LEASE AND OPERATING AGREEMENT

This Lease and Operating Agreement entered into this 30TH day of APRIL, 1998, by and between the State of New Hampshire, acting by and through its Department of Resources and Economic Development (hereinafter referred to as the "State" and "DRED," respectively) and Okemo Mountain, Inc., a Vermont corporation with a principal place of business in Ludlow, Vermont, and to be qualified to do business as a foreign corporation in the State of New Hampshire (hereinafter referred to as the "Operator").

WHEREAS, since 1948 the State has operated a ski area at Mount Sunapee State Park to provide public outdoor recreational opportunities for the citizens of New Hampshire and surrounding states and provinces; and

WHEREAS, the State has developed Mount Sunapee State Park using federal outdoor recreation funding from the Land and Water Conservation Fund Program administered by the United States Department of Interior, National Park Service; and

WHEREAS, the State recognizes its continuing obligation under Section 6(f)(3) of the Land and Water Conservation Fund Act and related federal regulations and project agreements to make Mount Sunapee State Park available for public outdoor recreation use; and

WHEREAS, Land and Water Conservation Fund Program regulations allow for leasing the operation of properties acquired or developed with Land and Water Conservation Fund assistance as long as the State retains ownership and control of the property so that it continues to be used for public outdoor recreation uses; and

WHEREAS, in Chapter 119, Laws 1997, the General Court of New Hampshire authorized the Commissioner of the Department of Resources and Economic Development, in consultation with a Joint Legislative Committee, to develop and issue a request for proposal for a lease, concession agreement or management contract for the operation of the Mount Sunapee Ski Area; and

WHEREAS, it is the desire of the State and the Operator that the development of summer and winter recreational activities continue at Mount Sunapee for the mutual benefit of the public and the Operator; and

WHEREAS, following an evaluation and selection process, the Joint Legislative Committee and the Commissioner of the Department of Resources and Economic Development have recommended that the State enter into this Lease and Operating Agreement with the Operator.

1. LEASE OF PREMISES.

The State hereby leases to the Operator and the Operator does hereby lease from the State a certain parcel of land and improvements thereon within and forming part of the Mount Sunapee State Park in the Towns of Newbury and Goshen, New Hampshire, comprising 850 acres, more or less (the "Leased Premises"). The Leased Premises are more particularly described in Appendices 1, 2 and 3 attached hereto and made a part hereof of this Lease and Operating Agreement, entitled Map of Leased Premises, Property Description of Leased Premises and Other Assets Included in Lease. The Operator shall have the right of ingress and egress to and from the Leased Premises over and across all public highways, work roads or trails owned, constructed, or to be constructed by the State within the general area of the Leased Premises. The State warrants that it has good and marketable title to the Leased Premises and that the Leased Premises are free and clear of all liens, encumberences, rights of way, easements or claims of title that may interfere with the Operator's ability to perform its obligations under this Lease and Operating Agreement.

2. TERM.

The term of this Lease and Operating Agreement shall be twenty (20) years, beginning on July 1, 1998 and terminating on June 30, 2018, unless earlier terminated as hereinafter provided. The Operator shall have the option of extending the term for two (2) additional ten (10) year periods. The Operator shall give written notice to the

State of its intent to extend the term for an additional ten (10) year period at least one (1) year prior to the expiration of the current term.

3. RENT.

The Operator agrees to pay, without demand, to the State as rent for the Leased Premises a base fee of one hundred fifty thousand dollars ($150,000) per year (adjusted annually for inflation) plus a variable fee of three percent (3%) of the Operator's gross annual revenues from the operation of the ski area, payable on or before December 31, 1998 of each year following the ski season year end.

Gross revenues shall mean the total amount received by or accruing to the Operator by reason of the privileges granted under this Lease and Operating Agreement from sales or rentals by the Operator or its subcontractors to patrons, for cash or credit, sold for consumption or use on the Leased Premises, of food, beverages, recreational equipment, rentals, tickets or other merchandise or services, including vending machines or coin operated devices.

The following shall be excluded or deducted from gross revenues:

a. Sales, excise, or other taxes which are imposed upon the sale of goods or services and which are collected by the Operator for remittance to the appropriate government or taxing authority. This exclusion from gross revenues is not intended to apply to any franchise, capital stock, income or similar taxes which are based upon the profits of the Operator.

b. Refunds, discounts, rebates or allowances paid or given by the Operator to ski area patrons.

c. Tips, gratuities or other charges for merchandise or services which are included in the account or bill of a patron.

d. All revenues from the sale or rental of real estate.

The Operator shall maintain an accounting system, including a ticket identification and control system designed to accurately account for the revenues received by the Operator. The Operator shall provide the State a certified public

accountant's statement verifying the amount due and paid at the time of payment of the rent. The Operator shall preserve all of its accounting books and records pertaining to its revenues at the Premises for a period of five (5) years following the close of each fiscal year.

4. SKI AREA OPERATIONS.

The Operator agrees to manage and operate the Leased Premises as a public ski area and summer recreational facility to provide year-round outdoor recreational opportunities for the general public. This Lease and Operating Agreement shall entitle the Operator to the right to operate a commercial recreational recreational facility (including all of its support activities) on Mount Sunapee in the Towns of Newbury and Goshen. The State agrees that no other commercial recreational activity shall be authorized at this location.

5. ANNUAL OPERATING PLAN.

On or before the 15th day of May during each year of this Agreement, the Operator shall submit to DRED an annual operating plan, including a schedule of the proposed days and hours of operation for the ski area, and a description of the types of recreational activities available to the public. The proposed schedule of operation shall be reviewed by DRED and either approved as proposed, or revised for resubmission. DRED shall notify the Operator in writing of a final schedule of operations no later than June 30th of each year. No changes in the days of operation or the scheduled hours of operation may be made without the prior approval of DRED. The Leased Premises shall not be closed to the public except for emergency or unsafe weather conditions.

The Annual Operating Plan shall describe in detail the following operations:

a. Types of recreational activities available to the public
b. Ski lift operations
c. Snow making and grooming operations
d. Ski support services

i. Ski school
ii. Rentals and repairs
iii. First aid/public safety
iv. Retail ski shop
v. Food and beverage services
vi. Entertainment

e. Maintenance procedures
f. Security procedures
g. Emergency operating plan
h. Status of special use permits and leases
i. Marketing and advertising
j. Environmental management program
k. Signage
l. Utilities and roads
m. Implementation of Master Development Plan site improvements

6. MASTER DEVELOPMENT PLAN.

The Operator shall prepare a Master Development Plan ("MDP") covering operations, facilities, site improvements and strategic plans for the ski area by June 1, 2000. The Operator's proposed MDP shall be submitted to DRED and shall be either approved as proposed or revised for resubmission. The MDP shall embody both the Operator's and the State's long term goals for the ski area and shall include all major elements of the Operator's "Proposal for the Operation of the Mount Sunapee Ski Area" submitted on April 1, 1998. The MDP shall include, but not be limited to, plans for expanding the ski trail network, construction of new lifts, construction or renovation of lodges or other facilities, additional water withdrawals from Lake Sunapee to expand snow-making capacity, upgrading or modifying infrastructure, including power, water and sewage disposal systems and such other improvements or

modifications that are appropriate for the recreational use of the Leased Premises. The MDP shall be revised and updated every five (5) years.

7. SITE IMPROVEMENTS.

The Operator shall complete site improvements in accordance with the MDP. All plans and specifications for site improvements and structures shall be submitted to DRED for approval at least sixty (60) days before the proposed construction date. All development and improvement projects shall be accomplished without interrupting skiing activities or other public outdoor recreational activities at the ski area.

The Operator shall bear the cost of all renovations and improvements and shall ensure that they are done in a good and workmanlike manner and in compliance with all applicable laws.

Site improvements built or installed by the Operator shall remain the real or personal property of the Operator during the term of this Lease. Title to all site improvements shall vest in the State upon the termination of this Lease.

8. CONSTRUCTION BONDS.

The Operator shall purchase, or shall require its contractors or subcontractors to purchase construction bonds issued by a surety or sureties satisfactory to DRED to guarantee the completion of any construction project. The Operator shall also purchase, or require its contractors or subcontractors to purchase labor and materials payment bonds to guarantee the payment for goods and services provided on all construction contracts.

9. OPERATIONS BOND.

The Operator shall provide to the State a performance bond in the penal amount of one million dollars ($1,000,000) issued by a surety or sureties satisfactory to the State to guarantee the faithful performance by the Operator of all the terms and conditions of this Lease and Operating Agreement and to indemnify the State and its agents from all loss for failure or inability to perform the obligations undertaken by the

Operator hereunder. An irrevocable letter of credit issued by a financial institution satisfactory to the State in the amount of one million dollars ($1,000,000) may be substituted for the performance bond.

10. RIGHT TO ENTER LEASED PREMISES.

The State and its agents and representatives may enter the Leased Premises at any time for the purposes of inspection.

11. UTILITIES.

The Operator shall be responsible for arranging for and making payment directly to the provider of all utility services required to operate the ski area. Failure by the Operator to pay for any utility services purchased, resulting in termination of the services by the provider, may be considered a material breach of this Lease and Operating Agreement. The Operator shall accept an assignment of the State's rights to discounted electric rates under Special Contract No. NHPUC 97-1 entered into with Public Service Company of New Hampshire.

12. TAXES.

The Operator shall pay all properly assessed real and personal property taxes no later than the due date. Failure by the Operator to pay any duly assessed personal and real estate taxes when due shall be cause to terminate this Lease and Operating Agreement.

13. RATE SCHEDULE.

All rates and prices charged by the Operator for ski lift tickets, admission fees, permit or license fees or other fees to be paid by members of the general public shall be submitted to DRED for its review and approval. All rates and prices charged by the Operator shall be competitive with similar privately operated facilities. DRED's approval shall be automatic unless DRED makes a determination that the rates are not competitive and so notifies the Operator.

14. PUBLIC USE OF THE LEASED PREMISES.

The Operator shall allow public access to the Leased Premises for recreational and park activities as permitted in the Annual Operating Plan.

15. ENVIRONMENTAL PROTECTION.

The Operator shall develop and submit for approval to DRED an Environmental Management Plan adopting recognized Best Management Practices to preserve and protect the Leased Premises, which shall include but not be limited to:

a. Water usage and conservation;
b. Septage disposal/treatment;
c. Drainage, erosion and water quality issues;
d. Solid waste disposal;
e. Air quality and traffic congestion mitigation;
f. Forestry management;
g. Wetlands impacts;
h. Wildlife habitat preservation; and
i. Scenic and aesthetic qualities.

16. MAINTENANCE.

The Operator shall maintain the Leased Premises in first class condition. The Operator, at its expense, shall undertake all maintenance of the facilities, lifts, trails, slopes, ponds, water courses, buildings, structures, roadways and other appurtenances, and housekeeping in all areas of the Leased Premises. The Operator shall be responsible for all litter pickup, trash disposal, cleaning, housekeeping and sanitation within each building and on all grounds within the Premises. At the beginning of the lease term, the State and the Operator shall jointly inspect and document the baseline conditions of all structures, facilities and natural or artificial features of the Leased Premises. The State shall inspect the Leased Premises at least annually and require the Operator to correct any maintenance deficiencies noted.

17. SECURITY INTERESTS IN LEASED PREMISES.

A pledge, mortgage or other security interest may be executed by the Operator impairing or encumbering the Operator's interests in this Agreement or any leasehold improvements with the approval of the State. Such approval shall not be unreasonably withheld by the State

18. COMPLIANCE BY OPERATOR WITH LAWS AND REGULATIONS; EQUAL EMPLOYMENT OPPORTUNITY.

The Operator shall comply with all statutes, laws, regulations, and orders of federal, state, county or municipal authorities which impose any obligation or duty upon the Operator, including, but not limited to the Land and Water Conservation Fund Act and implementing regulations and state and federal civil rights and equal opportunity laws. During the term of this Agreement, the Operator shall not discriminate against members of the public, employees or applicants for employment because of age, sex, race, creed, color, marital status, physical or mental disability, national origin or sexual orientation and will take affirmative action to prevent such discrimination. The Operator shall comply with all the provisions of Executive Order No. 11246 ("Equal Employment Opportunity"), as supplemented by the regulations of the United States Department of Labor (41 C.F.R. Part 60), and with any rules, regulations and guidelines as the State or the United States issue to implement these regulations.

19. INSPECTION OF OPERATOR'S RECORDS.

The Operator agrees to permit the State, or any agency of the United States, access to any of the Operator's books, records and accounts for the purpose of ascertaining compliance with any statutes, regulation and order, and with the terms and conditions of this Agreement. The Operator shall follow Generally Accepted Accounting Principles or Other Comprehensive Bases of Accounting acceptable to the State in recording financial transactions. When requested by the State, the Operator at its own expense shall have its annual accounting reports audited or prepared by a licensed independent accountant acceptable to the State.

20. PERSONNEL.

The performance of this Agreement shall be carried out by employees of the Operator at its own expense. The Operator warrants that all personnel engaged in the services shall be qualified to perform the services, and shall be properly licensed and otherwise authorized to do so under all applicable laws.

21. OPERATOR'S RELATION TO THE STATE.

In the performance of this Agreement the Operator is in all respects an independent contractor. Neither the Operator nor any of its officers, employees, agents or members shall have authority to bind the State or receive any benefits, worker's compensation or other emoluments provided by the State to its employees.

22. ASSIGNMENT, DELEGATION AND SUBCONTRACTS.

The Operator may assign, or otherwise transfer any interest in this Agreement with the prior written approval of the State. Services required under this Agreement may be delegated or subcontracted by the Operator with the prior written approval of the State. Such approval shall not be unreasonably withheld by the State.

23. INDEMNIFICATION.

The Operator shall defend, indemnify and hold harmless the State, and its officers and employees, from and against any and all losses suffered by the State, its officers and employees, and any and all claims, liabilities or penalties asserted against the State, its officers and employees, by or on behalf of any person, on account of, based or resulting from, arising out of (or which may be claimed to arise out of) the acts or omissions of the Operator or its subcontractors, agents or assignees. Notwithstanding the foregoing, nothing herein contained shall be deemed to constitute a waiver of the sovereign immunity of the State, which immunity is hereby reserved to the State. This covenant shall survive the termination of this Agreement.

24. INSURANCE.

During the entire term of this Agreement, the Operator shall, at its sole expense, obtain and maintain in force, and shall require any subcontractor or assignee to obtain and maintain in force, the following insurance:

a. Comprehensive general liability insurance against all claims of bodily injury, death or property damage, in amounts of not less than three hundred thousand dollars ($500,000) per occurrence and five million dollars ($5,000,000) annual aggregate; and

b. Fire and extended coverage insurance covering the Leased Premises, in an amount not less than one hundred percent (100%) of the whole replacement value of the Leased Premises.

The policies described above shall list the State of New Hampshire as an additional insured. They shall be in the standard form employed in the State of New Hampshire, issued by underwriters acceptable to the State, and authorized to do business in the State of New Hampshire. Each policy shall contain a clause prohibiting cancellation or modifications of the policy earlier than ten (10) days after written notice thereof has been received by the State. Certificates of insurance demonstrating that the required policies are in effect shall be filed with the State before the Agreement is presented to the Capital Budget Overview Committee and the Governor and Executive Council for approval and shall thereafter be renewed or replaced as necessary.

25. DEFAULT AND TERMINATION.

Any one or more of the following acts or omissions of the Operator shall constitute an event of default hereunder ("Events of Default"):

a. Failure to operate the ski area in a manner acceptable to the State; or

b. Failure to perform any task or service required by this Agreement satisfactorily or on schedule; or

c. Failure to submit any plan or report required hereunder; or

d. Failure to perform any other covenant or condition of this Agreement.

Upon the occurrence of any Event of Default, the State shall give the Operator a written notice specifying the Event of Default and requiring it to be remedied within, in the absence of a greater or lesser specification of time, thirty (30) days from the date of the notice. If the Event of Default is not timely remedied, the State may treat the Agreement as breached and pursue any of its remedies at law or in equity, effective two (2) days after giving the Operator notice of termination. The State shall also set off against any other obligations the State may owe to the Operator any damages the State suffers by reason of any Event of Default.

26. WAIVER OF BREACH.

No failure by the State to enforce any provisions hereof after any Event of Default shall be deemed a waiver of its rights with regard to that Event, or any subsequent Event. No express failure by the State to notify the Operator of any Event of Default shall be deemed a waiver of the right of the State to enforce each and all of the provisions hereof upon any further or other default on the part of the Operator. Upon the request of the Operator, the State shall issue letters to the Operator's lenders or creditors certifying that there are no outstanding defaults in its performance under this Agreement.

27. AMENDMENT.

This Agreement may be amended, waived or discharged only by an instrument in writing signed by the parties hereto and only after approval of such amendment, waiver or discharge by the Governor and Executive Council of the State of New Hampshire.

28. CONSTRUCTION OF AGREEMENT AND TERMS.

This Agreement shall be construed in accordance with the laws of the State of New Hampshire.

29. THIRD PARTIES.

The parties do not intend to benefit any third parties and this agreement shall not be construed to confer any such benefit.

30. ENTIRE AGREEMENT.

This Agreement, which may be executed in a number of counterparts, each of which shall be deemed an original, constitutes the entire agreement and understanding between the parties, and supersedes all prior agreements and understandings relating hereto.

31. APPROVAL CONTINGENCIES

This Lease and Operating Agreement shall not be final and binding upon the State until it is approved by the Capital Budget Overview Committee of the New Hampshire General Court and by the New Hampshire Governor and Executive Council.

IN WITNESS WHEREOF, the parties have executed this Lease and Operating Agreement as of the day and year first above written.

THE STATE OF NEW HAMPSHIRE

By: _____
Robb R. Thomson, Commissioner
Department of Resources and
Economic Development

OKEMO MOUNTAIN, INC.

By: _____
Timothy Mueller, President

Form, substance and execution approved this 14th day of May, 1998.

Senior Assistant Attorney General
Department of Justice

Approved by Capital Budget Overview Committee this 14th day of May, 1998. CONDITIONED UPON ENACTMENT OF HB 1291 AS AMENDED BY SEN. FRED KING. SEE COMMITTEE MINUTES. GBC

Gene H. Chandler

Approved by the Governor and Executive Council this 10th. day of June, 1998.

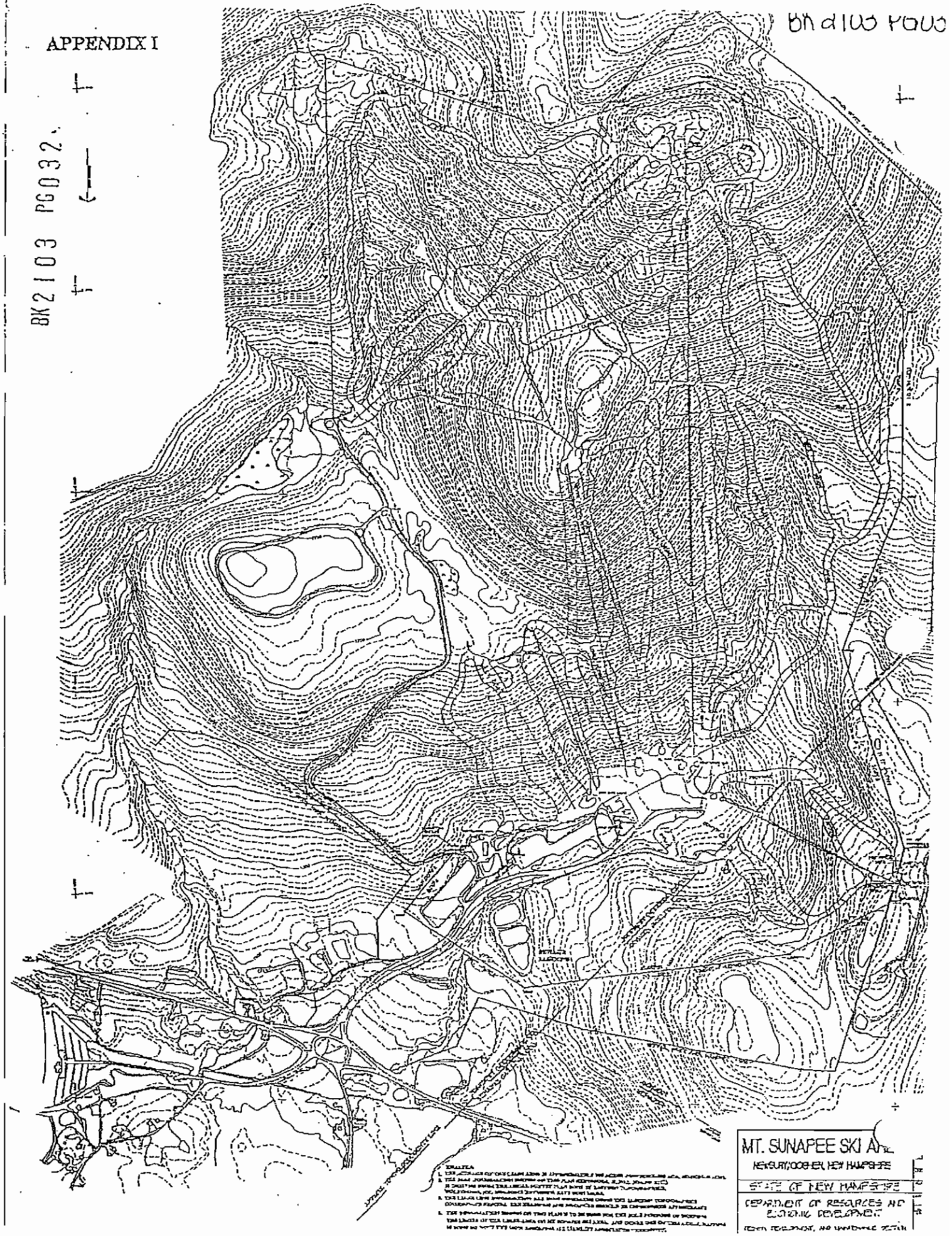
Robert P. Ambrose
DEPUTY SECRETARY OF STATE

Appendix 1

Map of Lease Premises

APPENDIX I

BK2103 PG032



Appendix 2

Property Description of Leased Premises

Sunapee Lease Area Description

Beginning at a granite bound set flush where the southerly side of the park maintenance road, herein referred to as the Bowl Road, intersects with the southerly sideline of a grass utility road; said bound being S 67°-00' E, 65'± from the gate post on the southwest side of the Bowl road and N 62°-30' E±, 164.5'± from the northeast corner of a pole barn; thence turning and running from said point of beginning 6375'± along the westerly sideline of the Bowl road in a generally northeasterly, southeasterly, southwesterly and southeasterly direction to a granite bound set flush near the extreme southwest end of the cul de sac of the Bowl road, said bound being S 81°-30' E±, 197±' from the center of the existing bullwheel on the Sun Bowl chair lift; thence turning and running from said granite bound S 1°-30' E±, 3560'± to a point; thence N 72°-15' W±, 2270'± to a point, thence S 71°-30' W±, 1575'± to a point, thence N 65°-45'W±, 900'± to a point, thence N 48°-30' W±, 550' ± to a point, thence N 27°-45' W±, 1675±' to a point, thence Due North±, 1860'± to a point, thence N 20°-30' E±, 1650'± to a point, thence N 17°-30'W±, 2065'± to a stake in the intersection of stonewalls, said stake being a State Park corner, thence running along the State Park boundary the following courses: N 16°-00' E±, 257'± to an iron pipe, thence N74°-00' W±, 50'± to an iron pipe, thence N 16°-00' E±, 200'± to an iron pipe, thence S 74°-00' E± , 50'± to an iron pipe in aforementioned stonewall, thence running along the stonewall N 16°-00' E±, 115'± to a point, thence leaving the State Park boundary and running N 62°-45' E±, 1110'± to a point, thence N 81°-45' E±, 2625'± to a point, said point being northerly of the lagoons, thence turning and crossing the main park entrance road S 57°-30' E±, 1375'± to a point which is easterly of the easterly corner of a gravel parking lot, thence turning and running S 40°-00' W±, 800'± to the point of beginning. Said parcel contains approximately 968 acres more or less. The described bearings are turned relative to magnetic north orientation. The bearings and distances are derived from a plan done by an aerial survey on file with the State of New Hampshire and should be considered as approximate in defining the area as delineated on the plan.

Appendix 3

Assets

MOUNT SUNAPEE BUILDING INVENTORY

Building #	Building Name	Use	Sq Footage	Accessible	Built
SUN01	Base Lodge	administration	28140	y	1962
SUN02	North Peak Lodge	headquarters	6340	y	1948
SUN03	Ski Rental Shop	ski rental	3269	y	1991
SUN05	Sun Bowl Drive	lift driver	966	n	
SUN06	Summit Lift Attn Shack	lift observance	71	n	
SUN07	Sun Bowl Lift (base)	lift operation	277	n	
SUN09	Snowmaking Booster		563	n	
SUN10	Summit Pump House	water trans	44	n	
SUN11	Province Ski Lift	lift operation	807	n	
SUN12	Sun Bowl Attn Shack	lift operation	74	n	
SUN13	Spruce Lift (top)	lift operation	76	n	
SUN14	Gosling Lift (top)	lift operation	91	n	
SUN15	North Peak Ski Lift	lift operation	102	n	
SUN16	Summit Ski Lift	lift operation	132	n	
SUN17	Duckling Ski Lift	lift operation	635	n	
SUN18	Snowmaking Gun Storage	gun storage	394	n	
SUN19	C-5 Snowmaking	snow pumps	248	n	
SUN20	C-4 Snowmaking	snow pumps	248	n	
SUN21	Snowball Hall	warming hut	149	n	
SUN22	Snmking Hydrant Storage	hydrant storage	35	n	
SUN23	Snowmaking	pumps/compressor	2149	y	
SUN24	Shed	storage	51	n	
SUN25	Maintenance Shop	maintenance	4800	y	1986
SUN26	Summit Lodge	ski summit	7846	y	1963
SUN27	Tobogan Storage	storage	55	n	
SUN28	North Peak Lift (top)	lift control	164	n	
SUN29	Valve House #1	protect valves	64	n	
SUN30	Valve House #2	protect valves	34	n	
SUN31	Valve House #3	protect valves	146	n	

Building #	Building Name	Use	Sq Footage	Accessibile	Built
SUN32	Valve House #4	protect valves	126	n	
SUN33	Valve House #5	protect valves	123	n	
SUN34	Province Lift Attn Shack	lift control	83	n	
SUN35	Pony Lift	lift control	67	n	
SUN37	Ski Wee	assembly	229	n	
SUN56	Spruce Chair Lift	lift operation	132	n	
SUN57	First Aid/Ski Patrol	first aid	2100	n	1962
SUN60	Main Snwmking Pump Hs	water trans	400	n	1982
SUN61	Maintenance Pump Hs	water trans	100	n	
SUN62	Pole Barn	storage	4800	y	1984
SUN63	Old Concession Stand	storage	280	n	1950
SUN64	Service Shop	work shop	3628	n	1960

Chair Lift Name	Year	Original Cost
Duckling Double Chair	1962	$132,629.00
North Peak Triple Chair	1987	$709,121.17
Pony Express Two Lift		$22,703.62
Province Double Chair	1965	$155,000.00
Spruce Triple Chairlift		$487,370.04
Summit Triple Chairlift	1987	$995,886.50
Sun Bowl Double Chair	1967	$377,130.00

Note:

All assets listed in 3.a and 3.b are considered state property. When the equipment is no longer needed, it must be disposed of through the surplus system of the State of New Hampshire. The successful proposer is required to inventory state items annually and submit it to DRED.

Appendix 3.a

INVENTORY of OFFICE and SPECIALTY EQUIPMENT
MOUNT SUNAPEE, SUNAPEE, NH

ID #	SERIAL #	DESCRIPTION
1-3110	11557181	TRANZ DRAFT CAPTURE TERMINAL
1-3111	012466699	TRANZ DRAFT CAPTURE TERMINAL
1-3112	012466696	TRANZ DRAFT CAPTURE TERMINAL
1-3113	014505663	PRINTER FOR TRANZ TERMINAL
1-3114	11868418	PRINTER FOR TRANZ TERMINAL
1-3115	11868419	PRINTER FOR TRANZ TERMINAL
1-3123	011-538-845	TRANZ DRAFT CAPTURE TERMINAL
1-3128	012-032-422	PRINTER (FOR TRANZ #1-3123)
1-3132		CHAIR, MANAGER W/ARMS
1-3144	10644	PC , PW/2 SYSTEM W/MODEM
1-3147	93579	MONITOR, EGA DISPLAY
1-3150	004363	DRILL, MAKITA 3/8"
1-3165	19008757	CASH REGISTER, SHARP ELEC.
1-3166	19003236	CASH REGISTER, SHARP ELEC.
1-3167	19003276	CASH REGISTER, SHARP ELEC.
1-3174	01203117-03	POWDER MAKER, 3-ROLL
1-3202		CABLE TRACER
1-3207	00098	MOWER, ROTARY TIMBERLAND
1-3217	ED10958	THREADING MACHINE, RIGID 300/PORTABLE POWER DRIVE
1-3221		BATTERY PACK & CHARGER, CLC200
1-3222		HYDRAULIC SERVICE JACK, LINCOLN
1-3224	E25A10904	VCR, PANASONIC
1-3225	MA22310430	TV/MONITOR, PANASONIC
1-3230		REDHEAD EXPANSION MACHINE
1-3231	W920433572	POWER CHUTE (FOR UNIX)
1-3233	W920433572	SMARTUPS 600
1-3235	W920701382	BACKUPS 250
1-3236	W920300893	BACKUPS 250
1-3237	W920877382	BACKUPS 250
1-3238	W920932168	BACKUPS 250
1-3239	W020701381	BACKUPS 250
1-3240	W920906930	BACKUPS 250
1-3241	W920877384	BACKUPS 250
1-3242		BACKUPS 250
1-3243	W920701380	BACKUPS 250
1-3244	W920701378	BACKUPS 250
1-3250		SAW, MILWAUKEE CIRCULAR 7 1/4"
1-3256		DESK, GREY METAL
1-3280	001435	SNOWBOARD, ENERGY
1-3281	000522	SNOWBOARD, ENERGY
1-3282	001683	SNOWBOARD, ENERGY
1-3283	002349	SNOWBOARD, ENERGY
1-3284	000513	SNOWBOARD, ENERGY
1-3285	910024	SNOWBOARD, RENTAL
1-3286	910031	SNOWBOARD, RENTAL
1-3287	010124	SNOWBOARD, RENTAL

App

1-3291	013-441-863	TRANZ DRAFT CAPTURE TERMINAL
1-3292	013-548-990	PRINTER (FOR TRANZ)
1-3327	F825K4FEAT5031	PC, DELTA HOST
3328	208C0417404	PRINTER, SYSTEM REPORT
.3329	246697	MODEM, BAUD EXTERNAL
1-3330	925305512989F	MONITOR, VGA
1-3331	2434315055N	PC, DELTA TICKET STATION
1-3332	2434315008N	PC, DELTA TICKET STATION
1-3337	2434315010N	PC, DELTA TICKET STATION
1-3340	2434315032N	PC, DELTA TICKET STATION
1-3341	207C0776793	PRINTER, VOUCHER
1-3346	13806	PRITNER, BOCA THERMAL
1-3347	13808	PRINTER, BOCA THERMAL
1-3348	13805	PRINTER, BOCA THERMAL
1-3358	2119236	MONITOR, VGA
1-3359	2120193	MONITOR, VGA
1-3360		MULTIPORT SPOOLER
1-3361		MULTIPORT SPOOLER
1-3362	92161746487	MODEM, SHORT HAUL
1-3363	9209	MODEM, SHORT HAUL
1-3365	JK90600335	AIR CONDITIONER, WESTINGHOUSE
1-3369	75744	PC, SPERRY
1-3375	2323TTF6A	PC, IBM 486 SX-33
1-3376	H1BCB00872	MONITOR, SAMSUNG SVGA COLOR
1-3386	519FTY6090	RADIO, MOTOROLA PORTABLE
-3390	519FTY6094	RADIO, MOTOROLA PORTABLE
1-3391	519FTY6095	RADIO, MOTOROLA PORTABLE
1-3392	519FTY6096	RADIO, MOTOROLA PORTABLE
1-3393	002482	SKI RACE TIMER
1-3394	0982114	DRILL, 3/8" KIT-EXTRA BATTERY
1-3395	174TTYK796	RADIO, MOTOROLA SPEAKR MIC
1-3396	174TTYK767	RADIO, MOTOROLA SPEAKR MIC
1-3397	174TTYK805	RADIO, MOTOROLA SPEAKR MIC
1-3398	18938	PRINTER, BOCA THERMAL
1-3399	18937	PRINTER, BOCA THERMAL
1-3432	25013	DRILL, 1/2" CORDLESS W/BATTERY
1-3433	2323TTF2H	PC, IBM 486 SX
1-3434	H2FD100610	MONITOR, SAMSUNG SVGA COLOR
1-3435	3GMBGD66242	PRITNER, PANASONIC DOT MATRIX
1-3436	H2FD100624	MONITOR, SAMSUNG SVGA COLOR
1-3505	93005	SNOWGUN, TOWER W/FITNG&STND
1-3506	93151	SNOWGUN, TOWER W/FITNG&STND
1-3507	93236	SNOWGUN, TOWER W/FITNG&STND
1-3508	93017	SNOWGUN, TOWER W/FITNG&STND
1-3509	93009	SNOWGUN, TOWER W/FITNG&STND
1-3510	93136	SNOWGUN, TOWER W/FITNG&STND
-3511	93139	SNOWGUN, TOWER W/FITNG&STND
1-3512	93317	SNOWGUN, TOWER W/FITNG&STND
1-3513	93253	SNOWGUN, TOWER W/FITNG&STND
1-3514	93024	SNOWGUN, TOWER W/FITNG&STND
1-3515	93230	SNOWGUN TOWER W/FITNG&STND

1-3516	93313	SNOWGUN, TOWER W/FITNG&STND
1-3517	93137	SNOWGUN, TOWER W/FITNG&STND
3518	93125	SNOWGUN, TOWER W/FITNG&STND
3519	93159	SNOWGUN, TOWER W/FITNG&STND
1-3520	93147	SNOWGUN, TOWER W/FITNG&STND
1-3521	93116	SNOWGUN, TOWER W/FITNG&STND
1-3522		SNOWGUN, TOWER W/FITNG&STND
1-3523	93002	SNOWGUN, TOWER W/FITNG&STND
1-3524	93135	SNOWGUN, TOWER W/FITNG&STND
1-3525	93155	SNOWGUN, TOWER W/FITNG&STND
1-3526	93111	SNOWGUN, TOWER W/FITNG&STND
1-3527	93027	SNOWGUN, TOWER W/FITNG&STND
1-3528	93127	SNOWGUN, TOWER W/FITNG&STND
1-3529	93020	SNOWGUN, TOWER W/FITNG&STND
1-3530	93245	SNOWGUN, TOWER W/FITNG&STND
1-3531		SNOWGUN, TOWER W/FITNG&STND
1-3532	93021	SNOWGUN, TOWER W/FITNG&STND
1-3533	93309	SNOWGUN, TOWER W/FITNG&STND
1-3534	93146	SNOWGUN, TOWER W/FITNG&STND
1-3535	93016	SNOWGUN, TOWER W/FITNG&STND
1-3536	93315	SNOWGUN, TOWER W/FITNG&STND
1-3537	93029	SNOWGUN, TOWER W/FITNG&STND
1-3538	93312	SNOWGUN, TOWER W/FITNG&STND
1-3539	93303	SNOWGUN, TOWER W/FITNG&STND
3540	93316	SNOWGUN, TOWER W/FITNG&STND
1-3541	93305	SNOWGUN, TOWER W/FITNG&STND
1-3542	93302	SNOWGUN, TOWER W/FITNG&STND
1-3543	93311	SNOWGUN, TOWER W/FITNG&STND
1-3544	93308	SNOWGUN, TOWER W/FITNG&STND
1-3545	93301	SNOWGUN, TOWER W/FITNG&STND
1-3546	93161	SNOWGUN, TOWER W/FITNG&STND
1-3547	93309	SNOWGUN, TOWER W/FITNG&STND
1-3548	93306	SNOWGUN, TOWER W/FITNG&STND
1-3549	93310	SNOWGUN, TOWER W/FITNG&STND
1-3550	93307	SNOWGUN, TOWER W/FITNG&STND
1-3551	93190	SNOWGUN, TOWER W/FITNG&STND
1-3552	93300	SNOWGUN, TOWER W/FITNG&STND
1-3553	93158	SNOWGUN, TOWER W/FITNG&STND
1-3559	93118	SNOWGUN, TOWER W/FITNG&STND
1-3560		SNOWGUN, TOWER W/FITNG&STND
1-3563	93014	SNOWGUN, TOWER W/FITNG&STND
1-3600	L7657	SPOOL GUN, MAGNUM SG
1-3604	US4811510J	PRINTER, HP DESKJET 520
1-3635		TORQUE WRENCH DIAL 3/4 DR600
1-3656	519FUY5591	RADIO, MOTOROLA PORTABLE W/CHARGER
3657	519FUY5593	RADIO, MOTOROLA PORTABLE W/CHARGER
1-3658	519FUY5594	RADIO, MOTOROLA PORTABLE W/CHARGER
1-3678	KA427BEDV3	PC, DEC 486
1-3685	S94114563925	SMARTUPS 600
1-3686	B94124907915	BACKUPS 280
1-3687	A0026301K468	ACCURA 96 PLUS FAX

1-3688	327713	PLOW, 8 FOOT FISHER ASSEMBLY
1-3708	2425-001	KEYBOARD, PROGRAMMABLE
1-3709	4443-047	KEYBOARD, PROGRAMMABLE
'10	2463-097	KEYBOARD, PROGRAMMABLE
3711	2463-029	KEYBOARD, PROGRAMMABLE
1-3712	2463-059	KEYBOARD, PROGRAMMABLE
1-3713	2463-112	KEYBOARD, PROGRAMMABLE
1-3714	2463-025	KEYBOARD, PROGRAMMABLE
1-3715	2463-061	KEYBOARD, PROGRAMMABLE
1-3716	2425-018	KEYBOARD, PROGRAMMABLE
1-3717	2463-137	KEYBOARD, PROGRAMMABLE
1-3718	2463-100	KEYBOARD, PROGRAMMABLE
1-3719	W5WK44A80676	MONITOR, VGA
1-3720	44634800021	PC, DELTA TICKETING
1-3721		PRINTER, BOCA THERMAL
1-3722	4445-055	KEYBOARD, PROGRAMMABLE
1-3723	2120194	MONITOR, VGA
1-3725	L4X5650421	COMPACTOR BAR, LMC
1-3727		POWDER MAKER, 16' EASTERN
1-3737	5315876UN	PC, NEC
1-3739	5315862UN	PC, NEC
1-3742	012240611	PRINTER FOR TRANZ TERMINAL
1-3743	014540712	TRANZ DRAFT CAPTURE TERMINAL
1-3744	014505656	PRINTER FOR TRANZ TERMINAL
3745	014540716	TRANZ DRAFT CAPTURE TERMINAL
3746	014505664	PRINTER FOR TRANZ TERMINAL
1-3747	014540706	TRANZ DRAFT CAPTURE TERMINAL
1-3748	014505662	PRINTER FOR TRANZ TERMINAL
1-3749	012466700	TRANZ DRAFT CAPTURE TERMINAL
1-3750	012240566	PRINTER FOR TRANZ TERMINAL
1-3751	011557565	TRANZ DRAFT CAPTURE TERMINAL
1-3752	011868417	PRINTER FOR TRANZ TERMINAL
1-3753	014540708	TRANZ DRAFT CAPTURE TERMINAL
1-3754	014505661	PRINTER FOR TRANZ TERMINAL
1-3755	012240640	PRINTER FOR TRANZ TERMINAL
1-3758	QD3401236	AIR CONDITIONER, WHIRLPOOL W/SLEEVE
1-3759		METALMASTER KIT
1-3760	95A28498	SCT METER W/10 FT CABLE
1-3761	95A28568	DO METER, HANDHELD PROBE 12'
1-3762	5106292UB	PC, NEC PENTIUM 90
1-3766	095076219316	BACKUPS 280
1-3767	095076152581	BACKUPS 280
1-3768	095076221166	BACKUPS 280
1-3773		VACUUM, KIRBY REBUILT
1-3774		PH METER W/ STARTER
3776	27138	VACUUM, THOROMATIC COMM.
3777	WA02535FTAJ	FLOWMETER, VORTEX SHEDDING
1-3778	M0SULKC040424	SULKY, JOHN DEERE
1-3779		SLING, LIFTALL TUFLEX
1-3780		CLOCK, SKI, 6 DIGIT REMOTE
1-3781		HEADSET, PELTOR LISTEN ONLY

