October 23, 1998

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REPORT AND DECISION ON
APPEALS OF THRESHOLD DETERMINATION

SUBJECT: Department of Development and Environmental Services
File Nos. **L97P0011** and **B97C0177**

GREENS AT BEAVER CREST

Preliminary Plat Application
and
SEPA Threshold Determination Appeals

Location: Between Southeast 8th Street and Main Street (if extended), and 244th Avenue SE and 237th Avenue (if extended)

Applicant: Beaver Crest II, Inc., *Represented by*
Robert Johns, Esq.
3600 Columbia Center
701 Fifth Avenue
Seattle, WA 98104

Appellants:

Scott Hamilton
23410 SE 8th Street
Redmond, WA 98053

James H. Jordan, Jr.
634 – 222nd Place SE
Redmond, WA 98053

and

BORDEAUX AT BEAVER CREST

SEPA Threshold Determination Appeals

Location: North of SE 8th Street and east of 244th Avenue SE (if extended)

Applicant: Bordeaux at Beaver Crest (Pacific Properties), *Represented by*
Robert Johns, Esq.
3600 Columbia Center
701 Fifth Avenue
Seattle, WA 98104

Appellants:

Scott Hamilton
23410 SE 8th Street
Redmond, WA 98053

Stanley Bump
23010 SE 8th Street
Redmond, WA 98053

SUMMARY OF DECISIONS:

Department's Preliminary Recommendation:	Deny the appeals
Department's Final Recommendation:	Deny the appeals
Examiner's Decision:	GRANT the appeals with respect to the transportation and land use elements of the environment. The appeals are DENIED in all other respects. An environmental impact statement shall be performed in the manner described within Conclusions 28 through 31, below.

EXAMINER PROCEEDINGS:

Greens at Beaver Crest:

Hearing Opened:	May 11, 1998
Hearing Closed:	August 20, 1998

Bordeaux at Beaver Crest:

Hearing Opened:	June 12, 1998
Hearing Closed:	August 20, 1998

Participants at the public hearing and the exhibits offered and entered are listed in the attached minutes. A verbatim recording of the hearing is available in the Office of the King County Hearing Examiner.

ISSUES ADDRESSED:

- Flooding
- Jurisdiction
- Road capacity and mitigation:
  - arterial roads and intersections
  - concurrency
  - SEPA authority
- Streams
- Water quality
- Wetlands
- Wildlife habitat

FINDINGS, CONCLUSIONS AND DECISION: Having reviewed the record in this matter, the Examiner now makes and entered the following:

FINDINGS:

A. INTRODUCTION

1. On April 16, 1997, a complete application was filed by Pacific Properties to subdivide 54.6 acres into 100 lots for single family residential development and, as well, construct 154 apartment units within 25 buildings. The proposal is designated the Greens at Beaver Crest ("Greens") and is located on an irregular shaped parcel which lies north of Southeast 8th Street within a rapidly developing portion of the East Sammamish Plateau. A mitigated determination of nonsignificance ("MDNS") was issued by King County Department of Development and Environmental Services for the Greens proposal on December 23, 1997. The MDNS notes that the Washington Department of Transportation ("WSDOT") has indicated that the project will create "a probable significant adverse environmental impact to intersections within the SR 202 corridor unless mitigated" and that the Applicant and WSDOT have entered a legal agreement for a mitigation payment in the amount of $117,556.00 as a contribution to future SR 202 improvements. The MDNS also contains a number of conditions designed to provide specific mitigation for drainage and traffic impacts. These include a restrictive release rate for site flows directed toward Allen Lake and treatment of drainage flows from the western portion of the site lying in the East Lake Sammamish Basin for removal of 50% of the annual average total phosphorus concentrations. The MDNS traffic mitigations are focused on problems identified at the intersections of Northeast 8th Street and 228th Avenue Northeast, 228th Avenue Southeast at Southeast 8th Street, and the Southeast 8th Street/244th Avenue Southeast corridor.

2. Separate appeals to the MDNS issued for the Greens were filed by area residents Scott Hamilton and James Jordan, Jr. A prehearing conference was held February 24, 1998, at which time it was determined to hold concurrent hearings on the two SEPA threshold determination appeals and the preliminary plat application. A prehearing order dated March 3, 1998, defined the SEPA appeal issues in terms of surface water runoff and drainage effects, including water quality impacts; traffic impacts; impacts on public facilities and public water supplies; and loss of wildlife and wildlife habitat. As the proceedings developed the public facilities and public water supply issues were abandoned, and minimal treatment was accorded to wildlife issues. The bulk of testimony was focused on drainage and traffic impact issues.

   The prehearing order also authorized a rather elaborate discovery process focused primarily on traffic impact issues. When the Appellants' efforts became more concentrated on an analysis of the County's transportation concurrency management system, the discovery process became both extended in duration and contentious in character as the Appellants and their traffic consultants endeavored to obtain data from the King County Department of Transportation ("KCDOT") relating to its traffic concurrency computer model. The Greens hearing formally opened the evening of May 11, 1998, at Skyline High School in the affected neighborhood, where public testimony on plat issues was received.

3. On June 6, 1997, another environmental checklist was submitted to King County Department of Development and Environmental Services ("DDES") by Pacific Properties concerning a second application located adjacent to the Greens site. This application seeks a commercial building permit to construct 118 apartment units with associated

roads, parking, drainage and recreation facilities on an approximately 20-acre parcel that is configured in a U-shape to surround the multi-family portion of the Greens project on three sides. An MDNS for the Bordeaux at Beaver Crest application was issued by DDES on March 17, 1998, and contains conditions of mitigation which largely mimic those issued for the Greens application, except for the deletion of specific drainage requirements for the site basin flowing to Allen Lake. This difference has been further narrowed by a recent recommendation from DDES that the same restrictive detention standards proposed for the Greens should also be applied to the portion of Bordeaux flowing to Allen Lake.

4. The MDNS for the Bordeaux proposal has also been appealed by Scott Hamilton and Stanley Bump. Within a pre-hearing order issued May 22, 1998, the matters at issue within the Bordeaux SEPA appeal were formulated in terms of drainage and traffic impact issues that are largely identical with those raised within the Greens appeal. The parties also stipulated that the Greens hearing record should be incorporated by reference as evidence within the Bordeaux appeal. In view of the fact that the SEPA appeal issues within both the Greens and Bordeaux proceedings have evolved into systemic analyses of surface water and traffic impacts, the overlap between the two proceedings has reached such a high degree that issuance of a single decision for the two SEPA appeal proceedings is warranted.

In addition to the Greens and Bordeaux applications, the overall Beaver Crest development includes two previously approved plats located adjacent to the east. These are the Heights at Beaver Crest, comprising 49 single family lots, and Vistas at Beaver Crest at 97 lots and 27 townhouses. In addition, directly to the south and west of the Greens and Bordeaux parcels lies a further project, Three Willows, consisting of 155 lots and 62 townhomes currently under construction. Three Willows was initially proposed by a different developer but has been taken over by Pacific Properties. The four Beaver Crest proposals comprise a total of 246 single family lots and 299 multi-family units, with those figures rising to 401 lots and 361 units, respectively, if Three Willows is added to the mix. In varying degrees the five projects share roadway and drainage systems, traffic certifications and underlying technical studies.

B. NATURAL SYSTEMS

5. The Greens and Bordeaux parcels are largely forested in their present states, consisting of a flat uplands plateau which drops off to the west into George Davis Creek and to the north into a large depression which contains both East Sammamish Wetland 9 and Allen Lake. The entire eastern boundary of the two properties encompasses an elongated wetland and stream system which outlets at the northeastern corner of the Greens parcel. The stream is intermittent and contains no fish. In the northwest corner of the Greens a smaller sensitive area complex features a wetland that outlets to the west toward George Davis Creek and is fed by a intermittent stream onsite, plus a second intermittent stream which exits near the plat's northwest corner. All plat flows eventually reach Wetland No. 9 to the north, part of which drains east into the Evans Creek watershed with the remainder flowing west towards Lake Sammamish.

I. Wetlands and Streams

6. Wetland 9 has been the subject of considerable study and analysis by King County agencies, most recently in the East Lake Sammamish Basin Plan adopted in 1993. The Basin Plan contains the following description of the Wetland 9 system:

> "Wetland 9 comprises 55 acres with 4 subclasses of vegetation communities. It lies on the boundary between East Lake Sammamish and Evans Creek basins. It drains into both basins as a result of past dredging and utility construction that has disrupted the natural flow regime. Two of its subclasses - forested with western red cedar and scrub-shrub with labrador tea - should be considered particularly sensitive to alterations of existing wetland hydrology, particularly to increases in the frequency and duration of inundation. Level outwash soils to the north of Wetland 9 provide excellent infiltrative capacity while the steeper slopes and till soils to the south produce greater amounts of surface runoff."

7. Stream flows within the George Davis Creek system, a branch of which lies offsite to the west of the Greens, have been affected by the transition from till to outwash soils in the areas contiguous to Wetland 9. As described within the Basin Plan:

> "Relatively high rates of runoff occur in these uplands. Stream channels flow nearly year round upstream of Wetland 9 at 228th Avenue NE. The runoff then rapidly infiltrates once the surface flow reaches the deposits of outwash soils, generally downstream of 228th Avenue NE. During most of the year, there is no surface flow in the stream bed between approximately 228th and 216th Avenue NE except in the most extreme storms. During dry weather, the surface flow re-emerges in several springs below 216th at about the 280-foot elevation contour. Downstream from these springs, the stream becomes perennial again."

The characteristics described above are generally reflected within the stream classification mapping which appears in Figure 2 of the Basin Plan. This mapping shows Class 3 streams within the George Davis system contiguous to and upstream of Wetland 9, with salmonid usage commencing further downstream at a point approximately one mile northwest of the Greens parcel.

8. The concerns regarding Wetland 9 identified within the East Sammamish Basin Plan are primarily hydrologic. Accordingly, the Plan adopts headwater wetland protection requirements for Wetland 9 that are applicable to the upstream portion of the George Davis Creek drainage system. In these areas site development is required to provide 50% open space and infiltration of stormwater runoff. As mapped by the Applicant, somewhat more than 12 acres of the Greens parcel at its northwest corner fall within the Wetland 9 Management Area. Based on soils studies which show the site to be underlain at shallow depths by a massive glacial till layer, the Applicant has been granted a Surface Water Design variance from the Wetland 9 infiltration requirement and must instead release flows from the developed portions of the onsite Wetland Management Area at a restrictive rate. The variance review process concedes, however, that even with highly restrictive release rates, the flows leaving the site from the Greens portion of the Wetland 9 management area will exceed to some degree the management criteria.

9. The three onsite wetlands for the Greens and Bordeaux parcels are of a more conventional nature. Two of them, Wetlands A and C, are designated Class 2 wetlands by King County based on their forested component and sizes in excess of one acre. They will each be provided by 50 feet of protective buffering. In addition, Wetland C lies within a steep sloped area encompassed by the Wetland 9 Management Area, thus providing it with buffer protection in excess of 100 feet at most locations. The Appellants' attention, therefore, has been primarily focused on Wetland B, which lies at the southeast corner of the Bordeaux parcel but directly contiguous to the multi-family development proposed for the Greens. According to the Applicant's wetland study, Wetland B is hydrologically isolated, less than one acre in total area, and is characterized by only a single vegetation class, It thus qualifies for a Class 3 rating with a 25-foot buffer. According to the wetland report, Wetland B is dominated by red alder, salmonberry and vine maple and "appears to follow the route of an old logging road or railroad where soils have been disturbed or compacted."

10. A major focus of the wetland testimony offered by the Appellants' environmental consultant Richard Klein was directed toward the potential adverse effects of development on Wetland B. The entire western boundary of this small Class 3 wetland will be dominated by the multi-family construction proposed for the Greens project. Mr. Klein has calculated that after development nearly 50% of the watershed for Wetland B would be covered by impervious surfaces, and he fears that such development will reduce groundwater recharge to the wetland and subject it to chemical and nutrient impacts. Mr. Klein proposes that the multi-family portion of the Greens project be redesigned to reduce impervious areas to 10% or less.

11. In the absence of any mitigation, Mr. Klein's concerns for Wetland B might well be justified. On the other hand, with proper mitigation Mr. Klein's concerns do not seem to be unmanageable. First, all development area runoff will be diverted to the drainage ponds and will not flow to Wetland B, thus minimizing chemical and nutrient effects. Second, at engineering review the hydrological requirements of the wetland will be determined and a portion of roof runoff will be directed toward the wetland through a series of infiltration trenches sufficient to permit the predevelopment hydrology to be maintained. Given the relatively low quality of the wetland, such measures ought to provide sufficient mitigation to development impacts. Hydrological supplementation will likely also be required for Wetland C at the northwest corner of the Greens, where natural flows are proposed to be diverted further south. With respect to Wetland A, as many as three detention ponds may outlet to the northern portion of its narrow channel, but this stretch is primarily a stream channel with the great bulk of the wetland lying upstream to the south. Accordingly, the impacts to be mitigated here consist of channel incision and erosional effects which are primarily addressed through the highly restrictive release rate required for these eastern sub-basins.

12. Although Mr. Klein is undoubtedly correct in asserting that increased impervious surfaces may decrease groundwater recharge to streams, in view of the natural conditions obtaining in this area it is difficult to see how this will create a major adverse impact. First, all of the onsite streams are currently intermittent and therefore cannot be expected to support a complex stream habitat. Second, the weathered glacial till upper soils that typify the Beaver Crest properties are characterized by low permeability. This results in the stream recharge and interflow process being highly localized. Since summer base flows to these streams are essentially non-existent, a slight loss in localized recharge,

even if it occurs, would have a minor effect. As for the small increase in wet season flows to Wetland 9 resulting from a failure to infiltrate onsite runoff at the northwestern corner of the Greens plat, only a minor adverse impact to Wetland 9 hydrology would appear to be the consequence. The Wetland 9 Management Area is approximately 200 acres in size, and the developed portion of the Greens within such area is perhaps slightly larger than six acres. While release of developed area flows from this six-plus acres at restrictive rates may have a small impact on Wetland 9 flood levels, such impact appears to be almost immeasurably small and less than significant.

13. Erosion of site soils from the upland plateau down into adjacent streams has been identified as a substantial risk from this project during the construction phase. In addition, three proposed drainage ponds will outlet to the stream that courses along the eastern border of the Greens property, then drops downslope to Wetland 9. The cumulative flow effects from these surface water releases will require further analysis and possibly a bypass pipeline under the MDNS requirements. In addition, the plat conditions propose that enhanced erosion control measures be applied to the entire property, including imposing seasonal clearing limitations and requiring the designation of a temporary erosion and sedimentation control supervisor who will be responsible for oversight and reporting. To some degree these measures seem to be inspired by the erosional impacts to George Davis Creek that occurred as the consequence of construction of the Three Willows project and Skyline High School. Whatever the cause, these more stringent conditions proposed by staff should be sufficient to avoid erosional impacts during the construction phase, particularly considering that much of the west side surface water management system has already been constructed.

II. Water quality

14. Mr. Klein also raised a variety of issues relating to the water quality impacts of the proposed Greens and Bordeaux developments. These included not only the issue of phosphorus loading to Lake Sammamish addressed by the MDNS conditions, but also questions relating to other nutrients, temperature impacts, and loadings of heavy metals such as copper, zinc and lead. In pursuing these matters large quantities of testimony and ponderous technical studies were contributed by all parties. Many issues were explored in depth, such as the relationship between the percentage of impervious surface within a watershed and environmental degradation of streams and wetlands; the effectiveness of sand filters, wetponds and other best management practices to remove pollutants from surface water flows; the feasibility of infiltrating runoff on the Greens and Bordeaux sites; all manner of disputes and disagreements over the relative validity and reliability of national and local data bases; and the potential contribution of roof tops to pollution loadings.

15. While Mr. Klein's wide-ranging research into the national technical literature on these various matters is indeed impressive, he has failed to appreciate the fundamental purpose of SEPA review. Under SEPA we are not interested in technical data in the abstract but rather the specific environmental effects of a particular project in a particular location. This analysis requires not only attention to defining and quantifying the factors that may produce adverse effects, but also with the actual probable impact that such factors will have within the specific environment at issue. Simply put, Mr. Klein's analysis focused a great deal of attention on the first half of the equation and almost none on the second.

This shortcoming was noted by a number of witnesses, with a cogent summary of the problem appearing in a June 12, 1998, letter submitted to the record by Applicant's consultant Andy Kindig in response to Bordeaux testimony:

> "The overriding question is whether the County erred in concluding that the specific water quality measures proposed by the Applicant . . . are adequate for the protection of water resources. There is no specific evidence in Mr. Klein's submittals that injury would occur as a result of oxygen demand, nitrogen, phosphorus, copper, lead or zinc, which are the contaminants he selected for his evaluation. Mr. Klein's conclusion of impact is solely based on the fact that contaminant loadings would increase as a result of development. There is no question that contaminant loadings will increase. However, there is no basis in Mr. Klein's evaluation to support his contention that an increase is by definition a significant impact."

16. Mr. Klein's failure to quantify water quality impacts in terms of the specific resources claimed to be at risk is most clearly apparent with respect to phosphorus loading to Lake Sammamish. In a June 19, 1998, response statement also submitted to the Bordeaux record, Mr. Klein concedes that he has made no attempt to evaluate the consequences of failure to reach a 50% phosphorous reduction goal for treated runoff in terms of actual effects to Lake Sammamish. He states: "I did not question the cumulative model in my report. I do not have sufficient information to determine the appropriateness of the 50% phosphorus reduction requirement". But if one has no idea what the consequences would be of failing to meet a 50% phosphorus reduction goal, one has no foundation for characterizing such failure as a significant adverse environmental impact.

17. In like manner, Mr. Klein's analysis of potential heavy metals loadings also occurs in a vacuum. Here what is missing is the specific contextual framework necessary to determine whether an increase in heavy metals loadings in site runoff will actually result in adverse consequences. The key considerations suggesting the absence of a significant impact appear to be the intermittent nature of onsite streams, the relative impermeability of onsite soils, and the distance between the site and significant aquatic resources. Streams which dry up seasonally may be expected to both lack significant aquatic resources and fail to transport pollutants during the summer months. One of Mr. Klein's major critiques was that peak concentrations of heavy metals may be impactive to aquatic organisms even though they only occur on a sporadic basis and in the context of relatively low average pollutant concentrations. The problem is that both available data and common sense suggest that extreme spikes in pollutant loadings are a phenomenon most likely to occur during the late dry season when months of accumulated chemical deposition are subject to being suddenly flushed into the downstream system by a first large storm. However, within a stream system characterized during the summer months by dry stream beds, there is no obvious reason to suppose that a sudden first storm will generate sufficient flows to reach downstream perennial aquatic environments. Within such a watershed, maximum concentration loading issues do not seem likely to produce adverse consequences. Consistent with this analysis, local studies suggest that the primary impact issues for area streams and wetlands are the consequence of hydrologic change, not pollutant loadings. Thus, in the absence of a credible scenario describing precisely how and where increased metal loadings will create adverse impact conditions, it is not necessary to attempt to resolve all of the related data conflicts presented by the record.

