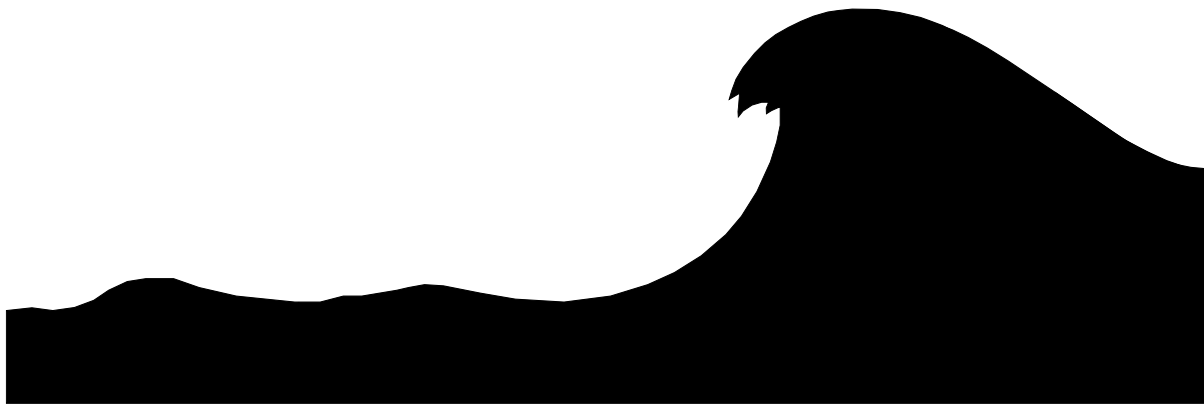


# Limits of Acceptable Change River Management Plan

## ❖ 1998 Annual Report ❖

*A Summary of LAC Indicators for  
Commercial Rafting Use of  
West Virginia Rivers*



Prepared for:

The West Virginia Division of Natural Resources  
on behalf of the Whitewater Commission

By:

Steven A. Whisman, Ph.D.  
West Virginia University  
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Recreation, Parks, and Tourism Resources Program

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## Executive Summary

The West Virginia Division of Natural Resources (DNR), on behalf of the Whitewater Commission, adopted and implemented a river management plan for commercial rafting activities on designated whitewater zones of five rivers: the New, Gauley, Cheat, Sherandoah, and Tygart Valley. The river management plan, which was implemented on January 1, 1998, is based on a Limits of Acceptable Change (LAC) process with the purpose of providing a framework for the development of sound river management policy. While the plan was based on the findings and recommendations of an extensive study of river conditions with regard to crowding and congestion, river trip quality, safety issues, and other related indicators, no specific "on the river" management actions were implemented. This report represents the first annual assessment of river conditions since the river management plan was adopted, from which appropriate management actions may be developed.

The LAC river management plan is information driven and includes a provision for monitoring key *indicators* of river conditions on an annual basis. These indicators are to be assessed in the context of *indicator standards*--acceptable maximum or minimum values for each indicator--which quantitatively represent acceptable and/or unacceptable river conditions. Specific indicators include measures of crowding, congestion, and river trip quality. Data were collected by the DNR from the commercial whitewater industry through a set of reporting requirements and policies served as the primary sources of information reported herein. Specific data sources include: (1) monthly reports of river use submitted through an internet reporting system; (2) customer survey data collected by outfitters in accordance with a systematic random sampling procedures; and (3) daily trip leader reports.

The most critical river conditions were found on the Lower Gauley, where scores on two of seven indicators suggested some "mandatory" form of river management action, while scores on four of seven indicators suggested "minor" actions. Only one indicator was deemed "acceptable" in the context of the river management plan. Similarly, on the Upper Gauley, "minor" river management actions were suggested by six of seven indicators, while on the Lower River, "minor" management actions were suggested by four of seven indicators. Indicators on all other river segments were deemed acceptable.

During the 1999 fall quarterly meeting, the West Virginia Whitewater Commission approved the findings of this report. Additionally, the Commission accepted the recommendation from the LAC Study Committee to continue efforts to develop appropriate river management responses based on this and future annual reports.

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## Introduction

The West Virginia Division of Natural Resources (DNR), on behalf of the Whitewater Commission, adopted and implemented a river management plan based on a Limits of Acceptable Change (LAC) process on January 1, 1998 (Whisman et al. 1998, pp 199-205). The plan provides a framework for the development of a sound river management policy process and a consistent management direction for designated whitewater zones of five rivers. The rivers include the New, Gauley, Cheat, Shenandoah, and Tygart Valley.

Inherent in the LAC framework is the identification and definition of *opportunity classes* that describe conditions desired, or potentially available, on selected segments of each study river. Opportunity classes describe themes, concepts, and/or management directions within the context of primary resource management issues. Also inherent in LAC is the selection of key variables, or *indicators*, that are (1) relevant to resource management issues; (2) measurable using valid and reliable methods; (3) sensitive to changes in conditions; and (4) measurable within constraints of money, labor, and time. *Indicator standards* -- acceptable maximum or minimum values for each indicator -- quantitatively represent conditions characterized in the opportunity class descriptions. Key indicators selected for the definition of opportunity classes on the rivers in West Virginia include:

- Average customer crowding scores using a standardized 9-point crowding scale (Shelby et al. 1989)
- Average trip leader crowding scores using a standardized 9-point crowding scale (Shelby et al. 1989)
- Percentage of customers who experienced crowding
- Percentage of trip leaders who experienced crowding
- Percentage of time customers report spending within sight of other river trips
- Percentage of time trip leaders report spending within sight of other river trips
- Percentage of customers reporting that their trip expectations were not met as determined by the River Trip Performance estimate (RTPE score). The RTPE score was developed to measure the extent to which boater's river trip expectations were met as expressed as a negative number -- trip expectations were not met or the trip was not as good as expected; zero -- trip expectations were exactly met; or a positive number -- trip expectations were exceeded.

Opportunity classes were developed on the basis of daily commercial use levels within peak-use seasons on each study river. Peak-use periods were defined as follows:

- Cheat Canyon      Mid-April through Memorial Day weekend
- New River          Memorial Day weekend through Labor Day weekend
- Gauley River      Fall Release Season (Labor Day through Mid-October)
- Shenandoah        Memorial Day weekend through Labor Day weekend

Three basic opportunity class definitions were developed for the Lower New and Upper and Lower Gauley: *Low Use-Natural*, *Moderate Use-Natural*, and *High Use-Scenic* (Table 1). Opportunity Classes definitions were not specified for other study rivers pending further study of LAC indicator trends. River conditions in the *High Use-Scenic* opportunity class were targeted as the primary management concern. A management framework was developed to address boating conditions that exist on days in this class. In the framework critical indicator standards, management categories, and examples of

Table 1. LAC Opportunity Classes			
River	Opportunity Class		
	<i>Low Use-Natural</i>	<i>Moderate Use-Natural</i>	<i>High Use-Scenic</i>
Upper New	To be defined pending further study		
Lower New	Bottom 25% of Days	Middle 50% of Days	Upper 25% of Days
Upper Gauley	Bottom 25% of Days	N/A	Upper 75% of Days
Lower Gauley	Bottom 25% of Days	N/A	Upper 75% of Days
Cheat Canyon	To be defined pending further study		
Cheat Narrows	To be defined pending further study		
Shenandoah	To be defined pending further study		
Tygart Valley	No opportunity classes are proposed for the Tygart River.		

corresponding management action alternatives were specified (Table 2). Critical indicator standards in this framework serve as *triggers* for management response to river conditions (Table 2). It is unlikely that all critical indicator standards will be violated or exceeded simultaneously. For example, the likelihood that all indicators indicate *mandatory action* -- i.e., average customer and trip leader crowding scores are 6.5 or greater; 90% of customers and trip leaders experience crowding; 100% of time on the river is spent in sight of other trips; and that 35% or more of customers have unmet trip expectations -- will occur simultaneously is probably low. However, when a preponderance of critical indicators exceed the specified standards, the need for a management response would be evident and that the Whitewater Commission and DNR, as the primary regulatory authorities, would jointly develop and implement an appropriate river management response.

Indicator standards and management categories were not specified for *Low Density-Natural* and *Moderate Density-Natural* opportunity classes because they were believed to reflect a "desirable" diversity of river trip opportunities. The intent of the LAC river management plan is to monitor these opportunity classes to insure their long-term availability.

## Data Sources

The LAC river management plan is information driven and is dependent on data collected by the DNR from the commercial whitewater industry through a set of reporting requirements and policies. Consequently, the validity of the river management plan is dependent on the accuracy and reliability of data reported by the industry.

Primary data sources for the river management plan include: (1) monthly reports of river use submitted through an internet electronic reporting system; (2) customer survey data collected by outfitters in accordance with a systematic random sampling procedures; and (3) daily trip leader reports. Appendix A contains copies of the customer survey questionnaires and trip leader reports, daily indicator scores from customer surveys and trip leader reports are presented in Appendix D (Tables 8 and 9), and graphical

Table 2. LAC Indicator Standards and Management Categories for High Use-Scenic Opportunity Class			
Indicators	Indicator Standard	Management Category	Example Management Alternatives
Trip Leader Crowding Scores Customer Crowding Scores (Average)	6.5 or Greater	Mandatory Action	Reduce Allocated Capacity Require Launch Scheduling
	5.0 to 6.4	Minor Action	Voluntary Launch Scheduling Information / Education
	3.5 to 5.0	Acceptable	No Action
	Less than 3.5	Re-Assess	Adjust Over-booking Policy Reassign/Redefine Opportunity Class
Proportion of Customers and Trip Leaders Experiencing Crowding (%)	90% or Greater	Mandatory Action	Reduce Allocated Capacity Require Launch Scheduling
	80% to 89%	Minor Action	Voluntary Launch Scheduling Information / Education
	65% to 79%	Acceptable	No Action
	Less than 65%	Re-Assess	Adjust Over-booking Policy Reassign/Redefine Opportunity Class
Customer and Trip Leader Estimates of Time in Sight of Other Trips (Median)	100%	Mandatory Action	Reduce Allocated Capacity Require Launch Scheduling
	76% to 99%	Minor Action	Voluntary Launch Scheduling
	51% to 75%	Acceptable	No Action
	50% or Less	Re-Assess	Adjust Over-booking Policy Reassign/Redefine Opportunity Class
Customers with Unmet Trip Expectations (% with RTPE scores < 0)	35 %or Greater	Mandatory Action	Reduce Allocated Capacity Require Launch Scheduling
	30 to 34%	Minor Action	Voluntary Launch Scheduling
	20 to 30%	Acceptable	No Action
	Less than 20%	Re-Assess	Adjust Over-booking Policy Reassign/Redefine Opportunity Class

illustrations of river use and crowding scores from both customer survey and trip leader data are presented in Appendix E.

## Commercial River Usage

### *River Use Levels*

Customer count statistics obtained from the DNR indicate that in 1998 total commercial use of all five study rivers amounted to approximately 251,921 user days (Table 3). The New River accounted for

Table 3. Commercial River Use by River and River Section for 1998				
River	River Section	User Days	Percent of River Total	Percent of State Total
New	Upper (Hinton to Prince)	3,537	2%	1%
	Upper (Prince to Cunard)	21,203	13%	8%
	Lower	134,031	84%	53%
	Total New	158,771	100%	63%
Gauley	Upper	41,634	64%	17%
	Lower	23,455	36%	9%
	Total Gauley	65,089	100%	26%
Cheat	Canyon	4,995	59%	2%
	Narrows	3,492	41%	1%
	Total Cheat	8,487	100%	3%
Shenandoah	Total	19,367	100%	8%
Tygart	Total	207	100%	0.1%
	Overall Total	251,921	--	100%

about 63% of total commercial river use with 158,771 user days, followed by the Gauley River (26%), the Shenandoah River (8%), the Cheat (3%) and the Tygart Valley (<1%). The Lower New River alone accounted for 53% of statewide total for commercial river use.

Annual commercial river use trends since 1995 are illustrated in Appendix B. Since a high of 259,014 user days in 1995, statewide commercial rafting has declined then leveled at slightly over 250,000 user days per year.

The seasonal distribution of commercial river use of the study rivers in 1998 was consistent with historical patterns (Figure 1). The Cheat River, especially the Canyon section, supports primarily a spring rafting season; the Shenandoah and New River rafting seasons typically span three calendar seasons but peak

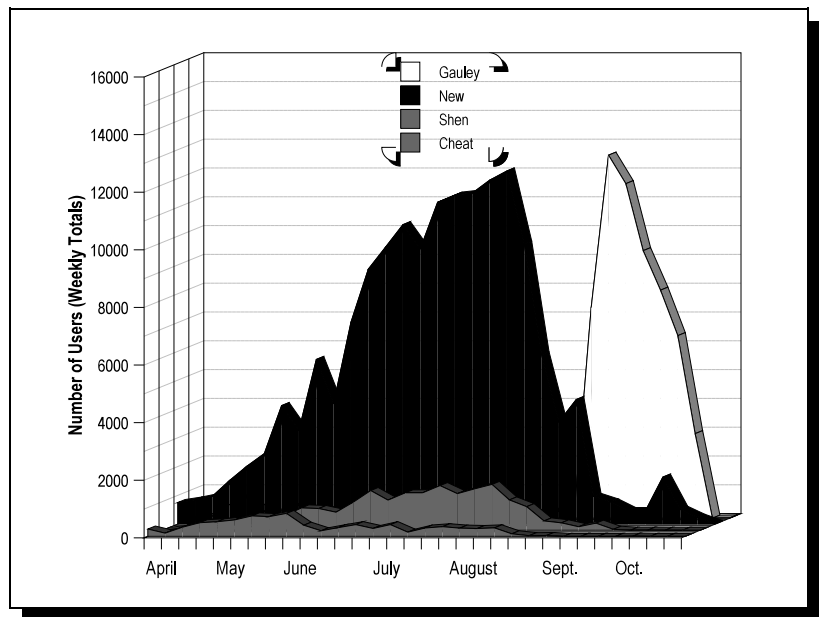


Figure 1. Seasonal patterns of commercial river use of the Cheat, Shenandoah, Gauley, and New Rivers in 1998.



in mid to late summer; on the Gauley the rafting season is concentrated in the fall months of September and October during fall drawdown releases from Summersville Dam.

Allocated capacities are established for three river segments. These capacities demarcate the maximum number of commercial “user days,” as defined by the DNR, licensed outfitters are permitted to transport on the respective river segments. The river segments on which allocated capacities have been established include the Lower New (3,875 user days), the Upper Gauley (3,040 user days) and the Lower Gauley (3,040 user days).

A review of top ten use days in 1998 shows that allocated capacities on the Lower New and Upper and Lower Gauley were never exceeded (Figure 2). Commercial use levels on the Upper Gauley appear to more fully utilize the established allocated capacity, exceeding 90% of the 3,040 user day capacity on four occasions and 80% on three additional occasions during the 22-day Fall season. The highest use day during the 108-day season on the Lower New was 83% of the 3,875 user day capacity, and the tenth highest use day was only 62% of allocated capacity. This suggests that the resource was not as fully utilized as on the Upper Gauley. Similarly, the allocated capacity of the Lower Gauley (3,040 user days) was underutilized to a substantial degree. On this river segment, the highest and the tenth highest use days were only 73% and 26% of allocated capacity (Figure 2).

### Allocation Utilization

The allocated capacities described above are distributed among licensed outfitters according to a Whitewater Commission approved allocation methodology. The methodology establishes the proportion of allocated capacities allotted to each licensed outfitter, and in effect determines daily use limits conferred to each outfitter.

An assessment of allocation utilization by each outfitter mirrors the finding above regarding utilization of allocated river capacities. Daily allocations on the Upper Gauley were more fully utilized by outfitters than on any other river, with three of nineteen outfitters exceeding 90% of their daily allocation on 50% or more of the 22-day season. Nine outfitters exceeded 90% of their daily allocation on 20% or more of days (Table 6, Appendix C). Three outfitters failed to exceed 90% of their daily allocation. The proportion of days on which outfitters utilized 75% to 89% and 50% to 74% of daily allocations ranged from 0% to 18% and 0% to 36%, respectively. Outfitters underutilized (i.e., less than 50% of daily allocation) their daily allocations on 17% to 86% of days during the 22-day season (Table 6, Appendix C).

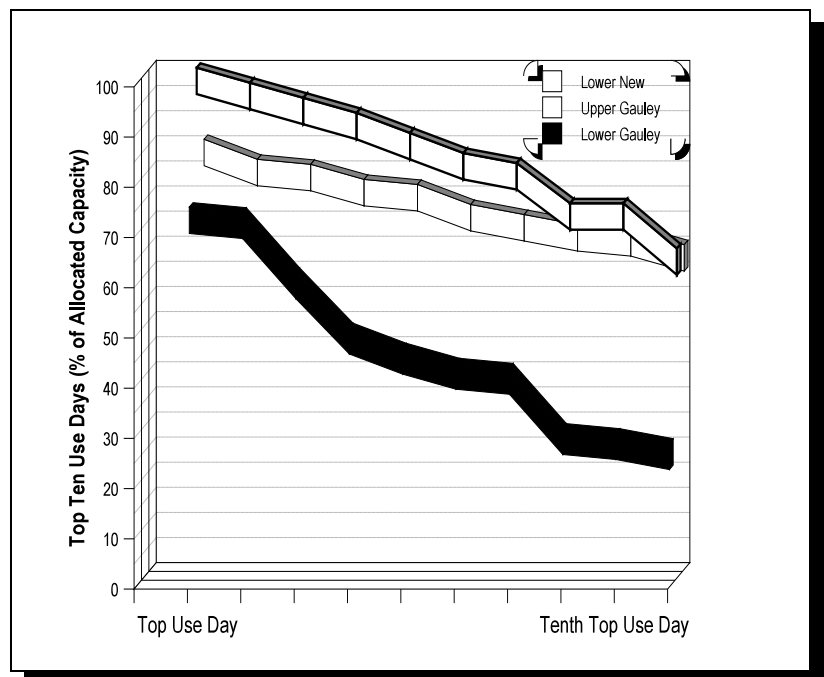


Figure 2. Peak use-days on the Lower New and Upper and Lower Gauley Rivers in 1998.

During the 22-day season on the Lower Gauley, daily allocations were only partially utilized. Fifteen of nineteen outfitters failed to reach 90% of their daily allocation on any of the twenty-two days, while those that did reach this level did so on 9% to 18% of available days (Table 6, Appendix C). On this river segment, the proportion of days on which outfitters utilized 75% to 89% and 50% to 74% of daily allocations ranged from 0% to 14% and 0% to 36%, respectively. The proportion of days on which allocations were underutilized (i.e., less than 50% of daily allocations) ranged from 55% to 100% (Table 6, Appendix C). This level of underutilization suggests that the allocated capacity of 3,040 user days for this river segment is much greater than outfitter's capacity to efficiently use.

On the Lower New River the 1998 season -- Memorial Day weekend through Labor Day weekend -- was 108 days in duration. Thirty-five of the days were weekends or holidays when historically use has been comparatively high relative to the 73 weekdays. Only two of twenty outfitters exceeded 90% of their daily allocation on 10% or more days during of the rafting season (Table 6, Appendix C). Six outfitters failed to reach 90% of their daily allocations on any days. The proportion of days on which outfitters utilized 75% to 89% and 50% to 74% of daily allocations ranged from 0% to 6% and 1% to 19%, respectively. The proportion of days for which allocations were underutilized ranged from 56% to 99% (Table 6, Appendix C). As on the Lower Gauley, this level of underutilization suggests that the allocated capacity of 3,875 user days for Lower New is perhaps too high relative to outfitter's capacity.