1-3782		HEADSET, PELTOR LISTEN ONLY
1-3783	70500831	RADIO, KENWOOD PORT 32 CH
784	70500832	RADIO, KENWOOD PORT 32 CH
1-3785	70500833	RADIO, KENWOOD PORT 32 CH
1-3786	70500836	RADIO, KENWOOD PORT 32 CH
1-3787	70500837	RADIO, KENWOOD PORT 32 CH
1-3788	70500838	RADIO, KENWOOD PORT 32 CH
1-3789	70500903	RADIO, KENWOOD PORT 32 CH
1-3790	70500907	RADIO, KENWOOD PORT 32 CH
1-3791	70500908	RADIO, KENWOOD PORT 32 CH
1-3792	70700196	RADIO; KENWOOD MOBIL W/SPEAKR
1-3795	0649789	PC, DELTA TICKETING 486SX
1-3796	EANU5111811	MONITOR, DELTA TICKETING
1-3797		KEYBOARD, DELTA PROGRAMABLE
1-3798	30485	PRINTER, DELTA THERMAL
1-3799	095076152649	BACKUPS 280
1-3800		TRANZ TERMINAL, 330 DRAFT CPTR
1-3801	016655934	TRANZ TERMINAL, 330 DRAFT CPTR
1-3802	011397400	PRINTER, 250 FOR TRANZ TERMINAL
1-3803	013008658	PRINTER, 250 FOR TRANZ TERMINAL
1-3810		PC, POS TERMINAL 486 W/MODEM
1-3811	5014021	KEYBOARD, PROGRAMMABLE POS
1-3812	5B861272	MONITOR, POS 14" VGA COLOR
3813		CASH DRAWER, POS CYBER DATA
1-3814	5HMCJB88310	PRINTER, POS PANASONIC
1-3815	B5088	DATA TERMINAL, SYMBOL PORTABLE
1-3816	45015010469	PRINTER, STAR POS
1-3817	77FVW8731	RADIO, MOTOROLA 2 CH PORTABLE
1-749		DESK, EXECUTIVE
1-846	307045618	TRIM/BRUSHCUTTER, JONSERED
1-893		PRINTER, NEC PARALLEL
1-959	CF09510	PHOTO IDENTIFICATION SYSTEM, GBC
1-960	170043	TRACTOR, CUB CADET LAWN
1-961	ODBMA001797	TYPEWRITER, PANASONIC
1-969	B5848	BADGE TIME RECORDER, LATHEM
2-003080	W-A02535FTAZ	FLOWMETER, VORTEX SHEDDING
2-003081		WELDER, ECONO
2-003082		BATTERY PACK, BELT
2-003090	605965	DRILL, 3/8 DRIVER KIT MAKITA
2-003102	200072767	TRANZ DRAFT CAPTURE TERMINAL
2-003103	017483004	TRANZ DRAFT CAPTURE TERMINAL
2-003104	014143278	PRINTER FOR TRANZ
2-003105		PRINTER FOR TRANZ
2-003130	109072	FORKLIFT, 4,000 LB A-C
003131	F96 342	MOWER, REARS MOUNTAIN PAK-FLAIL
003133	BAF86795	PRINTER, CANNON BJC
2-003134	6510867US	PC, NEC PENTIUM 16 MBW/ INT MODEM
2-003135		TELEPHONE LINE TESTER
2-003142		HEADSET, LISTEN ONLY SETCOM
2-003143	80200842	RADIO, VHF 32 CH 5W PORT W/ ACCESSORIES
2-003144		CHOPSAW, 14"

2-003145	US67T1S00W	PRINTER, HP 680C
2-003163	777FWS5720	RADIO, MOTOROLA 2 CHANNEL VHF STD
2-003164		PUMP, LMI CHMICAL METERING
2-003166		HEADSET, PLANTRONICS
2-003167		REFRIGERATOR
2-003168	72N6920358	MICROWAVE
2-003169		HEADSET, PELTOR LISTEN ONLY
2-003170		HEADSET, PELTOR LISTEN ONLY
2-003173	012466699	TRANZ DRAFT CAPTURE TERMINAL
2-003179	80500117	RADIO, KENWOOD 45 WATT MOBILE
2-003180	80500119	RADIO, KENWOOD 45 WATT MOBILE
2-003181	80500116	RADIO, KENWOOD 45 WATT MOBILE
2-003203		HARNESS, CLIMBING/CONST W/SADDL BELT
2-003204		HARNESS, CLIMBING/CONST W/SADDL BELT
2-003205		HARNESS, CLIMBING/CONST W/SADDL BELT
2-003238		KLEINSKILIFT
2-003239		HARNESS, TOWER CLIMBING
2-003240	7063508	BENCH GRINDER, 8"
2-003241		AIR RIVETER
2-003242	225497	LITE BOX, STREAMLIGHT
2-003243	160285	LITE BOX, STREAMLIGHT
2-003260		HARNESS, LG TOWER CLIMBING
2-003277	I7WA10717	CAMCORDER, PANASONIC
2-003278		CAMERA SYSTEM, POLAROID COMPLETE 4 LENS
2-003282		BATTERY CHARGER
2-003285		FAX MACHINE, LASER
2-003286	69686G	GRINDER, 4 12/" MAKITA W/ PADDLE SWITCH
2-003287	31553	GRINDER, BLACK & DECKER 4 1/2
2-003289	77FXSG810	RADIO, 2CH PORTABLE VHF STD 5W
2-003292	PB9705556523	BACKUPS, UPS 280
2-003293		TV/VCR, 19"
2-003300		REAMER, LETTER H S ADJ HAND
2-003301		WRENCH, AIR IMPACT
2-1115		FLEX HARROW 12' X 7'6"
2-1116		FLEX HARROW 12' X 7'6"
2-1117		CABINET, PROTO ROLL
2-1122		AIR COMPRESSOR, ENGLOW W/SKI
2-1136	727973	TIME RECORDER - CINCINNATI
2-1137	J36785	TRACTOR, GRAVELY W/HITCH
2-1141	159	POWDER MAKER - SNOW RITE
2-1150	225	POWDER MAKER - 8"
2-1151		MOWER, YARDMAN LAWN SELF-PROP 31/2HP
2-1152		MOWER, YARDMAN LAWN SELF-PROP 31/2HP
2-1155		TOBOGGAN, RESCUE RED
2-1156		TOBOGGAN, RESCUE RED
2-1177		MOWER, ROTARY W/ATTCH 50"
-1178		RADIO, JOHNSON WALKIE-TALKIE
2-1179		RADIO, JOHNSON WALKIE-TALKIE
2-1180	7556	POWDER MAKER JR. W/ATTCH
2-1181	30B164	MOWER, FIELD HYDRO-CLIPER
2-1183		WELDER, ARC /AC TRANSFORMER

2-1201		HEATER, GAS SPACE /WARM MORNING
2-1211	32H40904N	HEATER, OIL PORTABLE
2-1227	1532	SNOWBLOWER 6' WESTERN PROD
239	1550R	DRILL, SIOUX ELECTRIC & STAND
241	145214	TANK, 1000 GALLON
2-1248	PM-11	POWDER MAKER, 3 ROLL W/FRAME
2-1249	JB55	VACUUM,COMMERCIAL
2-1253		MOWER, ROTARY FOR GRAVELY
2-1258		HOIST, GRIPHOIST WIRE ROPE
2-1261	8313121	CHAINSAW, STIHL
2-1267	7-3273127	TYPEWRITER, OLYMPIA MANUAL
2-1269		SANDER/POLISHER, CRAFTSMAN
2-1276	733989	TICKET MACHINE, DISPENSING
2-1277	733992	TICKET MACHINE, DISPENSING
2-1278	733994	TICKET MACHINE, DISPENSING
2-1279	752827	TICKET MACHINE, DISPENSING
2-1280		GASOLINE HAND PUMP - PORTABLE
2-1282	173558	LATHE 13X13X5 W/ATTCH
2-1307	034	POWDER MAKER W/HYDRO LIFT
2-1308		FUERST GROOMING HARROW
2-1309		GROOMING HARROW, FUERST
2-1314	LHPS321	MOWER, HAHN ROTARY 21" S.P.
2-1315		HOIST, WIRE ROPE GRIPHOIST
2-1317		SANDER, BELT MILLERS FALLS 3"
1327	3048-09	SAW, CIRCULAR B&D 8 1/4"
331	00223714	TRACTOR, GRAVELY COMM. 12HP
2-1336		TOBOGGAN, THOMPSON 86"X24"X7"
2-1337	8DS6065-7501.8053	SNOWGROOMER, DISC 8' SCARIFIR
2-1339		CHAINSAW, HOMELITE 20"BAR
2-1344		CHASSIS LUBRIGUN, AIR/ALEMITE
2-1345		HOIST, COIL CHAIN, RATCHET 6T
2-1346		HEATER, SPACE WARM MORNING
2-1348		ALTERNATOR, PORTABLE, GAS 7HP
2-1349		SURFBOARD, LIFEGUARD 14'
2-1365	813-000-817	CHARGER, VEHICLE RADIO
2-1366	813-000-717	CHARGER, VEHICLE RADIO
2-1367	813-0009	CHARGER, VEHICLE RADIO
2-1370	805-5541	RADIO, G.E. PORTABLE
2-1382		WRENCH, AIR IMPACT BLACK & DECKER
2-1479		COMPACTOR, FOLDING ENGINEERING
2-1480		FILE, LETTER, 4 DRAWER
2-1499		TABLE, CONFERENCE 40 X 96
2-1500	314662	DUPLICATOR, A.B. DICK SPIRIT
2-1507	650939	TICKET MACHINE ANKER SKI
2-1508	557217	TICKET MACHINE, ANKER SKI
2-1523	01503923-02	POWDER MAKER,12' 3 ROLL
524	288829	PC, KAYPRO 2X
2-1525	544053	PRINTER,FACIT 80 COL DOT MTRX
2-1526	292132	PC, KAYPRO 2X
2-1527	542782	PRINTER, FACIT 80 COL DOT MTRX
2-1528	292136	PC, KAYPRO 2X

2-1529	542784	PRINTER, FACIT 80 COL DOT MTRX
2-1530	288656	PC, KAYPRO 2X
2-1531	544583	PRINTER, FACIT 80 COL DOT MTRX
32	292133	PC, KAYPRO 2X
2-1533	544584	PRINTER,FACIT 80 COL DOT MTRX
2-1565		TILLER, 3.9 QUICK MT POWER
2-1594		RADIO, PORT MIDLAND SYNTECH
2-1595		RADIO, PORT MIDLAND SYNTECH
2-1596		RADIO, PORT MIDLAND SYNTECH
2-1597		RADIO, PORT MIDLAND SYNTECH
2-1598		RADIO, PORT MIDLAND SYNTECH
2-1599		RADIO, PORT MIDLAND SYNTECH
2-1600		RADIO, PORT MIDLAND SYNTECH
2-1601		RADIO, PORT MIDLAND SYNTECH
2-1602	85M072007	CHARGER, DESK TOP 4 UNIT
2-1603	85M072090	CHARGER, DESK TOP 4 UNIT
2-1610	1342	SNOWMAKER W/CARRIAGE, BOYNE
2-1611	1343	SNOWMAKER W/CARRIAGE, BOYNE
2-1612	1345	SNOWMAKER W/CARRIAGE, BOYNE
2-1613	1352	SNOWMAKER W/CARRIAGE, BOYNE
2-1614		SNOWMAKER W/CARRIAGE, BOYNE
2-1633		PC, KAYPRO 2X
2-1634		PRINTER, TICKET FACIT
2-1635		RESCUE SLED
536		RESCUE SLED
2-1638		TYPEWRITER,IBM WHEELWRITER 3
2-1642	30757385	TYPEWRITER,IBM WHEELWRITER 3
2-1650	516720	RADIO, PORT MIDLAND SYNTECH
2-1651	516719	RADIO, PORT MIDLAND SYNTECH
2-1662		SNOWGUN, TOWER MOUNTED
2-1663		SNOWGUN, TOWER MOUNTED
2-1664	0150392101	POWDER MAKER W/SCARIFIER&HYDRAULICS 3 ROLL
2-1672		SAW, ARBOR 12" TILTING
2-1674		PC, KAYPRO 2X
2-1675		PRINTER, FACIT DM TICKET
2-1678		WELDER, AC/DC/LINCOLN
2-1679		PRINTER, FACIT DM TICKET PRINTER
2-1681	10513121-04	STEEL HINGE COMPACTOR
2-1686	521576	RADIO, PORTABLE MIDLAND
2-1687	520639	RADIO, PORTABLE MIDLAND
2-1688	521685	RADIO, PORTABLE MIDLAND
2-1689	520632	RADIO, PORTABLE MIDLAND
2-1690	520631	RADIO, PORTABLE MIDLAND
2-1691	520635	RADIO, PORTABLE MIDLAND
2-1692	520640	RADIO, PORTABLE MIDLAND
693	520637	RADIO, PORTABLE MIDLAND
1694	520633	RADIO, PORTABLE MIDLAND
2-1695	521684	RADIO, PORTABLE MIDLAND
2-1696	520636	RADIO, PORTABLE MIDLAND
2-1697	520634	RADIO, PORTABLE MIDLAND
2-1698		DRILL, HITACHI CORDLESS ELEC

2-1702	WB30X-2045584	PUMP, WATER HONDA
2-1704		PC, KAYPRO 2X
1705		JOINTER, 8" W/STAND
2-1706	727973	TIME CLOCK, CINCINNATI
2-1711	2500713	TIRE CHANGER, COATS
2-1724		TOBOGGAN, CASCADE RESCUE
2-1725		TOBOGGAN, CASCADE RESCUE
2-1726		TOBOGGAN, CASCADE RESCUE
2-1727		TOBOGGAN, CASCADE RESCUE
2-1729		WIRE ROPE PLATE CLAMPS W/4" RIGGING SLINGS
2-1733	015082004	POWDER MAKER W/SCARIFIER 3 ROLL
2-1765		DESK, DOUBLE PED (36X70)
2-1766		CHAIR, HIGH BACK SWIVEL TILT
2-1782	70-13013	RADIO, MIDLAND PORT. & ANTEN.
2-1793	173406586	AIR CONDITIONER, PANASONIC
2-1882		COMPACTOR, FOLDING ENGINEERING
2-2250	204C12393423	RADIO, JOHNSON MESSENGER
2-2251	204C12393424	RADIO, JOHNSON MESSENGER
2-2252	204C12393425	RADIO, JOHNSON MESSENGER
2-2253	204C12393426	RADIO, JOHNSON MESSENGER
2-2254	204C12393427	RADIO, JOHNSON MESSENGER
2-2257	333B12390191	RADIO, BASE STATION JOHNSON
2-2258	204C12393451	RADIO, JOHNSON MESSENGER
2-516	198023	RADIO, JOHNSON 202
2-606		PA SYSTEM, BOGEN
2-627	0293211	MOWER, LAWN HANN
2-631		AIR COMPRESSOR
2-634	0076293	RADIO, JOHNSON 202
2-642		SNOWBLOWER FOR 34" GRAVELY T
2-644	814055	SAW, TABLE DELTA
2-648		LATHE - MACHINE- PRENTISS
2-649		HYDRAULIC JACK - HEIM WALKER
2-650	242091	DRILL, SIOUX HEAVY DUTY 3/4"
2-652	K205494	WELDER MILLER
2-655		PUMP, AND TANK WATER
2-656		WATER HEATER, ELECTRIC
2-657		SWING FOG SPRAYING MACHINE
2-659		HAYDRAULIC JACK 32 TON/ELGOOD
2-661	0076299	RADIO, JOHNSON 202
2-669		PUBLIC ADDRESS SYSTEM/NASCO
2-682		COMPRESSOR
2-749	1387296	GENERATOR & ROCK DRL, HOMELITE
2-839	56491-2	RADIO, JOHNSON MESSENGER
4-571	75744	MONITOR, SPERRY MONOCHROME
4-619	TB9D22957	MONITOR, NON INTERLACED
-620	0764576	PC, COMMUNICATION SERVER

EQUIPMENT and VEHICLES
MOUNT SUNAPEE, SUNAPEE, NH

PLATE #	YEAR	MAKE	MODEL	VIN #
D331	1975	UNIMOG	421125	421-135-10-010097
SD90	1988	HONDA	TRX350D	JH3TE0712JK100056
SD91	1987	HONDA	TRX350H	JH3TE0706HK10159
SD92	1987	HONDA	TRX350H	JH3TE0704HK
SD93	1986	HONDA	TRX350	JH3TE0700GM000316
SD94	1986	HONDA	TRX250	JH3TE0607GC114093
SD95	1996	POLARIS	SPORTSMAN 500	2991517
SD96	1989	POLARIS	LONGTRAK	1627089
SD97	1986	SKIDOO	SAFARI	360301728
SD98	1986	SKIDOO	SAFARI	360301684
* SD101	1995	SKIDOO	SKANDIC 380	00009
*SD102	1995	SKIDOO	SKANDIC 380	00010
*SD103	1995	SKIDOO	SKANDIC 380	00302
*SD104	1995	SKIDOO	SKANDIC 380	00314
*SD105	1995	SKIDOO	SKANDIC 380	00154
SD106	1997	POLARIS	MAGNUM	4XAAE42A4VD017233
TR33	1988	AEBI	TT77	CG8005-03
TR346	1961	FAYETTE		G-359
TR348		HOMEMADE		112249
TR353		CUSTOM MADE		NHTR032001
*	1995	LMC	3700C	L4L5711815
*	1995	PISTEN BULLY	280D	WKK81400001011715
*	1996	PISTEN BULLY	PB280D	W0981400001011963
*	1996	JOHN DEERE	450GLT	T0450GH825797
6T	1986	LMC	3700D	038
10T	1980	TUCKER	422-A	3803522
19T	1990	LMC		1604
21T	1976	TUCKER	442A	3763207
22T	1967	BOMBARDIER	M-67	MM7-3693
26T	1974	CUSHMAN		355596
28T	1988	ASV	2500	88176

* Financed Vehicles, Obligation to be Negotiated

Appendix 3.b

NORTH PEAK LODGE

USE	SQ.FT
Food Service Seating Upstairs 2429 Sq. Ft. / Downstairs 936 Sq. Ft.	3,365
Kitchen/Scramble	480
Bar/Lounge	N/A
Public Restrooms Men 168 Sq. Ft. / Ladies 224 Sq. Ft.	392
Ski School	N/A
Rental/Repair	N/A
Retail Sales (Summer)	275
Patrol/First Aid	N/A
Public Lockers	N/A
Employee Lockers	N/A
Nursery/Day Center	N/A
Administration	N/A
Ticket Sales	70
Mechanical (Boiler Room)	256
Storage	144
Circulation (including entry way)	432
TOTAL	5,414

MAIN LODGE

USE	SQ.FT
Food Service Seating Downstairs 4000 Sq. Ft. / Upstairs 2000 Sq. Ft.	6,000 (- 2,000 ea)
Kitchen/Scramble Prep. 900 Sq. Ft. / Cold Storage 250 Sq. Ft. Storage 400 Sq. Ft./ Scramble 1000 Sq. Ft.	2,550
Bar/Lounge Seating 1344 Sq. Ft. / Bar & Prep. 120 Sq. Ft.	1,464
Public Restrooms Men 364 Sq. Ft. / Ladies 514 Sq. Ft.	878
Ski School	1,000
Rental/Repair	2,000 –
Retail Sales	336
First Aid	288
Public Lockers (outside)	100
Employee Lockers (ski patrol)	144
Nursery/Day Center	800
Administration Administration 700 Sq. Ft. / Conference Room 200 Sq. Ft.	900
Ticket Sales	312
Mechanical	480
Storage Downstairs 160 Sq. Ft./ Upstairs 120 Sq. Ft. Business Supplies 44 Sq. Ft.	324
Circulation	2,000
TOTAL	19,576

GOOSEFEATHERS 70'x63.5' = 4,445

RENTALS BUILDING
INTERIOR 35x85 = 3,115'

PATROL: EST 2,121

SUMMIT LODGE

USE	SQ.FT
Food Service Seating	2,160
Kitchen/Scramble	500
Bar/Lounge	N/A
Public Restrooms (Men 160 / Ladies 160)	320
Ski School	N/A
Rental/Repair	N/A
Retail Sales	N/A
Patrol/First Aid (Watchmen area)	224
Public Lockers	N/A
Employee Lockers	N/A
Nursery/Day Center	N/A
Administration	N/A
Ticket Sales	N/A
Mechanical	1,168
Storage	1,152
Circulation	750
TOTAL	6,274

State of New Hampshire
Department of Resources and Economic Development

Public Involvement and Oversight Policy for Mount Sunapee Ski Area

Robb R. Thomson, Commissioner
August 31, 1998

P.O. Box 1856
Concord, New Hampshire 03302-1856

STATE OF NEW HAMPSHIRE
DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT

Public Involvement and Oversight Policy for Mt. Sunapee Ski Area

I. Statement of Purpose. Since 1948 the State of New Hampshire has operated a ski area at Mount Sunapee State Park to provide outdoor recreational opportunities for the citizens of New Hampshire and surrounding states and provinces. The State has developed the Mount Sunapee Ski Area with state funding and federal funding from the Land and Water Conservation Fund program administered by the National Park Service. The State has a continuing obligation under state and federal law to make the ski area at Mount Sunapee available to the public for outdoor recreational use.

In Chapter 119, Laws 1997, the General Court of New Hampshire authorized the Commissioner of the Department of Resources and Economic Development (DRED) to develop and issue a request for proposals (RFP) for a lease, concession agreement or management contract for the operation of the Mount Sunapee Ski Area. Chapter 134, Laws 1998 (HB 1291), requires that DRED provide for public notification, review and comment prior to approving any master development plan or environmental management plan submitted pursuant to a lease approved pursuant to Chapter 119, Laws 1997.

The Lease and Operating Agreement (Lease) between the State and Okemo Mountain, Inc. (Operator) requires the Operator to submit an Annual Operating Plan (AOP), a Master Development Plan (MDP) and an Environmental Management Plan (EMP) to DRED for review and approval. Members of the public who use the facility and local public officials can provide valuable information and comment about how the Ski Area should be developed and how its natural resources should be protected. The purpose of this Policy is to establish procedures for involving members of the public and state and local public officials in DRED's review of the AOP, the MDP and the EMP by providing for public notice and comment and for the establishment of a Mount Sunapee Ski Area Advisory Committee.

II. Procedures for Public Notice and Comment. The State of New Hampshire, acting through officials and employees of DRED, shall follow the procedures outlined to ensure that members of the public and state and local public officials are made aware of, and have the opportunity to comment upon, significant issues and decisions arising out of DRED's review of the MDP and the EMP:

A. DRED shall require the EMP to be submitted in conjunction with the MDP.

B. Within 30 days of receipt of the MDP and EMP, DRED shall publish a notice in a paper of general circulation and in a paper of local circulation in the Sunapee region, that the MDP and EMP are available for public review and comment.

C. Within this 30-day period, DRED shall require the MDP and EMP to be submitted to either the Town of Newbury or the Town of Goshen as may be appropriate for site plan review, to the Regional Planning Commission, to the Department of Environmental Services and to the Mount Sunapee Ski Area Advisory Committee.

D. Local public hearings on the MDP and EMP shall be in accordance with the local site plan review process.

E. In addition to any public hearing(s) under the local site plan review process, DRED shall hold a hearing in conjunction with the Regional Planning Commission.

F. Opportunity for public review and comment to DRED shall continue throughout the local site plan review process. In no event will this public review and comment period be less than 60 days from the date of submission to the local body responsible for site plan review nor will the period for local site plan review be longer than that provided for under statute.

G. The Commissioner may approve or request revisions for resubmittal after receiving and reviewing written public comment as provided for above. The Commissioner shall issue his approval in writing.

H. Any amendment to the lease which would expand the leasehold area shall be publicly noticed and submitted for public review and comment in accordance with the procedure outlined above for the MDP and EMP prior to submission to Governor and Council for approval.

III. Lease Oversight Policy

A. The Commissioner shall establish a Mount Sunapee Ski Area Advisory Committee pursuant to RSA 21-G:11 to advise the Commissioner and meet with the lessee at the call of the Commissioner. A representative of the Attorney General shall be invited to attend meetings of the Advisory Committee.

B. The Mount Sunapee Ski Area Advisory Committee will be comprised of the following members:

- 1 Representative of the Town of Newbury
- 1 Representative of the Town of Goshen
- 1 Representative of the Regional Planning Commission
- 1 Representative of the Lake Sunapee Protective Association
- 1 Representative of the Society for the Protection of New Hampshire Forests
- 1 Representative of the Lake Sunapee Business Association
- Commissioner of the Department of Environmental Services or designee
- Director of Division of Parks and Recreation
- Director of Division of Forest and Lands

C. Oversight will be supervised by the Commissioner and may be delegated to a Lease Administrator (LA), a DRED employee who will have responsibility for oversight of the provisions of the lease, the execution of this policy and general coordination between the lessee, DRED and the Advisory Committee. The LA will be knowledgeable of ski area operations, safety codes, natural resource protection and stewardship.

IV. Plan Approval Guidelines

A. The Annual Operating Plan (AOP) will be subject to the following standards:

- The AOP shall allow public access to the leased premises for recreational and park activities.

- The AOP shall be submitted on or before May 15 of each year.

- DRED shall require the AOP to be submitted to the Mount Sunapee Ski Area Advisory Committee and the Town of Newbury for review.

- The AOP shall describe in detail the following:

a. Types of recreational activities available to the public
b. Ski lift operations
c. Snowmaking and grooming operations
d. Ski support services
e. Maintenance procedures
f. Security procedures
g. Emergency operating plan
h. Status of special use permits and leases
i. Marketing and advertising
j. Environmental management program

k. Signage
l. Utilities and roads
m. Implementation of MDP site improvements (after approval)

- DRED shall notify the Operator in writing of a final schedule of operation no later June 30th of each year.

B. The Master Development Plan (MDP) shall be subject to the following requirements:

- The MDP shall be submitted to DRED on or before June 1, 2000. Thereafter the MDP shall be revised and submitted every five (5) years.

- The MDP shall cover operation, facilities, site improvements and strategic plans for Mount Sunapee Ski Area.

- The MDP shall include but not be limited to:

  a. Plans for expanding the ski trail network
  b. Construction of new lifts
  c. Construction or renovation of lodges or other facilities
  d. Additional water withdrawals from Lake Sunapee to expand snow making capacity
  e. Upgrading or modifying infrastructure, including power, water and sewage disposal systems
  f. Other improvements or alterations that are appropriate for the recreational use of the leased premises

- The MDP shall be submitted for public notice and comment pursuant to section II of this policy and as required by Chapter 134, Laws 1998 (HB 1291).

C. The Environmental Management Plan (EMP) shall be subject to the following requirements:

- The EMP shall be developed and submitted for approval to DRED in conjunction with the MDP.

- The EMP shall adopt recognized Best Management Practices to preserve and protect the leased premises and shall explain how proposed site improvements may impact the resources listed below, which shall include but not be limited to:

  a. Water usage and conservation

b. Septage disposal/treatment
c. Drainage, erosion and water quality issues
d. Solid waste disposal
e. Air quality and traffic congestion mitigation
f. Forestry management
g. Wetlands impacts
h. Wildlife habitat preservation
i. Scenic and aesthetic qualities

- The EMP shall be submitted for public notice and comment pursuant to section II of this policy and as required by Chapter 134, Laws 1998 (HB 1291).

D. Site development in accordance to the AOP, MDP or EMP will be guided by the following:

- All applicable federal, state and local permits shall be obtained by the Operator and its contractors and subcontractors, prior to the start of construction activity.

- Construction plans will be submitted to DRED and the Town of Newbury or the Town of Goshen as may be appropriate, 60 days prior to construction.

- DRED will review and approve plans in consultation with DES and other appropriate agencies.

- Monitoring for compliance will be performed by DRED and may include inter-department or other cooperative arrangements.

REQUEST FOR PROPOSALS

OPERATION OF STATE-OWNED SKI AREA AT MOUNT SUNAPEE STATE PARK

Mt. Sunapee
NEW HAMPSHIRE

ISSUE DATE:

January 15, 1998

STATE OF NEW HAMPSHIRE

JOINT LEGISLATIVE COMMITTEE
TO DEVELOP REQUESTS FOR PROPOSALS FOR OPERATION OF
MOUNT SUNAPEE AND CANNON MOUNTAIN SKI AREAS

DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT

REQUEST FOR PROPOSALS

OPERATION OF STATE-OWNED SKI AREA
AT MOUNT SUNAPEE STATE PARK

ISSUE DATE: January 15, 1998

DUE DATE: April 1, 1998

TABLE OF CONTENTS

I. INTRODUCTION

1.1 General Description of Project

The State of New Hampshire (the "State"), acting through the Joint Legislative Committee (the "Joint Legislative Committee") established to develop and review a request for proposal for leasing the state-owned ski areas at Mount Sunapee State Park and Cannon Mountain at Franconia Notch State Park and the Commissioner of the Department of Resources and Economic Development ("Commissioner" and "Department"), has developed this Request for Proposals ("RFP") to invite the submission of proposals by experienced ski area operators ("operators") for a lease, concession agreement or management contract to operate the state-owned ski area at Mount Sunapee State Park in Newbury, New Hampshire.

The Mount Sunapee State Park and ski area has been developed using outdoor recreation funding from the federal Land and Water Conservation Fund administered by the U.S. Department of the Interior, National Park Service (the "National Park Service"). The State recognizes its obligation under Section 6(f)(3) of the Land and Water Conservation Fund Act and related regulations and project agreements to make Mount Sunapee State Park available for public outdoor recreation uses. The National Park Service has advised the State that none of the land, buildings, equipment and other improvements at Mount Sunapee State Park can be sold or converted from public recreational use without federal approval. Federal regulations do allow leasing the operation of properties acquired or developed with Land and Water Conservation Fund assistance as long as the State retains ownership and control of the property to ensure that it continues to be used for public outdoor recreation uses.

Sealed offers will be received by the State at the offices of the Department of Resources and Economic Development, 172 Pembroke Road, P. O. Box 1856, Concord, New Hampshire 03302-1856, until 3:00 p.m. on April 1, 1998, for the year-round operation of the ski area at Mount Sunapee for a twenty (20) year

term beginning on July 1, 1998 and ending on June 30, 2018, with the opportunity for two ten-year extensions. This RFP seeks detailed responses describing each operator's experience, capabilities and commitment to successfully operating the Mount Sunapee Ski Area for year-round public outdoor recreation purposes. Offers submitted in response to this RFP will be reviewed and ranked using the criteria and point score system described in the RFP. All offers received in response to the RFP will be reviewed by a subcommittee of the Joint Legislative Committee in cooperation with the Commissioner. Any lease, concession agreement or management contract recommended by the Commissioner will be submitted to the New Hampshire Legislature's Capital Budget Overview Committee and the Governor and Executive Council for review and approval.

1.2 Statement of Legal Authorities

There are state and federal statutes that govern this project, either specifically or by general application. Operators who submit offers in response to this RFP will be required to certify that they have read and understand the following laws:

a. Laws of New Hampshire 1997, Chapter 119 - An Act Relative to an Agreement or Contract for the Mount Sunapee or Cannon Mountain Ski Area Operations, or both, Establishing a Committee to Develop a Proposal and Review Responses, and Requiring Review of any Agreement or Contract by the Capital Budget Overview Committee.

b. RSA 12-A:29-a - Lease Agreement; Terms.

c. RSA 218:5-c - Admission Without Charge [Senior Citizens].

d. RSA 219:21 - Purchases and Certain Expenses [Concessions at Cannon and Mt. Sunapee].

e. RSA Ch. 225-A - Skiers, Ski Area and Passenger Tramway Safety.

f. RSA Ch. 227 - Aerial Tramways.

g. RSA 72:23 - Real Estate and Personal Property Tax Exemption.

h. Section 6(f) of the Land and Water Conservation Fund Act (16 U.S.C. Section 460 l-8) and related federal regulations and guidelines.

II. INSTRUCTIONS FOR SUBMITTING PROPOSALS

2.1 RFP Schedule

Event Description	Date
Public Notice of Project	October 14, 1997
Release of Draft RFP for Public Comment	October 17, 1997
Public Hearing on Draft RFP	November 12, 1997
Mandatory Meeting for Interested Operators	November 19, 1997
Deadline for Written Public Comment and Inquiries About Draft RFP	December 10, 1997
Combined Public Hearing	January 6, 1998
Release of Final RFP	January 15, 1998
Proposal Due Date	April 1, 1998
Interested Operator Presentations	To be announced

2.2 Draft RFP and Public Hearings and Comment

This RFP is being released in draft form so that interested persons, members of the general public and prospective operators have an opportunity to comment on its organization, clarity and content. Comments or inquiries about the RFP must be submitted in writing by the stated deadlines. Copies of all comments, inquiries and the State's responses will be made available to other interested parties. A public hearing was held at 6:00 p.m. on November 12, 1997 at the Ski Area. A second combined public hearing on the RFPs for both Mt. Sunapee and Cannon Mountain Ski Areas was held on January 6, 1998, at 6:00 p.m. in Room 305 of the Legislative Office Building in Concord. The RFP incorporates language changes deemed necessary by the State as a result of this dialogue.

2.3 Questions and Comments About RFP

Questions and comments about this RFP must be submitted in writing to:

Robb R. Thomson, Commissioner
State of New Hampshire
Department of Resources and Economic Development
172 Pembroke Road
P. O. Box 1856
Concord, New Hampshire 03302-1856
(603) 271-2629 (fax number)

2.4 Mandatory Pre-Submittal Meeting

A pre-submittal informational meeting for prospective operators was held to discuss this draft RFP at 10:00 a.m. on November 19, 1997 at the Ski Area. Attendance was mandatory for operators interested in submitting a proposal. Proposals will not be accepted from operators who did not send a representative to the informational meeting.

2.5 RFP Clarifications and Revisions

Oral statements, representations, clarifications or modifications concerning this RFP are not binding upon the State. The Department and the Joint Legislative Committee will, to the extent deemed to be in the public interest, incorporate the results of any public comment or inquiries from interested operators into the final RFP. The final RFP will be issued to interested operators or members of the public upon payment of a fifty dollar ($50.00) administrative fee. If it becomes necessary to revise any part of the final RFP prior to the deadline for submitting proposals, a written addendum to the RFP will be issued to all eligible proposers.

2.6 Proposal Submissions

Proposals must be received prior to 3:00 p.m. on April 1, 1998. Proposals submitted after this deadline will be rejected as untimely. Proposals must be delivered to:

Robb R. Thomson, Commissioner
State of New Hampshire
Department of Resources and Economic Development
172 Pembroke Road
P. O. Box 1856
Concord, New Hampshire 03302-1856

2.7 Proposal Format

Proposals must be submitted in the format required by this RFP. Multiple or alternate proposals from a single operator will not be accepted.

2.8 Proposal Quantities and Labeling

Each proposal must contain one original and twenty (20) copies in a sealed envelope or package. Each proposal envelope or package shall be clearly labeled as follows:

Proposal for Operation of Mount Sunapee Ski Area
Submitted by: [insert operator's name]
Date: [insert date of submission]

2.9 Proposal Disposition

All proposals become the property of the State of New Hampshire and may not be returned to the operator.

2.10 Proposal Guaranty

By submitting a proposal, each interested operator pledges to enter into a lease and operating contract with the State on the terms stated in the RFP. Each interested operator's proposal must be accompanied by a guaranty in the amount of $50,000, which may be in the form of a bid bond or certified check made payable to the "Treasurer, State of New Hampshire." If the selected operator fails to enter into any required contract, the amount of the bid proposal guaranty shall be forfeited to the State as liquidated damages and not as a penalty. The State reserves the right to retain the proposal guaranty of interested operators to whom an award is being considered until a contract has been executed and approved by the Capital Budget Overview Committee and the Governor and Executive Council.

2.11 Public Disclosure of Proposals

RSA 21-I:13-a provides, in part, that no information shall be available to the public concerning proposals for public bids from the time the proposal is made public and until it is actually awarded, in order to protect the integrity of the public bidding process. Accordingly, proposals submitted in response to the RFP will not be

released to the public until the Commissioner submits, or decides not to submit, a recommendation to the Capital Budget Overview Committee and the Governor and Executive Council for review and approval. At that time, all proposals will be disclosable to the public to the extent required by the statutes governing access to public records and meetings (the "Right to Know" law), RSA 91-A. If an operator submits information in a proposal it believes is exempt from disclosure under state law, the operator must clearly mark as "confidential" each page of its proposal containing such information.

2.12 Proposal Preparation Costs

No payment shall be made by the State or its representatives to cover costs incurred by any operator in preparation of or the submission of responses to the RFP or any other associated costs.

2.13 Right to Accept or Reject Proposals

The State reserves the right to accept or reject any part of any proposal, and to accept or reject any or all proposals.

2.14 Right to Waive Minor Deficiencies

The State reserves the right to waive minor deficiencies and informalities in a proposal if, in its sole judgment, the best interests of the State will be served.

2.15 Right to Cancel

The State reserves the right to cancel all or any part of this RFP at any time prior to final approval of a contract or lease with the selected operator.

2.16 Additional Information

The State reserves the right to make written requests for additional information from operators to assist in understanding or clarifying any proposal.

2.17 Proposal Evaluation and Contract Award

All proposals received by the State in response to this RFP will be subject to the evaluation process described in Section III. If the Commissioner recommends the award of a lease, concession agreement or management contract resulting from this RFP,

it shall not be final or binding upon the State unless and until it is approved by the Capital Budget Overview Committee and the Governor and Executive Council.

III. PROPOSAL EVALUATION PROCESS

3.1 Evaluation Process

The State will conduct a comprehensive, fair and impartial evaluation and comparison of proposals received in response of the RFP. The Joint Legislative Committee shall designate an Evaluation Subcommittee composed of five members of the House and two members of the Senate to review and rank the proposals based on the following criteria:

Criteria	Maximum Score
Financial Standing and Resources	20
Ski Area Operation Experience	20
Operations and Development Proposals	20
Public Recreational Benefit	20
Economic Return to the State	20
	100
Oral Presentation (Top Three Only)	20
	120

All proposals will be ranked by the Evaluation Subcommittee to develop a short list of the top three proposals.

3.2 Operator Presentations and Final Ranking

The top three proposals may be invited to make oral presentations to the Joint Legislative Committee. If one or more of the top three proposers decline to make an oral presentation, the State reserves the right to request a formal presentation from the operator with the next highest ranking. Following the oral presentations, the three proposals will be re-ranked in accordance with the total scores received. The Joint Legislative Committee shall advise the Commissioner whether a lease, concession agreement or management contract should be entered into with the operator with the highest ranking proposal. If the Commissioner concurs, he shall negotiate and execute leases, contracts or agreements consistent with this RFP and the successful operator's

proposal. Such fully executed leases, concession agreements, and management contracts shall be submitted to the Capital Budget Overview Committee and the Governor and Executive Council for review and approval.

IV. PROPOSAL CONTENTS

4.1 Introduction

Each proposal must respond to the requirements of the RFP by offering to provide ski area management and operation services at the ski area by stating information about the operator's financial standing, staff and resources, ski area operation experience, its proposal for the development and expansion of the Mount Sunapee Ski Area, and its payment proposal. Each proposal must be presented in narrative form, and must be organized and indexed by reference to the corresponding section of the RFP. Each proposal must include a proposed lease, concession agreement or management contract acceptable to the operator which incorporates substantially all of the provisions of the Draft Lease/Operation Agreement provided in Appendix B.

4.2 Financial Standing and Resources

Each proposal shall describe the financial standing of the operator, including current certified financial statement, latest company annual report, and current Dun & Bradstreet financial report and rating. Each proposal shall also describe the availability and qualifications of the key staff and other resources the operator will commit to the project.

4.3 Ski Area Operator's Experience

Each proposal shall describe the operator's level of experience in the management and operation of public or privately owned ski areas.