III. Flooding

18. A final drainage issue raised by this record concerns the impacts of the eastern sub-basins for the Greens and Bordeaux projects as they may affect Allen Lake and its outlet stream near Northeast 8th Street. It is uncontested that Allen Lake is a volume sensitive water body with restricted outlet flows resulting from constraints within its downstream system. It is also uncontested that flooding along Northeast 8th Street has increased since the construction of the Beaver Dam project within the same watershed east of the Beaver Crest properties. Intervenor Greg Allan, who lives in the Northeast 8th Street area, contends that the increased flow volumes produced by site development at Beaver Crest will necessarily increase the duration of flooding at Allan Lake and downstream at Northeast 8th Street.

19. The Applicant's drainage engineer estimates that approximately 30 acres from the Greens and Bordeaux sites will flow into the Allen Lake drainage, and Steve Foley of the County Department of Natural Resources guesses that the two projects together constitute somewhere between 10 and 20% of the Allan Lake watershed. One of the MDNS conditions deals specifically with the Allan Lake flooding situation and seeks to mitigate volumes impacts. It entails a detention facility designed according to the King County Runoff Time Series Level 3 methodology to achieve maintenance of peak flow durations at their pre-development levels for all storms greater than one-half of the two-year up to the 50-year events. This means that for up to the 50-year storm, peaks and durations will mimic the pre-development hydrograph, with excess volumes caused by the new development detained and released later after peak flows have cleared the system. This does not mean, however, that the flooding situation along Northeast 8th Street will improve, but merely that the construction of the Beaver Crest projects should not make it any worse during the normal range of storm events. The possibility nonetheless remains that during exceptional storm events, *i.e.*, those greater than a 50-year frequency, there may be a small increase in flooding duration, a fact that due to its infrequency and context the staff does not regard to be significant.

20. Mr. Allan remains skeptical of the staff analysis, asserting that any increase in total flow volumes resulting from development will inevitably result in increased flood durations. In theory, however, the MDNS condition is capable of successful implementation, provided the drainage pond has sufficient detention capacity to allow a low release rate extending well beyond the predevelopment period of peak flow duration. Conversely, for Mr. Allan to prove that the MDNS formula is doomed to failure, he would need to perform a watershed analysis based on flows into and out of Allen Lake and demonstrate either that the flood stage occurs at a lower peak flow level than assumed by staff or that peak durations will extend for longer periods than the model postulates. Mr. Allan has not attempted this level of analysis, and we therefore have basis to conclude that the KCRTS model is incapable of producing the required matching between peaks and durations.

IV. Wildlife habitat

21. Finally, within the realm of natural systems, the SEPA appeals have raised issues of wildlife habitat loss. The wildlife report performed by Raedeke Associates dated March 21, 1997, examined the second growth forested areas and their wetlands and streams on

the Beaver Crest properties and inventoried the potential wildlife habitat impacts. Impacts identified included loss of foraging area for woodpeckers and other cavity nesting species, and loss of habitat for reptiles and amphibians, including red-legged frog tadpoles observed upstream from the site in the ditch adjacent to Northeast 8th Street.

There is no question that the cumulative impacts resulting from conversion of the East Sammamish Plateau to urban density residential development will destroy massive quantities of upland forest causing significant adverse impacts to wildlife over a large area. Such fact is recognized within the Raedeke study:

> "The development of the Heights (Phase 2), the Vistas (Phase 3), and the Greens (Phase 3) on Beaver Crest Estates will result in the loss of approximately 84.8 acres (67.8%) of the natural plant communities onsite. Since wetland areas are protected, the loss is primarily upland mixed and deciduous forest. Following Phase 1, Phase 2, and Phase 3 developments, all cover types will still be represented onsite. While the specific loss of habitat would cause only a proportional and small reduction in wildlife, these projects and other projects in the region cumulatively result in a significant loss of wildlife habitat. Species that have a large territory (black bear, pileated woodpeckers) or require large areas of interior forest habitat (neotropical migrants) may be lost from the region as remaining habitat patches pass below minimum size requirements. The loss is further exacerbated by the loss or disruption of travel and dispersal corridors and the fragmentation of remaining habitat areas."

22. The issue is not whether these habitat losses will occur but rather whether any portion of this loss has not been accounted for in prior environmental review. The unavoidable conclusion is that cumulative habitat losses were implicit in the decision to zone the East Sammamish Plateau uplands for urban residential use and that such consequences were reviewed and deemed acceptable when such zoning decisions were made. The inevitable consequences of urbanization on wildlife habitat resources is explicitly recognized in Comprehensive Plan Policies NE-604 through 607, which limit wildlife habitat protection in urban areas to certain identified species of local importance plus those species which are listed as endangered or threatened. Since no such protected species have been identified on the Beaver Crest sites, the habitat loss that will occur, while significant, has been reviewed and deemed acceptable within the framework of prior legislative action.

C. TRANSPORTATION

I. Concurrency

23. In terms of time and effort expended, the principal focus of the Appellants' challenge to the Greens and Bordeaux applications has been based upon their alleged traffic impacts. More specifically, the Appellants have challenged whether the Applicant is in compliance with requirements of the County's Integrated Transportation Program as set forth in KCC Chapters 14.65 through 14.80. Within this framework the Appellants and their principal traffic engineer, Joe Savage, have undertaken a comprehensive and detailed analysis of the County's transportation concurrency process with the objective of demonstrating that the transportation concurrency certificates issued for the Beaver Crest projects were approved in error. Specifically at issue are concurrency Certificate No. 250, issued for

500 units in November 1995 under Concurrency File No. 95-09-21-01, and Certificate No. 329 issued at 247 units under Concurrency File No. 96-02-20-01 in March 1996.

Certificate No. 250 was issued under a Transportation Adequacy Measure ("TAM") score of 0.782 measured against a maximum TAM standard of 0.79. This first Beaver Crest concurrency application was originally submitted for approval of 672 units, but the County Department of Transportation determined that only 500 units could be approved without exceeding the applicable TAM standard. Certificate No. 329 was issued with a TAM score of 0.7029 as measured against a TAM standard of 0.89. The higher TAM standard applied in the March 1996 test resulted from a December 19, 1995, amendment to County Comprehensive Plan T-307 that allowed a higher TAM threshold to be applied to applications possessing valid sewer and water certificates.

a. Review Standards

24. KCC 14.70.040.E states the basic standard for concurrency approval, which is that "the County shall not issue a certificate of concurrency unless there are adequate transportation facilities to meet the level of service standards for existing and approved uses and the impacts of the proposed development." Subsections G and H of KCC 14.70.040 provide that if the level of service depicted within the proposal's TAM score is equal to or better than the adopted standard, the concurrency test is passed, and if below the adopted standard, the concurrency test is failed. In addition, the TAM analysis contains a second part to determine whether a project proposal passes the unfunded critical link test. The unfunded critical link test applies to corridors identified by the Department under administrative rule that contain links showing a volume to capacity ratio (v/c) of 1.1 or greater. If any unfunded critical link with a v/c ratio of 1.1 or more exists, "then any proposed development which sends at least 30% of its trips to that critical link shall be deemed to fail the concurrency test until the critical link is improved" (KCC 14.65.020.C.1). For Certificates 250 and 329 the Department of Transportation determined that the Beaver Crest applications passed both portions of the TAM test.

25. Although the discussion of broader jurisdictional issues will be deferred to the Conclusions portion of this report, it is useful at this time to identify the review provisions set out in KCC Chapter 14 and discuss their applicability to the instant proceeding. KCC 14.70.080.A authorizes a public hearing review of a concurrency approval, as follows:

> "Issuance of a certificate creates a rebuttable presumption that the proposed development satisfies the concurrency requirements of this chapter. The determination of concurrency shall be final at the time of development approval. The issue of concurrency may be raised as part of the review process for the development application for which the certificate of concurrency was issued."

26. While authorizing public hearing review of concurrency issues, KC 14.70.080 supplies no standards pursuant to which such review should be conducted. In the absence of express standards for public hearing review of concurrency determinations, the Applicant and the Departments of Transportation and Development and Environmental Services all have argued that such standards should be borrowed from KCC 14.65.040, which contains the procedures for an administrative appeal of a concurrency certificate determination. Although it is clear that the standards set forth in KCC 14.65.040 are

primarily designed to apply to a certificate applicant who has received a concurrency denial, we concur that these are the best standards available and should be employed as well for evaluating public challenges to concurrency certificates under KCC 14.70.080. Further, because it is a standard reference work whose terms are both incorporated into the provisions of KCC Chapter 14 and integral to many of the traffic issues in dispute, we take official notice of the current (1994) edition of the Highway Capacity Manual, published as Special Report 209 of the Transportation Research Board.

28. Looking at the specific terms of KCC 14.65.040.A, it is apparent that the appeal bases provided in subsections 2, 3, and 4 are only relevant to a certificate appeal filed by an applicant and have no bearing on a broader public review. This leaves us with standards 1 and 5, which are respectively that "the Department committed a technical error" or "the action of the Department was arbitrary and capricious." Considering the applicable provisions of Chapters 14.65 and 14.70 together, a public hearing challenge to a concurrency determination requires the challenging party to demonstrate by a preponderance of the evidence that the Department either committed a technical error or engaged in arbitrary and capricious action.

29. The meaning of the arbitrary and capricious standard is well established in Washington case law and refers to "willful and unreasonable action, without consideration and in disregard of facts or circumstances." Actions which are deemed arbitrary and capricious often involve administrative behavior which is in violation of applicable statutes and ordinances. The term "technical error", on the other hand, carries with it no such established meaning or definition. To the extent that it appears in the legal literature, it usually refers to harmless procedural error that is too trivial to provide an adequate basis for decision making. Clearly, this procedural use provides no help in interpreting KC 14.65.040.A.1, which must be understood as referring to a significant error and not a meaningless one. In order to provide substance to this standard and adapt it to concurrency issues, we will use the term “technical error” to mean a data or modeling action which is likely to produce an incorrect or unreliable TAM determination.

30. At this point it is also useful to discuss a few of the peripheral legal issues as well. First, while the review of alleged technical errors will focus on the question of whether such errors are of sufficient magnitude to measurably affect TAM determinations, we will decline to speculate as to what a TAM score might look like if such errors were eliminated. Both the Appellants and the Department of Transportation have submitted to the record their estimations of what the Beaver Crest TAM scores would be if certain data and modeling assumptions were changed. The Examiner has no way to evaluate the validity of these competing computer outputs. Moreover, the Department's modified concurrency runs were submitted at the very end of hearing testimony by a final rebuttal witness who did not previously make such runs available to other parties. Without necessarily questioning its reliability, it would be manifestly unfair to accord any weight to such an opaque document without providing to other parties an adequate opportunity to examine its validity.

31. Second, we have been invited by both the Department of Transportation and the Applicant to accord great weight to the professional judgment of the Department's engineers. This invitation in its most extreme articulation amounts to an argument that the Examiner should decline review complex technical issues at all in total deference to the Department's exercise of discretion.

32. The most curious aspect of the professional judgment argument is that its strenuous assertion has been supported by no citation to legal authority. Moreover, it is clear that nothing within KCC Chapter 14 or the County Comprehensive Plan mandates such deference. In reality, the professional judgment claim appears to be simply a variation upon the traditional theme that the administrative expertise of agencies should be accorded substantial weight within the judicial review process. This deference is normally based both on an agency's specialized knowledge and the fact that the reviewing court is not the trier of fact. Such principle receives permissive recognition within Hearing Examiner Rule XI.B.9.d, which allows substantial weight to be given "to the factual determinations and conclusions (but not to conclusions of law), made by public agencies charged with the administration of statutes and ordinances, with respect to matters within their jurisdiction."

33. In light of the fact that the hearing examiner in this proceeding is the primary trier of fact and the burden of proof lies with the Appellants who are challenging the correctness of the concurrency determination, we are inclined to accord limited deference to professional judgment in this proceeding. Undoubtedly, there will be instances in which the technical evidence will lack the detail or quality necessary to sustain a finding of technical error, but in such instances it will be sufficient to conclude that the Appellants have failed to sustain their burden of proof, without further recourse to mystification in the name of professional judgment. Conversely, if the Appellants have affirmatively demonstrated that the Department has committed a technical error, no discernible public purpose would be served by justifying such error as the exercise of professional judgment. Therefore, deference to the professional judgment of the Department will only occur in those circumstances where the evidence points to a data or modeling action involving a choice between two or more defensible alternatives of approximately equal validity.

34. For their part, the Appellants have emphasized that KCC 14.70.070 requires that "levels of service shall be monitored and the traffic model for the transportation adequacy measure shall be updated at least once per year." This annual update process shall include "traffic volumes, approval of additional development, completion of previously approved development, improvements to transportation facilities, and the effect of transportation strategies." The Appellants point out that this kind of comprehensive update has not occurred on an annual basis and argue that any concurrency certificates issued outside the scope of the annual update framework should be regarded as invalid. We decline to regard KCC 14.70.070 as a review requirement subject to strict application. Rather, the section is primarily an instruction to administrators, and their failure to meet annual update requirements should be regarded as one among many items of evidence bearing on issues of technical error.

35. Before turning to a detailed discussion of the Appellants' various contentions regarding errors alleged to have been made by the Department of Transportation in the exercise of its concurrency authority, it is also appropriate to consider issues raised by the Prosecuting Attorney's Office and Applicant concerning the Examiner's authority to review the product of the Department's concurrency modeling process. The argument, as stated by the Department's legal brief, is that "the Hearing Examiner's jurisdiction extends only to the issue of whether DOT correctly followed Council-authorized procedures in determining concurrency in a particular case, not to the issue of whether

the procedures themselves are technically sufficient." The brief argues that "DOT correctly followed its standard procedures, including use of the model, for determining concurrency" and that "the appeal of concurrency should therefore be dismissed."

36. It is our view that the Department has improperly framed the issue under review as an appeal of concurrency under KCC 14.65.040. The Department is correct in its assertion that an appeal authorized under KCC 14.65.040 would not be authorized to challenge the sufficiency of the Department's model but only whether an error had been committed within the context of the model's parameters. But while the decisional principles stated in KCC 14.65.040 have been borrowed as appropriate standards for reviewing concurrency compliance, the jurisdiction for this proceeding remains grounded in the State Environmental Policy Act and the subdivision statutes. Thus, for SEPA purposes the ultimate issue is whether the Beaver Crest proposals will generate significant unmitigated adverse environmental impacts in the area of transportation. If the evidence supports a conclusion that such adverse impacts exist, it is not a defense to the imposition of appropriate procedural remedies under SEPA that the reasons why such impacts were not analyzed and addressed are embedded in the County's computer model.

Similarly, under the subdivision statute the ultimate question is whether the Beaver Crest proposals have made appropriate provisions for, among other things, streets and roads, an issue which is again not the captive of any particular analytical methodology. Therefore, while it is not the Examiner's role to pass judgment in the abstract on the adequacy of the County's computerized concurrency model, the successes and failures of such model may be analyzed to the extent necessary to determine the issues raised in the record which lie within SEPA and subdivision review jurisdiction.

b. Trip Generation

37. Probably the most broadly based challenge to the County's concurrency model articulated by the Appellants' traffic engineer, Joe Savage, was that the County's projections for background traffic growth were based on too low a trip generation rate. Determining trip generation is the first step in the traffic modeling process. It involves using land use data to estimate the number of person-trips that will be transacted among the different geographic zones established by the model.

The standard national reference work for the estimation of trip rates is the publication "Trip Generation", issued by the Institute of Transportation Engineers ("ITE"). The Beaver Crest traffic impact studies used the ITE single family rate of 9.55 trips per day for single family residences and 5.86 trips per day for condominiums as the basis for trip generation estimates. Use of ITE rates is standard procedure in King County and provides the basis upon which the County's analysis of SEPA traffic impacts is customarily based. After projects are approved, however, each project's trip generation totals are converted into background data for future concurrency calculations. At this point, the ITE rates for single family residential are stepped down to a lower figure based on local trip rates generated by the Puget Sound Regional Council ("PSRC"). It is Mr. Savage's contention that use of these lower PSRC trip rates has resulted in the underestimation of background traffic for the Sammamish Plateau.

38. Mr. Savage has attempted to infer the reason why the PSRC trip single family generation equation of approximately 7 trips per day came to be used. His theory is that for the 1993

base year calibration of the concurrency model the total household and total employment figures for the County were overestimated some three to five percent, as substantiated by later PSRC figures issued in 1995. If too high a number of households was divided into the 1993 trip count base, the result would be an understatement of the per household trip generation rate.

In addition, Mr. Savage offered Exhibit 82, which consists of some fragmentary land use data tables for concurrency zones on the Sammamish Plateau. They present erratic and improbable relationships between employment trip totals and total households. For example, in the table labeled "1993 Land Use: Final Adjusted to PSRC 1993 Totals", Sammamish Plateau Zone 409 is shown having 132 households generating a grand total of one employment related traffic trip, while a slightly larger Zone 417 with 156 households is shown to generate 1,571 employment related trips. Needless to say, this data set is incomplete, and no firm conclusions ought to be drawn upon its basis alone. But these kinds of data anomalies do not generate great confidence in the validity of the underlying process.

39. The most successful defense of the PSRC trip generation tables was provided by the Applicant's engineer, Vic Bishop, who wisely circumvented delving into the County's computer model and its data inputs in favor of supplying independent traffic counts. These counts demonstrate that the ratio of Plateau traffic to households is approximately equivalent to the PSRC generation rates. Exhibit No. 163, Mr. Bishop's analysis of trip generation at the Klahanie development on the Plateau in July 1998, while it contains a minor mathematical error resulting from the substitution of a trips per peak hour rate for the multi-family to single family trip conversion ratio, supports a single family generation rate of eight trips per day when the correct figures are used and the result is factored up to reflect the summer time frame for the traffic count.

In like manner, Exhibit No. 165, Mr. Bishop's July 1998 cordon study, under conservative assumptions supports a finding that off-Plateau PM/peak hour traffic trips are about 57% of the ITE predicted rates. This figure contains an adjustment of Mr. Bishop's 54% estimation to reflect an enumeration of households rather than housing units, a reduced trip generation rate for mobile home units, and a 50% occupancy rate for 1997 new residential permits.

40. While this adjusted figure agrees with cordon studies done for the same area in 1990 and 1992, the significance of the comparison for evaluation of the ITE predicted rate will vary depending on how much of the measured 43% discrepancy is assigned to local captured trips which never leave the Plateau. If one assumes that 20% of the area trips stay on the Plateau and thus do not cross the cordon line, this translates into a daily trip rate generally consistent with the Klahanie study. It is also consistent with a trip generation study done in 1993 at the north end of the Plateau for the Timberline neighborhood, which produced an ADT of 7.16. In summary, the available data tends to suggest an average daily trip rate for single family households on the Sammamish Plateau which may be nearer to eight than to seven. The applicable trip rate appears, however, to be closer to the PSRC figure than to the ITE national average, and the Appellants have failed to establish by a preponderance of the evidence that use of the PSRC rate within the County's concurrency model was an unreasonable choice constituting technical error.

41. The Appellants have also criticized the PSRC trip generation data on other grounds. They claim that its home-based and work-based trip categories are too simplified to adequately represent driver behavior, that there is no mechanism to account for increased trip chaining, and that the built-in regional mode split factor is too generalized to adequately represent zonal differences, particularly with respect to the availability and location of park and ride facilities. While these all represent refinements that the trip modeling process could beneficially incorporate, the failure to make such improvements is not in itself evidence that the present model produces unsatisfactory results.