Current policy of the Whitewater Commission allows each outfitter to "over-book" their daily allocation by as much as 10% or 25% of daily use allocations on "capped" and "non-capped" days. Capped days are defined as days during the previous season on which commercial use met or exceeded 90% of the allocated capacity of the river or river segment. On the Lower New, for example, days on which commercial use reaches 3,488 or more user days define capped days for the following season. On each segment of the Gauley River, respectively, peak days are defined when commercial use reaches 2,736 user days. In 1998, only one day on the Lower New, four on the Upper Gauley, and none on the Lower Gauley were designated capped days.

The utility of the "over-booking" policy is questionable in that it appears to be infrequently used by outfitters, especially on the Lower New and Lower Gauley (Table 7, Appendix C). On the Lower New, the average number of days outfitters exceeded daily allocations by up to 10%, 11% to 25%, or by more than 25% were 1.05, 1.30, and 1.35 days, respectively. The numbers of outfitters who took advantage of the over-booking policy, in each of the percentage range categories, were 10, 11, and 8, respectively. The average number of days outfitters exceeded daily allocations by up to 10%, 11% to 25%, or by more than 25% were slightly higher on the Upper Gauley -- 1.60, 1.55, and 0.45 days -- but much lower on the Lower Gauley -- 0.25, 0.05, 0.1 (Table 7, Appendix C). The respective numbers of outfitters in each percentage range category were 13, 12, and 4 on the Upper Gauley, and 3, 1, and 1 on the Lower Gauley. It is presumed that allocation "borrowing" took place on the few days for which daily allocations were exceeded by more than 25%.

## Limits of Acceptable Change (LAC) Analysis

Analysis of the customer survey data, trip leader report data, and river usage data within the context of the LAC river management framework provides an assessment of river conditions during the 1998 rafting seasons for each river or river segment. A discussion of the LAC analysis for each river segment follows.

## Upper New River

Opportunity classes were not defined for the Upper New River in the original LAC river management plan pending accumulation and analysis of additional customer survey and trip leader data. Further, for river usage reporting purposes, the Upper New was subdivided into two distinct sections -- Hinton to Prince and Prince to Cunard -- to account a presumed difference in river trip opportunities potentially available on each. Data gathered in 1998 was sufficiently complete to facilitate opportunity class definition in accordance with the process described by Whisman et al. (1998, pp. 199-205). On the Hinton to Prince section, no differences were observed in LAC indicator scores for high and low use days. Consequently, all days were grouped into the *Low Use-Natural* opportunity class, and LAC indicator scores for that class fell into the *re-assess* category, for which no particular management actions are prescribed (Table 4).

Two distinct classes emerged for the Prince to Cunard section of the Upper New, and in keeping with the nomenclature of the original LAC river management plan, these classes were labeled *Low Use-Natural* for days in the bottom 75% of river usage (less than 264 user days and *High Use-Scenic* for days in the upper 25% of river usage (264 user days or greater). A comparison of indicator scores for days in the *High Use-Scenic* class to the standards prescribed in the LAC river management framework (see Table 2) shows conditions on the Upper New generally to be acceptable. Four of seven indicators fell into the *acceptable* management category (Table 4). These indicators included average crowding scores of both customers (3.8) and trip leaders (3.7), the percentage of customers experiencing crowding (71.9%), and the percentage of customers whose trip expectations were unmet (23.5%). Three indicators - the percentage of trip leaders reporting experiencing crowding (62.6%) and the median percentage of time customers and trip leaders reported spending in sight of other river trips (26 to 50%) fell into the *re-assess* management category. According to the LAC management framework, no management actions necessarily are warranted for river conditions that fall into these two management categories.

## Lower New River

The *High Use-Scenic* opportunity class on the Lower New River in 1998 was comprised of days in the upper 25% of river usage. In actual levels of river usage, this class represents days on which commercial river use was 1,409 or more user days or, in other words, days exceeding 36% of allocated capacity. Four of the seven indicators fell into the *minor action* management category, and included customer crowding scores (5.0), the percentage of customers experiencing crowding (83.0%), median percentage of time customers reported spending in sight of other river trips (76 to 99%), and the percentage of customers whose trip expectations were unmet (32.2%) (Table 4). All indicators rated by trip leaders fell into the *acceptable* management category. Average trip leader crowding scores were 4.9 with 72.6% reporting some level of perceived crowding, and the median percentage of time spent in sight of other river trips was 51 to 75%. Relative to the prescribed standards for this class, the preponderance of indicators falling into the *minor action* category suggests river conditions may warrant some limited or "non-regulatory" form of management response. Examples of such management responses include encouraging outfitters to establish a voluntary trip scheduling procedure to redistribute river usage away from peak to non-peak times. An informational or educational effort directed at rafting guests in an attempt

Table 4. LAC Opportunity Classes and Indicator Analysis for 1998.

Indicator	Low Use-Natural	Moderate Use-Natural	High Use-Scenic	High Use-Scenic Management Category
<b>Upper New River Hinton to Prince</b>	<b>All Days</b>	<b>N/A</b>	<b>N/A</b>	
1998 User Day Division	--	N/A	N/A	--
Average Crowding (Customers)	2.1	N/A	N/A	Re-Assess
Average Crowding (TL)	1.6	N/A	N/A	Re-Assess
% Crowded (Customers)	28.6%	N/A	N/A	Re-Assess
% Crowded (TL)	10.4%	N/A	N/A	Re-Assess
Median % in Sight (Customers)	50 to 75%	N/A	N/A	Acceptable
Median % in Sight (TL)	< 10%	N/A	N/A	Re-Assess
% Customers w/ RTPE score < 0	7.1%	N/A	N/A	Re-Assess
<b>Upper New River Prince to Cunard</b>	<b>Bottom 75% of Days</b>	<b>N/A</b>	<b>Upper 25% of Days</b>	
1998 User Day Division	Less Than 264	N/A	Greater Than 264	--
Average Crowding (Customers)	3.3	N/A	3.8	Acceptable
Average Crowding (TL)	3.1	N/A	3.7	Acceptable
% Crowded (Customers)	56.7%	N/A	71.9%	Acceptable
% Crowded (TL)	49.2%	N/A	62.6%	Re-Assess
Median % in Sight (Customers)	26 to 50%	N/A	26 to 50%	Re-Assess
Median % in Sight (TL)	11 to 25%	N/A	26 to 50%	Re-Assess
% Customers w/ RTPE score < 0	24.6%	N/A	23.5%	Acceptable
<b>Lower New River</b>	<b>Bottom 25% of Days</b>	<b>Middle 50% of Days</b>	<b>Upper 25% of Days</b>	
1998 User Day Division	Less Than 631	632 to 1409	Greater Than 1409	--
Average Crowding (Customers)	3.0	4.2	5.0	Minor Action
Average Crowding (TL)	2.4	3.4	4.8	Acceptable
% Crowded (Customers)	55.6%	71.9%	83.0%	Minor Action
% Crowded (TL)	33.8%	56.9%	72.6%	Acceptable
Median % in Sight (Customers)	51 to 75%	51 to 75%	76 to 99%	Minor Action
Median % in Sight (TL)	11 to 25%	26 to 50%	51 to 75%	Acceptable
% Customers w/ RTPE score < 0	23.3%	30.7%	32.2%	Minor Action

Table 4. LAC Opportunity Classes and Indicator Analysis for 1998.

Indicator	Low Use-Natural	Moderate Use-Natural	High Use-Scenic	High Use-Scenic Management Category
<b>Upper Gauley River</b>	<b>Bottom 25% of Days</b>	<b>N/A</b>	<b>Upper 75% of Days</b>	
1998 User Day Division	Less Than 1125	N/A	Greater Than 1125	--
Average Crowding (Customers)	4.0	N/A	5.0	Minor Action
Average Crowding (TL)	3.3	N/A	5.1	Minor Action
% Crowded (Customers)	69.5%	N/A	83.1%	Minor Action
% Crowded (TL)	62.6%	N/A	81.1%	Minor Action
Median % in Sight (Customers)	51 to 75%	N/A	76 to 99%	Minor Action
Median % in Sight (TL)	26 to 50%	N/A	51 to 75%	Acceptable
% Customers w/ RTPE score < 0	33.9%	N/A	31.6%	Minor Action
<b>Lower Gauley River</b>	<b>Bottom 50% of Days</b>	<b>N/A</b>	<b>Upper 50% of Days</b>	
1998 User Day Division	Less Than 700	N/A	Greater Than 700	--
Average Crowding (Customers)	3.3	N/A	5.8	Minor Action
Average Crowding (TL)	3.4	N/A	5.2	Minor Action
% Crowded (Customers)	58.1%	N/A	92.7%	Mandatory Action
% Crowded (TL)	60.8%	N/A	84.5%	Minor Action
Median % in Sight (Customers)	26 to 50%	N/A	76 to 99%	Minor Action
Median % in Sight (TL)	26 to 50%	N/A	51 to 75%	Acceptable
% Customers w/ RTPE score < 0	20.9%	N/A	44.3%	Mandatory Action
<b>Cheat Canyon</b>	<b>Bottom 75% of Days</b>	<b>N/A</b>	<b>Upper 25% of Days</b>	
1998 User Day Division	Less Than 187	N/A	Greater Than 187	--
Average Crowding (Customers)	1.3	N/A	4.3	Acceptable
Average Crowding (TL)	1.9	N/A	2.9	Re-Assess
% Crowded (Customers)	0.0%	N/A	74.6%	Acceptable
% Crowded (TL)	4.3%	N/A	47.3%	Re-Assess
Median % in Sight (Customers)	< 10%	N/A	26 to 50%	Re-Assess
Median % in Sight (TL)	< 10%	N/A	26 to 50%	Re-Assess
% Customers w/ RTPE score < 0	27.3%	N/A	27.0%	Acceptable
<b>Cheat Narrows</b>				
Outfitters Collected no Customer Surveys on Scheduled Days -- No Opportunity Classes Defined				

Table 4. LAC Opportunity Classes and Indicator Analysis for 1998.				
Indicator	Low Use-Natural	Moderate Use-Natural	High Use-Scenic	High Use-Scenic Management Category
Shenandoah River	Bottom 25% of Days	Middle 50% of Days	Upper 25% of Days	
1998 User Day Division	Less Than 76	77 to 208	Greater Than 208	--
Average Crowding (Customers)	2.5	3.9	4.5	Acceptable
Average Crowding (TL)	2.5	2.9	4.5	Acceptable
% Crowded (Customers)	54.1%	69.6%	80.2%	Minor Action
% Crowded (TL)	39.8%	50.2%	82.4%	Minor Action
Median % in Sight (Customers)	11 to 25%	26 to 50%	26 to 50%	Re-Assess
Median % in Sight (TL)	<10%	11 to 25%	26 to 50%	Re-Assess
% Customers w/ RTPE score < 0	27.0%	22.5%	25.0%	Acceptable
Note: No LAC data collected or analyzed for the Tygart Valley River.				

to persuade them to reserve trips at non-peak times also may be appropriate.

### *Upper Gauley River*

On the Upper Gauley, the *High Use-Scenic* opportunity class was comprised of the upper 75% of usage days on which commercial river use was 1,125 or more user days (37% of allocated capacity). Six of seven indicators fell into the *minor action* management category, and included customer and trip leader crowding scores (5.0 and 5.1, respectively), the percentage of customers and trip leaders who reported crowded conditions (83.1% and 81.1%, respectively), median percentage of time customers reported spending in sight of other river trips (76 to 99%), and the percentage of customers whose trip expectations were unmet (31.6%) (Table 4). Only the median percentage of time trip leaders reported spending in sight of other river trips (51 to 75%) fell into the *acceptable* management category. As on the Lower New, with a preponderance of indicators in the *minor action* category some limited or "light-handed" form of management response may be needed.

### *Lower Gauley River*

Consistent with the findings from the 1995 season (Whisman et al., 1998), conditions on the Lower Gauley represent the most critical in terms of river crowding and customer trip quality. In 1998, the *High Use-Scenic* opportunity class represented days on which commercial river use was 700 or more user days -- days exceeding only 23% of allocated capacity. Scores on two LAC indicators fell into the *mandatory action* management category. These included the percentage of customers experiencing crowding (92.7%) and the percentage of customers whose trip expectations were not met (44.3%). Scores on four additional indicators fell into the *minor action* management category, those being average customer and trip leader crowding scores (5.8 and 5.2), the percentage of trip leaders experiencing crowding (84.5%), and the median percentage of time customers reported spending in sight of other river trips (76 to 99%).

Only one indicator, the median percentage of time trip leaders reported spending in sight of other river trips (51 to 75%) was considered *acceptable*. A preponderance of LAC indicators on the Lower Gauley indicate either *mandatory action* or *minor action* management category conditions. Examples of minor action category river management responses were provided above. However, for conditions in the *mandatory action* category, examples of river management responses include reducing the allocated capacity for the river segment or establishing a mandatory trip scheduling policy. The time-delimited flow releases from Summersville Dam complicates and limits the management alternatives on the Gauley River.

### *Cheat Canyon*

As with the Upper New, no LAC opportunity classes were defined for the Cheat Canyon River in the original management plan. Through application of the opportunity class definition process to the 1998 monitoring data, two classes were defined: *Low Use-Natural* for days in the bottom 75% of river usage (less than 187 user days); and *High Use-Scenic* for days in the upper 25% of river usage (187 user days or greater). The maximum use day on the Cheat Canyon in 1998 accounted for 438 user days.

The *High Use-Scenic* class shows conditions on the Cheat Canyon generally to be acceptable. Four of seven indicators were fell into the *acceptable* management category, including average customer crowding scores (4.3), the percentage of customers reporting crowding experiences (74.6%), and the percentage of customers whose trip expectations were unmet (27.0%). At the opposite end of the spectrum were average trip leader crowding scores (3.3) and median percentage of time customers and trip leaders reported spending in sight of other river trips (26 to 50% and 51 to 75%, respectively), all of which fell into the *re-assess* management category. These river conditions are such that no management actions are necessarily warranted.

### *Shenandoah River*

Application of the opportunity class definition process to the 1998 monitoring data on the Shenandoah River resulted in three classes that were essentially are equivalent to the three classes on the Lower New River: *Low Use-Natural* for days in the bottom 25% of river usage (less than 76 user days); *Moderate Use-Natural* for days in the middle 50% of river usage (76 to 208 user days); and *High Use-Scenic* for days in the upper 25% of river usage (208 user days or greater).

The *High Use-Scenic* class shows conditions on the Shenandoah on balance to be acceptable. Three of seven indicators were *acceptable*, including average crowding scores of both customers (4.5) and trip leaders (4.6), and the percentage of customers whose trip expectations were unmet (25.0%). Conversely, two indicators - the percentage of customers and trip leaders reporting some level of perceived crowding (80.1 and 87.9%, respectively) indicate *minor action* management conditions. At the opposite end of the spectrum were the median percentage of time customers and trip leaders reported spending in sight of other river trips (26 to 50%), which both fell into the *re-assess* management category. Taken all together, these river conditions are such that no management actions are necessarily recommended.

## Summary and Recommendations

The Lower Gauley river exhibited the most critical river conditions in the context of the LAC river management framework and corresponding indicator standards. Scores on two of seven indicators suggested some "mandatory" form of river management responses, while scores on four other indicators suggested "minor" actions. Only one indicator was deemed "acceptable" on the Lower Gauley. Similarly, on the Upper Gauley, "minor" river management actions were suggested by six of seven indicators, while on the Lower River, "minor" management actions were suggested by four of seven indicators. Indicators on all other river segments were deemed acceptable.

Data from 1995 provide an indication of river management actions generally supported by guests of commercial outfitters (Whisman et al. 1998). For example, in 1995 62% of Lower Gauley guests supported river trip scheduling and 42% supported decreasing the number of rafts allowed on the river at any one time. Similar proportions were found on the Upper Gauley and Lower New Rivers. At the same time, guests generally opposed either increasing or decreasing the number of boaters on the river. Combined, these findings point to general support among guests of commercial outfitters for redistributing river use to increase spacing between trips.

During the 1999 fall quarterly meeting, the West Virginia Whitewater Commission approved the findings of this report. Additionally, the Commission accepted the recommendation from the LAC Study Committee to continue efforts to develop appropriate river management responses based on this and future annual reports.

## References

Shelby, B. B., J. J. Vaske, and T. A. Heberlein. (1989). Comparative analysis of crowding in multiple locations: Results of fifteen years of research. *Leisure Sciences* 11:269-291.

Whisman, S. A., Hollenhorst, S. J. & Jones, C. (1998). Summary of resource and social indicators on the Gauley, New, Cheat, Shenandoah, and Tygart Valley Rivers in West Virginia, WV. Final project report submitted to the West Virginia Whitewater Commission. Charleston, WV. (Condensed summary may be viewed at [www.caf.wvu.edu/for/pandr/www/www.htm](http://www.caf.wvu.edu/for/pandr/www/www.htm)).



APPENDIX A:

Customer Survey Questionnaire and Trip Leader Report Form

Trip Leader Instructions for Administering Commercial Customer Survey

1. Customer surveys are to be administered at a rate of approximately one booklet for every 25 customers as follows:

No. of Customers on Trip	No. of Survey Booklets	No of Surveys
25 or less	1	12
26 to 50	2	24
51 or more	3	36

- Customer surveys must be administered after the river trip and aboard buses during the shuttle from the take-out to the outfitter base-camp.
- Every-other customer is to be surveyed. To ensure a systematic random sample, one person on each bench -- 2 per row on the bus -- should complete a survey. Examples of ways to accomplish a systematic random sample include (1) having all customers seated at the isle complete a survey; (2) having all customers seated at a window complete a survey; or (3) having all customers seated at the isle on the passenger side and all customers seated at a window on the driver side of the bus complete a survey. Alternating these selection strategies from trip to trip will further ensure that a random sample is obtained
- The following introduction should be read to the customers before they complete the survey::

*As part of an ongoing river management plan the WV Division of Natural Resources and the WV Whitewater Commission are conducting this survey. By completing this survey, you can help West Virginia monitor conditions on its whitewater rivers and ensure that quality river trip experiences are being provided. It is important that you answer all questions as completely and accurately as possible based on your experience on the river today.*

5. Complete the following trip information: (Use location codes on the Trip Leader Reports for Put-in and Take-out Sites; Enter Put-in and Take-out Times to the nearest quarter hour -- 9:15 AM)

License No. \_\_\_\_\_ Date \_\_\_\_\_ River \_\_\_\_\_ No. of Guests \_\_\_\_\_

Put-in Site \_\_\_\_\_ Put-In Time \_\_\_\_\_ Take-out Site \_\_\_\_\_ Take-out Time \_\_\_\_\_

1. Which of the following best describes the type of river experience you EXPECTED to have today? (Please check only ONE response.)

- Remote - Wilderness An unmodified natural river environment with extremely challenging rapids. Minimal evidence of other people and abundant opportunities for solitude.
- Low Density - Natural A predominantly natural river environment with challenging and exciting rapids. Some evidence of other people, but few opportunities to contact or interact with others.
- Moderate Density - Rural A scenic, natural appearing river environment with exciting rapids. Evidence of others is common, but people are dispersed and opportunities to contact or interact with others are few to moderate.
- Social A scenic, natural appearing river environment with exciting rapids. Evidence of other people is prevalent and a moderate number of opportunities to contact or interact and have fun with other people are available.

2. Which of the river experiences in Question 1 best describes the river experience you RECEIVED today?

- Remote - Wilderness     Low Density - Natural     Moderate Density - Rural     Social

3. What percentage of your time on the river today was spent within sight of other whitewater boaters that were not in your trip? (Please check only ONE response.)