4.4 Operations and Development Proposals

Each proposal shall describe in detail the operator's proposal for year-round ski area operations, including the following:

a. Types of recreational activities available to the public

b. Ski lift operations

c. Snow making and grooming operations

d. Ski support services

i. Ski school

ii. Rentals and repairs

iii. First aid/public safety

iv. Retail ski shop

v. Food and beverage services

vi. Entertainment

e. Maintenance procedures

f. Security procedures

g. Emergency operating plan

h. Ability to honor special use permits and leases

i. Marketing and advertising

j. Environmental management program

k. Signage

l. Utilities and roads

m. Employment opportunities for state employees presently working at ski areas.

n. Each proposal shall describe the operator's proposal for capital improvements relating to the ski lifts, snow making capabilities, ski lodges or other buildings, and utility and service road infrastructure.

4.5 Public Recreational Benefit

Each proposal shall describe the operator's proposal for continuing or improving public outdoor recreational opportunities at the Ski Area.

4.6 Payments to State

Each proposal shall offer to pay the State of New Hampshire an annual rental amount, consisting of a base fee (adjusted annually for inflation) and a specified percentage of the gross annual revenues from the operation of the ski area.

PROPOSAL FOR THE OPERATION OF THE MOUNT SUNAPEE SKI AREA

Submitted to:
The State of New Hampshire Joint Legislative Committee &
The Department of Resources & Economic Development

Submitted by:
Okemo Mountain Resort, Inc.
77 Okemo Ridge Road
Ludlow, Vermont 05149

April 1, 1998

J. ENVIRONMENTAL MANAGEMENT PROGRAM

Okemo has a long history and good track record of development in a mountain environment. Starting with the development of conceptual plans, we consider natural features such as wetlands, streams, and necessary wildlife habitat. We try to avoid these areas or at least provide sufficient buffers to protect them. When we have construction projects involving earthwork, we utilize the Vermont Handbook for Soil Erosion and Sediment Control on construction sites. We will follow the same practices at Mount Sunapee.

I. Trail Construction

When constructing trails, it is our practice to have no more than four acres of earth open at one time, to seed and mulch all acres prior to weekends, and to cease earthwork during rain events. Prior to earthwork, we will install diversion ditches to divert water away from construction areas with hay bale check dams in the ditches, and silt fencing is used when appropriate. We will work closely with the State of New Hampshire prior to and during trail construction.

II. Trail Maintenance

During summer months, we will have an ongoing maintenance program. This program will include replacement of culverts, reshaping of water bars, trimming of trees and the mowing of trails.

III. Stormwater Discharge Device Maintenance

We will institute a biannual stormwater discharge device maintenance program. Twice per year, stormwater conveyance and treatment devices including stormwater ponds, grass and stone lined swales, culverts, catch basins and vegetated buffer strips will be inspected and maintained. Maintenance will occur more often if necessary.

IV. Sewage Treatment Plant

Operating and maintaining this facility at a high level is vitally important for the environment and the continued sound operation of Mount Sunapee. We will manage this plant to meet or exceed New Hampshire standards continually.

N.

PROPOSAL FOR CAPITAL IMPROVEMENTS

I. SKI LIFTS, SNOW MAKING CAPABILITIES, SKI LODGES AND/OR OTHER BUILDINGS, UTILITIES AND SERVICE ROADS

It is anticipated that we will invest approximately $10,000,000 in capital improvements over the next six to seven years at Mount Sunapee. The improvements will be part of an all-inclusive recreation enhancement program aimed at expanding and creating both winter and summer recreation opportunities at the mountain. Improvements will be made and proposed in a three-part approach.

1. Immediate improvements
   - → Replacement of the Summit Triple Chairlift with a detachable quad chair
   - → Replacement of the Sun Bowl Double Chairlift with a fixed grip triple or quad chairlift
   - → Renovation / expansion of the North Peak Lodge
2. Future planning and improvements to be made in existing areas of lifts, trails, and base area facilities
3. Future planning and improvements to be made in peripheral areas surrounding the current lifts, trails, and base area facilities

A general improvement master plan and planning approach is graphically depicted on the map labeled, *Concept Improvement Plan and Planning Strategy*, included at the end of this section.

Approach

Plans were prepared in 1985 by Erikson Associates and in 1989 and 1991 by The Cavendish Partnership which outlined recommended improvements for the area. The Erikson recommendations were primarily directed at on-mountain lift, trail and snow making upgrades, many of which were implemented. The Base Area Master Plan prepared by The Cavendish Partnership in 1989 and 1991 focused on base area improvements including lodge facilities, utilities, parking, and vehicular and skier circulation. Key components of the master plan included:

- A new base lodge sited in the vicinity of the North Peak Lodge. It was intended that this facility would serve the primary day lodge and skier services needs of the area.
- Renovation of the existing lodge to accommodate the racing program, ski patrol, first aid, employees, special groups and storage.
- Expansion of the parking areas.
- Expansion / upgrade of the sewer infrastructure and disposal facilities.

The improvements proposed in the master plan were prepared in response to critical needs of the area as assessed by The Cavendish Partnership and as described by various user groups, state employees, management, and others. Workshops were held with the various groups and individuals and extensive input was gathered suggesting specific improvements as well as the overall aesthetic flavor for how those improvements should be implemented. Plans, elevations, and perspectives were prepared that graphically described the improvements and cost estimates were provided for each component of the master plan. (Excerpts of the graphic components of those plans are included on the following pages.)

We will revisit the plans prepared by Erikson Associates and the Base Area Master Plan prepared by The Cavendish Partnership to assess which improvements have been implemented and update the plans to reflect current needs and recreation trends. The plan for improvements will include immediate improvements as described in the following narrative followed by the preparation of a five year master plan for longer range improvements. The plan will be prepared by the year 2000 as required in the lease agreement. Because of our experience with leasing state lands for recreational purposes, we understand the public sensitivity that accompanies any proposal for improvements associated with public lands. Okemo's planning philosophy has always been one of working with our neighbors in preparing plans that respond not only to our business goals, but also to the broader issues of environmental suitability and the needs of the community.

1. Immediate Improvements

It is important that improvements be made during the first season of operation that enhance skiing and snowboarding at Mount Sunapee, and that demonstrate our commitment to the overall improvement of the recreational experience at the mountain. It is our goal to make three primary improvements before the first season of operation as timing allows.

The first improvement will be the replacement of the Summit Triple Chairlift with a detachable quad. The Summit Chair is the longest and most important lift on the mountain, transporting skiers and snowboarders out of the base area directly to the top of the mountain and distributing them to the majority of terrain. It is critical that this lift have an uphill capacity capable of transporting skiers and snowboarders out of the base area quickly and efficiently. A new high speed lift will reduce congestion in the base area and distribute skiers and snowboarders more efficiently, not to mention the positive aspects of a quicker ride to the top. A detachable lift will cut the ride time to the summit in half.

Concurrently, the Sun Bowl Double Chairlift will be replaced with either a fixed grip triple or quad chairlift. Being the second longest and one of the oldest lifts on the mountain, the existing double chair is in need of replacing with a higher capacity, faster chair. The Sun Bowl Chair will be replaced with either the existing Summit Chair when it is removed or by a new quad. In either case a new lift will improve skier and snowboarder movement and distribution in the Sun Bowl area.

Depending upon timing and permit requirements, we will begin renovations or expansion of the North Peak Lodge. As identified in the Base Area Master Plan (*The Cavendish Partnership, 1989 and 1991)* the base area is in serious need of additional square footage to accommodate current users and to become more balanced with the capacity of the mountain. We will focus on renovating and/or expanding lodge space in the vicinity of the North Peak Lodge. We will explore options for the renovations or expansion, which may take various forms depending upon timing of the lease signing, design and permit requirements. Options include permanent expansion of the existing lodge, temporary expansion of the lodge or even temporary detached lodge facilities. We believe that the site of the North Peak Lodge is the logical location for expanded lodge facilities given its proximity to the Summit chair and the Province beginner area. It is centrally located and provides the best location for skier circulation.

Another item which should be addressed the first year are the size of both the day care and the children's ski school facilities. Mount Sunapee is a family mountain, and in order to accommodate all members of the family, these two areas will be expanded.

2. Future planning and improvements to be made in the existing areas of lifts, trails and base area facilities

We will initiate an aggressive planning process to assess and chart the course for future improvements to be made within the confines of the existing lift and trail network and base area. We will review all studies and proposals that have been made to date and update them based upon current mountain and base area conditions. Using this information we will formulate a five year master plan that lays out the improvements for the areas within the immediate area of lifts, trails and base facilities. The plan will include, but not be limited to the following investigations and recommendations. These are options that will be considered and proposed after thorough analysis and investigation of current site and market conditions.

POTENTIAL MOUNTAIN & BASE IMPROVEMENTS
(in the existing areas of lifts, trails and base area facilities)

LIFTS

- A Sun Bowl Double (to be replaced the first year of operation)
- B Spruce Triple (replace)
- C Duckling Double (replace)
- D North Peak Triple (upgrade)
- E Summit Triple (to be replaced the first year of operation)
- F Beginner Pony Express Tow (replace)
- G Province Double (replace)

New Chairlift in the North Ridge area

TRAILS

Widening and regrading certain trails
Improving connections
New trails in the North Ridge / Cataract area

SNOW MAKING

Expanded Coverage
Longer Season Capabilities
Add additional air and water capacity

LODGE(S) and STRUCTURES

New Lodge Construction/North Peak Lodge Expansion (to be done the first year of operation)
Main Base Renovation
Summit Building Renovation / Expansion
New indoor base area recreation / activity space
First Aid
Snowmaking relocation
Maintenance
Day Care & SKIwee Expansion (to be done the first year of operation)

ROADS & PARKING

Reduce Lot #1
Expand Lots #2 & #3
New Drop Off Area(s)
Shuttle Route(s)

INFRASTRUCTURE
- Sewer
  - Lagoon Expansion
  - Lagoon Aeration, Routing & Deepening
  - Spray Field Expansion
  - Low Flow Fixtures
  - Use of Gray Water
  - Treatment Plant Construction
- Water
  - Well Development

EXPANDED WINTER ACTIVITIES
- Holiday Events and Carnivals
- Tubing
- Snowboard Park
- Ice Skating
- Night skiing, boarding, tubing and skating

3. Future planning and improvements to be made in peripheral areas surrounding the current lifts, trails, and base area facilities

As the planning for improvements of the existing lifts, trails and base facilities proceeds, we will explore opportunities for expanding summer and winter recreation activities outside the existing area of lifts, trails and base facilities. We understand that thorough environmental and land capability analyses will need to be conducted prior to proposing expanded recreation improvements, and we anticipate working closely with the state in determining the scope of such expansion and delineating key resource protection areas. The improvement proposals will be included in the five year master plan.

LIFTS
- New Lift in the Sun Bowl area (east of the existing lift and trail network)

TRAILS
- New Trail Network east of the Sun Bowl area
- New Trail Network above the lower parking area and below the "Campground"
- New Trail Network north and adjacent to the Province area

LODGE(S) and STRUCTURES
- New Sun Bowl Lodge
- New Learning Center in Province area for first time skiers/snowboarders

ROADS & PARKING
- New Parking Lot between Province area and south of lagoons
- Expanded Shuttle Route(s)
- Improved Road to Sun Bowl area

INFRASTRUCTURE
- Sewer
  - Lagoon Expansion
  - Lagoon Aeration, Routing & Deepening
  - Spray Field Expansion

Low Flow Fixtures
Use of Gray Water

Water
Well Development

II. SUMMER RECREATION

The Mount Sunapee region is very well known as a summer recreation area. Mount Sunapee will be developing and enhancing programs to make more summer activities available. Some of the potential activities are as follows:

Mountain Biking:

- With Mount Sunapee close to the main route from major New England cities, it is an ideal setting for mountain biking. The mountain biking program at Mount Sunapee will consist of an elaborate trail system from the summit area that will cater to beginners to expert bike riders. The trails will be built on existing ski trails and also new areas of the ski resort consisting of work roads and logging trails. There will also be a children's area in the beginner skiing area which is very flat and ideal for children.

- There will be rental equipment available. This will include bikes, helmets, shoes and other equipment.

- There will be package rates for the guests that will include trail fees and bike rental.

Scenic Rides:

Scenic chairlift rides will be available to guests during the Summer and Fall.

- Guests will be able to ride the chairlift to the summit.

- Once they arrive at the summit, there will be a chance to walk around to see the views and then ride the lift back down.

Hiking:

- A hiking program at Mount Sunapee will allow our guests to explore the wonders of nature on the existing ski trails as well as work roads. Guests will be able to ride the chairlift to the summit area and hike the marked trails on the top of the mountain or walk up the trails and explore the area on their own. There will be a route map available and scenic overlooks will have benches for the guests.

Other summer activities that may be considered:

In-line Skating & Skateboard Park

A summer in-line skating program & skateboard park will provide the guests of Mount Sunapee with another activity in which to enjoy the region. The park would have the following:

- Asphalt covered inclined area.

- Asphalt covered skate park with ramps and jumps to be used by both skateboarders and in-line skaters.

- Halfpipe ramp made out of wood.
- A regulation in-line skating hockey rink complete with side boards and nets.

During the summer months there will be weekly camps for both disciplines. These camps will consist of daily group instruction, competitions, free time and free time activities. Also during the Summer, there will be local competitions for both skateboarding and in-line skating.

Alpine Slide

The construction of an Alpine slide is a possibility for another summer activity. This slide will be approximately 2000-2500 feet long and would use the existing trail and lift network.

Concerts

The staging of concerts or festivals may also take place during the summer months. These concerts will be family orientated, and made available to all the visitors of the region. The concerts will not exceed the size of the comfortable capacity of the ski area during the winter.

Water Park

Because of its central location and a broad base area, a small water park with pools and slides would be very desirable. A water park will draw from the local and regional residents as well as the vacationers that are here in the Summer. A more thorough plan will be developed in our Mountain Development Plan.

Other potential activities include:

Craft Fairs
Athletic Events
Weddings
Family Gatherings
Special Ethnic Festivals
Children's Day Camps
Nature and Wildlife Interpretation and Education
Archery Competitions
Food and Brewery Festivals

PIONEER ENVIRONMENTAL ASSOCIATES, LLC.
10 SEYMOUR STREET
P.O. BOX 824
MIDDLEBURY, VT 05753
PH: 802-388-1210
FAX: 802-388-1423

June 18, 1999

Mr. Richard Flanders, Jr.
Water Supply and Pollution Control Division
Department of Environmental Services
64 North Main Street
Concord, New Hampshire 03301

RE: Mt. Sunapee Base Area Well Yield Evaluation
Newbury, New Hampshire

Dear Mr. Flanders:

Pioneer Environmental Associates, LLC. (Pioneer) of Middlebury, Vermont has completed testing associated with the re-evaluation of the yield of the Mt. Sunapee Base Area Well at the ski area at Mt. Sunapee State Park located in Newbury, New Hampshire (see site location map, page 1 of Attachment). In accordance with the June 1997 Design Standards for Small Public Drinking Water Systems (Section Env-Ws 372.14), we performed a 48-hour constant discharge test for this well from May 18 through 20, 1999. In addition to the required pumping test, we have also completed a step-drawdown test at the well on May 17, 1999, and a recovery test following the end of the constant discharge test on May 20, 1999. These additional tasks were performed to provide additional data on the hydraulics of the well and the bedrock aquifer in which the well is completed to help characterize the source capacity of this well. We also collected water samples prior to the end of the 48-hour test for analysis for the constituents listed in Table 372-4 of Env-Ws 372.

In summary, the aquifer testing indicates that, at a minimum, the Mt. Sunapee Base Area Well has a source capacity of 109.6 gallons per minute (gpm), or 157,824 gallons per day (gpd), based on our capacity analysis. As specified in Section Env-Ws 372.11(b), a minimum total source capacity of 1½ times the design flow rate is required for public non-community water systems such as this. A source capacity of 109.6 gpm is adequate to serve a design flow rate of 73.1 gpm, or 105,216 gpd. This exceeds the currently permitted source capacity of 70 gpm which is sufficient to serve a design flow rate of 67,200 gpd. A detailed description of the testing program follows.

INTRODUCTION

The ski area at Mt. Sunapee State Park has historically been operated by the New Hampshire Department of Resources and Economic Development (DRED). However, as of the 1998-99 ski season, the ski area is operated by Okemo Mountain Resort, as Mount Sunapee Resort, through a lease agreement with the State of New Hampshire. Because of improvement plans being implemented at the resort, primarily the construction of the new Sunapee Base Lodge, a re-evaluation of well capacity was requested by the Department of Environmental Services. The water system is a transient non-community system as it serves a transient, rather than residential, population.

The Base Area Well is located near the base of the Duckling chairlift at the Mt. Sunapee Resort (Attachment, page 1). The well is used to meet the water needs of the base area of the resort's facilities. Details of the well are as follows:

- Date Drilled: February 1980
- Drilled By: Gallagher and Philbrick, Concord, NH
- Drilling Method: Pounder/Percussion
- Depth of Well: 244 feet
- Depth to Bedrock: 47 feet
- Casing Length: 63 feet
- Static Level: 10 feet

According to a sanitary survey performed on November 1, 1993 by Mr. Jack Mollica of the Department of Environmental Services Water Supply Engineering Bureau, the Base Area Well has a permitted source capacity of 70 gpm, sufficient to serve a design flow rate of 67,200 gpd. During a previous pumping test performed for this well on June 4-6, 1980, the water level in the well was slowly rising while being pumped at a rate of 70 gpm. This suggests that the capacity of the well is greater than the currently approved 70 gpm. Therefore, this most recent testing was performed to determine the source capacity of the well to a greater degree of accuracy.

WELL TESTING

Testing of the Base Area Well occurred from May 17-20, 1999 and consisted of the following:

- Step-Drawdown Test
- 48-Hour Constant Discharge Test
- Observation Well Monitoring at Shop Well
- Recovery Test
- Collection of Water Quality Samples

The production well data (step-drawdown test, constant discharge test, and recovery test) are presented on pages 2 through 21 of the Attachment. The results and evaluation of the water quantity testing are discussed below.

Step Drawdown Test

A step-drawdown test was performed at the well on May 17, 1999. The purpose of this test was to determine a safe pumping rate for the 48-hour pumping test. Additionally, the step-drawdown test data allows for the development of a head loss equation for the well to determine the components of drawdown in the well attributable to formation (aquifer) drawdown and turbulent (in-well) drawdown.

The step-drawdown test consisted of six 60-minute step performed at mean discharges ranging from 11.5 gpm to 181.2 gpm. At the end of the sixth step, the pump was allowed to run for an additional 38 minutes at which time the water level was 75.62 feet, representing a drawdown of 64.99 feet. Step-drawdown test data are included on pages 2 through 14 of the Attachment.

From the step-drawdown test data, a head loss equation has been derived for the Base Area Well. The head loss equation is as follows:

$$s_w\ (60\text{-}minute) = 0.199Q + 0.000784Q^2$$

where:

s_w = drawdown in production well at a pumping duration of 60 minutes (feet)
Q = pumping rate (gpm)

This equation can be used in conjunction with the 48-hour test constant discharge test data to determine the source capacity of the well. The step-drawdown test analysis is presented on pages 24 through 25 of the Attachment.

Constant Discharge and Recovery Tests

A 48-hour constant discharge test was performed at a mean discharge of 134.4 gpm from May 18-20, 1999 (Attachment, pages 15 through 19). At the conclusion of the 48-hour test, the production well water level was 115.21 feet below top of casing, representing a drawdown of 105.59 feet. A generally linear drawdown curve (on semi-logarithmic data plot) was maintained during the initial 1,000 minutes (16.7 hours) of the test at which time it appears that a discharging boundary within the

bedrock aquifer was encountered. The discharging boundary resulted in the steepening of the drawdown curve, which remained linear on the semi-logarithmic data plot at the steeper slope for the remainder of the test (Attachment, page 17).

Section Env-Ws 372.14(a) indicates that the 48-hour pumping test shall demonstrate stabilized drawdown (less than one inch of drawdown in two hours) for at least the last 12-hours of the test. This criterion was not met during the final 12 hours of the test as the water level was declining at an average rate of approximately 1.9 feet every two hours during this time period. However, the test was shut off at 48 hours for two primary reasons:

1) The testing performed for this well exceeds the requirements of Env-Ws 372 as a step-drawdown test and recovery test were performed to provide additional data concerning the source capacity of the well.

2) This is the main water source for Mt. Sunapee Resort, and it had been disconnected since May 14, 1999 when the temporary test pump was installed to allow for the well testing. A large event (the Mt. Sunapee Bike Race) was scheduled for May 22, 1999 and the permanent pump needed to be reinstalled and the reservoir filled prior to this event to accommodate the anticipated demand.

The testing performed for the Base Area Well provides adequate data to characterize the yield of the well.

Following the constant discharge test, recovery measurements were made at the production well and the maintenance building observation well (Attachment, pages 20 through 23). At the conclusion of 257 minutes of recovery measurements, the water level in the production well was 45.8 feet (drawdown = 36.2 feet) representing a recovery of 66 percent. At this time, the process of removing the temporary test pump and reinstallation of the permanent pump needed to begin to ensure its timely completion.

Observation Well Monitoring

Water level measurements were collected during the testing procedures at the Mt. Sunapee Shop Well located approximately 1,500 feet northeast of the Base Area Well to determine if there were any interference effects between the two wells. Well details for the Shop Well are as follows:

- Date Drilled: May 1985
- Depth of Well: 360 feet
- Depth to Bedrock: 185 feet

- Casing Length: 200 feet
- Static Level: Overflowing (at time of drilling)
- Driller's Yield: 5 gpm

As can be noted on the data plot for the water level data collected at this well (Attachment, pages 22 through 23), the pumping of the Base Area Well does not affect the water level at the Shop Well.

Water Quality Sampling

Water quality samples were collected just prior to the end of the 48-hour constant discharge test to be analyzed for the constituents listed in Table 372-4 of Env-Ws 372. The pH was measured in the field to be 6.98, and the temperature of the discharge water was 9.1ºC. Complete analytical results are included on pages 29 through 30 of the Attachment. The concentrations of all analytes tested for are below the Environmental Protection Agency's Maximum Contaminant Levels. Total Coliform tested as being present; however, the water samples collected represent the raw water quality from the well, and not after treatment prior to distribution. In addition, *E. Coli* was absent in the sample.

CAPACITY ANALYSIS

Section Env-Ws 372.13(c) indicates that the permitted production volume shall not be greater than the source capacity based on a 24-hour period, as defined by the 48-hour constant discharge test. For the purposes of this analysis, the total available head (TAH) in the well is 105.6 feet, as this is the maximum drawdown obtained during the testing.

To determine the source capacity of this well at steady-state conditions, which is what is essentially required by Env-Ws 372 given the stabilization requirement for the pumping test, the capacity analysis for the Base Area Well was performed by modeling the noted discharging boundary using the method developed by Stallman (Ground-Water Hydraulics, 1972). The aquifer coefficients of transmissivity (T) and storativity (S) were calculated from data collected during the 48-hour constant discharge test and recovery test (Attachment, pages 17 through 21). The calculated values are summarized in Table 1.

Table 1: Calculated Aquifer Coefficients from Pumping Well Data

Test	T (ft²/day)	S (dimensionless)
48-hr. pumping	215.26	6.41
48-hr. recovery	197.32	---

Table 1: Calculated Aquifer Coefficients from Pumping Well Data		
Test	T (ft^2/day)	S (dimensionless)†
† S value used in equations to predict long-term drawdown, does not reflect actual aquifer S value		

To accurately model the aquifer behavior during pumping conditions, an aquifer T of 215.26 ft^2/day is used in the calculations to determine the source capacity of the well. As footnoted in Table 1, the calculated S values are not indicative of the actual storativity of the bedrock aquifer. However, the values can be used in the long-term capacity analysis equations to predict the drawdown in the pumping well over long periods of time. Essentially, the aquifer equations define the drawdown curve of the production well and, thus, can be used to predict the long-term drawdown.

The Stallman method is an analysis that models boundaries, either discharging or recharging, that are noted during aquifer tests. The boundary is modeled via a curve matching technique to determine the Stallman constant of proportionality (K). This is illustrated for the Base Area Well on page 18 of the Attachment. A K value of 10 was determined for the Base Area Well. This K value, and the values of T and S determined for the aquifer are used in the equations developed by Stallman to model the behavior of the aquifer under extended pumping conditions. The Stallman equations are presented on pages 27 and 28 of the Attachment.

The well capacity has been evaluated based on a seven day peak demand, to account for the one-week holiday periods during the winter season when the demand will be the greatest. Using the Stallman equations, the calculated source yield using a total available head of 105.9 feet is 109.6 gpm (157,824 gpd) for a continuous seven day pumping period. Therefore, in accordance with Section Env-Ws 372.11(b), a source capacity of 109.6 gpm is adequate to serve a design flow of 73.1 gpm, or 105,216 gpd. Equations used in the capacity analysis are included on page 27 of the Attachment, and calculations specific to the Base Area Well are included on page 28 of the Attachment.

This capacity analysis is very conservative (i.e., results in a low source capacity) because of the assumptions used in performing the analysis. These include:

- A total available head for the well based only on the tested portion of the well bore, ignoring the remaining well bore below this point (approximately 129 feet). In essence, the analysis uses only 45% of the projected total available head. This is extremely conservative given that the well was drilled using a pounder/percussion drilling methodology. The main water bearing fractures in wells of this type are usually at the bottom of the well bore, because additional percussion drilling becomes difficult after a substantial water bearing fracture zone is encountered.

- The continuous pumping for a seven day period at the source capacity, with no recovery or recharge events.
- The 1.5 reduction factor applied to the calculated source capacity to calculate the design flow able to be accommodated by the well.

Therefore, a permitted source capacity of 109.6 gpm is requested for this well. The actual source capacity is likely significantly greater than the requested capacity given the conservative assumptions used in the analysis. The aquifer characteristics noted during the 48-hour constant discharge test indicate that the source capacity may equal or exceed the constant discharge pumping rate of 134.4 gpm.

SANITARY PROTECTIVE AREA

A sanitary protective area has been designated for the Mt. Sunapee Base Area Well in accordance with Section Env-Ws 372.13. In this case, given the requested permitted source capacity of 157,824 gpd, the sanitary protective area is comprised of the area of land encompassed by a circle around the well with a 400-foot radius. This land is entirely included within Mt. Sunapee State Park land and the lease area.

The bottom termini of two chairlifts (Duckling double and North Peak triple) and the Lower Mountain Base Lodge exist within the sanitary protective area. According to Mt. Sunapee Resort personnel, there is no storage of petroleum products or hazardous materials within this area. A large expanse of lawn exists between the well and the North Peak triple chairlift to the west. Given this area's location within the sanitary protective area, no chemical soil fertilization will occur on this lawn area. No wastewater disposal systems are located within the sanitary protective area.

Please call with any questions or comments you may have during your review of this report. I hope to hear from you soon.

Sincerely,

Eric R. Hanson
Senior Hydrogeologist

cc: Tim Drew
Jay Gamble

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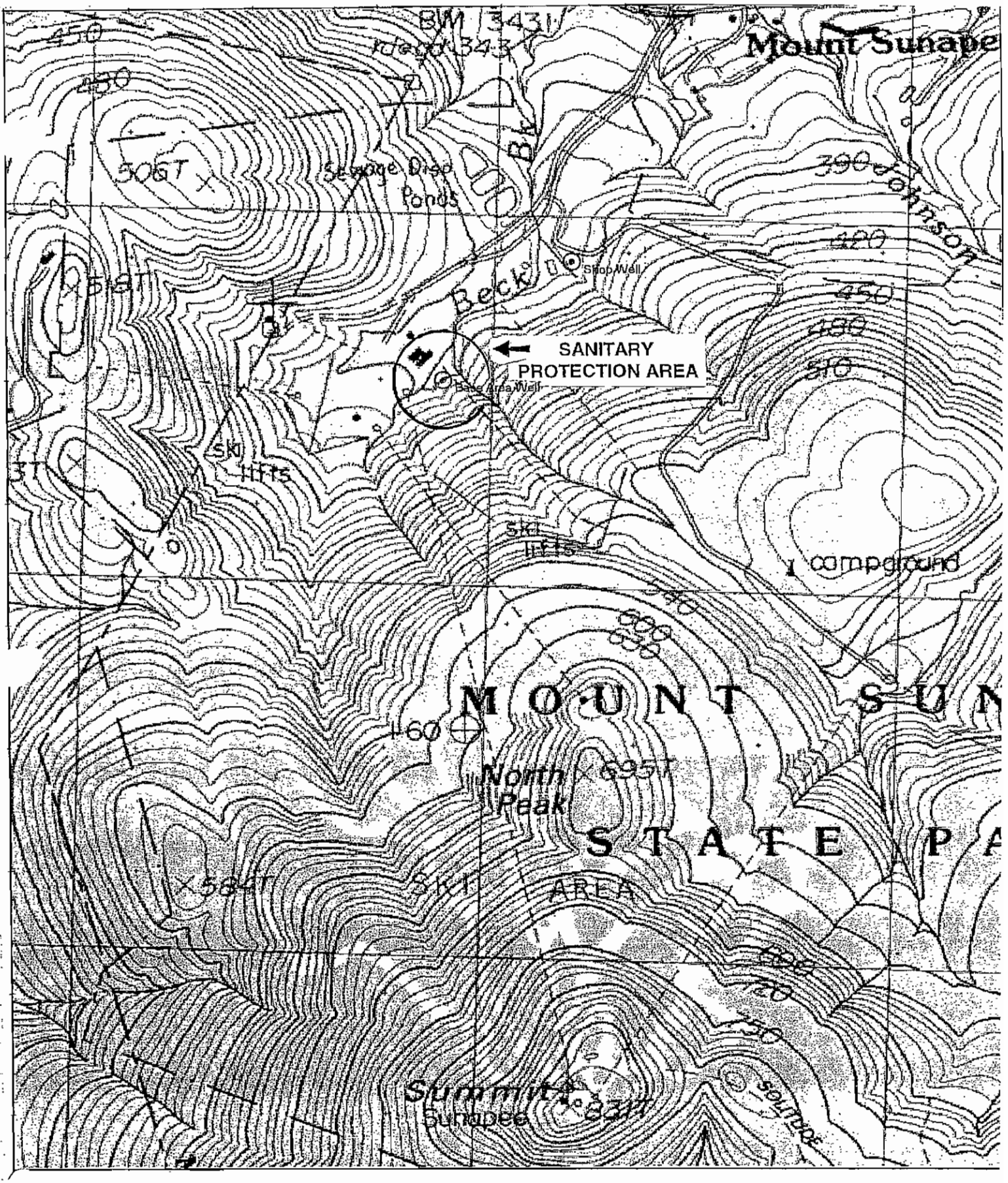
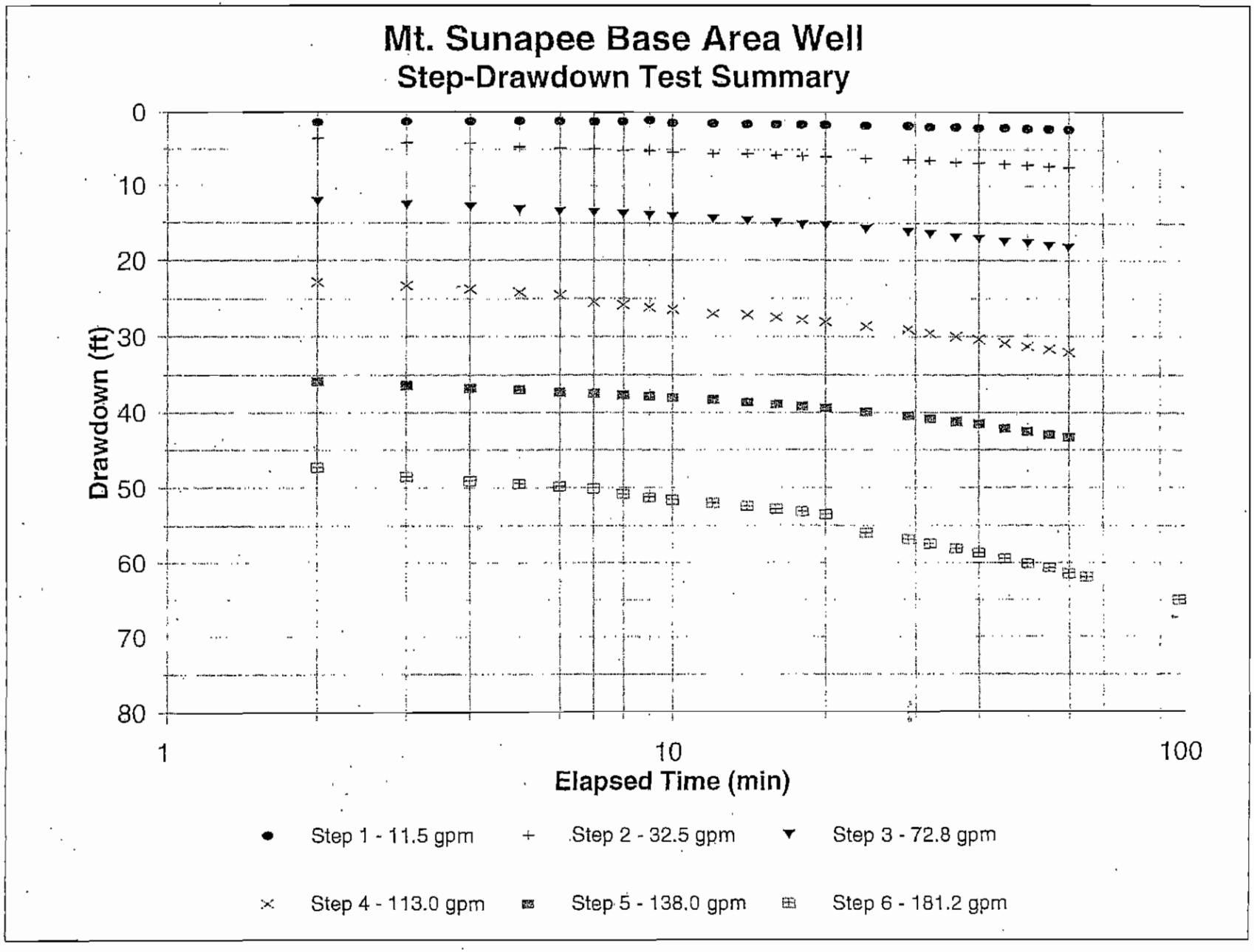


Name: NEWPORT
Date: 6/4/99
Scale: 1 inch equals 1000 feet

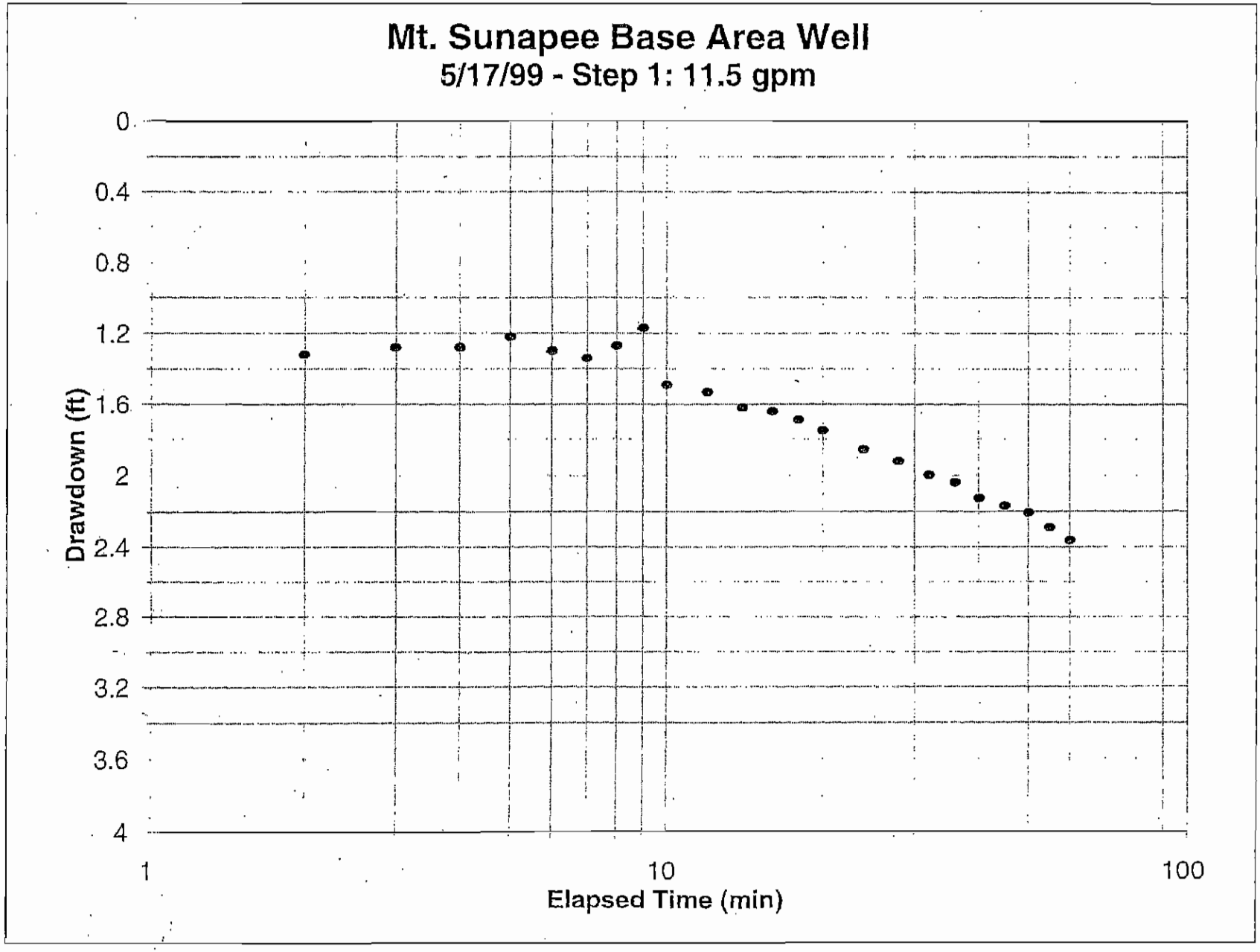
Location: 043° 19' 34.4" N 072° 04' 35.1" W
Caption: Mount Sunapee Resort
Base Area Well Location Map
Newbury, New Hampshire

IONEER ENVIRONMENTAL ASSOCIATES, LLC
10 SEYMOUR STREET
P.O. BOX 824
MIDDLEBURY, VERMONT 05753


Mt. Sunapee Base Area Well
Step-Drawdown Test Summary
Drawdown (ft)
0
10
20
30
40
50
60
70
80
1
10
100
Elapsed Time (min)
Step 1 - 11.5 gpm
Step 2 - 32.5 gpm
Step 3 - 72.8 gpm
Step 4 - 113.0 gpm
Step 5 - 138.0 gpm
Step 6 - 181.2 gpm