Moreover, the PSRC operates as a regional transportation agency to coordinate inter-jurisdictional planning efforts, and reliance on PSRC data and systems is supported by the need to create a uniform and consistent regional transportation network. In view of these strong policy interests, it is reasonable to conclude that incorporation of PSRC data and procedures was a choice implicitly made by the County Council in adopting the 1994 Comprehensive Plan and, as well, constitutes the exercise of professional judgment in choosing among reasonably equivalent alternatives. The Appellants have not sustained their burden of proof to demonstrate that the County's reliance on PSRC procedures as described above was a technical error leading to unreliable or incorrect TAM calculations.

c. Calibration

42. A significant portion of the Appellants' criticism of the County traffic concurrency model was couched in terms of the model being poorly calibrated. Calibration is the process under which the accuracy of the model's data assumptions are verified by means of its ability to successfully predict actual base year traffic counts. Essentially, these issues reflect upon the question of whether the comparisons made between 1993 base year traffic counts and 1993 model-generated traffic projections fall within acceptable limits. While calibration issues are important to assessing the overall validity of the County's concurrency system, they have no conclusive bearing on the issues raised within this appeal. This is because it is difficult, and perhaps impossible, to convert a conclusion that the model is poorly calibrated generally into a specific conclusion as to how such deviation will affect a particular TAM score. Accordingly, many of Mr. Savage's calibration criticisms will be discussed in the context of other specific topics upon which they bear, and any general weakness in the calibration process that may appear will not be regarded as technical error *per se* but as evidence detracting from the overall reliability of the County's TAM determination process.

43. Here, as elsewhere, a focal point of Mr. Savage's criticism has been the relationship between the County's modeling procedures and the PSRC data base. Mr. Savage points out that the PSRC trip generation data used for the 1993 base year was in actuality 1990 data adjusted to 1993 conditions. He also notes the uncertainty attendant to making land use assumptions based on the redivision of larger PSRC analysis zones into the smaller zone grid used by the County's system. Finally, he observes that the PSRC data is stated in terms of average daily trips, a nondirectional concept that has been converted by the Department into a PM/peak-hour equivalent which contains a strong peak direction component. All of these points are suggested as contributing to the weakness of the base year calibration process.

44. With respect to the comparison of 1993 actual traffic counts to model projections, Mr. Savage's basic point is that the range of calibration error exceeds recognized national standards. Without elaborating, he has submitted tables and graphs showing that 50% or more of the individual links calibrated by the County fall outside of the maximum desirable deviation curve established by national calibration standards promulgated by the Federal Highway Administration and the Michigan Department of Transportation.

45. The Department's response to Mr. Savage's assertion that its traffic model is poorly calibrated is based on a statement which appears in National Cooperative Highway Research Program Report 255, "Highway Traffic Data for Urbanized Area Project Planning and Design", published by the Transportation Research Board in 1982. In Chapter 3, "Preliminary checks of computerized traffic volume forecasts", the following statement appears:

> "Figure A-3 has been developed to aid in determining the acceptability of the base year assignment on specific network links. The figure is based on the assumption that the maximum desirable traffic assignment deviation should not result in a design deviation of more than one highway travel lane. Therefore, the "acceptable" deviation is higher on low volume roads where a large percentage of deviation will not have major design implications. The converse is true on higher volume facilities."

46. The County's defense is that it has calibrated to a standard of one lane deviation, which is assumed to be equivalent to 700 vehicles per hour, and has applied that standard across the board to low and high volume roadways. While this produces a correlation between actual and estimated traffic that still has many points falling outside of the acceptable deviation range, with this measure the level of unacceptable deviation falls below 50%. A more positive degree of correlation occurs because an absolute numerical deviation such as 700 vehicles per hour translates into a very high percentage of acceptable deviation on low volume roads.

47. While the resolution of this dispute is not critical for our purposes, Mr. Savage's arguments appear to be more persuasive. First and foremost, Report 255 does not offer the one travel lane deviation as a calibration standard but merely as an explanation for the outer limits of the percentage deviation curve presented in Figure A-3. Since the Figure A-3 curve appears to be the same one used by the Federal Highway Administration in its later calibration document, a 50% unacceptable deviation total for the County model would also seem to be the consequence of applying the standard actually described in Report 255. Moreover, Report 255 is presented as a highway design document not a calibration procedure. The value of the one travel lane concept lies in its use as a rule of thumb for determining the number of highway lanes needed within a capital facilities planning analysis. Taking this reference out of context and converting it into a fundamental calibration standard appears to be an unwarranted procedure.

48. Finally, among the general criticisms made by Mr. Savage of the County's calibration process was the assertion that the aggregate of vehicle miles traveled should be compared to the aggregate hours traveled and checked for validity against other regional models. This also is a procedure which is supported by the discussion contained in Chapter 3 of Report 255. The Department did not specifically respond to this criticism.

d. Capacity

49. Road capacity is the ability of a facility to accommodate traffic volumes as defined by the maximum hourly rate at which vehicles can be expected to traverse a uniform section of roadway during a given time period under prevailing conditions. Because road capacity is a major determinant of levels of service in TAM scores, the Appellants have raised a variety of issues which assert that the Department of Transportation has systematically overestimated the capacity of the arterial network serving the Sammamish Plateau, resulting in artificially lower TAM scores. There are a variety of aspects to this argument, one of which was primarily developed by Timberline resident Leslie Kralicek, who examined a number of capital improvement projects scheduled for the Sammamish Plateau. Ms. Kralicek's conclusions were that while the completion dates for key CIPs kept being pushed further back into the future, and in some instances CIP's are either abandoned or greatly reduced, the development approvals that were premised on completion of these capacity projects were allowed to go forward.

50. There is no substantial dispute that prior to 1996 delays in projected construction completion dates for CIPs were the norm. The problem was identified within a TAM concerns list compiled in March 1994 on behalf of the Department of Transportation by Rao & Associates Inc. and received extensive treatment within two audit reports performed by the County in 1996. These audit reports focused on the massive carry-over of CIP construction funds from one budget year to the next, and concluded that the problem was primarily due to the Department's practice of programming construction funds for projects that were still in the early stages of design. Since some 40% of the CIPs studied by the auditor took four or more years to design, the result was a major carry-over of budgeted construction funds and routine deferral of facility completion dates. The audit report identified as a further cause of delay the fact that some CIPs within annexation areas become hostage to interlocal agreement negotiations owing to the reluctance of cities to cost-share for new capacity projects.

51. What is less clear is the extent to which CIP deferral problems have been rectified since the issuance of the 1996 audit reports. The general consensus is that the Department's practices have become more realistic in terms of estimating completion dates, and for some key facilities affecting the Plateau the completion schedule has actually been accelerated. The instant review, however, focuses upon the validity of concurrency certificates issued in 1995 and early 1996, thus mandating the inference that the capacity assumptions made for such earlier certificates included CIPs with unrealistically optimistic completion dates. To the extent that capacity projects were improperly predicted for completion within the six year concurrency window applicable to these certificates, such assumptions resulted in an overstatement in road capacity and a lowering of TAM scores.

52. A second issue raised by the Appellants is whether correct link capacity values were used for Sammamish Plateau arterials as determined by factors other than lane dimension. Based on Highway Capacity Manual ("HCM") data, the Department of Transportation developed a table of recommended link-type capacity values that identifies the variables applicable to capacity calculation and establishes standard coefficients for various types of roadways. One of the major variables in the determination of roadway link capacity is the distance between controlled intersections along the arterial route. According to the HCM, an arterial link which is characterized by a distance of two miles or greater

between traffic signals may be defined as having a long distance between controlled intersections. For a two-lane road long distance links are assigned a peak capacity value of 1,240 vehicles in a rural area and 1,320 vehicles in an urban area. In like manner, a four lane road section characterized by a long distance between controlled intersections may be assigned peak capacity value total of 2,600 vehicles for each direction. By contrast, a two lane road which features stop signs or traffic signals at less than two mile intervals is assigned a peak direction capacity of 760 vehicles if there are no left turn channels and 1,030 vehicles if served by channeled intersections.

53. As pointed out by the Appellants, the entire arterial spine which encompasses Sahalee Way Northeast/228th Avenue/Southeast 43rd Way and connects SR 202 in the north with East Lake Sammamish Parkway in the south has been assigned peak capacity values by KCDOT based on the long distance between controlled intersections classification. The evidence submitted by the Appellants indicates, however, that with the exception of the southernmost link, the entire arterial corridor consists of roadway links that have far less than two miles between intersection controls. Indeed, within the central portion of the system along 228th Avenue between Northeast 8th Street and Issaquah-Pine Lake Road, the distances between traffic signals are all substantially less than a mile.

54. In its response the Department acknowledges that the rationale for the long distance classification is that within such links "the traffic is essentially free flowing, with traffic arriving randomly at isolated signals" so that "the road capacity approaches that of the lane saturation flow rate and is little affected by the green time of isolated traffic signals". Nonetheless, it argues that the use of these higher capacity values is warranted within the Sahalee /228th Avenue corridor. The Department maintains that its "experience for some time in low density suburban areas such as East Sammamish has been that uninterrupted traffic flow occurs when signals are spaced as close as one mile", but no data or studies have been submitted in support of this impression. KCDOT also points out that in 1995 and 1996 when the Beaver Crest TAM calculations were done, the Department had not yet converted to its new link capacity value table, which is based on a default lane flow rate of 1,900 vehicles per hour rather than the 1,800 previously employed. This higher saturation flow rate translates into approximately a 9.5% increase in key long distance values. The Department also notes that in 1995 and 1996 some of the traffic signals that now exist along the Sahalee/228th Avenue arterial route were not yet installed and functional.

55. On balance, it is our conclusion that systematic use of the long distance between intersection figures is not warranted on the Sammamish Plateau, and that the use of such figures has overestimated roadway capacity in a manner which likely has led to the understatement of TAM scores. The concept of long distances between controlled intersections applies primarily to rural highways, and while its use may have been appropriate a decade ago, as the Plateau rapidly urbanizes it becomes less defensible with each passing day. Such an obvious departure from established HCM standards can only be justified if relevant local studies exist that support the use of a differing value. No such studies have been performed here. Since concurrency is based upon traffic capacity changes within a six-year future window, the fact that planned signal improvements were not yet installed in 1995 or 1996 provides no excuse for not factoring them into the capacity equation. Finally, while it must be recognized that use of the new higher lane saturation flow rate table would have produced a slight increase in capacity if it had been applied to the Beaver Crest concurrency runs, such adjustment only partially compensates

for the much higher values that result from substituting long distance for short distance links.

56. A third criticism offered by Mr. Savage related to capacity is that the TAM calculation for the Beaver Crest application contains 38 links for which the v/c ratios have been reduced "through an undocumented factoring process referred to as 'twlos'". The Department's response is that this was a "correct and well-documented procedure" taken from Chapter 8 of the Highway Capacity Manual, which for two-lane, two-way roads allows the calculated capacity to take into account "the volume of opposing traffic and the varying ability to make left turns based on that opposing volume" and warrants "an increase in roadway capacity over the one-way capacity technique usually used."

57. Our reading of the Highway Capacity Manual does not support the Department's position. Chapter 8 of the HCM deals with two-lane rural highways that feature "sections of many miles through rural environments without traffic control interruptions." Within this environment the major variables affecting capacity are terrain and no-passing zones that constitute the primary restrictions on the free flow of traffic. This is not a description that aptly fits the arterial network serving the Sammamish Plateau, except for perhaps some sections of SR 202 lying east of the Plateau and west of Fall City. Since this easterly section of SR 202 is outside of the primary network serving the Plateau, the use of a two-way level of service capacity enhancement on 38 of the concurrency links for Beaver Crest appears to overstate the capacity of the roadway network and result in a lowering of TAM scores.

58. A final major criticism offered by Mr. Savage with respect to the manner in which the Department of Transportation models roadway capacity consists of a discovery he made during the TAM run replication to the effect that the model run for Beaver Crest had adjusted downward all volume to capacity ratios having values greater than 1.1. Since no lower end values were modified upward, this downward adjustment of the highest v/c ratios constitutes an uncompensated distortion and artificially lowers the resultant TAM scores. Mr. Savage described this as a non-standard procedure, a criticism which was underscored by the revelation by Mr. Etherington of KCDOT that this adjustment is not routinely made by the Department and its use may indeed have been limited to the Beaver Crest run.

59. The Department did not contest Mr. Savage's assertion that v/c ratios exceeding 1.1 had been artificially reduced within the initial 500 unit test run for Beaver Crest. Rather, it attempted to justify such action by recourse to the following explanation:

> "The Department did not arbitrarily reduce the v/c ratios in question to reduce the TAM score. The rationale for such adjustment is to recognize the spreading of peak hour traffic on links that have v/c ratios substantially over 1.1. As congestion on such links increases, driver behavior is to avoid the congested peak by traveling either before or after the peak hour.
>
> "The traffic model is calibrated to the PM/peak-hour, and cannot recognize peak period travel that occurs outside that hour. The SR 202 monitored corridor had a v/c ratio of about 2.0 in the 500 units test. In the Department's professional judgment, such travel behavior will not occur, and several link v/c ratios were adjusted to be more realistic. (The formula used set the new ratio equal to the

square root of the high ratio as divided by 1.1, and the quotient multiplied by 1.1.) In no case did the adjustment reduce such a v/c ratio below the critical 1.1 value. The result is a better portrayal of driver behavior."

60. The Department's explanation would be more compelling if the essential purpose of the modeling exercise and the TAM score calculation were to describe driver behavior. Since a v/c of 1.1 represents 10% more traffic than a roadway is designed to accommodate, it is axiomatic that traffic volumes in excess of 1.1 v/c will seldom be actually encountered. Confronted with the level of congestion that a v/c value greater than 1.1 necessarily represents, drivers will no doubt engage in all sorts of avoidance behavior. Some will travel earlier, those with job flexibility will travel later, others will look for new employment closer to home, and some few may even move back to California.

61. But the point of the modeling exercise is to predict traffic demand, i.e., the numbers of vehicles which under normal conditions can be expected to want to use the roadway in question during the peak hour. A primary purpose of the traffic model is to assure that the infrastructure construction necessary to provide new capacity to the roadway system will keep pace with the growth of demand, Therefore, the Department's observation that in reality drivers will take evasive measures to avoid congested links during peak hours may be an accurate observation of human behavior, but it is irrelevant to the modeling of traffic demand. The Department's practice of reducing v/c ratios above 1.1 is an egregious manipulation of the data that serves no purpose other than arbitrarily reducing resultant TAM scores.

62. The four adjustments described above all result in inappropriately optimistic projections of roadway capacity for the arterial system serving the Sammamish Plateau. Their effect is uncompensated by any countervailing set of conservative capacity assumptions. The net effect of these adjustments is to systematically and consistently produce artificially lower TAM scores, and their use constitutes technical error on the part of the Department.

e. Model updates

63. The King County traffic concurrency model was initially established based on 1993 traffic counts, road network configuration and demographic data. In addition, pursuant to KCC 14.70.070 the traffic model is subject to an annual update requirement. This is because the model aspires to be a dynamic process that will adequately reflect at any point in time appropriate assumptions concerning current and future traffic volumes, pipeline development, transportation improvements and new transit strategies. Accordingly, as one moves away from the base year, the reliability of the model becomes increasingly dependent on the completeness and accuracy of the update process.

64. The record provides a vague and somewhat contradictory portrayal of the County's update process between the 1993 base year and March 1996, when the second of the Beaver Crest concurrency certificates was issued. In major part this seems to be attributable to the unpredictable patterns according to which new data inputs were received. In particular, while the Department had reasonably dependable sources of information for unincorporated areas derived from the Assessor's files, DDES permitting data, and its own MPS and concurrency records, population and employment data from the County's incorporated cities was quite often difficult to come by and late in arriving.

As a consequence, systematic annual updates were not capable of being achieved, but a reasonably complete update seems to have been performed in early 1996 not long before the second Greens run.

65. The Appellants have challenged the adequacy of the Department's update process, with particular focus on its treatment of incorporated cities. As documented within the printout appearing as Exhibit No. 112, the Department in early 1996 had very little to work with in the way of specific data describing new traffic productions and attractions within incorporated cities.

Most critically, Exhibit No. 112 displays almost no new population or employment data for the three cities nearest the Plateau and most heavily implicated in determining its trip generation and distribution patterns - Bellevue, Redmond and Issaquah. By way of contrast, the update data for unincorporated areas both on the Plateau and in its immediate environs was far more complete. Indeed, for some of the traffic zones encompassing the Urban Planned Developments recently approved on Novelty Hill, Exhibit 112 shows extremely high production and attraction figures, even though these UPDs are scheduled for build-out over a 20-year period and in early 1996 were still involved in court appeals.

f. Trip distribution

66. The Department recognized that there were major gaps in its available data for cities as compared with unincorporated areas, and it made certain adjustments to the data to accommodate these discrepancies. First, based on regional urban data, it projected an annual growth rate for developing areas of the County at 0.7% per year, and applying this rate to its 1990 population base, derived a 4.5% six-year ambient growth factor by which it increased population totals for both cities and unincorporated areas. Second, because it had better trip production data for unincorporated residential areas, it factored up attractions to meet the level of productions. How this increase in attractions was actually allocated among the various cities receiving traffic from the Plateau was not disclosed by witness testimony.

67. The acceptability of the update process performed in early 1996, as well as the intermediate updates that may have occurred previously, largely depends on the adequacy of this adjustment process. While any shortcomings may be reflected throughout the modeling process, the problems are perhaps most easily described in terms of their effect on trip distribution, the process by which trip productions for each zone are allocated among the attractions generated by other zones. First, it is to be noted that the Department's procedure for updating productions and attractions comprises a mix of available data with adjustment factors. That is to say, the data for unincorporated areas was included in the update even though comparable city data was not available. This necessarily overstates the effect of growth in the unincorporated areas and understates growth in the cities, which will skew distribution patterns for traffic originating on the Sammamish Plateau unless some compensating mechanism is employed.

68. The problem with the adjustments made by the Department lies with the fact that while they may produce accurate total volumes, they do not correct the distortion inherent in having more complete data for unincorporated areas than for cities. Application of a 4.5% ambient growth factor across the board increases all zones equally but does not

redress the imbalance between unincorporated areas and cities. Likewise, if total attractions are adjusted upward to meet productions but simply distributed throughout the system based on historic data or, worse yet, the incomplete population growth figures contained in Exhibit No. 112, only the total volumes within the County traffic system as a whole will be made approximately accurate. Attractions within Eastside cities that have experienced rapid recent growth rates will necessarily remain understated. In both instances, the result is a significant understatement of the employment attractions generated by recent growth in Bellevue and Redmond west of the Plateau and Issaquah to the south.

The modeling consequences of such distortions are underdistribution of traffic to attractions within nearby Eastside cities and the overestimation of attractions within unincorporated areas, in particular the Novelty Hill UPDs which are characterized in Exhibit No. 112 as major attractions even though no construction has yet occurred. This means that the v/c values for arterials feeding from the Plateau into Issaquah and Redmond are likely understated and TAM scores accordingly reduced. This skewed distribution, unless otherwise rationalized or negated, constitutes technical error.