- Less than 10%     11 to 25%     26 to 50%     51 to 75%     76 to 99%     100%

4. Indicate how crowded, if at all, you felt during your trip down the river? (Please circle only ONE response.)

Not at all Crowded		Slightly Crowded		Moderately Crowded		Extremely Crowded
1	2	3	4	5	6	7
						8
						9

Commercial Whitewater Trip Leader's Report

License Number \_\_\_\_\_ River \_\_\_\_\_ Date \_\_\_\_\_

1. Trip Information *(Use location codes at the bottom of this page for Put-in and Take-out Sites; Enter Put-in and Take-out Times to the nearest quarter hour -- 9:15 AM)*

Put-in Site \_\_\_\_\_ Put-In Time \_\_\_\_\_ Water Level ⇨ \_\_\_\_\_ ft  
 Take-out Site \_\_\_\_\_ Take-out Time \_\_\_\_\_ ⇨ \_\_\_\_\_ cfs  
 No. of Guests \_\_\_\_\_ No. of Guides \_\_\_\_\_ No. of Trainees \_\_\_\_\_

Number of: Rafts \_\_\_\_\_ Duckies \_\_\_\_\_ Kayaks \_\_\_\_\_ Video \_\_\_\_\_ Other \_\_\_\_\_

2. What percentage of your time on the river today was spent within sight of other whitewater boaters that were not in your trip? (Please check only ONE response.)

Less than 10%     11 to 25%     26 to 50%     51 to 75%     76 to 99%     100%

3. Indicate how crowded the river was during your trip? (Please circle only ONE response)

Not at all Crowded		Slightly Crowded			Moderately Crowded			Extremely Crowded
1	2	3	4	5	6	7	8	9

4. Did any injuries requiring treatment by a licensed health care professional occur on your trip?     Yes     No

I do hereby solemnly swear or affirm that the information contained herein, to the best of my knowledge, is true, correct, and complete.

Name (print) \_\_\_\_\_

Signature \_\_\_\_\_

Gauley River		New River		Cheat River		Tygart River		Shenandoah River	
Summersville Dam	SD	Prince	PR	Rowelsburg	RB	Belington	BE	Millville	MV
River Gauge	RG	Sandstone/Meadow Cr	SS	Rt 72 Bridge	SB	Audra SP	AU	Potoma Wayside	PT
Carnifax Ferry	CF	Stonecliff/Thurmond	ST	Albright	AB	Philippi	PH	Other (Specify)	OT
Mason Branch	MB	Cunard	CU	Jenkinsburg Bridge	JB	Arden	AR		
Woods Ferry	WF	Fayette Station	FS	Other (Specify)	OT	Moatsville	MT		
Ramsey Branch	RB	Teays Landing	TL			Cove Run	CR		
Laurel Creek	LC	Hinton	HT			Valley Falls SP	VF		
Koontz Bend	KB	Other (Specify)	OT			Hammond	HA		
Bucklick	BL								
Peters Creek	PC								
Sugar Creek	SC								
Swiss - Upper	SU								
Swiss - Lower	SL								
Jodie	JO								
Other (Specify)	OT								

APPENDIX B:  
Annual Commercial River Use Trends

Table 5. Annual Commercial River Use Trends

River	1995	1996		1997		1998	
	User Days	User Days	Trend (%)	User Days	Trend (%)	User Days	Trend (%)
Upper New	21,647	22,877	5.7%	20,956	-8.4%	24,740	18.1%
Lower New	138,495	134,699	-2.7%	131,635	-2.3%	134,031	1.8%
Upper Gauley	43,082	41,648	-3.3%	39,061	-6.2%	41,634	6.6%
Lower Gauley	24,480	23,104	-5.6%	22,020	-4.7%	23,455	6.5%
Cheat Canyon	9,637	8,448	-12.3%	6,112	-27.7%	4,995	-18.3%
Cheat Narrows	3,109	3,700	19.0%	3,542	-4.3%	3,492	-1.4%
Shenandoah	18,194	19,219	5.6%	17,890	-6.9%	19,367	8.3%
Tygart Valley	370	233	-37.0%	258	10.7%	207	-19.8%
	259,014	253,928	-2.0%	241,474	-4.9%	251,921	4.3%

APPENDIX C:  
Allocation and Over-booking Allowance Utilization

**Table 6. Allocation Utilization on the Lower New, Upper Gauley, and Lower Gauley Rivers in 1998**

Outfitter	Lower New - 108 Day Season				Upper Gauley - 22 Day Season				Lower Gauley- 22 Day Season			
	% Days > 90% of Allocation	% Days 75% to 89% of Allocation	% Days 50% to 74% of Allocation	% Days < 50% of Allocation	% Days > 90% of Allocation	% Days 75% to 89% of Allocation	% Days 50% to 74% of Allocation	% Days < 50% of Allocation	% Days > 90% of Allocation	% Days 75% to 89% of Allocation	% Days 50% to 74% of Allocation	% Days < 50% of Allocation
ACE Whitewater (ACE)	8%	4%	19%	69%	58%	17%	8%	17%	0%	9%	36%	55%
Rivers (RIV)	5%	6%	11%	79%	32%	5%	36%	27%	0%	14%	9%	77%
Rivers II (RIV II)	4%	6%	11%	79%	32%	5%	36%	27%	0%	14%	9%	77%
Extreme Expeditions (EEI)	7%	6%	11%	76%	32%	9%	32%	27%	0%	14%	9%	77%
Alpine Bible Camp (ABC)	0%	2%	5%	93%	--	--	--	--	--	--	--	--
Cantrell Canoes (CCR)	0%	0%	1%	99%	--	--	--	--	--	--	--	--
Class VI (CVI)	3%	2%	12%	83%	55%	14%	5%	27%	9%	9%	5%	77%
Drift-a-Bit (DAB)	4%	3%	6%	87%	9%	14%	18%	59%	0%	0%	18%	82%
Mountain River Tours (MRT)	8%	3%	14%	75%	50%	5%	9%	36%	18%	5%	9%	68%
Mountain Streams & Trails (MST)	-- <sup>a</sup>	--	--	--	23%	5%	14%	59%	5%	5%	5%	85%
New River Scenic (NRSW)	5%	6%	6%	83%	14%	5%	5%	77%	0%	0%	5%	95%
New and Gauley River Adventures (NGRA)	7%	2%	6%	84%	23%	5%	14%	59%	0%	5%	14%	81%
North American (NARR)	2%	2%	14%	84%	23%	5%	27%	45%	0%	0%	5%	95%
Passages to Adventure (PTA)	0%	0%	1%	99%	0%	0%	14%	86%	0%	0%	5%	95%
Precision Rafting (PRE)	--	--	--	--	18%	5%	5%	72%	18%	5%	5%	72%
Songer Whitewater (SW)	11%	6%	9%	73%	23%	18%	5%	55%	0%	0%	14%	86%
The Rivermen (TR)	25%	6%	14%	56%	32%	5%	18%	45%	0%	5%	18%	77%
USA Raft (USA)	0%	5%	13%	82%	0%	5%	32%	64%	18%	9%	9%	64%
Appalachian Wildwater (AW)	1%	3%	8%	88%	41%	5%	9%	45%	0%	4%	18%	77%
West Virginia Whitewater (WVW)	0%	0%	4%	96%	0%	5%	9%	86%	0%	0%	0%	100%
Whitewater Information (WWI)	2%	1%	7%	90%	9%	0%	9%	82%	0%	5%	9%	86%
Wildwater Expeditions (WWE)	0%	1%	10%	89%	9%	0%	32%	59%	0%	0%	5%	95%
Average	5%	3%	9%	83%	24%	7%	17%	53%	3%	5%	10%	81%

<sup>a</sup> "--" indicates outfitter is not licensed on the respective river segment

**Table 7. Utilization of Over-booking Allowances on the Lower New, Upper Gauley, and Lower Gauley Rivers in 1998**

Outfitter	Lower New			Upper Gauley			Lower Gauley		
	Days 0 to 10% Over Allocation	Days 11 to 25% Over Allocation	Days > 25% Over Allocation	Days 0 to 10% Over Allocation	Days 11 to 25% Over Allocation	Days > 25% Over Allocation	Days 0 to 10% Over Allocation	Days 11 to 25% Over Allocation	Days > 25% Over Allocation
ACE Whitewater (ACE)	2	2	1	3	5	1	0	0	0
Rivers (RIV)	1	3	1	3	2	0	0	0	0
Rivers II (RIV II)	1	3	1	3	2	0	0	0	0
Extreme Expeditions (EEI)	2	2	4	3	3	0	0	0	0
Alpine Bible Camp (ABC)	0	0	0	-- <sup>a</sup>	--	--	--	--	--
Cantrell Canoes (CCR)	0	0	0	--	--	--	--	--	--
Class VI (CVI)	1	1	0	2	8	0	1	0	0
Drift-a-Bit (DAB)	0	0	0	0	0	0	0	0	0
Mountain River Tours (MRT)	2	2	1	4	2	3	1	1	2
Mountain Streams & Trails (MST)	--	--	--	3	0	1	0	0	0
New River Scenic (NRSW)	2	3	0	1	1	0	0	0	0
New and Gauley River Adventures (NGRA)	0	0	6	2	0	0	0	0	0
North American (NARR)	1	1	0	2	1	0	0	0	0
Passages to Adventure (PTA)	0	0	0	0	0	0	0	0	0
Precision Rafting (PRE)	--	--	--	0	0	0	0	0	0
Songer Whitewater (SW)	4	1	3	2	1	0	0	0	0
The Rivermen (TR)	5	6	10	3	2	0	0	0	0
USA Raft (USA)	0	0	0	0	0	0	3	0	0
Appalachian Wildwater (AW)	0	0	0	1	3	4	0	0	0
West Virginia Whitewater (WVW)	0	0	0	0	0	0	0	0	0
Whitewater Information (WWI)	0	2	0	0	1	0	0	0	0
Wildwater Expeditions (WWE)	0	0	0	0	0	0	0	0	0
Average	1.05	1.30	1.35	1.60	1.55	0.45	0.25	0.05	0.10

<sup>a</sup> "--" indicates outfitter is not licensed on the respective river segment



APPENDIX D:  
Daily Indicator Scores from Customer Surveys and Trip Leader Reports

Table 8. Daily indicator scores from 1998 customer survey.

CHEAT CANYON								
Date		Percent Unmet Expectations (Neg. RTPE)	Time in Sight (Median)	Crowding (Avg)	Percent Crowded	Guests per Trip (Avg)	Commercial User Days	Sample Size
5/2/98	Sat	28.6%	26 to 50%	3.3	59.1%	37.7	262	41
5/9/98	Sat	17.2%	11 to 25%	2.2	27.6%	29.2	212	29
5/10/98	Sun	27.3%	< 10%	1.3	0.0%	34.0	104	22
5/16/98	Sat	17.5%	26 to 50%	3.8	77.5%	37.6	348	40
5/23/98	Sat	25.0%	11 to 25%	4.7	79.7%	57.5	265	64
5/24/98	Sun	32.6%	26 to 50%	5.0	86.4%	64.5	194	132
UPPER GAULEY								
Date		Percent Unmet Expectations (Neg. RTPE)	Time in Sight (Median)	Crowding (Avg)	Percent Crowded	Guests per Trip (Avg)	Commercial User Days	Sample Size
9/11/98	Fri	27.5%	26 to 50%	3.9	52.9%	33.4	1,171	51
9/12/98	Sat	45.3%	76 to 99%	5.7	98.7%	36.8	2,913	75
9/13/98	Sun	39.1%	76 to 99%	5.6	86.2%	41.1	2,442	138
9/18/98	Fri	--	--	--	--	--	--	--
9/19/98	Sat	16.8%	51 to 75%	4.9	85.4%	38.3	3,023	130
9/20/98	Sun	25.7%	51 to 75%	4.5	80.0%	38.0	2,617	70
9/25/98	Fri	41.3%	76 to 99%	5.2	89.9%	34.6	1,363	109
9/26/98	Sat	37.5%	76 to 99%	6.0	97.5%	34.5	2,836	40
9/27/98	Sun	20.6%	51 to 75%	4.5	80.9%	33.7	2,191	141
9/28/98	Mon	75.0%	51 to 75%	4.0	100.0%	5.0	774	4
10/2/98	Fri	20.0%	26 to 50%	3.0	52.0%	18.0	781	25
10/3/98	Sat	40.7%	76 to 99%	5.5	90.2%	34.8	2,727	112
10/4/98	Sun	28.6%	76 to 99%	4.3	77.1%	20.5	1,569	35
10/5/98	Mon	44.0%	76 to 99%	5.4	88.0%	32.4	592	25
10/9/98	Fri	20.0%	11 to 25%	2.4	40.0%	9.0	734	5
10/10/98	Sat	28.1%	51 to 75%	3.8	59.6%	35.5	2,497	57
10/11/98	Sun	33.3%	51 to 75%	4.0	76.7%	13.7	1,902	21
LOWER GAULEY								
Date		Percent Unmet Expectations (Neg. RTPE)	Time in Sight (Median)	Crowding (Avg)	Percent Crowded	Guests per Trip (Avg)	Commercial User Days	Sample Size
9/11/98	Fri	--	--	--	--	--	--	--
9/12/98	Sat	29.2%	76 to 99%	4.7	83.3%	39.0	2,200	24
9/13/98	Sun	46.2%	100%	7.4	100.0%	28.0	1,477	13
9/18/98	Fri	25.0%	76 to 99%	4.5	91.7%	13.0	657	12
9/19/98	Sat	38.4%	76 to 99%	6.2	98.6%	35.0	2,231	73
9/20/98	Sun	45.7%	51 to 75%	6.1	94.3%	30.9	1,373	35
9/25/98	Fri	--	--	--	--	--	--	--
9/26/98	Sat	--	--	--	--	--	--	--
9/27/98	Sun	--	--	--	--	--	--	--
9/28/98	Mon	--	--	--	--	--	--	--
10/2/98	Fri	21.1%	26 to 50%	4.3	94.7%	14.2	406	19
10/3/98	Sat	42.4%	76 to 99%	5.6	92.8%	42.7	1,288	125
10/4/98	Sun	42.4%	51 to 75%	4.6	75.8%	30.4	787	33
10/5/98	Mon	33.3%	51 to 75%	4.7	72.2%	16.0	179	18
10/9/98	Fri	28.6%	51 to 75%	2.4	50.0%	38.0	413	14
10/10/98	Sat	64.6%	100%	6.8	97.9%	35.9	1,249	48

10/11/98	Sun	47.1%	76 to 99%	5.2	98.2%	31.2	862	17
<i>UPPER NEW -- Hinton to Prince</i>								
Date		Percent Unmet Expectations (Neg. RTPE)	Time in Sight (Median)	Crowding (Avg)	Percent Crowded	Guests per Trip (Avg)	Commercial User Days	Sample Size
5/23/98	Sat	--	--	--	--	--	--	--
5/24/98	Sun	--	--	--	--	--	--	--
5/30/98	Sat	--	--	--	--	--	--	--
5/31/98	Sun	--	--	--	--	--	--	--
6/2/98	Tue	--	--	--	--	--	--	--
6/4/98	Thu	--	--	--	--	--	--	--
6/5/98	Fri	--	--	--	--	--	--	--
6/6/98	Sat	--	--	--	--	--	--	--
6/7/98	Sun	--	--	--	--	--	--	--
6/13/98	Sat	--	--	--	--	--	--	--
6/15/98	Mon	--	--	--	--	--	--	--
6/16/98	Tue	--	--	--	--	--	--	--
6/17/98	Wed	--	--	--	--	--	--	--
6/18/98	Thu	--	--	--	--	--	--	--
6/19/98	Fri	--	--	--	--	--	--	--
6/20/98	Sat	--	--	--	--	--	--	--
6/21/98	Sun	--	--	--	--	--	--	--
6/22/98	Mon	--	--	--	--	--	--	--
6/27/98	Sat	--	--	--	--	--	--	--
6/28/98	Sun	--	--	--	--	--	--	--
7/4/98	Sat	8.3%	76 to 99%	2.3	41.7%	10.0	45	12
7/5/98	Sun	11.1%	76 to 99%	2.4	33.3%	12.6	51	9
7/6/98	Mon	--	--	--	--	--	--	--
7/7/98	Tue	--	--	--	--	--	--	--
7/8/98	Wed	--	--	--	--	--	--	--
7/9/98	Thu	--	--	--	--	--	--	--
7/10/98	Fri	--	--	--	--	--	--	--
7/11/98	Sat	--	--	--	--	--	--	--
7/12/98	Sun	--	--	--	--	--	--	--
7/18/98	Sat	--	--	--	--	--	--	--
7/19/98	Sun	--	--	--	--	--	--	--
7/20/98	Mon	--	--	--	--	--	--	--
7/21/98	Tue	--	--	--	--	--	--	--
7/22/98	Wed	--	--	--	--	--	--	--
7/23/98	Thu	--	--	--	--	--	--	--
7/24/98	Fri	--	--	--	--	--	--	--
7/27/98	Mon	--	--	--	--	--	--	--
7/28/98	Tue	--	--	--	--	--	--	--
7/31/98	Fri	--	--	--	--	--	--	--
8/1/98	Sat	--	--	--	--	--	--	--
8/2/98	Sun	--	--	--	--	--	--	--
8/3/98	Mon	--	--	--	--	--	--	--
8/4/98	Tue	--	--	--	--	--	--	--
8/5/98	Wed	--	--	--	--	--	--	--
8/6/98	Thu	--	--	--	--	--	--	--

8/7/98	Fri	--	--	--	--	--	--	--
8/8/98	Sat	--	--	--	--	--	--	--
8/9/98	Sun	--	--	--	--	--	--	--
8/15/98	Sat	--	--	--	--	--	--	--
8/16/98	Sun	--	--	--	--	--	--	--
8/17/98	Mon	--	--	--	--	--	--	--
8/18/98	Tue	--	--	--	--	--	--	--
8/19/98	Wed	--	--	--	--	--	--	--
8/20/98	Thu	--	--	--	--	--	--	--
8/21/98	Fri	--	--	--	--	--	--	--
8/22/98	Sat	0.0%	< 10%	1.2	0.0%	5.0	28	5
8/23/98	Sun	0.0%	< 10%	1.0	0.0%	4.0	38	2
8/24/98	Mon	--	--	--	--	--	--	--
8/25/98	Tue	--	--	--	--	--	--	--
8/28/98	Fri	--	--	--	--	--	--	--
8/29/98	Sat	--	--	--	--	--	--	--
8/30/98	Sun	--	--	--	--	--	--	--
9/5/98	Sat	--	--	--	--	--	--	--
9/6/98	Sun	--	--	--	--	--	--	--
<i>UPPER NEW -- Prince to Cunard</i>								
Date		Percent Unmet Expectations (Neg. RTPE)	Time in Sight (Median)	Crowding (Avg)	Percent Crowded	Guests per Trip (Avg)	Commercial User Days	Sample Size
5/23/98	Sat	11.1%	11 to 25%	1.9	33.3%	22.0		9
5/24/98	Sun	17.4%	11 to 25%	4.0	69.6%	63.0		23
5/30/98	Sat	0.0%	< 10%	2.0	20.0%	10.0		5
5/31/98	Sun	--	--	--	--	--	--	--
6/2/98	Tue	--	--	--	--	--	--	--
6/4/98	Thu	--	--	--	--	--	--	--
6/5/98	Fri	--	--	--	--	--	--	--
6/6/98	Sat	58.1%	26 to 50%	3.2	63.6%	18.0		22
6/7/98	Sun	0.0%	11 to 25%	2.3	25.0%	5.0		4
6/13/98	Sat	--	--	--	--	--	--	--
6/15/98	Mon	--	--	--	--	--	--	--
6/16/98	Tue	20.0%	26 to 50%	1.6	20.0%	10.0		5
6/17/98	Wed	38.5%	11 to 25%	2.8	53.8%	17.0		13
6/18/98	Thu	--	--	--	--	--	--	--
6/19/98	Fri	16.7%	26 to 50%	2.9	50.0%	18.0		12
6/20/98	Sat	24.0%	11 to 25%	2.2	28.0%	16.9		25
6/21/98	Sun	12.8%	11 to 25%	1.9	23.4%	64.1		47
6/22/98	Mon	--	--	--	--	--	--	--
6/27/98	Sat	--	--	--	--	--	--	--
6/28/98	Sun	0.0%	11 to 25%	3.1	85.7%	5.0		7
7/4/98	Sat	--	--	--	--	--	--	--
7/5/98	Sun	--	--	--	--	--	--	--
7/6/98	Mon	18.2%	11 to 25%	2.8	50.0%	24.5		22
7/7/98	Tue	11.1%	11 to 25%	1.6	0.0%	12.0		9
7/8/98	Wed	33.3%	11 to 25%	3.1	44.4%	28.0		18
7/9/98	Thu	--	--	--	--	--	--	--
7/10/98	Fri	16.7%	< 10%	2.2	33.3%	11.0		6
7/11/98	Sat	--	--	--	--	--	--	--

