Exhibit A-28: Tilghman transportation study report

TILGHMAN GROUP
TRANSPORTATION PLANNING

13 June 2022

Hearing Examiner
Skagit County
700 S. 2nd Street, Rm. 100
Mount Vernon, WA 98273

re: Concrete Nor'west – Grip Road Gravel Mine

Dear Mr. Examiner:

I write on behalf of Central Samish Valley Neighbors to express concerns about the transportation impacts of the proposed gravel mine to be located on Grip Road. In preparing my comments, I have reviewed the applicant's Traffic Impact Analysis, SEPA Checklist, Noise Study and the MDNS. Additionally, I have visited the area, driving the roads to be used for the haul route.

I am an independent transportation planning consultant with 37 years of experience working in Washington State and elsewhere around the country. My experience includes preparing traffic impact analyses and transportation master plans for a wide variety of land uses and providing expert witness services regarding transportation for numerous cases in Washington State.

My comments focus on the TIA and on the conditions in the MDNS.

Comments on the TIA

1. **The TIA notes that Grip Road and Prairie Road do not meet current County road standards because they are too narrow and lack shoulders but does not indicate that those roads comprise 56% of the haul route (2.85 miles of the total 5.04 miles on public roads).** Those narrow roads give drivers no margin for error or recovery, a condition that would be exacerbated by adding frequent heavy mine trucks.

2. **A Level II TIA should have been required so that a Safety Analysis would have been conducted.** Skagit County Road Standards 4.09.B states:

   Conflict Analysis is applicable to locations where accident data is not available or sufficient for analysis. This analysis is used to predict or measure accident potential at a location. A Conflict Analysis should determine the number of conflict points, frequency of conflicts and severity of conflicts based on expected traffic volumes and mix of traffic. Similar to the manner in which accidents are grouped by type of collision, traffic conflicts are arranged by type of maneuver.

Given that the mine's traffic is almost exclusively heavy trucks, that there is no history of frequent heavy truck traffic on Grip Road or Prairie Road to indicate accident potential, that those roads do not conform to current County road standards, that sight-distance deficiencies exist at key intersections, and that the mix of traffic will range from pedestrians and bicyclists to heavy trucks, a conflict analysis should be undertaken.

The County's threshold for requiring a Level II TIA is a project that generates 50 or more peak hour trips and meets any one of various warrants including "*If there exists any current traffic problems in the local area as identified by the County or a previous traffic study has identified high accident locations, poor roadway alignment or capacity deficiencies."* This standard does not distinguish types of vehicles when counting trips. But it should be noted that heavy trucks usually account for 2% to 10% of general traffic and, that for road capacity purposes, they are equivalent to about two passenger cars (on level grade, much more when climbing hills, according to the Highway Capacity Manual 2010, Exhibit 15-11). So, when the TIA notes that the worst-case peak hour volume would be 29.4 truck trips, it could be considered equivalent to 58.8 passenger cars in the peak hour, exceeding the 50-trip threshold for a Level II TIA. And recent slope and roadbed failures on Grip Road just west of the mine access road are well known to the County as are the 90-degree curves that cause long trucks to encroach on opposing lanes and/or track off the pavement.

3. **The average daily truck volume identified in the TIA is too broad of an average to provide a meaningful indication of daily traffic volume to the public and decision makers. That means that the full impacts of the proposed gravel mine's truck traffic have not been identified in terms of traffic operations, safety (especially regarding school buses and cyclists) and noise.** The average daily volume cited, 46 truck trips (a trip is either an arrival or departure), was derived from the expected amount of gravel to be excavated annually divided by 260 days of operation and the load capacity of dump trucks and their trailers. While the average daily trip number could be useful for pavement load calculations (showing how many times an axle passes a given location in a year), it obscures the range of volumes likely to occur across each day of any given week and therefore the public's experience of hauling operations. The applicant should show seasonal variations in volume so that the range of daily truck trips is known for the busier seasons. There are many ways that an average daily volume of 46 truck trips could be achieved over the course of a week or so, including days with fewer than 20 truck trips and days with over 100 truck trips, as shown in this table:

5-day average of 46 trips/day can occur many different ways

Daily Trip Examples			
Monday	5	35	0
Tuesday	120	50	0
Wednesday	5	40	230
Thursday	90	45	0
Friday	10	60	0
Total	230	230	230
Average Day =	46	46	46
Peak/Average:	2.61	1.30	5.00

4. **The TIA does discuss a high day's volume due to "extended hours" of operation but leaves the reader wondering how the extended hours actually work and what the impact would be.** That high day would have 294 daily truck trips. The TIA identifies the same daily hours of truck travel (7a.m. to 5p.m.) as during normal operations yet indicates a higher volume of excavation to be hauled during those 10 hours. More trucks could accomplish that, but it still leaves the reader wondering what hours are being extended. Presumably, "extended hours" means longer days of operation, more days, or both. If that is true:
    a. ***the TIA did not evaluate impacts from longer days, more days or both*.** The TIA does not address weekend hauling (except to note the annual daily trip average if hauling ran six days per week), although the MDNS mentions it. There is no weekend traffic data, and no indication of whether trucks hauling on a Saturday or Sunday would conflict with other road users including cyclists.
    b. ***The TIA did not evaluate the impact of hauling in hours of darkness*** which could occur should extended hours go earlier than 8 a.m. or later than 5 p.m. between November and February. Hauling during hours of low visibility or darkness poses additional safety risks given the sub-standard narrow roads without shoulders, Grip Road's lack of a fog line and sight-distance deficiencies at the mine access road and at the Prairie/Grip Road intersections.

    Much greater clarity is needed about the "extended hours" operation including how many days would be involved, and whether hauling would occur more than ten hours per day. That clarity would allow the County to identify impacts and determine appropriate mitigation measures.

5. **More than 10% of daily truck traffic could occur in one hour, the impacts of which have not been evaluated.** The TIA assumes without evidence that 10% of daily truck traffic occurs during the peak hour. But with a 10-hour operating day, that means that every hour has the same volume. For example, the TIA says that an average day with 46 daily truck trips will have 4.6 trips in the peak hour. Similarly, during "extended hours", the TIA notes that the peak hour volume would be 30 truck trips (with 294 daily trips over ten hours, the average hourly volume would be 29.4 truck trips). Two problems arise:
    a. It is very likely that truck trips would not be so evenly distributed across the day, such that the mine would generate more than 10% of its daily trips in one hour. That hour may or may not correspond to the afternoon peak hour of street traffic. Under the "extended hours" scenario, it is likely that more than 30 truck trips would occur in one hour, the impacts of which weren't evaluated in the TIA. Based on the TIA, the County and the public do not know the peaking characteristics of the mine's truck traffic and whether additional mitigation is warranted to deal with peak truck volumes.
    b. The TIA did not discuss the intensity of truck traffic during "extended hours" operations with a truck trip every two minutes for the entire 10-hour hauling day. That is an intense volume of heavy trucks across the day creating a high level of traffic conflict with residents and other road users including school buses and cyclists, as well as noise.

6. **According to Skagit County Road Standards (Version 5.2, 4.08.D.11-12), a TIA should include information about the location of bus stops, service and usage, and about pedestrian and bicycle linkages and usage.** The TIA only notes that no public transit stops or dedicated bicycle facilities exist on the area's roads. However, there is no mention of school bus service for the Sedro-Wooley School District including Samish Elementary School that serves children on Grip Road, Prairie Road

and F&S Grade Road, Cascade Middle School and Sedro-Wooley High School or for the Burlington-Edison School District that also serves children on the western segment of Prairie Road. (See school district boundary maps, attached). Nor is there any information about the number of cyclists, seasonal use, group rides, or the conditions that cyclists face on Grip Rd. or Prairie Rd. where shoulders are non-existent. The potential for the mine to generate its peak truck volume during the period when school buses stop on Grip and Prairie Roads should be identified and the impacts to school bus safety evaluated to determine whether measures should be taken to reduce truck volumes or otherwise reduce the risk of collisions. A Level II TIA Conflict Analysis could have done this.

