

DRAFT

TRANSPORTATION CONCURRENCY MANAGEMENT PROGRAM

Prepared for:

Chelan County



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Transportation Concurrency Management Program

The intent of this document is to summarize and describe the County's roadway level of service standards and how they will be used to implement the transportation concurrency management program.

What are LOS standards and what are they used for?

Level of service is a qualitative measure describing the operating conditions for a given transportation facility such as a roadway or intersection. Transportation level of service can typically be measured by criteria such as level of congestion, travel times or speeds, volume of traffic compared to capacity, frequency of transit service, comfort and convenience, or safety. LOS standards can be based on roadway sections or on intersections.

Under Washington State law, LOS standards are applied in two areas: SEPA review process and concurrency management. It is possible to have different LOS standards and methodology for SEPA review and concurrency management.

LOS Standards are part of the mandatory elements of the County's Comprehensive Plan as required by the Growth Management Act (RCW 36.70A.070). The GMA indicates that the transportation element shall include "level of service standards for all locally owned arterials and transit routes to serve as a gauge to judge performance of the system. These standards should be regionally coordinated". The transportation element needs to identify specific actions and requirements for bringing into compliance locally owned transportation facilities or services that operate or will operate under the established level of service standard.

Public agencies are responsible for defining how they want to measure level of service. The GMA directs that these standards should be coordinated regionally for local arterials and for highways of regional significance.

What are the County's objectives in updating its LOS standards?

The County's previous concurrency LOS standard was defined by the volume of traffic and available capacity of the facilities. While this approach is typically appropriate in densely populated areas where transportation facilities are at or near capacity, it does not provide a meaningful measurement of LOS in most of unincorporated Chelan County where the roadway system operates well below capacity. Under the previous approach, the County was not receiving the roadway improvements that were needed to support growth and the County's Comprehensive Plan.

Depending on how the LOS standards are defined, achieving concurrency or mitigating SEPA impacts could require different types of improvements ranging from constructing physical improvements (e.g., wider travel lanes or shoulders, additional travel lanes, intersection improvements, or traffic signals) to implementing travel demand management techniques (e.g., improved transit service, rideshare programs, or staggered shift times for larger employers). Land use policy changes are another way to address LOS deficiencies in areas where demand might outpace the ability of existing facilities to accommodate the increase in traffic volumes.

The main objectives for the new County concurrency LOS standard is as follows:

- Meet all GMA requirements;
- Support the goals and policies of the Transportation Element;
- Help the process of prioritization of transportation investments;
- Implement needed transportation improvements to support new development;
- Be reflective of the differences between different subareas and road types;
- Be reflective of the need of alternative modes (non-motorized and transit);
- Be based on accepted standards and methodologies;
- Balance staff level of effort with anticipated benefits.

What is the framework for the concurrency LOS standards and review program?

Because of the types of transportation systems' issues and needs in Chelan County, the focus of the concurrency level of service system is on the ability of arterial, collector, and local roadways to adequately serve the volume and type of traffic. The key elements that will be considered for the proposed concurrency level of service and evaluation program include:

- Functional Classification
- Pavement Width versus Average Daily Traffic Volumes
- Pavement Condition
- Roadway Grade (and Vehicle Types)
- Availability of Pedestrian Facilities

Each roadway segment, as defined in the County's current road inventory, is assigned an initial score of 100. Based on its current condition, the score is adjusted downward for conditions that are below the County's desired standard for that criterion. The exception would be for the availability of pedestrian facilities which would add to the score for that roadway segment. The scoring of these criteria is described below.

The resulting score for each roadway segment would be compared to the minimally acceptable rating of 50 points¹. If a roadway segment scores 50 or more points, it would be deemed adequate in terms of meeting the County's Concurrency LOS. If the score is below 50, then the facility would be deemed unacceptable in terms of concurrency.

How would a proposed development be evaluated for concurrency?

As a development application is proposed, the County requires a concurrency evaluation. The concurrency evaluation is used to determine if each roadway that would be "impacted" by the proposed development meets the minimally acceptable score. A detailed summary of the concurrency review process is provided in Appendix F of the Transportation Element.

To complete the evaluation, the applicant provides estimates of the daily trip generation, distribution and assignment of the traffic generated by the proposed development. The results of this step is then reviewed by County staff and used to define which roadway segments need to be evaluated for concurrency.

A minimum impact greater than 10 daily trips is used to determine those roadway segments that should be part of the concurrency evaluation. This is roughly equivalent to the impact of two single-family houses. Any development proposals generating 10 or less daily trips would not be subject to concurrency and would advance to the development review stage.

¹ Recommended LOS threshold based on an analysis of existing roadway data obtained from Chelan County.

For all roadway segments that would be impacted by more than 10 daily trips from the proposed application, the applicant would need to confirm that the roadway segments meet the minimally acceptable score, including the traffic generated by the new development.

The concurrency evaluation would be conducted by the applicant (or their consultant). The evaluation would use County data, as available. Where County data are not available or thought to be out-of-date, the applicant would be requested to provide it through applicable engineering studies.