7/12/98	Sun	--	--	--	--	--	--	--
7/18/98	Sat	0.0%	26 to 50%	4.3	100.0%	20.0	--	12
7/19/98	Sun	--	--	--	--	--	--	--
7/20/98	Mon	17.6%	26 to 50%	3.5	82.4%	17.8	--	17
7/21/98	Tue	81.8%	51 to 75%	6.6	100.0%	38.0	--	11
7/22/98	Wed	25.0%	51 to 75%	4.1	71.4%	26.8	--	56
7/23/98	Thu	26.3%	76 to 99%	4.6	68.4%	12.6	--	19
7/24/98	Fri	31.3%	11 to 25%	4.5	81.2%	8.1	--	16
7/27/98	Mon	--	--	--	--	--	--	--
7/28/98	Tue	--	--	--	--	--	--	--
7/31/98	Fri	--	--	--	--	--	--	--
8/1/98	Sat	0.0%	26 to 50%	4.3	100.0%	8.0	--	8
8/2/98	Sun	28.6%	26 to 50%	3.7	76.2%	21.4	--	21
8/3/98	Mon	31.3%	76 to 99%	6.1	100.0%	24.8	--	16
8/4/98	Tue	--	--	--	--	--	--	--
8/5/98	Wed	50.0%	< 10%	2.8	54.5%	12.3	--	6
8/6/98	Thu	25.0%	51 to 75%	4.3	23.3%	26.0	--	12
8/7/98	Fri	16.7%	11 to 25%	1.3	0.0%	21.0	--	6
8/8/98	Sat	25.9%	51 to 75%	4.2	88.9%	48.5	--	27
8/9/98	Sun	42.9%	26 to 50%	4.6	85.7%	4.7	--	7
8/15/98	Sat	0.0%	26 to 50%	3.9	100.0%	12.0	--	12
8/16/98	Sun	0.0%	11 to 25%	3.0	85.7%	7.0	--	7
8/17/98	Mon	14.8%	26 to 50%	2.7	44.4%	25.0	--	26
8/18/98	Tue	22.2%	11 to 25%	2.8	33.3%	16.0	--	9
8/19/98	Wed	25.0%	11 to 25%	3.0	75.0%	8.0	--	4
8/20/98	Thu	25.0%	26 to 50%	4.7	83.3%	15.9	--	12
8/21/98	Fri	77.8%	< 10%	4.4	65.6%	18.0	--	9
8/22/98	Sat	22.2%	< 10%	3.7	44.4%	7.2	--	9
8/23/98	Sun	33.3%	76 to 99%	7.0	100.0%	9.0	--	3
8/24/98	Mon	--	--	--	--	--	--	--
8/25/98	Tue	--	--	--	--	--	--	--
8/28/98	Fri	--	--	--	--	--	--	--
8/29/98	Sat	--	--	--	--	--	--	--
8/30/98	Sun	--	--	--	--	--	--	--
9/5/98	Sat	--	--	--	--	--	--	--
9/6/98	Sun	20.0%	< 10%	1.4	100.0%	16.0	--	5
<i>LOWER NEW</i>								
Date		Percent Unmet Expectations (Neg. RTPE)	Time in Sight (Median)	Crowding (Avg)	Percent Crowded	Guests per Trip (Avg)	Commercial User Days	Sample Size
5/23/98	Sat	31.3%	76 to 99%	4.1	72.5%	31.3	1,607	80
5/24/98	Sun	32.9%	51 to 75%	4.5	76.7%	39.3	2,387	161
5/30/98	Sat	22.0%	76 to 99%	4.4	76.3%	38.5	1,416	59
5/31/98	Sun	14.3%	76 to 99%	3.8	78.6%	29.0	471	14
6/2/98	Tue	--	--	--	--	--	--	--
6/4/98	Thu	--	--	--	--	--	--	--
6/5/98	Fri	--	--	--	--	--	--	--
6/6/98	Sat	13.4%	26 to 50%	4.2	83.2%	33.4	2,037	119
6/7/98	Sun	19.0%	26 to 50%	3.8	81.0%	36.3	560	21
6/13/98	Sat	36.5%	76 to 99%	2.8	45.9%	60.0	2,340	74
6/15/98	Mon	19.4%	51 to 75%	3.3	58.3%	26.3	658	36

6/16/98	Tue	0.0%	11 to 25%	1.0	0.0%	4.0	818	2
6/17/98	Wed	--	--	--	--	--	--	--
6/18/98	Thu	29.1%	26 to 50%	4.0	76.4%	43.2	934	127
6/19/98	Fri	--	--	--	--	--	--	--
6/20/98	Sat	32.9%	51 to 75%	3.9	65.0%	36.2	2,014	246
6/21/98	Sun	33.1%	51 to 75%	3.2	59.1%	31.2	835	124
6/22/98	Mon	0.0%	< 10%	1.5	0.0%	6.0	472	3
6/27/98	Sat	28.6%	76 to 99%	4.6	83.3%	55.7	2,865	133
6/28/98	Sun	16.4%	26 to 50%	3.2	64.2%	38.1	1,223	67
7/4/98	Sat	24.2%	76 to 99%	5.7	78.8%	25.2	2,417	33
7/5/98	Sun	25.0%	11 to 25%	2.8	43.7%	11.1	700	16
7/6/98	Mon	16.7%	11 to 25%	2.0	27.8%	26.0	637	18
7/7/98	Tue	--	--	--	--	--	--	--
7/8/98	Wed	31.3%	51 to 75%	4.3	84.8%	43.0	818	66
7/9/98	Thu	31.4%	26 to 50%	2.3	34.3%	40.9	623	35
7/10/98	Fri	22.4%	26 to 50%	3.5	63.5%	34.6	1,181	85
7/11/98	Sat	44.8%	76 to 99%	5.2	87.5%	35.5	3,004	105
7/12/98	Sun	0.0%	26 to 50%	3.7	100.0%	15.0	1,617	12
7/18/98	Sat	5.6%	51 to 75%	5.3	86.1%	52.0	3,214	36
7/19/98	Sun	16.7%	26 to 50%	5.3	91.7%	34.0	1,479	24
7/20/98	Mon	32.8%	51 to 75%	4.7	83.6%	39.3	852	61
7/21/98	Tue	33.8%	76 to 99%	5.9	90.5%	49.1	904	74
7/22/98	Wed	33.3%	51 to 75%	3.7	64.6%	27.8	746	48
7/23/98	Thu	34.6%	76 to 99%	4.5	74.1%	28.8	957	81
7/24/98	Fri	33.3%	76 to 99%	5.3	89.1%	29.0	1,401	129
7/27/98	Mon	--	--	--	--	--	--	--
7/28/98	Tue	--	--	--	--	--	--	--
7/31/98	Fri	--	--	--	--	--	--	--
8/1/98	Sat	37.1%	76 to 99%	5.8	91.7%	47.1	2,525	132
8/2/98	Sun	73.9%	76 to 99%	5.9	95.7%	19.9	1,421	23
8/3/98	Mon	53.6%	51 to 75%	4.6	69.6%	29.2	959	56
8/4/98	Tue	16.7%	51 to 75%	4.6	79.2%	23.2	835	24
8/5/98	Wed	22.2%	76 to 99%	4.7	85.2%	63.0	1,014	27
8/6/98	Thu	--	--	--	--	--	--	--
8/7/98	Fri	34.9%	51 to 75%	4.2	64.0%	42.1	1,387	86
8/8/98	Sat	45.0%	100%	6.1	89.9%	40.6	2,728	169
8/9/98	Sun	43.6%	76 to 99%	5.6	90.9%	44.1	1,478	55
8/15/98	Sat	23.0%	51 to 75%	5.2	83.4%	45.2	2,640	200
8/16/98	Sun	2.4%	26 to 50%	4.0	97.6%	27.0	1,440	84
8/17/98	Mon	25.0%	51 to 75%	4.8	90.6%	35.6	834	64
8/18/98	Tue	12.7%	11 to 25%	2.5	40.3%	35.8	678	62
8/19/98	Wed	29.8%	51 to 75%	3.6	63.8%	46.3	694	47
8/20/98	Thu	40.0%	76 to 99%	3.9	65.7%	28.4	949	35
8/21/98	Fri	20.0%	11 to 25%	1.4	0.0%	10.0	1,207	5
8/22/98	Sat	42.0%	76 to 99%	6.5	97.3%	29.4	2,397	112
8/23/98	Sun	28.9%	76 to 99%	6.7	97.6%	35.2	1,445	83
8/24/98	Mon	--	--	--	--	--	--	--
8/25/98	Tue	--	--	--	--	--	--	--
8/28/98	Fri	--	--	--	--	--	--	--
8/29/98	Sat	58.3%	100%	6.6	91.7%	18.0	1,471	24

8/30/98	Sun	70.8%	76 to 99%	6.9	100.0%	36.0	863	24
9/5/98	Sat	43.6%	100%	5.2	87.2%	27.9	1,303	39
9/6/98	Sun	57.0%	100%	5.9	89.1%	38.9	2,910	102
<i>SHENANDOAH</i>								
Date		Percent Unmet Expectations (Neg. RTPE)	Time in Sight (Median)	Crowding (Avg)	Percent Crowded	Guests per Trip (Avg)	Commercial User Days	Sample Size
5/23/98	Sat	20.0%	26 to 50%	3.9	74.3%	40.0	182	105
5/24/98	Sun	22.3%	26 to 50%	4.4	79.6%	41.0	208	103
5/30/98	Sat	--	--	--	--	--	--	--
5/31/98	Sun	--	--	--	--	--	--	--
6/2/98	Tue	0.0%	11 to 25%	2.6	54.5%	12.0	23	11
6/4/98	Thu	0.0%	11 to 25%	2.9	87.5%	8.0	93	8
6/5/98	Fri	0.0%	11 to 25%	3.0	100.0%	10.0	23	10
6/6/98	Sat	0.0%	< 10%	1.5	0.0%	4.0	329	4
6/7/98	Sun	--	--	--	--	--	--	--
6/13/98	Sat	--	--	--	--	--	--	--
6/15/98	Mon	--	--	--	--	--	--	--
6/16/98	Tue	--	--	--	--	--	--	--
6/17/98	Wed	--	--	--	--	--	--	--
6/18/98	Thu	--	--	--	--	--	--	--
6/19/98	Fri	--	--	--	--	--	--	--
6/20/98	Sat	19.1%	26 to 50%	4.1	76.3%	46.8	290	157
6/21/98	Sun	19.7%	26 to 50%	4.1	77.1%	38.3	170	71
6/22/98	Mon	--	--	--	--	--	--	--
6/27/98	Sat	--	--	--	--	--	--	--
6/28/98	Sun	--	--	--	--	--	--	--
7/4/98	Sat	--	--	--	--	--	--	--
7/5/98	Sun	--	--	--	--	--	--	--
7/6/98	Mon	--	--	--	--	--	--	--
7/7/98	Tue	--	--	--	--	--	--	--
7/8/98	Wed	--	--	--	--	--	--	--
7/9/98	Thu	--	--	--	--	--	--	--
7/10/98	Fri	--	--	--	--	--	--	--
7/11/98	Sat	--	--	--	--	--	--	--
7/12/98	Sun	--	--	--	--	--	--	--
7/18/98	Sat	24.0%	51 to 75%	5.0	91.9%	48.8	378	150
7/19/98	Sun	32.5%	51 to 75%	4.4	69.0%	38.9	253	126
7/20/98	Mon	--	--	--	--	--	--	--
7/21/98	Tue	--	--	--	--	--	--	--
7/22/98	Wed	--	--	--	--	--	--	--
7/23/98	Thu	--	--	--	--	--	--	--
7/24/98	Fri	--	--	--	--	--	--	--
7/27/98	Mon	41.7%	26 to 50%	3.6	83.3%	28.0	92	36
7/28/98	Tue	27.3%	< 10%	1.2	9.1%	11.0	121	11
7/31/98	Fri	34.8%	< 10%	1.8	26.1%	60.0	162	23
8/1/98	Sat	--	--	--	--	--	--	--
8/2/98	Sun	--	--	--	--	--	--	--
8/3/98	Mon	--	--	--	--	--	--	--
8/4/98	Tue	--	--	--	--	--	--	--
8/5/98	Wed	--	--	--	--	--	--	--

8/6/98	Thu	--	--	--	--	--	--	--
8/7/98	Fri	--	--	--	--	--	--	--
8/8/98	Sat	--	--	--	--	--	--	--
8/9/98	Sun	--	--	--	--	--	--	--
8/15/98	Sat	30.0%	26 to 50%	4.6	82.5%	52.5	399	80
8/16/98	Sun	17.3%	26 to 50%	4.8	88.5%	44.4	211	52
8/17/98	Mon	--	--	--	--	--	--	--
8/18/98	Tue	--	--	--	--	--	--	--
8/19/98	Wed	--	--	--	--	--	--	--
8/20/98	Thu	--	--	--	--	--	--	--
8/21/98	Fri	--	--	--	--	--	--	--
8/22/98	Sat	--	--	--	--	--	--	--
8/23/98	Sun	--	--	--	--	--	--	--
8/24/98	Mon	60.0%	11 to 25%	2.2	20.0%	14.0	53	10
8/25/98	Tue	66.7%	< 10%	2.0	33.7%	7.0	47	6
8/28/98	Fri	0.0%	11 to 25%	2.2	44.4%	20.0	93	9
8/29/98	Sat	45.8%	26 to 50%	3.5	79.2%	26.0	259	24
8/30/98	Sun	0.0%	100%	9.0	100.0%	8.9	109	8
9/5/98	Sat	--	--	--	--	--	--	--
9/6/98	Sun	--	--	--	--	--	--	--



Table 9. Daily indicator scores from 1998 trip leader reports.

CHEAT CANYON						
Date		Crowding (Avg)	Percent Crowded	Time in Sight (Median)	Commercial User Days	Sample Size
04/16/98	Thu	1.0	0%	--	34	1
04/17/98	Fri	1.5	0%	--	56	2
04/18/98	Sat	2.5	50%	11 to 25%	187	6
04/19/98	Sun	1.0	0%	--	134	5
04/23/98	Thu	1.0	0%	< 10%	8	1
04/24/98	Fri	3.0	50%	26 to 50%	23	2
04/25/98	Sat	2.2	33%	--	299	6
04/26/98	Sun	1.6	0%	--	194	5
04/30/98	Thu	1.0	0%	--	7	1
05/01/98	Fri	1.0	0%	--	14	1
05/02/98	Sat	3.0	57%	50 to 75%	262	7
05/03/98	Sun	3.2	80%	11 to 25%	172	5
05/07/98	Thu	1.0	0%	--	10	1
05/08/98	Fri	1.0	0%	< 10%	32	2
05/09/98	Sat	2.3	33%	26 to 50%	212	6
05/10/98	Sun	1.0	0%	< 10%	104	2
05/14/98	Thu	2.0	0%	11 to 25%	144	1
05/15/98	Fri	1.0	0%	< 10%	18	1
05/16/98	Sat	3.3	50%	51 to 75%	348	8
05/17/98	Sun	2.8	40%	50 to 75%	224	5
05/21/98	Thu	1.0	0%	< 10%	32	1
05/23/98	Sat	3.8	75%	50 to 75%	265	4
05/24/98	Sun	5.0	67%	76 to 99%	394	3
05/25/98	Mon	1.0	0%	< 10%	23	1
05/26/98	Tue	1.0	0%	< 10%	14	1
05/28/98	Thu	1.0	0%	--	21	2
05/29/98	Fri	1.0	0%	--	56	1
05/30/98	Sat	1.7	0%	--	132	3
05/31/98	Sun	1.5	0%	--	142	2
CHEAT NARROWS						
Date		Crowding (Avg)	Percent Crowded	Time in Sight (Median)	Commercial User Days	Sample Size
05/23/98	Sat	1.0	0%	< 10%	79	1
05/24/98	Sun	1.5	0%	11 to 25%	26	2
05/28/98	Thu	1.0	0%	< 10%	5	1
05/30/98	Sat	1.0	0%	< 10%	68	1
05/31/98	Sun	2.0	0%	< 10%	25	1
06/03/98	Wed	1.0	0%	< 10%	21	1
06/07/98	Sun	1.0	0%	< 10%	25	1
06/09/98	Tue	1.0	0%	< 10%	11	1
06/12/98	Fri	1.0	0%	< 10%	22	2
06/15/98	Mon	1.0	0%	< 10%	5	1
06/16/98	Tue	1.0	0%	< 10%	9	2
06/18/98	Thu	1.0	0%	< 10%	50	1
06/20/98	Sat	1.0	0%	--	53	1
06/21/98	Sun	1.0	0%	< 10%	66	2
06/23/98	Tue	2.5	50%	26 to 50%	37	2

06/25/98	Thu	1.0	0%	--	39	1
06/26/98	Fri	2.5	50%	26 to 50%	62	2
06/27/98	Sat	1.0	0%	--	57	2
06/28/98	Sun	1.0	0%	--	44	1
06/30/98	Tue	1.0	0%	--	25	1
07/01/98	Wed	1.0	0%	--	15	2
07/02/98	Thu	1.0	0%	--	15	1
07/03/98	Fri	1.0	0%	--	37	1
07/04/98	Sat	3.0	50%	< 10%	64	2
07/05/98	Sun	2.5	50%	--	36	2
07/07/98	Tue	5.3	100%	11 to 25%	75	3
07/08/98	Wed	2.0	0%	< 10%	74	1
07/09/98	Thu	2.5	50%	< 10%	85	4
07/10/98	Fri	4.5	50%	50 to 75%	9	2
07/11/98	Sat	3.0	100%	--	105	1
07/12/98	Sun	5.5	100%	50 to 75%	37	2
07/14/98	Tue	2.0	0%	--	22	1
07/15/98	Wed	1.0	0%	--	31	1
07/16/98	Thu	1.0	0%	--	32	1
07/17/98	Fri	1.0	0%	--	16	1
07/18/98	Sat	2.0	0%	--	6	1
07/19/98	Sun	3.3	67%	11 to 25%	63	3
07/20/98	Mon	1.0	0%	--	42	1
07/21/98	Tue	1.0	0%	--	16	1
07/23/98	Thu	1.5	0%	< 10%	46	2
07/24/98	Fri	2.0	0%	--	43	1
07/25/98	Sat	2.0	33%	< 10%	41	3
07/26/98	Sun	1.5	0%	< 10%	52	2
07/27/98	Mon	1.0	0%	< 10%	19	1
07/28/98	Tue	3.0	100%	11 to 25%	10	1
07/29/98	Wed	1.3	0%	< 10%	44	3
07/30/98	Thu	2.0	0%	< 10%	38	1
07/31/98	Fri	1.0	0%	< 10%	50	2
08/01/98	Sat	2.3	25%	< 10%	99	4
08/02/98	Sun	3.5	100%	11 to 25%	27	2
08/04/98	Tue	1.0	100%	< 10%	19	1
08/05/98	Wed	1.0	0%	< 10%	17	2
08/06/98	Thu	2.0	0%	11 to 25%	54	3
08/08/98	Sat	2.8	50%	< 10%	104	4
08/09/98	Sun	2.0	50%	< 10%	43	2
08/10/98	Mon	1.0	0%	< 10%	10	1
08/11/98	Tue	1.0	0%	< 10%	31	1
08/12/98	Wed	2.5	50%	11 to 25%	76	2
08/13/98	Thu	2.5	50%	< 10%	41	2
08/14/98	Fri	1.0	0%	< 10%	19	1
08/15/98	Sat	3.3	50%	11 to 25%	40	4
08/16/98	Sun	1.7	33%	< 10%	55	3
08/17/98	Mon	1.0	0%	< 10%	27	1
08/18/98	Tue	1.0	0%	< 10%	13	1
08/19/98	Wed	2.5	50%	11 to 25%	37	2