69. In addition to the adjustment factors described above, the Department has undertaken to defend its trip distribution procedures by a demonstration that through comparison of screen line counts for 1993 and 1995 the model shows a high degree of validation. A screen line is a monitoring construct that intercepts all major roads within a travel corridor in order to assess whether modeled distribution patterns are accurate. If the screen line totals predicted by the model match actual counts, the model's trip distribution assumptions for the lines monitored are considered validated. On page 29 of Exhibit No. 152 the Department has displayed predicted screen line volumes versus actual counts for both 1993 and 1995 along with model to count percentage ratios. As presented in the table, for 1993 the ratio of modeled volumes to counts overall was 0.97 and for 1995 0.99, with 1.0 representing an ideal correspondence. The table also contains the model to count ratios for the ten individual screen lines monitored, which range from 0.75 to 1.26 for the 1993 figures and from 0.86 to 1.20 for 1995.

70. If these figures are assumed to be accurate, then the table supports a conclusion that the total volumes modeled by the County are accurate for the system as a whole, while leaving open the question of whether the pattern of internal distribution as reflected by individual screen lines is equally acceptable. But, the real problem with the table on page 29 is that the reliability of the underlying data appears to be compromised.

71. As requested by the Appellants, the Department supplied within Exhibit No. 157 the actual node counts underlying the screen line totals shown on page 29 of Exhibit No. 152. As pointed out by Appellant Hamilton, within Exhibit No. 157 the actual traffic count data for over half the individual links is identical for 1993 and for 1995. Indeed, of the 80 links listed, 44 (or 55% of the total) show identical traffic count figures for 1993 and 1995. The situation is particularly extreme for screen line 1 (northwest county line) where six of eight links show identical figures for 1993 and 1995; for line 4 (Avondale) where six out of eight links have identical traffic counts; for screen line 6 (South Seattle) where ten out of twelve figures are identical; and for screen line 10 (south county line) where the number of identical figures is twelve out of fourteen.

Upon further questioning, Mr. Etherington of the Department explained why one sees a large number of identical traffic count figures for the 1993 and 1995 screen line links. The reason is that for these links the Department had neither 1993 nor 1995 data but rather only 1994 traffic counts. The 1994 counts were simply projected both forward and backward one year to fill the data vacuum and supply the missing links.

72. It would seem to be beyond argument that in order to do a meaningful comparison of model screen line estimates for 1993 and 1995 one would at least need to have a complete and accurate set of traffic counts for both years. While the use of 1994 counts might be relied upon for ballpark projections of total traffic volumes, precise model to volume ratios for 1993 and 1995 can only be constructed using actual data for those two years.

73. Moreover, if one examines screen line 9 which cuts across the arterials serving the south end of the Sammamish Plateau, other limitations become apparent. Regarding the data for this screen line, four out of eight links employ the 1994 figures to represent both 1993 and 1995 traffic counts. Next, looking at the model to count ratios shown on page 29 of Exhibit No. 152, one observes that for both the 1993 and 1995 comparisons the model has underestimated Plateau traffic (the ratios are less than 1.0). Further, the degree of discrepancy increases from 1993 to 1995, with the 1993 ratio being 0.91 and 0.86 calculated for 1995. But since one expects the four 1994 counts to be higher than the 1993 actuals and lower than the 1995 actuals, the implication is that with the correct figures inserted the 1995 model shortfall would be even greater than shown in the table.

74. Further evidence that the County's traffic model may be off course with respect to distributing traffic volumes to the rapidly growing Sammamish Plateau is suggested by the individual link volume figures shown in Exhibit No. 157 for screen line 9. Here we find that for seven out of eight links the 1995 model projected lower traffic volumes than established by the 1993 actual counts, and for four out of eight links in 1995 the model projected a decrease in volumes from the levels predicted for 1993. The totals for screen line 9 show that the model overall projected nearly 300 trips less in 1995 than the 1993 actual count figures indicated and nearly 900 fewer vehicles than the 1995 actual count totals. While one can only speculate at the causes of such discrepancies, in view of the acknowledged rapid rate of growth on the Sammamish Plateau, a model that projects a decrease in traffic along the south Plateau screen line between 1993 and 1995 during the PM/peak hour would seem to be operating on at least a few questionable data assumptions.

75. Finally, the County's screen line analysis is also remarkable for what is missing altogether: there are no screen lines of any kind measuring traffic along the east/west corridors connecting Bellevue, Kirkland, I-405 and SR 520 to Redmond, the Sammamish Plateau, and Novelty Hill. It is inconceivable that this omission could merely be an oversight - this is probably the most complex and heavily impacted traffic area in the County. More likely, it represents an administrative decision not to submit the traffic model to a critically difficult test, one which might demonstrate conclusively its strengths and weaknesses.

g. Trip assignment

76. Mr. Savage's analysis of the Department of Transportation's traffic concurrency modeling process also identified a number of potential errors within the trip assignment process. After an overall trip distribution has been determined, assignment is the process (based on travel time comparisons) by which traffic volumes are allocated among alternative routes. One criticism was that the calibration adjustments appearing within Exhibit No. 87 that modify the 1993 projected traffic volumes so they match actual counts should have been applied as an adjustment at each traffic assignment iteration and not just at the end of the process. Mr. Savage's position is that if these volume adjustments are not made for the intermediate steps, the v/c ratios will be skewed and the speed adjustments dependent upon them will be wrong, resulting in incorrect assigned volumes. The Department's response to this criticism is that these adjustments are not used for a calibration purpose, but rather for the critical links analysis, and that performing such link corrections at the end of the process is a standard procedure.

77. Mr. Savage also criticized the County for using its old volume delay function values in the model runs instead of the updated values they received from KJS Associates in 1995. The Department's response to this criticism was that the new VDF values were not used for the assignment process because that would have required a total recalibration of the model, but the new values were used to calculate v/c ratios for the TAM scores for the Beaver Crest runs. When the model was recalibrated in 1997, the new VDF values were then programmed into the assignment process. The Department also argues that the "validity of either set of values and their appropriate use is subject to professional judgment".

78. A third criticism leveled by Mr. Savage is that the Department failed to perform sufficient iterations for the assignment model to allow it to reach stable equilibrium values. The Department's response was that its process allows a maximum of 30 iterations, but that the Department has chosen to conclude the process when the iterations reach a maximum final differential between the model and optimum values of 1%. This is more generous than the 1/2% range recommended by the emme/2 manual, but the Department judges the 1% range to produce sufficient accuracy. For the Greens concurrency run the 1% range was reached after 13 iterations.

79. Finally, a fourth assignment error alleged by Mr. Savage was the use of a set of negative trip values for the first Beaver Crest run that had the effect of subtracting 147 peak hour trips from roadway links serving the Sammamish Plateau. The Department's explanation was that because the initial Beaver Crest application was for 672 residential units and the approval total supported by the concurrency run was only 500 units, an adjustment needed to be made to subtract the 172 unapproved units from the concurrency calculation.

80. Without denying the plausibility of some of Mr. Savage's assignment criticisms, we do not find that the Appellants have sustained their burden of proof on these issues. The Department has provided a reasonable explanation of the negative trip value adjustment, and our review of the record does not convince us that the other criticisms resulted in demonstrably incorrect TAM calculations. We reach a similar conclusion with respect to Mr. Savage's assertion that 45 links with assigned trips were excluded from the TAM calculations for the initial 500 unit Beaver Crest run. The Department denies that 45

links were incorrectly coded in the model and avers that "the Department cannot find any evidence that the 45 links were omitted or coded incorrectly." Since this dispute simply devolves into conflicting assertions put forward by Mr. Savage and the Department without any objective basis offered for preferring one over the other, the Department is entitled to prevail because the Appellants have failed to meet their burden of proof.

h. TAM test comparisons

81. Another area of comparison both suggested by the Appellants and the data itself concerns the anomalies which seem to exist between the November 1995 concurrency run that approved 500 units for Beaver Crest and the second 247 unit run performed in March 1996. Because the March 1996 run would presumably have some five months more of background traffic accounted for than the November 1995 run, one might expect the model to predict higher total traffic volumes in 1996 for key arterials serving the Sammamish Plateau.

In fact, the opposite seems to be true. For almost every critical arterial, the volumes projected in the 1996 run are lower than those predicted in 1995. Moreover, the differences cannot be attributed to distribution shifts from south to north (or vice versa) along the major access corridors. For example, at the north end of the Plateau the projected volumes dropped from 1995 to 1996 a total of 93 vehicles on SR 202 west of 204th Place Northeast, just under 5 vehicles on East Lake Sammamish Parkway south of SR 202, and 63 vehicles on 244th Avenue Northeast south of SR 202. By comparison, the predicted volumes on the south end of the Plateau from 1995 to 1996 show a reduction of 328 vehicles on East Lake Sammamish Parkway north of Southeast 56th Street and a decrease of 36 vehicles on Issaquah-Fall City Road east of East Lake Sammamish Parkway.

82. The one place where this trend is reversed is on Sahalee Way south of SR 202, where an increase of 42 vehicles is projected between 1995 and 1996, a figure that corresponds with a similar increase on 204th Place Northeast north of SR 202. One suspects that the increases in traffic from 1995 to 1996 projected for the 204th Place Northeast/208th Avenue Northeast corridor are attributable to trips distributed to the as yet unconstructed Novelty Hill UPDs. If so, the pattern of projected trip reductions along the key access arterials serving the Plateau predicted by our earlier discussion of trip distribution errors as a function of the incorrect modeling of productions and attractions for unincorporated areas *vis a vis* nearby cities appears substantiated. The Appellants' comparison of total modeled volumes for the Plateau showing a drop from 1995 to 1996 appears as Exhibit No. 122. Overall, if one compares all access points for the Plateau during the PM/peak hour, there appears to be a net decrease of 255 vehicle trips predicted by the 1996 run as compared to the 1995 run.

83. A related comparison involves the link located on Inglewood Hill Road just east of 228th Avenue Northeast. Here one not only sees a volume drop from the 1995 Beaver Crest concurrency run to the later run in 1996, but also the traffic volumes on this link are vastly disproportionate to those shown for adjacent links. For example, the peak hour PM eastbound traffic flow on the link identified above is shown within the 1996 concurrency run to be 164.42 vehicles. The link on Inglewood Hill Road directly to its west in contrast shows as eastbound volume of 1,543.6 vehicles, a more than 900% increase. Since the high volume link feeds directly into the low volume link with only

216th Avenue Northeast intervening, a radical shift in total vehicles seems improbable, even accounting for losses to suburban neighborhoods north and south and trip chaining effects to the shopping centers located at the Inglewood Hill/228th Avenue Northeast intersection. Although again one can merely speculate as to the reasons, a possible cause for the inconsistent adjacent volumes is zonal centroid loading errors.

84. Finally, with respect to comparing the 1995 and 1996 Beaver Crest concurrency runs, Mr. Savage has offered a few further criticisms that may be potentially significant, but which are difficult to evaluate on this record. First, he suggests that the Department used a substantially different set of calibration factors for the 1996 247-unit run than for the earlier 500-unit run, with the consequence of "drastically" reducing the trips on the Plateau. He also alleges that the Department used a different set of macro instructions for the two computer runs, an action which presumably would have the effect of producing differing results from similar data inputs. The problem with these criticisms is that even if they are true, one cannot say with any certainty which set of assumptions is better and which is worse. The Department agrees that these changes were made, but argues that they were warranted by the existence of updated information, including additional background growth and CIP projects, link length corrections, and various other adjustments. On balance, no firm conclusions can be drawn from these admitted differences between the 1995 and 1996 runs, and the Appellants have not sustained their burden of proof to demonstrate that any of them constitutes technical error.

85. Exhibit No. 104 displays percentage trip distribution totals for four projects similarly situated on the central Sammamish Plateau as shown in concurrency tests performed in 1995 and 1996, three within zone 405 and one in zone 414 to its southwest. Mr. Savage's point is that these distribution percentages for concurrency runs related in time and location show erratic patterns of distribution, particularly with respect to the overall northbound/southbound split. At the upper end, the original 1995 500-unit run for Beaver Crest in zone 405 shows 77.9% of PM/peak hour traffic using the arterial system north of the site, as compared with a 41.7% northbound percentage from zone 414 in a September 1996 concurrency run. The problem with these comparisons is that there are simply too many variables that might account for the differences, with the addition of the 228th Avenue CIP to the arterial network inventory in 1996 being the most obvious. Given the range of variables involved, one simply cannot say with any certainty which of these distributions is preferable to any other, or which is worse. Therefore, one cannot draw any reliable conclusions as to the significance of the variations shown. On the other hand, it is worth noting that even small percentage shifts in the trip distribution pattern have enormous modeling implications, both in terms of cumulative traffic volumes as well as for individual critical link tests, where the amount of traffic a proposal sends to a congested arterial can mean the difference between passing and failing a TAM concurrency run.

i. Critical links

86. The second part of the TAM procedure that every development proposal must pass to receive a concurrency certificate is the unfunded critical links test. Mr. Savage in his presentation on behalf of the Appellants disdained to perform a critical links analysis for the Beaver Crest certificates because he felt that he had already established that the underlying modeling assumptions were unreliable. If one establishes, for example, that serious errors have been committed in modeling regional trip distribution and arterial

network capacity, both the project site trip figures and the v/c ratios necessary to the unfunded critical link test will lack the validity required to support any further level of analysis.

Nonetheless, an important unfunded critical link issue affecting the Beaver Crest proposals has been raised by Novelty Hill area resident Joseph Elfelt. Because this issue relies on ordinance interpretation rather than mathematical certainty, it merits discussion independent of Mr. Savage's critique: it falls outside the realm of technical error and within the category of potentially arbitrary and capricious official action.

87. KCC Chapter 14 requires the performance of a critical link test but only provides a bare outline as to how it is to proceed. KCC 14.65.020.C.1 describes unfunded critical links as being "the existence of roadways critical to the zone's access not funded for improvement in the committed network." The ordinance does not identify the corridors subject to the critical link test but delegates such responsibility to the Department under its rule-making authority. Where unfunded critical links have been identified by administrative rule, the second portion of the TAM test is to be applied to any such link that has "a volume to capacity ratio of 1.1 or more, and which would carry more than 30% of the zone traffic from a residential development." If a critical link having a v/c ratio of 1.1 or greater is found to exist, "any proposed development which sends at least 30% of its trips to that critical link shall be deemed to fail the concurrency test until the critical link is improved." Finally, Section 14.65.020 restricts application of the unfunded critical link test to roadways in unincorporated King County and those identified within a city pursuant to an interlocal agreement.

88. As identified by the current public rules, the corridors subject to the critical link test that carry significant amounts of Sammamish Plateau traffic include, on the north end, SR 202 from SR 520 to Sahalee Way, and East Lake Sammamish Parkway from SR 202 south to Inglewood Hill Road. Critical links serving the south end of the Plateau are the Issaquah-Fall City Road and East Lake Sammamish Parkway corridor from the Issaquah-Pine Lake Road south to I-90, and SR 900 from the I-90 interchange to the Renton city limits. Finally, the central north/south arterial spine of the Plateau running from SR 202 in the north to Issaquah-Fall City Road in the south is also listed as a critical link, which corridor comprises Sahalee Way, 228th Avenue, Southeast 43rd Way and East Lake Sammamish Parkway.

89. An important issue of ordinance interpretation arises from the fact that TAM critical link scores are computed on the basis of PM/peak hour volumes that reflect a peak direction dynamic. It is seldom, if ever, the case that an arterial roadway will experience equal levels of congestion in both directions. Rather it is the peak direction that will operate at an unacceptable level of service, with the off-peak direction being less problematic. Obviously, for the unfunded critical test to be a meaningful exercise, the focus must necessarily be on the peak direction volumes. If a critical link v/c ratio were computed as the average of the ratios in both directions, then arterial links which operate at an unacceptable level of service in the peak direction would be excluded from TAM analysis based on the lower two-way average.

90. The Department has responded appropriately to this lack of essential detail within the ordinance by informally specifying that the v/c ratio to be analyzed for any critical link is the peak direction only. The issue arises from the fact that the Department in the name of

symmetry has extended the peak direction interpretation to the 30% project traffic threshold. As interpreted by the Department, the unfunded critical link test is applied only to roadway links where the project under review sends 30% of its total PM/peak hour traffic to the link in the peak direction. This means that the off-peak traffic is ignored in the application of the 30% threshold. Thus, if a project in fact contributed nearly equal amounts of traffic to the peak and non-peak directions but each directional total was below 30%, the critical link test would not be applied to such project even though the total of two-way traffic contributed to the link approached 60% and the peak direction v/c greatly exceeded 1.1.

91. This is an incorrect interpretation of the unfunded critical link requirement provided by the ordinance. The threshold terminology in KCC 14.65.020 speaks to a development sending "at least 30% of its trips" to a critical link and refers to links that "carry more than 30% of the zone traffic from a residential development." Both of these terms clearly point to the total peak hour traffic from a proposed development and not merely its peak direction traffic.

We do not agree that the requirements of symmetry mandate the interpretation offered by the Department. The 30% threshold is not an analytical tool essential to the TAM calculation; it is a political yardstick for assigning responsibility between the public and private sectors. As such, it bears no integral relationship to the TAM calculation and is capable of being rationally applied as an independent requirement. The proper interpretation of the critical link test is to calculate the 30% threshold on the basis of the total PM/peak hour trips generated by the project in both directions but to apply the TAM critical link test on the basis of the v/c ratio for the peak direction link flow. The interpretation of the 30% threshold requirement employed by the Department is inconsistent with the language and intent of the ordinance and as such is arbitrary and capricious.

92. Although we agree with Mr. Savage that the existence of significant modeling errors will render the unfunded critical link test speculative, we also observe that under the data assumptions used by the Department in its initial 500-unit run the critical link test should have been deemed failed by the Beaver Crest application. As noted by Mr. Elfelt, at that time the CIP upgrading 228th Avenue to four lanes had not yet been committed for funding, and based on the existing configuration at least one link south of the project on 228th Avenue Southeast was predicted to have two-way volumes greater than 30% of the peak hour project total with v/c ratios in excess of 1.1. Having said that, it is also appropriate to note (as pointed out by the Applicant's attorney) that with the addition of the 228th Avenue CIP in 1996 to the roadway network inventory, these same v/c ratios fell to levels well below 1.1. Had it been resubmitted in 1996 the original Beaver Crest application would have passed the test for these same links as performed by the Department under the revised CIP assumptions.

II. Intersections

93. The second major component of the County's Integrated Transportation Program implicated in the public review process of development permit applications is the Intersection Standards contained at KCC Chapter 14.80. The provisions of this Chapter seek to assure adequate levels of service, safety, and operating efficiency at intersections directly impacted by proposed new development. A significant adverse impact for the

purposes of the Chapter is defined as an intersection that provides access to a proposed development, functions at a level of service worse than E, and will carry 30 or more peak-hour project trips also comprising at least 20% of the new traffic generated by the project during that peak hour. A project that will create a significant adverse impact at an intersection under review is required under KCC 14.80.040 to mitigate such impacts to either a better than LOS F condition or to provide improvements which will allow it to function at no worse than its pre-project condition.