In order to meet concurrency, all County roadway segments impacted by more than 10 project trips per day need to have a rating score of 50 or higher. If a development passes the concurrency evaluation, it could still be conditioned or denied for transportation impacts under SEPA. These could include safety or site-specific operational impacts of the development. The applicant also will need to implement on-site and adjacent frontage improvements per the County's Road Standards.

Chelan County will not be able to approve development applications that do not pass the concurrency evaluation, unless a financial commitment is in place for improvements or strategies to resolve the specific deficiency(s) within six years. If an application does not pass the concurrency evaluation, the applicant could consider the following actions:

- Amend the application to reduce the project impacts to below the 10 daily trip threshold.
- Apply transportation demand management to reduce the impacts.
- Phase the project to meet concurrency.
- Provide mitigation to resolve the LOS deficiency, such as widening the roadway pavement, providing pedestrian facilities, enhancing pavement conditions, or reducing grade impacts.
- Withdraw the application and resubmit when concurrency can be obtained.
- Ask for a reconsideration based on updated data.
- Appeal the determination.

What are the steps in evaluating County roadways for concurrency?

The concurrency system for Chelan County focuses on the adequacy of the existing roadway system to accommodate additional traffic due to new growth. Several factors are identified as the key determinants of the adequacy of the roadways to accommodate growth. These include:

- Pavement width
- Pavement condition
- Roadway grade
- Availability of pedestrian facilities

Although not a stand-alone criterion, the functional classification of the roadway enters into the rating system. Higher classification roadways are expected to be able to carry higher volumes of traffic, which is directly considered in the pavement width criterion.

Roadways in urban areas also are different than roads in rural areas. Urban areas may have a denser roadway network, compared to a rural area. Urban roadways also tend to have a higher volume of travel using transit, pedestrian, and bicycle modes of travel. The urban and

rural designation is consistent with the County's Road Standards and is applied to the pavement width, pedestrian facility, and road grade criteria.

The following summarizes the steps in completing the concurrency evaluation and determining the LOS rating for County road segments. Attachment A includes the associated tables to conduct the concurrency evaluation.

Step 1 Identify County roadway segment and existing functional classification

Chelan County has a detailed inventory of all of its roadways. The County has segmented the roadways based on traffic volumes, travel patterns, locations of intersecting roadways and other criteria. Each roadway segment is classified based on its desired function, per the Road Standards. The classifications for rural areas include major collectors, minor collectors, and a hierarchy of local access roads. Classifications within the urban areas of unincorporated Chelan County include urban collectors and a hierarchy of urban local access streets.

The first step in rating a roadway segment for the concurrency evaluation is to define the beginning and end points of the segment from the inventory and the functional classification. These data are already defined through the County's road log.

Step 2 Determine existing roadway characteristics

The concurrency evaluation for each road segment builds directly from the condition of the existing roadways. Inventory data for each segment are available through the County road log. The County road log includes data on:

- Functional classification
- Average Daily Traffic (ADT) volumes
- Pavement width
- Surface type
- Pavement condition

The data provide the bulk of the information needed for the concurrency evaluation. The roadway grade and the availability/type of any pedestrian facilities are not included in the existing inventory. These data will need to be estimated or measured in the field by the applicant. It is likely other data in the road log may be out-of-date and will need to be re-evaluated in the field by the applicant.

Step 3 Determine average daily traffic volumes and pavement width deductions

Ideally, all roadways in the County would fully meet the County's adopted road standards. However, based on how the roadway system was developed, many existing roadways have pavement widths that are below the desired standard.

The ability of a roadway segment to function efficiently and safely also depends on the volume of traffic. As traffic volumes increase, there is a higher potential for conflicts or friction as traffic in opposite directions pass each other. There is also a higher potential for vehicles to have different travel speeds, resulting in drivers choosing to pass other vehicles, such as trucks, in the same direction. Additional pavement width also provides for adequate shoulders that could be used by pedestrians and bicyclists.

No deductions are assigned for roadway segments that meet the County's Road Standards for that functional classification. When the pavement width is less than the desired standard, the roadway will not operate as efficiently or safely due to the increased potential for "friction" between vehicles and other modes such as pedestrians and bicyclists. Therefore, the narrower the pavement width, for a given volume of traffic, the greater the point deduction for the concurrency evaluation. When the width of pavement is less than 20 feet and carries higher volumes of traffic, it would receive a deduction of 50 points. This effectively states that the roadway should not be considered adequate for accommodating additional traffic growth. The cut-off for the 50-point deduction depends on the classification of the roadway and whether it is in an urban or rural area.

Similarly, as traffic volumes increase, on a roadway segment with less than the desired pavement width, the ability of the roadway to operate safely and efficiently decreases. Therefore, the point deductions increase as the volumes increase for a given width of roadway.

Step 4 Determine pavement condition deductions

Poor pavement condition along a road segment also can result in reduced efficiency and decreased safety. If roadways are breaking apart, drivers need to use more caution, which can reduce overall travel speeds for some drivers compared to the posted speed limit. Other drivers may not slow down as much and may try to pass slower vehicles. Poor pavement condition also can increase maintenance needs and costs.

Adding more traffic to a roadway with poor pavement condition will further the deterioration and increase the potential need for major maintenance on the roadway.