7. **Skagit County Road Standards (Version 5.2, 4.08.D.2) requires that a TIA describe "roadway geometrics, including horizontal and vertical curvature."** The TIA does not identify the steep (average 8% grade), shoulder-less curves on Grip Road just west of the mine's access road. Nor does the TIA acknowledge the slope failure problems that have caused emergency repairs to be made in recent years to this steep, narrow road. Absent this information, there is too little context in which to anticipate impacts of heavy truck traffic to safety, maintenance, noise. Those impacts could be:

    a. Safety -- the steep grade raises safety concerns should a truck lose its brakes over this nearly half-mile segment. Again, the narrow road and lack of shoulders leaves no room for driver error or vehicle recovery. While this would likely be a rare event, it is possible and I know of a specific instance of failed brakes on a gravel mine truck near Washougal, Washington.
    b. Safety -- with just 20-22 feet of pavement and no shoulder, haul drivers will be challenged to keep their trucks in their lane on the curves without encroaching on the opposite lane of travel.
    c. Maintenance – heavy trucks overriding the pavement's edge will likely accelerate damage to the road, increasing repair costs to the public. With such a narrow road, it is highly likely that this will occur as there is no leeway for drivers other than encroaching on the opposing lane.
    d. Noise -- loaded trucks would likely use engine compression brakes to slow their descent on Grip Road. That will increase noise in the road's vicinity, something that was not evaluated in the noise study that looked only at noise on the mine's property. This will be a significant concern for periods of "extended hours" operation when truck volumes are expected to increase significantly beyond normal operating volumes.

8. **Additional increases in sight-distance at the intersection of Prairie Road and Grip Road should be investigated before approving installation of a flashing beacon.** The TIA recommends installing an actuated flashing beacon to compensate for deficient sight-distance. However, WSDOT's draft guidance to the application of a flashing beacon (generally known as an Advance Warning System) requires that:

*The following countermeasures must be attempted, and shown to be insufficient, in the order shown below**, before implementing an AWS*** (emphasis added):

Countermeasures	*Status*
1. Installation or Revision of Dilemma Zone Detection, as applicable (PTSWF only).	This is for signals, so not applicable here.
2. Improving sight distance, including obstruction removal or adding supplemental signal displays.	Stopping sight distance for 20 mph advisory speed (115 feet) has been achieved, but ability to remove remaining obstruction has not been evaluated in the TIA or MDNS.
3. Speed limit revisions, if possible.	Advisory speed limit is posted for 20 mph
4. Revision of signal timing – Yellow Clearance Interval, in particular (PTSWF only).	This is for signals, so not applicable here.
5. Installation of a single 48" x 48" Signal Ahead (W3-3) sign or applicable W Series Intersection Warning (W2-1 Cross Road Symbol, W2-2 Side Road Symbol, etc.) sign.	A side-road symbol identifying Grip Road is posted in for both northbound and southbound traffic on Prairie Road
6. Installation of dual (gated) 48" x 48" Signal Ahead (W3-3) signs or applicable W Series Intersection Warning signs, for two lane, three lane, and divided (median or barrier with sufficient shoulder width) highways.	Not applicable here
7. Installation of a single 48" x 48" Signal Ahead (W3-3) sign or applicable W Series Intersection Warning sign with continuous or actuated (actuated preferred), alternating flashing beacons.	This is the proposed beacon.

Source: WSDOT Traffic Electric Equipment Manual, P2.3, Draft June 2019; Tilghman Group

The TIA did not discuss whether fulfilling the second countermeasure, removing the remainder of the embankment obstructing sight lines, is possible. It appears that the bulk of the embankment lies within the right-of-way (if the County's iMap property map is accurate) so its removal should be investigated and the increase in sight-distance determined before approving the flashing beacon. This is especially important with the addition of heavy trucks slowly accelerating from Grip Road onto Prairie Road. Figures 1a and 1b (attached) show the apparent right-of-way on Prairie Road, and the distance from the roadway's centerline to the right-of-way spanning the embankment.

Comments on the MDNS

- Mitigation Measure #2 – *Hours of operation…. If seasonal (temporary) demand indicates a need for extended hours, or Saturday or Sunday operations, the applicant shall submit a request for a temporary deviation to these permitted hours to Planning & Development Services (PDS). If permitted by PDS, such operations may be subject to additional conditions by PDS.*

    - Criteria for additional conditions should be specified now, including acceptable hours for morning and evening operations based on noise, conflicts with school buses, and volumes for daily and hourly truck trips. Trucks will be the predominant vehicle type on Grip Road during certain hours, fundamentally altering the road's current rural character of low volumes and general quiet.
    - Limits should also be set on the number of consecutive days over which "extended hours" of operation can occur so that they are truly temporary.
    - Limits should also be placed on the total number of "extended hours" variances that can occur in one year.
    - Compression brake noise should be a consideration in setting additional hours and days of temporary operation.

- Mitigation Measure #3 – *No track out of dirt, debris, or rocks onto county road/rights-of-way is permitted.*

    - Dust control will be needed on the access road and Grip Road, in addition to sweeping. While dust control is the subject of Mitigation Measure #4, it should also be included in #3.

- Mitigation Measure #6 – *The proposed gravel mine/quarry shall comply with SCC 14.16.840 (Skagit County Performance Standards) regulating vibration, heat, glare, steam, electrical disturbance, and noise in unincorporated Skagit County.*

    - This measure should be modified to include truck noise in compliance with WAC 173-62. SCC 14.16.840 references WAC 173-60 that deals with noise generated by land uses, but nowhere does the MDNS address truck noise.

- Mitigation Measure #13.vi – *The applicant shall comply with all Skagit County load restrictions on the Samish River bridge on Old Highway 99 North. If the dump truck/pup trailer combinations exceed the load restrictions, the applicant will use Interstate 5 (I-5) for southbound access to the Belleville pit located on Old Highway 99 North, south of the Samish River Bridge until such time as the bridge is improved.*
    - The entirety of the haul route should be identified to indicate acceptable roads for the heavy mine trucks and trailers and to identify those that are not acceptable (see next bullets regarding F&S Grade Road and Grip Road east of the mine).
    - The I-5 alternate route requires that haul truck drivers stop at the southbound weigh station between the interchanges at Bow Hill Rd. and Cook Rd. That stop may dissuade

drivers from using I-5. In that case, there is no other good route option except for using F&S Grade Road. And that route requires trucks to make an additional left turn (one from Prairie to F&S Grade and then another from Kelleher to Old 99) and involves an acute right turn from F&S Grade Road onto Kelleher Road. To enforce the use of I-5 when necessary, use of F&S Grade Rd. should be prohibited as a haul route.

- Grip Road east of the mine access road has many 90-degree curves and should be evaluated for the ability of trucks to track in their lanes prior to any approval of this as a haul route. The TIA did not address those curves even though it assigned 5% of daily truck traffic to the east on Grip Road.

- Mitigation Measure #13.vii – *The maximum daily truck traffic that is allowed associated with the subject gravel mine/quarry is limited to an average of 46 daily trips during mining operations not to exceed 30 trucks per hour under extended hours operations.*
  - A method for measuring and monitoring the average daily truck volume should be defined now. It needs to address:
    - Frequency of counting
    - Procedure for counting and reporting counts
    - Verification of the counts
    - The counting period used to determine the average (such as weekly).
  - A maximum allowable daily volume should be set, in addition to specifying the average daily volume. A maximum could be 150% of the average daily volume, or 69 truck trips (46 x 150%). As noted in comment #1 above, the daily average could be met with widely varying day's volumes, so setting a maximum relative to the average would give the public a clearer idea of what to expect in terms of truck traffic and its impacts to neighbors and road users.
  - Similarly, a maximum hourly volume should be set to minimize conflicts with other users, especially school buses and cyclists. Minimizing those conflicts may well entail setting a maximum hourly volume less than 30 truck trips as noted in the MDNS. For example, with 10 trucks per hour in one direction, a cyclist riding in the same direction on Prairie Road between Grip Road and Old 99 faces an 81% probability of encountering a gravel truck. School buses may face similarly high odds of encountering gravel trucks as they stop to unload students.