94. Most of the traffic-related conditions that have been imposed on the Greens and Bordeaux proposals under SEPA authority are based on Intersection Standards requirements. As documented within a revised traffic impact analysis by Transportation Planning & Engineering, Inc. dated February 23, 1998, the Greens proposal is projected to generate 1,857 average daily trips with peak hour totals of 142 in the AM and 186 in the PM. Bordeaux, pursuant to its April 1997 traffic impact analysis, will contribute 715 average daily trips, with an AM/peak of 54 trips and a PM/peak of 67 trips based on a daily trip generation of 5.86 established by ITE for condominium and townhouse development. Based on site arterial access from Southeast 8th Street at 228th Avenue Northeast, both traffic impact analyses distribute 63% of site traffic northbound and 37% southbound.

95. The Appellants' treatment of issues under the County's Intersection Standards has been clearly a secondary priority compared with their elaborate analysis of the concurrency model. The Appellants' Intersection Standards effort got off to a shaky start through their initial reliance on a traffic engineer from Maryland, Dr. Everett Carter, who submitted a written report based on his review of video tapes provided to him. Without belaboring the matter, Dr. Carter never became familiar enough with the site, the Plateau, or County procedures to enable him to do more than raise basic questions. The assumptions of Dr. Carter's analysis were easily refuted both by Mr. Bishop on behalf of the Applicant and by Gary Samek of the County Department of Transportation. The Appellants' efforts in this area did not become a serious factor until rather late in the process when they recruited to their cause a northern Plateau resident, James Edwards, who is employed in Bellevue as a traffic engineer.

96. Although administered separately, the Intersection Standards and the TAM calculations are two aspects of a single descriptive system, one element providing an analysis of roadway linkages and a second of the intersections which serve these linkages. Further, the intersection analysis occurs within a framework that is largely determined by the concurrency process, which supplies background traffic volumes, a trip distribution pattern and roadway capacity values. Although the relationship is not simple, one normally expects to see some consistency between high link v/c ratios and levels of congestion at adjacent intersections.

97. There are, as well, some important differences between these two components of the Integrated Transportation Program. Among these differences are the fact that the Intersection Standards are more explicitly impact-based and their substantive authority specifically defined in SEPA terms. This has led to a bifurcated intersection analysis threshold of 20% of project trips during the measured peak hour which constitutes not less than 30 vehicle trips. As has been discussed in detail elsewhere (see Northridge UPD Report and Recommendation, June 28, 1996), this hybrid threshold is an awkward one to the extent that a minimum percentage requirement is not purely impact-based and

therefore of questionable value as a SEPA standard. Another major practical difference is that passing the TAM test is a pre-condition to filing a development application, whereas the Intersection Standards analysis forms part of the application review process. Finally, an important distinction between the Intersection Standards and the TAM analysis is that TAM scores are computed only for the PM/peak hour while the Intersection Standards are applicable to "any one hour period", which includes the AM as well as the PM/peak.

98. Before moving to the consideration of specific locations, it is perhaps useful to identify certain relevant interjurisdictional issues. At both its north and south ends the Sammamish Plateau arterial network feeds into a regional system under the control of either the State Department of Transportation or the incorporated cities of Redmond on the north and Issaquah on the south. In each case the primary responsibility for mitigating traffic impacts shifts from the County to another governmental agency. On the north end of the Plateau primary mitigational authority lies with the State Department of Transportation for SR 202 and with the State and the City of Redmond jointly for the intersection at SR 202 and East Lake Sammamish Parkway. In like manner, at the south end of the Plateau where the unincorporated area arterial system feeds into the I-90 corridor, certain key interchanges are both within the City of Issaquah and provide access to the State highway system.

99. From a substantive standpoint, the review process followed by the County Department of Transportation under the Intersection Standards is to identify a proposal's significant adverse impacts under KCC 14.80.030, and where such impacts occur at intersections within the unincorporated area, to require appropriate improvements as mitigation under authority of KCC 14.80.040. Where an interjurisdictional agreement exists such as that with the Washington Department of Transportation, the process may also require the Department to act as a conduit for mitigation payments to another jurisdiction. But where interjurisdictional agreements do not exist, the County lacks substantive authority to mitigate impacts outside the boundaries of the unincorporated area.

100. A problem arises from the fact that SEPA has both informational and substantive roles to play, and the informational function of SEPA is not limited by jurisdictional boundaries. As stated in WAC 197-11-060(4)(b), "in assessing the significance of an impact, a lead agency shall not limit its consideration of a proposal's impacts only to those aspects within its jurisdiction." Thus, the County's informational role under SEPA is broader than its substantive role. It must identify the significant adverse environmental traffic impacts that projects within the unincorporated area will cause to facilities and resources in other jurisdictions, even though it has no direct authority to mitigate such impacts. This disparity between the County's informational and substantive roles under SEPA has become a weakness in the County's transportation review process, which understandably focuses on the mitigation of impacts within the scope of County substantive authority and increasingly neglects those impacts which it has no power to correct.

This trend continues to occur despite a strong policy within the Growth Management Act ("GMA") in favor of regional solutions to regional problems. Although the transportation section of the County-wide Planning Policies adopted in support of the GMA (as summarized within Ordinance 11446) identifies both the need for regional coordination and a number of strategies for joint agency action, such clearly identified

goals as common level of service standards and impact fee coordination have yet to be successfully implemented.

101. Since the informational function of SEPA requires the County to assess traffic impacts from projects under review as they may affect other jurisdictions, the question arises as to what standards should be applied to these extra-jurisdictional impacts in the absence of an interlocal agreement. The Integrated Transportation Program is clear on this point. KCC 14.65.020.D.3 states unconditionally that "the intersection standard for all intersections shall be "E" as required by the IS chapter and calculated according to the most recent Highway Capacity Manual, or approved alternative method." In the absence of an interlocal agreement, no basis exists within the King County Code for the application of any traffic level of service standard or methodology other than the County's own procedures.

This is also consistent with RCW 43.21C.240(5), which states that an assessment of whether an adverse environmental impact has been addressed by another jurisdiction's standards shall be based on actual consultation and agreement, and with the policies of the Comprehensive Plan. Even if an interlocal agreement with another agency may exist, such fact does not relieve the County of its obligation consistent with the Growth Management Act and Comprehensive Plan policies T-402 and T-403 to assure that transportation concurrency will actually be met, either by improvements in place at the time that new development impacts occur or by a firm financial commitment "to complete the improvements, strategies and actions within six years."

102. The analysis provided on behalf of the Appellants by Mr. Edwards has focused primarily on the intersections located within the northern portion of the Plateau that transport traffic to and from the Redmond area and to the SR 520 corridor. An arterial loop exists that conveys traffic from the Plateau and eventually channels it all into a single link on SR 202 west of its intersection with East Lake Sammamish Parkway. A description of this loop beginning at its northwest corner at the SR 202/East Lake Sammamish intersection includes an east leg running along SE 202 to the intersection with Sahalee Way Northeast, then southeast to where Sahalee Way merges with 228th Avenue, and continuing south along 228th Avenue to Northeast 8th Street. The southern arc of the loop begins at the SR 202/East Lake Sammamish Way intersection and runs south along the eastern shore of Lake Sammamish to Inglewood Hill Road, then east on Inglewood Hill Road to its intersection with Northeast 8th and 228th Avenue.

103. While the County has a major CIP project committed for construction on 228th Avenue south of Northeast 8th Street, only minor upgrades are anticipated in the near future for the northwest loop described in Finding No. 102. Except adjacent to major intersections, this portion of the arterial network remains largely the same two-lane rural road system that was created long before the Sammamish Plateau was redesignated for high density urban development. The Intersection Standards analysis for the Beaver Crest applications has concentrated in varying degrees of detail on the congestion issues attendant to traffic impacts within this still mostly rural arterial loop, and particularly upon its eastern segment encompassing SR 202, Sahalee Way and 228th Avenue Northeast. The major part of northwest-oriented Beaver Crest traffic has been assigned to this easterly arc of the loop, with the consequence that Intersection Standard thresholds are anticipated to be exceeded in this portion of the network.

104. The southeast node of this loop is the intersection of 228th Avenue with Inglewood Hill Road and Northeast 8th Street. The analysis of level of service impacts at this location is complicated by the fact that the 228th Avenue CIP approaching from the south is programmed to stop short of the intersection itself. As a result, responsibility for the intersection upgrades necessary to accommodate rapid new development has been assigned through SEPA conditions to individual projects proposed along the various intersection frontages. Construction of Beaver Crest and other projects to the south have been conditioned upon prior completion by private parties of these upgrades scheduled for the 228th Avenue/Northeast 8th Street intersection.

105. In King County, intersection level of service is required by ordinance to be calculated according to the standards set within the Highway Capacity Manual, unless an alternative method has been approved by the Department of Transportation. According to HCM Table 9-1, a level of service F exists when the average stopped delay per vehicle for the intersection as a whole exceeds 60 seconds. Although the County has not abandoned the level of service criteria set out in Table 9-1, it has found that the HCM-based software is of limited usefulness because it is incapable of modeling intersections where some movements may exceed a v/c ratio of 1.2 or a stopped delay in excess of 120 seconds. This limitation derives from the fact that the underlying HCM equations are designed to analyze a single 15 minute period and cannot accommodate a carry-over of delayed vehicles from one 15 minute segment to the next. In response to this problem, the Department has begun to use software known as Signal 94 for modeling congested intersections where there are movements with long delays or high estimated v/c ratios. But the Signal 94 program contains its own limitation, which is that it generates a total intersection delay figure (including acceleration and deceleration), not the stopped delay average required by HCM Table 9-1.

106. This newly-adopted process of using Signal 94 software to derive conclusions that fit HCM standards has produced a confusing hybrid of data as well as substantial technical dispute. For the intersection of 228th Avenue at Northeast 8th Street and Inglewood Hill Road, for example, the Signal l94 software shows six of eleven intersection approaches (after intersection upgrades and with pipeline traffic through March 13, 1997) to be functioning at v/c ratios in excess of 1.0. For the south approach it also calculates a maximum queue length of 1,320 feet. The Signal 94 total delay for this intersection is 68.6 seconds, which figure Mr. Bishop has struck out on the worksheet and replaced in the margin with 52.8. This new figure represents total delay factored down by a devisor of 1.3 to determine stopped delay.

The Appellants have challenged both the appropriateness of using the Signal 94 software and of the *ad hoc* adjustment to the total delay figure. Mr. Edwards has also argued that the sheer length of the 1,320-foot maximum queue calculated for the southern approach is intuitively inconsistent with the finding of an acceptable level of service. In support of his viewpoint, he analyzed this intersection using the HCM software and assuming Mr. Bishop's data and his optimized signal timing. Under these assumptions, he computed a level of service F for the westbound lane, with v/c's in excess of the software capacity for the northbound and southbound lanes. Mr. Edwards interprets v/c's in excess of HCM software capacity as indicating a probable LOS F.

107. Moving northward along the 228th Avenue corridor, perhaps the most extensively studied intersection is that at Sahalee Way and SR 202, which has been identified as experiencing

congestion problems in both the AM and PM/peak hours. Although this is a "T" intersection with no northern leg, morning LOS issues arise out of the fact that the predominant movement is the northbound left turn from Sahalee to SR 202, currently a single lane which must accommodate a handful of right turns as well. In his most recent evaluation of this intersection, Mr. Bishop, using the Signal 94 software program, modeled the AM/peak hour with project at an average total intersection delay of 75.7 seconds, which he reduced to 58.2 seconds by dividing it by 1.3. Within the heavily traveled southern approach the calculated v/c ratio was 1.29 and the average per vehicle delay 123.7 seconds. This converts into a calculated maximum queue length for the southern approach of 2,415 feet, which is just less than one-half mile in length.

For the same AM/peak hour conditions using the optimized signal timing with the HCM software, Mr. Edwards obtained v/c ratios slightly in excess of 1.4 for both the eastbound-through and the northbound left turn movements, with the level of service calculation deemed infeasible because of the high values. Supplemented by his personal experience that the AM northbound queues along Sahalee Way waiting to make a left turn onto SR 202 now often reach the 2,000 foot range, Mr. Edwards interprets this data to indicate an overall operation of level of service F.

108. The AM/peak hour at SR 202 and Sahalee Way is also informative as an example of the variety one may find among ostensibly comparable traffic studies. For example, the Three Willows traffic study that was originally done in June 1995 for the subdivision just west of the Greens, predicted a background level of service F at the Sahalee Way/SR 202 intersection in the AM/peak hour based on northbound traffic volumes of 879 vehicles. This study was then revised in February 1996 consistent with the County's traffic concurrency model to reflect a different trip distribution and new land use data. Under the revised trip distribution, higher percentages of traffic were assigned to the northern routes as opposed to the southern. This resulted in a revised volume for Sahalee Way at SR 202 in the AM/peak hour with project of 911 vehicles in the northbound movement. But even though the volume figures are greater, the revised study shows LOS D at this intersection in the AM/peak hour instead of LOS F as previously described. By comparison, Mr. Bishop's latest calculations for this intersection show 1,212 vehicles in the northbound movement during the AM/peak hour with an overall intersection level of service of E.

109. A similar controversy surrounds the level of service calculations for SR 202 at Sahalee Way during the PM/peak hour. Here the critical movement under analysis is the right turn from SR 202 eastbound to Sahalee Way southbound. Currently there is only a very short right turn pocket on SR 202 at Sahalee Way, with the consequence that when the through-traffic eastbound is stopped at the red light, it blocks access to the right turn lane for vehicles wishing to go south on Sahalee Way. Pacific Properties has offered to extend the right turn lane on SR 202 back from Sahalee Way a distance of approximately 600 feet. Further extension of the right turn lane is constrained by a bridge on SR 202 that crosses over sensitive areas. It is clear that construction of this new right turn lane will increase the amount of traffic that will be able to make a free right turn onto Sahalee Way when eastbound through-traffic is stopped. The precise quantification of this benefit remains, however, the subject of debate.

110. The problem arises from the fact that the maximum queue lengths predicted by the Signal 94 program along the western approach to the SR 202/Sahalee Way intersection exceed

600 feet both for the right turn and through movements. The right turn movement shows a maximum queue length of 1,112, feet while the through lane figure is 1,408 feet. Mr. Bishop's testimony is that the maximum lengths are twice the average lengths, which leads him to conclude that the blockage phenomenon should only occur near the end of the red cycle. In any event, the right turn lane length limitation was not a factor that the Signal 94 program could accommodate, and its level of service projections and delay totals are based on the assumption of unlimited traffic access to the right turn lane. Based on this assumption, the Signal 94 program optimizes to a total intersection delay of 64.4 seconds, which when divided by 1.3 reduces to 49.5 seconds. Under signal optimization the most constrained movement becomes the northbound left turn, which is assigned a v/c ratio of 1.14 and an average delay of 94.4 seconds. This allows the westbound approach to operate at a v/c ratio of 1.11. By comparison, running the HCM program with signal optimization Mr. Edwards shows v/c ratios slightly in excess of 1.1 on both the northbound left turn and eastbound-through movements, with the delays on these movements being beyond the software's capacity to calculate.

111. The credibility of Mr. Bishop's estimation that access to a 600-foot long right turn lane serving the SR 202/Sahalee Way intersection will clear sufficiently during green time that the turn lane will work at a high level of efficiency appears to be further compromised by data bearing on the operation of the SR 202/204th Place north intersection located some 4,000 feet to the west. According to Mr. Bishop's calculations, this nearby intersection during the PM/peak hour will operate at a v/c ratio of 1.21 and an average vehicle delay of 91 seconds for the west approach, while the north approach (optimized to receive only nominal green time) would show a v/c ratio of 1.69 and an average delay of 230 seconds. Under this signal optimization, the maximum queue length for the west approach would be 2,837 feet and for the north 632 feet.

These figures suggest that in reality there may be very little gap in the eastbound PM/peak flow between 204th Place and the SR 202/Sahalee Way intersection. Looking at these two intersections together, it seems probable that during red time for eastbound traffic on SR 202 at Sahalee Way the available gaps will quickly be filled from the backlog at 204th Place. If so, the consequence would be that access to the right lane may be more constricted by its 600 foot length than Mr. Bishop has suggested. We also note that the eastbound link on SR 202 between 204th Place Northeast and Sahalee Way is one for which the March 1996 TAM analysis assigns a v/c ratio greater than 1.7.

112. It is recognized by all observers that the two-lane rural highway serving SR 202 west of Sahalee Way needs to be upgraded to a five-lane section. Current information is that of the $40,000,000 required to do a full SR 202 upgrade, perhaps 20% of that sum may be generated by Referendum 49 if it is passed by the voters in November. In addition, Beaver Crest and other Plateau developments have signed agreements with WSDOT to pay mitigation fees toward this project. Even so, the design phase for the project typically can be expected to take about six years, and no construction improvements to SR 202 of a major nature can be anticipated within the concurrency time frame.

113. The northwest hub of the arterial loop serving the northern Sammamish Plateau is the intersection of SR 202 and East Lake Sammamish Parkway. Here the two flows of morning traffic from the Plateau heading to Redmond, Bellevue and Seattle converge, and in the evening at this location the traffic splits into two flows to return to the Plateau. Jurisdiction for this intersection is shared by the State, which has authority over SR 202,

and by Redmond, within whose corporate boundaries both the intersection and the East Lake Sammamish Parkway and 180th Avenue Northeast approaches lie. Distribution patterns predict that somewhere near 30% of the Beaver Crest traffic will pass through this intersection, with the SR 202 leg projected to have the greater flow.

114. Despite its critical role as the valve regulating traffic flows to and from the northern part of the Plateau, the SR 202/East Lake Sammamish Parkway intersection has not generated much official interest within the Beaver Crest review process. Although meeting Intersection Standards' thresholds, it receives no mention in the various traffic analyses performed for the two Beaver Crest applications. Even after the Examiner specifically requested further information, all the Department of Transportation could generate was a 1997 PM traffic count performed by Redmond according to its Circular 212 methodology. This methodology is not based on the Highway Capacity Manual, but rather uses a critical lane approach which does not model intersection complexity or nearby arterial friction. In addition, the Redmond count was for July, a typically lower than average traffic volume month.

115. The PM/peak hour level of service calculated by Redmond according to its Circular 212 methodology was LOS D. It is generally agreed that this level of service does not translate into HCM terms. Mr. Edwards performed a PM level of service analysis for the East Lake Sammamish Parkway/SR 202 intersection based on HCM procedures for the future with project condition and optimized signal timing. Using data assumptions based on Redmond counts, Mr. Edwards calculated the intersection to operate in the PM/peak hour at level of service F. His conclusions are consistent with the Three Willows study done in 1995, which showed an existing condition LOS F at the East Lake Sammamish Parkway/SR 202 intersection under traffic volume assumptions approximately equivalent to the Redmond counts. In addition, some contextual information bearing on the evening peak hour is supplied by the March 1996 Beaver Crest TAM calculation, which projects a PM/peak hour v/c ratio on SR 202 just west of East Lake Sammamish Parkway of 1.76, and by testimony from Mr. Edwards that PM/peak hour traffic often backs up along SR 202 from East Lake Sammamish Parkway to SR 520.

116. Recent data for the AM/peak hour at East Lake Sammamish Parkway/SR 202 is even more difficult to come by. For the morning peak hour major delays may be experienced both within the northbound left turn movement onto SR 202 as well as for westbound through traffic. Useful recent information is contained within a July 9, 1998, memorandum by traffic engineer Gary Norris submitted for another project located in the southern part of the Plateau with a 1995 vesting date (Exhibit No. 173). Based on Redmond data, this memorandum shows the AM/peak hour for the intersection at level of service F while the PM/peak is calculated at level of service E.