Chelan County maintains a Pavement Condition Index (PCI) for all of its roadways. The PCI is based on items, such as pavement cracking and rutting, using nationally accepted criteria. The PCI uses a score of 0 to 100. As shown on Step 4 in Attachment A, the lower the PCI, the higher the deduction for the road segment as part of the concurrency evaluation. The largest deduction is 25 points for PCIs less than 50.

The PCIs will change over time depending on the timing and type of maintenance or capital projects along the roadway. The changes in traffic volumes and percentage of heavy vehicles also can affect the rate of deterioration of a roadway segment's pavement.

Step 5 Determine pedestrian facility credits

The County's roadway system serves more than just automobiles and trucks. It also serves as the major system for pedestrian and bicycle travel. Much of the County's road system has limited, dedicated pedestrian facilities such as pathways or sidewalks. These types of facilities help separate pedestrians from the vehicular traffic, thereby improving safety and increasing the potential use of other travel modes. Where sidewalks or separate pathways are not available, people typically walk along the roadway shoulders (if available) or in the travel way. Paved shoulders better serve the transportation function for pedestrians (and bicyclists) compared to gravel shoulders. However paved shoulders do not receive a credit as they have been accounted for as a measurement of total paved width under Step 3.

Unlike the other criteria, the pedestrian facility evaluation element adds points to the concurrency evaluation. As areas of unincorporated Chelan County develop at higher densities and traffic volumes increase, pedestrian safety is reduced without additional facilities to provide increased separation between pedestrians from vehicles.

The credits take into account the level of facility that is provided along the roadway and whether the roadway is in a designated urban area, limited area of more intense rural development (LAMRID), or rural area. Separated sidewalks or pathways receive more credit compared to five-foot wide gravel shoulders in a rural area. Gravel pathways in an urban area or LAMRID receive no credit as the standard is a sidewalk. Facilities less than five-feet wide receive no credit points because anything less than five-feet does not meet the minimum width identified in the County's Road Standards.

Step 6 *Determine roadway grade deductions*

The grade of a roadway can affect the ability of a facility to safely and efficiently serve travel. Grades can affect the operating speed of individual vehicles which in turn increases the variation in travel speeds. Variations in travel speeds can increase the potential for crashes. As noted in AASHTO "the more a vehicle deviates from the average speed, the greater its chances of becoming involved in a crash." (p. 239, AASHTO, 2004).

While the absolute maximum grade can affect travel speeds, operation, and safety along a roadway, AASHTO design guidelines indicate that the length of grade is also important. The length of the grade affects the overall reduction in travel speeds and the variation in speeds. For purposes of simplifying the concurrency review process, the County will apply the grade criteria based on the steepest extended grade along a roadway segment of 500 feet or more

For the concurrency evaluation, two alternative grade evaluations were prepared. An option labeled "6A" in the attached table takes into account a series of different factors such as roadway classification, type of terrain, and mix of vehicles. Another option titled "6B" simplified the grade evaluations significantly. The options are defined as follows:

Option 6A

Roadway Classification

Design standards for grade are typically based on the functional classification of the roadway. For all roads, Chelan County references the maximum grade as 12 percent. However, when designing roadways, grade criteria are typically based on AASHTO. Rural and urban collectors have different grade criteria, with urban collectors typically allowed to have somewhat steeper grades. AASHTO does not differentiate between minor or major rural collector designations, so the criteria for grade is the same for both rural collector classifications. AASHTO further defines grades for local streets. The AASHTO design values consider type of terrain in the grade criteria, as discussed below.

Type of Terrain

AASHTO defines design criteria in terms of the general type of terrain that the roadway traverses. The three terrain categories as per AASHTO include: Level, Rolling, and Mountainous. The terrain classifications pertain to the overall characteristics of the roadway corridor. Roads in valleys or passes of mountainous areas that have all the characteristics of roads traversing flat or rolling terrain should be classified as flat or rolling. In rolling terrain, trucks reduce their speeds below those of passenger cars on some sections of roadway. Mountainous terrain is responsible for some truck operation at crawl speeds. In cases where the terrain classification is in question, the County Engineer shall make the final decision. The general categories are defined as follows:

- **Flat (or Level) Terrain** – Highway sight distances, as governed by both horizontal and vertical restrictions, are generally long or can be made to be so without

construction difficulty or major expense. The slope of the existing terrain is from 0% to and including 5%.

- **Rolling Terrain** – Natural slopes consistently rise above and fall below the road or street grade, and occasional steep slopes offer some restriction to normal horizontal and vertical roadway alignment. The slope of the existing terrain is from 5% to and including 15%.
- **Mountainous Terrain** – Longitudinal and transverse changes in the elevation of the ground with respect to the road or street are abrupt, and benching and side hill excavation are frequently needed to obtain acceptable horizontal and vertical alignment. The slope of the existing terrain exceeds 15%.

For the County's concurrency evaluation, each roadway is classified as one of these categories. The terrain category is used along with the actual grade, and the relative vehicle mix to establish a score adjustment for the grade criterion.

Mix of Vehicle Types

Grades have less impact on roadways that primarily serve passenger cars because these vehicles can more readily retain their speed compared to larger vehicles. Therefore, the mix of vehicles is considered in the evaluation of the grade criteria for the concurrency evaluation.