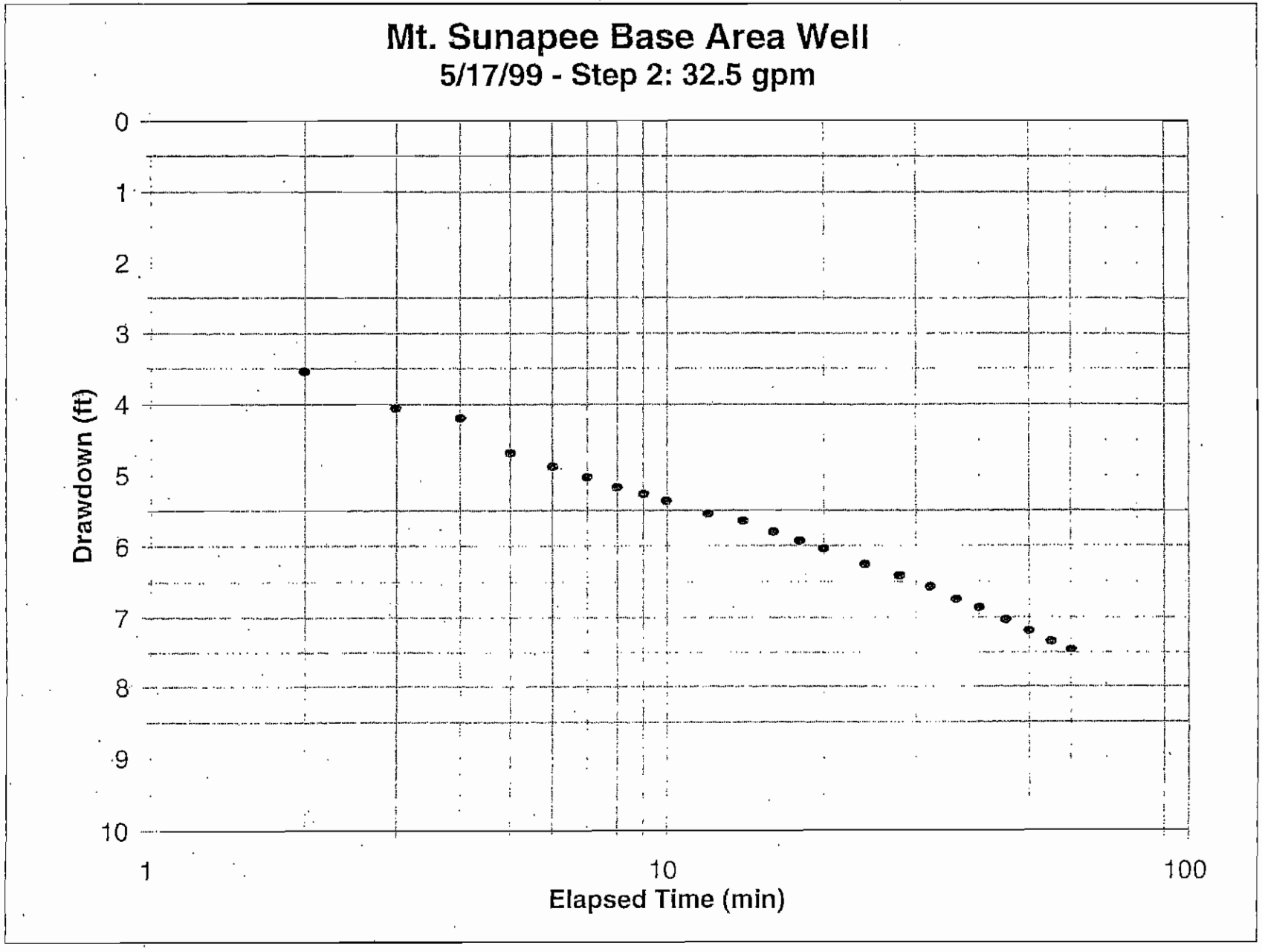
Sunapee Base Area Well
Step-Drawdown Test
May 17,1999

Time	Elapsed Time (min)	Water Level (ft)	Drawdown (ft)	Meter (gal)	Metered Discharge (gpm)	Comments
08:45	0	10.63	0.00	4040864	-	Step 1
08:46	1	12.31	1.68	4040892	28.0	
08:47	2	11.95	1.32	4040907	15.0	
08:48	3	11.91	1.28	4040918	11.0	
08:49	4	11.91	1.28	4040928	10.0	
08:50	5	11.85	1.22	4040938	10.0	
08:51	6	11.93	1.30	4040947	9.0	
08:52	7	11.97	1.34	4040957	10.0	
08:53	8	11.90	1.27	4040966	9.0	
08:54	9	11.80	1.17	4040975	9.0	
08:55	10	12.12	1.49	4040985	10.0	
08:57	12	12.16	1.53	4041008	11.5	
08:59	14	12.25	1.62	4041031	11.5	
09:01	16	12.27	1.64	4041053	11.0	
09:03	18	12.32	1.69	4041076	11.5	
09:05	20	12.38	1.75	4041098	11.0	
09:09	24	12.49	1.86	4041144	11.5	
09:13	28	12.55	1.92	4041189	11.2	
09:17	32	12.63	2.00	4041234	11.3	
09:21	36	12.67	2.04	4041279	11.3	
09:25	40	12.76	2.13	4041325	11.5	
09:30	45	12.80	2.17	4041381	11.2	
09:35	50	12.84	2.21	4041438	11.4	
09:40	55	12.92	2.29	4041495	11.4	
09:45	60	12.99	2.36	4041551	11.3	
				Ave. Q =	11.5	


Mt. Sunapee Base Area Well
5/17/99 - Step 1: 11.5 gpm
Drawdown (ft)
0
0.4
0.8
1.2
1.6
2
2.4
2.8
3.2
3.6
4
1
10
100
Elapsed Time (min)

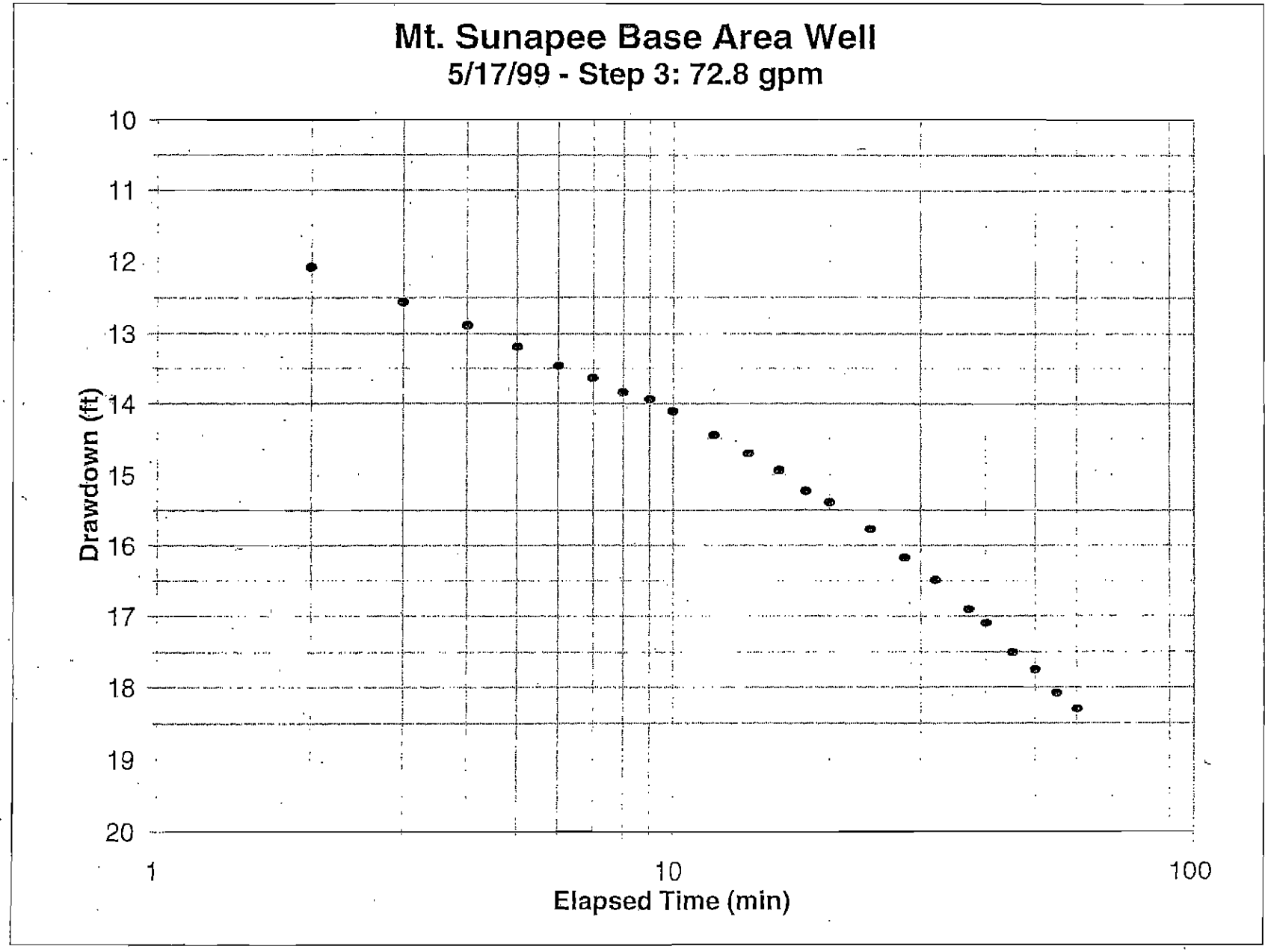
Sunapee Base Area Well
Step-Drawdown Test
May 17,1999

Time	Elapsed Time (min)	Water Level (ft)	Drawdown (ft)	Meter (gal)	Metered Discharge (gpm)	Comments
09:45	0	12.99	2.36	4041551		Step 2
09:46	1	14.14	3.51	4041579	28.0	increased flow
09:47	2	14.17	3.54	4041603	24.0	
09:48	3	14.69	4.06	4041629	26.0	increased flow
09:49	4	14.83	4.20	4041657	28.0	
09:50	5	15.32	4.69	4041688	31.0	
09:51	6	15.51	4.88	4041721	33.0	
09:52	7	15.66	5.03	4041754	33.0	
09:53	8	15.80	5.17	4041787	33.0	
09:54	9	15.90	5.27	4041821	34.0	
09:55	10	16.00	5.37	4041853	32.0	
09:57	12	16.18	5.55	4041920	33.5	
09:59	14	16.28	5.65	4041986	33.0	
10:01	16	16.44	5.81	4042051	32.5	
10:03	18	16.56	5.93	4042118	33.5	
10:05	20	16.67	6.04	4042183	32.5	
10:09	24	16.88	6.25	4042316	33.3	
10:13	28	17.04	6.41	4042447	32.8	
10:17	32	17.20	6.57	4042578	32.8	
10:21	36	17.38	6.75	4042710	33.0	
10:25	40	17.49	6.86	4042842	33.0	
10:30	45	17.66	7.03	4043006	32.8	
10:35	50	17.82	7.19	4043169	32.6	
10:40	55	17.97	7.34	4043334	33.0	
10:45	60	18.09	7.46	4043498	32.9	
				Ave. Q =	32.5	


Mt. Sunapee Base Area Well
5/17/99 - Step 2: 32.5 gpm
Drawdown (ft)
0
1
2
3
4
5
6
7
8
9
10
1
10
100
Elapsed Time (min)

Mt. Sunapee Base Area Well
Step-Drawdown Test
May 17,1999

Time	Elapsed Time (min)	Water Level (ft)	Drawdown (ft)	Meter (gal)	Metered Discharge (gpm)	Comments
10:45	0	18.09	7.46	4043498		Step 3
10:46	1	21.91	11.28	4043566	68.0	
10:47	2	22.71	12.08	4043641	75.0	
10:48	3	23.19	12.56	4043714	73.0	
10:49	4	23.51	12.88	4043787	73.0	
10:50	5	23.82	13.19	4043860	73.0	
10:51	6	24.09	13.46	4043935	75.0	
10:52	7	24.27	13.64	4044007	72.0	
10:53	8	24.47	13.84	4044081	74.0	
10:54	9	24.57	13.94	4044153	72.0	
10:55	10	24.74	14.11	4044228	75.0	
10:57	12	25.08	14.45	4044372	72.0	
10:59	14	25.34	14.71	4044520	74.0	
11:01	16	25.58	14.95	4044664	72.0	
11:03	18	25.86	15.23	4044811	73.5	
11:05	20	26.02	15.39	4044956	72.5	
11:09	24	26.40	15.77	4045247	72.8	
11:13	28	26.80	16.17	4045538	72.8	
11:17	32	27.12	16.49	4045830	73.0	
11:22	37	27.53	16.90	4046193	72.6	
11:25	40	27.73	17.10	4046412	73.0	
11:30	45	28.14	17.51	4046776	72.8	
11:35	50	28.38	17.75	4047141	73.0	
11:40	55	28.71	18.08	4047504	72.6	
11:45	60	28.94	18.31	4047867	72.6	
				Ave. Q =	72.8	

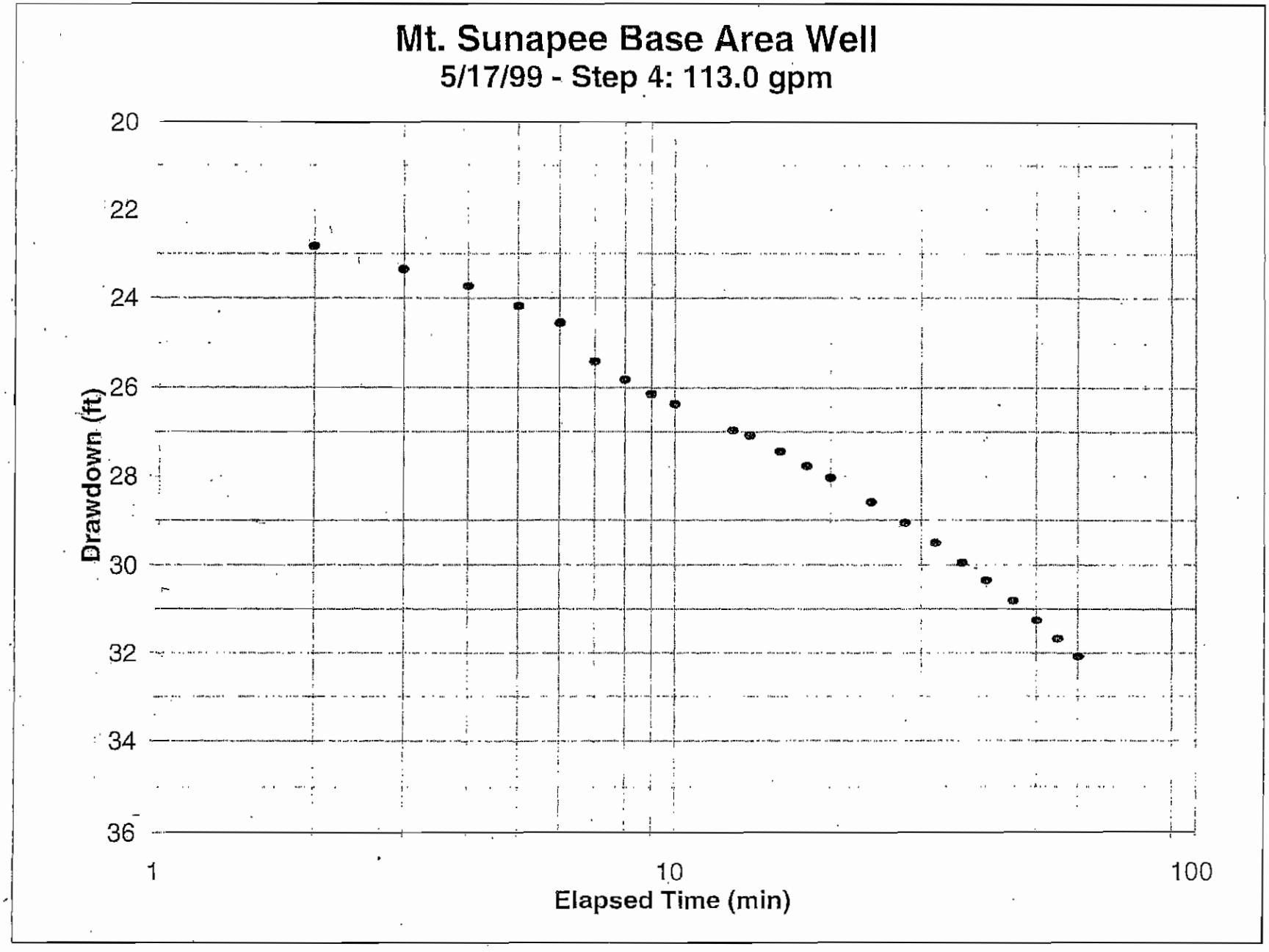

Mt. Sunapee Base Area Well
5/17/99 - Step 3: 72.8 gpm
Drawdown (ft)
10
11
12
13
14
15
16
17
18
19
20
1
10
100
Elapsed Time (min)

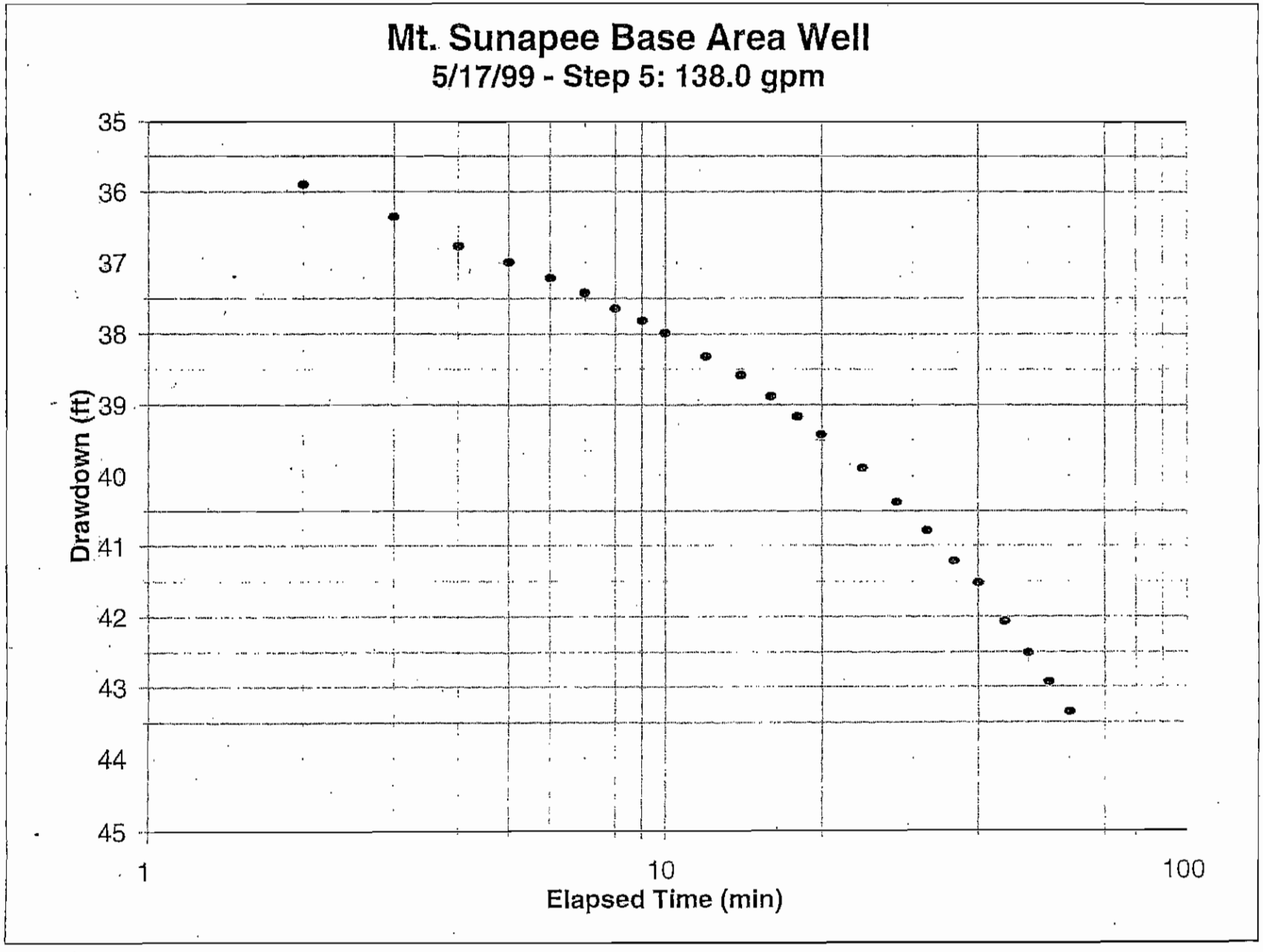
Sunapee Base Area Well
Step-Drawdown Test
May 17,1999

Time	Elapsed Time (min)	Water Level (ft)	Drawdown (ft)	Meter (gal)	Metered Discharge (gpm)	Comments
11:45	0	28.94	18.31	4047867		Step 4
11:46	1	32.65	22.02	4047966	99.0	
11:47	2	33.47	22.84	4048073	107.0	
11:48	3	33.97	23.34	4048180	107.0	
11:49	4	34.37	23.74	4048287	107.0	increased flow
11:50	5	34.81	24.18	4048396	109.0	
11:51	6	35.18	24.55	4048504	108.0	increased flow
11:52	7	36.05	25.42	4048614	110.0	
11:53	8	36.46	25.83	4048731	117.0	
11:54	9	36.77	26.14	4048845	114.0	
11:55	10	37.00	26.37	4048959	114.0	
11:58	13	37.59	26.96	4049302	114.3	
11:59	14	37.72	27.09	4049417	115.0	
12:01	16	38.08	27.45	4049643	113.0	
12:03	18	38.42	27.79	4049872	114.5	
12:05	20	38.67	28.04	4050102	115.0	
12:09	24	39.23	28.60	4050557	113.8	
12:13	28	39.69	29.06	4051012	113.8	
12:17	32	40.14	29.51	4051467	113.8	
12:21	36	40.58	29.95	4051923	114.0	
12:25	40	40.98	30.35	4052377	113.5	
12:30	45	41.44	30.81	4052946	113.8	
12:35	50	41.89	31.26	4053515	113.8	
12:40	55	42.30	31.67	4054081	113.2	
12:45	60	42.72	32.09	4054649	113.4	
				Ave. Q =	113.0	

Sunapee Base Area Well
Step-Drawdown Test
May 17,1999

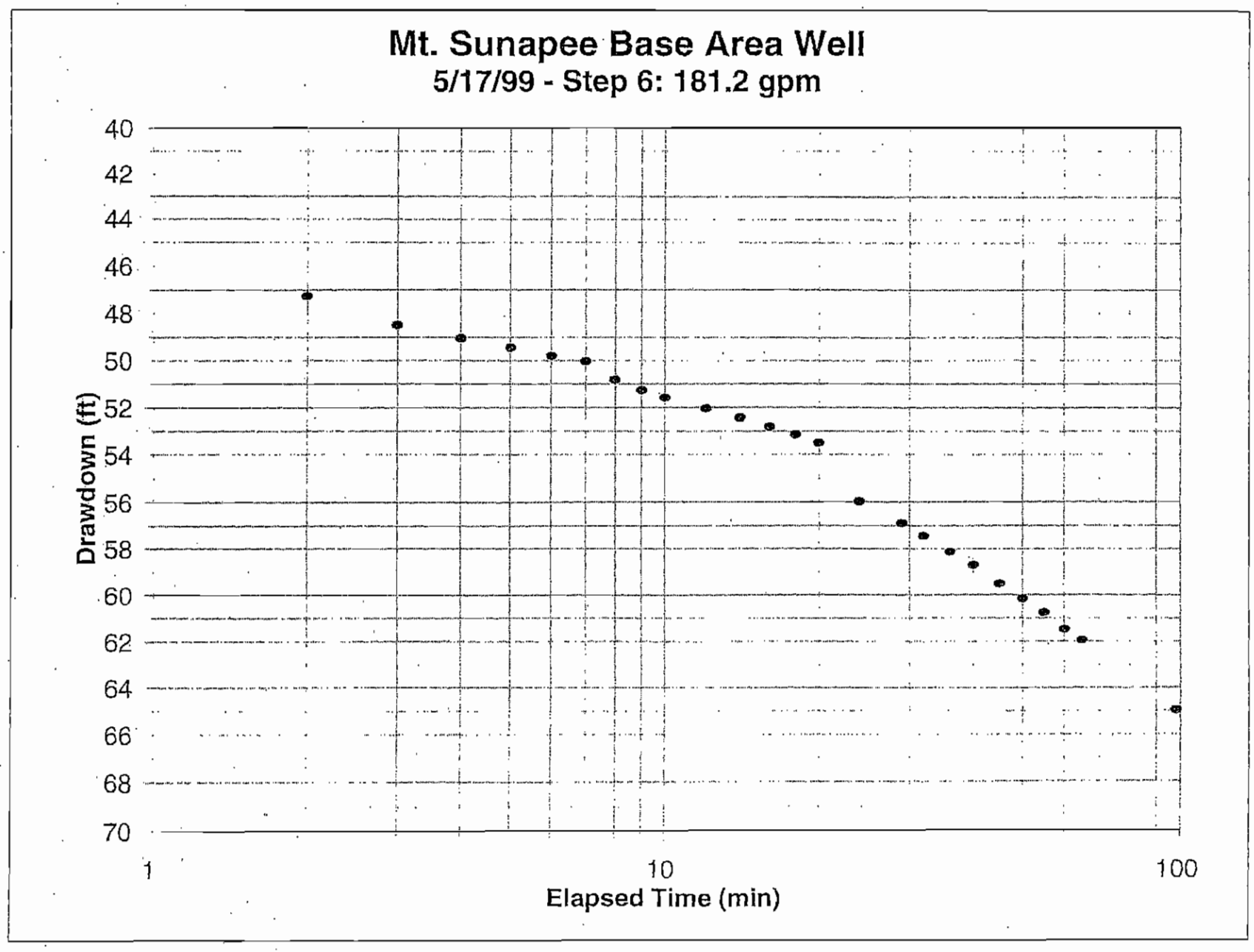
Time	Elapsed Time (min)	Water Level (ft)	Drawdown (ft)	Meter (gal)	Metered Discharge (gpm)	Comments
12:45	0	42.72	32.09	4054649		Step 5
12:46	1	45.85	35.22	4054785	136.0	
12:47	2	46.53	35.90	4054924	139.0	
12:48	3	46.99	36.36	4055065	141.0	
12:49	4	47.40	36.77	4055200	135.0	
12:50	5	47.63	37.00	4055339	139.0	
12:51	6	47.85	37.22	4055478	139.0	
12:52	7	48.06	37.43	4055617	139.0	
12:53	8	48.27	37.64	4055754	137.0	
12:54	9	48.45	37.82	4055893	139.0	
12:55	10	48.62	37.99	4056033	140.0	
12:57	12	48.95	38.32	4056309	138.0	
12:59	14	49.22	38.59	4056585	138.0	
13:01	16	49.51	38.88	4056863	139.0	
13:03	18	49.80	39.17	4057139	138.0	
13:05	20	50.05	39.42	4057415	138.0	
13:09	24	50.52	39.89	-	-	
13:13	28	51.01	40.38	4058520	138.1	
13:17	32	51.41	40.78	4059072	138.0	
13:21	36	51.84	41.21	4059624	138.0	
13:25	40	52.15	41.52	4060175	137.8	
13:30	45	52.70	42.07	4060865	138.0	
13:35	50	53.14	42.51	4061553	137.6	
13:40	55	53.56	42.93	4062242	137.8	
13:45	60	53.98	43.35	4062930	137.7	
				Ave. Q =	138.0	


Mt. Sunapee Base Area Well
5/17/99 - Step 4: 113.0 gpm
Drawdown (ft)
20
22
24
26
28
30
32
34
36
1
10
100
Elapsed Time (min)


Mt. Sunapee Base Area Well
5/17/99 - Step 5: 138.0 gpm
Drawdown (ft)
35
36
37
38
39
40
41
42
43
44
45
1
10
100
Elapsed Time (min)

Sunapee Base Area Well
Step-Drawdown Test
May 17,1999

Time	Elapsed Time (min)	Water Level (ft)	Drawdown (ft)	Meter (gal)	Metered Discharge (gpm)	Comments
13:45	0	53.98	43.35	4062930		Step 6
13:46	1	57.17	46.54	4063088	158.0	
13:47	2	57.88	47.25	4063250	162.0	increased flow
13:48	3	59.10	48.47	4063417	167.0	
13:49	4	59.67	49.04	4063585	168.0	
13:50	5	60.06	49.43	4063754	169.0	
13:51	6	60.43	49.80	4063925	171.0	
13:52	7	60.66	50.03	4064092	167.0	increased flow
13:53	8	61.46	50.83	4064263	171.0	
13:54	9	61.89	51.26	4064439	176.0	
13:55	10	62.21	51.58	4064612	173.0	
13:57	12	62.67	52.04	4064960	174.0	
13:59	14	63.07	52.44	4065308	174.0	
14:01	16	63.45	52.82	4065656	174.0	
14:03	18	63.79	53.16	4066004	174.0	
14:05	20	64.11	53.48	4066352	174.0	increased flow (full open)
14:09	24	66.61	55.98	4067082	182.5	
14:14	29	67.51	56.88	4068002	184.0	
14:17	32	68.07	57.44	4068554	184.0	
14:21	36	68.75	58.12	4069289	183.8	
14:25	40	69.32	58.69	4070026	184.3	
14:30	45	70.12	59.49	4070945	183.8	
14:35	50	70.80	60.17	-	-	
14:40	55	71.37	60.74	4072788	184.3	
14:45	60	72.11	61.48	4073708	184.0	
14:50	65	72.57	61.94	4074627	183.8	
15:23	98	75.62	64.99	4080690	183.7	
				Ave. Q =	181.2	

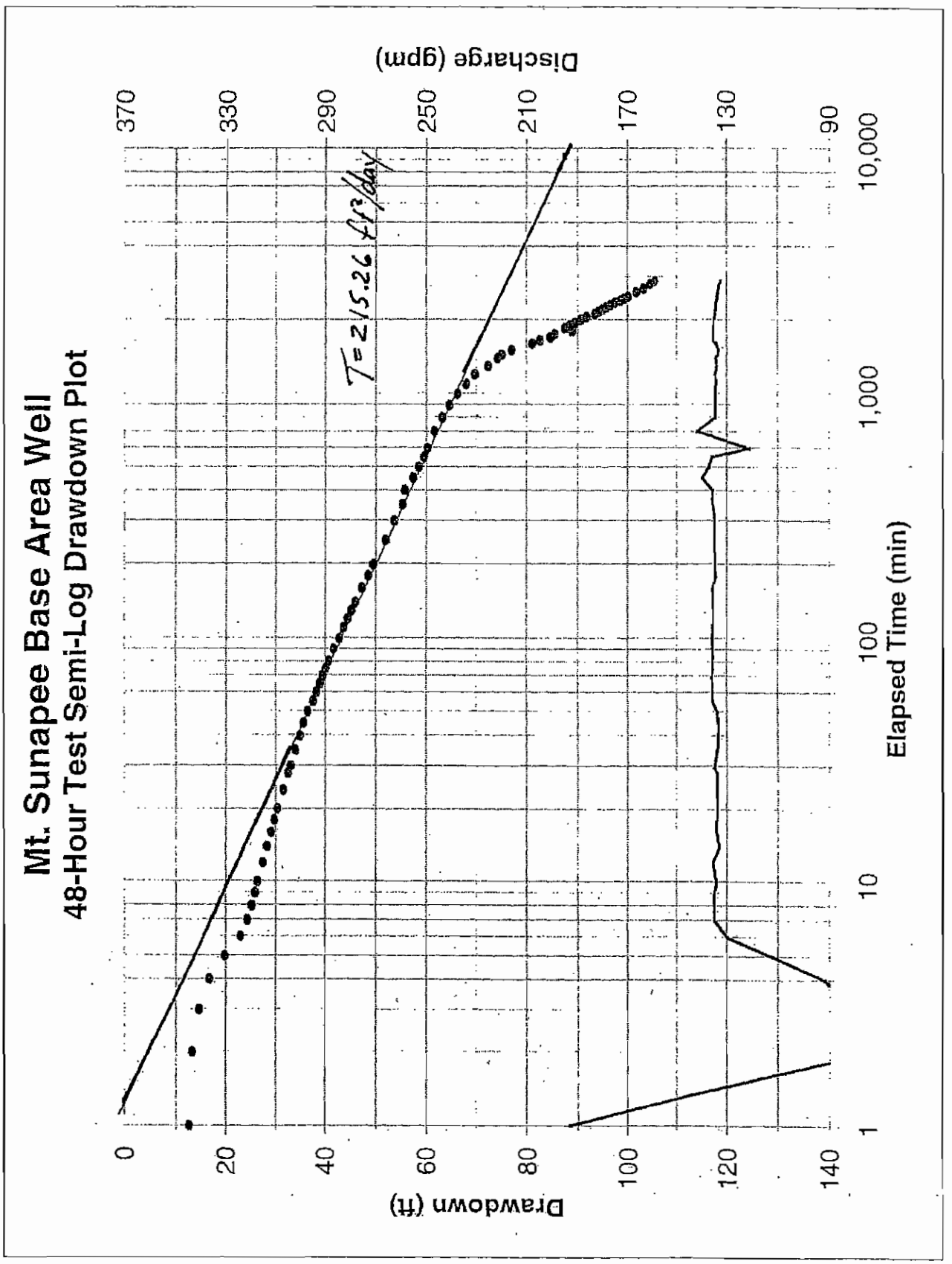

Mt. Sunapee Base Area Well
5/17/99 - Step 6: 181.2 gpm
Drawdown (ft)
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
1
10
100
Elapsed Time (min)

Mt. Sunapee Base Area Well
48-Hour Pumping Test
May 18-20, 1999

Date	Time	Elapsed Time (min)	Water Level (ft)	Drawdown (ft)	Meter (gal)	Metered Discharge (gpm)	Notes
05/18/99	06:00	0	9.62		4080739		Start Test
05/18/99	06:01	1	22.25	12.63	4080932	193.0	Decreased Q
05/18/99	06:02	2	22.82	13.20	4081007	75.0	Increased Q
05/18/99	06:03	3	24.27	14.65	4081086	79.0	Increased Q
05/18/99	06:04	4	26.33	16.71	4081178	92.0	Increased Q
05/18/99	06:05	5	29.51	19.89	4081290	112.0	Increased Q
05/18/99	06:06	6	32.68	23.06	4081420	130.0	
05/18/99	06:07	7	34.05	24.43	4081555	135.0	
05/18/99	06:08	8	34.94	25.32	4081690	135.0	
05/18/99	06:09	9	35.60	25.98	4081825	135.0	
05/18/99	06:10	10	36.18	26.56	4081959	134.0	
05/18/99	06:12	12	37.15	27.53	4082230	135.5	
05/18/99	06:14	14	38.01	28.39	4082496	133.0	
05/18/99	06:16	16	38.78	29.16	4082764	134.0	
05/18/99	06:18	18	39.45	29.83	4083032	134.0	
05/18/99	06:20	20	40.06	30.44	4083299	133.8	
05/18/99	06:24	24	41.17	31.55	4083835	133.8	
05/18/99	06:28	28	42.17	32.55	4084370	133.9	
05/18/99	06:30	30	42.68	33.06	4084640	135.0	
05/18/99	06:35	35	43.68	34.06	4085309	133.8	
05/18/99	06:40	40	44.53	34.91	4085976	133.4	Increased Q
05/18/99	06:45	45	45.36	35.74	4086645	133.6	Increased Q
05/18/99	06:50	50	46.14	36.52	4087314	133.8	Increased Q
05/18/99	06:55	55	47.27	37.65	4087992	135.6	
05/18/99	07:00	60	47.98	38.36	4088672	136.0	
05/18/99	07:05	65	48.62	39.00	4089351	135.8	
05/18/99	07:10	70	49.26	39.64	4090032	136.2	
05/18/99	07:15	75	49.82	40.20	4090710	135.6	
05/18/99	07:20	80	50.40	40.78	4091388	135.6	
05/18/99	07:30	90	51.44	41.82	4092746	135.7	
05/18/99	07:40	100	52.50	42.88	4094105	135.9	
05/18/99	07:50	110	53.37	43.75	4095462	135.7	
05/18/99	08:00	120	54.14	44.52	4096816	135.4	
05/18/99	08:10	130	54.90	45.28	4098169	135.3	
05/18/99	08:20	140	55.66	46.04	4099523	135.4	
05/18/99	08:40	160	56.95	47.33	4102240	135.9	
05/18/99	09:00	180	58.13	48.51	4104930	134.5	
05/18/99	09:20	200	59.18	49.56	4107629	135.0	
05/18/99	10:10	250	61.56	51.94	4114364	134.7	
05/18/99	11:00	300	63.29	53.67	4121087	134.6	Increased Q
05/18/99	11:50	350	64.97	55.35	4127863	135.5	
05/18/99	12:40	400	65.40	55.78	4134850	139.7	Measurements not taken
05/18/99	13:30	450	67.10	57.48	4141700	137.0	exactly on the minute
05/18/99	14:20	500	68.21	58.59	4148500	136.0	I
05/18/99	15:10	550	69.27	59.65	4154550	121.0	V
05/18/99	16:00	600	69.96	60.34	4161632	141.6	Measurements back on
05/18/99	17:40	700	71.36	61.74	4175104	134.7	the minute
05/18/99	19:20	800	72.89	63.27	4188558	134.5	
05/18/99	21:00	900	74.35	64.73	4202000	134.5	
05/18/99	22:40	1000	75.98	66.36	4215420	134.3	
05/19/99	00:20	1100	77.78	68.16	4228915	134.6	

Mt. Sunapee Base Area Well
48-Hour Pumping Test
May 18-20, 1999

Date	Time	Elapsed Time (min)	Water Level (ft)	Drawdown (ft)	Meter (gal)	Metered Discharge (gpm)	Notes
05/19/99	02:00	1200	79.51	69.89	4242323	134.1	Increased Q
05/19/99	03:40	1300	82.04	72.42	4255746	134.2	Very Light Misting Rain
05/19/99	05:20	1400	83.95	74.33	4269115	133.7	Increased Q
05/19/99	06:00	1440	84.85	75.23	4274458	133.6	Increased Q
05/19/99	07:00	1500	86.74	77.12	4282503	134.1	Increased Q
05/19/99	08:40	1600	90.83	81.21	4296049	135.5	
05/19/99	09:30	1650	92.27	82.65	4302818	135.4	
05/19/99	10:21	1701	94.40	84.78	4309725	135.4	
05/19/99	11:12	1752	95.18	85.56	4316625	135.3	
05/19/99	12:01	1801	98.69	89.07	4323260	135.4	
05/19/99	12:51	1851	97.14	87.52	4330020	135.2	
05/19/99	13:40	1900	98.10	88.48	4336640	135.1	
05/19/99	14:30	1950	99.26	89.64	4343393	135.1	V
05/19/99	15:20	2000	100.46	90.84	4350138	134.9	Rain a bit heavier
05/19/99	16:10	2050	101.48	91.86	4356871	134.7	Rain ends
05/19/99	17:00	2100	-	-	4363602	134.6	
05/19/99	17:20	2120	103.12	93.50	-	-	Heavy rain shower 17:05-17:15
05/19/99	17:55	2155	103.82	94.20	4370994	134.4	Light rain until 17:45
05/19/99	18:40	2200	104.57	94.95	4377033	134.2	Showers off and on, becoming heavy
05/19/99	19:30	2250	105.33	95.71	4383743	134.2	
05/19/99	20:20	2300	106.24	96.62	4390446	134.1	
05/19/99	21:10	2350	107.21	97.59	4397148	134.0	Continued steady, light rain
05/19/99	22:00	2400	108.18	98.56	4403845	133.9	
05/19/99	22:50	2450	109.01	99.39	4410536	133.8	
05/19/99	23:40	2500	109.80	100.18	4417213	133.5	Very light rain
05/20/99	01:20	2600	111.46	101.84	4430547	133.3	
05/20/99	03:00	2700	112.96	103.34	4443837	132.9	
05/20/99	04:40	2800	114.28	104.66	4457098	132.6	Rain ends (2.16" for entire storm)
05/20/99	06:00	2880	115.21	105.59	4467697	132.5	sampling at 5:20 pH=6.98 @ 9.1deg C
					Q test:	134.4	