117. The most persuasive evidence for a serious state of congestion at the SR 202/East Lake Sammamish Parkway intersection is perhaps that found in certain narrative descriptions which appear in the record. Where the existing data tends to be somewhat skimpy, these narrative statements are far more emphatic. For example, the Three Willows TIA contains the following description:

> "The intersection of SR 202/East Lake Sammamish Parkway is probably built out to its full extent. Revisions to signal timing do not seem to improve operations at this intersection. It may be possible to slightly improve operations by adding

> turn lanes on the South 180th or East Lake Sammamish Parkway legs. However, the sheer volumes at this intersection make it likely that the intersection will always operate at LOS F. Since no possible mitigation seems feasible, no mitigation is proposed for this intersection by Three Willows."

A similar conclusion was reached by the Applicant's attorney, Bob Johns, within a rather candid February 1998 e-mail forwarded to the County Department of Transportation and obtained by the Appellants under discovery. In discussing the intersection of SR 202 and East Sammamish Parkway, Mr. Johns observes that "it is true that the intersection is at LOS F and it is also true that neither Redmond nor DOT plans to do anything about it because, in their opinion, there is no feasible way to solve the problem at a reasonable cost, and as a major urban intersection, the intersection functions in a tolerable manner."

118. A key consideration in evaluating intersection delays and the levels of service attributable thereto for these northern Sammamish Plateau intersections is whether Mr. Bishop's procedure for converting the total delay produced by Signal 94 software into a stopped delay figure usable with HCM standards is appropriate. The justification for using a 1.3 divisor to convert total delay to stopped delay is based on equation 11-2 which appears on page 11-9 of the current Highway Capacity Manual and is based on research conducted for the Federal Highway Administration in the late 1970s.

119. In evaluating the propriety of using equation 11-2, one notes first that what the HCM actually provides is not the formula for deriving stopped delay from total delay, but rather the reverse, a formula for calculating total delay based on stopped delay. The HCM formula is that total delay equals 1.3 times stopped delay "where the intersection stopped delay is computed in accordance with Chapter 9 procedures."

While it is always possible to solve a formula for the unknown variable, the proviso attached to the use of equation 11-2 is critical. That is because the HCM stopped delay equations are explicitly described as invalid for the high v/c ratios that result from the cumulative carry-over of queue lengths from one fifteen minute analysis segment to the next. According to the HCM, the basic stopped delay formula equation (11-4) is simply invalid for the v/c values higher than 1.0. The alternative formula, equation 11-5, "may be used with some caution" for values in excess of v/c 1.0 so long as there is no queue carryover between 15 minute segments.

120. By definition, the usefulness of the Signal 94 program lies in its ability to provide those intersection delay calculations that are beyond the scope of the HCM stopped delay equations to generate. Moreover, as indicated within a quotation from the Signal 94 manual which appears in Exhibit No. 25, when an intersection v/c value exceeds 1.0 Signal 94 abandons the HCM methodology altogether in favor of a Transyt-7F program that "adds an additional delay component to account for queues which are not entirely dissipated at the end of each green indication." Since the 1.3 conversion factor set out in equation 11-2 is explicitly predicated upon the use of HCM stopped delay equations with their v/c ratio and cumulative queue length limitations, one cannot logically conclude based on the HCM that the 1.3 ratio is a valid conversion factor for intersections demonstrating over-saturated v/c ratios and high cumulative queue lengths. This is not to say that it is theoretically impossible to justify the 1.3 conversion factor on the basis of studies or data not contained in the HCM, but no such external justification has been offered to the hearing record.

121. Moreover, the infeasibility of using the 1.3 conversion ratio for over-saturated conditions is also suggested by common sense. The conversion ratio is predicated on an ideal stopped delay condition bracketed by a single set of transitional deceleration and acceleration movements. In the over-saturated condition, the stop/start phenomena that characterize progression through a congested intersection are not transitional elements at all but more properly described as part of the stopped delay component. If so, the element of transitional delay nearly becomes a constant, while for long queues the stopped delay is capable of indefinite expansion. As the queue gets longer, the stopped delay element increases, and the ratio of stopped to total delay approaches closer to 1.0.

122. We find ourselves, then, presented with a number of key intersections on the northern portion of the Plateau where optimized signal timing still confronts us with v/c ratios greater than 1.0 on critical movements, predictions of maximum queue lengths between one-quarter and one-half mile long, and total intersection delay calculations which exceed 60 seconds unless factored down by a 1.3 divisor based on an HCM equation whose use in such manner is not authorized by HCM procedures. In addition, for the Sahalee Way/SR 202 intersection in the PM/peak hour, the right turn lane operations analysis has been predicated upon unlimited access under conditions where the actual lane length and traffic pressure from the adjacent intersection to the west are bound to be limiting factors. In all instances, high v/c ratios and long queue lengths are supported by projected volumes which clearly exceed applicable saturation flow rates. While further south for the intersection at 228th Avenue/Northeast 8th Street/Inglewood Hill Road links feeding into the intersection show acceptable v/c ratios after construction of the 228th Avenue CIP, signal optimization for critical movements is limited by the fact that relatively high flows are projected for all four approaches.

    Within such context it appears highly probable that level of service F conditions will be experienced in both the AM and PM/peak hours at critical locations on SR 202 between East Lake Sammamish Parkway and Sahalee Way. And it appears reasonably likely but less certain that level of service F conditions will also occur in the PM/peak hour at the 228th Avenue/Northeast 8th Street/Inglewood Hill Road intersection.

123. Although the arterials serving the south end of the Sammamish Plateau also experience a high degree of traffic congestion, the Beaver Crest record contains less information on their performance adequacy owing to the fact that only 37% of site trips have been distributed to the arterial network south of Southeast 8th Street. As this traffic disperses, Beaver Crest volumes fall below the 20% required for County Intersection Standards analysis. Even so, serious level of service conditions have been identified at Issaquah-Fall City Road/East Lake Sammamish Parkway in the PM/peak hour, at Southeast 56th Street/East Lake Sammamish Parkway during both the AM and PM/peaks, at Southeast 43rd Street/East Lake Sammamish Parkway in AM/peak, and at the I-90 ramps during both peak periods.

124. The traffic problems at the south end of the Plateau also are accompanied by more official optimism as to their possible resolution, with developer funded improvements expected to create a major level of service improvement at Southeast 56th Street/East Lake Sammamish Parkway during the morning peak hour. There is also hope that the anticipated Sunset interchange planned for construction on I-90 east of downtown Issaquah by a combination of private developer funds and federal and state money will

eventually provide a connection to the central Plateau arterial network, although no public funds for this expensive final link have been committed. In terms of the traffic volumes projected for the Beaver Crest projects, future level of service calculations would merit further review, particularly at the East Lake Sammamish Parkway intersections with Southeast 56th Street and Southeast 43rd Street, if a higher southbound trip distribution were assumed.

III. Southeast 8th Street

125. Finally, although somewhat lost in the shuffle as the appeal traffic issues expanded to take in the entire Sammamish Plateau arterial network as modeled by the County's Integrated Transportation Program, it should not be forgotten that this process started with the unhappiness of Appellants Scott Hamilton and Stanley Bump with the traffic impacts now occurring on Southeast 8th Street near their homes. Southeast 8th Street is undergoing an awkward and piecemeal transition from a dead end rural road to a major east-west arterial linkage connecting the 228th Avenue corridor on the west and 244th Avenue on the east. Its somewhat haphazard progress stems from different development projects constructing different pieces of the system.

By Mr. Hamilton's estimation, there are some 1,500 units of housing that have been approved by King County for access to Southeast 8th Street (some 1,000 of them being developed by Pacific Properties), and the resultant construction-related heavy truck traffic, often traveling at elevated speeds, generates substantial volumes, noise levels, and safety risks to children beginning early in the morning and often running late into the night. Since the current expectation is that no connection between Southeast 8th Street and the northern portion of 244th Avenue Northeast is likely to be constructed before 2003, for the immediate future all construction and residential traffic into this area of the Plateau will be served by a single arterial access at Southeast 8th Street and 228th Avenue Southeast.

126. Although traffic islands and calming devices of the nature requested by Mr. Hamilton are unlikely to be considered compatible with the arterial destiny of Southeast 8th Street, there is at the very least a need to coordinate construction traffic, limit it to reasonable hours, and evaluate the impacts on existing residents resulting from the single access condition. While many of these impacts may be temporary phenomena, the fact that they will extend over a number of years warrants addressing them in serious and responsible manner.

CONCLUSIONS:

A. SEPA REVIEW FRAMEWORK

1. The basic standard to be applied to the review of a threshold determination appeal is that the SEPA record must demonstrate the actual consideration of relevant environmental impacts. With respect to those relevant impacts shown to be actually considered, the decision of the SEPA official is entitled to substantial weight on review and shall not be overturned unless clearly erroneous based on the record as a whole.

2. Based on common ownership, physical contiguity, an intertwining layout and integrated road and drainage systems, the Greens and Bordeaux applications are for SEPA review purposes a single course of action within the meaning of WAC 197-11-060(3)(b).

3. In 1995 the State Environmental Policy Act was amended as it applies to jurisdictions which plan under the Growth Management Act to allow "requirements for environmental analysis, protection, and mitigation measures" adopted under the GMA to be deemed "adequate analysis of and mitigation for specific adverse environmental impacts of the project action to which the requirements apply." This option provided under RCW 43.21C.240 authorizing local jurisdictions that plan under the GMA to shortcut the SEPA process is hedged by a number of qualifying restrictions, the most fundamental of which are that the local agency must actually consider the specific probable adverse environmental impacts of the proposal, determine that its adopted ordinances and plans adequately address such specific impacts, and base its project approval upon compliance with these mitigation measures.

4. King County has determined to take limited advantage of the option provided by RCW 43.21C.240. KCC 20.44.080.C authorizes an abbreviated SEPA review process within the Urban Growth area with respect to the use of substantive SEPA authority to condition or deny new development proposals. KCC 20.44.080.C lists certain chapters of the zoning code as "regulations to systematically avoid or mitigation adverse impacts" and declares such regulations "will normally constitute adequate mitigation of the impacts of new development". Employment of this option is limited by the proviso that "unusual circumstances related to a site or to a proposal, as well as environmental impacts not mitigated by the foregoing regulations will be subject to site-specific or project-specific SEPA mitigation".

   While the key terms of this limiting proviso have not been defined by ordinance, some guidance to their interpretation is provided at WAC 197-11-158 (3), wherein it is stated that "examples of project specific impacts that may not have been adequately addressed include, but are not limited to, impacts resulting from changed conditions, impacts indicated by new information, impacts not reasonably foreseeable in the GMA planning process, or impacts specifically reserved in a plan EIS for project review."

5. The application of KCC 20.44.080.C is further complicated by other factors as well. First and foremost, many of the chapters within Title 21A that are cited as sources of mitigation requirements are in fact a mixture of mitigation requirements and general development standards. Therefore, the mere fact that a topic is mentioned within one of these cited Title 21A chapters is not conclusive evidence that the provision should be regarded as a mitigation requirement. For example, KCC 21A Chapters 12 through 28 deal, among other things, with density, lot area, lot segregation, mobile home parks, street frontages, signs and other use regulations, and dimensional requirements. In many instances these standards will have only an indirect bearing on impact mitigation. Accordingly, treatment of all Title 21A provisions as impact mitigation *per se* is not warranted by either their structure or their content.

B. NATURAL SYSTEMS

6. Turning to the non-traffic impacts raised by the Appellants, we conclude that the majority of these impacts are in fact treated by the regulatory requirements identified within KCC

20.44.080.C, and that further mitigation under SEPA authority would be inappropriate absent a determination that unusual circumstances exist or that the impacts are not actually mitigated by the regulations at issue. With respect to the protection of wetland and stream functions, the County's Sensitive Areas regulations stated at KCC 21A.24 explicitly undertake to mitigate the adverse impacts of development through a system of protective buffers and restrictions on alterations, including alterations of hydrology and water quality. To the extent that the record demonstrates that the onsite wetlands and streams at Beaver Crest are relatively conventional in nature, no unusual circumstances would appear to be applicable to them. Further downstream, Wetland No. 9 has been called out within the East Sammamish Basin Plan as a resource of regional importance, but the Appellants have made no attempt to identify any unique features of this resource that would be adversely affected by the Beaver Crest developments. Based on the record, therefore, we conclude that there has been no showing of unusual circumstances with respect to the wetland and stream functions subject to impact by these developments.

7. Development impacts to water quantity and quality are primarily mitigated within the Surface Water Runoff Policy provisions of KCC Chapter 9.04, as modified by the various adopted basin plans and a handful of special watershed ordinances. The Surface Water Runoff Policy plus the adopted basin plans have been identified under KCC 20.44.080.B as substantive authority for the imposition of SEPA mitigations, and KCC Title 9 as implemented through the Surface Water Design Manual is identified within KCC 21A.28.050 as a source of authority for the public facilities and services required by the GMA.

   Clearly, there are unusual circumstances that apply to the drainage systems downstream of the Beaver Crest properties as evidenced by the fact that two special SEPA conditions have been formulated within the MDNS to apply to such drainages. First, Allen Lake has been identified as a volume sensitive resource that will be subject to restrictive surface water release requirements under the KCRTS Level 3 methodology. As applied to releases from the Beaver Crest sites to the Allen Lake watershed, this methodology seeks to match peak flows and durations with predevelopment levels up through the 50-year design storm, a requirement which may permit a small increase in flooding durations for unusually large storms but should not contribute to increased flooding durations for more frequent storm events. While some skepticism has been expressed as to the ability of the KCRTS methodology to achieve this goal, no evidence has been produced indicating that in fact it will fail to meet its objective. Accordingly, no significant adverse impact has been demonstrated to Allen Lake and its downstream system from construction of the Beaver Crest proposals.

8. A second unusual circumstance that applies to the westerly basins of the Beaver Crest properties concerns the potential for phosphorus loading to Lake Sammamish. Consistent with the requirements of Ordinance 12992 which override the usual Surface Water Manual water quality treatment provisions, runoff from these basins will be treated pursuant to an MDNS condition to remove 50% of the annual average total phosphorus concentration before discharge by means of one of three options employing combinations of large wetponds and/or sand filters. Although there has been a great deal of discussion of the attainability of the 50% reduction goal, such discussion remains academic for purposes of SEPA analysis in the absence of evidence demonstrating that failure to meet the 50% goal will measurably affect the projected eutrophic status of Lake Sammamish. Without such analysis one can assign no independent importance to the 50% removal

goal because it cannot be causally connected to a significant adverse environmental impact. We also note that paragraph 9 of the preamble to Ordinance 12992 specifically creates a presumption that its treatment standards will adequately mitigate adverse impacts to Lake Sammamish in the absence of a showing of unusual circumstances.

9. Other water quality and quantity impacts have been alleged by the Appellants but are similarly incomplete as to their analytical implications. While water quality treatment in this watershed is driven by the need to reduce phosphorus levels, the heavy metals concentrations discussed by Mr. Klein will necessarily be reduced as well. There is nothing in the record which suggests that the heavy metals released after treatment from the Beaver Crest projects will cause adverse consequences at specific locations to identified resources within the downstream system. In like manner, Wetland No. 9 has been identified as a hydrologically sensitive feature but no attempt has been made to describe adverse hydrologic impacts to Wetland 9 resulting from release of stormwater flows from the Beaver Crest site. Accordingly, while the sensitive nature of Wetland 9 must be acknowledged, there is no proof that the restrictive release rates required for the Beaver Crest proposals will be inadequate to mitigate potential adverse hydrologic impacts to Wetland 9.

C. JURISDICTIONAL ISSUES

10. Analysis of the SEPA and jurisdictional issues arising out of the Appellants' challenge to the County's transportation concurrency management system has been aided by the briefs submitted by the Applicant and Appellants as well as by the two excellent memoranda submitted by the Prosecuting Attorney's Office on behalf of the Departments of Transportation and Development and Environmental Services. While the legal analyses presented are often at odds with one another, they successfully articulate the full range of issues presented by this unusual appeal and have supplied invaluable assistance in their resolution.

11. Our discussion of transportation legal issues logically needs to start with jurisdictional matters. The brief submitted on behalf of the County Department of Transportation argues that Hearing Examiner Rule III.A precludes taking a hard look at the details of the County's transportation concurrency computer model. Rule III.A states that the Hearing Examiner's jurisdiction "is limited to those matters specifically identified in the King County Code or assigned to the Examiner by County ordinance or Council motion." The contention is that use of the term "specifically" acts as a limitation on Hearing Examiner jurisdiction.

    This is an odd argument for the Department to make to the extent that it should be obvious that the Hearing Examiner's procedural rules are not sources of jurisdictional authority. These rules are authorized by Section 8 of Ordinance 11502, which directs the Examiner to "adopt rules for the conduct of hearings." The Hearing Examiner's office is not empowered to define its own jurisdiction. Any discussion of jurisdictional matters contained within Examiner Rule III.A should therefore be regarded as information supplied for contextual convenience. Hearing Examiner Rule III.A does not grant or withhold jurisdiction.

12. A more vital jurisdictional issue arises out of the differences between the Bordeaux and the Greens proposals. The Greens is a preliminary plat application for which a public

hearing is held as a matter of course. Bordeaux, on the other hand, is a commercial building permit application for which no public hearing is required. The jurisdiction for the appeal hearing on Bordeaux arises entirely out of the challenge to the SEPA threshold determination. Since KCC 14.70.080.A provides that "the issue of concurrency may be raised as part of the review process for the development application for which the certificate of concurrency was issued", we read this provision as authorizing review of concurrency for the Greens proposal as part of the plat review process independent of the existence or nonexistence of a SEPA appeal.

13. For Bordeaux, on the other hand, the review process only exists in a public hearing format because of the SEPA appeal. Leaving aside the complications which could arise out of the "single proposal" conclusion recited above, jurisdiction to review the concurrency determination for Bordeaux can only occur within the context of adverse environmental impacts within the meaning of SEPA. What this adds up to as a practical matter is that the propriety of issuing a concurrency certificate to Bordeaux is not reviewable in and of itself, but only as evidence of significant adverse environmental impacts under SEPA. Moreover, while the search for adverse environmental impacts may be informed by the systemic analysis performed under TAM review, it is not limited or defined by it.

14. We agree with Mr. Sinsky who suggests in his memorandum submitted on behalf of DDES that "the impact of a project that violates concurrency requirements of the King County Code would be to both the transportation system and to the County's land use plans." Following this line of analysis, we further observe that a violation of concurrency requirements might be an adverse environmental impact even though it were unclear that a level of service F condition would result. This is because the Comprehensive Plan transportation policies for the Sammamish Plateau seek to maintain a TAM average which is no worse than LOS D, and a substantial failure to meet this planning target may comprise a significant adverse impact even though the level of failure may not sink to LOS F.