Three categories of vehicle mix are used in the evaluation. The classifications are based on the percentage of daily traffic volumes on a roadway that are classified as class 4 or higher by the Federal Highway Administration (FHWA). This FHWA classification range includes all types of heavy vehicles, such as buses and trucks. The concurrency categories are defined as follows:

- Low – Daily traffic volumes on roadway include 3 percent or fewer trucks, buses, or other heavy vehicles.
- Medium – Daily traffic volumes on roadway include 3 to 8 percent trucks, bus, or other heavy vehicles.
- High – Daily traffic volumes on roadways include more than 8 percent trucks, buses, or other heavy vehicles.

Option 6B

For all roads, Chelan County references the maximum grade as 12 percent. Roadways were divided up by classification, with collector roadways having higher standards than local access roadways as noted above for roadways with greater than a 12 percent grade. For roadway segments over 12 percent grade, significant deductions take place in determining the LOS value. Lesser deductions then occur for roadways over 6 percent grade. No deductions in grade are made for roadway segments that are less than 6 percent grade.

Where should the concurrency LOS threshold be set?

Section 365-195-510 of the Washington Administrative Code (WAC) notes that:

“Levels of service should be set to reflect realistic expectations consistent with the achievement of growth aims. Setting such levels too high could, under some regulatory strategies, result in no growth. As a deliberate policy, this would be contrary to the act.”

Basically, the service standard threshold needs to be set to support the land use plan within the horizon year of the plan. GMA does not require all areas to be “concurrent” at any given time, but the level of service standards should be able to be achieved with the anticipated

growth and identified transportation improvements and strategies. If the plan cannot meet the concurrency standards, then the County would need to reassess the LOS standard, the land use plan, and/or transportation financing strategies.

Establishing the minimum score for a roadway segment to be considered acceptable is a key part of the concurrency program. The score needs to be considered in terms of the scoring criteria, as summarized in Attachment A. As an example, should Chelan County consider a rural minor collector without any significant grades as being acceptable if it serves 1,000 vehicles per day (vpd) but is only 24-feet wide and has a pavement condition in the range of 60 points? If the same road has a 10-percent grade should it still be acceptable?

Setting the threshold score too high could result in a range of County roadways being out of compliance on day one of the proposed program. This would require the County to deny new developments, including those that are consistent with the land use element, unless funding was available and identified to resolve the deficiencies within six years. Setting the standard too high also would limit the eligibility of some roadway improvement costs for consideration in a transportation impact fee (TIF) program.

Setting the standard too low could result in too much traffic on inadequate roadways. This could increase safety or operational problems. The increased traffic also would increase the need for maintenance, which would affect the overall funding strategy by shifting funds from other projects.

Based on the range of criteria, a preliminary scoring of County roadways was developed. The preliminary scoring only considered currently available data from the County's road log. Because the road log does not include data for grades or availability of pedestrian facilities, those criteria were not included in the preliminary scoring. The preliminary scoring was only used to identify a benchmark, or starting point, for implementing the concurrency program.

Based on the review of the criteria scoring system and the preliminary scores based on the road log data, a score of 50 points is the threshold for the concurrency program. Roadway segments scoring less than 50 points would be deemed to be "not adequate" for accommodating additional growth traffic, until improvements were made by the County, developer, or another party.

Roadway segments with a score of 50 or more would be deemed adequate based on concurrency. However, the roadway segment may have safety or other operational needs that would be defined as part of the SEPA review, as discussed below.

Which roadway segments would be at or below the recommended LOS threshold?

A handful of roadways were selected by the BoCC to be further evaluated using the new concurrency methodology. County public works staff evaluated each of the roadways in the field to determine existing physical characteristics. The results of the ratings were somewhat dependent on how grade and heavy vehicles were measured. If Option 6B was used, there would be no existing deficiencies, but several roadways near the 50 point threshold. If Option 6A was used, there would be a few roadways not meeting the 50 point standard. These roadways would include Stemilt Loop Road and Dixie Lane in Malaga, and Green Avenue in Manson. The roadways not meeting the standard are known issues to County public works staff and could likely be addressed through inexpensive shoulder and pavement improvements. The results using both rating Options to measure grade are provided in Attachment B.

How does the concurrency program relate to implementation of County transportation improvements?

Concurrency, as defined under GMA, is not a funding or implementation program. In its basic form it simply is used to determine the adequacy of the transportation system to accommodate new growth.

Some agencies allow developers to propose mitigation to resolve concurrency deficiencies. The proposed Chelan County concurrency management program allows developers to mitigate their concurrency impacts. This could be through modifying the application so it meets the concurrency thresholds for all locations impacted by greater than 10 daily trips generated by the proposed developments. Alternatively, an applicant could propose to fund and/or construct improvements on the deficient road segment. These could be adding pavement width such as road shoulders, resolving a grade issue, chip sealing or otherwise improving the pavement condition, or adding pedestrian facilities. In this manner, concurrency can help supplement the County's improvement programs.

The concurrency ratings can also be used by the County as part of the process for prioritizing and funding County capital improvements and maintenance. Roadway segments that are below or are approaching the established minimum threshold could be considered as higher priorities in using County funds. The ratings also could be useful in pursuing grants for improvements, especially those which serve economic growth and development per the land use element.