08/20/98	Thu	2.0	0%	< 10%	41	1
08/21/98	Fri	1.0	0%	< 10%	40	2
08/22/98	Sat	4.5	50%	11 to 25%	58	2
08/23/98	Sun	1.0	0%	< 10%	22	1

UPPER GAULEY

Date		Crowding (Avg)	Percent Crowded	Time in Sight (Median)	Commercial User Days	Sample Size
09/11/98	Fri	4.4	73%	50 to 75%	1,711	40
09/12/98	Sat	5.8	85%	76 to 99%	2,913	68
09/13/98	Sun	4.9	78%	50 to 75%	2,442	58
09/14/98	Mon	3.9	68%	26 to 50%	1,351	34
09/18/98	Fri	3.5	67%	26 to 50%	1,355	30
09/19/98	Sat	5.8	82%	76 to 99%	3,023	62
09/20/98	Sun	5.5	88%	50 to 75%	2,617	67
09/21/98	Mon	3.0	62%	11 to 25%	1,050	26
09/25/98	Fri	4.3	82%	50 to 75%	1,363	33
09/26/98	Sat	6.0	84%	76 to 99%	2,836	63
09/27/98	Sun	5.3	85%	76 to 99%	2,191	55
09/28/98	Mon	2.8	50%	26 to 50%	774	22
10/02/98	Fri	3.1	56%	26 to 50%	781	27
10/03/98	Sat	5.3	86%	50 to 75%	2,727	56
10/04/98	Sun	5.0	85%	50 to 75%	1,569	34
10/05/98	Mon	3.4	79%	26 to 50%	592	14
10/09/98	Fri	3.0	57%	11 to 25%	734	21
10/10/98	Sat	5.5	90%	50 to 75%	2,497	49
10/11/98	Sun	4.0	67%	26 to 50%	1,902	43
10/12/98	Mon	4.3	76%	26 to 50%	946	21
10/17/98	Sat	4.4	75%	51 to 75%	1,835	40
10/18/98	Sun	4.9	85%	26 to 50%	2,192	40

LOWER GAULEY

Date		Crowding (Avg)	Percent Crowded	Time in Sight (Median)	Commercial User Days	Sample Size
09/11/98	Fri	3.6	67%	26 to 50%	491	12
09/12/98	Sat	5.6	90%	76 to 99%	2,200	39
09/13/98	Sun	4.6	79%	76 to 99%	1,477	34
09/14/98	Mon	2.5	40%	11 to 25%	408	10
09/18/98	Fri	3.2	60%	26 to 50%	657	20
09/19/98	Sat	5.2	80%	50 to 75%	2,231	35
09/20/98	Sun	4.0	63%	26 to 50%	1,373	27
09/21/98	Mon	2.8	33%	< 10%	286	6
09/25/98	Fri	4.2	75%	26 to 50%	430	16
09/26/98	Sat	6.6	97%	76 to 99%	1,835	37
09/27/98	Sun	5.3	81%	76 to 99%	873	21
09/28/98	Mon	4.4	85%	26 to 50%	371	13
10/02/98	Fri	3.2	62%	26 to 50%	406	13
10/03/98	Sat	5.2	97%	50 to 75%	1,288	29
10/04/98	Sun	4.2	74%	26 to 50%	787	19
10/05/98	Mon	2.7	43%	11 to 25%	179	7
10/09/98	Fri	3.2	69%	26 to 50%	413	13
10/10/98	Sat	6.3	91%	76 to 99%	1,249	22

10/11/98	Sun	5.4	93%	50 to 75%	862	15
10/12/98	Mon	2.4	43%	11 to 25%	215	7
10/17/98	Sat	4.4	78%	26 to 50%	744	18
10/18/98	Sun	3.4	40%	11 to 25%	536	10
<i>UPPER NEW -- HINTON TO PRINCE</i>						
Date		Crowding (Avg)	Percent Crowded	Time in Sight (Median)	Commercial User Days	Sample Size
05/23/98	Sat	1.0	0%	11 to 25%	64	1
05/24/98	Sun	1.0	0%	< 10%	62	2
05/25/98	Mon	1.0	0%	< 10%	6	1
05/28/98	Thu	5.0	100%	--	31	1
05/30/98	Sat	1.0	0%	< 10%	51	2
06/02/98	Tue	1.0	0%	< 10%	8	1
06/03/98	Wed	1.0	0%	--	6	1
06/04/98	Thu	6.0	100%	--	61	1
06/05/98	Fri	1.0	0%	< 10%	23	1
06/06/98	Sat	1.0	0%	< 10%	22	1
06/09/98	Tue	1.0	0%	< 10%	27	1
06/11/98	Thu	1.0	0%	--	6	1
06/12/98	Fri	1.0	0%	< 10%	23	3
06/13/98	Sat	1.0	0%	< 10%	35	1
06/14/98	Sun	1.0	0%	--	8	1
06/15/98	Mon	2.0	0%	--	30	1
06/16/98	Tue	1.0	0%	< 10%	18	2
06/17/98	Wed	1.0	0%	< 10%	9	1
06/18/98	Thu	1.0	0%	--	49	2
06/19/98	Fri	4.0	50%	--	9	2
06/20/98	Sat	1.0	0%	< 10%	69	3
06/21/98	Sun	1.5	0%	< 10%	58	2
06/22/98	Mon	1.0	0%	< 10%	4	1
06/23/98	Tue	1.0	0%	< 10%	21	3
06/24/98	Wed	1.0	0%	< 10%	16	2
06/25/98	Thu	1.0	0%	< 10%	18	3
06/26/98	Fri	1.0	0%	< 10%	14	2
06/27/98	Sat	2.2	20%	< 10%	86	5
06/28/98	Sun	1.0	0%	--	16	1
06/29/98	Mon	1.0	0%	< 10%	14	3
06/30/98	Tue	1.0	0%	--	6	1
07/01/98	Wed	1.0	0%	< 10%	28	2
07/02/98	Thu	1.3	0%	< 10%	35	4
07/03/98	Fri	1.0	0%	< 10%	33	2
07/04/98	Sat	2.0	0%	< 10%	45	2
07/05/98	Sun	1.5	25%	11 to 25%	51	4
07/06/98	Mon	1.5	0%	< 10%	31	2
07/07/98	Tue	1.5	0%	11 to 25%	51	2
07/08/98	Wed	1.0	0%	< 10%	38	4
07/09/98	Thu	2.0	0%	11 to 25%	22	2
07/10/98	Fri	1.8	25%	26 to 50%	42	4
07/11/98	Sat	2.0	0%	< 10%	21	1
07/12/98	Sun	2.5	50%	< 10%	58	2

07/13/98	Mon	1.7	0%	< 10%	20	3
07/14/98	Tue	1.7	0%	< 10%	86	3
07/15/98	Wed	1.5	0%	< 10%	12	4
07/16/98	Thu	1.0	0%	< 10%	46	2
07/17/98	Fri	1.3	0%	< 10%	32	4
07/18/98	Sat	2.0	33%	< 10%	64	2
07/19/98	Sun	1.3	25%	11 to 25%	27	3
07/20/98	Mon	2.0	0%	< 10%	17	1
07/21/98	Tue	1.7	33%	< 10%	35	3
07/22/98	Wed	1.0	0%	< 10%	37	3
07/23/98	Thu	1.5	0%	< 10%	59	2
07/24/98	Fri	1.8	25%	< 10%	86	4
07/25/98	Sat	1.8	0%	< 10%	54	4
07/26/98	Sun	3.5	100%	11 to 25%	27	2
07/27/98	Mon	1.0	0%	< 10%	36	2
07/28/98	Tue	1.0	0%	< 10%	44	2
07/29/98	Wed	1.3	0%	< 10%	42	4
07/30/98	Thu	1.5	0%	< 10%	48	2
07/31/98	Fri	1.8	25%	< 10%	43	4
08/01/98	Sat	1.0	0%	< 10%	52	1
08/02/98	Sun	2.0	0%	< 10%	0	1
08/04/98	Tue	2.0	50%	11 to 25%	59	2
08/05/98	Wed	2.0	0%	11 to 25%	30	1
08/06/98	Thu	1.3	0%	< 10%	87	3
08/08/98	Sat	4.0	100%	26 to 50%	66	1
08/10/98	Mon	1.0	0%	< 10%	4	1
08/11/98	Tue	1.0	0%	< 10%	60	2
08/12/98	Wed	1.0	0%	--	44	2
08/13/98	Thu	1.0	0%	--	38	1
08/14/98	Fri	1.0	0%	--	60	2
08/15/98	Sat	1.0	0%	--	43	1
08/17/98	Mon	1.0	0%	< 10%	19	2
08/18/98	Tue	1.0	0%	< 10%	51	1
08/21/98	Fri	1.0	50%	< 10%	9	1
08/22/98	Sat	1.0	0%	< 10%	28	1
08/24/98	Mon	1.0	50%	< 10%	14	2
08/26/98	Wed	2.0	0%	--	2	1
08/27/98	Thu	2.0	0%	11 to 25%	28	2
08/28/98	Fri	1.0	0%	< 10%	14	2
08/29/98	Sat	2.0	0%	< 10%	12	2
08/30/98	Sun	1.0	0%	< 10%	16	3
09/01/98	Tue	1.0	0%	< 10%	4	1
09/04/98	Fri	1.0	0%	< 10%	10	2
09/05/98	Sat	1.0	0%	--	23	1
09/06/98	Sun	1.5	0%	< 10%	36	2
<i>UPPER NEW -- PRINCE TO CUNARD</i>						
Date		Crowding (Avg)	Percent Crowded	Time in Sight (Median)	Commercial User Days	Sample Size
05/23/98	Sat	3.0	86%	26 to 50%	128	7
05/24/98	Sun	3.4	64%	11 to 25%	217	11

05/25/98	Mon	2.7	33%	11 to 25%	43	3
05/26/98	Tue	1.0	0%	11 to 25%	57	2
05/27/98	Wed	2.0	0%	< 10%	51	1
05/28/98	Thu	1.0	0%	< 10%	4	2
05/29/98	Fri	1.5	0%	< 10%	59	2
05/30/98	Sat	1.8	25%	11 to 25%	39	5
05/31/98	Sun	1.0	0%	11 to 25%	37	3
06/01/98	Mon	2.0	33%	< 10%	37	3
06/02/98	Tue	1.8	0%	< 10%	32	4
06/03/98	Wed	4.0	60%	50 to 75%	19	5
06/04/98	Thu	1.0	0%	< 10%	36	2
06/05/98	Fri	1.0	0%	< 10%	31	4
06/06/98	Sat	4.3	63%	26 to 50%	128	9
06/07/98	Sun	3.0	40%	51 to 75%	71	5
06/08/98	Mon	2.8	50%	11 to 25%	118	4
06/09/98	Tue	1.6	0%	< 10%	68	5
06/10/98	Wed	1.7	0%	11 to 25%	60	3
06/11/98	Thu	2.3	29%	26 to 50%	113	7
06/12/98	Fri	2.9	57%	11 to 25%	116	7
06/13/98	Sat	3.4	50%	26 to 50%	241	8
06/14/98	Sun	2.6	43%	11 to 25%	95	7
06/15/98	Mon	2.0	27%	< 10%	151	11
06/16/98	Tue	1.6	22%	< 10%	222	8
06/17/98	Wed	2.5	40%	< 10%	155	10
06/18/98	Thu	1.4	0%	< 10%	74	5
06/19/98	Fri	3.9	57%	76 to 99%	203	7
06/20/98	Sat	3.3	55%	11 to 25%	293	11
06/21/98	Sun	1.8	20%	11 to 25%	227	10
06/22/98	Mon	2.0	25%	< 10%	174	8
06/23/98	Tue	2.8	40%	11 to 25%	134	5
06/24/98	Wed	2.9	64%	11 to 25%	183	11
06/25/98	Thu	3.6	55%	50 to 75%	166	12
06/26/98	Fri	3.4	64%	26 to 50%	173	12
06/27/98	Sat	3.7	57%	51 to 75%	138	7
06/28/98	Sun	2.6	50%	11 to 25%	153	12
06/29/98	Mon	3.1	55%	11 to 25%	301	12
06/30/98	Tue	4.0	83%	26 to 50%	116	6
07/01/98	Wed	2.6	40%	11 to 25%	186	6
07/02/98	Thu	3.0	25%	11 to 25%	175	8
07/03/98	Fri	4.3	62%	51 to 75%	303	14
07/04/98	Sat	4.9	67%	76 to 99%	377	9
07/05/98	Sun	2.5	38%	11 to 25%	122	8
07/06/98	Mon	3.3	67%	26 to 50%	256	9
07/07/98	Tue	3.8	60%	50 to 75%	246	10
07/08/98	Wed	3.3	67%	11 to 25%	345	12
07/09/98	Thu	5.0	75%	76 to 99%	198	4
07/10/98	Fri	3.0	38%	11 to 25%	161	8
07/11/98	Sat	4.5	77%	50 to 75%	205	14
07/12/98	Sun	3.3	86%	26 to 50%	164	8
07/13/98	Mon	2.8	55%	11 to 25%	264	11

07/14/98	Tue	2.9	43%	11 to 25%	203	8
07/15/98	Wed	2.9	42%	11 to 25%	383	12
07/16/98	Thu	3.0	60%	26 to 50%	223	10
07/17/98	Fri	3.8	67%	26 to 50%	180	9
07/18/98	Sat	4.0	70%	26 to 50%	279	10
07/19/98	Sun	3.0	40%	11 to 25%	191	10
07/20/98	Mon	3.1	30%	< 10%	235	10
07/21/98	Tue	4.1	86%	51 to 75%	224	7
07/22/98	Wed	3.5	54%	11 to 25%	262	13
07/23/98	Thu	2.6	50%	51 to 75%	202	11
07/24/98	Fri	3.4	50%	26 to 50%	185	8
07/25/98	Sat	3.9	71%	26 to 50%	413	14
07/26/98	Sun	2.8	63%	11 to 25%	224	8
07/27/98	Mon	4.4	78%	51 to 75%	256	10
07/28/98	Tue	2.9	50%	11 to 25%	374	10
07/29/98	Wed	3.3	58%	26 to 50%	254	12
07/30/98	Thu	3.5	50%	11 to 25%	393	9
07/31/98	Fri	3.4	55%	26 to 50%	268	11
08/01/98	Sat	4.5	92%	26 to 50%	279	14
08/02/98	Sun	3.7	91%	26 to 50%	211	11
08/03/98	Mon	3.8	70%	26 to 50%	335	10
08/04/98	Tue	3.1	67%	11 to 25%	317	9
08/05/98	Wed	5.0	78%	76 to 99%	273	9
08/06/98	Thu	4.2	73%	26 to 50%	311	11
08/07/98	Fri	3.7	60%	26 to 50%	267	15
08/08/98	Sat	3.7	57%	26 to 50%	379	7
08/09/98	Sun	4.0	67%	76 to 99%	332	10
08/10/98	Mon	2.8	58%	26 to 50%	278	12
08/11/98	Tue	4.1	77%	26 to 50%	270	13
08/12/98	Wed	3.8	73%	26 to 50%	323	11
08/13/98	Thu	2.9	38%	11 to 25%	326	17
08/14/98	Fri	4.0	50%	76 to 99%	283	8
08/15/98	Sat	4.2	78%	51 to 75%	294	9
08/16/98	Sun	3.3	63%	11 to 25%	124	8
08/17/98	Mon	2.7	44%	11 to 25%	170	9
08/18/98	Tue	3.8	64%	26 to 50%	206	11
08/19/98	Wed	3.3	56%	26 to 50%	163	9
08/20/98	Thu	3.4	64%	11 to 25%	179	11
08/21/98	Fri	3.6	57%	11 to 25%	224	14
08/22/98	Sat	3.8	64%	26 to 50%	285	11
08/23/98	Sun	3.5	63%	26 to 50%	134	9
08/24/98	Mon	2.3	25%	11 to 25%	67	8
08/25/98	Tue	1.4	0%	< 10%	123	8
08/26/98	Wed	1.0	0%	< 10%	45	1
08/27/98	Thu	5.0	50%	51 to 75%	62	2
08/28/98	Fri	2.3	20%	11 to 25%	82	10
08/29/98	Sat	4.2	78%	26 to 50%	157	9
08/30/98	Sun	2.7	67%	11 to 25%	59	3
08/31/98	Mon	1.3	0%	< 10%	56	3
09/02/98	Wed	2.7	67%	11 to 25%	41	3

09/03/98	Thu	2.5	50%	11 to 25%	27	2
09/04/98	Fri	1.5	0%	< 10%	28	2
09/05/98	Sat	4.4	57%	26 to 50%	248	7
09/06/98	Sun	4.9	78%	50 to 75%	263	9
09/07/98	Mon	1.8	20%	11 to 25%	32	5
<i>LOWER NEW</i>						
Date		Crowding (Avg)	Percent Crowded	Time in Sight (Median)	Commercial User Days	Sample Size
05/23/98	Sat	3.9	64%	26 to 50%	1,607	53
05/24/98	Sun	4.9	77%	76 to 99%	2,387	60
05/25/98	Mon	2.8	42%	11 to 25%	743	26
05/26/98	Tue	2.6	36%	< 10%	92	11
05/27/98	Wed	1.4	9%	< 10%	187	11
05/28/98	Thu	1.0	0%	< 10%	95	4
05/29/98	Fri	1.3	0%	< 10%	182	7
05/30/98	Sat	3.8	59%	11 to 25%	1,416	39
05/31/98	Sun	2.1	33%	11 to 25%	471	21
06/01/98	Mon	2.8	40%	11 to 25%	191	10
06/02/98	Tue	1.7	20%	11 to 25%	204	10
06/03/98	Wed	1.4	11%	11 to 25%	120	9
06/04/98	Thu	1.5	8%	11 to 25%	288	12
06/05/98	Fri	2.7	52%	11 to 25%	406	21
06/06/98	Sat	3.5	54%	26 to 50%	2,037	51
06/07/98	Sun	2.7	54%	26 to 50%	560	24
06/08/98	Mon	2.6	32%	11 to 25%	321	19
06/09/98	Tue	2.0	25%	11 to 25%	527	16
06/10/98	Wed	2.3	32%	11 to 25%	365	19
06/11/98	Thu	2.8	47%	11 to 25%	625	15
06/12/98	Fri	3.5	70%	26 to 50%	1,384	23
06/13/98	Sat	3.9	61%	26 to 50%	2,340	54
06/14/98	Sun	2.4	24%	11 to 25%	1,096	25
06/15/98	Mon	2.5	45%	11 to 25%	658	22
06/16/98	Tue	2.5	44%	11 to 25%	818	33
06/17/98	Wed	2.8	50%	11 to 25%	731	22
06/18/98	Thu	2.7	42%	11 to 25%	934	24
06/19/98	Fri	3.0	50%	11 to 25%	1,219	32
06/20/98	Sat	4.4	65%	51 to 75%	2,014	55
06/21/98	Sun	3.1	52%	11 to 25%	835	27
06/22/98	Mon	2.9	52%	26 to 50%	472	21
06/23/98	Tue	3.2	52%	26 to 50%	864	29
06/24/98	Wed	3.1	48%	11 to 25%	928	23
06/25/98	Thu	4.4	74%	51 to 75%	929	31
06/26/98	Fri	3.6	56%	11 to 25%	1,318	36
06/27/98	Sat	5.0	74%	76 to 99%	2,865	65
06/28/98	Sun	3.5	61%	26 to 50%	1,223	33
06/29/98	Mon	3.7	69%	11 to 25%	953	35
06/30/98	Tue	3.3	67%	26 to 50%	914	24
07/01/98	Wed	3.2	60%	26 to 50%	644	25
07/02/98	Thu	2.6	48%	11 to 25%	773	25
07/03/98	Fri	4.3	70%	26 to 50%	1,688	46