    We also note that the Integrated Transportation Program adopted by King County is a unified analytical process containing both arterial link and intersection components, and any conclusion that significant adverse environmental impacts to transportation or land use will occur as the result of a proposal may involve an analysis that includes components derived from both parts of the County's regulatory system, as well as relevant information that the Integrated Transportation Program fails to recognize. This broad scope of impact analysis is implicit in the statutory framework for SEPA as well as within those provisions of Chapter 14 which disclaim an intent to limit SEPA authority. A global analytical framework is also implicit in the SEPA mandate to consider a proposal's impacts as they may occur beyond the boundaries of the reviewing agency's jurisdiction, even though the regulatory focus of that agency will necessarily be upon those impacts which it has authority to mitigate.

15. As elaborated above in Findings No. 35 and 36, consideration of jurisdictional authority from the standpoint of SEPA also clarifies the issues surrounding the assertion that the Hearing Examiner lacks jurisdiction to evaluate the assumptions underlying the County's traffic concurrency computer model. While the Department may be correct in its assertion that review of a concurrency certificate under authority of KCC 14.65.040 is necessarily predicated on affirmative presumptions concerning the legitimacy of the

model as an analytical tool, SEPA jurisdiction both justifies a broader inquiry and imposes a higher review standard. SEPA imposes upon an appellant the twin burdens of demonstrating the existence of a significant adverse environmental impact and proving that the responsible official's conclusion to the contrary was clearly erroneous. The other side of the coin is that if a significant adverse environmental impact is shown by the evidence to exist, it is not a defense to such a finding that the County has adopted a computer model which is programmed to generate a different conclusion.

D. TRANSPORTATION AND LAND USE

16. This brings us to the question of the relationship between the Integrated Transportation Program set out in KCC Chapter 14 and the presumptions concerning SEPA mitigation which are stated at KCC 20.44.080.C. As noted in Conclusion 4 above, this ordinance section limits the use of substantive SEPA authority to condition or deny development proposals to those situations where specific adverse environmental impacts have not been addressed by applicable regulations, or unusual circumstances are found to exist. Among the Chapters listed in KCC 20.44.080.C as containing "standards and regulations [that] will normally constitute adequate mitigation of the impacts of new development" is KCC Chapter 21A.28, dealing with the adequacy of public facilities and services. KCC 21A.28.060.A reads as follows:

> "All new development shall be served by adequate roads. Roads are adequate if the development's traffic impacts on surrounding public roads are acceptable under the level of service standards and the compliance procedures established in KCC Title 14."

17. As applied to the instant appeal, the provisions of KCC 20.44.080.C do not operate to preclude or significantly limit the scope of review of transportation issues. First, by its terms KCC 20.44.080.C only applies to the exercise of SEPA substantive authority, whereas we are here focused upon the informational and procedural SEPA functions. Second, to the extent that any transportation facilities impacted are under the jurisdictional control of governmental entities other than King County, County standards and regulations do not purport to be the primary source of mitigation authority. Third, the essential findings underlying this review lead to a conclusion that the level of service requirements of KCC Title 14 and its compliance procedures have not been met, thus negating the condition precedent for invocation of KCC 20.44.080.C. In this respect, see also the requirements stated at RCW 43.21C.240 and WAC 197-11-158.

18. Turning to the County's concurrency computer model itself, the thrust of the Appellants' case is not so much that the fundamental modeling concepts are invalid as that the data fed into the computer model after its adoption has been incomplete and unreliable. The model itself appears to be a sophisticated and even elegant construct fully capable of providing useful traffic forecasting results. If any theoretical criticism were to be offered, it would probably be that its thresholds for determining when a project proposal falls under its requirements are poorly integrated into its design. The percentage thresholds have no theoretical underpinning but are merely political constructs. Accordingly, any effect that they may have on metering the pace of development approval so that it conforms to the rate of infrastructure construction is purely accidental. In addition, as elsewhere noted, a percentage threshold approach makes for an uneven distribution of

mitigation responsibility when viewed from an absolute impact perspective and thus provides an awkward mechanism for SEPA analysis.

19. These design shortcomings, however, are not a factor in the instant outcome. As demonstrated by the Beaver Crest record, the essential problem faced by the Department of Transportation is that the level of complexity built into the model results in an insatiable appetite for new data. The model seeks to compute a mathematically precise TAM factor for each of the 400+ MPS zones into which the County has been divided within a dynamic context that requires the constant updating of data relating to land use, pipeline approvals, and transportation and facility improvements. The model's goals are laudable but have generated the necessity for a never-ending flow of data inputs that may be beyond the realistic capacity of a single local jurisdiction to achieve. This does not mean that the model is flawed from the theoretical standpoint, but rather that the practical challenges to keeping it current may be insurmountable.

20. A fundamental conclusion of the Beaver Crest appeal process is that the Department of Transportation has been unable to maintain the data inputs necessary to produce reliable TAM scores, and that its manipulation of essential input values constitutes individually and collectively technical error within the meaning of KCC 14.65.040.A. A secondary conclusion is that when faced with the need to make data or value choices in the absence of complete information, such choices were usually not of a conservative nature and collectively tended to exaggerate the capacity of the County's arterial network to absorb new traffic volumes. A final conclusion is that the Department in applying the TAM critical link test incorrectly performed its threshold 30% project traffic analysis on the basis of peak direction traffic measured within a universe consisting of total traffic in both directions. This had the effect of converting the ordinance threshold into a requirement exceeding 30% up to a theoretical maximum of 59%, in violation of the clearly expressed legislative intent. This action was arbitrary and capricious.

21. As stated at the public hearing, our review undertakes to ascertain whether the technical errors and incorrect procedures pursued by the Department in performing the Beaver Crest concurrency runs have had a significant effect on the resultant TAM scores, rendering them incorrect or unreliable. Our conclusion is that the level of error demonstrated by the record is significant and vitiates the reliability of the TAM scores.

    We have previously indicated that we would not attempt to estimate what a correct TAM score might be or how it might measure against applicable Comprehensive Plan standards. For the Examiner to attempt to guess the quantitative effect of changing variables within a computer modeling process would be pure speculation and simply compound the problem of unreliability, not alleviate it. Our response to a conclusion of TAM calculation invalidity will be to remand the applications for re-computation of the TAM scores pursuant to appropriate assumptions and procedures.

22. Turning to the Intersection Standards analysis, the record demonstrates a high probability that approval of the Beaver Crest projects will cause a level of service F condition as measured by the Highway Capacity Manual average stopped delay standard in both the AM and PM hours at the intersections of East Lake Sammamish Parkway/SR 202 and SR 202/Sahalee Way. The record also indicates a probable LOS F condition in the PM/peak hour at SR 202/204th Place Northeast. Further south, there is a substantial possibility of a level of service F condition in the PM/peak hour at the 228th Avenue Northeast

intersection with Inglewood Hill Road and Northeast 8th Street. In addition, if a revised trip distribution for the Beaver Crest site results in a greater southern assignment of traffic, there is a likelihood of LOS F conditions at the intersections of East Lake Sammamish Parkway at 43rd Way Southeast and Southeast 56th Street. In all of the above instances, the SEPA analysis presupposes that the Beaver Crest projects will meet the Intersection Standard threshold of 30 peak hour trips constituting 20% of peak hour project traffic. If only the 30 trips threshold were applied to the two Beaver Crest projects together without the percentage limitation, the number of intersections potentially impacted would greatly increase.

23. Although the general nature of needed upgrades has been identified for the SR 202 corridor, there are currently no mitigation projects committed for construction within the six-year concurrency time frame that will alleviate the level of service impacts identified within this report. Mitigation payments by developers to WSDOT or the City of Redmond cannot be considered legally effective mitigation unless they will result in the construction of needed improvements within the concurrency time frame.

24. Findings that the County's traffic concurrency tests for the Beaver Crest applications are invalidated by a significant level of technical error and that key arterial intersections serving the project will operate at level of service F mandate a conclusion that the Beaver Crest projects will cause significant adverse environmental impacts to the transportation and land use elements of the environment. Creation of LOS F conditions at key arterial intersections meets the classic definition of a significant adverse transportation impact. Failure to meet Comprehensive Plan zonal TAM standards by any significant degree would also be a significant adverse transportation impact.

25. With respect to the shortcomings of the concurrency process, however, the more certain and likely more significant adverse environmental impact is to the County's land use plans and policies. The Growth Management Act is at bottom a strategy for preserving rural areas from urban sprawl by concentrating development in designated urban centers. For such a strategy to be acceptable to the established residents of the Urban Growth Area, a firm public commitment had to be made that the infrastructure needed to support increased urban growth would be provided concurrently with new development. The viability of the social compact that underlies the GMA relies explicitly upon the credibility of the concurrency commitment. When evidence is presented demonstrating that the County's traffic concurrency process is incapable of reliably metering new growth so that it does not exceed infrastructure capacity, the survival of the GMA and the Comprehensive Plan policies which implement it is imperiled. This constitutes a significant adverse impact to the land use element of the environment.

26. Even after accorded substantial weight on review, the determination by the King County SEPA official that the Bordeaux and Greens at Beaver Crest proposals would not result in significant adverse environmental impacts to the transportation and land use elements of the environment was clearly erroneous based on the record as a whole.

27. Finally, a further conclusion that we are compelled to draw is that the increasingly elaborate technical detail required by the County's transportation review tends to create a fragmented process that understates or disguises larger systemic problems. We previously noted that the Department of Transportation's exclusive focus on facilities subject to the County's mitigational authority resulted in extra-jurisdictional impacts

being dismissed or overlooked. This seems to be particularly the case with respect to the City of Redmond, where impacts to intersections within its jurisdiction have been ignored, rapid employment and commercial growth have not been described and factored into the traffic model, and the screen lines necessary to gauge forecasting success have not been implemented.

A second area where fragmentation tends to disguise impacts is within the northwest Plateau arterial loop described in Finding No. 102. On some level this portion of the arterial network needs to be regarded as a single transportation facility because most Plateau traffic has a relatively unconstrained choice between using either its southern or eastern arc. The individual choices that are in fact made by drivers are largely a function of the comparative inconvenience of the two alternatives, and an improvement to or impairment of any portion of this loop affects all other locations as well.

E. ENVIRONMENTAL IMPACT STATEMENT

28. Turning to the question of remedies, the following format will be ordered. The two part TAM test shall be redone for the Greens and Bordeaux projects collectively based on the pipeline and facilities assumptions (corrected where necessary) governing the March 1996 run. That is, the 0.89 TAM standard should be used, and capacity for the arterial system should include the 228th Avenue CIP. We recognize that without inclusion of the 228th Avenue CIP into the arterial network the original 500-unit Beaver Crest run probably should have been found to fail the critical links test. But if failure had occurred, the test could have been redone in 1996 after the 228th Avenue CIP was added and the TAM standard raised. In fairness to the Applicant (who is merely a passive spectator to the County TAM process), the re-test should be done under those more realistic assumptions.

29. The further premises that should be applied to the rerun of the TAM test include correction of the errors identified within the findings relating to the concurrency technical analysis, with particular emphasis on Findings 49 through 62, 65 through 68, and 89 through 91. The issue to be determined is what would the TAM score be for the two Beaver Crest applications based on a March 1996 application date after the identified modeling and input errors have been corrected. The Department, if it chooses, may also perform a comparative alternative test run for the Beaver Crest applications based on a limited modification of the input changes described in the Findings identified above if it feels confident that it can clearly justify such changes as being superior assumptions.

30. If the rerun of the Beaver Crest TAM tests under the circumstances identified above results in test failure, the Beaver Crest application will be considered denied, subject to the appeal provisions contained at KCC 14.65.040. On the other hand, if the test is passed (either under the assumptions specified within this decision or under alternative assumptions that the Department is prepared to defend), an EIS shall be performed on transportation and land use issues. The transportation portion of the EIS shall describe the assumptions that the Department made in rerunning the concurrency tests based on the findings within this decision, and if an alternative run is also provided based on differing assumptions, explain why these alternative assumptions are supported by the Department as preferable. At a minimum, the EIS shall disclose the revised capacity, trip distribution, assignment and v/c values generated by the Department in order to comply with the findings of this report and explain the process used to derive these values. The

Department shall make computer disks containing the TAM retest runs available, and the public comment period on the draft EIS shall not commence until at least one week after the computerized information has been publicly issued.

31. The EIS shall also analyze the intersections identified within Conclusion No. 22 as probably operating at a level of service F condition after project development and, as well, the overall sufficiency of the northwest Plateau arterial loop described in Finding No. 102. The southern Plateau intersections identified in Finding No. 123 shall also be reanalyzed if the new trip distribution for the Beaver Crest projects assigns more than 37% of project traffic to the south. The EIS shall describe and analyze traffic impacts at affected intersections without limitation or qualification based on their jurisdictional location. Where level of service F conditions are indicated as measured by HCM standards, potential mitigation measures shall be described and the feasibility of their implementation within the concurrency time frame analyzed. Significant adverse impacts which cannot be mitigated within the concurrency time frame shall be identified. Finally, the transportation portion of the EIS shall describe and analyze the cumulative construction and residential traffic impacts to Southeast 8th Street east of 228th Avenue Southeast both before and after the linkage to 244th Avenue is completed. Potential mitigation measures should be identified and their feasibility described, including a construction traffic management plan and possible interim upgrades.

Upon completion of the EIS review process, the preliminary plat application for the Greens at Beaver Crest will be scheduled for a re-opened public hearing so that the required subdivision review process may be completed.

DECISION:

The threshold determination appeals of Scott Hamilton, James Jordan, Jr. and Stanley Bump are GRANTED with respect to the significant adverse environmental impacts of the Greens and Bordeaux at Beaver Crest proposals on the transportation and land use elements of the environment. The appeals are DENIED in all other respects. An environmental impact statement shall be performed consistent with the requirements described in Conclusions 28 through 31, above.

ORDERED this 23rd day of October, 1998.

_____
Stafford L. Smith, Deputy
King County Hearing Examiner

TRANSMITTED this 23rd day of October, 1998, by first class mail, to the parties and interested persons names on Attachment A:

Pursuant to Chapter 20.24, King County Code, the King County Council has directed that the Examiner make the final decision on behalf of the County regarding threshold determination appeals. The Examiner's decision shall be final and conclusive unless proceedings for review of the decision are properly commenced in Superior Court within twenty-one (21) days of issuance of the Examiner's decision. (The Land Use Petition Act defines the date on which a land use decision is issued by the Hearing Examiner as three days after a written decision is mailed.)

GREENS AT BEAVER CREST (L97P0011)

Stafford L. Smith was the Hearing Examiner in this proceeding. Participating at the hearing were Lanny Henoch, Bruce Whittaker, Fereshteh Dehkordi, David Mark, Dick Etherington, Barbara Heavey, Laura Casey, Louise Kulzer, Steve Foley, Gary Samek, Tom Beavers, Bill Hoffman, Sean Wellander, and Paulette Norman, representing the County; Robert Johns, Nadine Zackrisson, James Jordan, Scott Hamilton, Mike Miller, Michael Monroe, David Irons, Sr., Kevin Regan, Anita Burkholder, Acar Bill, David I. Irons, Stanley Bump, Greg Allan, Leslie Kralicek, Janet E. Irons, Clinton Webb, Brad Forg, Nancy Ryan, John Kaschko, Steve O'Donnell, Michael Meston, Jana Haws, Richard Klein, Nancy Kaschko, Bill Dunlap, Ted Schepper, Michael Exendine, Andy Kindig, Joseph Savage, Robert Josephson, Victor Bishop, James Edwards, Margaret Nathon, and Jeff Eustis.

The following exhibits were offered and entered into the hearing record **May 12, 1998**:

Exhibit No. 1	LUSD File No. L97P0011 (two folders)
Exhibit No. 2	LUSD SEPA file for L97P0011 (three file folders)
Exhibit No. 3	DDES staff report
Exhibit No. 4	Applicant's application received March 13, 1997
Exhibit No. 5	Environmental checklist, signed March 10, 1997
Exhibit No. 6	Mitigation of Determination of Nonsignificance, issued December 23, 1997
Exhibit No. 7	Letter of Appeal from Scott Hamilton, received January 13, 1998
Exhibit No. 8	Letter of appeal from James H. Jordan, Jr. , received January 13, 1998
Exhibit No. 9	Affidavits of posting, received August 26, 1997, and January 30, 1998
Exhibit No. 10	Revised preliminary plat map, received February 19, 1998
Exhibit No. 11	Land Use Map – Kroll maps for 955 East and West, 956 West, 958 East and West, and 959 West
Exhibit No. 12	King County Assessor maps for 34-25-6 in total, and the northeast and northwest quarters of 34-25-6
Exhibit No. 13	Surface Water Design Manual Variance L97VA0018
Exhibit No. 14	Surface Water Design Manual Variance L97VA0143
Exhibit No. 15	Preliminary Geotechnical Report, prepared by Terra Associates, Inc., dated April 7, 1997
Exhibit No. 16	Wetland Evaluation, prepared by Terra Associates, Inc., dated November 4, 1996
Exhibit No. 17	Wetland Mitigation Concept, prepared by Raedeke Associates., dated March 11, 1997
Exhibit No. 18	Level II Stream Survey Results for Beaver Crest, prepared by Beak Consultants, Inc., dated February 24, 1998
Exhibit No. 19	Wildlife Habitat Assessment, prepared by Raedeke Associates, Inc., dated March 21, 1997

Exhibit No. 20	Level 1 Downstream Drainage Report, prepared by Triad Associates, dated March 5, 1997
Exhibit No. 21	Conceptual Drainage Plan, prepared by Triad Associates, received May 21, 1997
Exhibit No. 22	March 26, 1998, Memorandum from Fereshteh Dehkordi containing Tim Cheatum's (LUSD inspector) comments regarding the Three Willows plat inspection of drainage problems.
Exhibit No. 23	March 19, 1998 Memorandum from Fereshteh Dehkordi containing an investigative report prepared by Bruce Whittaker, Engineering Review Section, LUSD, at the request of the Hearing Examiner
Exhibit No. 24	Traffic Impact Analysis, prepared by Transportation Planning & Engineering, Inc. (TP&E), dated April 3, 1997
Exhibit No. 25	Plat Screening Comment Response, prepared by TP& E, dated September 16, 1997
Exhibit No. 26	Revised Traffic Impact Analysis, prepared by TP& E, dated February 23, 1998
Exhibit No. 27	Additional Traffic Information, prepared by TP& E, dated March 26, 1998
Exhibit No. 28	Two photographs of pond submitted by Burkholder A. Ditch B. Silt
Exhibit No. 29	Two photographs taken and submitted by Jana Haws A. Southeast 8th lower corner with pond on road B. Haws house – wetland in front looking from east to west
Exhibit No. 30	March 1998 photograph of Burkholder property line showing siltation fence that has failed
Exhibit No. 31	Resume of Richard Klein
Exhibit No. 32	Report prepared by Richard Klein
Exhibit No. 33	Memorandum dated April 4, 1997, (field report submitted to Peter Dye)
Exhibit No. 34	Geohydrology and groundwater quality of East King County
Exhibit No. 35	Mean annual precipitation map 1930-1957
Exhibit No. 36	Letter dated January 31, 1998, from Bob Fuerstenberg (King County) to Bill Dunlap (Triad)
Exhibit No. 37	Wildlife and Plant Assessment dated July 15, 1996
Exhibit No. 38	Letter dated June 14, 1996, from Mark Carey to Fred Wilhelm (Triad Associates)
Exhibit No. 39	Page 63 (Chapter 3: Capital Improvement Projects) from "Watershed Management Committee Basin and Nonpoint Action Plan" by King County Surface Water Management and Washington State Department of Ecology
Exhibit No. 40	Section 1.2.8 Core Requirement #8: Water Quality (1-38 through 1-39); Section 1.4 Variance Process (1-54); and Section 3.2.2 KCRTS/Runoff Files Method (3-25) from February 1996 draft King County Surface Water Design Manual
Exhibit No. 41	Cover sheet and excerpt from Center for Watershed Protection "Design of Stormwater Filtering System"
Exhibit No. 42	Faxed letter from Dave Hancock (Community and Environmental Defense Services Unit)
Exhibit No. 43	Ordinance No. 12992 with attachments re adopting sensitive lake protection standards for the Lake Sammamish drainage basin
Exhibit No. 44	Article entitled "Urbanization, Flood Frequency, and Salmon Abundance in Puget Lowland Streams" published December 1997