As discussed below, passing concurrency does not allow developers to forgo review and possible mitigation under SEPA. Furthermore, developments also can be required to construct roadway improvements along their frontage and internal to the development.

How would site specific issues be resolved?

As discussed previously, if an applicant passes the concurrency evaluation, the applicant still needs to address safety and site access impacts as part of the State Environmental Policy Act (SEPA). SEPA is identified under RCW Chapter 43.21 C and requires governmental agencies to consider the environmental impacts of a proposal before making decisions. As part of the environmental review process, transportation impact analyses (TIA) may be required to document a project's transportation impacts after passing the concurrency evaluation. The County's traffic study guidelines build off the concurrency application and review other potential impacts to intersection operations, safety, roadway horizontal constraints (sharp turns), and other issues that concurrency does not address. The concurrency evaluation is only one component of the development review process, so it needs to work with SEPA, Road Standards, and funding mechanisms to be successful.

ATTACHMENT A

LOS Standards

CHELAN COUNTY CONCURRENCY LOS STANDARDS

STEP 1: Identify County Roadway Segment and Existing Functional Classification

STEP 2: Determine Existing Roadway Characteristics

(ADT, Pavement Width, Grade, Vehicle Types, Pavement Condition, Ped Facilities)

STEP 3: Determine Average Daily Traffic & Pavement Width Deductions

Rural Major Collector					
		Average Daily Traffic (ADT)			
		< 400	400 to 1,500	1,501 to 4,000	> 4,000
Pavement Width (feet)	> 32	0	0	0	0
	26 to 32	0	0	-20	-30
	20 to 25	0	-20	-30	-40
	17 to 20	-30	-50	-50	-50
	< 17	-50	-50	-50	-50

Rural Minor Collector				
		Average Daily Traffic (ADT)		
		< 400	400 to 1,500	> 1,500
Pavement Width (feet)	> 32	0	0	0
	26 to 32	0	-10	-20
	20 to 25	-10	-20	-30
	17 to 20	-30	-50	-50
	< 17	-50	-50	-50

Rural Local Access				
		Average Daily Traffic (ADT)		
		< 400	400 to 1,500	> 1,500
Pavement Width (feet)	> 28	0	0	-10
	24 to 28	0	-10	-20
	20 to 23	-10	-20	-30
	17 to 20	-30	-50	-50
	< 17	-50	-50	-50

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Urban Collector				
		Average Daily Traffic (ADT)		
		< 1,500	1,500 to 4,000	> 4,000
Pavement Width (feet)	> 44	0	0	0
	36 to 44	0	-10	-20
	28 to 35	-10	-20	-30
	< 28	-20	-30	-50

Urban Local Access				
		Average Daily Traffic (ADT)		
		< 400	400 to 1,500	> 1,500
Pavement Width (feet)	> 37	0	0	-10
	31 to 37	0	-10	-20
	26 to 30	-10	-20	-30
	< 26	-30	-40	-50

STEP 4: Determine Pavement Condition Deductions

All County Roadways	
Pavement Condition Index (PCI)	Deduction
> 84	0
70 to 84	-5
50 to 69	-15
< 50	-25

STEP 5: Determine Pedestrian Facility Credits

Type of Facility	Urban / LAMRID	Rural
	Credit	
Separated Sidewalk or Paved Pathway	15	15
Sidewalk	10	10
Unpaved Gravel Surface	0	5

* Minimum 5-foot wide surface is necessary to obtain a credit

CHELAN COUNTY CONCURRENCY LOS STANDARDS

STEP 6: Determine Roadway Grade Deductions

OPTION 6A				
Rural Collector				
	Type of Terrain*	Range of Grades (%)		
	Mountainous	< 5	5 to 10	> 10
	Rolling	< 4	4 to 9	> 9
	Level	< 3	3 to 7	> 7
Level of Non-Auto Vehicle	Low	0	-10	-20
	Medium	-10	-20	-30
	High	-20	-30	-50

OPTION 6B			
Classification	Range of Grades (%)		
	< 6	6 to 12	> 12
Collector	0	-10	-40
Local Access	0	-10	-30

Urban Collector				
	Type of Terrain*	Range of Grades (%)		
	Mountainous	< 6	6 to 12	> 12
	Rolling	< 4	4 to 10	> 10
	Level	< 3	3 to 9	> 9
Level of Non-Auto Vehicle	Low	0	-10	-20
	Medium	-10	-20	-30
	High	-20	-30	-50

NOTE:
 The grade criteria (Step 6) has been broken into two possible options. Option 6A is what was originally proposed. Option 6B is a simplified version, focusing more on the maximum grade as stated in the County development standards.