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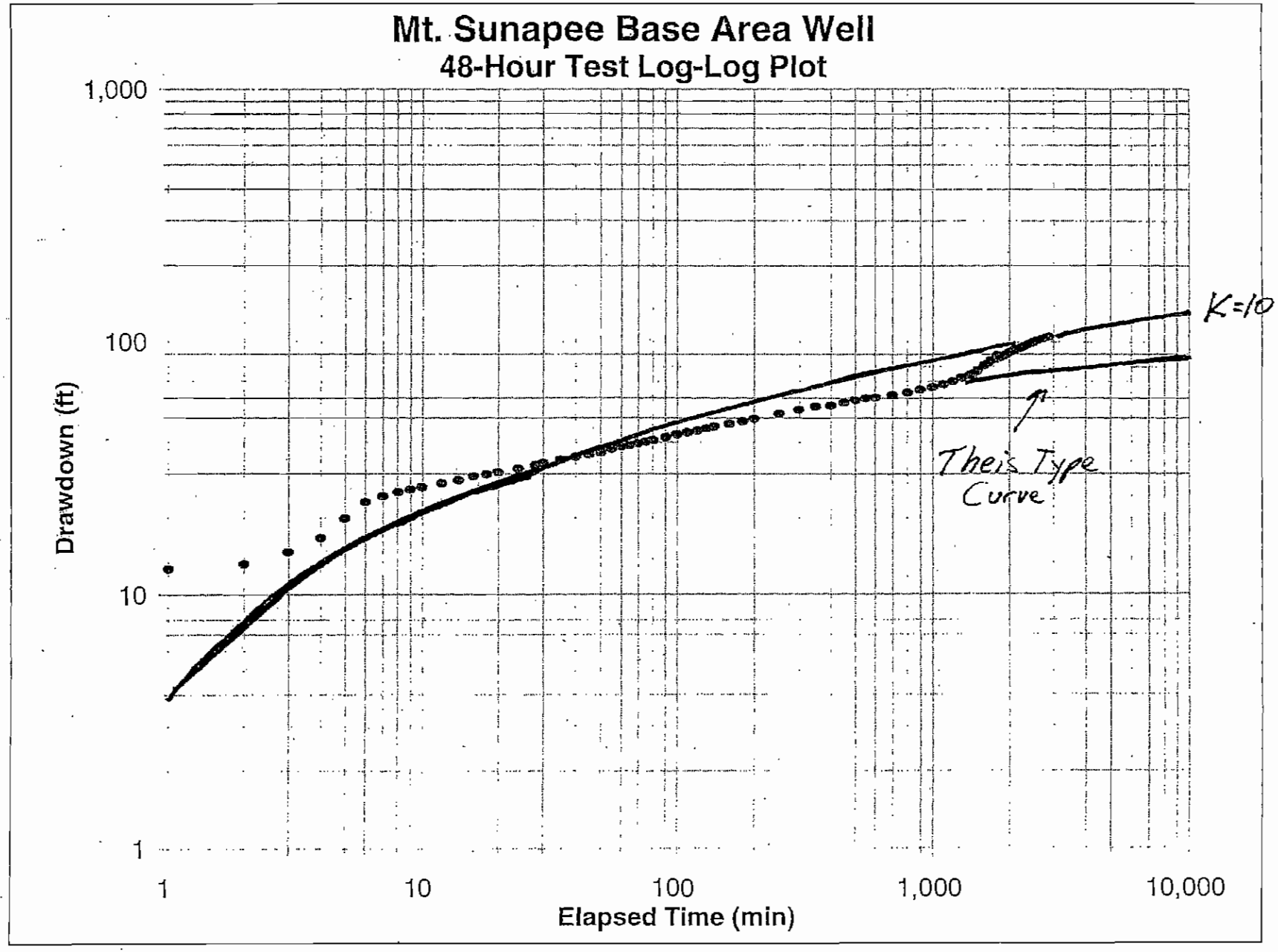
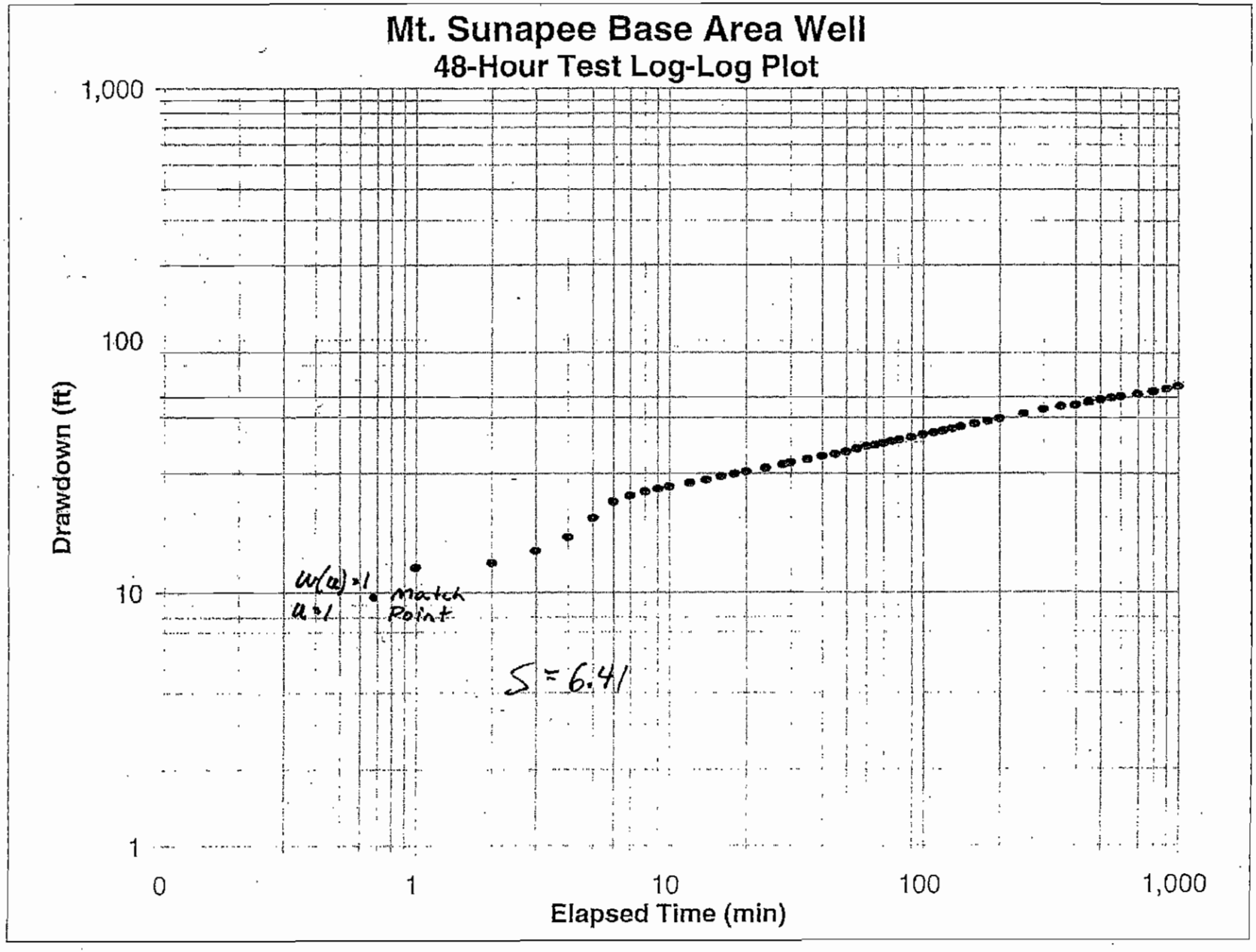
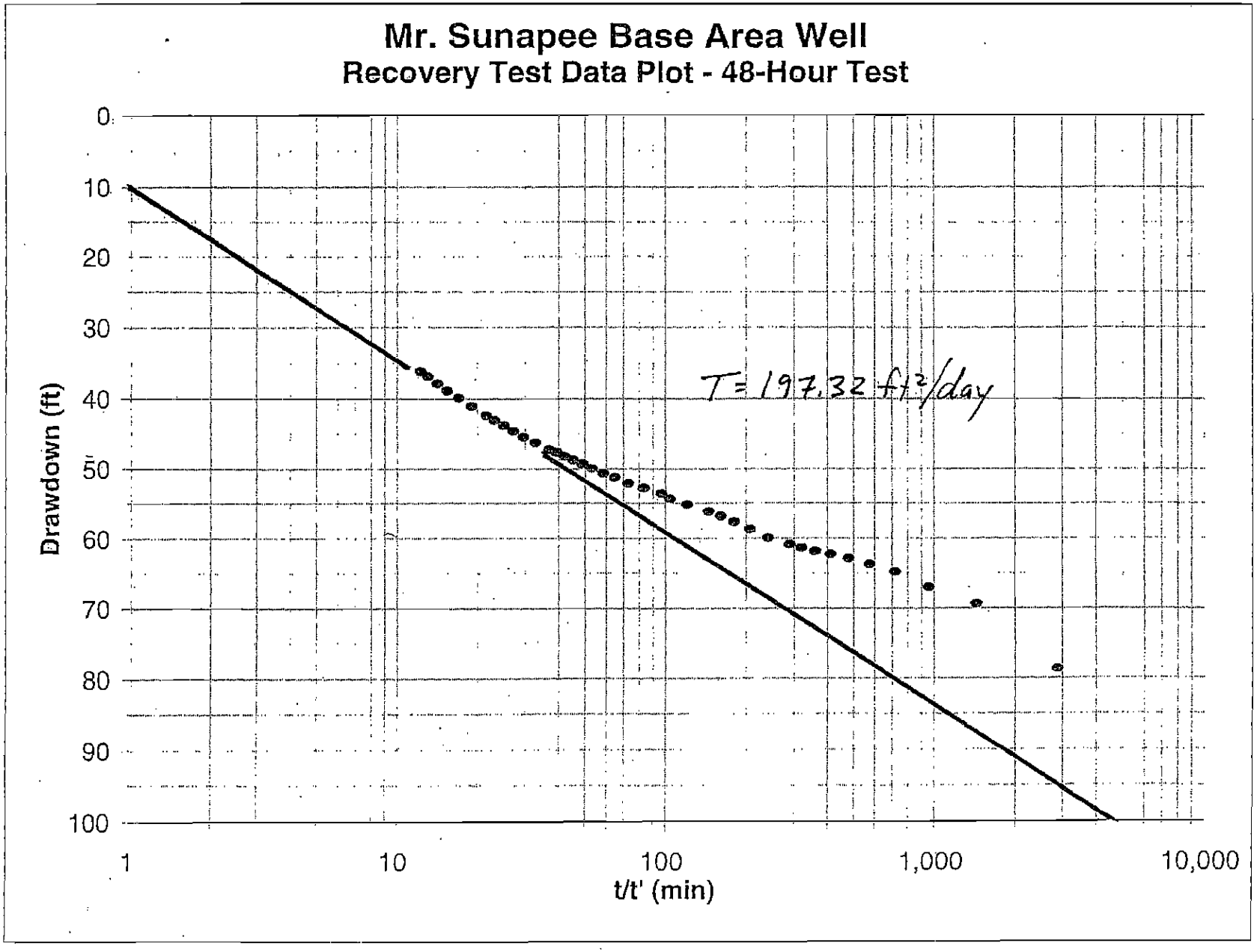

Mt. Sunapee Base Area Well
48-Hour Test Log-Log Plot
Drawdown (ft)
1,000
100
10
1
1
10
100
1,000
10,000
Elapsed Time (min)
K=10
Theis Type Curve


Mt. Sunapee Base Area Well
48-Hour Test Log-Log Plot
1,000
100
10
1
Drawdown (ft)
0
1
10
100
1,000
Elapsed Time (min)
W(u) = 1
u = 1
Match Point
S = 6.41

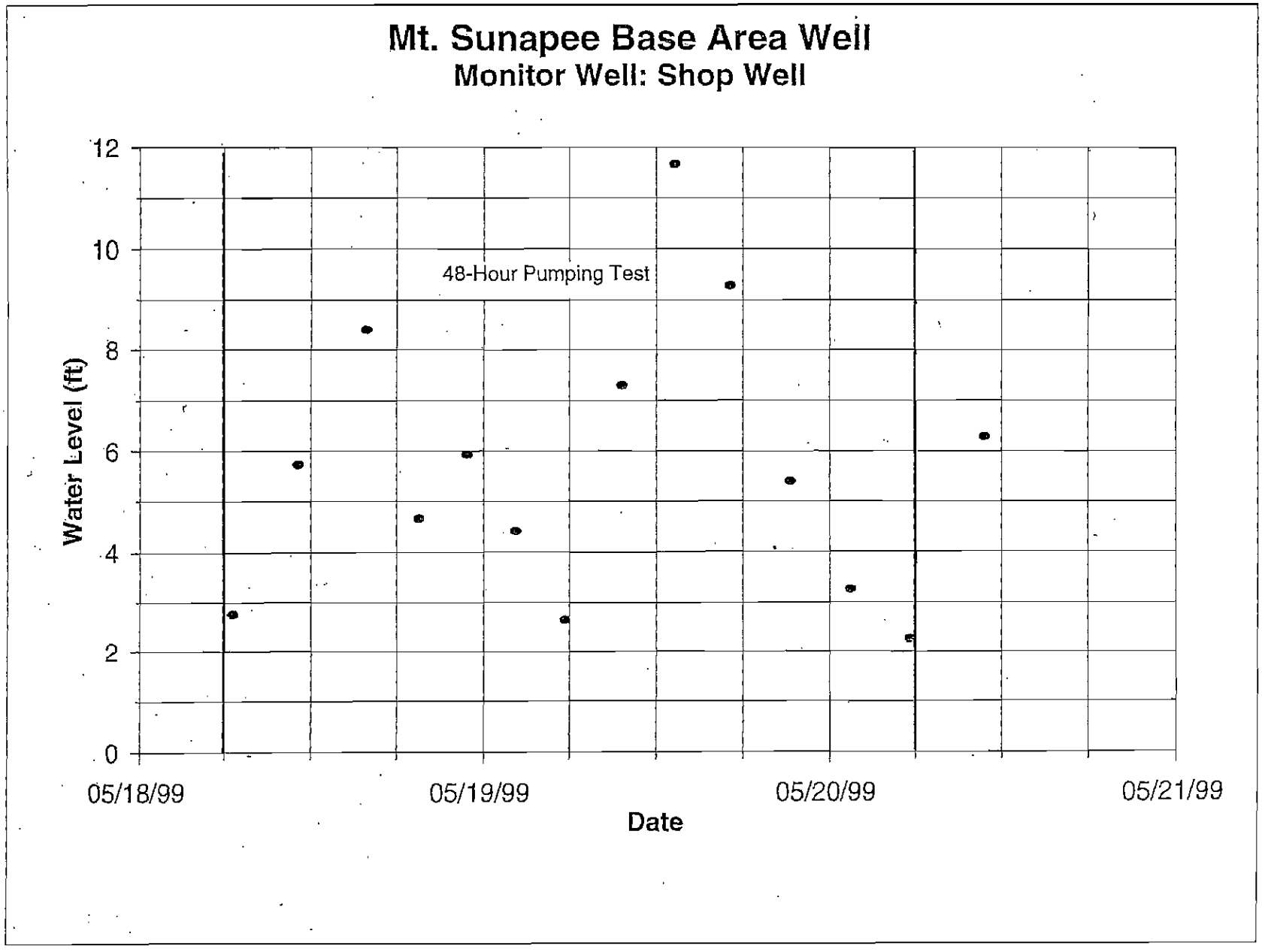
Mt. Sunapee Base Area Well
Recovery Test
May 20, 1999

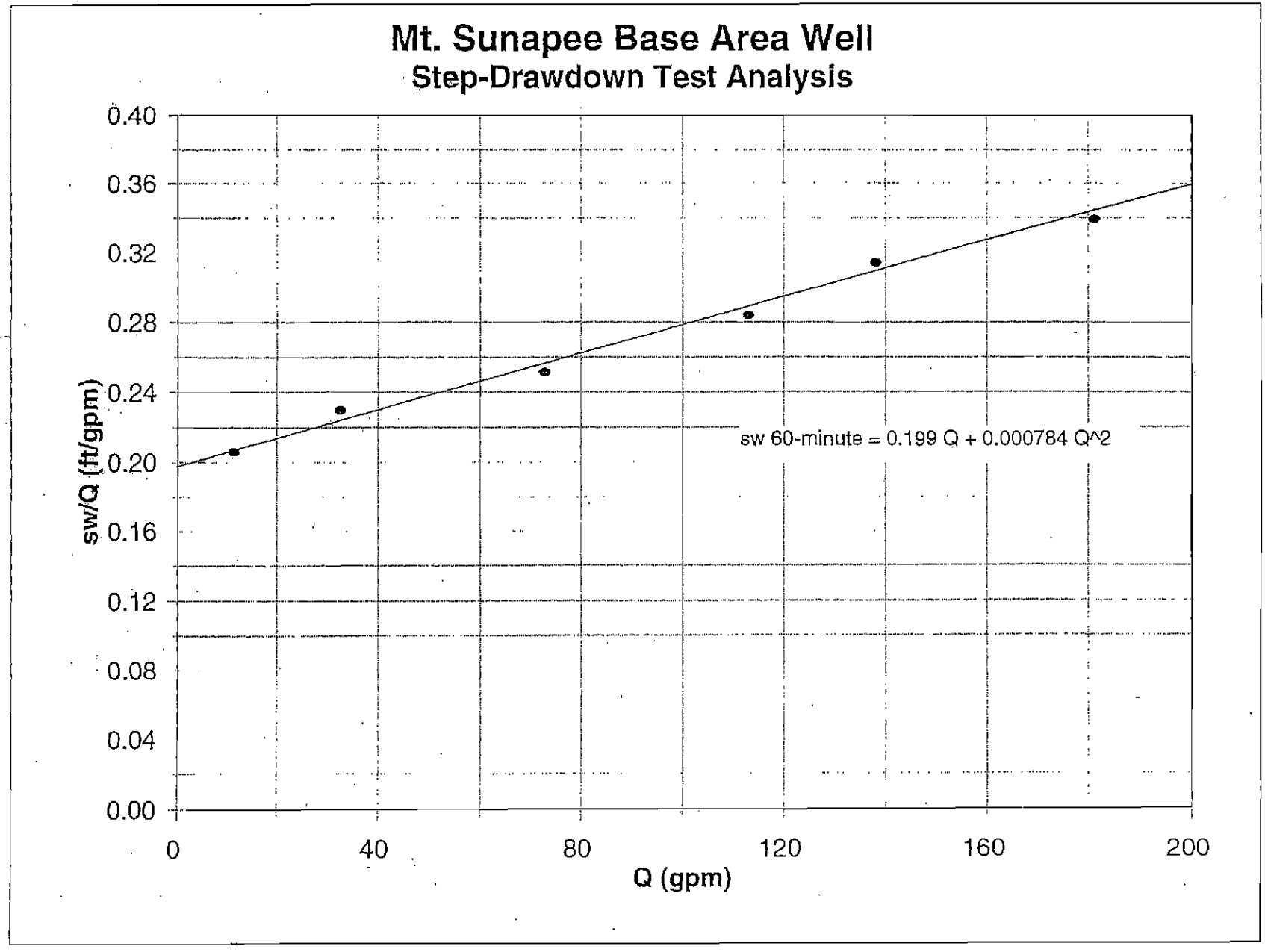
Date	Time	Elapsed Time Since Pump Shut-off (min)	Elapsed Time Since 48-hr Test Start (min)	t/t' (min)	Water Level (ft)	Drawdowr (ft)	Notes
05/20/99	06:00	0	2880		115.21	105.59	Pump Off
05/20/99	06:01	1	2881	2881	88.38	78.76	
05/20/99	06:02	2	2882	1441	79.03	69.41	
05/20/99	06:03	3	2883	961	76.63	67.01	
05/20/99	06:04	4	2884	721	74.43	84.81	
05/20/99	06:05	5	2885	577	73.40	63.78	
05/20/99	06:06	6	2886	481	72.53	62.91	
05/20/99	06:07	7	2887	412	71.97	62.35	
05/20/99	06:08	8	2888	361	71.54	61.92	
05/20/99	06:09	9	2889	321	71.02	61.40	
05/20/99	06:10	10	2890	289	70.54	60.92	
05/20/99	06:12	12	2892	241	69.54	59.92	
05/20/99	06:14	14	2894	207	68.39	58.77	
05/20/99	06:16	16	2896	181	67.30	57.68	
05/20/99	06:18	18	2898	161	66.50	56.88	
05/20/99	06:20	20	2900	145	65.91	56.29	
05/20/99	06:24	24	2904	121	64.82	55.20	
05/20/99	06:28	28	2908	104	64.06	54.44	Low gurgling sound
05/20/99	06:30	30	2910	97	63.26	53.64	
05/20/99	06:35	35	2915	83	62.50	52.88	
05/20/99	06:40	40	2920	73	61.80	52.18	
05/20/99	06:45	45	2925	65	60.98	51.36	
05/20/99	06:50	50	2930	59	60.33	50.71	
05/20/99	06:55	55	2935	53	59.62	50.00	
05/20/99	07:00	60	2940	49	58.96	49.34	
05/20/99	07:05	65	2945	45	58.41	48.79	
05/20/99	07:10	70	2950	42	57.89	48.27	
05/20/99	07:15	75	2955	39	57.38	47.76	
05/20/99	07:20	80	2960	37	56.94	47.32	
05/20/99	07:30	90	2970	33	55.99	46.37	
05/20/99	07:40	100	2980	30	55.13	45.51	
05/20/99	07:50	110	2990	27	54.26	44.64	
05/20/99	08:00	120	3000	25	53.48	43.86	
05/20/99	08:10	130	3010	23	52.76	43.14	
05/20/99	08:20	140	3020	22	52.06	42.44	
05/20/99	08:40	160	3040	19	50.73	41.11	
05/20/99	09:00	180	3060	17	49.53	39.91	
05/20/99	09:20	200	3080	15	48.54	38.92	
05/20/99	09:40	220	3100	14	47.50	37.88	
05/20/99	10:00	240	3120	13	46.52	36.90	
05/20/99	10:17	257	3137	12	45.79	36.17	End of Recovery Measurements


Mr. Sunapee Base Area Well
Recovery Test Data Plot - 48-Hour Test
Drawdown (ft)
0
10
20
30
40
50
60
70
80
90
100
1
10
100
1,000
10,000
t/t' (min)
T = 197.32 ft²/day

Mt. Sunapee Base Area Well
48-Hour Pumping Test
May 18-20, 1999
Monitoring Well: Shop Well

Date	Time	Elapsed Time (min)	Water Level (ft)	Drawdown (ft)	Notes
05/18/99	06:34	34	2.78	0.51	Start Pump Test 6:00
05/18/99	11:07	307	5.74	3.47	
05/18/99	15:51	591	8.41	6.14	
05/18/99	19:33	813	4.66	2.39	
05/18/99	22:49	1009	5.93	3.66	
05/19/99	02:14	1214	4.41	2.14	
05/19/99	05:42	1422	2.66	0.39	
05/19/99	09:38	1658	7.31	5.04	
05/19/99	13:19	1879	11.68	9.41	
05/19/99	17:07	2107	9.30	7.03	
05/19/99	21:17	2357	5.40	3.13	
05/20/99	01:29	2609	3.26	0.99	
05/20/99	05:39	2859	2.27	0.00	
05/20/99	10:50	3170	6.30	4.03	End Pump Test 6:00


Mt. Sunapee Base Area Well
Monitor Well: Shop Well
48-Hour Pumping Test
Water Level (ft)
0
2
4
6
8
10
12
05/18/99
05/19/99
05/20/99
05/21/99
Date

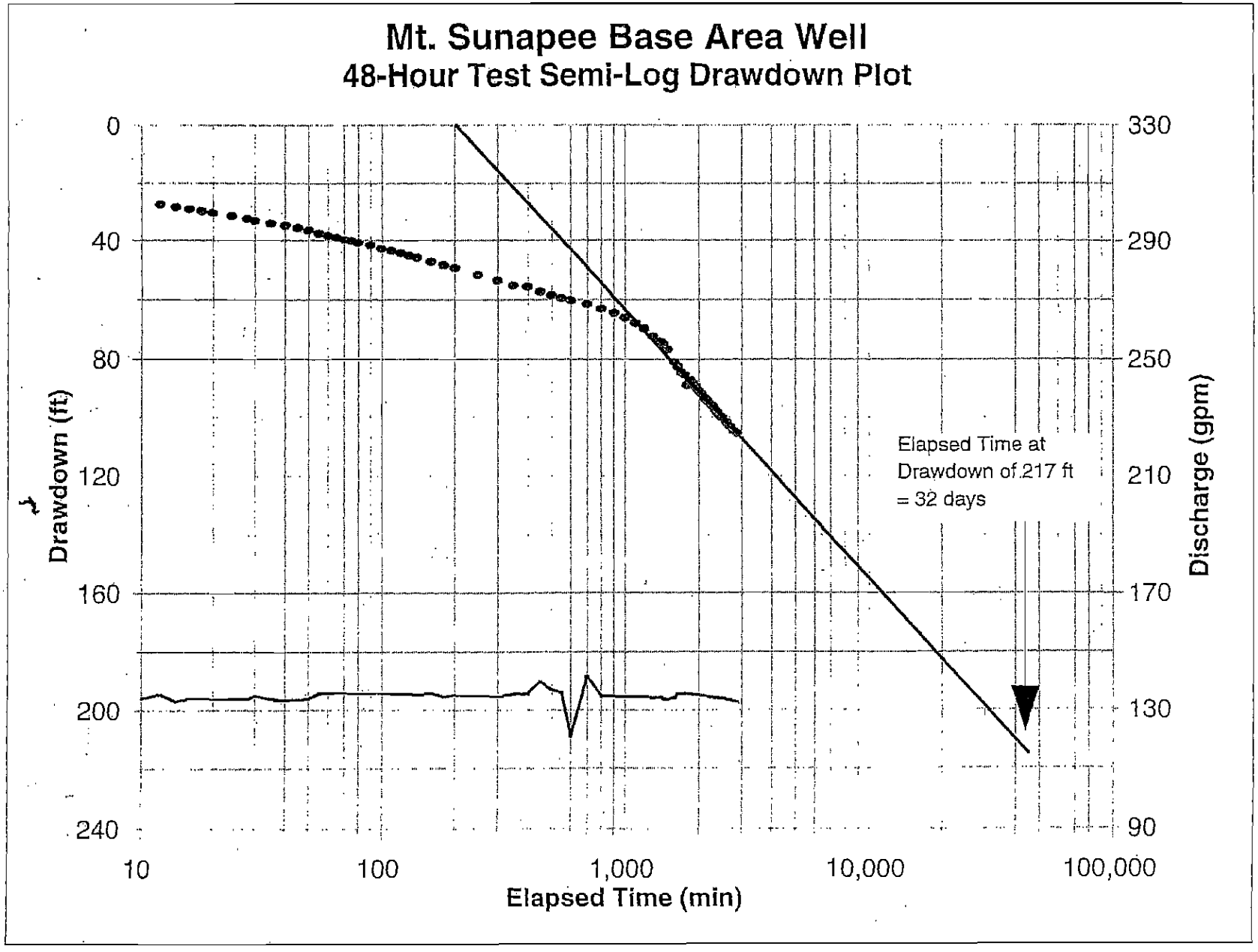

Mt. Sunapee Base Area Well
Step-Drawdown Test Analysis
sw/Q (ft/gpm)
0.40
0.36
0.32
0.28
0.24
0.20
0.16
0.12
0.08
0.04
0.00
0
40
80
120
160
200
Q (gpm)
sw 60-minute = 0.199 Q + 0.000784 Q^2

Mt. Sunapee Base Area Well
Step-Drawdown Test Analysis

	60-minute Discharge		Sw/Q
	Sw (ft)	(gpm)	(ft/gpm)
Step 1	2.36	11.45	0.21
Step 2	7.46	32.45	0.23
Step 3	18.31	72.82	0.25
Step 4	32.09	113.03	0.28
Step 5	43.35	138.02	0.31
Step 6	61.48	181.22	0.34

Regression Output:

Constant		0.199093
Std Err of Y Est		0.005461
R Squared		0.990798
No. of Observations		6
Degrees of Freedom		4
X Coefficient(s)	0.000784	
Std Err of Coef.	3.78E-05	


Mt. Sunapee Base Area Well
48-Hour Test Semi-Log Drawdown Plot
Drawdown (ft)
0
40
80
120
160
200
240
Discharge (gpm)
330
290
250
210
170
130
90
Elapsed Time at
Drawdown of 217 ft
= 32 days
10
100
1,000
10,000
100,000
Elapsed Time (min)

Sunapee Base Area Well Aquifer Analysis
Calculation of Aquifer Coefficients

Equations Used

The following equations are used for the analysis of source capacity

Cooper-Jacob:

Transmissivity (T)

$$T = \frac{2.3*Q}{4*pi*s}$$

where: Q = Average Discharge (ft^3/day)
s = Change in Drawdown per Log Cycle (ft)

Stallman:

Drawdown (s)

$$s = \frac{Q}{4*pi*T}[W(u)p \pm W(u)i]$$

where: W(u) = Well Function of u

$$(u)p = \frac{rp^2*S}{4*T*t}$$

$$(u)i = \frac{ri^2*S}{4*T*t}$$

t = time (days)

Theis:

Storativity (S)

$$S = \frac{4*T*u}{r^2/t}$$

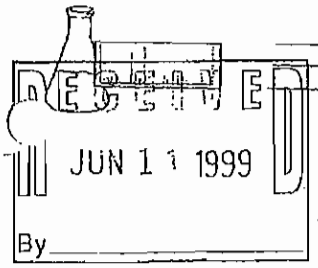
where: u = well function from curve matching

Sunapee Base Area Well Source Capacity Analysis
Hillman Boundary Analysis
(from Lohman USGS Paper 708, pp 59-61)

K =	10	(from curve matching - SEE PAGE X OF ATTACHMENT)
rp =	0.25	(distance from pumped well to obs. well, feet)
ri =	2.50	(distance to image well, feet)
T =	215.26	ft^2/day
S =	6.41	

Calculate Long-Term Yield:

up 7 =	6.6469E-05	
W(u)p 7 =	9.0417	
ui 7 =	6.6469E-03	
W(u)i 7 =	4.4940	
Q =	21099.47	ft^3/day
=	**109.60**	**gpm** (by trial and error to result in max. drawdown obtained during testing
=	**157,824**	**gpd**
Drawdown =	105.58	feet



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Pioneer Env. Assoc., LLC.
PROJECT: Sunapee
REPORT DATE: June 8, 1999

ORDER ID: 2416
DATE RECEIVED: May 20, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Pioneer Env. Assoc., LLC.
PROJECT: Sunapee
REPORT DATE: June 8, 1999

ORDER ID: 2416
DATE RECEIVED: May 20, 1999
SAMPLER: SR

Ref. Number: 138762 | Site: Sunapee Base Lodge | Date Sampled: May 20, 1999 | Time: 5:20 AM

Parameter	Result	Unit	Method	Analysis Date	Analyst
pH	7.52	S.U.	EPA 150.1	5/26/99	911
Chloride	1.	mg/L	EPA 325.3	6/4/99	319
Fluoride	0.437	mg/L	EPA 340.2	6/2/99	911
Total Coliform	Present	n/a	SM 9223	5/20/99	410
E. coli	Absent	n/a	SM 9223	5/20/99	410
Total Hardness, as CaCO3	45.1	mg/L	EPA 6010	5/21/99	319
Total Iron	0.041	mg/L	EPA 6010	5/26/99	319
Dissolved Iron	< 0.010	mg/L	EPA 6010	5/21/99	319
Total Manganese	< 0.005	mg/L	EPA 6010	5/26/99	319
Dissolved Manganese	< 0.005	mg/L	EPA 6010	5/21/99	319
Total Sodium	4.64	mg/L	EPA 6010	5/25/99	319
Dissolved Sodium	5.24	mg/L	EPA 6010	5/21/99	319

HTA
ulting Engineers
184 South Winooski Avenue • Burlington • VT 05401 • 802 860 1331 • Fax 802 860 6499 • www.hoyletanner.com

March 12, 2003

Mr. Jay Gamble, General Manager
Mount Sunapee Ski Resort
P.O. Box 2021
Route 103
Newbury, New Hampshire 03255

RE: Wastewater Facilities Evaluation Report

Dear Mr. Gamble

The following letter report constitutes our evaluation of the existing wastewater treatment facilities at the Mount Sunapee Ski Area and its capacity to adequately handle the projected increase in skier visits for the future.

1.0 PROJECT DESCRIPTION

In the summer of 1998, the Mount Sunapee Ski Area was leased to a private ski industry firm, Okemo Mountain Resort. Under the new management, the ski area has incorporated many upgrades to the ski area and to the wastewater treatment system. Based on previous engineering recommendations, they have installed a v-notch weir and ultrasonic meter in the distribution box to measure and record influent lagoon flows. This has allowed for accurate records of flow data during the past five years. Drainage around the lagoons has been improved to reduce the amount of surface run-off that enters the lagoons each year during the spring. This has been accomplished by construction of a berm around the up gradient side of the lagoon and providing a drainage swale to direct run-off from the forested slope around the lagoons. Also, the ski area has made many other improvements to the wastewater systems such as replacing leaky manhole covers with water-tight covers, disconnecting sump pumps from the collection system, and also locating and correcting sources of extraneous inflow and/or infiltration. These changes have improved the operating conditions of the wastewater treatment system considerably since previous evaluations.

Hoyle, Tanner & Associates, Inc. (HTA) has been retained to complete an evaluation of the wastewater treatment and disposal system to determine if the system is capable of handling an increase in skier volumes. Our evaluation includes the review and analysis of the past five years of operating data, including monthly average wastewater influent data, spray application data, skier visits and other data associated with the wastewater facilities. One goal of this study is to evaluate the impact that the various improvements made at the ski area have had on the operations of the wastewater treatment facilities.

Our evaluations include analysis of the lagoons and spray areas. The lagoon evaluation included analysis of meteorological impacts, free board levels and other design factors. Our evaluation focused on the conditions for the last five years. Projected future trends have been evaluated for expected skier visit levels of 275,000, 300,000 and 325,000. The existing wastewater facilities were analyzed to determine their ability to satisfy these anticipated needs. HTA has also reviewed groundwater monitoring reports, and evaluated the overall operation condition of the lagoons and spray areas.

2.0 SKI AREA ATTENDANCE

Ski area attendance is defined as the number of ski tickets sold, ski season pass visits, and employees attending the park during the ski season. Attendance was determined for ski seasons 1998/1999 thru 2001/2002 based on actual recorded data. The current season, 2002/2003, represents accurate data from the ski season opening in November 2002 thru February 2003, and projected data from February 2003 through the end of the season based on historical data. The following table shows the attendance for the past five seasons:

Table 2-1
Annual Ski Season Attendance

	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003*
Ticketed Skier Visits	109,803	131,511	195,237	159,646	194,990
Season Pass Visits	55,516	58,150	62,599	70,542	66,571
Employees	17,200	23,095	30,375	25,625	28,025
Total	182,519	212,756	288,211	255,813	289,586

*The season 2002/2003 represents actual data (Nov. thru Feb.) and projected data through the end of the season which is based on historical data..

Skier Attendance

Historical records of skier attendance during the ski season are maintained through both the sale of daily lift tickets and season passes. The daily sale of lift tickets was used to determine the daily skier visits at the ski area, and then totalized for the annual skier visits for each of the last five ski seasons. Figures for season pass visits are estimated based on the number of season passes sold and total skier visits. The table above summarizes attendance for the past five ski seasons.

Employees

Employee figures were obtained from the ski area's payroll records. The amount of skiers varies from year to year and also with the length of the ski season. As

attendance increases, so have the employee numbers. Earlier seasons used original figures of 125-225 employees.

3.0 EXISTING WASTEWATER FLOWS

Wastewater inputs to the ski area's treatment and disposal facilities come from several sources, including skiers, summer visitors, and employees. There are also sources that are directly influenced by the local weather conditions, such as infiltration and inflow into the sewage collection system as well as direct precipitation into the lagoons.

Ski-Season Wastewater Flows

To correlate wastewater flows to the attendance at the mountain, wastewater flows to the lagoons during the last five ski seasons were analyzed. Influent flows to the lagoons are measured and recorded by a v-notch weir and ultrasonic meter located in the distribution box. Daily wastewater flows were totalized for each of the past five ski seasons and correlated with the ski season attendance for each ski season to determine a per person wastewater flow rate.

A summary of the total influent wastewater flows per season, the total number of attendance per season, and the corresponding wastewater flow rate in gallons per person are presented in the following table:

Table 3-1
Ski Season Wastewater Data

Ski Season Year	Wastewater Influent (gallons) [1]	Attendance	Wastewater Flowrates (gal/person)
1998-1999	970,417	182,519	5.32
1999-2000	856,522	212,756	4.03
2000-2001	1,010,728	288,211	3.51
2001-2002	765,739	255,813	2.99
2002-2003 [2]	651,973	194,598	3.35

Notes:
[1] Wastewater Influent is the total gallons during the ski season year based on the opening and closing dates of each ski season.
[2] Ski season 2002-2003 data is not complete.

From the last five years of operating data, one can see that the corresponding wastewater flow rate per person has decreased. This is very likely due in part to the implementation of several flow saving measures, such as low flow fixtures, improvements to the collection system, and other improvements aimed at reducing wastewater flows. Based on the available data, Hoyle, Tanner and Associates, Inc.

feels that a 4 gallon per person wastewater flow rate for estimating future ski season wastewater flows is reasonable.

Off-Season Wastewater Flows

For the above wastewater correlation, we did not include summer visitors, summer-time employees, nor summer wastewater flows. However, wastewater flows into the lagoons that occur during the remainder of the year, or "off-season," need to be considered when evaluating the total capacity of the lagoons. For the purpose of determining the off-season wastewater flows into the lagoons, we subtracted the total ski season wastewater flows from the total annual wastewater flows for each of the last five years. The resulting off-season flows are summarized in the following table:

Table 3-2
Off-Seasonal Wastewater Data

Season Year[1]	Annual Wastewater Influent (gallons)	Ski-Season Wastewater Influent (gallons)[2]	Off-Season Wastewater Influent (gallons)
1998-1999	1,494,670	970,417	524,253
1999-2000	1,226,590	856,522	370,068
2000-2001	1,261,832	1,010,728	251,104
2001-2002	1,048,150	765,739	282,411
2002-2003[3]	N/A	651,973	N/A

Notes:
1. The season year is from November thru October.
2. Ski-Season Wastewater Influent is the total gallons during the ski season year based on the opening and closing dates of each ski season.
3. Season 2002-2003 data is not complete.

Infiltration/Inflow

Total inputs into the storage lagoons include inflow and infiltration (I/I) into the sewer collection system. Inflow is defined as extraneous water that enters into a sewer collection system from sources that are directly connected, such as sump pumps, catch basins, manhole covers, and other direct inlets. Infiltration is defined as extraneous water that enters into the sewer system from the ground through sources such as defective pipes, pipe joints, connections and manhole walls. Infiltration is directly influenced by groundwater levels.

In our analysis, I/I is included as a part of the total influent flow measured and summarized in Table 3-1. We have seen from previous studies, that while the system does not appear to have excessive I/I, the collection system does experience a steady nighttime flow, which can be associated with infiltration and/or inflow. For the purpose

of our evaluation, I/I is considered as part of the total wastewater influent amounts on both an annual basis and ski season basis, and is therefore accounted for in the per person wastewater flow rate correlation.

Meteorological Inputs

The meteorological inputs have been examined a number of ways. In our 1999 *Wastewater Lagoon and Spray Irrigation System Phase II Report*, an empirical analysis of using the Thornthwaite method to calculate the evaporation losses from the lagoons and run-of areas was used. This previous report estimated a net total of 2.4 million gallons per year could be expected from meteorological factors.

Another method for estimating the meteorological inputs is to look at historical operating data. The difference between the annual wastewater sprayed (effluent) in the irrigation field and the annual wastewater that flows into the lagoons (influent) can be considered as net annual meteorological inputs to the lagoons. This accounts for precipitation, evaporation losses, and direct run-off into the lagoons. The following table shows the annual meteorological inputs for the seasons of 1998/99 thru 2001/02:

Table 3-3
Meteorological Inputs into Lagoon

Season Year[1]	Annual Influent (gallons)	Annual Effluent (Spray) (gallons)	Meteorological Inputs (gallons)
1998-1999	1,494,670	2,896,971	1,402,301
1999-2000	1,226,590	3,587,830	2,361,240
2000-2001	1,261,832	3,894,900	2,633,068
2001-2002	1,048,150	2,534,200	1,486,050
Average	1,257,811	3,228,475	1,970,665

[1]The season year is from November thru October.

By examining the last four years of operating data, one can seen that the two methodologies result in similar estimates of meteorological input into the lagoons. The 2000/2001 season was an unusually very wet year, whereas, 2001-2002 season was a very dry year. Previously recommended improvements have been made to reduce the runoff that flows into the lagoons from the adjacent hillside. These improvements, together with the historical average of less than 2.0 million gallons, lead us to recommend an allowance of 2.4 million gallons for future meteorological inputs.