- An additional condition to Mitigation Measure #13 should be added to address the Grip Road "S" curves west of the mine access road that requires the applicant to add shoulders and investigate re-aligning the curves to avoid encroachment on the edge of pavement or the opposing lane. This condition would be consistent with the County's Comprehensive Plan Policy 4D-5.3:

  New public roads and bridges accessing designated Mineral Resource Overlay Areas shall be designed to sustain the necessary traffic for mineral extraction operations. ***Existing roads and bridges shall be improved as needed as each new extraction operation is developed. Cost sharing for the improvement of roads and bridges shall be negotiated between the permitting authorities and the applicant.*** (Emphasis added)

- A performance condition should be included to determine when it is safe for trucks to use Grip Road on frosty and icy days.

- Require a haul route agreement that stipulates roadway maintenance and repair financial responsibilities for the mine operator due to added truck trips. An example from Garfield County is attached.

Additional Comments

1. Bicycles face a high probability of encountering trucks on Prairie Road. Even with just one cyclist and 3 trucks in the same direction in one hour, the cyclist faces a 28% probability of being met by a truck. And for busier periods, say with 10 trucks per hour in one direction, the probability is 75%. (See attached matrix of encounters per hour between trucks and cyclists based on trucks following the speed limits and cyclists riding at an average of 15 mph). The narrow lanes and lack of shoulders make this high probability a serious safety concern.

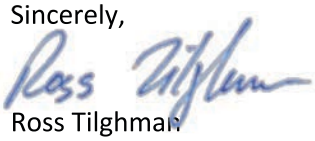
2. I have estimated carbon emissions from hauling on an annual basis. The calculation is as shown in the following table. The assumptions used mirror those in the TIA for annual excavation and truck loads, resulting in:

    a. 200,000 tons/year excavation at 34 tons/truck yields 5,882 loaded truck trips/year + 5,882 unloaded return truck trips/year
    b. A haul route of 7.69 miles in length measured from approximately the mid-point of the site to the Bellevue Pit dump area (see attached aerial image of the haul route's length).
    c. A total of 2,386,162 loaded ton-miles and 848,162 unloaded ton-miles
    d. Carbon emissions of 222 grams/ton-mile per the EPA's 2017 Vocational Vehicle Standards for Heavy Heavy-Duty Class 8 trucks

Estimated CO2 Emissions from Mine Trucks					
			Annual Ton-Miles		
			Loaded	Unloaded	
		Tons:	52.75	18.75	
Distance to Belleville Pit	7.69	miles	2,386,162	848,162	
Emissions (g/ton-mile)			222	222	*per EPA 2017 Vocational Vehicle Standards Heavy Heavy-Duty Class 8*
Emissions total (grams)			529,727,912	188,291,912	
Emissions Total (Metric Tons)			529.73	188.29	
Combined Annual TOTAL (Metric Tons)			718.02		
Gross Vehicle Weight	105,500	lbs			
in tons:	52.75	tons			
Payload	34.00	tons			
Tare Weight					
Truck + Trailer (approx.)	18.75	tons			
Truck Volume per TIA:					
200,000	tons/year extracted				
34	tons/truck				
5,882	Loaded truck trips/year				
5,882	Unloaded truck trips/year				
Source: Tilghman Group					

In conclusion, the narrow roads comprising the majority of the haul route, the mix of traffic on those narrow roads including school buses and cyclists, the slope and S curves on Grip Road, the limited sight-distances and the potentially high frequency of heavy truck traffic require additional analysis of safety conflicts and measures to avoid or mitigate those conflicts.

Sincerely,



Ross Tilghman

Ross Tilghman is a transportation planning consultant with his own firm, the **Tilghman Group.** He has 37 years of experience in analyzing transportation demands for a wide variety of land uses and in developing solutions to meet transportation needs. A full member of the Urban Land Institute, Mr. Tilghman is a frequent participant in ULI Advisory Service Panels working in communities around the country and has been active in developing ULI's Building Healthy Communities initiative. He currently serves on ULI's Suburban Development and Redevelopment Council. Tilghman completed five years as a Commissioner on the Seattle Design Commission, including a year as Chair