Local Access (Rural and Urban)				
	Type of Terrain*	Range of Grades (%)		
	Mountainous	< 6	6 to 12	> 12
	Rolling	< 4	4 to 9	> 9
	Level	< 3	3 to 7	> 7
Level of Non-Auto Vehicle	Low	0	-10	-20
	Medium	-10	-20	-30
	High	-20	-30	-50

* Per AASHTO

STEP 7: Calculate Total Score

ATTACHMENT B

Example Roadway Ratings

CHELAN COUNTY ROADWAY SEGMENT RATINGS - OPTION 6A

#	County Road #	Road Name	Road Log Data									LOS Deductions/Credits					LOS Score
			Func Class	From MP	To MP	Length (miles)	PCI	ADT	Pavement Width (ft)	Grade (%)	Heavy Vehicle (%)	Initial Score	ADT / Paved Width	PCI	Pedestrian Facility	Grade/Heavy Vehicle	
175	93300	CHIWAHA LP RD	7	0.00	0.70	0.70	100	440	30	1.6	12	100	0	0	0	-20	80
176	93300	CHIWAHA LP RD	7	0.70	1.41	0.70	100	440	30	3.2	12	100	0	0	0	-20	80
177	93300	CHIWAHA LP RD	7	1.41	2.11	0.70	100	440	30	1.6	12	100	0	0	0	-20	80
178	93300	CHIWAHA LP RD	7	2.11	2.19	0.08	100	440	30	1.2	12	100	0	0	0	-20	80
179	93300	CHIWAHA LP RD	7	2.19	2.82	0.63	100	440	30	0.6	12	100	0	0	0	-20	80
180	93300	CHIWAHA LP RD	7	2.82	3.45	0.63	100	440	30	0.3	12	100	0	0	0	-20	80
181	93300	CHIWAHA LP RD	7	3.45	3.99	0.54	98	440	24	6.0	12	100	-20	0	0	-30	50
182	93300	CHIWAHA LP RD	7	3.99	4.57	0.58	93	440	24	2.9	12	100	-20	0	0	-20	60
183	93300	CHIWAHA LP RD	7	4.57	5.45	0.88	97	370	24	0.6	24	100	0	0	0	-20	80
184	93300	CHIWAHA LP RD	7	5.45	6.32	0.88	95	370	24	0.5	24	100	0	0	0	-20	80
185	93300	CHIWAHA LP RD	7	6.32	7.20	0.88	93	370	24	2.7	24	100	0	0	0	-20	80
186	93300	CHIWAHA LP RD	7	7.20	8.20	1.00	96	370	42	0.7	24	100	0	0	0	-20	80
187	93300	CHIWAHA LP RD	7	8.20	8.63	0.43	95	370	42	0.9	24	100	0	0	0	-20	80
282	19060	DIXIE LN	9	0.00	0.81	0.81	32	512	25	0.2	7	100	-10	-25	0	-10	55
283	19060	DIXIE LN	9	0.81	1.31	0.50	17	41	22	0.4	13	100	-10	-25	0	-20	45
425	53680	GREEN AVE	9	0.00	0.09	0.09	49	62	22	4.1	9	100	-10	-25	0	-30	35
427	53090	GREEN AVE	9	0.00	0.38	0.38	65	458	21	4.7	6	100	-20	-15	0	-20	45
429	53090	GREEN AVE	9	0.38	1.01	0.63	65	458	22	3.3	6	100	-20	-15	0	-10	55
430	53090	GREEN AVE	9	1.01	1.78	0.77	65	500	20	4.3	4	100	-20	-15	0	-20	45
431	53090	GREEN AVE	9	1.78	2.53	0.75	65	290	21	0.9	9	100	-10	-15	0	-20	55
432	53090	GREEN AVE	9	2.53	3.28	0.75	65	290	23	0.6	9	100	-10	-15	0	-20	55
	53090	GREEN AVE	9	3.28	3.84	0.56	65	180	21	0.3	11	100	-10	-15	0	-20	55
670	95200	MANSON BLVD	7	0.00	0.58	0.58	100	1,347	32	3.6	11	100	0	0	0	-20	80
671	95200	MANSON BLVD	7	0.58	0.68	0.10	100	1,347	32	6.6	11	100	0	0	0	-30	70
672	95200	MANSON BLVD	7	0.68	1.01	0.33	100	716	32	2.6	6	100	0	0	0	-10	90
673	95200	MANSON BLVD	7	1.01	1.79	0.78	100	716	32	1.5	6	100	0	0	0	-10	90
	95200	MANSON BLVD	7	1.79	2.95	1.16	100	716	28	0.9	6	100	0	0	0	-10	90
674	95200	MANSON BLVD	7	2.95	3.62	0.67	55	159	28	3.7	6	100	0	-15	0	-10	75
675	95200	MANSON BLVD	7	3.62	4.17	0.55	90	195	21	1.9	15	100	0	0	0	-20	80
676	95200	MANSON BLVD	7	4.17	4.27	0.10	100	181	24	0.9	7	100	0	0	0	-10	90
870	29150	PIONEER AVE	7	0.00	0.49	0.49	68	1,232	25	1.4	4	100	-20	-15	0	-10	55
871	29150	PIONEER AVE	8	0.49	1.01	0.52	71	1,232	25	2.9	4	100	-20	-5	0	-10	65
872	29150	PIONEER AVE	8	1.01	1.52	0.52	76	880	25	3.7	5	100	-20	-5	0	-10	65
873	29150	PIONEER AVE	9	1.52	2.34	0.82	0	880	25	1.0	5	100	-10	-25	0	-10	55
874	29150	PIONEER AVE	9	2.34	3.16	0.82	0	880	25	2.7	5	100	-10	-25	0	-10	55
875	29150	PIONEER AVE	9	3.16	3.35	0.19	0	880	25	4.2	5	100	-10	-25	0	-10	55
876	26500	PIONEER WY	9	0.00	0.27	0.27	48	363	21	4.2	6	100	-10	-25	0	-10	55
877	94200	PIONEER WY	8	0.99	1.37	0.38	80	659	23	0.7	6	100	-20	-5	0	-10	65
1059	14450	STEMILT LP RD	8	0.00	0.07	0.07	37	178	21	2.7	19	100	-10	-25	0	-20	45
1060	14450	STEMILT LP RD	8	0.07	0.92	0.85	54	178	20	5.3	19	100	-10	-15	0	-30	45
1061	14450	STEMILT LP RD	8	0.92	1.76	0.85	47	178	21	5.8	19	100	-10	-25	0	-30	35
1062	14450	STEMILT LP RD	8	1.76	2.61	0.85	36	178	21	2.4	19	100	-10	-25	0	-20	45

