included a comparison of the traffic volumes

predicted for the Preferred Alternative and a comparison to the worst-case hourly traffic volumes outlined in the DEIS Transportation Discipline Report (Transpo Group 2007). This comparison was useful to determine if the noise impacts predicted in the DEIS modeling effort were accurate to represent the Preferred Alternative. Table 1 below provides a summary of the expected traffic increases that were predicted for Alternative 1 (High Density Redevelopment Option) and Alternative 3 (Low Density Redevelopment Option) versus the Preferred Alternative. For the purposes of identifying noise impacts, each forecasted individual roadway volume was reviewed; the summary table below clearly shows the volume of vehicles for the Preferred Alternative falls between the volumes included in the DEIS Traffic Noise Report analysis completed for Alternative 1 and Alternative 3.

Table 1
ESTIMATED VEHICLE TRIP GENERATION SUMMARY

Scenario	PM Peak Hour Net New Vehicle Trips		
	Total	In	Out
<u>Preferred Alternative</u>			
Net New Trips 2016	1,975	641	1,334
Net New Trips 2026	4,806	1,465	3,341
<u>Alternative 1 – High Density</u>			
Net New Trips 2016	2,212	878	1,334
Net New Trips 2026	5,713	1,967	3,746
<u>Alternative 3 – Low Density</u>			
Net New Trips 2016	1,055	390	665
Net New Trips 2026	3,887	1,319	2,568

Source: The Transpo Group 2007, 2008.

Offsite Traffic Noise

Within the DEIS Noise Technical Report, Alternative 1, Alternative 3, and the No Action Alternative were modeled to provide a comprehensive overview of bracketed “best-case” and “worst-case” future noise levels. This analysis, based on the expected traffic volumes in 2016 and 2026, determined that the differences in traffic volumes between either of the build alternatives or the no-action alternative were found to be marginal from an acoustical standpoint. This is because a doubling of the traffic volume is required to increase noise 3 dBA. Although traffic volumes on some individual roadways were predicted to increase upwards of 35 percent, most roadways were found to have significantly smaller traffic increase predictions.

The relatively small changes in vehicle traffic from any of the DEIS build or no-action alternatives resulted in similar predicted noise levels for each of the existing offsite receivers, regardless of which alternative was analyzed. Table 2 below shows the result of the Alternative 1, Alternative 3, and No Action results completed for the DEIS Noise Technical Noise Report.

**Table 2
FUTURE TRAFFIC NOISE PREDICTION**

Receiver	Description	Existing	DEIS Alt 1		DEIS Alt 3		DEIS No Action	
			2016	2026	2016	2026	2016	2026
RM1	Ground floor condominium along West Holly Street; frequent outdoor area faces Roeder Avenue	71	72	72	71	72	71	71
R2	Second floor condominium along West Holly Street; frequent outdoor area faces Roeder Avenue	71	71	72	72	72	71	71
R3	Third floor condominium along West Holly Street; frequent outdoor area faces Roeder Avenue	71	71	72	72	72	71	71
RM4	Residential home on north side of West Holly Street. Frequent outdoor area faces West Holly Street	67	68	69	68	69	68	69
RM5	Public Park, north side of West Holly Street	67	68	69	68	69	68	68
R6	Commercial District near intersection of West Holly Street and Cornwall Avenue	71	71	72	71	72	71	72
R7	Second floor residential condominium along Railroad Avenue; frequent outdoor area faces New Whatcom site	60	63	65	63	64	63	63
R8	Third floor residential condominium along Railroad Avenue; frequent outdoor area faces New Whatcom site	60	63	65	63	64	63	63

Receiver	Description	Existing	DEIS Alt 1		DEIS Alt 3		DEIS No Action	
			2016	2026	2016	2026	2016	2026
R9	Second floor residential condominium along North State Street; frequent outdoor area faces North State Street	71	70	70	70	70	70	70
R10	Third floor residential condominium along North State Street; frequent outdoor area faces North State Street	70	70	70	70	70	70	70
RM11	Ground floor condominium or home adjacent to Boulevard Street; frequent outdoor area faces New Whatcom site	73	73	74	73	73	73	73
RM12	Second floor condominium adjacent to Boulevard Street; frequent outdoor area faces New Whatcom site	72	72	74	72	72	72	72
R13	Third floor condominium adjacent to Boulevard Street; frequent outdoor area faces New Whatcom site	72	72	73	72	72	72	72
R14	Redevelopment Area 1	NA	70	70	69	70	69	69
R15	Redevelopment Area 2 and 3	NA	58	63	53	60	NA	NA
R16	Redevelopment Area 6 and 8	NA	60	66	60	61	NA	NA

RM # Field-measured and Traffic Noise Model (TNM)-modeled receiver.