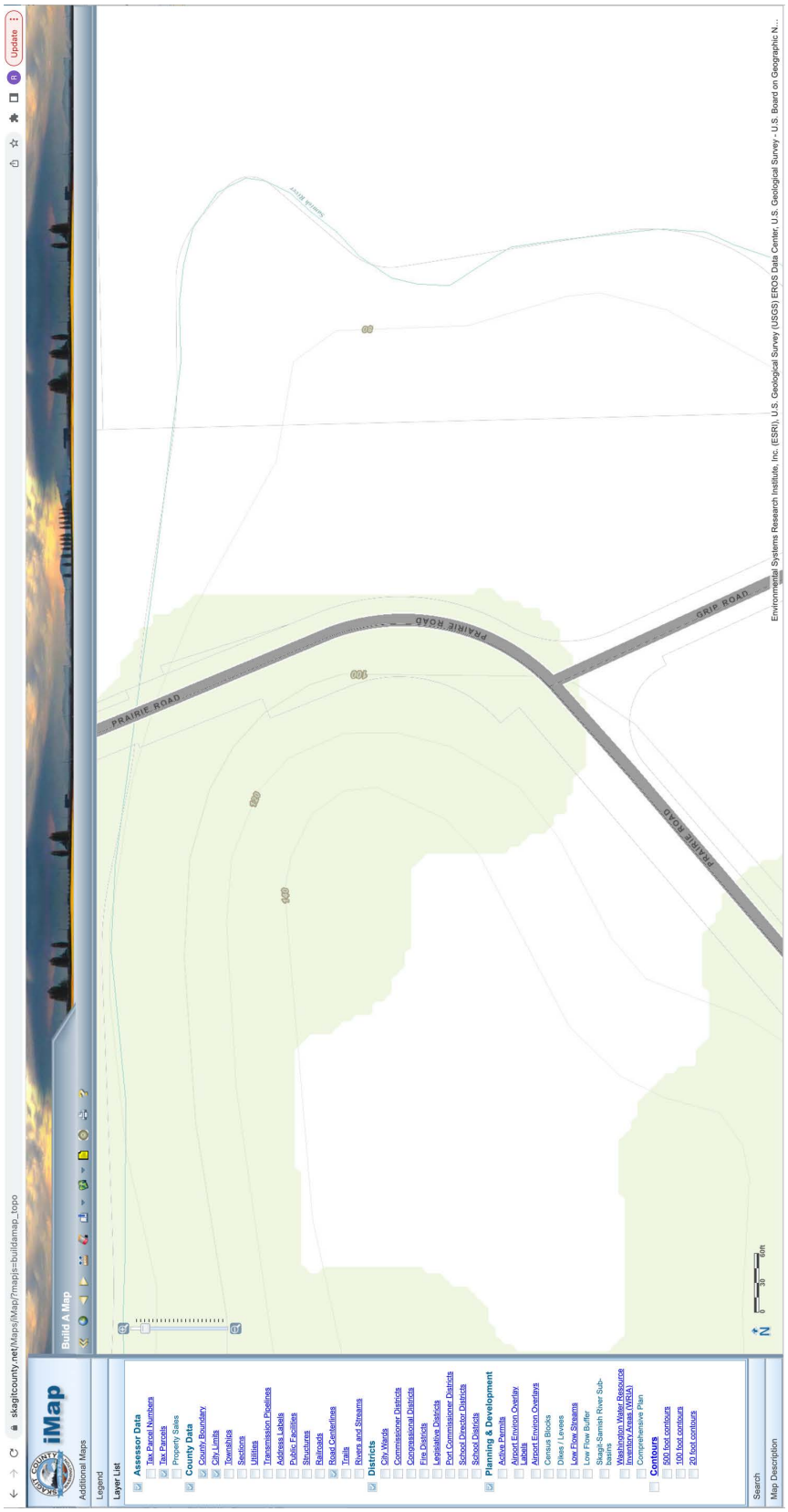


Figure 1a. Variable Right-of-Way on Prairie Road near Grip Road

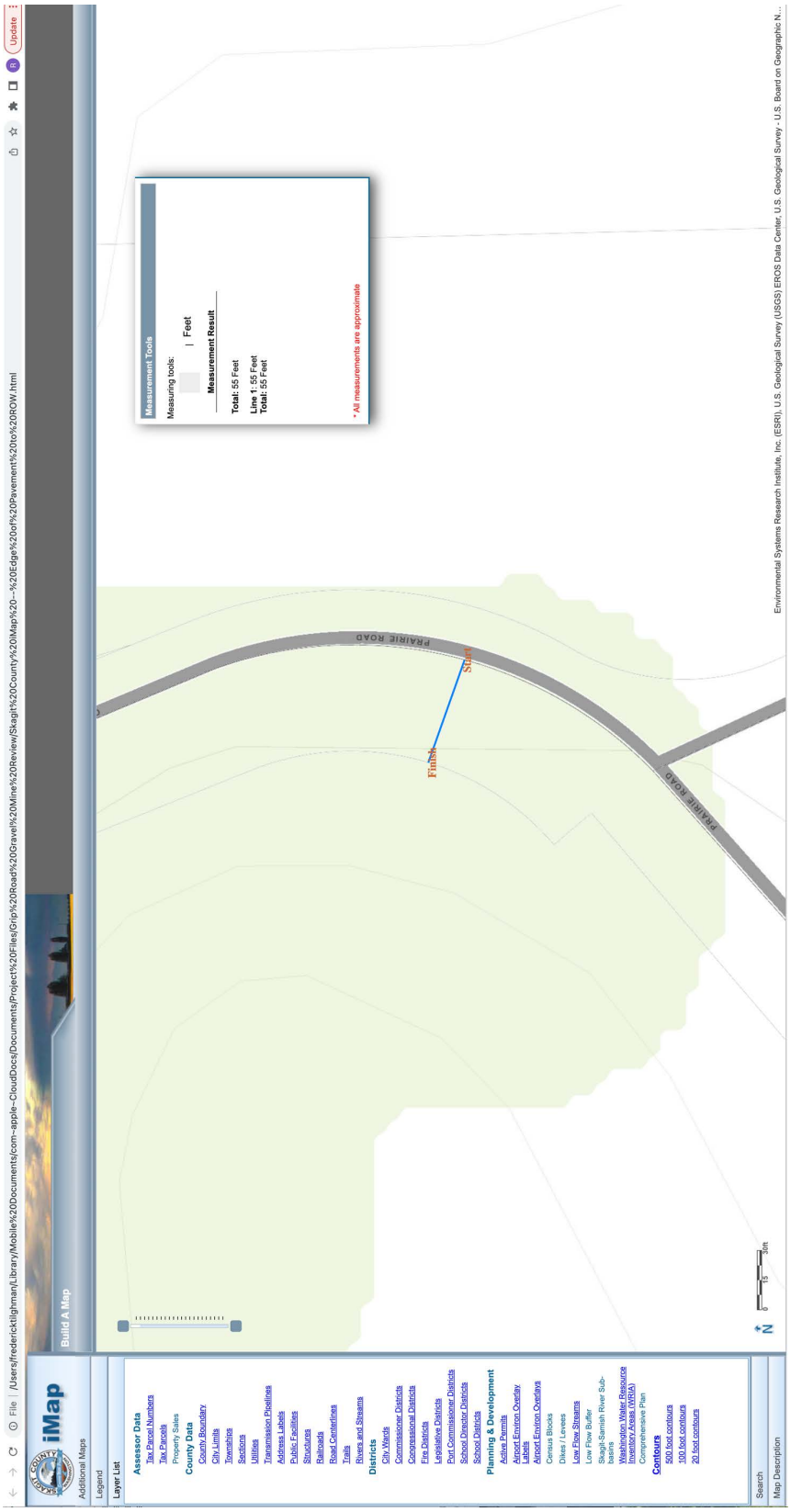
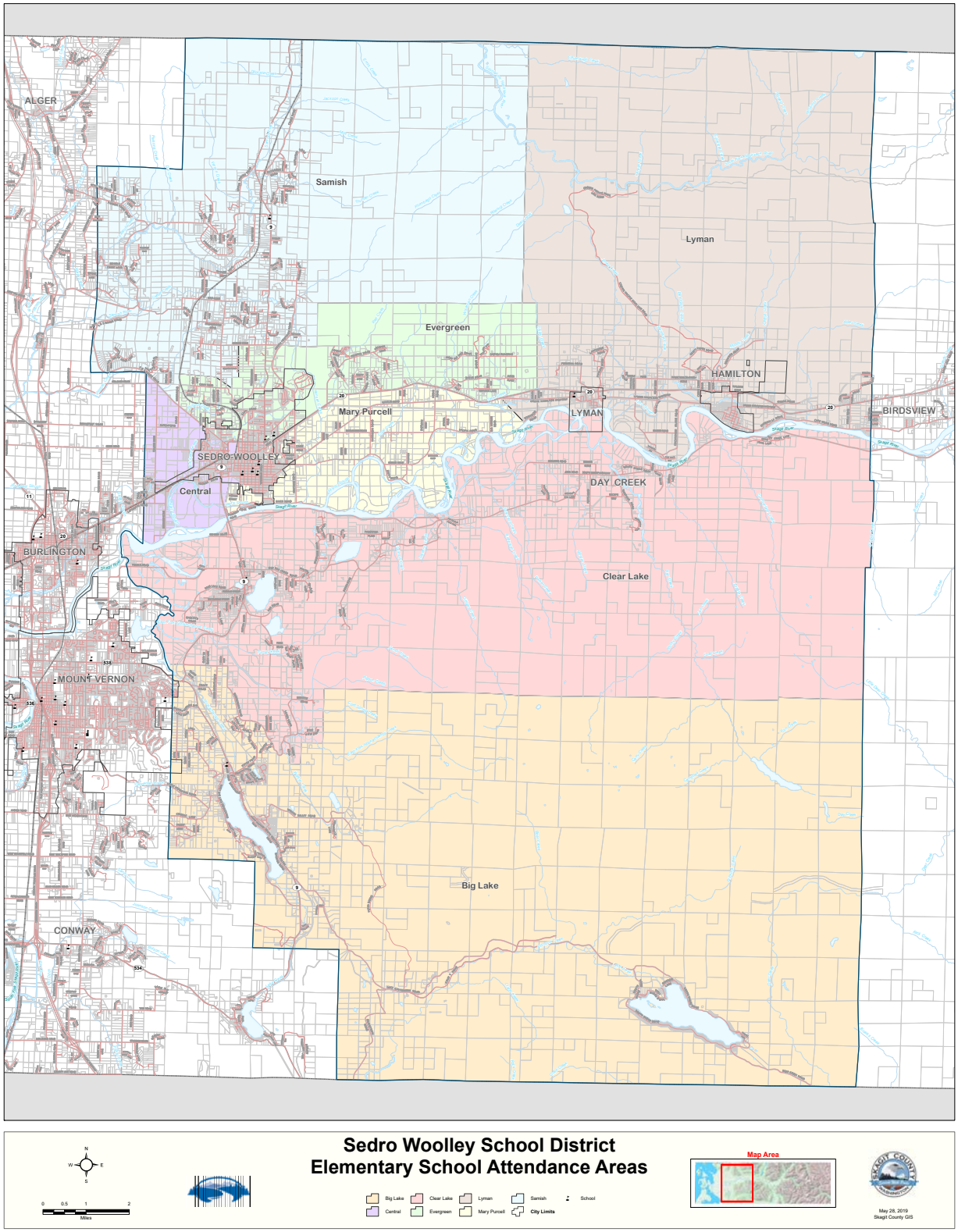