CHELAN COUNTY ROADWAY SEGMENT RATINGS - OPTION 6A

#	County Road #	Road Name	Func Class	From MP	To MP	Length (miles)	PCI	ADT	Pavement Width (ft)	Grade (%)	Heavy Vehicle (%)	Initial Score	ADT / Paved Width	PCI	Pedestrian Facility	Grade/Heavy Vehicle	LOS Score
1063	14450	STEMILT LP RD	8	2.61	3.45	0.85	20	178	21	4.3	19	100	-10	-25	0	-20	45
1064	14450	STEMILT LP RD	8	3.45	4.30	0.85	22	97	21	7.2	15	100	-10	-25	0	-30	35
1065	14450	STEMILT LP RD	8	4.30	5.15	0.85	31	97	20	4.0	15	100	-10	-25	0	-20	45
1066	14450	STEMILT LP RD	8	5.15	5.92	0.77	19	97	21	2.2	15	100	-10	-25	0	-20	45
1067	14450	STEMILT LP RD	8	5.92	6.69	0.77	20	97	21	2.3	15	100	-10	-25	0	-20	45
1068	14450	STEMILT LP RD	8	6.69	7.41	0.72	77	117	22	5.5	15	100	-10	-5	0	-30	55
1069	14450	STEMILT LP RD	8	7.41	8.14	0.72	93	117	24	5.3	15	100	-10	0	0	-30	60
1070	14450	STEMILT LP RD	8	8.14	8.81	0.67	77	117	24	5.8	15	100	-10	-5	0	-30	55

LEGEND

	Segment not meeting concurrency standard	less < 50
	Segment approaching concurrency standard	between 50 and 65
	Segment above concurrency standard	greater than 65