RM # TNM-modeled receiver.

NA = Not analyzed.

Generally, increases of 1 to 2 dBA were predicted; however, this increase would not be audible by residents within the site area. Slightly greater increases of 3 to 5 dBA were predicted near Redevelopment Areas 5 and 7 (located near the bluff on the eastern part of the site and represented by R7 and R8) which are located in close proximity to Laurel Street.

Because the traffic volumes for the Preferred Alternative could fall between the Alternative 1 and Alternative 3 traffic volumes analyzed in the DEIS Technical Noise Report, it is appropriate to conclude that the Preferred Alternative would result in the same expected noise

predictions as seen in the DEIS noise report and further modeling is not necessary. One change in future traffic noise can be noted, however. The Preferred Alternative would not include the development of the Laurel Street Bridge; therefore, the noise levels at those receivers near Redevelopment Areas 5 and 7 (represented by R7 and R8) could expect noise increases to be similar to the levels predicted for Alternative 3, rather than under Alternative 1.

Onsite Traffic Noise

The Preferred Alternative and the Straight Street Grid Option would have similar offsite roadway operations to Alternative 1 and Alternative 3, analyzed in the DEIS Noise Technical Report. The differences in operation between the Straight Street Grid Option and the Preferred Alternative include some modifications to the onsite roadway layout and at site access locations. The DEIS Noise Technical Report identified that onsite noise levels are generally expected to meet the Noise Abatement Criteria (NAC) throughout the site, due mainly to the lower volume of vehicles on the onsite street network as compared to the surrounding offsite roadways. Specific design features that may limit exposure of onsite sensitive receivers to noise-generating sources, and buildings and structures that may provide noise attenuation, could not be defined at the time the DEIS Noise Technical Report was prepared. Therefore, representative onsite receivers were placed 50 feet from the busiest roadway within the redevelopment areas to characterize the potential noise levels within the site due to traffic. The modeling effort in the DEIS Noise Technical Report provided a “worst-case” prediction of the closest receivers to the busiest traveled roadways on site. Additionally, traffic within the onsite roadway network would not be expected to generate significant noise to the existing offsite sensitive receivers within the area due mainly to the distance between the new roadways (more than 500 feet) and the existing receivers.

Neither the Straight Street Grid Option nor the Preferred Alternative would be expected to generate significant differences from the noise levels predicted in the DEIS Noise Technical Report due to similar traffic volume predictions. The exact design of the onsite roadway grid system would likely not change the noise predicted for the onsite receivers at 50 feet from the roadways or for the offsite receivers. To this end, the noise evaluation provided in the DEIS Noise Technical Report and summarized in Table 2 provides an accurate assessment of future noise conditions for onsite receivers (R14 through R16) for either the Preferred Alternative or the Straight Street Grid Option.

Mitigation Measures

Construction Mitigation

Construction mitigation measures were discussed in the DEIS Noise Technical Report. The mitigation measures identified in that report are applicable to the phased construction of the Preferred Alternative and would lessen the effects of the short-term noise increases during construction.

Operational Mitigation

The Noise Technical Report provides a discussion of mitigation measures and design strategies to reduce any noise impacts. The operational and management strategies described in the Noise Technical Noise Report would also apply to the Preferred Alternative.

REFERENCES

Landau Associates. 2007. Technical Memorandum: *Noise Technical Report, New Whatcom Redevelopment Project, Port of Bellingham, Bellingham, Washington*. From Shannon Khounnala to Mike Blumen, Blumen Consulting Group. December.