Figure 1b. Distance from Roadway Centerline to Right-of-Way


ALGER
Samish
Lyman
Evergreen
HAMILTON
Mary Purcell
LYMAN
BIRDSVIEW
SEDRO-WOOLLEY
Central
DAY CREEK
BURLINGTON
Clear Lake
MOUNT VERNON
Big Lake
CONWAY
Sedro Woolley School District
Elementary School Attendance Areas
Big Lake
Central
Clear Lake
Evergreen
Lyman
Mary Purcell
Samish
City Limits
School
Map Area
May 28, 2019
Skagit County GIS


B-E P-8 School Boundary ...
This school boundary map is used to assist in the placement of students. While the school boundaries and proximity of the student's
16,294 views
Published on June 26, 2019
SHARE
Schools
Burlington-Edison High School
Westview Elementary
Bay View Elementary
Allen Elementary
Lucille Umbarger Elementary
Edison Elementary
P-8 Neighborhood Schools
Edison Elementary (K-8) Boundary
Bay View (K-8) Boundary
Allen (K-8) Boundary
LU (1-8) Boundary
West View & B-E-HS Boundary
Made with Google My Maps
This map was created by a user. Learn how to create your own.
Google My Maps
Lake Whatcom Southerly Boat Launch
Cyrus Gates Overlook at Larrabee State Park
Chuckanut
Larrabee State Park
Samish Bay
Reil Harbor
Vendovi Island
Guemes Island Resort
North Beach
Guemes Island
Handmade Cooking Knives
Sinclair Island
Cypress Island Preserve Reserve
Cypress Island
Samish Island Public Beach Access
Samish Island, Washington
Samish Unit
Padilla Bay National Estuarine Research...
Padilla Bay
Bay View State Park
Bay View
Leary
Allen
Bow
Edison
Blanchard
Samish
Alger
Lake Whatcom
Wickersham
Doran
Prairie
Lyman Hill
Skagit Speedway
The Skagit Casino Resort
Belfast
Avalon Golf Links
Minkler Lake Conservation Area
Minkler
Northern State Recreation Area
Sedro-Woolley
PeaceHealth United General Medical Center
Sterling
Hart Island
Clear Lake
Burlington
Fred Meyer
Costco Wholesale
Mt Vernon
Skagit Regional Airport
Schuh Farms
Avon
Tulip Town
Fredonia
Whitney
Kukutali Preserve State Park Heritage Site
Similk Bay
Fidalgo Bay Aquatic Reserve
Anacortes
Fidalgo Island
Deception
Mt Erie Summit Trail
Washington Park
Allan Island
Seascape Panorama House
Rosario Beach
Burrows Island Lighthouse
Map data ©2022 Imagery ©2022 TerraMetrics
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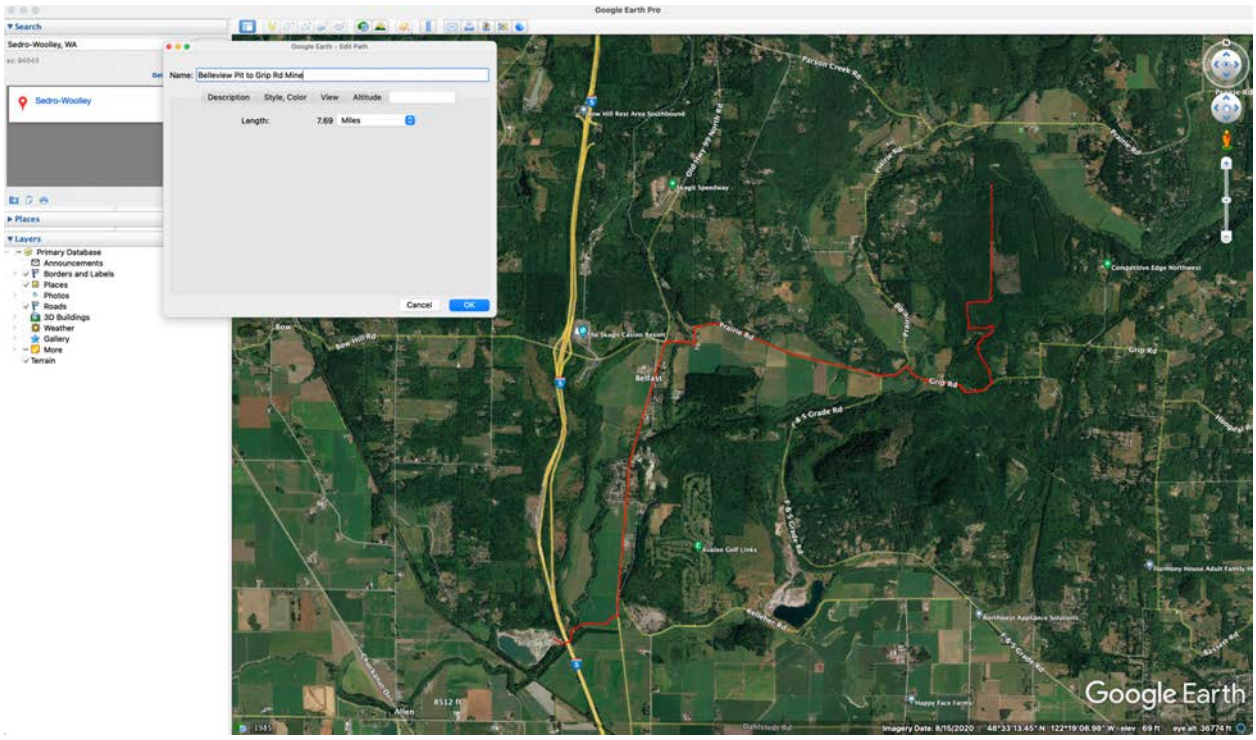
Keyboard shortcuts



Distance between Belleview Pit and Grip Road Mine

dieselnet.com/standards/us/fe_hd.php

Vocational Trucks

At Phase 1, this vehicle segment has been divided into three regulatory subcategories—Light Heavy (Class 2b through 5), Medium Heavy (Class 6 and 7), and Heavy Heavy (Class 8)—which is consistent with engine classifications. At Phase 2, the standards were further differentiated depending on engine type (diesel, gasoline) and the duty cycle: urban, multi-purpose and regional. The final Phase 1 (2017) and Phase 2 (2027) vehicle standards are depicted in Table 4 and Table 5, respectively.

Table 4: Phase 1 final (MY 2017) vocational vehicle standards

Category	EPA CO_2 Emissions	NHTSA Fuel Consumption
	g/ton-mile	*gal/1,000 ton-mile*
Light Heavy Class 2b-5	373	36.7
Medium Heavy Class 6-7	225	22.1
Heavy Heavy Class 8	222	21.8