Lagoon Capacity

In our *Wastewater Lagoon and Spray Irrigation System Phase II Report, 1999*, the active storage capacity of the lagoons had been estimated to be approximately 5.48 million gallons. This was based on the past operating conditions of maintaining 1' of freeboard and a 1' minimum operating depth. Operator reports have shown that no sludge accumulation occurs in Lagoon #3 nor in Lagoon #2, and little if any in Lagoon #1. Taking this into consideration, it is acceptable to conclude that the active storage space is approximately 5.48 million gallons.

Water level measurements in the lagoons were analyzed for the past four operating years to determine the reasonable operating capacity of the lagoons. Historically, the maximum depths seen in the lagoons occur just before spraying starts. The ski area spray season begins on May 1 which makes this a critical time, and represents the maximum water level depth in the lagoons per year. The maximum water level measured over the past four years occurred on April 27, 2000. This was 65.5 inches, which correlates to a lagoon freeboard of approximately 2.5 feet. This is within the operating parameters of the lagoons.

Groundwater Monitoring Data

Groundwater data from monitoring wells installed down gradient of the lagoon were reviewed and show that there appears to be no evidence of groundwater degradation in the vicinity of the lagoon or spray area.

Spray Season Capacity

The Ski Area is permitted to spray 250,000 gallons per week of lagoon effluent on its spray disposal fields, which consists of approximately 5 acres. Spray application is permitted from May to October or until leaf drop. Spraying is also limited during this period and is not allowed during rain events or when ground water levels are high. Theoretically, there are approximately 24 weeks of available spray season. However, wet weather and high groundwater conditions reduce this by as much as 25 to 30 percent. Based on historical spray data, we would estimate that the annual capacity of the spray area is between 4.2 and 4.5 million gallons per season.

4.0 FUTURE CONDITIONS

This section of the report will focus on projecting wastewater flows for future conditions. Future wastewater flows will be based on projected future trends for expected skier visit levels during the ski season, employee figures, off-season wastewater flows, and meteorological inputs into the lagoons.

Future Skier Attendance

Projections were made for the following three levels of skier visits:

Current:	275,000 skiers
Future:	300,000 skiers
Future:	325,000 skiers

It is assumed that these expected levels of skier attendance include season pass holders.

Future Ski Season Employee Attendance

Employee attendance during the ski season must be included in the wastewater flow projection as well. The average employee attendance per ski season from seasons 00-01 thru 01-02 used in this report was approximately 28,000 employees. The current 2002/2003 season was not included in this average, since the season is not completed. This amount of employees will be added to the projected number of skiers for total ski season attendance figures.

Projected Ski Season Wastewater Flows

To project ski season wastewater flows, we applied a wastewater flow estimate of 4 gallon per person to the total ski season attendance for the different targeted skier visit levels. The resulting ski season wastewater flows are shown in Table 4-1.

Projected Off-Season Wastewater Flows

For the purpose of determining projected off-season wastewater flows, we assumed that current attendance levels and wastewater flows generated during the summer months are going to remain fairly consistent from year to year. Taking the average of these flows from the past three years results in a projected off-season wastewater flow of approximately 300,000 gallons. The past three years are more representative of the actual conditions seen at the treatment facility due to system improvements made after the 1998/1999 season.

Projected Meteorological Inputs

A future projected meteorological input amount of 2,400,000 gallons was used for each targeted skier visit level.

Total Projected Wastewater Flows

The following table shows the total amount of projected wastewater flows for each of the targeted skier visit levels:

Table 4-1
Projected Wastewater Flows

Skier Visits	275,000	300,000	325,000
Ski Season Employees	28,000	28,000	28,000
Total Ski Season Attendance	303,000	328,000	353,000
Ski Season Wastewater Flows @ 4 gal/person (gallons)	1,212,000	1,312,000	1,412,000
Off-Season Wastewater Flows (gallons)	300,000	300,000	300,000
Meteorological Inputs (gallons)	2,400,000	2,400,000	2,400,000
Total Wastewater Flows (gallons)	3,912,000	4,012,000	4,112,000

5.0 ABILITY OF EXISTING WASTEWATER FACILITIES TO MEET FUTURE NEEDS

The existing wastewater treatment system was evaluated to determine its ability to satisfy the projected capacity needs for the projected skier visits.

As discussed previously, review of the lagoon capacity indicates a total usable volume of 5.48 million gallons. In addition, the last several years of operating data indicate that ski seasons ended with an average freeboard condition at the lagoons of approximately 2.5 feet. Therefore, the projected flows should be able to be accommodated in the lagoons. While the capacity requirement of the lagoons is very weather dependent, it appears that there will be adequate storage capacity for the projected wastewater flows associated with the targeted levels of skier visits.

The Ski Area is permitted to spray 250,000 gallons per week of lagoon effluent on its spray disposal fields, which consists of approximately 5 acres. Spray application is permitted from May to October or until leaf drop. Spraying is however, restricted and is not allowed when groundwater levels are high and is further limited by precipitation. Earlier in this report we estimated that the spray area will have an effective spray capacity of between 4.2 and 4.5 million gallons depending on the weather and groundwater conditions.

PIONEER ENVIRONMENTAL ASSOCIATES, LLC.

CONSULTING SCIENTISTS

10 Seymour St. P.O. Box 824
Middlebury, Vermont 05753
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Fax: 802-388-1423
email: pioneere@sover.net

MEMORANDUM

To: Jay Gamble
From: Sean W. Donohue
Subject: Wetland and Surface Water Delineation Dodd Johnson Parcel Goshen, New Hampshire
Date: April 19, 2004

Introduction

Pioneer Environmental Associates, LLC. (Pioneer) has completed field delineation of wetlands and surface water features on approximately 15 acres of the subject property (see site location map on page 1 of the Attachment), in the vicinity of the proposed chairlift base station at the request of Mount Sunapee Resort. Field investigation was conducted by Sean Donohue, Wetland Scientist of Pioneer, on September 9, September 10, and October 1, 2003. Wetland determinations were made using the criteria outlined in the United States Army Corps of Engineers (Corps) Wetlands Delineation Manual (Corps 1987). The purpose of the investigation was to identify wetlands and surface water features within the designated portion of the property that are subject to federal and state regulation, for project planning purposes.

Previously, on November 1, 2001 Shelley Gustafson, Senior Wetland Scientist of Pioneer, conducted a preliminary wetland walkover on the entire 130 acre parcel owned

by Dodd Johnson (see cover letter, memorandum, and attachment dated January 25, 2002 summarizing this investigation on pages 2 through 9 of the Attachment). Wetlands delineated by Pioneer in 2003 are primarily associated with the stream identified as "Perennial Stream 1" in the above-referenced memorandum.

The subject property is located in the town of Goshen, New Hampshire, on the east side of Brook Road. To the north, east, and south the property is bordered by forested land. To the west the property is bordered by forested land and private residences located along Brook Road. Delineated wetland and surface water features are shown on the map on page 10 of the Attachment.

Site Description

The property is currently managed as a woodlot, and a network of skidder trails and logging roads are present on the site. The site has been heavily logged, and saplings common to the uplands on the site include *Quercus rubra* (northern red oak), *Fagus grandifolia* (American beech), *Acer saccharum* (sugar maple), and *Betula papyrifera* (paper birch). Other saplings that are also present in the upland vegetation communities include *Prunus virginiana* (chokecherry), *Fraxinus americana* (white ash), and *Acer pennsylvanicum* (striped maple). Larger *Pinus strobus* (white pine) and *Tsuga canadensis* (eastern hemlock) are occasionally present in the sparse overstory, and inclusions of hemlock dominated stands that have not been logged as heavily are also

present. The various wetland communities present on the site are described in the relevant sections below.

Site topography is substantial, with a steady increase in elevation from west to east. Elevation of the project area ranges from approximately 430 feet above sea level at the west end of the property and 570 feet above sea level at the eastern edge of the site, based on United States Geological Survey topographic mapping. The project area lies at the western foot of Mount Sunapee, and is located within the watershed of the ## River.

Soils on the site are primarily composed of ablation and basal glacial till, and generally have textures of sandy loam to loamy sand. The National Resources Conservation Service (NRCS) Soil Survey of Sullivan County, New Hampshire shows soils on the property to be mapped as Mondadnock (well-drained), Monadnock-Hermon association (well-drained to somewhat excessively drained), Marlow (well-drained), and Lyme-Moosilauke loams (somewhat poorly drained to poorly drained) series soils. Field investigation has verified that hydric soil inclusions are present along the riparian corridor within the area of investigation.

National Wetland Inventory (NWI) mapping of the project area shows a wetland complex located at the western edge of the project area (see site location map on page 1 of the Attachment). This complex is identified as a scrub-shrub/forested wetland

feature on the NWI mapping, which is consistent with the observed characteristics of the portion of the wetland that was delineated.

Fourteen wetlands were identified within the area of investigation, and were flagged using pink wetland delineation tape and labeled with the year, wetland number, and flag number (i.e., 2003-1-1). The top of bank of one perennial stream was also flagged. Wetland and top of bank flagging was located by Pioneer using sub-meter Global Positioning System (GPS) and transferred onto the wetland delineation map. The wetlands and surface water features identified in the project area are summarized in Table 1 and discussed in detail below.

Table 1: Summary of Wetland and Surface Water Features

Feature Identification	Jurisdictional Classification	Description
2003-1	Corps/ NHDES	Riparian Fringe Wetland
2003-2	Corps/ NHDES	Forested Riparian Wetland
2003-3	Corps/ NHDES	Forested Riparian Wetland
2003-4	Corps/ NHDES	Riparian Fringe Wetland
2003-5	Corps/ NHDES	Riparian Seepage Wetland
2003-6	Corps/ NHDES	Forested Riparian Wetland
2003-7	Corps/ NHDES	Scrub-Shrub/ Forested Wetland
2003-8	Corps/ NHDES	Emergent/ Scrub-Shrub Wetland
2003-9	Corps/ NHDES	Riparian Fringe Wetland
2003-10	Corps/ NHDES	Disturbed Riparian Wetland
2003-11	Corps/ NHDES	Constructed Riparian Wetland Ditch
2003-12	Corps/ NHDES	Forested Riparian Wetland

Table 1: Summary of Wetland and Surface Water Features		
Feature Identification	Jurisdictional Classification	Description
2003-13	Corps/ NHDES	Riparian Fringe Wetland
2003-14	Corps/ NHDES	Disturbed Forested Riparian Wetland
TB-1	Corps/ NHDES	Perennial Stream

Riparian Wetlands

As indicated in Table 1, twelve riparian wetlands were delineated along the corridor of Stream TB-1. The vegetation communities of these features have been influenced by the previous logging activity on the property, and most exhibit early successional vegetation. All of these wetlands are small in size and occupy riparian terraces, areas of groundwater seepage along the streambank, or the ordinary high water (OHW) of Stream TB-1. Logging disturbance history in the features is variable, ranging from none to evidence of excavation associated with construction of logging trails. Most of the wetlands exhibit some indication of recent logging activity. Some wetland features are located along the fringe of the channel of Stream TB-1 and are dominated by herbaceous growth, while others are forested features along the riparian corridor of Stream TB-1.

Herbs and shrubs typical of these wetlands include *Onoclea sensibilis* (sensitive fern), *Spirea latifolia* (meadowsweet), *Carex crinita* (fringed sedge), and *Impatiens capensis* (jewelweed). Asters and goldenrods are also common in these wetlands and include *Aster novae-angilae* (New England aster), *Solidago canadensis* (Canada goldenrod),

Solidago gramnifolia (grass leaved goldenrod), and *Solidago rugosa* (rough-stemmed goldenrod). *Osmunda cinnamomea* (cinnamon fern), *Thelypteris thelypteroides* (marsh fern), *Carex lurida* (shallow sedge), *Spirea tomentosa* (steeplebush), *Scirpus cyperinus* (woolgrass), and *Rubus allegheniensis* (blackberry) are other herbs and shrubs that are present in some of these wetland features, but not as common.

Betula alleghaniensis (yellow birch) and *Acer rubrum* (red maple) saplings are very common to these riparian wetlands. Striped maple, hemlock, and other saplings more typical of the uplands on the site are present but less prevalent. Presence of woody vegetation varies between wetlands and is primarily a function of the extent of previous logging activity and successional phase. As with adjacent uplands, large overstory trees are less common. Some features are almost entirely devoid of woody vegetation while others have a dense sapling layer. In certain upland areas with non-hydric soils, hydrophytes that also function as aggressive post-disturbance colonizers are present in the species composition. Photographs 1, 2, and 3 on pages 11 and 12 of the Attachment depict selected riparian wetlands and adjacent uplands on the property.

The soils along the riparian corridor tend to exhibit horizons and profile development that have been influenced by depositional processes associated with Stream TB-1. Soil profiles often exhibit a sandy loam A horizon underlain by a horizon of sandy parent material. In wetland areas the A horizon exhibits a dark color (black or dark brown), and the underlying horizon exhibits a gray color, often with redoximorphic features. Soils in upland portions of the riparian corridor lack dark A horizons and/or are not underlain by

horizons exhibiting redoximorphic features that suggest soil saturation within one foot of the surface for significant durations during the growing season. At the location of skidder roads and stream crossings, the upper part of the soil profile has been significantly altered, and constructed drainage ditches are evident in some areas.

At the time of field investigation, wetland hydrology in these riparian wetland features was evidenced by active groundwater seepage, soil saturation within one foot of the surface, and/or drainage patterns within the wetland boundary.

The Highway Methodology of the United States Army Corps of Engineers (Highway Methodology) for wetland evaluation identifies 13 different ecological, social, and economic functions provided by wetlands, which can be utilized as a framework for conducting wetland functional assessments. As summarized in Table 2, the riparian wetlands that have been delineated on the property may contribute to the following wetland functions and values within the landscape:

- floodflow alteration
- groundwater discharge and recharge
- retention of sediment and pollutants
- nutrient removal
- sediment/streambank stabilization

In addition, smaller species of wildlife may utilize the riparian corridor in which these features are located as a protected travel corridor.

Table 2: Matrix Summary of Wetland Functions					
Wetland Unit	Groundwater Discharge/ Recharge	Sediment/ Toxicant/ Pathogen Retention	Nutrient Removal	Floodflow Alteration	Sediment/ Streambank Stabilization
2003-1					
2003-2	*	*	*	*	*
2003-3	*	*	*	*	*
2003-4	*	*	*	*	*
2003-5	*		*		
2003-6	*	*	*	*	*
2003-9	*		*		
2003-10	*	*	*	*	
2003-11					
2003-12	*	*	*	*	*
2003-13	*		*		*
2003-14	*	*	*	*	*
* = Function associated with a given wetland					

Scrub-Shrub/ Forested Wetland Complex

Wetland 2003-7 consists of a scrub-shrub/forested wetland complex that is identified on NWI mapping. Stream TB-1 also drains into and runs through Wetland 2003-7. *Salix sp.* (willow), *Alnus rugosa* (speckled alder), goldenrods, asters, meadowsweet, *Populus tremuloides* (quaking aspen), and sedges are common to the portion of the wetland that was delineated. Red maple and white ash with shallow root systems are also present.

Along the periphery of the wetlands sensitive fern, cinnamon fern, and *Osmunda regalis* (royal fern) are also present. Adjacent upland communities are typical of the site.

Wetland soil profiles along the delineated boundary tend to exhibit a brown, fine sandy loam A horizon that is friable, and depleted B horizons or B horizons with depletions grading into a depleted matrix color within 20 inches of the surface. However, other areas of the wetland have a dark, thick A horizon underlain by a sandy horizon with a gray color and redoximorphic concentrations and depletions.

Data plots from Wetland 2003-7 and adjacent uplands are included on pages 13 to 16 of the Attachment. In addition, Photographs 4 and 5 on pages 12 and 17 of the Attachment depict these wetland and upland data plots.

Based on functions listed in the Highway Methodology, Wetland 2003-7 has the potential to contribute to the following wetland functions and values:

- floodflow alteration
- groundwater recharge/discharge
- retention of sediment, nutrients and pollutants
- production export (for wildlife)
- sediment/streambank stabilization
- wildlife habitat
- aesthetics

Scrub-Shrub/ Emergent Wetlands

Wetland 2003-8 is a scrub-shrub/emergent wetland located on the north side of the existing unpaved access road. Wetland 2003-7 and Wetland 2003-8 appear to have been contiguous prior to construction of the road, and still share a hydrologic connection via a 12 inch diameter metal culvert.

Meadowsweet, fringed sedge, jewelweed, New England aster, goldenrods, sensitive fern, and speckled alder are common to Wetland 2003-8. Adjacent uplands are typical of the site.

The soil profile is composed of a dark olive-gray A horizon with pieces of undecomposed organic material and oxidized rhizospheres, that is underlain by a depleted B horizon within 12 inches of the surface. The soil texture is fine sandy loam that is friable in the A horizon and firm in the B horizon. Free water was observed at two inches below grade at the time of field investigation. Although a significant amount of surface and subsurface water movement appears to occur in Wetland 2003-8, a stream with a defined channel is not present in the delineated portion of the wetland. The wetland boundary extends beyond the delineated area.

A small constructed ditch on the north edge of the existing access road drains into and is contiguous to Wetland 2003-8. The ditch contains hydric soils, and vegetation within the ditch is similar to Wetland 2003-8. The average width of the ditch is three feet.

Based on the functions listed in the Highway Methodology the delineated portion of Wetland 2003-8 may contribute to the following wetland functions and values:

- floodflow alteration
- groundwater recharge/discharge
- retention of sediment, nutrients and pollutants
- production export (for wildlife)
- wildlife habitat

Streams

The top of bank of a perennial stream identified as TB-1 was delineated on the property. The stream channel consists of sand, gravel, and small stones and exhibits an average OHW of 9 feet. However, the OHW width was observed to range from 6 to 15 feet. In a few areas where the stream channel widens and becomes less deep, small sedge dominated wetlands are confined within the defined stream channel and OHW, and were, therefore, not delineated. At other locations "overflow" channels and upland islands situated where the stream channel temporarily splits are included within the delineated top of bank. Water flow was present at the time of field investigation. The channel is incised in some areas, and the bank is also undercut in a few locations. The bank topography ranges from short, steep gullies to flat stream terraces. Vegetation along the TB-1 corridor is consistent with the previously described upland and wetland

communities. Photograph 6 on page 17 of the Attachment depicts the channel of Stream TB-1 at the location of Wetland 2003-3.

Conclusions and Recommendations

All delineated wetlands and surface waters on the property fall under the jurisdiction of the New Hampshire Department of Environmental Services (NHDES) and the Corps. With regard to wetlands and surface water permitting, avoidance and minimization of impacts to the extent practicable for any proposed project will be required in the project permitting process.

As stated in the introduction to this memorandum, Pioneer's 2003 wetland investigation was limited to an area of approximately 15 acres in the vicinity of the proposed chair lift base station. Pioneer recommends that the remainder of the project area be comprehensively surveyed for wetlands in the growing season of 2004. Delineation of all jurisdictional wetland boundaries and surface waters in these areas would be required during regulatory review of any proposed project.

However, using the mapping and findings of Pioneer's 2003 wetland delineations in conjunction with Pioneer's 2001 site walkover would provide sufficient information for preliminary project planning purposes, and for initiation of avoidance and minimization of wetland impacts.

REFERENCE

Corps 1987. Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 1987.

Highway Methodology Workbook 1987. U.S. Army Corps of Engineers.' 1987. "The Highway Methodology Workbook – Integrating Corps Section 404 Permit Requirements with Highway Planning and Engineering and NEPA EIS Process."

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MEMORANDUM

To: Sunapee/Additional Parcel File
From: Shelley E. Gustafson
Subject: Wetlands and Streams Reconnaissance
Date: January 25, 2002

In November of 2001, Shelley E. Gustafson of Pioneer Environmental Associates, LLC. (Pioneer) conducted a site reconnaissance for wetlands and streams on three separate parcels located near the Mount Sunapee Resort in Goshen, New Hampshire (see site location map on page 1 of Attachment). The largest of the three properties is a 130-acre parcel currently owned by Dodd Johnson and surveyed on November 1, 2001. The remaining two properties are 35.5 acres and 9 acres, owned by Lamb and Dodd Johnson, respectively. These parcels were surveyed on November 12, 2001. All three parcels are situated between the Mount Sunapee Resort area and Brook Road.

Dodd Johnson Parcel – 130 Acres

The 130-acre parcel owned by Dodd Johnson can be accessed from Brook Road via an existing logging road. The parcel as a whole has been heavily impacted by recent logging efforts evidenced by the predominance of young, regenerating forest and myriad cleared, access roads. In general, the vegetation throughout the parcel is indicative of upland communities. The most common sapling species found throughout these young woods include *Betula papyrifera* (paper birch), *Fagus grandifolia* (American beech), *Acer saccharum* (sugar maple) and *Quercus rubra* (red oak). Larger individuals

of *Tsuga canadensis* (hemlock) and *Pinus strobus* (white pine) are also found sparsely throughout the canopy.

Three distinct surface water features were identified during the course of the site walkover. First, a perennial stream bisects the property from an east to west direction (see "Perennial Stream 1" on Dodd Johnson Parcel map, page 2 of Attachment). Patches of riparian wetland can be found along its stream course, dominated by hydrophtyic vegetation species including *Carex sp.* (sedge) and *Spiraea sp.* (steeplebush). However, much of its course is bordered by upland, with hemlock in the canopy and upland ferns dominating the herbaceous understory. The stream also contains sections of eroded banks, most likely the result of heavy logging activities nearby. If this parcel were to be developed, Pioneer recommends maintaining a substantial buffer area of at least 100 feet around the stream to avoid impacting wetland areas and further degradation of the stream course.

The second surface water feature is associated with another perennial stream located along the northwest edge of the property (see "Perennial Stream 2" on Dodd Johnson Parcel map, page 2 of Attachment). This stream is contained within a steep ravine that would likely be avoided during development activities. Nonetheless, Pioneer recommends maintaining a 100-foot buffer around this feature as well.

The third feature corresponds to the first perennial stream's course after it bears to the south and follows along the southwest edge of the property. At this location, the stream is interconnected with an extensive wetland complex (see "Wetland/Stream Complex on Dodd Johnson Parcel map, page 2 of Attachment). The boundary of this stream/wetland complex is abruptly marked by a steep change in slope, the upland edge of which is characterized by white pine and hemlock in the canopy. Abundant wildlife sign was noted throughout the forest along the wetland boundary. Pioneer also recommends 100 feet of buffer along this boundary so that wildlife corridor activity can be maintained and protected.

Lamb Parcel

The Lamb parcel is located just north of the 130-acre Dodd Johnson parcel. Although evidence of recent logging was not as obvious in this parcel, the forest was relatively young and contained abundant paper birch in the understory, indicating recent disturbance. Additional common tree species found within this parcel included hemlock and white pine in the canopy with beech and red oak common in the understory. Forest composition was generally indicative of upland conditions within this parcel.

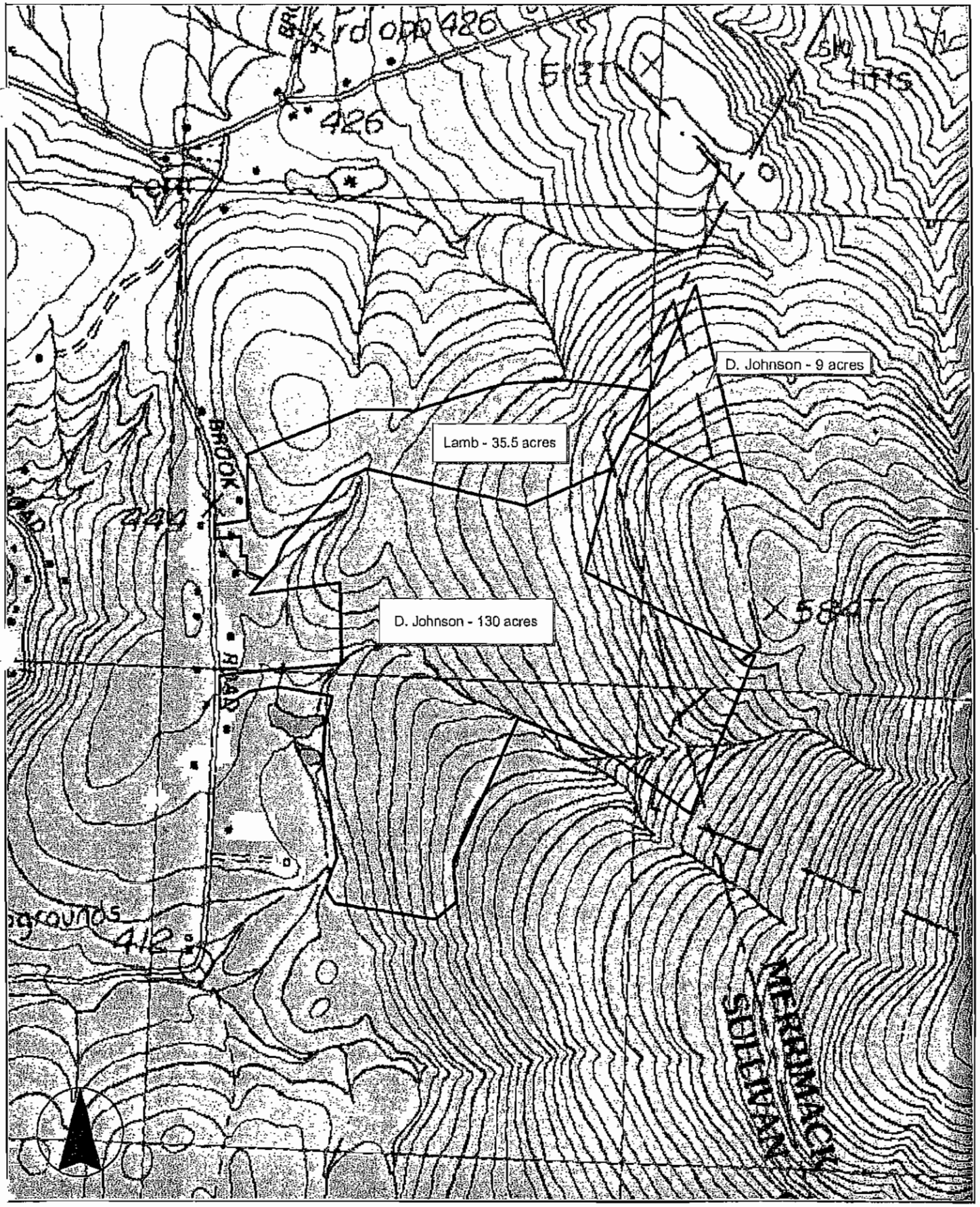
One basin-like wetland was located in the middle section of the parcel, near the saddle depicted on the USGS topographic quad (see "Wetland 1" on Lamb Parcel map, page 3 of Attachment). This roughly 4,000 square foot area was dominated by sedge, steeplebush, *Juncus sp.* (rush), and paper birch. Although no surface water was present on the day of the site walkover, this feature was characteristic of a vernal pool during the dry season. Care should be taken to avoid impact to this feature and the adjacent upland forest.

Additional surface water features located on site include two intermittent stream channels that lead to the north and beyond the property limits (see "Intermittent Stream 1 and 2" on Lamb Parcel map, page 3 of Attachment). Neither channel was flowing on the day of the delineation. Pioneer recommends maintaining a 50-foot buffer around both of these streams.

Dodd Johnson Parcel – 9 Acres

The 9-acre Dodd Johnson parcel is located to the east of the Lamb parcel and 1,660 feet above sea level. Steep slopes and exposed bedrock are predominant landscape features on this parcel. *Picea rubens* (red spruce) and *Abies balsamea* (balsam fir) dominate the canopy. No distinct surface water features were identified on the day of the site walkover.

ATTACHMENT



Mt. Sunapee Resort/Additional Parcel Investigation
Site Location Map
Goshen, New Hampshire

Property Boundaries

12/05/01

Source: USGS Topogr. Quad and Town of Goshen Tax Mapping.

900 0 900 1800 Feet

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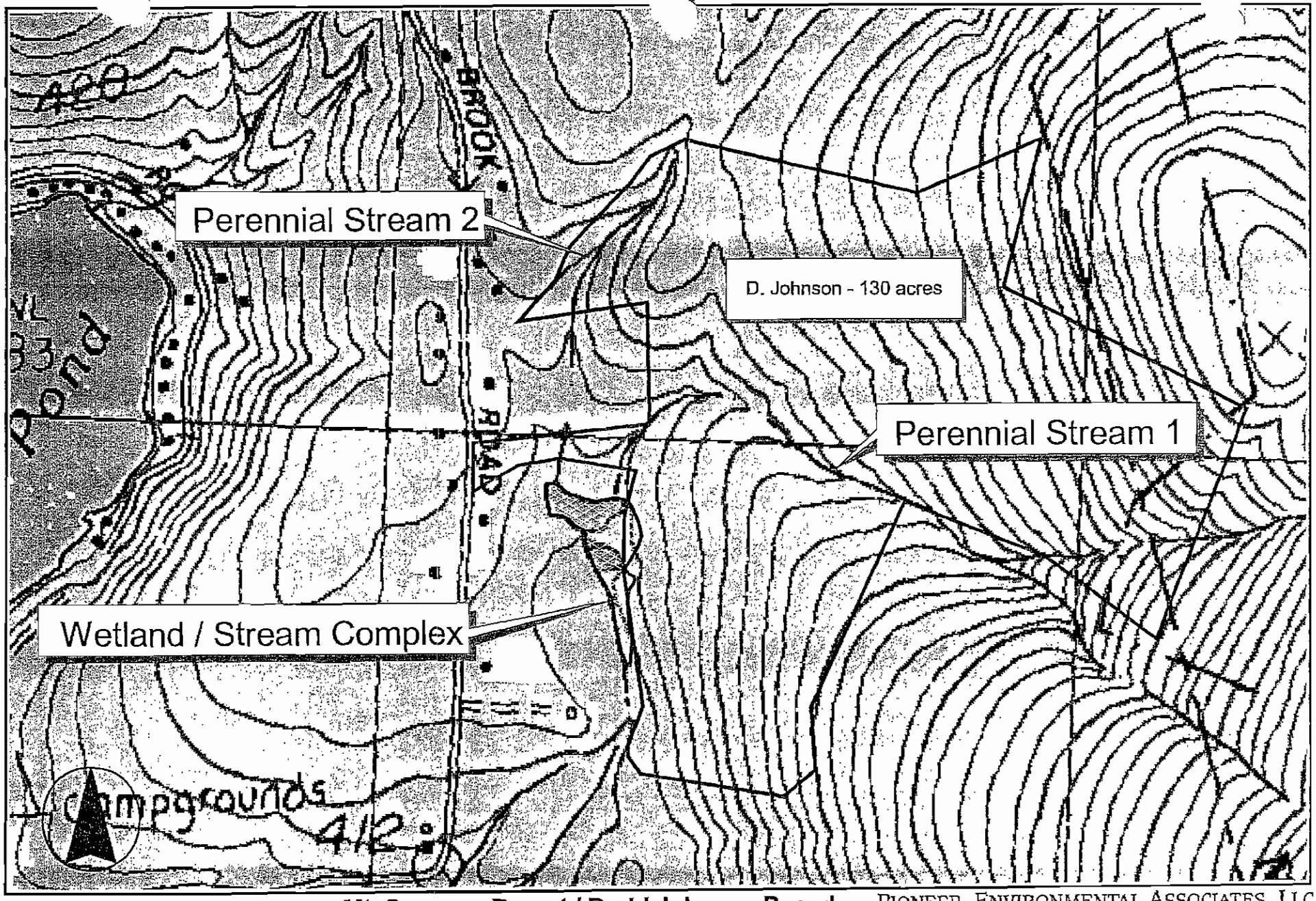

Legend

D. Johnson Property Boundary
Wetland complex.shp

January 9, 2002

Source: USGS Topogr. Quad

Mt. Sunapee Resort / Dodd Johnson Parcel

Wetlands and Surface Water Features

Goshen, New Hampshire

2000 0 2000 4000 Feet

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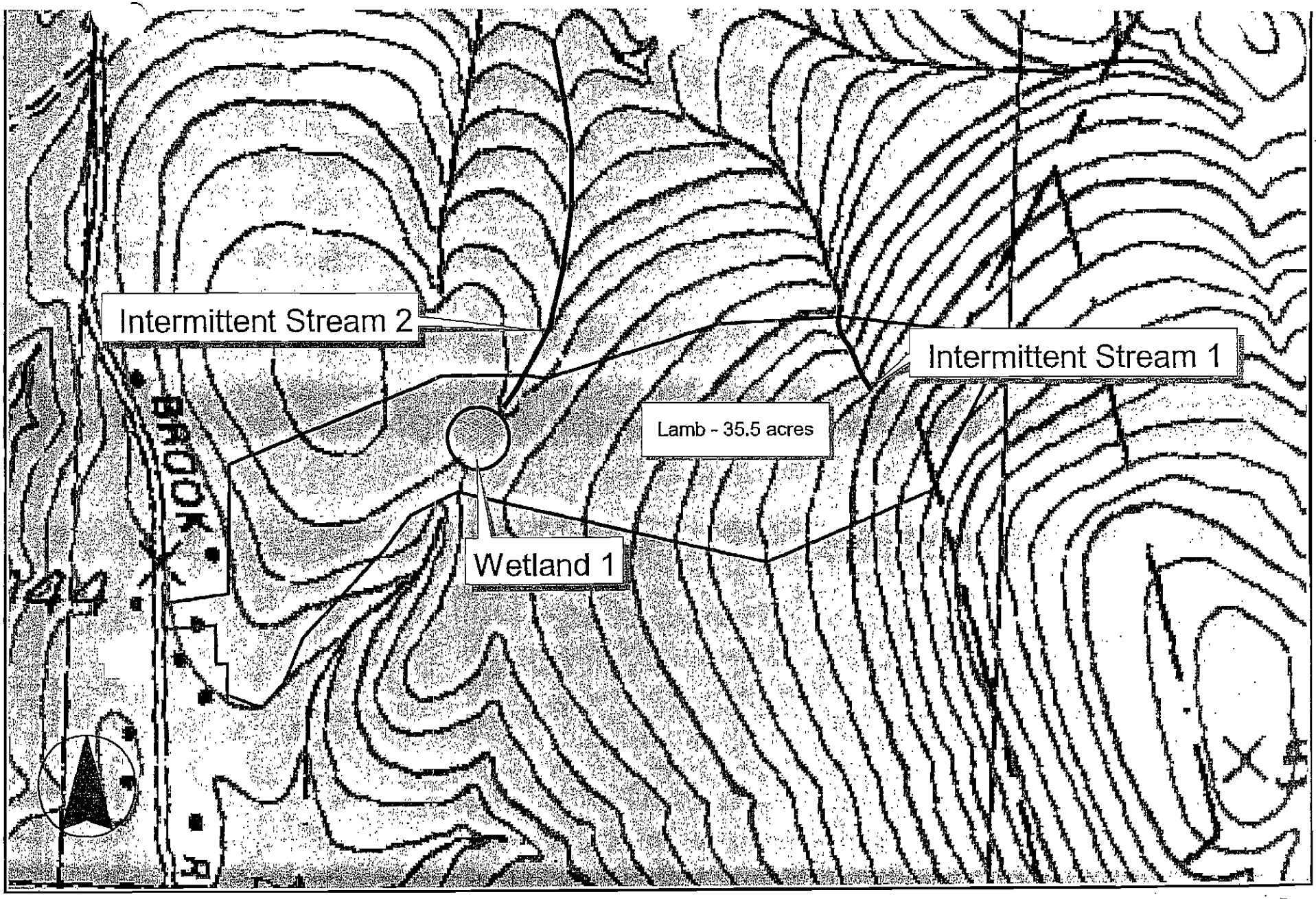

Legend

Wetland 1

Lamb Property Boundary

January 9, 2002

Source: USGS Topogr. Quad and Town of Goshen Tax Mapping

Mt. Sunapee Resort / Lamb Parcel

Wetlands and Surface Water Features

Goshen, New Hampshire

1500 0 1500 3000 Feet

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C I V I L E N G I N E E R S • L A N D S U R V E Y O R S

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MEMORANDUM

To: Jay Gamble

From: Nicole Kesselring, PE NSK

Re: Mount Sunapee Resort West Bowl Expansion
Snowmelt Drainage and Watershed Analysis

Date: 5/27/04

In response to our meeting on May 3, 2004, regarding the above mentioned project, our office has performed a hydrologic study to examine the potential impact snowmaking operations could have on The Gunnison Brook, Lake Gunnison and Rand Pond.

During that meeting you conveyed the concerns of some Goshen Citizens regarding:

- Potential impact to the water quality and quantity of Lake Gunnison, also known as the Goshen Ocean,
- Potential impact to the water quality and quantity of Rand Pond, and
- The potential for flooding and washout along Brook Road.

As part of this study, we performed a field visit to each of the water bodies, and examining all culverts and bridges on the Gunnison Brook along Brook Rd. Further information was gathered through the use of USGS Maps, the FEMA Flood Insurance Study for Newport, NH (none is currently available for Goshen), FEMA Flood Insurance Maps for Goshen, and a phone conversation with Alan Hanscom of the NH DOT.

We feel that the following study will provide information which will demonstrate that the work proposed by Mt. Sunapee in the West Bowl Area will not adversely impact the Gunnison Brook Watershed.

Per our conversation, you stated that Mt. Sunapee proposes to make snow on 75 Ac of proposed trails in the West Bowl. 2 ½ feet of snow is typically made over each Ac, at a volume of 180,000 gallons per ac-ft of snow. This means that the entire volume of water proposed for snowmaking in this area will be approximately 33.75 million gallons of water.

The West Bowl area lies on the western slope of Mt. Sunapee within the Gunnison Brook Watershed. This watershed is comprised of 4,500 Ac to the point where the Gunnison Brook crosses under Rt. 10. The West Bowl area drains to an unnamed tributary on the eastern side of Brook Rd., which then discharges into the Gunnison Brook near the 90° corner in Brook Rd.(Merrill's corner). From this point the Gunnison Brook follows

JOHN BRUNO BRUCE BOEDTKER
Registered Engineer • Vermont, Connecticut, New Hampshire, New York, Massachusetts
Registered Land Surveyor • Vermont and New Hampshire

Brook Rd. its entire length, and crosses Rt. 10 prior to discharging into the South Branch of the Sugar River. See Exhibit 1.

Lake Gunnisou: Lake Gunnison, also know as the Goshen Ocean, lies within the Sugar River Watershed area, on Blood Brook. The Blood Brook was dammed in this part of the valley to create the lake. Although Gunnison Brook and Lake Gunnison both lie within the Sugar River Watershed, Lake Gunnison is fed by Blood Brook, and is not hydraulically connected to Gunnison Brook. Chandler Hill and other mountain peaks create a drainage divide between the Gunnison Brook and Blood Brook, separating these two watersheds. Waters from these two brooks meet in Goshen, across Rt. 10 from Brook Rd., where the South Branch of the Sugar River begins.

Due to the hydraulic separation of the lake from Gunnison Brook, there is no potential for the lakes water level or water quality to be affected by snowmelt from the proposed trails within Mt. Sunapee Resort's West Bowl Area.

Rand Pond: Rand Pond lies within the Gunnison Brook Watershed. The pond's watershed area is approximately 270 Ac, and does not receive any runoff from the Mt. Sunapee West Bowl area. Rand Pond is fed by numerous tributaries, and it outflows drain into the Gunnison Brook. Due to the fact that the pond is located hydraulically upgradient of the Gunnison Brook, its inflows and water quality will not in any way be affected by snowmaking in the West Bowl area.

Bridges and Culverts along Brook Rd.: To assess the potential impact that snowmaking melt waters could have on the Gunnison Brook watershed a number of factors were examined.

First the snowmelt water quantity in relation to storm runoff from the entire watershed was examined. Based on The FEMA Flood Insurance Study for Newport, since none is available for Goshen, a discharge per square mile of watershed was calculated. This discharge was then applied to the Gunnison Brook Watershed area which is comprised of 7 Ac to arrive at stream flows for Gunnison Brook. These flows can be viewed in Table 1.

Table 1: Watershed Flow Data

S. Branch Sugar River @ Coon Brook Rd.				Gunnison Brook Watershed	
Storm Event (yr)	Stream Flow (cfs) *	Drainage Area (sq. miles)	Discharge per sq. mi (cfs)	Drainage Area (sq. miles)	Stream Flow (cfs) *
10	1,290	26.5	49	7	341
50	1,860	26.5	70	7	491
100	2,120	26.5	80	7	560

(Please note that due to the fact that peak flows for Gunnison Brook Watershed were calculated based on a much larger drainage area, that for a portion of the South Branch of the Sugar River, the actual peak flows out of the Gunnison Brook Watershed is most likely greater than the numbers represented in the table.)