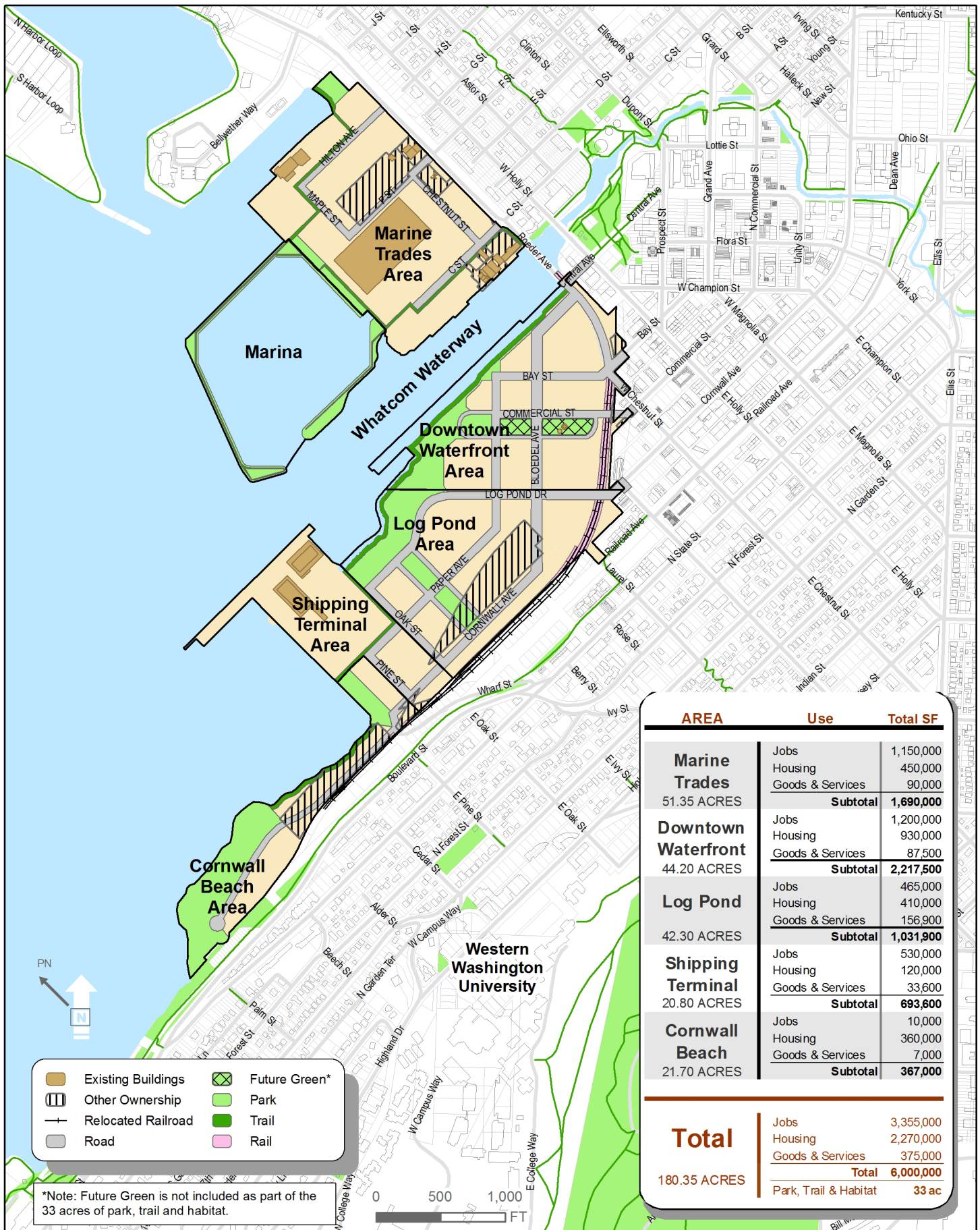
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Transpo Group, The. 2007. Appendix N: *New Whatcom Redevelopment Transportation Discipline Report, Draft Environmental Impact Statement*. Prepared for Port of Bellingham and City of Bellingham. November.

ATTACHMENTS

Figure 1: Preferred Alternative

Figure 2: Preferred Alternative with Straight Grid System



AREA	Use	Total SF
Marine Trades 51.35 ACRES	Jobs	1,150,000
	Housing	450,000
	Goods & Services	90,000
	Subtotal	1,690,000
Downtown Waterfront 44.20 ACRES	Jobs	1,200,000
	Housing	930,000
	Goods & Services	87,500
	Subtotal	2,217,500
Log Pond 42.30 ACRES	Jobs	465,000
	Housing	410,000
	Goods & Services	156,900
	Subtotal	1,031,900
Shipping Terminal 20.80 ACRES	Jobs	530,000
	Housing	120,000
	Goods & Services	33,600
	Subtotal	693,600
Cornwall Beach 21.70 ACRES	Jobs	10,000
	Housing	360,000
	Goods & Services	7,000
	Subtotal	367,000
Total		
180.35 ACRES		
Jobs	3,355,000	
Housing	2,270,000	
Goods & Services	375,000	
Total	6,000,000	
Park, Trail & Habitat	33 ac	



Figure 2
Straight Street Grid Option
2026

New Whatcom
Redevelopment EIS