07/04/98	Sat	4.5	66%	51 to 75%	2,417	59
07/05/98	Sun	3.5	50%	11 to 25%	700	28
07/06/98	Mon	3.2	59%	11 to 25%	637	17
07/07/98	Tue	2.8	41%	11 to 25%	808	29
07/08/98	Wed	3.9	65%	26 to 50%	818	26
07/09/98	Thu	3.3	55%	26 to 50%	623	29
07/10/98	Fri	3.6	50%	26 to 50%	1,181	42
07/11/98	Sat	5.6	78%	76 to 99%	3,004	67
07/12/98	Sun	4.4	70%	51 to 75%	1,617	43
07/13/98	Mon	3.4	55%	11 to 25%	690	22
07/14/98	Tue	2.9	52%	26 to 50%	708	25
07/15/98	Wed	2.7	45%	11 to 25%	728	22
07/16/98	Thu	2.9	54%	11 to 25%	968	26
07/17/98	Fri	4.0	69%	51 to 75%	1,237	36
07/18/98	Sat	6.0	87%	76 to 99%	3,214	64
07/19/98	Sun	4.5	66%	51 to 75%	1,479	39
07/20/98	Mon	4.8	75%	26 to 50%	852	24
07/21/98	Tue	3.3	52%	26 to 50%	904	44
07/22/98	Wed	3.2	69%	26 to 50%	746	29
07/23/98	Thu	3.5	59%	26 to 50%	957	33
07/24/98	Fri	4.3	72%	26 to 50%	1,401	36
07/25/98	Sat	5.8	82%	76 to 99%	3,063	66
07/26/98	Sun	5.0	84%	51 to 75%	1,475	44
07/27/98	Mon	3.5	70%	26 to 50%	873	30
07/28/98	Tue	2.7	39%	11 to 25%	796	27
07/29/98	Wed	3.5	61%	26 to 50%	784	28
07/30/98	Thu	3.6	70%	26 to 50%	1,186	40
07/31/98	Fri	3.8	67%	26 to 50%	1,515	42
08/01/98	Sat	5.1	79%	76 to 99%	2,525	67
08/02/98	Sun	4.9	80%	51 to 75%	1,421	40
08/03/98	Mon	4.1	63%	26 to 50%	959	32
08/04/98	Tue	4.1	77%	26 to 50%	835	30
08/05/98	Wed	3.6	64%	26 to 50%	1,014	22
08/06/98	Thu	4.3	69%	26 to 50%	1,207	32
08/07/98	Fri	4.3	67%	51 to 75%	1,387	46
08/08/98	Sat	5.7	83%	76 to 99%	2,728	64
08/09/98	Sun	5.2	73%	51 to 75%	1,478	44
08/10/98	Mon	3.2	50%	26 to 50%	1,141	28
08/11/98	Tue	3.4	58%	26 to 50%	924	33
08/12/98	Wed	3.4	55%	26 to 50%	835	33
08/13/98	Thu	3.2	62%	26 to 50%	1,334	29
08/14/98	Fri	3.8	58%	26 to 50%	1,552	48
08/15/98	Sat	5.9	83%	76 to 99%	2,640	71
08/16/98	Sun	3.7	63%	26 to 50%	1,444	38
08/17/98	Mon	3.4	55%	26 to 50%	843	31
08/18/98	Tue	2.8	43%	11 to 25%	678	23
08/19/98	Wed	2.4	35%	11 to 25%	694	23
08/20/98	Thu	3.0	52%	11 to 25%	949	33
08/21/98	Fri	3.6	56%	26 to 50%	1,207	36
08/22/98	Sat	5.6	71%	76 to 99%	2,397	63

08/23/98	Sun	4.1	74%	26 to 50%	1,445	42
08/24/98	Mon	2.9	38%	11 to 25%	429	21
08/25/98	Tue	2.4	22%	11 to 25%	391	18
08/26/98	Wed	2.1	32%	11 to 25%	301	19
08/27/98	Thu	1.9	21%	11 to 25%	488	19
08/28/98	Fri	2.8	50%	11 to 25%	578	28
08/29/98	Sat	4.1	62%	26 to 50%	1,471	50
08/30/98	Sun	4.1	58%	11 to 25%	863	33
08/31/98	Mon	3.0	47%	11 to 25%	293	19
09/01/98	Tue	2.0	18%	< 10%	93	11
09/02/98	Wed	2.1	9%	< 10%	139	11
09/03/98	Thu	1.3	0%	< 10%	125	12
09/04/98	Fri	2.4	29%	11 to 25%	277	14
09/05/98	Sat	4.1	61%	51 to 75%	1,303	31
09/06/98	Sun	6.2	86%	< 10%	2,910	65
09/07/98	Mon	3.6	56%	26 to 50%	649	18

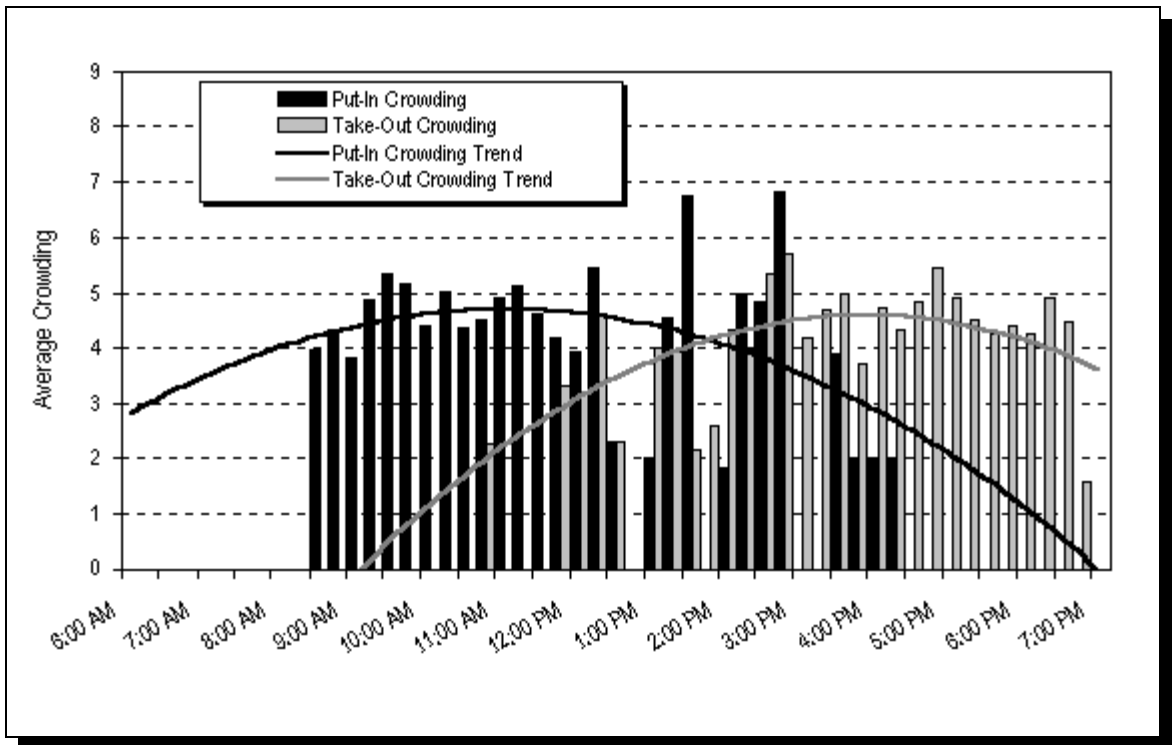
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Date		Crowding (Avg)	Percent Crowded	Time in Sight (Median)	Commercial User Days	Sample Size
05/23/98	Sat	5.3	100%	50 to 75%	182	4
05/24/98	Sun	5.0	100%	50 to 75%	208	6
05/25/98	Mon	3.7	67%	11 to 25%	64	3
05/26/98	Tue	1.5	0%	< 10%	32	2
05/27/98	Wed	2.7	33%	< 10%	32	3
05/28/98	Thu	4.7	100%	11 to 25%	131	3
05/29/98	Fri	7.0	100%	50 to 75%	32	1
05/30/98	Sat	2.8	60%	11 to 25%	277	5
05/31/98	Sun	6.6	100%	50 to 75%	200	5
06/01/98	Mon	3.5	100%	26 to 50%	78	2
06/02/98	Tue	3.5	100%	11 to 25%	23	2
06/03/98	Wed	1.0	0%	< 10%	10	1
06/04/98	Thu	1.8	25%	< 10%	93	4
06/05/98	Fri	3.3	67%	26 to 50%	23	3
06/06/98	Sat	3.8	63%	11 to 25%	329	8
06/07/98	Sun	1.8	25%	< 10%	181	4
06/08/98	Mon	2.5	50%	11 to 25%	76	2
06/09/98	Tue	4.0	50%	26 to 50%	38	2
06/11/98	Thu	3.5	50%	11 to 25%	44	2
06/12/98	Fri	2.3	50%	< 10%	67	4
06/13/98	Sat	4.6	100%	26 to 50%	220	5
06/14/98	Sun	3.8	75%	26 to 50%	275	8
06/15/98	Mon	4.0	80%	26 to 50%	106	5
06/16/98	Tue	3.8	75%	26 to 50%	136	4
06/17/98	Wed	3.6	80%	< 10%	100	5
06/18/98	Thu	2.3	33%	< 10%	35	3
06/19/98	Fri	4.2	80%	11 to 25%	36	5
06/20/98	Sat	4.3	86%	11 to 25%	290	7
06/21/98	Sun	3.4	80%	26 to 50%	170	5
06/22/98	Mon	2.2	40%	11 to 25%	197	5
06/23/98	Tue	3.0	40%	< 10%	155	5

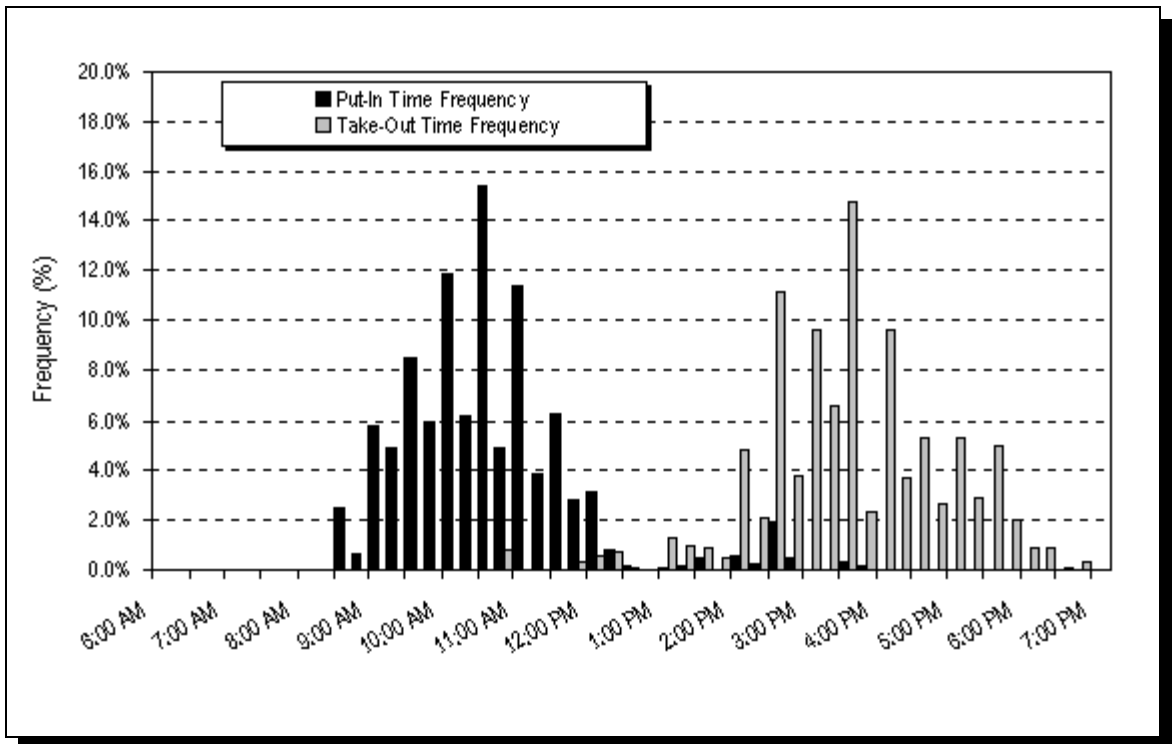
06/24/98	Wed	2.3	33%	< 10%	97	6
06/25/98	Thu	1.5	0%	< 10%	134	6
06/26/98	Fri	2.8	63%	11 to 25%	200	8
06/27/98	Sat	4.3	88%	26 to 50%	426	8
06/28/98	Sun	3.0	80%	11 to 25%	138	5
06/29/98	Mon	3.0	75%	11 to 25%	60	4
06/30/98	Tue	1.8	25%	11 to 25%	52	4
07/01/98	Wed	3.2	80%	11 to 25%	148	5
07/02/98	Thu	1.8	25%	11 to 25%	150	4
07/03/98	Fri	5.2	80%	11 to 25%	351	5
07/04/98	Sat	3.7	67%	11 to 25%	147	6
07/05/98	Sun	2.6	40%	< 10%	234	5
07/06/98	Mon	1.0	0%	< 10%	63	3
07/07/98	Tue	3.8	75%	< 10%	203	4
07/08/98	Wed	1.3	0%	< 10%	117	3
07/09/98	Thu	2.8	60%	< 10%	286	5
07/10/98	Fri	1.8	20%	< 10%	116	5
07/11/98	Sat	4.3	67%	11 to 25%	281	6
07/12/98	Sun	3.3	83%	11 to 25%	173	6
07/13/98	Mon	1.5	0%	< 10%	82	6
07/14/98	Tue	2.4	40%	< 10%	139	5
07/15/98	Wed	2.0	20%	< 10%	205	5
07/16/98	Thu	2.2	33%	< 10%	160	6
07/17/98	Fri	1.8	20%	< 10%	165	5
07/18/98	Sat	5.8	100%	50 to 75%	378	9
07/19/98	Sun	4.0	88%	26 to 50%	253	8
07/20/98	Mon	1.5	0%	< 10%	42	4
07/21/98	Tue	3.9	57%	11 to 25%	231	7
07/22/98	Wed	4.3	86%	11 to 25%	154	7
07/23/98	Thu	2.0	25%	< 10%	136	4
07/24/98	Fri	5.4	80%	11 to 25%	253	5
07/25/98	Sat	5.4	80%	26 to 50%	483	10
07/26/98	Sun	5.4	100%	76 to 99%	286	8
07/27/98	Mon	3.3	50%	11 to 25%	92	4
07/28/98	Tue	1.8	33%	< 10%	121	6
07/29/98	Wed	3.8	50%	26 to 50%	119	6
07/30/98	Thu	2.3	40%	< 10%	161	10
07/31/98	Fri	2.1	14%	< 10%	162	7
08/01/98	Sat	4.9	100%	26 to 50%	331	8
08/02/98	Sun	5.4	100%	26 to 50%	228	8
08/03/98	Mon	1.3	0%	< 10%	120	6
08/04/98	Tue	2.2	50%	11 to 25%	188	6
08/05/98	Wed	1.9	29%	< 10%	208	7
08/06/98	Thu	3.7	33%	11 to 25%	211	3
08/07/98	Fri	2.8	50%	11 to 25%	89	4
08/08/98	Sat	4.3	100%	11 to 25%	394	7
08/09/98	Sun	3.9	75%	26 to 50%	364	8
08/10/98	Mon	1.4	25%	< 10%	104	5
08/11/98	Tue	3.3	50%	11 to 25%	206	4
08/12/98	Wed	3.7	71%	26 to 50%	169	7

08/13/98	Thu	3.8	50%	26 to 50%	157	6
08/14/98	Fri	2.7	57%	11 to 25%	194	7
08/15/98	Sat	5.1	100%	26 to 50%	399	8
08/16/98	Sun	3.8	83%	26 to 50%	211	6
08/17/98	Mon	3.0	67%	11 to 25%	38	3
08/18/98	Tue	1.2	0%	< 10%	70	5
08/19/98	Wed	2.8	50%	11 to 25%	79	4
08/20/98	Thu	2.2	50%	11 to 25%	115	6
08/21/98	Fri	4.5	100%	26 to 50%	81	4
08/22/98	Sat	4.8	88%	26 to 50%	459	8
08/23/98	Sun	5.6	100%	50 to 75%	224	7
08/24/98	Mon	1.8	25%	< 10%	53	4
08/25/98	Tue	1.7	0%	11 to 25%	47	3
08/26/98	Wed	1.8	25%	11 to 25%	75	4
08/27/98	Thu	3.0	67%	11 to 25%	68	3
08/28/98	Fri	2.5	50%	11 to 25%	93	4
08/29/98	Sat	4.7	83%	50 to 75%	259	6
08/30/98	Sun	4.2	60%	26 to 50	109	4
08/31/98	Mon	1.7	0%	< 10%	83	3
09/01/98	Tue	1.0	0%	< 10%	5	2
09/02/98	Wed	1.8	25%	< 10%	30	4
09/03/98	Thu	1.0	0%	< 10%	4	1
09/04/98	Fri	6.0	100%	26 to 50%	13	1
09/05/98	Sat	4.0	67%	26 to 50%	80	6
09/06/98	Sun	4.5	75%	51 to 75%	142	4
09/07/98	Mon	3.1	57%	11 to 25%	30	7