Once the storm event streamflow for Gunnison Brook Watershed was calculated, we determined what percentage of total flow the snowmelt water from the West Bowl area will be. Snowmelt occurs at the end of the ski season as daily temperatures slowly rise. In any given year, snow can usually be seen left on the mountain in excess of 4 weeks after the mountain has closed. Taking into considering that when the mountain closes, melt has most likely already been occurring for up to 4 weeks, it would be reasonable assumed that snowmelt off the mountain actually occurs over an 8 week period of time. To be conservative, our calculations used a 7 day and 30 day melt period to determine what percentage of streamflow these quantities would represent. A 7 day melt time is unrealistic, but it puts into perspective the flow quantities we are dealing with.

As can be seen in Table 2, if melt were to occur over 7 days, snowmelt runoff would represent 2.2% of streamflow for a 10 year storm event and 1.3% of streamflow for a 100 year storm event. Similarly, runoff from a 30 day melt period would represent 0.5% to 0.3 % for a 10 and 100 year storm, respectively. As these calculations show, the snowmelt runoff, will represent such a small quantity of total flow, that it should not create an adverse impact.

Table 2: Snowmelt runoff as a % of Streamflow

Gunnison Brook Watershed		Snowmelt runoff as % of Streamflow	
Storm Event (yr)	Stream Flow (cfs) *	7 day melt (7.46cfs) (%)	30 day melt (1.74 cfs) (%)
10	341	2.2	0.5
50	491	1.5	0.4
100	560	1.3	0.3

Bridges and culverts along Brook Road were examined as part of this study. Our site visit revealed 4 driveway and class 4 road bridges, 2 culvert crossings, and 3 bridge crossings for Brook Rd. As Brook Rd. is a state road, bridges on this road are designed to the flood of record or the 50 year storm event, which ever is greater. All the bridges viewed appeared to be in good condition, with adequate clearance to pass large storm events. The two culverts under Cross Rd. appear to each be 68" diameter steel culverts, and appear to be in good condition. A single 60" culvert under a farm road, just east of the Province Rd./Brook Rd. intersection

was severely clogged with branches and debris, thereby decreasing its capacity. The area in which this culvert is located is shown as flood plain on the FEMA Flood Maps, so it is likely, that flooding occurs in this area in the spring time. It did not appear that the crossing is used for more than access to fields on the other side of the brook.

Alan Hanscom of the NH DOT was also contacted to determine if he was aware of any problems in this area. He stated that from time to time road shoulder maintenance is necessary due to washout out from some larger storm events, where the brook comes very close to the road. He was unaware of any bridge issues along Gunnison Brook.

Storm event runoff from the proposed trails is expected to be negligible in terms of the overall watershed area, since no impervious area will be created, and the infiltration characteristics of the land will remain substantially the same.

In summary, Lake Gunnison and Rand Pond will be completely unaffected by any increase in snowmelt from the West Bowl area because they are hydraulically disconnected. The increase in flow that will be realized by the Gunnison Brook during spring melt is a very small percentage of its storm event flow and is unlikely to create a noticeable impact at any bridges or culvert crossings. Based on the above discussion, it is my professional opinion that there will not be any adverse impact from the increase in snowmelt created by the proposed West Bowl area.

GUNNISON BROOK WATERSHED AREA MAP FOR MOUNT SUNAPEE RESORT IN GOSHEN & SUNAPEE NEW HAMPSHIRE

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NO	REVISIONS	DATE

SURVEYED:
DESIGNED: NSK
DRAWN: JRK
CHECKED: SHB
DATE: 5/27/04

MOUNT SUNAPEE

WATERSHED AREA MAP

EX-1

FILE: 03022-C3
PROJECT: 03022

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West Bowl Area Fact Sheet

Gunnison Brook Watershed Area = 4,500 Ac

Gunnison Brook has it headwaters at the top of Mt. Sunapee, and follows Brook Road down to Rt. 10. Shortly after it crosses under Rt. 10 it converges with the South Branch of the Sugar River.

Snowmelt in West Bowl Area
Proposed snowmaking trail area = 75 Ac

Trail area = 1.67 % of Watershed

Snow making snow quantity= 180,000 gal/ac-ft

snow making snow depth = 2.5 ft

Total snowmaking snow quantity = 33,750,000 gal = 4,512,032 cf

Hypothetically, If entire snowmaking quantity melted over: 7 days

runoff to Gunnison Brook would be: 7.46 cfs

Hypothetically, If entire snowmaking quantity melted over: 30 days

runoff to Gunnison Brook would be: 1.74 cfs

In reality snow on mountain melts over a period of 4 - 6 weeks after Mt. Sunapee has closed. (runoff from melt begins prior to the mountain closing)

Gunnison Brook Watershed			Snowmelt runoff as % of Streamflow	
Storm Event (yr)	Drainage Area (sq. miles)	Stream Flow (cfs) *	7 day melt (7.46cfs) (%)	30 day melt (1.74 cfs) (%)
10	7	341	2.2	0.5
50	7	491	1.5	0.4
100	7	560	1.3	0.3

FEMA, Flood Insurance Study, Newport, NH

S. Branch Sugar River @ Coon Brook Rd.				Gunnison Brook Watershed	
Storm Event (yr)	Stream Flow (cfs) *	Drainage Area (sq. miles)	Discharge per sq. mi	Drainage Area (sq. miles)	Stream Flow (cfs) *
10	1,290	26.5	49	7	341
50	1,860	26.5	70	7	491
100	2,120	26.5	80	7	560

United States Department of Agriculture
NRCS Natural Resources Conservation Service

New Hampshi

New Hampshire County Rainfall Frequency Data

County or Area Rainfall Amounts in Inches by Frequency

County or Area	1 Year Inches	2 Years Inches	5 Years Inches	10 Years Inches	25 Years Inches	50 Years Inches	100 Years Inches
Belknap	2.4	2.8	3.7	4.1	5.0	5.5	6.1
Carroll - South	2.5	2.9	3.8	4.3	5.2	5.5	6.2
Carroll - North	3.0	3.3	4.3	5.0	5.7	6.2	6.6
Cheshire	2.4	2.8	3.7	4.2	5.0	5.6	6.3
Coos - South	3.0	3.5	4.1	4.8	5.6	6.2	6.8
Coos - North	2.4	3.0	3.5	4.2	4.9	5.3	6.1
Grafton	2.4	2.7	3.6	4.2	4.9	5.2	5.9
Hillsborough	2.5	2.9	3.8	4.3	5.1	5.7	6.3
Merrimack	2.4	2.8	3.7	4.2	5.0	5.6	6.2
Rockingham	2.5	3.0	3.8	4.3	5.2	5.7	6.4
Strafford	2.5	3.0	3.8	4.3	5.1	5.6	6.3
Sullivan	2.3	2.7	3.6	4.1	4.8	5.3	6.0

FLOOD INSURANCE STUDY

TOWN OF NEWPORT, NEW HAMPSHIRE

SULLIVAN COUNTY

APRIL 17, 1985

Federal Emergency Management Agency

COMMUNITY NUMBER - 330161

In the updated study, discharge-frequency relationships for the Sugar River were obtained from a hydrologic model of the Sugar River Basin using the HEC-1 Flood Hydrograph Package (Reference 4). This model did not include the area draining toward Lake Sunapee. It was determined that, with the high storage capacity of the lake, this area will not have a significant effect on the flooding downstream of the lake. To account for the lake dam outflows, 100 cubic feet per second (cfs) were added to HEC-1 discharges. This value was obtained from an integration of the curve of the average lake dam outflows for the past 20 years.

The discharges for the North Branch Sugar River and the South Branch Sugar River were determined using regional analyses of USGS gages in New Hampshire (Reference 5).

A summary of drainage area-peak discharge relationships for the streams studied by detailed methods is shown in Table 1, "Summary of Discharges."

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
SUGAR RIVER					
Downstream of confluence of North Branch Sugar River	204.1[1]	7,252	10,417	11,028	18,200
At Belknap Avenue	121.7[1]	4,056	5,414	8,793	9,700
At State Route 10	76.0[1]	1,720	2,387	3,053	4,600
NORTH BRANCH SUGAR RIVER					
At Old Cornish Turnpike	80.8	2,070	2,980	3,410	4,390
SOUTH BRANCH SUGAR RIVER					
At Elm Street	45.7	1,910	2,670	2,980	3,940
At Coon Brook Road	26.5	1,290	1,860	2,120	2,730

[1]Includes area draining toward lake Sunapee

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE
Sugar River (continued)								
AT	56,893[1]	85	798	3.8	846.9	846.9	847.2	0.3
AU	56,957[1]	59	639	4.8	847.4	847.4	847.7	0.3
AV	57,352[1]	111	415	7.4	847.8	847.8	848.1	0.3
AW	58,057[1]	212	957	3.2	851.8	851.8	852.6	0.8
North Branch Sugar River								
A	122[2]	60	304	11.2	773.3	765.8[3]	765.8	0.0
B	190[2]	60	645	5.3	773.3	768.0[3]	768.0	0.0
C	4,080[2]	135	759	4.5	773.3	772.5[3]	772.7	0.2
D	8,662[2]	130	989	3.4	776.1	776.1	777.1	1.0
E	9,552[2]	37	428	8.0	776.8	776.8	777.6	0.8
F	9,604[2]	56	631	5.4	777.4	777.4	778.1	0.7
G	10,136[2]	75	779	4.4	777.9	777.9	778.6	0.7
South Branch Sugar River								
A	242[2]	64	603	7.4	788.3	783.7[3]	784.0	0.3
B	309[2]	60	374	8.0	788.3	784.5[3]	784.5	0.0
C	5,754[2]	228	1,213	2.5	794.9	794.9	795.8	0.9
D	11,602[2]	130	849	6.6	803.1	803.1	803.4	0.3
E	11,751[2]	150	650	4.6	803.5	803.5	804.0	0.5

[1]Feet above corporate limits
[2]Feet above confluence with Sugar River
[3]Elevation computed without consideration of backwater from Sugar River

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF NEWPORT, NH
(SULLIVAN CO.)

FLOODWAY DATA

SUGAR RIVER-NORTH BRANCH SUGAR RIVER-SOUTH BRANCH SUGAR RIVER

TABLE 2

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION		
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE
South Branch Sugar River (continued)								
F	12,351	75	339	8.8	805.1	805.1	805.2	0.1
G	13,351	85	396	7.5	810.8	810.8	811.0	0.2
H	14,351	126	584	4.6	819.7	819.7	819.8	0.1
I	15,088	36	209	12.8	851.0	851.0	851.4	0.4
J	18,474	40	340	7.9	877.0	877.0	877.8	0.8
K	19,174	48	275	9.7	880.2	880.2	881.0	0.8
L	20,819	67	308	8.7	893.9	893.9	894.6	0.7
M	23,831	49	313	6.8	913.0	913.0	913.3	0.3
N	27,561	45	240	8.8	920.6	920.6	921.5	0.9
O	27,626	60	273	7.8	922.0	922.0	922.0	0.0
P	29,311	56	452	4.7	928.6	928.6	929.5	0.9

[1]Feet above confluence with Sugar River

FEDERAL EMERGENCY MANAGEMENT AGENCY

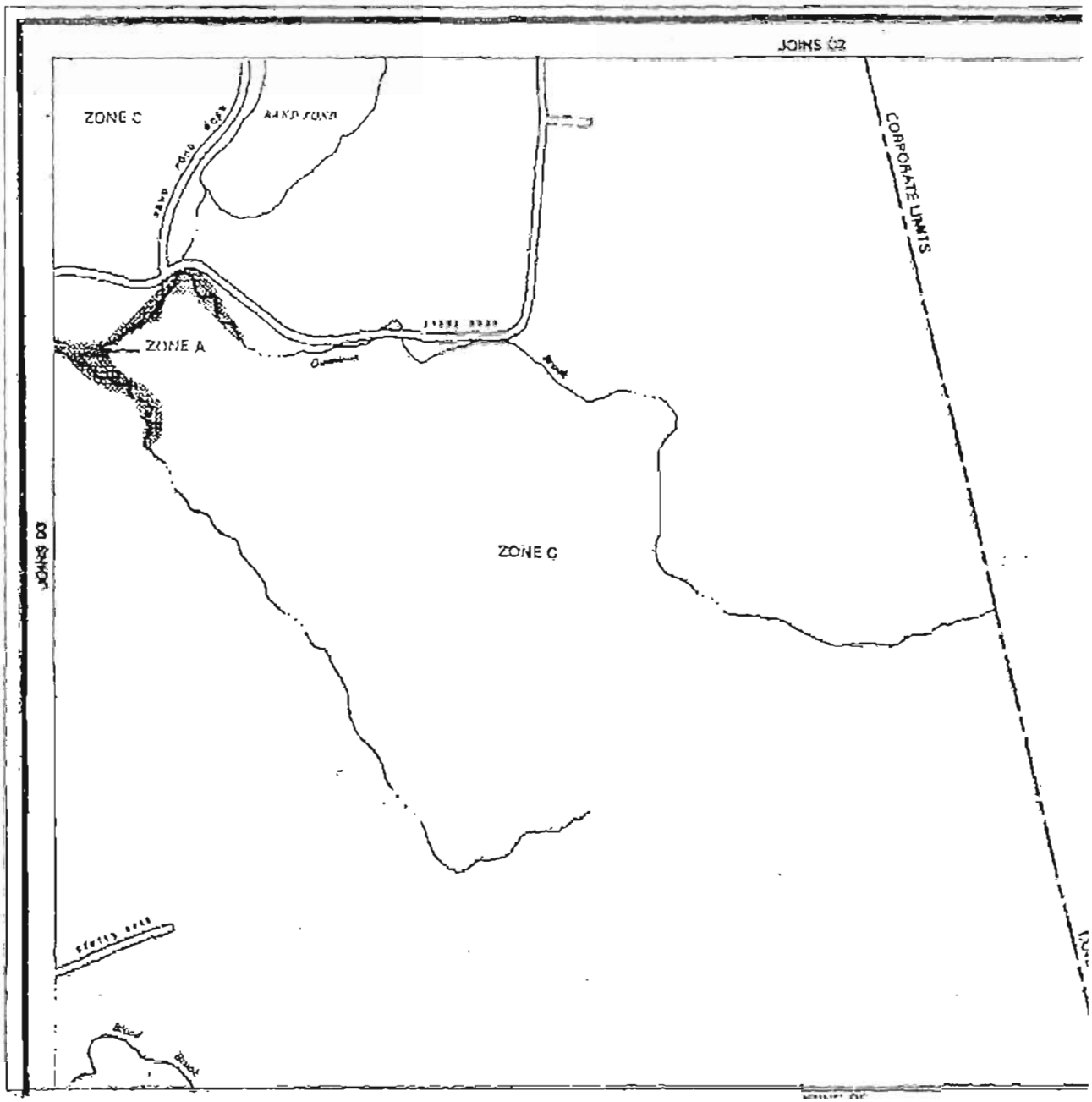
TOWN OF NEWPORT, NH

(SULLIVAN CO.)

FLOODWAY DATA

SOUTH BRANCH SUGAR RIVER

TABLE 2


JOHNS 02
ZONE C
ZONE A
ZONE C
CORPORATE LIMITS
JOHNS 03

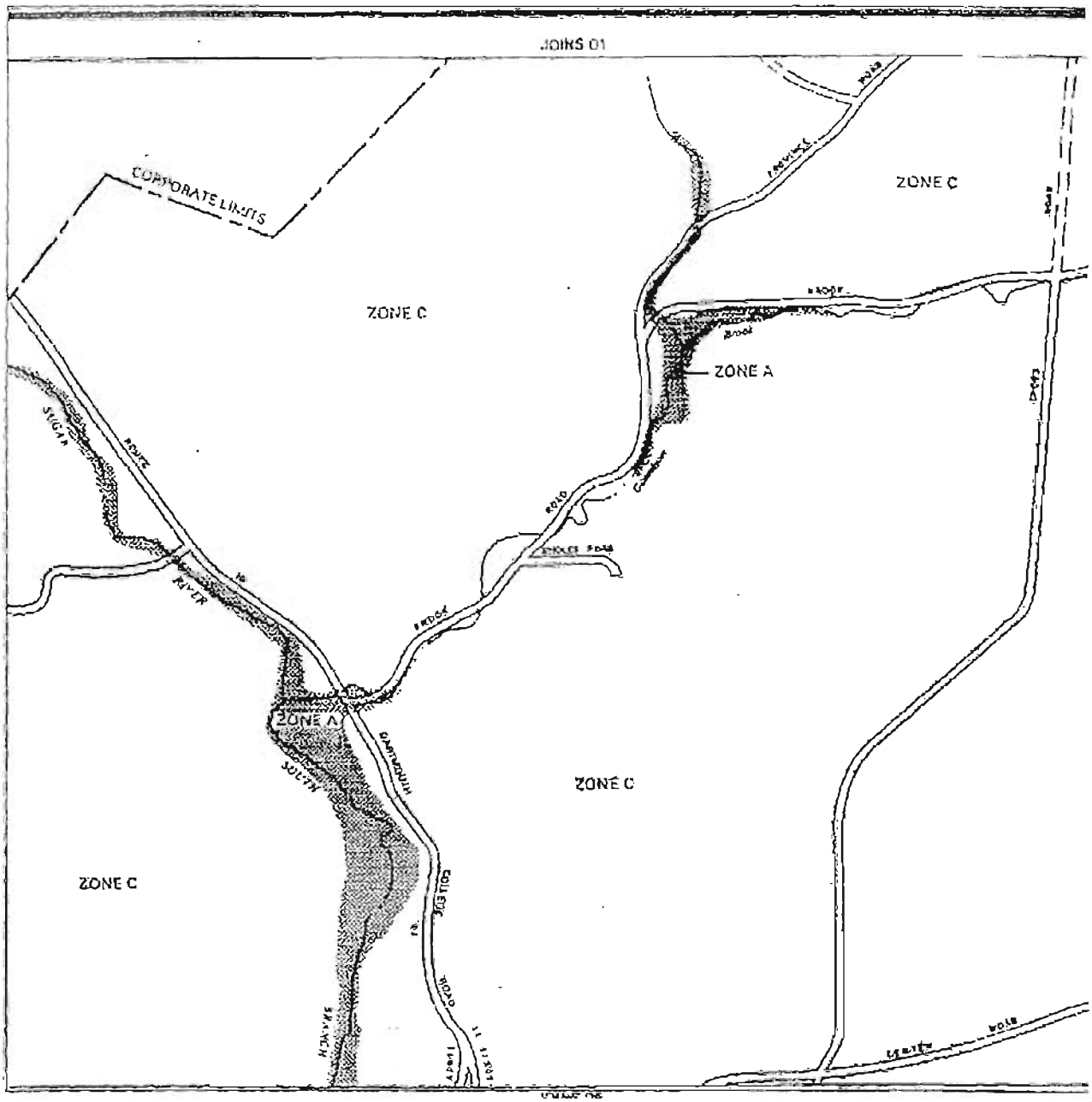

CORPORATE LIMITS
ZONE C
ZONE A
ZONE C
ZONE A
ZONE C
ZONE C

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Erosion factors		Organic matter
							K	T	
	In	Pct	G/cm³	In/hr	In/in	pH			Pct
MaB, MaC, MaD----	0-8	3-10	1.00-1.30	0.6-2.0	0.10-0.23	3.6-6.0	0.24	3	2-8
Marlow	8-24	3-10	1.30-1.60	0.6-2.0	0.06-0.20	3.6-6.0	0.32		
	24-60	3-10	1.60-2.05	0.06-0.6	0.05-0.12	3.6-6.0	0.20		
MbB, MbC, MbD, MbE----------	0-4	3-10	1.00-1.30	0.6-2.0	0.10-0.23	3.6-6.0	0.20	3	---
Marlow	4-24	3-10	1.30-1.60	0.6-2.0	0.06-0.20	3.6-6.0	0.32		
	24-60	3-10	1.60-2.05	0.06-0.6	0.05-0.12	3.6-6.0	0.20		
McB, McC, McD----	0-8	1-8	0.80-1.20	0.6-2.0	0.15-0.21	3.6-6.0	0.28	3	3-8
Monadnock	8-36	1-8	0.80-1.30	0.6-2.0	0.09-0.17	3.6-6.0	0.28		
	36-60	1-5	1.30-1.60	2.0-6.0	0.04-0.08	3.6-6.0	0.17		
MfB, MfC, MfD----	0-2	1-8	0.80-1.20	0.6-2.0	0.14-0.20	3.6-6.0	0.24	3	---
Monadnock	2-36	1-8	0.80-1.30	0.6-2.0	0.09-0.17	3.6-6.0	0.28		
	36-60	1-5	1.30-1.60	2.0-6.0	0.04-0.08	3.6-6.0	0.17		
MrC*, MrD*, MrE*:									
Monadnock-------	0-2	1-8	0.80-1.20	0.6-2.0	0.10-0.18	3.6-6.0	0.24	3	---
	2-36	1-8	0.80-1.30	0.6-2.0	0.09-0.17	3.6-6.0	0.28		
	36-60	1-5	1.30-1.60	2.0-6.0	0.04-0.08	3.6-6.0	0.17		
Hermon----------	0-3	2-6	0.95-1.20	6.0-20	0.07-0.20	3.6-5.5	0.10	3	---
	3-17	2-7	1.00-1.30	6.0-20	0.05-0.17	3.6-6.0	0.10		
	17-60	1-4	1.50-1.70	6.0-20	0.03-0.10	5.1-6.0	0.10		
MuD*:									
Monadnock-------	0-2	1-8	0.80-1.20	0.6-2.0	0.14-0.20	3.6-6.0	0.20	3	---
	2-36	1-8	0.80-1.30	0.6-2.0	0.09-0.17	3.6-6.0	0.28		
	36-60	1-5	1.30-1.60	2.0-6.0	0.04-0.08	3.6-5.0	0.17		
[illegible]on----------	0-3	2-6	0.95-1.20	6.0-20	0.07-0.20	3.6-5.5	0.10	3	---
	3-17	2-7	1.00-1.30	6.0-20	0.05-0.17	3.6-6.0	0.10		
	17-60	1-4	1.50-1.70	6.0-20	0.03-0.10	5.1-6.0	0.10		
MvB*, MvC*, MvD*:									
Monadnock-------	0-2	1-8	0.80-1.20	0.6-2.0	0.14-0.20	3.6-6.0	0.24	3	---
	2-36	1-8	0.80-1.30	0.6-2.0	0.09-0.17	3.6-6.0	0.28		
	36-60	1-5	1.30-1.60	2.0-6.0	0.04-0.08	3.6-6.0	0.17		
Lyman----------	0-2	2-10	0.75-1.20	2.0-6.0	0.13-0.24	3.6-6.0	0.20	2	---
	2-15	2-10	0.90-1.40	2.0-6.0	0.08-0.28	3.6-6.0	0.32		
	15	---	---	---	---	---	---		
MwB*, MwC*, MwD*:									
Monadnock-------	0-2	1-8	0.80-1.20	0.6-2.0	0.14-0.20	3.6-6.0	0.24	3	---
	2-36	1-8	0.80-1.30	0.6-2.0	0.09-0.17	3.6-6.0	0.28		
	36-60	1-5	1.30-1.60	2.0-6.0	0.04-0.08	3.6-6.0	0.17		
Lyman----------	0-2	2-10	0.75-1.20	2.0-6.0	0.13-0.24	3.6-6.0	0.20	2	---
	2-15	2-10	0.90-1.40	2.0-6.0	0.08-0.28	3.6-6.0	0.32		
	15	---	---	---	---	---	---		
Rock outcrop.									
Na----------	0-7	1-5	1.20-1.50	2.0-6.0	0.05-0.09	3.6-5.5	0.17	5	3-7
Naumburg	7-33	1-5	1.20-1.50	6.0-20	0.06-0.08	3.6-5.5	0.17		
	33-60	1-5	1.45-1.65	6.0-20	0.04-0.06	4.5-6.5	0.17		
NnA----------	0-9	3-7	1.00-1.25	2.0-6.0	0.13-0.25	4.5-6.0	0.28	3	2-8
Ninigret	9-26	3-7	1.35-1.60	2.0-6.0	0.06-0.18	4.5-6.0	0.32		
	26-60	0-2	1.45-1.70	6.0-20	0.01-0.13	4.5-6.0	0.10		
Of----------	0-10	1-9	1.15-1.40	2.0-6.0	0.12-0.26	4.5-6.5	0.24	5	3-7
Ondawa	10-36	1-9	1.15-1.45	2.0-6.0	0.12-0.22	4.5-6.5	0.37		
	36-60	0-3	1.30-1.50	2.0-20	0.04-0.13	4.5-6.5	0.20		

See footnote at end of table.

GRANITEHIGHWAYS.COM NBI

Place Name: Goshen (Town of)

NBI Structure Number: 009800850011700
Longitude: -72° 08' 51", Latitude: 43° 18' 5"

Show me a Map on the U.S. Census Service Tiger Map Server

Facility Carried: BROOK ROAD
Feature Intersected: GUNNISON BROOK
Location: .05 MI NE OF JCT NH 10

Year Built: 1940, Reconstructed: 1998

Owned and maintained by: State Highway Agency

Functional Classification: Rural Minor Collector
Service On Bridge: Highway
Service Under Bridge: Waterway
Lanes On Structure: 2

Structure Length: 8.9 m
Bridge Roadway Width: 8.9 m
Operating Rating: 56. Metric Tons
Number of Spans in Main Unit: 1 Span
Material Design: Concrete
Design Construction: Slab

Deck Condition: Good Condition
Superstructure Condition: Good Condition
Substructure Condition: Good Condition
Scour: Foundations determined to be stable for assessed scour conditions

Bridge Railing: Meets currently acceptable standards.
Inspection Date: May, 2000

Structural Evaluation: Better than present minimum criteria
Water Adequacy Evaluation: Superior to present desirable criteria

Average Daily Traffic: 200
Year of Average Daily Traffic: 1984
Sufficiency Rating: 97. %

Return to National Bridge Inventory Database query form.

GIL GRANITEHIGHWAYS.COM NBI

Place Name: Goshen (Town of)

NBI Structure Number: 009800870012000
Longitude: -72° 08' 39", Latitude: 43° 18' 14"

Show me a Map on the U.S. Census Service Tiger Map Server

Facility Carried: BROOK ROAD
Feature Intersected: GUNNISON BROOK
Location: .32 MI NE OF JCT NH 10

Year Built: 1940

Owned and maintained by: State Highway Agency

Functional Classification: Rural Minor Collector
Service On Bridge: Highway
Service Under Bridge: Waterway
Lanes On Structure: 2

Structure Length: 9.8 m
Bridge Roadway Width: 8.6 m
Operating Rating: 25. Metric Tons
Number of Spans in Main Unit: 1 Span
Material Design: Steel
Design Construction: Stringer/Multi-beam or Girder

Deck Condition: Good Condition
Superstructure Condition: Good Condition
Substructure Condition: Good Condition
Scour: Foundations determined to be stable for assessed scour conditions
Bridge Railing: Does not meet currently acceptable standards.
Inspection Date: May, 2000

Structural Evaluation: Somewhat better than minimum adequacy to tolerate being left in place as is
Water Adequacy Evaluation: Equal to present minimum criteria

Average Daily Traffic: 200
Year of Average Daily Traffic: 1984
Sufficiency Rating: 74. %

Return to National Bridge Inventory Database query form.

GRANITEHIGHWAYS.COM NBI

Place Name: Goshen (Town of)

NBI Structure Number: 009800900012300
Longitude: -72° 08' 30", Latitude: 43° 18' 20"

Show me a Map on the U.S. Census Service Tiger Map Server

Facility Carried: BROOK ROAD
Feature Intersected: GUNNISON BROOK
Location: .47 MI N E OF JCT NH 10

Year Built: 1945

Owned and maintained by: State Highway Agency

Functional Classification: Rural Minor Collector
Service On Bridge: Highway
Service Under Bridge: Waterway
Lanes On Structure: 2

Structure Length: 7 m
Bridge Roadway Width: 8 m
Operating Rating: 48. Metric Tons
Number of Spans in Main Unit: 1 Span
Material Design: Concrete
Design Construction: Slab

Deck Condition: Good Condition
Superstructure Condition: Good Condition
Substructure Condition: Good Condition
Scour: Foundations determined to be stable for assessed scour conditions

Bridge Railing: Meets currently acceptable standards.
Inspection Date: May, 2000

Structural Evaluation: Better than present minimum criteria
Water Adequacy Evaluation: Equal to present desirable criteria

Average Daily Traffic: 200
Year of Average Daily Traffic: 1984
Sufficiency Rating: 95. %

Return to National Bridge Inventory Database query form.

GRANITEHIGHWAYS.COM NBI

Place Name: Goshen (Town of)

NBI Structure Number: 009801050012900
Longitude: -72° 07' 32", Latitude: 43° 18' 45"

Show me a Map on the U.S. Census Service Tiger Map Server

Facility Carried: CROSS ROAD
Feature Intersected: GUNNISON BROOK
Location: TOWN RD

Year Built: 1940

Owned and maintained by: City or Municipal Highway Agency

Functional Classification: Rural Local
Service On Bridge: Highway
Service Under Bridge: Waterway
Lanes On Structure: 2

Structure Length: 4.3 m
Operating Rating: 9.1 Metric Tons
Number of Spans in Main Unit: 2 Spans
Material Design: Aluminum, Wrought Iron or Cast Iron
Design Construction: Culvert (includes frame culverts)

Scour: Foundations determined to be stable for assessed scour conditions
Bridge Railing: Does not meet currently acceptable standards.
Inspection Date: November, 2000

Structural Evaluation: Basically intolerable requiring high priority of corrective action

Water Adequacy Evaluation: Equal to present minimum criteria

Average Daily Traffic: 110
Year of Average Daily Traffic: 1987
Sufficiency Rating: 40. %

Return to National Bridge Inventory Database query form.

GH GRANITEHIGHWAYS.COM NBI

Place Name: Goshen (Town of)

NBI Structure Number: 009800810011700
Longitude: -72° 08' 55", Latitude: 43° 18' 5"

Show me a Map on the U.S. Census Service Tiger Map Server

Facility Carried: NH 10
Feature Intersected: GUNNISON BROOK
Location: 1.78 MI N LEMPSTER TL

Year Built: 1975

Owned and maintained by: State Highway Agency

Functional Classification: Rural Major Collector
Service On Bridge: Highway-pedestrian
Service Under Bridge: Waterway
Lanes On Structure: 2

Bridge Pos and Road Photos and Train Pictures For Sale Online

Structure Length: 7.6 m
Bridge Roadway Width: 9.8 m
Operating Rating: 61. Metric Tons
Number of Spans in Main Unit: 1 Span
Material Design: Concrete
Design Construction: Frame (except frame culverts)

Deck Condition: Good Condition
Superstructure Condition: Good Condition
Substructure Condition: Good Condition
Scour: Foundations determined to be stable for assessed scour conditions

Bridge Railing: Does not meet currently acceptable standards.
Inspection Date: July, 1999

Structural Evaluation: Better than present minimum criteria
Water Adequacy Evaluation: Superior to present desirable criteria

Average Daily Traffic: 2600
Year of Average Daily Traffic: 1993
Sufficiency Rating: 91. %

Return to National Bridge Inventory Database query form.

Water Resources

Data Category: Site Information | Geographic Area: New Hampshire | go

A scheduled power outage will affect access to NWISWeb historical data, updates for WaterWatch maps, and ftp services for water.usgs.gov. The outage could begin as early as Friday, May 21, 2004 at 10:30 pm EDT, and may continue as late as Monday May 24, 2004, 12:00 pm EDT. We are sorry for any inconvenience this may cause.

The following NWISWeb services will be affected:

- Discrete data will not be available during this time period (Water Quality Information, Ground-water levels, peaks, historical streamflow)
- Daily Streamflow Conditions maps will not be up-to-date.
- However, Real-time data will be available at http://waterdata.usgs.gov/nwis

Site Map for New Hampshire

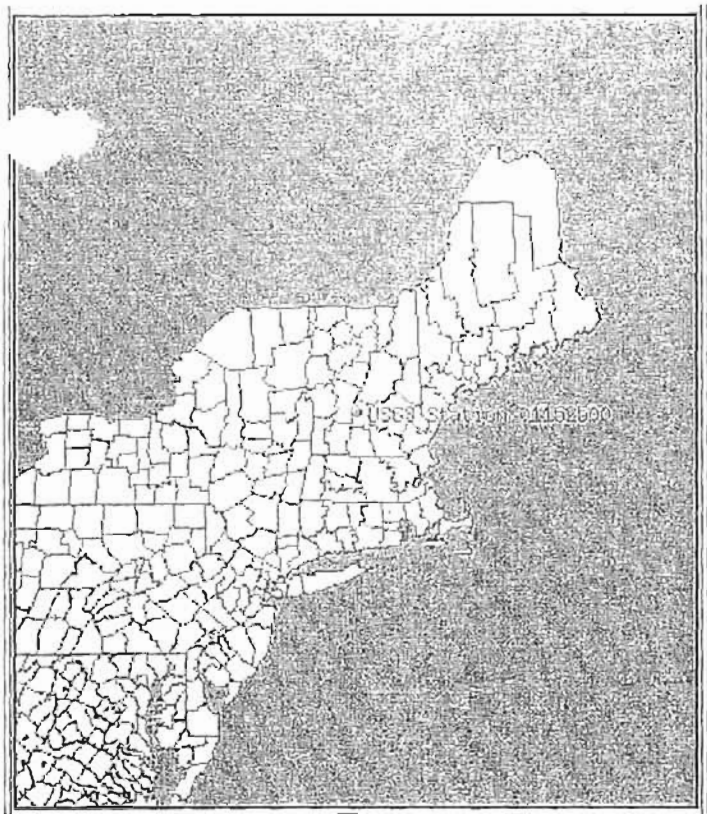
View real-time groundwater levels in Warner, NH. here

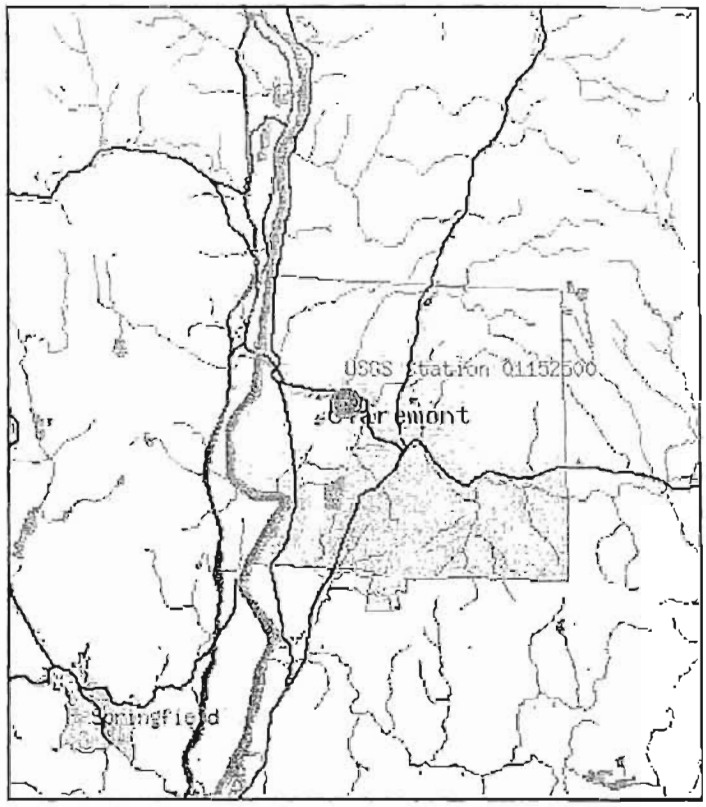
USGS 01152500 SUGAR RIVER AT WEST CLAREMONT, NH

Available data for this site | Station site map | GO

Sullivan County, New Hampshire
Hydrologic Unit Code 01080104
Latitude 43°23'15", Longitude 72°21'45" NAD27
Drainage area 269.00 square miles
Gage datum 358.78 feet above sea level NGVD29

Location of the site in New Hampshire.	Site map.





ZOOM IN 2X, 4X, 6X, 8X, or ZOOM OUT 2X, 4X. 6X. 8X.

Maps are generated by US Census Bureau TIGER Mapping Service.

Questions about data gs-w-nh_NWISWeb_Data_Inquiries@usgs.gov Top
Feedback on this website gs-w-nh_NWISWeb_Maintainer@usgs.gov Explanation of terms
NWIS Site Inventory for New Hampshire: Site Map
http://waterdata.usgs.gov/nh/nwis/nwismap?

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Department of the Interior, U.S. Geological Survey
USGS Water Resources of New Hampshire
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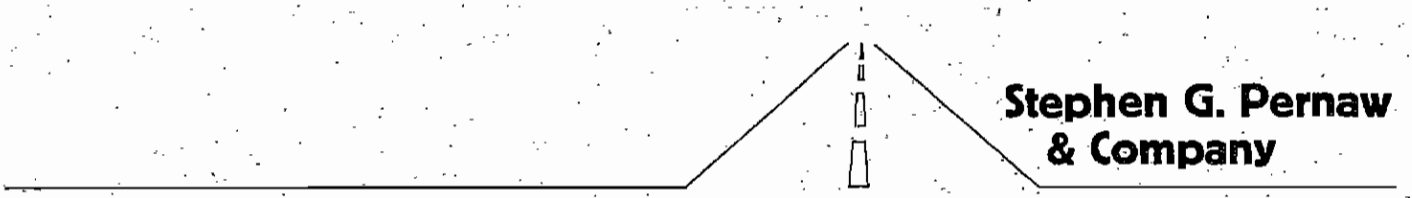
TRAFFIC IMPACT AND SITE ACCESS STUDY

MOUNT SUNAPEE WEST BOWL EXPANSION

Newbury, New Hampshire
Goshen, New Hampshire
Sunapee, New Hampshire

June 2004

Prepared for
Mount Sunapee Resort



Stephen G. Pernaw & Company

Stephen G. Pernaw & Company

47 Hall Street, Suite 3 • Concord, NH 03301
tel: (603) 228-5750 • fax: (603) 228-5886 • sgp@lr.net

Transportation: Engineering • Planning • Design

TRAFFIC IMPACT AND SITE ACCESS STUDY
MOUNT SUNAPEE - WEST BOWL EXPANSION
NEWBURY, GOSHEN and SUNAPEE, NEW HAMPSHIRE
JUNE 3, 2004

I. INTRODUCTION

The Mount Sunapee Resort is located on NH Route 103 (NH103) at the Mount Sunapee Traffic Circle in Newbury, New Hampshire. Access to the mountain is provided via one access road that extends in a southerly direction from the traffic circle. The existing ski facility has a comfortable carrying capacity (CCC) of approximately 5,220 skiers per day. Several previously planned on-mountain improvements and enhancements will bring the CCC up to approximately 5,650 skiers per day soon. Recognizing that existing skier demand exceeds the skier capacity on certain peak days, and that skier demand will increase in the years to come, the West Bowl Expansion project is intended to better serve the public by increasing the CCC by approximately 1,200 skiers per day, bringing the total to 6,850 skiers per day.