Table 5: Phase 2 final (MY 2027) vocational vehicle standards

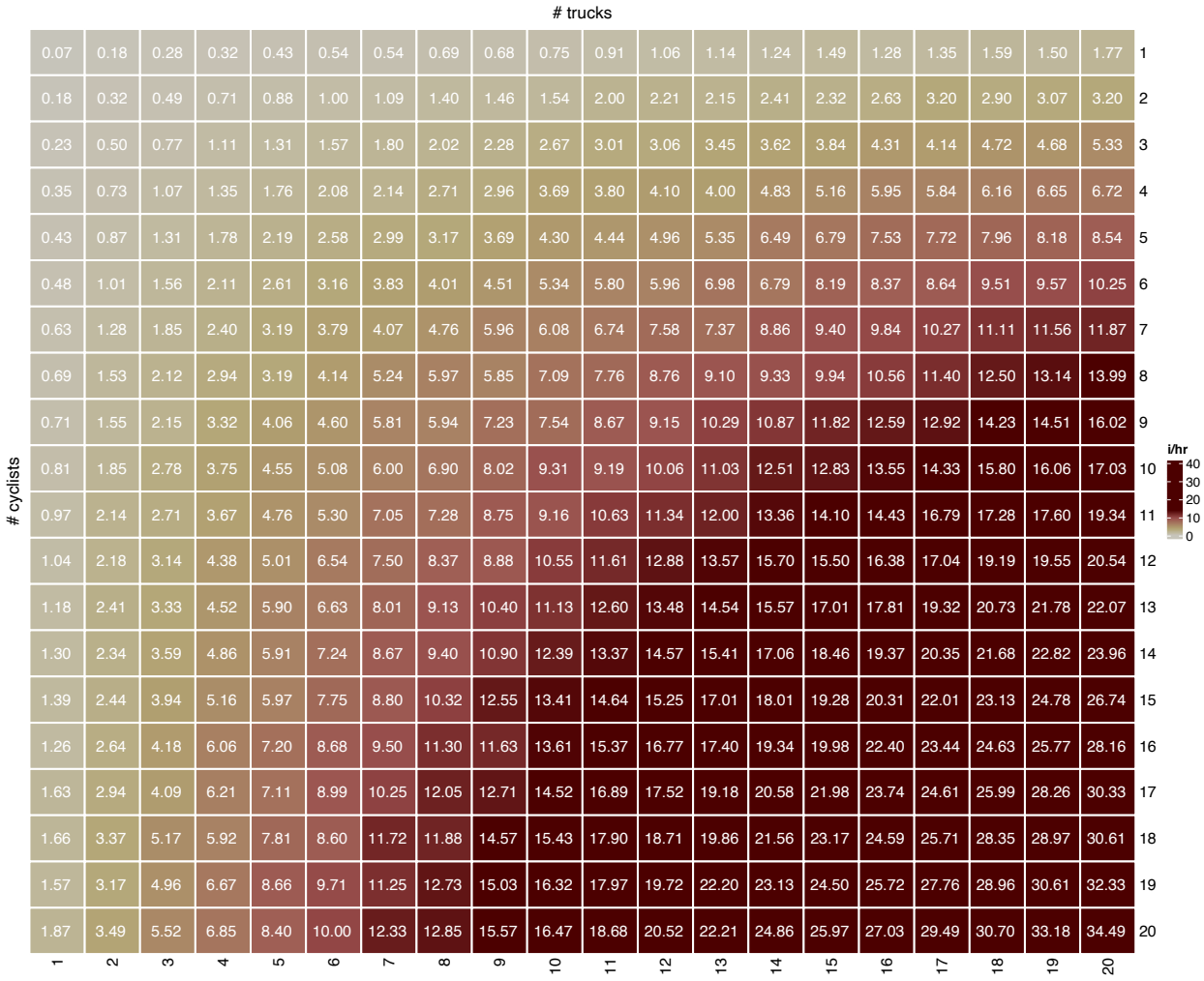
Category	EPA CO_2 Emissions *g/ton-mile*			NHTSA Fuel Consumption *gal/1,000 ton-mile*		
	Urban	Multi-purpose	Regional	Urban	Multi-purpose	Regional
Vehicles with CI engines						
Light Heavy Class 2b-5	367	330	291	36.0511	32.4165	28.5855
Medium Heavy Class 6-7	258	235	218	25.3438	23.0845	21.4145
Heavy Heavy Class 8	269	230	189	26.4244	22.5933	18.5658
Vehicles with SI engines						
Light Heavy Class 2b-5	413	372	319	46.4724	41.8589	35.8951
Medium Heavy Class 6-7	297	268	247	33.4196	30.1564	27.7934

Engine standards for light heavy-duty (LHD), medium heavy-duty (MHD), heavy heavy-duty (HHD) diesel engines and for heavy-duty gasoline engines are shown in Table 6.

Table 6: Engine standards for engines installed in vocational vehicles (FTP cycle)

Category	Year	CO_2 Emissions *g/bhp-hr*	Fuel Consumption* *gallon/100 bhp-hr*
LHD Engines	2014	600	5.89[a]
	2017	576	5.66
	2021	563	5.5305
	2024	555	5.4519
	2027	552	5.4224
MHD Engines	2014	600	5.89[a]
	2017	576	5.66
	2021	545	5.3536
	2024	538	5.2849
	2027	535	5.2554
HHD Engines	2014	567	5.57[a]
	2017	555	5.45
	2021	513	5.0393
	2024	506	4.9705
	2027	503	4.9411
HD Gasoline Engines	2016	627	7.06

* Equivalent NHTSA standards based on 10,180 g CO_2 per gallon of diesel
[a] Voluntary in MY 2014 and MY 2015.



Incidents per Hour of Trucks Meeting Cyclists on Prairie Road between Old 99 and Grip Road

6.E. RESOLUTION TO DESIGNATE HAUL ROUTES

_____ COUNTY

HAUL ROUTE AGREEMENT NO. _____

THIS AGREEMENT, made and entered into this _____ day of_____, 20__, by and between _____ County, hereinafter designated as the "County", and _____ hereinafter designated as the "Contractor",

WHEREAS, the Contractor plans to use county roads in transporting any item, including but not limited to products, equipment, materials, and/or supplies over the county roads listed in a Road Use Plan attached as Exhibit __; and

WHEREAS, the County is responsible for constructing, altering, improving, and maintaining county roads under the supervision and direction of the Public Works Director and/or the County Engineer; and

WHEREAS, the County may limit or prohibit classes, types of weights or vehicles which travel on County roads pursuant to RCW 36.75.270 and 46.44.080; and

WHEREAS, the County and the Contractor anticipate that as a result of the Contractor's use of County roads, accelerated deterioration may occur. Thus, repairs or improvements may be required and additional maintenance expenses may be incurred by the County; and

WHEREAS, the County is authorized to issue Haul Route Permits under the provisions of RCW 36.75.270 and 46.44.080.

NOW, THEREFORE, in consideration of the terms, conditions, and covenants contained herein, it is mutually agreed as follows:

1. PURPOSE STATEMENT:

This Haul Route Agreement shall be completed for existing, new, and expanded hauling operations that may cause accelerated deterioration of county roads. These hauling operations shall include but not be limited to: pits and quarries, logging, contractors, and developers.

2. DEFINITIONS:

A. Routine Maintenance. "Routine Maintenance" means grading, reshaping, repair and/or modification of the road prism which would occur in the absence of the use of a road as a haul route, as indicated in a regular maintenance

schedule, or at the same intervals or frequency as would normally be included in such a schedule.

B. Additional Maintenance. "Additional Maintenance" means grading, reshaping, repair, and/or modification performed on County roads in excess of the same operations performed as routine maintenance by the County.

C. Extraordinary. "Extraordinary" means beyond what is common or usual, or used for a special service.

D. Arbitrator. "Arbitrator" means an independent civil engineer, registered in the state of Washington, who is experienced in road design, construction, and maintenance.

E. Bond. "Bond" means a certificate, cash, or written obligation, in a form satisfactory to the County, made by the Contractor to guarantee the performance of its contractual obligations to the County.

F. Contractor. "Contractor" means the person/corporation entering into this Agreement, and shall include any owner or designee, operator, manufacturer, developer, or supplier that uses County roads for the transport of any item including, but not limited to, products, equipment, materials, and/or supplies where such use may cause accelerated deterioration of such County roads.

G. County Road. "County Road" means a street, road, or other public way, including shoulders, designated for the purpose of vehicular traffic and under the jurisdiction of the County.

H. Director. "Director" means the County's Director of Public Works and/or the County Engineer, or his/her authorized designee.

I. Haul Road. "Haul Road" means any County road, bridge, or other structure which is used for transporting items including, but not limited to products, equipment, materials, and/or supplies and as a result incurs deterioration.

J. Haul Route. "Haul Route" means the system of haul roads between a source site and the destination and/or the source site and the nearest major intersection as determined by the County.

K. Improvements. "Improvements" mean roadway prism improvements required by the Director because of the Contractor's use of the haul road.

L. Right of Way. A general term denoting public land, property, or interest therein, usually in a strip acquired for or devoted to transportation purposes.

M. Road Prism. "Road Prism" means the driving surface of a road (including constructed roadbed), shoulders, ditches including backslopes, fillslopes, curbs, gutters, storm drainage facilities and sidewalks including backslopes.

3. GENERAL AGREEMENT AS TO ROAD USE:

The Contractor understands and agrees that, although the haul roads covered by this Agreement are on the County Road System and are subject to normal traffic use the Contractor, by virtue of its extraordinary use of the roads, assumes responsibility for all damage and additional maintenance and signing costs on such roads resulting from its use of such roads as a haul route. Such costs are to be reimbursed by the Contractor as outlined in Section 7.