The following exhibits were offered and entered into the hearing record **May 13, 1998**:

Exhibit No. 45 Illustrative plat map based on Richard Klein's testimony re wetlands
Exhibit No. 46 Text from Richard Klein's web page
Exhibit No. 47 Brochure entitled "How to Win Land Development Issues"
Exhibit No. 48 Letter dated April 21, 1998, from Scott Hamilton to Universal Land Construction
Exhibit No. 49 Conceptual Drainage Plan
Exhibit No. 50 Geotechnical Report by Terra Associates dated May 7, 1998

The following exhibits were offered and entered into the hearing record **May 14, 1998**:

Exhibit No. 51 Impervious surface calculations
Exhibit No. 52 Review of R. K. Klein report, by Andrew Kindig dated May 11, 1998
Exhibit No. 53 Drainage basin map by Triad Associates
Exhibit No. 54 Corrections to Exhibit No. 52 by Andrew Kindig
Exhibit No. 55 Water quality data for uplands
Exhibit No. 56 Letter dated May 13, 1998, from Michael Exendine to Examiner, with attached maps

The following exhibits were offered and entered into the hearing record **May 26, 1998**:

Exhibit No. 57 Statement prepared by Louise Kulzer
Exhibit No. 58 Excerpt (page 1-30) from August 1997 Draft of SWM manual update
Exhibit No. 59 Alan Lake downstream flooding problem survey
Exhibit No. 60 Schematic site discharge chart submitted by Greg Allan
Exhibit No. 61 Chapter 14: Wetlands and Stormwater Management Guidelines from Wetlands and Urbanization 1997 and edited by Amanda L. Azaus
Exhibit No. 62 Memorandum prepared by Mason Bowles re Wetland Hydrology Management Guidelines
Exhibit No. 63 Article reprinted from the Journal of Environmental Quality Vol.23. No. 5, Sept-Oct 1994, entitled "Wetland and Stream Buffer Size Requirements – A Review by A. J. Costelle, A. W. Johnson, and C. Conally
Exhibit No. 64 Letter dated May 15, 1998, from Nancy Ryan to Examiner
Exhibit No. 65 Administrative Interpretation No. 16 effective February 12, 1998, re Residential Density Incentives
Exhibit No. 66 Resume of Gregory R. Allan, PE
Exhibit No. 67 Excerpts from City of Austin filter report
Exhibit No. 68 Summary of Greg Allan May 11 hearing testimony

The following exhibits were offered and entered into the hearing record **June 3, 1998**:

Exhibit No. 69 Memorandum dated April 10, 1998, from Joe Savage (KJS Associates) to Scott Hamilton and letter dated April 11, 1998, from Joe Savage to William Hoffman (KCDOT)

Exhibit No. 70	Revision of April 10 data to February 1996 Conditions submitted by Joe Savage
Exhibit No. 71	January-April, 1995, TCM Report Version A Transportation Concurrency Management Issues – Executive summary
Exhibit No. 72	TCM Report January – April, 1995, Version B
Exhibit No. 73	Two large Environmental Notebooks prepared and submitted by Scott Hamilton (Except E-15)
Exhibit No. 74	Mr. Klein's rebuttal report re Response to Environmental Testimony presented by the Applicant and County staff
Exhibit No. 75	Article from King County Transportation and Natural Resource Library entitled "Making Transportation Models Work for Livable Communities"
Exhibit No. 76	King County Concurrency Management System TAM "Concerns" list
Exhibit No. 77	January-July 1995, TCM Report submitted by Savage/Hamilton

The following exhibits were offered and entered into the hearing record **June 4, 1998**:

Exhibit No. 78	Two traffic studies made in front of Hamiltons' house conducted by County
Exhibit No. 79	Administrative Actions related to the Beaver Crest Concurrency file #95-09-21-01; 96-02-20-01; and 96-08-30-01
Exhibit No. 80	King County Recommended Link Type Capacity Values
Exhibit No. 81	Certificates of Transportation Concurrency
Exhibit No. 82	Cover page dated May 27 from Dick Etherington to Gary Hendricks with attached four pages of land use data for the East Sammamish Plateau and Issaquah
Exhibit No. 83	Gravity Data Comparison: Ratio of Base vs. Estimated Total
Exhibit No. 84	Recursive Adjustment to Trip Propensities using demand adjustment gradient factor
Exhibit No. 85	King County Zone System Update March 25, 1994
Exhibit No. 86	TCM: application No. 95-09-21-01 EMME/2 process for duplication of original custom run
Exhibit No. 87	King County TCM 1993 calculations
Exhibit No. 88	Trip distribution for community plan miscellany
Exhibit No. 89	Histograms
Exhibit No. 90	Background notes on gravity model "Ensembles"
Exhibit No. 91	May 1996 Gravity model
Exhibit No. 92	Distance between signalized intersections submitted by Ms. Kralicek
Exhibit No. 93	Excerpt (pp 1-1 to 1-2) from Highway Capacity Manual
Exhibit No. 94	Link Type/Estimated Capacity Relationship dated April 15, 1993
Exhibit No. 95	King County Recommended Link Type Capacity Values dated June 3, 1996
Exhibit No. 96	Memorandum dated December 24, 1992, from Robert E. Beaty (King County Hearing Examiner) to all parties with attached pp 2-8 from Revised Timberline Ridge Report and Recommendation
Exhibit No. 97	TCM-East Sammamish Monitored Link Data plus 2 index maps

The following exhibits were offered and entered into the hearing record **June 5, 1998**:

Exhibit No. 98	Kralicek May 11 testimony in written form

Exhibit No. 99 Letter (with attachment) dated June 3, 1998, from Joseph Elfelt to Hearing Examiner
Exhibit No. 100 Undated letter from James B. Edwards, PE to Hearing Examiner
Exhibit No. 101 Traffic Zone map
Exhibit No. 102 Trip generation spreadsheet Version 96 A-3 obtained from County
Exhibit No. 103 Base network maps
Exhibit No. 104 Summary of data in Exhibit 103

The following exhibits were offered and entered into the hearing record **June 10, 1998**:

Exhibit No. 105 June 5, 1998, testimony of Scott Hamilton
Exhibit No. 106 Memorandum dated May 29, 1998, prepared by Gary Samek (KCDOT), with attachment from City of Redmond
Exhibit No. 107 Trip Generation (excerpts) ITE Manual, 6th Edition
Exhibit No. 108 First page of DDES staff report for the preliminary plat of Greens at Beaver Crest (L97P0011), with miscellaneous attachments
Exhibit No. 109 Letter dated May 26, 1998, from Sammamish Plateau Water and Sewer District to Lanny Henoch regarding water pressure at site
Exhibit No. 110 King County Public Rules for Integrated Transportation Program , effective March 31, 1995, issued by King County Dept of Public Works/Roads Division
Exhibit No. 111 Trip General Equation Examples submitted by Joseph Savage
Exhibit No. 112 Printout of a portion of growth factor exhibit (Exhibit No. 102)
Exhibit No. 113 Peak-hour macro provided by KCDOT and submitted by Mr. Savage
Exhibit No. 114 Calibration adjustment submitted by Mr. Savage
Exhibit No. 115 Calibration summary submitted by Mr. Savage
Exhibit No. 116
A Overall plan and road sections of SE 8th Street prepared for Renaissance Ridge
B Roadway plan and profile of SE 8th Street prepared by Renaissance Ridge

The following exhibits were offered and entered into the hearing record **June 12, 1998**:

Exhibit No. 117 Resume of Joseph Savage (KJS)
Exhibit No. 118 Overview of Travel Demand Forecasting submitted by Mr. Savage
Exhibit No. 119 Excerpt (pp 39-42) from National Cooperative Highway Research Program Report 255: "Highway Traffic Data for Urbanized Area Project Planning and Design"
Exhibit No. 120 King County TAZs vs. PSRC TAZs
Exhibit No. 121 County-wide Housing and Employment Comparison
Exhibit No. 122 Comparison of total volume plots from concurrency tests for sites #95092101 and #96022001 – summary submitted by Mr. Savage

The following exhibits were offered and entered into the hearing record **June 17, 1998**:

Exhibit No. 123 Packet of papers submitted by Mr. Savage entitled "Why KJS staff could not duplicate TAM score for 247-unit model run
Exhibit No. 124 Print out of trip generation to and from zone 460 submitted by Mr. Savage
Exhibit No. 125 King County macro instructions for 500 unit run

Exhibit No. 126 King County macro instructions for 247 unit run
Exhibit No. 127 Missing links for 500 unit TAM run submitted by Mr. Savage
Exhibit No. 128 Hand drawings/calculations by Mr. Savage June 12 and 17, 1998
Exhibit No. 129 Five video tapes containing traffic related studies submitted by Scott Hamilton plus two affidavits attesting to the accuracy of video copies
- A SE 8th & 228th on 3/4/98 from 7:05 a.m. – 8:11 a.m.
- B SE 8th & 228th on 3/4/98 from 5:05 p.m. – 6:05 p.m.
- C SE 8th & 228th on 3/5/98 from 7:00 a.m. – 8:00 a.m.
- D SR 202 & Sahalee Way on 3/5/98 from 7:05 a.m. – 8:05 a.m.
- E 228th & Issaquah Pine Lake Road
  Part 1: p.m.
  Part 2: a.m.

Exhibit No. 130 Review/Critique of the Proposed Subdivision The Greens at Beaver Crest Prepared by Everett C. Carter, PhD
Exhibit No. 131 Memorandum dated April 10, 1998, from Joe Savage (KJS) to Scott Hamilton
Exhibit No. 132 Traffic report dated March 26, 1998, prepared by Transportation Planning & Engineering
Exhibit No. 133
- A Bordeaux Traffic Impact Analysis prepared by Transportation Planning & Engineering April 22, 1997
- B Bordeaux Revised Traffic Impact Analysis prepared by Transportation Planning & Engineering April 3, 1998

Exhibit No. 134 The Vistas at Beaver Crest Traffic Impact Analysis prepared by Transportation Planning & Engineering December 10, 1996
Exhibit No. 135 Thomas/Lynch (Heights at Beaver Crest) Traffic Impact Analysis prepared by Transportation Planning & Engineering August 20, 1996
Exhibit No. 136 Three Willows Transportation Study prepared by TDA, Inc. June 22, 1995
Exhibit No. 137 NOT ADMITTED: Letter dated March 23, 1998, from Harold Taniguchi (KCDOT) to Alda Wilkinson, Boundary Review Board
Exhibit No. 138 February 24, 1998, Ron Sims new release and other miscellaneous letters and memos identified as Items A through D
Items A through C - NOT ADMITTED
Item D - ADMITTED
Exhibit No. 139 Accident summary for 228th corridor – 1992 – 1996
Exhibit No. 140 Letter dated March 9, 1998, from King County Fire Protection District #10 to John Kuhn, President of SHOUT
Exhibit No. 141 Resume of Everett C. Carter, PhD
Exhibit No. 142 Hard copies of slides shown by Scott Hamilton at May 12, 1998, public hearing
Exhibit No. 143 Written testimony prepared by Leslie Kralicek (with Attachments A-J)
- A Excerpt DEIS Technical Appendices Beaver Lake Estates
- B Review of CIP Capacity Projects for the East Sammamish Community from 1991 to 1997 prepared by Leslie Kralicek
- C CIP project sheet for E. Lake Sammamish Parkway/SE 56th Street to I-90 (200690)
- D CIP project sheet for East Lake Sammamish Parkway NE Stage 3 (200181)
- E CIP project sheet Issaquah-Fall City Road Ph II – Issaquah-Pine Lake Rd. intersection (200195)
- F CIP project sheet for Issaquah-Pine Lake Rd Ph I – Issaquah Fall City to 238th Way SE (200291)

G CIP project sheet for Issaquah-Pine Lake Rd Ph II – Issaquah-Pine Lake Rd @ SE 32nd Way (200494)
H CIP project sheet for 228th Avenue SE/NE Ph I – Issaquah-Pine Lake to Inglewood Hill (200295)
I Road Construction Fund Report Summary – King County Auditor, Report No. 96-06
J King County Interlocal Agreements and Public Agency Contracts Management Study – King County Auditor Report No. 98-02

The following exhibits were offered and entered into the record **June 29, 1998.**

Exhibit No. 144 LOS summary comparing Three Willows and Greens at Beaver Crest
Exhibit No. 145 Lexis-Nexis reprint of 'LOS leaders" by Joseph Savage, Jr.; January 1993 ABI/INFORM
Exhibit No. 146 Article by Joseph Savage, Jr. et al-"A Survey of Transportation on Service Level Standards" from June 1993 ITE Journal.
Exhibit No. 147 Excerpt USDOT December 1990 paper-"Calibration and Adjustment of System Planning Models".
Exhibit No. 148 Graphics from easel used in Joseph Savage June 29, 1998 testimony.
Exhibit No. 149 1995 map concerning zone map
Exhibit No. 150 1996 map concerning zone map
Exhibit No. 151 Copies of overhead projections used in David Mark testimony.
Exhibit No. 152 King County Traffic Model-Direct Testimony of KCDOT-Dick Etherington
Exhibit No. 153 Letter dated June 10, 1998 from Terra Associates to Nadine Zackrisson.
Exhibit No. 154 Letter dated June 5, 1998 from Associated Earth Sciences to Robert Johns
Exhibit No. 155 Lakemont Stormwater Treatment Facility Monitoring Program.
Exhibit No. 156 Removal Efficiencies of Stormwater Control Structures-City of Austin Final Report" May 1990
Exhibit No. 157 Additional detail on screen line information submitted by Dick Etherington,
Exhibit No. 158 Criteria Link Analysis on a two-way basis
Exhibit No. 159 Exhibit No. 157 annotated
Exhibit No. 160 Resume of Victor Bishop, with attached list of traffic reports he has prepared.
Exhibit No. 161
A Growth Plot Intersections
B Growth Plot Intersections calculation data
Exhibit No. 162 Trip Generation Data
Exhibit No. 163 Klahanie Trip Generation, July 13-17, 1998.
Exhibit No. 164 Fax from Vince Giglia to Vic Bishop-pages 11-9, 9-45, 11-8 from Highway Capacity manual.
Exhibit No. 165 East Sammamish Planning Area Cordon Data, July 1998.
Exhibit No. 166 East Sammamish Planning Area Historical Cordon/Screen Line Data.
Exhibit No. 167 CIP summary-Project #200195-Issaquah-Pine Lake Road Phase II, and #200295-228th Avenue SE/NE data.
Exhibit No. 168 Summary of response to Dr. Everett Carter's report (Exhibit No. 130) dated July 29, 1998.
Exhibit No. 169 WSDOT signal timing for Sahalee Way and SR 202.
Exhibit No. 170 Technical appendix to traffic report.
Exhibit No. 171 Technical appendix to revised traffic report.
Exhibit No. 172 Proposed revised Condition 9 A-C.

The following exhibits were offered and entered into the record **August 20, 1998.**

Exhibit No. 173	Memorandum dated June 25, 1998, from Gary Norris to Examiner in response to Prehearing Order dated June 5, 1998
Exhibit No. 174	Letter dated June 1, 1998, from Victor Bishop (TPE) to Mike Miller re additional LOS information
Exhibit No. 175	NOT ADMITTED: Packet of e-mail communications between parties & Examiner
Exhibit No. 176	TPE's Analysis of Future LOS for the Greens at Beaver Crest submitted by Mr. Edwards
Exhibit No. 177	Edwards worksheets re signalized intersections calculations (per intersection)
Exhibit No. 178	Letter dated August 19, 1998, from Victor Bishop (TPE) to Mike Miller (Pacific Properties) re LOS calculations for SR 202/Sahalee Way
Exhibit No. 179	Exhibit in support of rebuttal testimony by King County Department of Transportation

BORDEAUX AT BEAVER CREST (B97C0177)

Stafford L. Smith was the Hearing Examiner in this matter. Participating at the hearing were Fereshteh Dehkordi, Scott Hamilton, Bob Johns, and Mike Miller.

In addition to incorporating by reference the Greens at Beaver Crest record, the following additional exhibits were offered and entered into the hearing record **June 12, 1998**:

Exhibit No. 1	Department of Development and Environmental Services, Land Use Services Division Report to the Hearing Examiner.
Exhibit No. 2	Mitigated Determination of Nonsignificance (MDNS) issued March 17, 1998.
Exhibit No. 3	Environmental Checklist dated June 6, 1997.
Exhibit No. 4	Appeal of MDNS by Scott Hamilton received March 27, 1998.
Exhibit No. 5	Appeal of MDNS by Stanley Bump received April 7, 1998.
Exhibit No. 6	Report for Greens at Beaver Crest dated May 12, 1998.
Exhibit No. 7	Site plan dated July 17, 1997
Exhibit No. 8	Drainage report dated June 5, 1997
Exhibit No. 9	Traffic Impact Analysis dated April 22, 1997
Exhibit No. 10	Wildlife & Plant Assessment dated July 15, 1996
Exhibit No. 11	Geotechnical report dated April 7, 1997
Exhibit No. 12	Revised Wetland Report dated March 6, 1996
Exhibit No. 13	Wetland mitigation concept dated February 27, 1997
Exhibit No. 14	SEPA file
Exhibit No. 15	Letter (with enclosure) dated June 9, 1998, from Stanley E. Bump to Hearing Examiner
Exhibit No. 16	Memorandum (with attachments) dated February 27, 1997, re field check observations from Jill Schmieder to Ronald Hoelscher (DDES)
Exhibit No. 17	Building Services Division weekly alert dated December 26, 1997, with attached January 28, 1998, letter from Chris Ricketts to Debi Hart

Exhibit No. 18 Analysis of the Environmental Effects of Bordeaux at Beaver Crest dated June 3, 1998, from Richard D. Klein

The following exhibits were offered and entered into the hearing record **August 20, 1998**:

Exhibit No. 19 Response to Environmental Testimony Presented by the Applicant Bordeaux at Beaver Crest prepared by Richard Klein
Exhibit No. 20 Letter dated June 19, 1998, from Melodie A. Selby (Wash. State Dept. of Ecology) to Thom Gebhard
Exhibit No. 21 Letter dated June 12, 1998, from Theodore J. Schepper (Terra Associates) to Nadine Zackrisson re response to report dated June 3, 1998, by Richard Kline
Exhibit No. 22 Letter dated June 12, 1998, from Andrew C. Kindig (Associated Earth Sciences) to Robert Johns (Reed McClure) re response to report dated June 3, 1998, by Richard Kline

SLS:daz
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