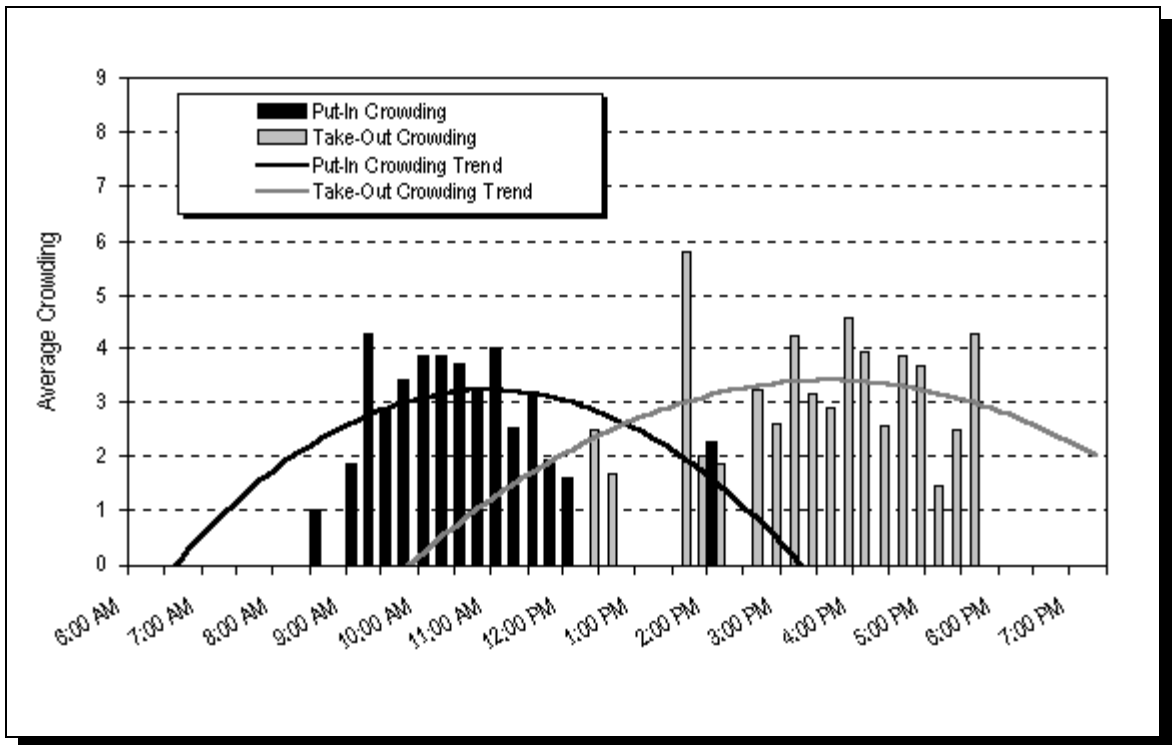
APPENDIX E:  
Customer and Trip Leader Crowding and River Utilization Graphs



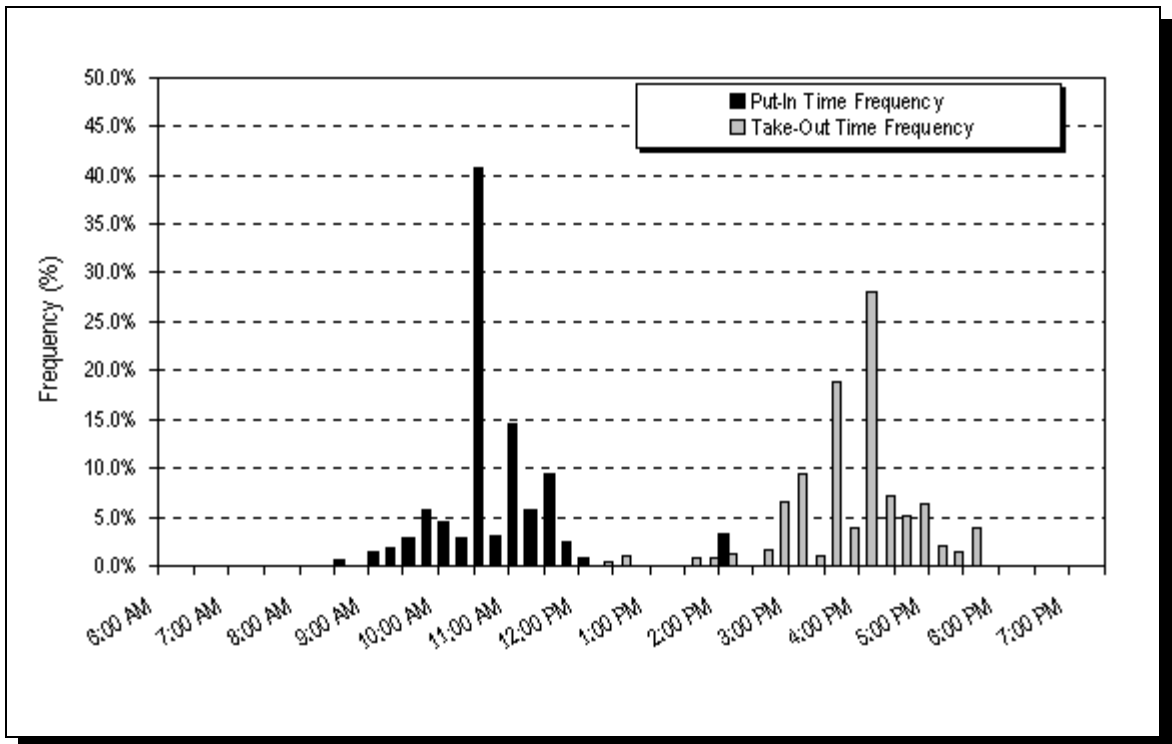
**Figure 3.** Average Customer Crowding by Put-In Time on the Lower New River



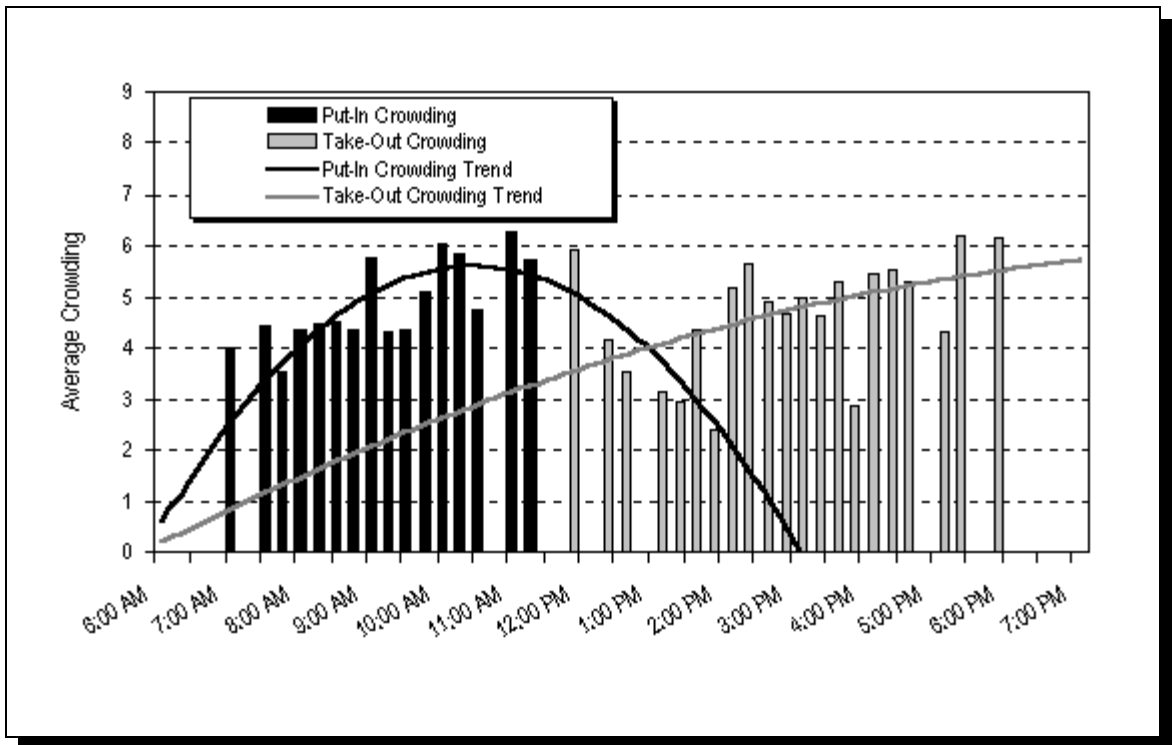
**Figure 4.** Frequency of Customer Reported Put-In Times on the Lower New River



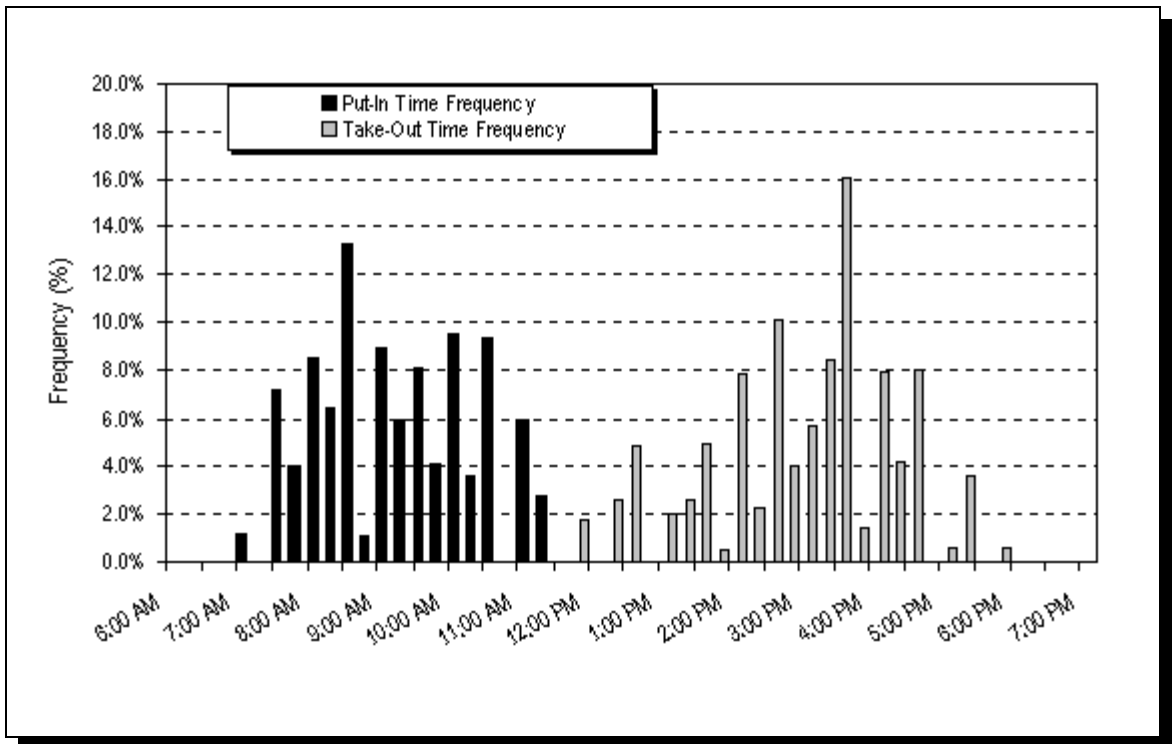
**Figure 5.** Average Customer Crowding by Put-In Time on the Upper New River



**Figure 6.** Frequency of Customer Reported Put-In Times on the Upper New River

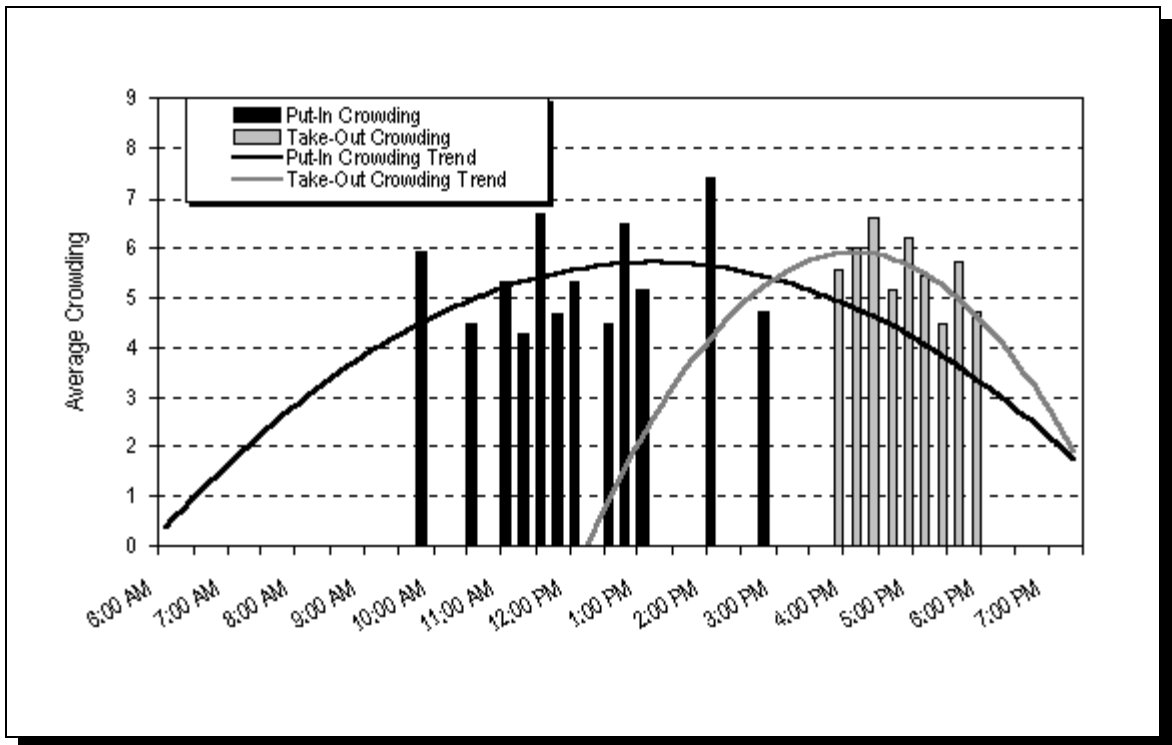


**Figure 7.** Average Customer Crowding by Put-In Time on the Upper Gauley River. (Note: Put\_in and Take-Out trend line intercepts set to zero.)

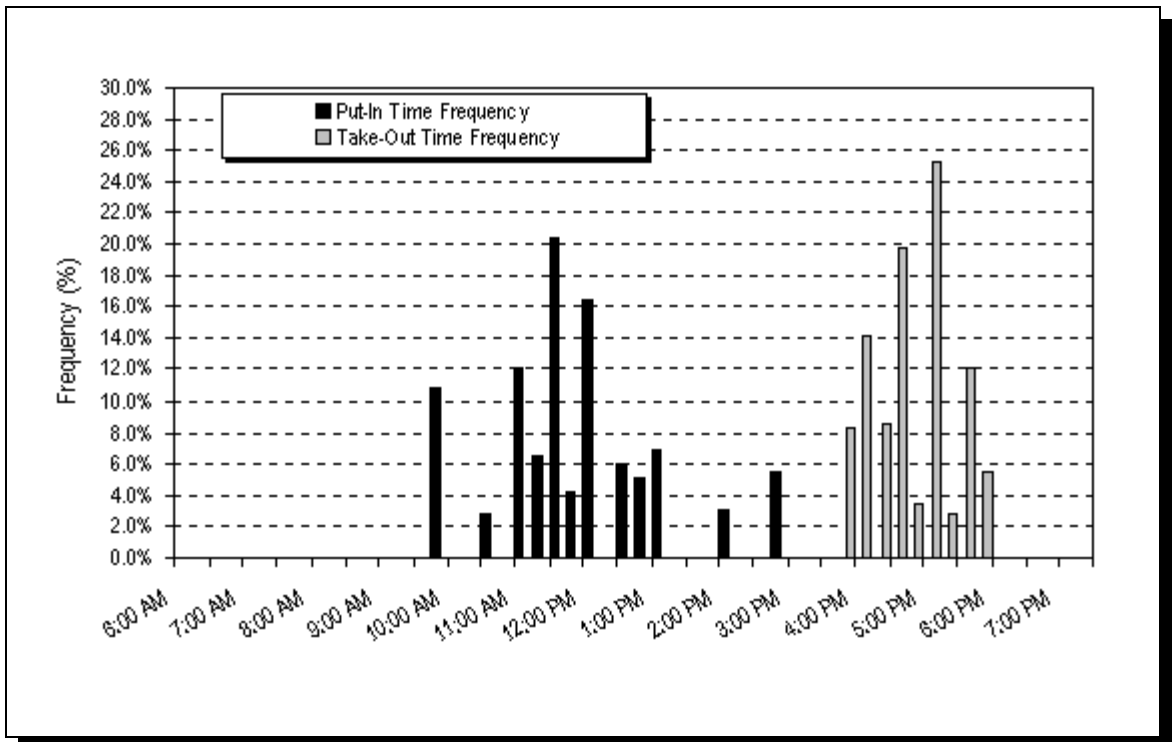


**Figure 8.** Frequency of Customer Reported Put-In Times on the Upper Gauley River

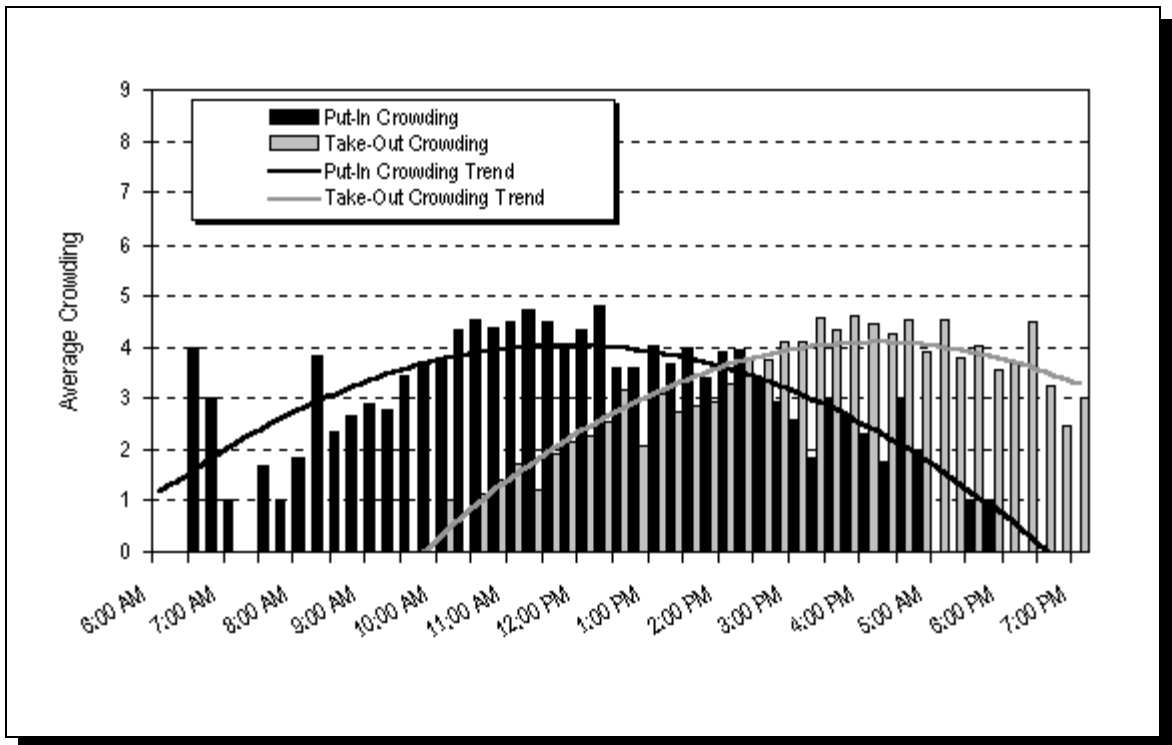




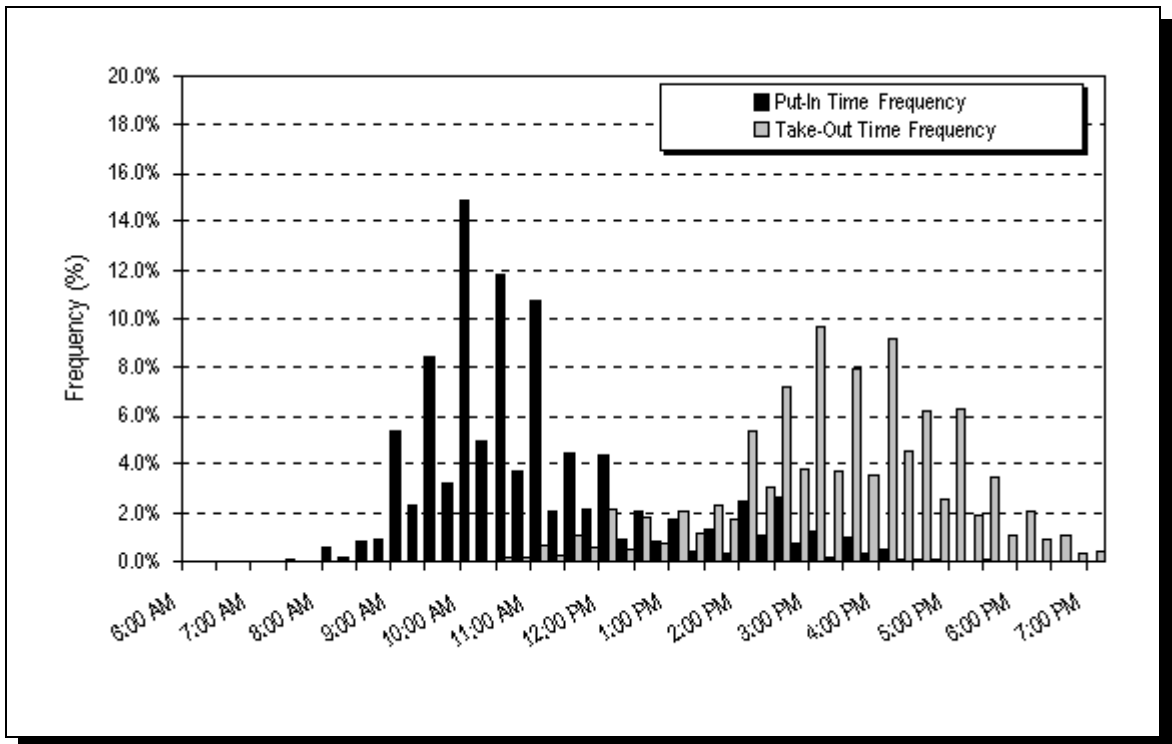
**Figure 9.** Average Customer Crowding by Put-In Time on the Lower Gauley River. (Note: Put\_in trend line intercept set to zero.)