The County hereby agrees to the Contractor's use of the haul roads covered by this Agreement subject to the conditions contained herein. The Contractor shall be responsible for obtaining any other permits or licenses which the County or any other governmental entity may require to operate or move its vehicles on county roads. This Agreement shall not serve to relieve any operator of a Contractor's vehicle from complying with applicable speed limits, weight restrictions, or other posted restrictions.

Any improvements to or widening of the road necessitated by the Contractor's operations, including modification of roadway approaches to accommodate transport vehicles, shall be considered incidental to the hauling performed, shall be made a the Contactor's sole expense unless otherwise authorized in addendum to this Agreement, and shall remain in place or be removed at the Director's choice. Any such improvement shall be authorized by County permit.

4. ASSUMPTION OF RISK AND LIABILITY OF CONTRACTOR:

The County has not made and does not herein make any representation as to the present or future conditions of its roads or the character of the traffic on any of its roads, and the Contractor assumes all risks of damage to property of or injury to, Contactor or anyone acting under the authority granted to the Contractor by this Agreement.

The Contractor agrees and covenants to indemnify, defend, and save harmless the County against and from any loss, damage, costs, charges, liability, claims, demands, or judgments, whether to persons or property, arising out of any act, action, neglect, omission, or default on the part of the Contractor or anyone acting under the Contractor's authority granted by this Agreement.

In case any suit or cause of action shall be brought against the County on account of any act, action, neglect, omission, or default on the part of the Contractor or anyone

acting under the Contractor's authority granted by this Agreement, the Contractor agrees and covenants to pay all costs, charges, attorney fees, and other expenses and any and all judgments that may be incurred by or obtained against the County, including all such costs incurred by the County to enforce this provision.

The Contractor shall have Public Liability and Property Damage Insurance.

5. ROAD USE PLAN:

The Contractor and the County have agreed to the Road Use Plan, which is attached hereto and incorporated herein as Exhibit __. The Road Use Plan designates which County roads are to be used in this Haul Route Agreement. In addition, the Road Use Plan contains the following information:

A. Vehicle trips per day of travel;
B. Hours and dates of travel;
C. Gross weight loadings;
D. Vehicle types, trailers, and combinations, number of axles, distance between axles, and tire sizes; and
E. Products, equipment, materials and/or supplies to be transported and estimated quantities of same.

Any variance from the approved Road Use Plan requires (1) an advance written request to the Director by the Contractor, and (2) if the Director agrees to such use, this Agreement shall be amended to include such additional roads. Roads so added are subject to all Sections of this agreement and may be subject to the additional provision. The County will require a new application annually at the start of the Contractor's hauling operations.

If the Director desires to change conditions, he/she may do so at his/her discretion by sending written notice to the Contractor at least three (3) days before the effective date of the change. The County shall not be responsible for additional costs incurred by the Contractor resulting from changes to this agreement.

6. INSPECTION AND DOCUMENTATION:

Prior to the signing of this Agreement and prior to the start of Contractor's hauling operations on County Roads covered by this Agreement, representatives of the County and the Contractor shall make a joint pre-inspection to determine the existing condition of the road prism of such roads. The County will complete a pre-inspection report indicating the condition of such road prism and attach and incorporate such report herein as Exhibit __. The pre-inspection report will include a statement of the extent and frequency of routine maintenance on such road prism and may include

photographs, video logs, or other recording devices showing the condition of the existing road prism.

Deficiencies of the road prism noted in the pre-inspection report shall show an estimated cost to repair. The Contractor shall not be responsible for these costs.

The haul route will be inspected twice each year, before and after the Summer/Fall haul period. The haul route shall also be inspected within 15 days of the County's receipt of the Contractor's certified mail notice (pursuant to Section 12D) that it has permanently ceased hauling operations. Any additional inspections shall be at the Contractor's expense. After such re-inspection the County shall complete and give to the Contractor a report of (1) the condition of the road prism(s) used by the Contractor for hauling and (2) the costs of additional maintenance and additional signing, if any, performed by the County as a result of the Contractor's operations since the previous inspection. All subsequent inspections shall be documented and attached as exhibits to this agreement and used for determining the Contractor's reimbursement obligation under Section 7.

Upon written notification of completion of the hauling operation, a joint post-inspection will be conducted, documented, and attached hereto and incorporated herein as Exhibit __.

7. CONTRACTOR REIMBURSEMENT OF COUNTY EXPENSES:

The County will defray the expense of routine maintenance of haul roads designated in this Agreement and will maintain separate records of all items, accounts, and expenditures on said roads.

During the period for which this Agreement is in effect, the Contractor agrees to reimburse the County for all costs of (1) additional maintenance and (2) additional signing necessitated by the Contractor's use of County roads.

Reimbursement for such additional maintenance and additional signing shall be limited to the actual cost to the County of labor (including fringe benefits), equipment, and materials, plus fifteen percent (15%) for administration. The Contractor shall make payment to the County upon receipt of detailed invoices supported by written documentation equivalent to that normally supplied by the County. The Contractor shall pay the invoiced amount to the County within 30 days from the invoice date.

In the case of hauling on a County road by two or more contractors, invoices shall be prorated by the County. This proration may be based upon, but need not be limited to, the weight, frequency, vehicle configuration, and/or duration of the hauling operations. In such cases, all Contractors will be invited to attend a joint pre-inspection and any subsequent re-inspections that may occur.

The Director may require a bond, if it is concluded that there may be damage done to the road prism or any county facilities thereon.

8. DISPUTES:

In the event a dispute over the Contractor's reimbursement obligations under this Agreement cannot be resolved between the parties to this Agreement, the dispute shall be submitted to an Arbitrator for resolution and determination. The Contractor shall, however, pay all total invoice amounts when payment is due under this Agreement. Any disputed sums shall be held in escrow until the arbitration is completed.

The Arbitrator shall be selected by agreement of both parties. If the parties cannot agree on an arbitrator, he/she shall be appointed by the Board of County Commissioners. The findings of the Arbitrator shall be final and conclusive as to the parties. Arbitration shall be completed within sixty (60) days of the selection of the arbitrator. The costs of arbitration shall be apportioned by the arbitrator according to the principle that the losing party should pay the winning party's cost.

9. RESTRICTIONS:

The Director has the authority to immediately restrict, during the life of this agreement, the weight or speed of the vehicles on the roadway below the legal limits applicable to such roads and vehicles for the following reasons, included but not limited to:

A. Temporary road closures;
B. Temporary weight restrictions caused by weather conditions;
C. Weight restrictions posted on County bridges; and/or
D. Where continued unrestricted use of road under this Agreement will endanger public health, safety or welfare thereon.

1. GENERAL TERMS:

Once this Agreement has been executed and is on file with the County, the County will issue a haul route permit to the Contractor. A copy of the permit shall accompany each vehicle of the Contractor using any County haul road, and shall be shown upon demand to representatives of the County or any law enforcement officer.

2. COMPLIANCE WITH LAWS AND REGULATIONS:

The Contractor shall comply with all Federal, State, and local laws and regulations.

3. REVOCATION AND TERMINATION:

This Agreement may be terminated by the Director and the haul route permit revoked when any of the following occurs:

A. Violation by the Contractor of any of the terms of this Agreement.
B. Untimely Contractor payment of any County invoice.
C. Where continued use by the Contractor of County roads under this agreement will endanger public health, safety or welfare.
D. The Contractor notifies the Director by certified mail that he/she has permanently ceased hauling operations at which time a post-inspection will be conducted and an invoice issued for final payment.

Upon termination of this Agreement, for any reason, the Contractor shall immediately discontinue hauling operations covered by this Agreement.

The termination of this Agreement shall not prejudice the County's right to collect damages incurred theretofore or thereafter accruing, on account of Contractor's use of the road.

If, after revocation of this agreement, the Contractor wishes to resume operation, the Contactor shall request to enter into a new agreement.