CHELAN COUNTY ROADWAY SEGMENT RATINGS - OPTION 6B

#	County Road #	Road Name	Road Log Data									LOS Deductions/Credits					LOS Score
			Func Class	From MP	To MP	Length (miles)	PCI	ADT	Pavement Width (ft)	Grade (%)	Heavy Vehicle (%)	Initial Score	ADT / Paved Width	PCI	Pedestrian Facility	Grade	
175	93300	CHIWAWA LP RD	7	0.00	0.70	0.70	100	440	30	1.6	12	100	0	0	0	0	100
176	93300	CHIWAWA LP RD	7	0.70	1.41	0.70	100	440	30	3.2	12	100	0	0	0	0	100
177	93300	CHIWAWA LP RD	7	1.41	2.11	0.70	100	440	30	1.6	12	100	0	0	0	0	100
178	93300	CHIWAWA LP RD	7	2.11	2.19	0.08	100	440	30	1.2	12	100	0	0	0	0	100
179	93300	CHIWAWA LP RD	7	2.19	2.82	0.63	100	440	30	0.6	12	100	0	0	0	0	100
180	93300	CHIWAWA LP RD	7	2.82	3.45	0.63	100	440	30	0.3	12	100	0	0	0	0	100
181	93300	CHIWAWA LP RD	7	3.45	3.99	0.54	98	440	24	6	12	100	-20	0	0	0	80
182	93300	CHIWAWA LP RD	7	3.99	4.57	0.58	93	440	24	2.9	12	100	-20	0	0	0	80
183	93300	CHIWAWA LP RD	7	4.57	5.45	0.88	97	370	24	0.6	24	100	0	0	0	0	100
184	93300	CHIWAWA LP RD	7	5.45	6.32	0.88	95	370	24	0.5	24	100	0	0	0	0	100
185	93300	CHIWAWA LP RD	7	6.32	7.20	0.88	93	370	24	2.7	24	100	0	0	0	0	100
186	93300	CHIWAWA LP RD	7	7.20	8.20	1.00	96	370	42	0.7	24	100	0	0	0	0	100
187	93300	CHIWAWA LP RD	7	8.20	8.63	0.43	95	370	42	0.9	24	100	0	0	0	0	100
282	19060	DIXIE LN	9	0.00	0.81	0.81	32	512	25	0.2	7	100	-10	-25	0	0	65
283	19060	DIXIE LN	9	0.81	1.31	0.50	17	41	22	0.4	13	100	-10	-25	0	0	65
425	53680	GREEN AVE	9	0.00	0.09	0.09	49	62	22	4.1	9	100	-10	-25	0	0	65
427	53090	GREEN AVE	9	0.00	0.38	0.38	65	458	21	4.7	6	100	-20	-15	0	0	65
429	53090	GREEN AVE	9	0.38	1.01	0.63	65	458	22	3.3	6	100	-20	-15	0	0	65
430	53090	GREEN AVE	9	1.01	1.78	0.77	65	500	20	4.3	4	100	-20	-15	0	0	65
431	53090	GREEN AVE	9	1.78	2.53	0.75	65	290	21	0.9	9	100	-10	-15	0	0	75
432	53090	GREEN AVE	9	2.53	3.28	0.75	65	290	23	0.6	9	100	-10	-15	0	0	75
	53090	GREEN AVE	9	3.28	3.84	0.56	65	180	21	0.3	11	100	-10	-15	0	0	75
670	95200	MANSON BLVD	7	0.00	0.58	0.58	100	1,347	32	3.6	11	100	0	0	0	0	100
671	95200	MANSON BLVD	7	0.58	0.68	0.10	100	1,347	32	6.6	11	100	0	0	0	-10	90
672	95200	MANSON BLVD	7	0.68	1.01	0.33	100	716	32	2.6	6	100	0	0	0	0	100
673	95200	MANSON BLVD	7	1.01	1.79	0.78	100	716	32	1.5	6	100	0	0	0	0	100
	95200	MANSON BLVD	7	1.79	2.95	1.16	100	716	28	0.9	6	100	0	0	0	0	100
674	95200	MANSON BLVD	7	2.95	3.62	0.67	55	159	28	3.7	6	100	0	-15	0	0	85
675	95200	MANSON BLVD	7	3.62	4.17	0.55	90	195	21	1.9	15	100	0	0	0	0	100
676	95200	MANSON BLVD	7	4.17	4.27	0.10	100	181	24	0.9	7	100	0	0	0	0	100
870	29150	PIONEER AVE	7	0.00	0.49	0.49	68	1,232	25	1.4	4	100	-20	-15	0	0	65
871	29150	PIONEER AVE	8	0.49	1.01	0.52	71	1,232	25	2.9	4	100	-20	-5	0	0	75
872	29150	PIONEER AVE	8	1.01	1.52	0.52	76	880	25	3.7	5	100	-20	-5	0	0	75
873	29150	PIONEER AVE	9	1.52	2.34	0.82	0	880	25	1	5	100	-10	-25	0	0	65
874	29150	PIONEER AVE	9	2.34	3.16	0.82	0	880	25	2.7	5	100	-10	-25	0	0	65
875	29150	PIONEER AVE	9	3.16	3.35	0.19	0	880	25	4.2	5	100	-10	-25	0	0	65
876	26500	PIONEER WY	9	0.00	0.27	0.27	48	363	21	4.2	6	100	-10	-25	0	0	65
877	94200	PIONEER WY	8	0.99	1.37	0.38	80	659	23	0.7	6	100	-20	-5	0	0	75
1059	14450	STEMILT LP RD	8	0.00	0.07	0.07	37	178	21	2.7	19	100	-10	-25	0	0	65
1060	14450	STEMILT LP RD	8	0.07	0.92	0.85	54	178	20	5.3	19	100	-10	-15	0	0	75
1061	14450	STEMILT LP RD	8	0.92	1.76	0.85	47	178	21	5.8	19	100	-10	-25	0	0	65
1062	14450	STEMILT LP RD	8	1.76	2.61	0.85	36	178	21	2.4	19	100	-10	-25	0	0	65

CHELAN COUNTY ROADWAY SEGMENT RATINGS - OPTION 6B

#	County Road #	Road Name	Func Class	From MP	To MP	Length (miles)	PCI	ADT	Pavement Width (ft)	Grade (%)	Heavy Vehicle (%)	Initial Score	ADT / Paved Width	PCI	Pedestrian Facility	Grade	LOS Score
1063	14450	STEMILT LP RD	8	2.61	3.45	0.85	20	178	21	4.3	19	100	-10	-25	0	0	65
1064	14450	STEMILT LP RD	8	3.45	4.30	0.85	22	97	21	7.2	15	100	-10	-25	0	-10	55
1065	14450	STEMILT LP RD	8	4.30	5.15	0.85	31	97	20	4.0	15	100	-10	-25	0	0	65
1066	14450	STEMILT LP RD	8	5.15	5.92	0.77	19	97	21	2.2	15	100	-10	-25	0	0	65
1067	14450	STEMILT LP RD	8	5.92	6.69	0.77	20	97	21	2.3	15	100	-10	-25	0	0	65
1068	14450	STEMILT LP RD	8	6.69	7.41	0.72	77	117	22	5.5	15	100	-10	-5	0	0	85
1069	14450	STEMILT LP RD	8	7.41	8.14	0.72	93	117	24	5.3	15	100	-10	0	0	0	90
1070	14450	STEMILT LP RD	8	8.14	8.81	0.67	77	117	24	5.8	15	100	-10	-5	0	0	85

LEGEND

	Segment not meeting concurrency standard	less < 50
	Segment approaching concurrency standard	between 50 and 65
	Segment above concurrency standard	greater than 65