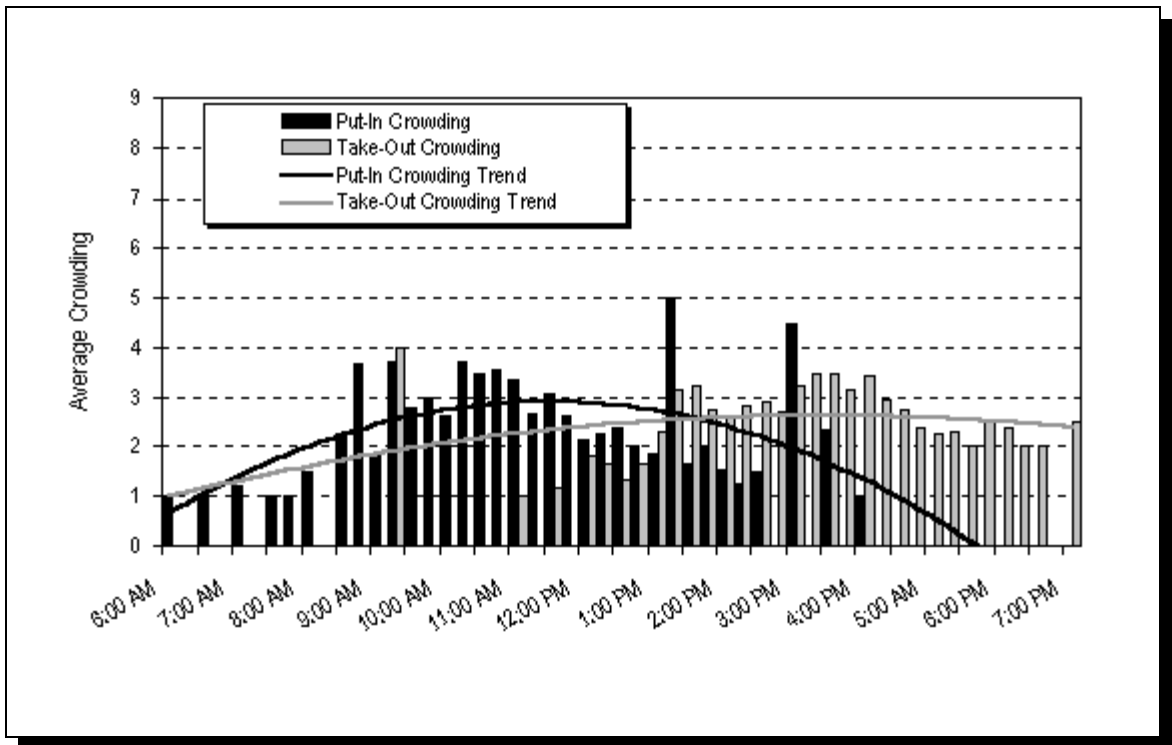
**Figure 10.** Frequency of Customer Reported Put-In Times on the Lower Gauley River



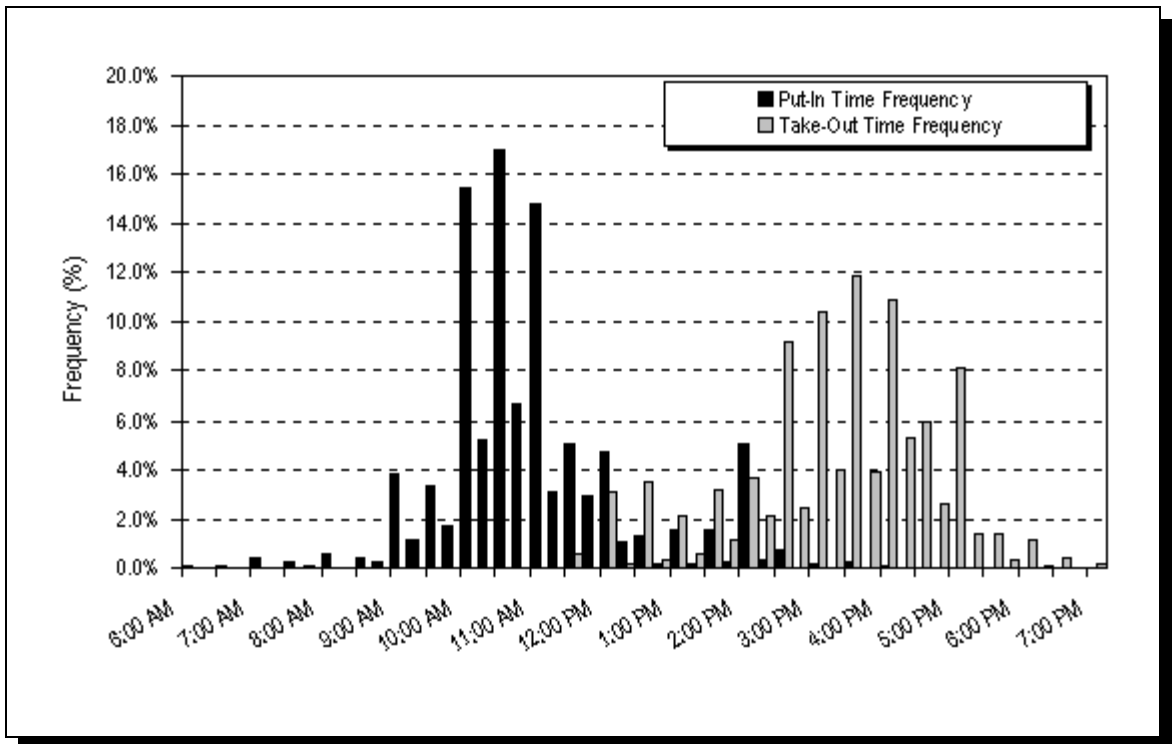
**Figure 11.** Average Trip Leader Crowding by Put-In Time on the Lower New River



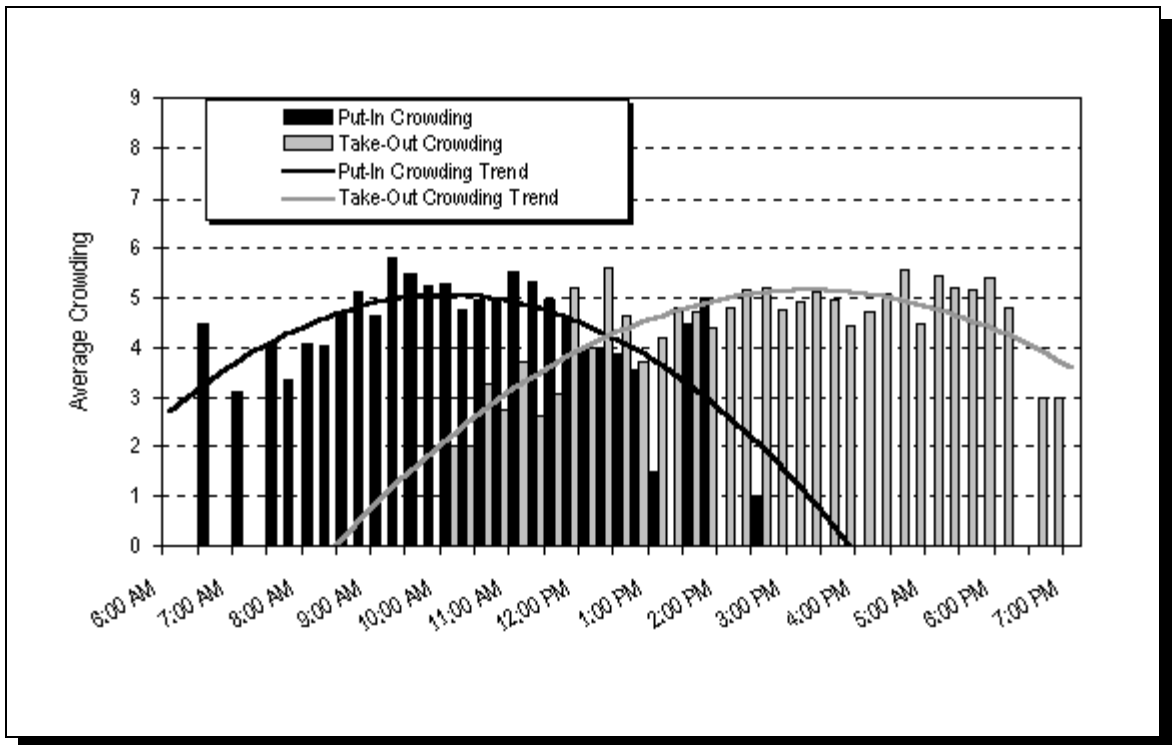
**Figure 12.** Frequency of Trip Leader Reported Put-In Times on the Lower New River



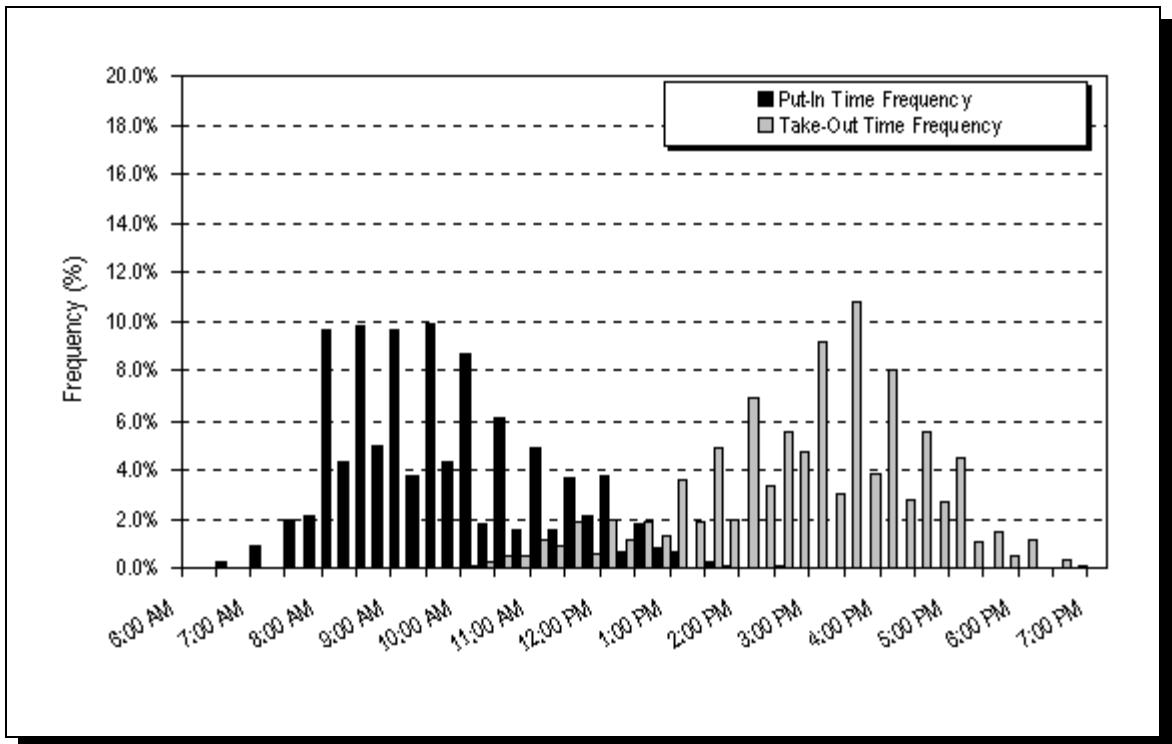
**Figure 13.** Average Trip Leader Crowding by Put-In Time on the Upper New River



**Figure 14.** Frequency of Trip Leader Reported Put-In Times on the Upper New River



**Figure 15.** Average Trip Leader Crowding by Put-In Time on the Upper Gauley River



**Figure 16.** Frequency of Trip Leader Reported Put-In Times on the Upper Gauley River

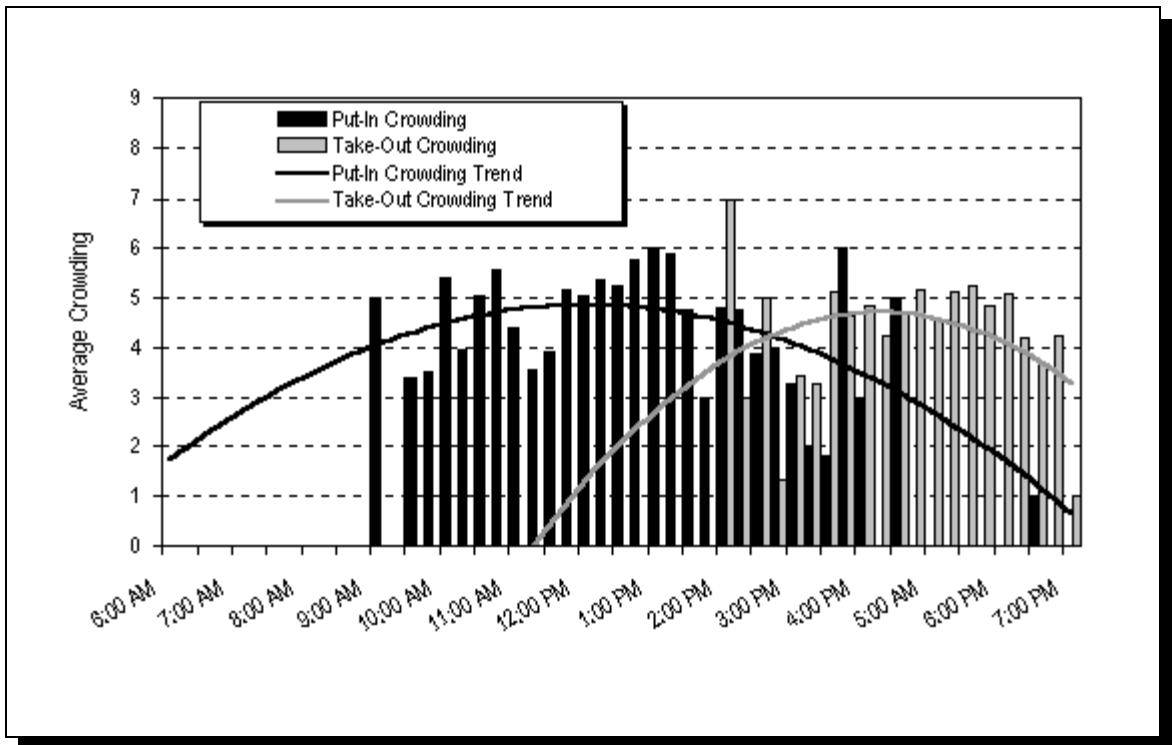


Figure 17. Average Trip Leader Crowding by Put-In Time on the Lower Gauley River

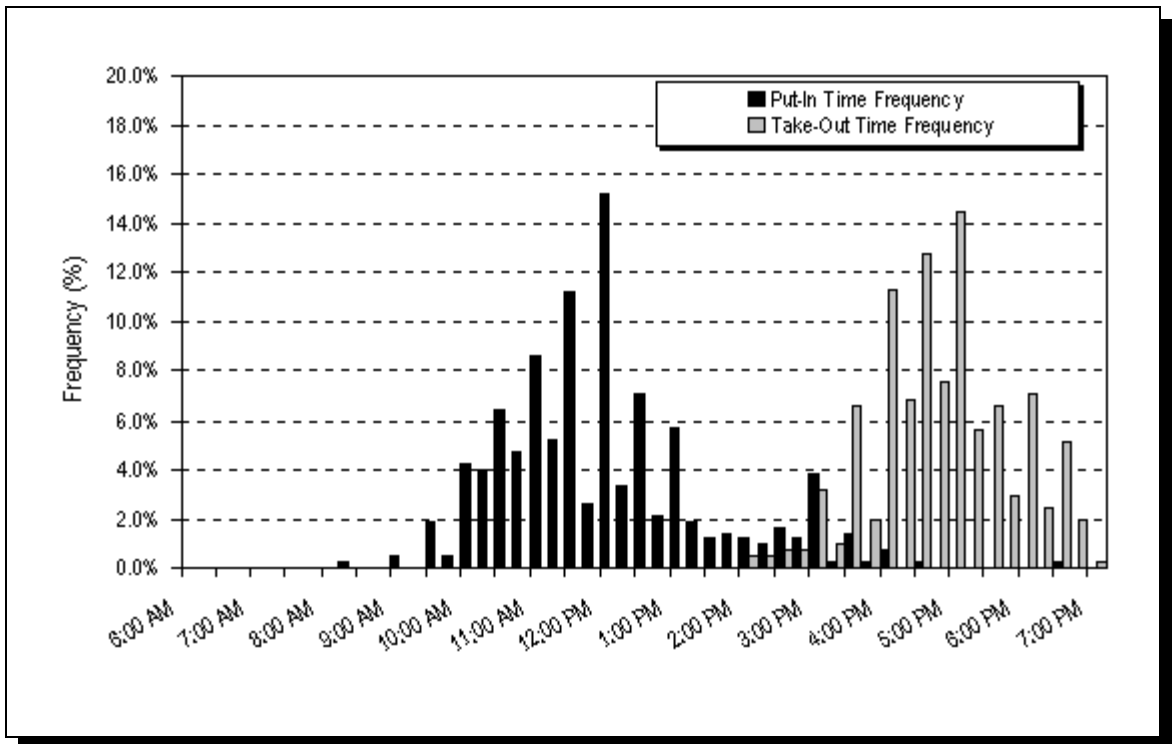


Figure 18. Frequency of Trip Leader Reported Put-In Times on the Lower Gauley River