4. SEVERABILITY:

If any portion of this Agreement is held invalid it shall have no effect upon the validity of the remaining portions of this Agreement.

5. SCOPE AND CONSTRUCTION OF TERMS:

The definitions in this Agreement shall control the meaning of terms used herein. Where no definition is expressly stated herein, a term shall have that meaning clearly indicated by, or reasonably implied from, the context in which such term is used.

6. NOTIFICATION:

All notices and oral or written communications relating to this agreement may be forwarded to:

On behalf of the County:	On behalf of the Contractor:
_____	_____
Title: _____	Title: _____

Phone: _____ Phone: _____

IN WITNESS WHEREOF, the parties hereto execute this Agreement as of this ____ day of____, 20__, this Agreement shall remain in effect until revoked or terminated as provided under Section 13.

COUNTY OF_____ CONTRACTOR

Signature: _____ Signature: _____

Name: _____ Name: _____
County Engineer

Title: _____

Address: _____

By: _____
_____ Phone: _____

ACKNOWLEDGEMENT

STATE OF WASHINGTON)
)SS (Individual Acknowledgment Form)
COUNTY OF_____)

This is to certify that on this ____ day of _____ 20__, before me, the undersigned, a notary public, personally appeared_____, to me known to be the person(s) who executed the foregoing instrument, and acknowledged to me that ____ signed the same as ____ free and voluntary act and deed; that he/she/they have the authority to sign this document as he/she/they have indicated, and for the uses and purposes therein mentioned.

Given under my hand and official seal this ____ day of ____, 20__.

_____
Notary Public in and for the State of
Washington residing at _____

ACKNOWLEDGEMENT

STATE OF WASHINGTON)
)SS (Corporation Acknowledgment Form)
COUNTY OF_____)

This is to certify that on this ____ day of _____ 20__, before me, the undersigned, a notary public, personally appeared_____, and _____, of the corporation that executed the foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that _____ authorized to execute said instrument and that the seal affixed is the corporate seal of said corporation.

Given under my hand and official seal this _____ day of _____, 20__.

_____
Notary Public in and for the State of
Washington residing at _____

_____ COUNTY
DEPARTMENT OF PUBLIC WORKS

APPLICATION FOR A HAUL ROAD PERMIT & JOINT SITE INSPECTION FORM
Pursuant to Ordinance No.____

Name of Applicant: _____
Mailing Address: _____
_____
Business Phone: _____

County Roads to be Utilized as Haul Route

Road Name & Number	Surface Type	Miles
_____	_____	M.P.___ to M.P.___
_____	_____	M.P.___ to M.P.___
_____	_____	M.P.___ to M.P.___
_____	_____	M.P.___ to M.P.___

Estimated Quantities to be Transported – cy/tons/Mbf

Quantity_____	Vehicle Type_____	Trips/Day_____
Quantity_____	Vehicle Type_____	Trips/Day_____
Quantity_____	Vehicle Type_____	Trips/Day_____
Quantity_____	Vehicle Type_____	Trips/Day_____

Haul Period: From: _____ To: _____

Date of Site Inspection: _____

Initial: ___ Final: ___ Public Works Title: _____
Inspection: ___ Inspection:___ Permittee Title: _____

$_____ Surety as computed by the attached formula shall remain in effect throughout the life of the Haul Route Agreement.

_____ _____
Department of Public Works Permittee

Original to Department of Public Works – Copy to Permittee

BOND FORMULA

PRELIMINARY FORMULAS FOR ESTIMATING ADDITIONAL MAINTENANCE FOR HAULING OPERATIONS ON COUNTY ROADS.

TYPES OF SECURITY_____ COUNTY WILL ACCEPT:

Cash deposit with _____ County
A Certified Bond from a Bonding Company
Cashier's Certified Check Payable to _____ County

Formula for Surety = _____ Loads X _____ Miles X Surface Type Repair Factor

GRAVEL ROADS _____ Loads X_____ Miles X $_____/Miles = _____

BST ROADS _____ Loads X_____ Miles X $_____/Miles = _____

ACP _____ Loads X_____ Miles X $_____/Miles = _____

TOTAL _____

NO SECURITY IS REQUIRED FOR 10 LOADS OR LESS FOR ONE SEASON COUNTY WIDE

The Minimum Bond will be $500

Computed additional maintenance costs due to the hauling operation is in addition to normal maintenance costs. Normal annual road maintenance costs for private vehicles, light truck usage is approximately $_____ a mile.

EXHIBIT ____

PRELIMINARY INSPECTION REPORT

DATE: ___________________________ TIME: __________________________

INSPECTION TEAM (NAME & AGENCY REPRESENTING): __________________________

____

____

BEGINNING POINT ___________________________ ENDING POINT _____________

ROAD	MILEPOST	DISTRESS	PHOTOGRAPH

ROAD	MILEPOST	DISTRESS	PHOTOGRAPH
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

DESCRIPTION AND FREQUENCY OF ROUTINE MAINTENANCE:

_____
_____
_____
_____
_____
_____

ACKNOWLEDGEMENT

SIGNATURE: _____ TITLE: _____
FIRM: _____

SIGNATURE: _____ TITLE: _____
FIRM: _____

SIGNATURE: _____ TITLE: _____
_____COUNTY

ESTIMATED COST OF REPAIR

PROJECT: _____ DATE: _____
LOCATION: _____

ITEM	LABOR	RATE	HOURS	AMOUNT

LABOR SUB-TOTAL _____

ITEM	EQUIPMENT	RATE	HOURS	AMOUNT

EQUIPMENT SUB-TOTAL _____

ITEM	MATERAL	UNIT	COST	QUANTITY	AMOUNT

MATERIAL SUB-TOTAL _____

TOTAL COST _____

SIGNED: _____

TITLE: _____

HAUL ROUTE AGREEMENT PROCEDURAL OUTLINE

I. Notification of hauling activities – usually by Conditional Use Permit
   - A. Estimate quantity of material to be hauled.
   - B. Estimate number of trips.
   - C. Type of trucks to be used.
   - D. Projected term of hauling activity.

II. Meet with applicant
   - A. Applicant identified proposed route.
   - B. Review of proposed route by agency.
     1. Safety elements – maintain public health, safety and welfare.
        - a. School zones
        - b. Residential areas
        - a. Parks and public facilities
     1. Approve or alter requested route.
   - C. Pre-inspection of haul route
     1. Inventory roads
        - a. Walk through (if necessary) – video entire route
        - b. Photograph questionable areas and milepost them
        - b. Describe and document physical condition of roadway
        - c. Establish and set speed limit if required
        - d. Document maintenance history
     2. Summary of inventory
        - a. Description of existing condition
        - b. Anticipated normal maintenance requirements for term of Haul route Agreement
        - c. Explanation of what will be considered additional maintenance
        - d. Concurrence of summary by applicant

III. Enter Haul Road Agreement with _____ County

IV. Inspections during hauling activities, if required, with applicant

V. Post inspection of haul route
   - A. Repeat applicable sections of pre-inspection inventory of roads.
   - B. Develop cost estimate of additional maintenance.
   - C. Submit to applicant.
   - D. Negotiate settlement.

VI. Terminate Haul Route Agreement

HAUL ROUTE AGEEMENT PROCEDURES

I. Notification of hauling activities – (Example: Conditional Use Permit/SEPA)

- A. Estimate quantity of material to be hauled.
- B. Estimate number of trips.
- C. Type of trucks to be used.
- D. Projected term of hauling activity.

II. Meeting with applicant and County

- A. Applicant identifies proposed route.
- B. Review of proposed route by agency.
- C. Pre-inspection of haul route.

III. Enter into Haul Road Agreement with _____ County.
Issue Haul Route Permit.

IV. Inspections during hauling activities, if required with Contractor.
Contractor notifies County of ceasing hauling operation.

V. Agreement Termination Process

- A. Conduct post-inspection inventory of roads.
- B. Develop cost estimate of additional maintenance.
- C. Submit to Contractor.
- D. Negotiate settlement.
- E. Terminate Haul Route Agreement.