II. PROPOSED DEVELOPMENT

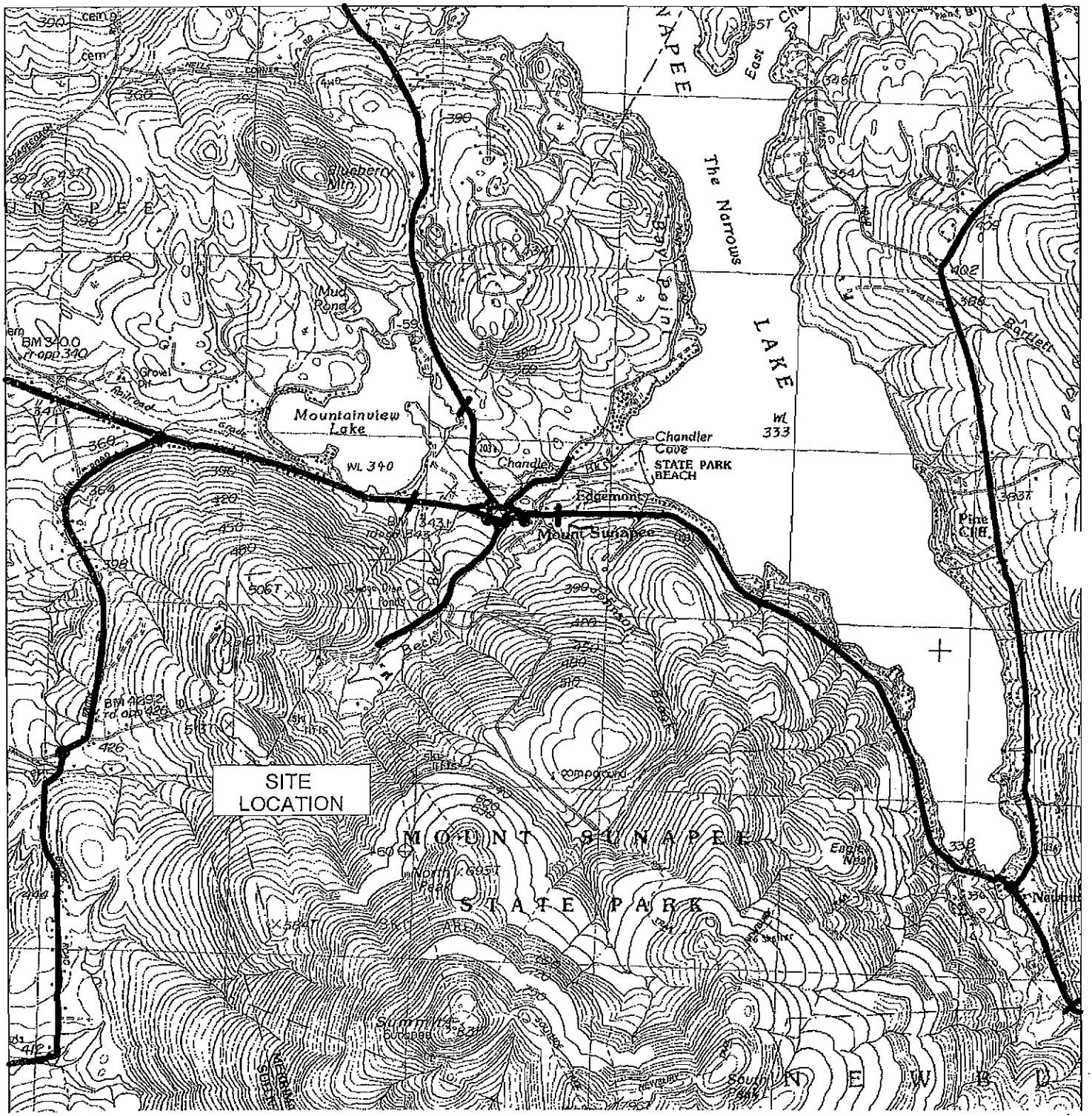
The West Bowl Expansion project involves a new ski lift and additional skiing terrain on the west side of the mountain. The expansion project includes the construction of 175 to 250 condominium units that will be located on private property that abuts the state lands. The condominium units will be comprised of hotel style units, two-story attached townhouses, and single-family detached dwellings, and many will be offered for sale on a "quarter share" basis.

Access to the West Bowl base lodge parking area, and the recreational homes is proposed via a new driveway on Brook Road in Goshen, New Hampshire. The proposed intersection is located approximately 2.1 miles south of the NH103/Brook Road intersection (in Sunapee, New Hampshire), and approximately 3.25 miles north of the NH10/Brook Road intersection (in Goshen, New Hampshire), and will intersect the east side of the roadway. The location of the subject site with respect to the area roadway network is shown on Figure 1.

In addition to traffic increases from local skiers, non-local day skiers, overnighters, and new residences, the expansion project will also result in approximately 108 additional employees on a typical weekend day. These additional employees will be affiliated with the skiing and the mountain, and others will be involved with the condominium/housing function. To put these statistics into perspective, Mount Sunapee reports that they currently utilize approximately 435-450 employees on a typical winter weekend.

Preliminary timetables indicate that project implementation would involve several years, and it is assumed for the purposes of this report that completion could occur by 2010. Accordingly, the traffic projections and analyses contained herein utilize 2010 as the base year, and 2020 as the ten-year planning horizon.

Pernaw & Company



/ = AUTOMATIC TRAFFIC RECORDER LOCATION
● = INTERSECTION TURNING MOVEMENT COUNT LOCATION

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Figure 1

Site Location

Traffic Impact and Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

III. ACCESSIBILITY

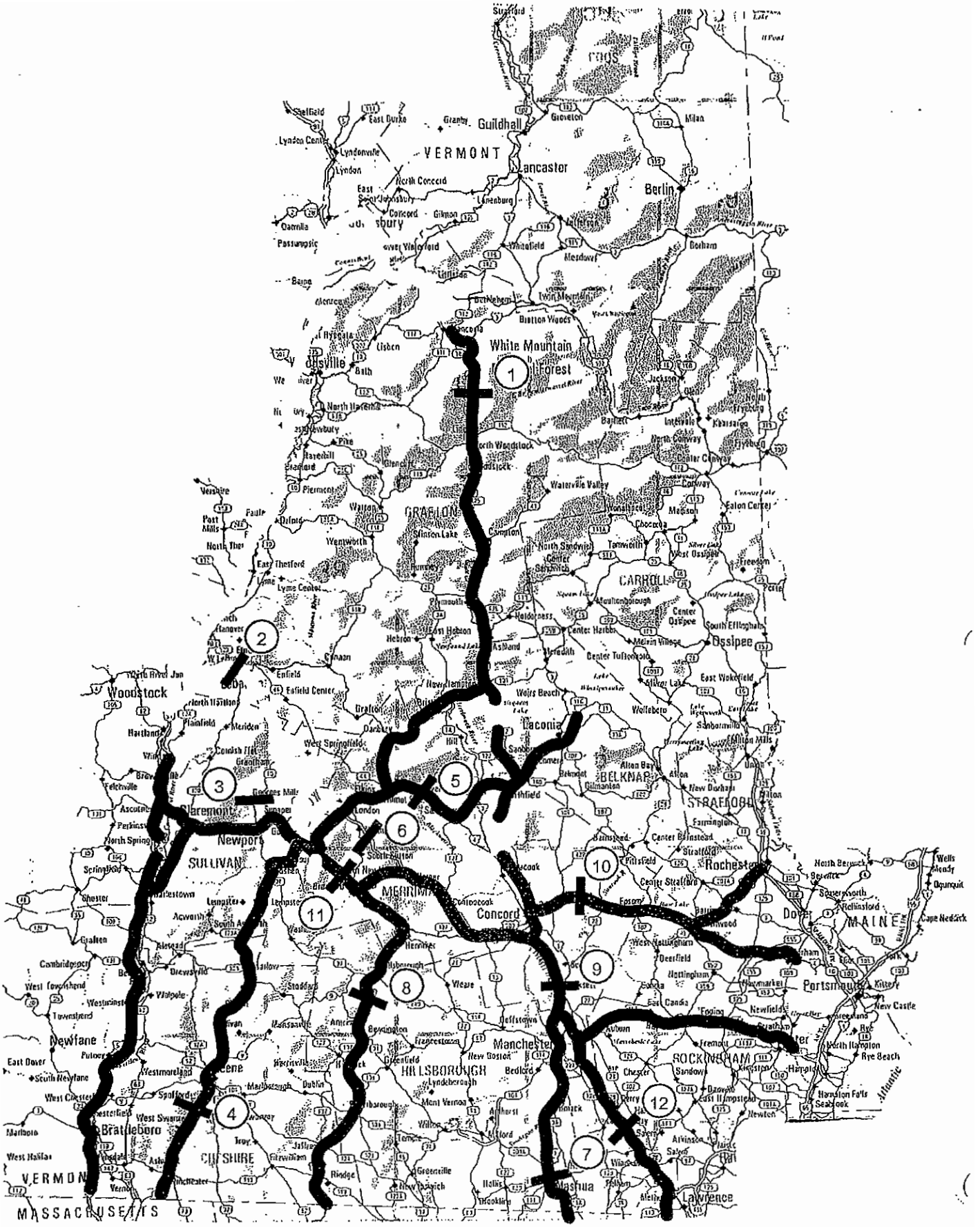
A. STATEWIDE – Mount Sunapee on NH103 is easily reached from Interstate Route 89 (I-89) via Exit 9 (and NH103) for northbound vehicles from Concord, Manchester, Nashua, and eastern Massachusetts, and via Exit 12-A (and NH11 to NH103-B) for southbound vehicles. From I-91 in central Vermont, most skiers take Exit 8 and travel east on NH103 through Claremont and Newport to reach the ski area. New Hampshire Routes 103-A and 103-B provide access between NH103 and I-89. Skiers from the southwest portion of the state utilize NH Route 10 (NH10) and Brook Road to reach NH103 and the traffic circle.

With the new point of access to the ski area and a new base lodge on Brook Road, those that currently utilize Brook Road to reach the mountain, will no longer need to travel to NH103 and enter the ski area via the traffic circle. Similarly, skiers arriving from points west via NH103 will have a choice between parking at the main mountain (via the traffic circle) or the new lodge (via Brook Road). Providing a secondary means of access to the ski area via the West Bowl area will reduce the number of existing vehicle-trips that utilize the traffic circle.

The diagram and table on Figure 2 show the primary access routes to Mount Sunapee from a statewide perspective and a summary of available traffic count data at several "checkpoints" throughout the State. In all cases, traffic demand on these principal access routes is lower during January and February (winter ski months) than during the peak summer months. With few exceptions, January and February travel is also below "average month" conditions (Annual Average Daily Traffic).

B. REGIONAL - The diagram and tables on Figure 3 show how the primary access routes to Mount Sunapee form four "gateways" that converge at the traffic circle, and several statistics from several nearby New Hampshire Department of Transportation (NHDOT) traffic recorder stations. The closest permanent traffic recorder station to the Mount Sunapee Ski Resort was located on NH103 in Newbury (east of Andrews Brook). This station was not so permanent in that the NHDOT discontinued its use in the spring of 2002. Nevertheless, from several years of historical data it is evident that traffic demand has been steadily increasing over the last decade (annual growth rate = 2.2%), and that the winter month travel is comparable to summer month travel due to the count station's proximity to the ski area.

The daily variations graph confirms that peak travel demand occurs on weekends. The hourly data suggests that on peak weekends, there are two separate and distinct peak hour periods. The morning peak hour period typically occurred from 8:00 to 9:00 AM and strongly reflects the ARRIVAL period for skiers. The afternoon peak hour period occurred from 4:00 to 5:00 PM and corresponds to the peak DEPARTURE period for the ski area. It is important to note that the hourly traffic demand falls off considerably before and after these periods. This means that periods with traffic congestion are of relatively short duration.


VERMONT
Guildhall
Lancaster
Berlin
White Mountain
Forest
GRAFTON
CARROLL
Ossipee
Laconia
BELKNAP
STRAFFORD
Rochester
Dover
MAINE
Portsmouth
Concord
MERRIMACK
SULLIVAN
Claremont
Newport
Woodstock
Lebanon
Hanover
Enfield
Plymouth
Meredith
Wolfeboro
Alton
Milton
Farmington
Barrington
Somersworth
Kittery
Hampton
Seabrook
Exeter
Manchester
HILLSBOROUGH
ROCKINGHAM
Nashua
Lawrence
Salem
Windham
Derry
Londonderry
Bedford
Amherst
Milford
Peterborough
Keene
CHESHIRE
Brattleboro
Bellows Falls
Newfane
Townshend
Westminster
Walpole
Chesterfield
Hinsdale
Winchester
Ashuelot
Jaffrey
Rindge
Greenville
Wilton
Temple
Mont Vernon
Hollis
Hudson
Pelham
Atkinson
Plaistow
Newton
Fremont
Sandown
Chester
Raymond
Epping
Newfields
Stratham
North Hampton
Rye Beach
Hampton Falls
Seabrook
Wells
Ogunquit
Cape Neddick
Kittery
Eliot
Berwick
South Berwick
North Berwick
Sanford
Alfred
Biddeford
Saco
Old Orchard Beach
Scarborough
Portland
Westbrook
Gorham
Windham
Standish
Limington
Hollis
Buxton
Hiram
Fryeburg
Conway
North Conway
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Intervale
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Bartlett
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Eaton Center
Ossipee
Center Ossipee
Tamworth
Chocorua
Wonalancet
Waterville Valley
Campton
Plymouth
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Center Harbor
Meredith
Wolfeboro
Alton Bay
Gilmanton
New Durham
Farmington
Center Barnstead
Pittsfield
Loudon
Canterbury
Boscawen
Penacook
Concord
Hopkinton
Henniker
Warner
Bradford
Newbury
Sunapee
Lake Sunapee
Mount Sunapee
Newport
Claremont
Charlestown
Springfield
Cornish
Plainfield
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Hanover
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Enfield
Canaan
Orford
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Haverhill
Bath
Lisbon
Littleton
Bethlehem
Twin Mountain
Whitefield
Jefferson
Randolph
Gorham
Milan
Groveton
Stratford
Colebrook
Pittsburg
Errol
Dixville
Dummer
Stewartstown
Clarksville
Stark
Northumberland
Groveton
Lancaster
Guildhall
Granby
East Burke
Lyndonville
Lyndon
Concord
Gilman
Lunenburg
Whitefield
Jefferson
Bethlehem
Twin Mountain
Bretton Woods
Franconia
Lisbon
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Wentworth
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Farmington
Barrington
Somersworth
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Eliot
Berwick
South Berwick
North Berwick
Sanford
Alfred
Biddeford
Saco
Old Orchard Beach
Scarborough
Portland
Westbrook
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Twin Mountain
Bretton Woods
Franconia
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12
MASSACHUSETTS
VERMONT
Atlantic

1. I-93 Lincoln (North of Exit 33)

	Avg. W'day	Avg. Sat.	Avg. Sun.
AADT	7643	8991	9833
Peak Month	13888	12817	13701
Winter Month	7606	8112	8926

2. I-89 NH - VT State Line

	Avg. W'day	Avg. Sat.	Avg. Sun.
AADT	39959	34883	32337
Peak Month	44549	39894	36873
Winter Month	36412	30972	27920

3. NH 10 Newport (1 Mi. S. of Croydon T/L)

	Avg. W'day	Avg. Sat.	Avg. Sun.
AADT	4122	3303	2698
Peak Month	4488	3861	3068
Winter Month	3776	2711	2320

4. NH 10 Swanzey (S. of Base Hill Road)

	Avg. W'day	Avg. Sat.	Avg. Sun.
AADT	11592	11009	8688
Peak Month	12425	12160	9647
Winter Month	10512	9464	7214

5. US 4 & NH 11 Andover (West of Junction)

	Avg. W'day	Avg. Sat.	Avg. Sun.
AADT	5423	5734	4688
Peak Month	6121	6346	6177
Winter Month	4831	5439	4179

6. I-89 Sutton - Warner Town Line

	Avg. W'day	Avg. Sat.	Avg. Sun.
AADT	7643	8991	9833
Peak Month	13888	12817	13701
Winter Month	7606	8112	8926

7. US 3 Nashua (Exit 5 -6 FEETurnpike)

	Avg. W'day	Avg. Sat.	Avg. Sun.
AADT	7643	8991	9833
Peak Month	13888	12817	13701
Winter Month	7606	8112	8926

8. US 202 Antrim (South of Rest Area)

	Avg. W'day	Avg. Sat.	Avg. Sun.
AADT	5285	4660	3870
Peak Month	5851	5323	4656
Winter Month	4760	3828	2960

9. I-93 Hooksett (Toll Booth - Exit 11)

	Avg. W'day	Avg. Sat.	Avg. Sun.
AADT	67927	62273	63593
Peak Month	79705	78073	79668
Winter Month	63006	54593	55391

10. US 4 Chichester (East of Chichester Road)

	Avg. W'day	Avg. Sat.	Avg. Sun.
AADT	18224	16929	14814
Peak Month	21094	21324	18945
Winter Month	16185	13607	11298

11. NH 103 (East of Andrews Brook Bridge)*

	Avg. W'day	Avg. Sat.	Avg. Sun.
AADT	4357	5187	4787
Peak Month	5328	6971	6377
Winter Month	4338	5514	6081

12. I-93 Windham (Derry Town Line)

	Avg. W'day	Avg. Sat.	Avg. Sun.
AADT	67927	62273	63593
Peak Month	79705	78073	79668
Winter Month	63006	54593	55391

AADT - Annual Average Daily Traffic Volume
Peak Month = July or August
Winter Month = January or February
* 2001 Data (latest available)

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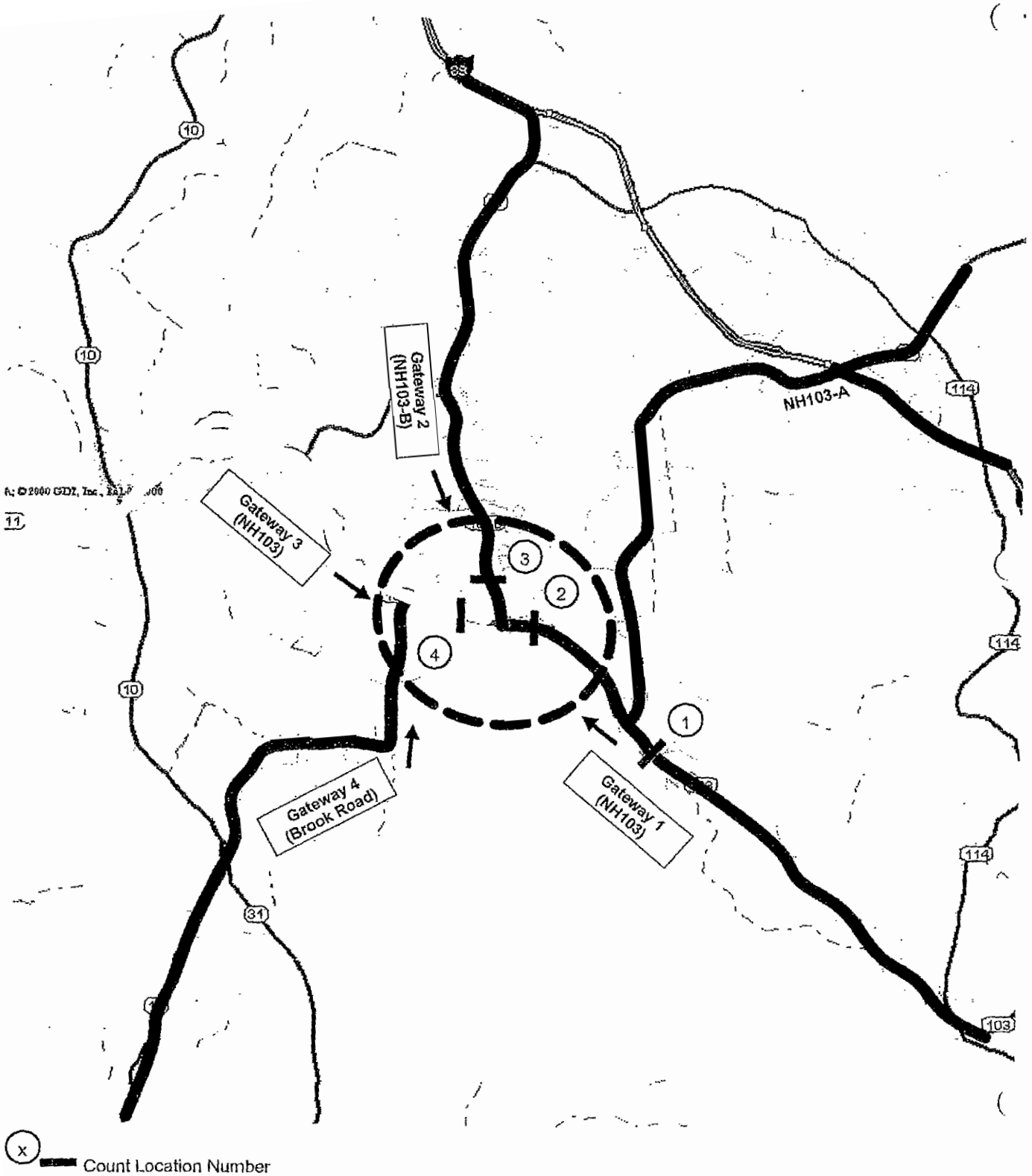
Figure 2

Statewide Access Routes - 2003 Traffic Volumes

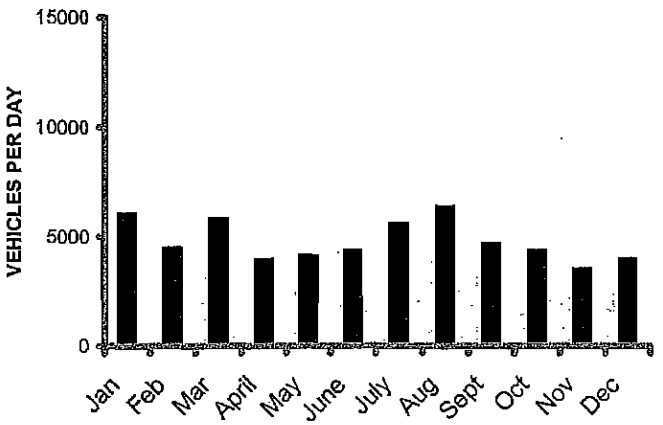
Traffic Impact and Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire


Gateway 2
(NH103-B)
Gateway 3
(NH103)
Gateway 4
(Brook Road)
Gateway 1
(NH103)
NH103-A
1
2
3
4
10
11
31
114
103
X
Count Location Number

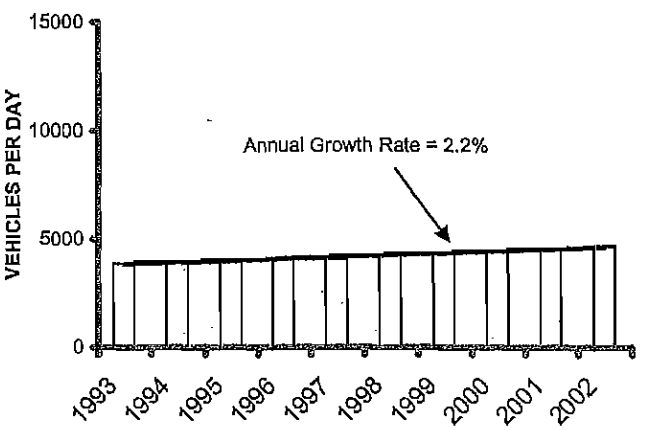
LOCATION 1: NH ROUTE 103 (East of Andrews Brook Bridge)

(NHDOT Permanent Recorder Location - 02321001)

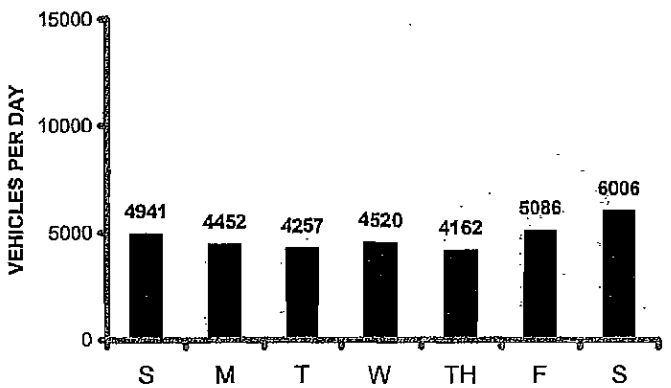
MONTHLY TRAFFIC VARIATIONS
(2001)



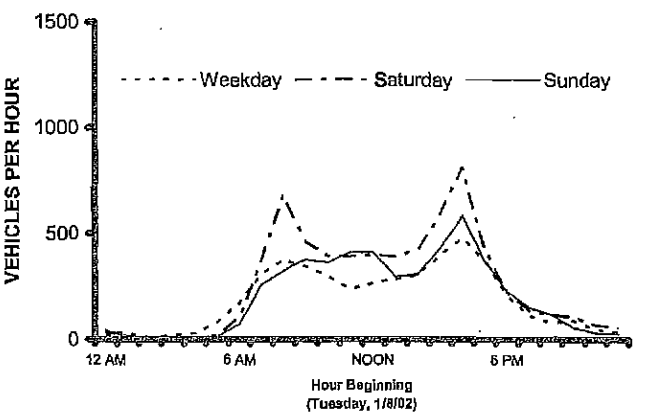
YEARLY TRAFFIC VARIATIONS



AVERAGE DAILY TRAFFIC VARIATIONS
(January, 2002)



HOURLY TRAFFIC VARIATIONS



1) NHDOT Permanent Recorder Station 02321001 was discontinued in Spring of 2002

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Figure 3

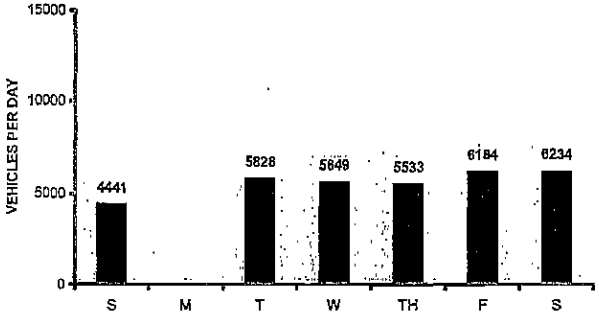
Regional Access Routes/Permanent Recorder Station - Temporal Variations

Traffic Impact and Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

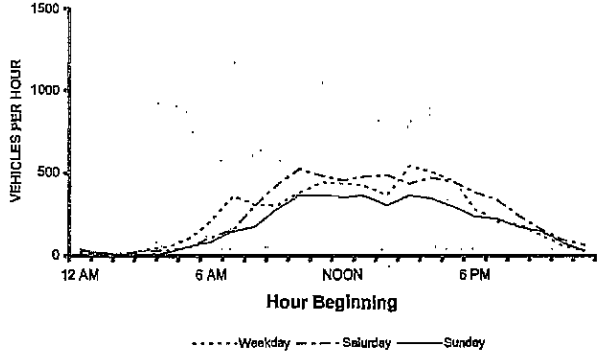
The graphs on Figure 4 depict the results from the latest NHDOT traffic recorder counts on the three major legs of the traffic circle. These data are several years old and reflect summer (July and September) traffic demand. Nevertheless, this data illustrates that the peak hour volumes on the two NH103 stations ranged from 500 to 600 vehicles per hour (vph), and the NH103-B station exhibits the lowest volumes, which are on the order of 200 vph.

LOCATION 2 - NH 103
(Over Johnson Brook)

DAILY TRAFFIC VARIATIONS
(September 2002)

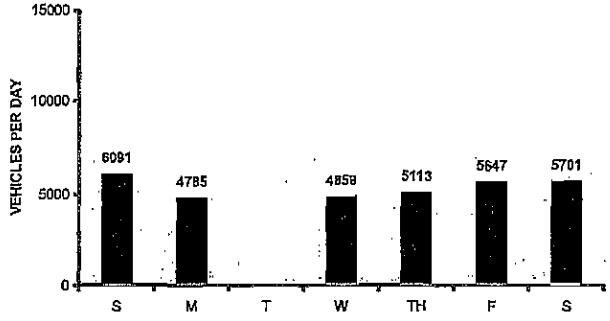


HOURLY TRAFFIC VARIATIONS

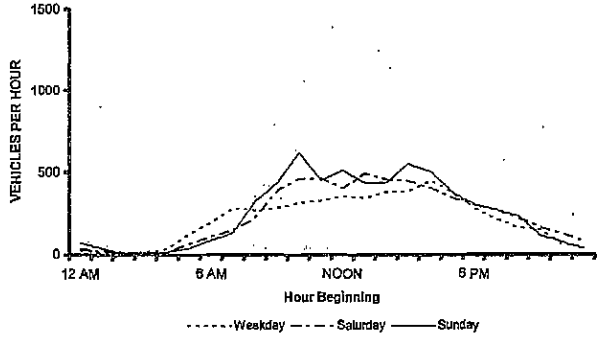


LOCATION 3 - NH 103
(Newbury - Sunapee Town Line)

DAILY TRAFFIC VARIATIONS
(July 2001)

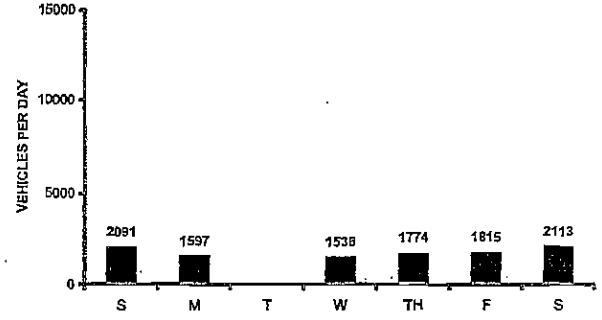


HOURLY TRAFFIC VARIATIONS

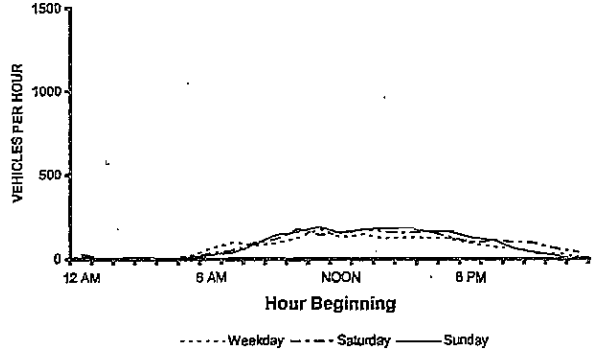


LOCATION 4 - NH 103B
(Newbury - Sunapee Town Line)

DAILY TRAFFIC VARIATIONS
(July 2001)



HOURLY TRAFFIC VARIATIONS



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* Data not available

Figure 4

Short-Term Recorder Stations - Temporal Variations

Traffic Impact & Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

C. LOCAL – To identify the local travel patterns associated with the Mount Sunapee Resort, and update the previously collected NHDOT data, Pernaw & Company conducted detailed intersection turning movement counts at the following locations (see Figure 5):

- Mount Sunapee Traffic Circle (four locations)
- NH103/NH103-A
- NH103/Brook Road
- Brook Road/Vicinity of West Bowl Driveway

The Martin Luther King holiday weekend was selected because historical ticket sales data confirms that this is typically a peak day; often it is the busiest single day of the ski season. Consequently, these traffic counts were conducted simultaneously on Sunday, January 18, 2004, from 8:00 to 11:00 AM and from 3:00 to 5:00 PM in order to observe the peak one-hour period in the morning and afternoon. The count on the Mount Sunapee Access Road ran continuously throughout the day to tabulate the arrival versus departure patterns for ski area traffic.

The results of these counts are summarized on Figure 6 (AM peak hour) and Figure 7 (PM peak hour). Unfortunately, the ticket sales information for that date confirmed that it was well below historic peak levels. Further analysis confirmed that that particular count day was approximately ten percent higher than the average January – February weekend day, taken over the last four ski seasons. Therefore, the count day data reasonably reflects a "Typical Weekend Day" condition. Several facts and conclusions regarding traffic demand are evident from these data:

- The morning peak period at the traffic circle occurred from 8:15 to 9:15 AM on Sunday, January 18, 2004, with 824 vehicles observed entering the circle during that one-hour period. The majority (55 percent) of vehicles entered the circle via NH103 westbound, and the majority (72 percent) of vehicles exited from the circle via the Mount Sunapee Access Road.
- The evening peak period at the traffic circle occurred from 3:45 to 4:45 PM on Sunday, January 18, 2004, with 1,003 vehicles observed entering the circle during that one-hour period. The majority (66 percent) of vehicles entered the circle via Mount Sunapee Access Road, and the majority (51 percent) of vehicles exited from the circle via NH103 eastbound.
- The NH103/NH103-A intersection, located several miles to the east of the traffic circle, accommodated 587 (AM) and 608 (PM) vehicles during the two peak hour periods. Skier traffic was predominant as the heavier traffic movements were westbound through and southbound rights during the AM peak hour, and eastbound lefts and eastbound throughs during the PM peak hour.
- The NH103/Brook Road intersection carried the lightest traffic load with 239 (AM) and 376 (PM) vehicles observed during the peak hour periods. The predominant turning movement patterns at this intersection were also to and from the traffic circle.
- The consistency of traffic demand over the course of a peak hour period is quantified by a measure called the Peak Hour Factor (PHF). Skier arrivals during the AM peak hour were fairly evenly spread out over the one-hour period as evidenced by a PHF of 0.84. Skier departures, on the other hand, are more concentrated within a peak 15-minute interval as evidenced by a PHF of 0.78.

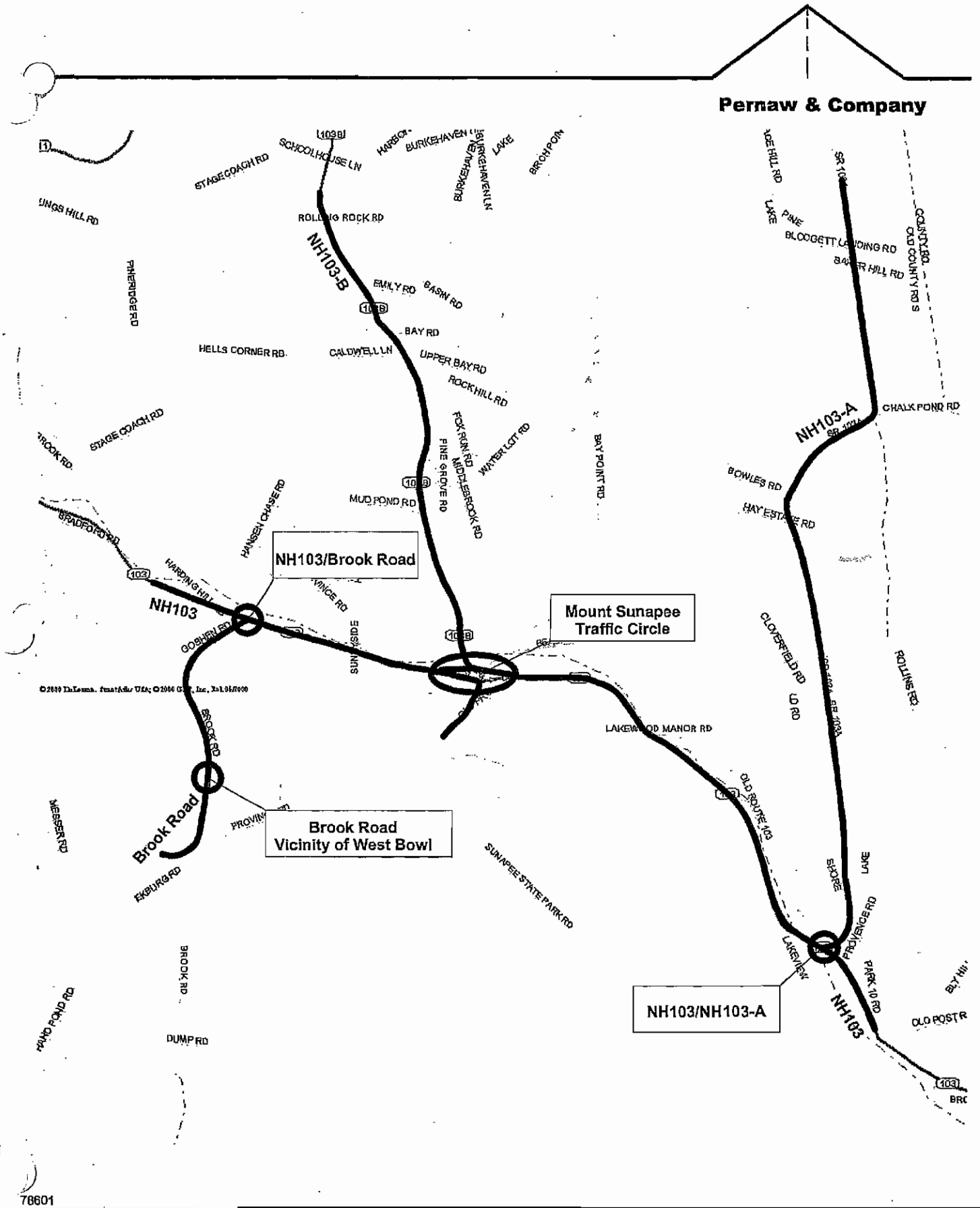

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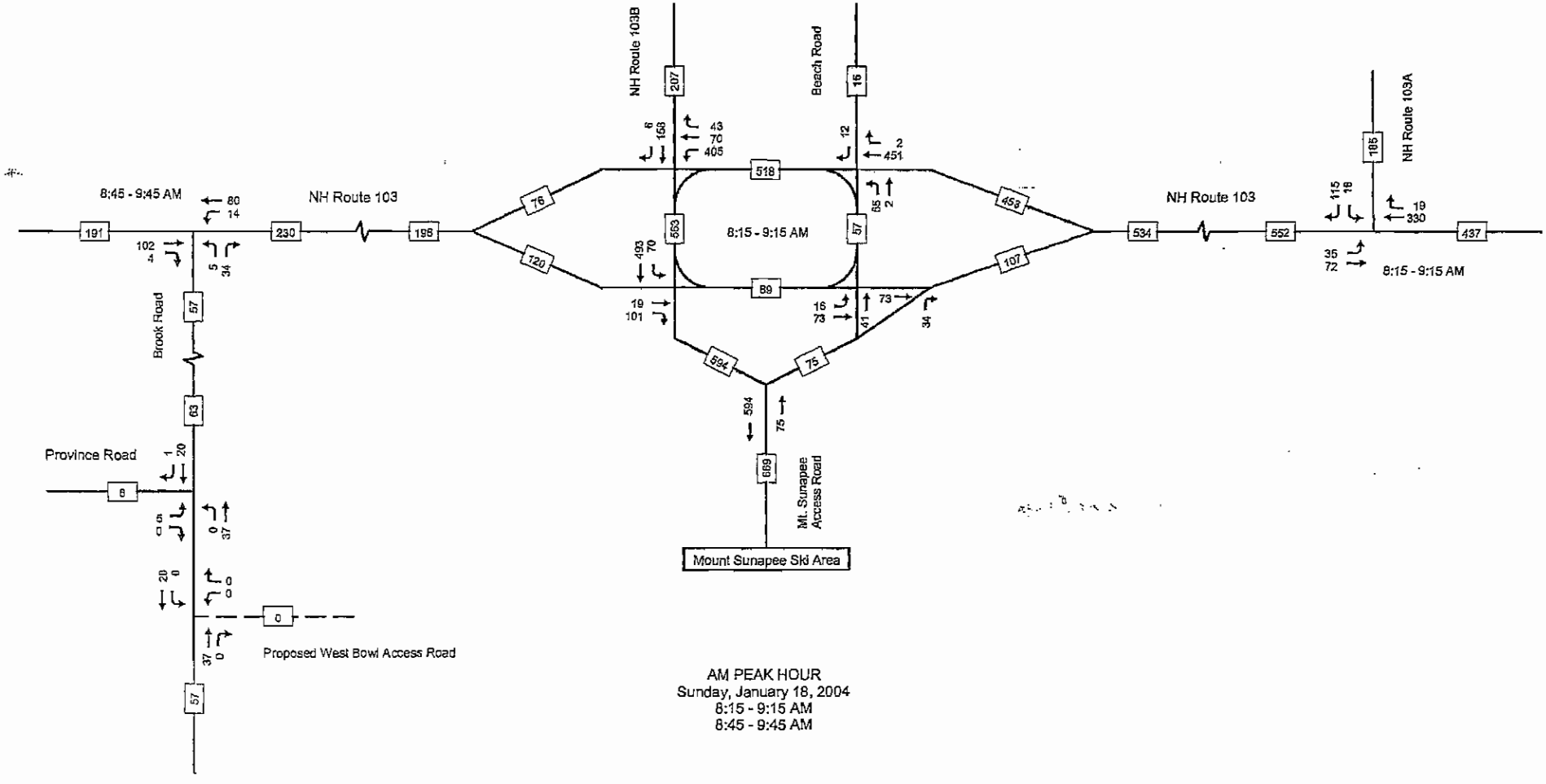
Figure 5

Local Access Routes (with Intersection Turning Movement Count Locations)

Traffic Impact and Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

Pernaw & Company



AM PEAK HOUR
Sunday, January 18, 2004
8:15 - 9:15 AM
8:45 - 9:45 AM

NORTH

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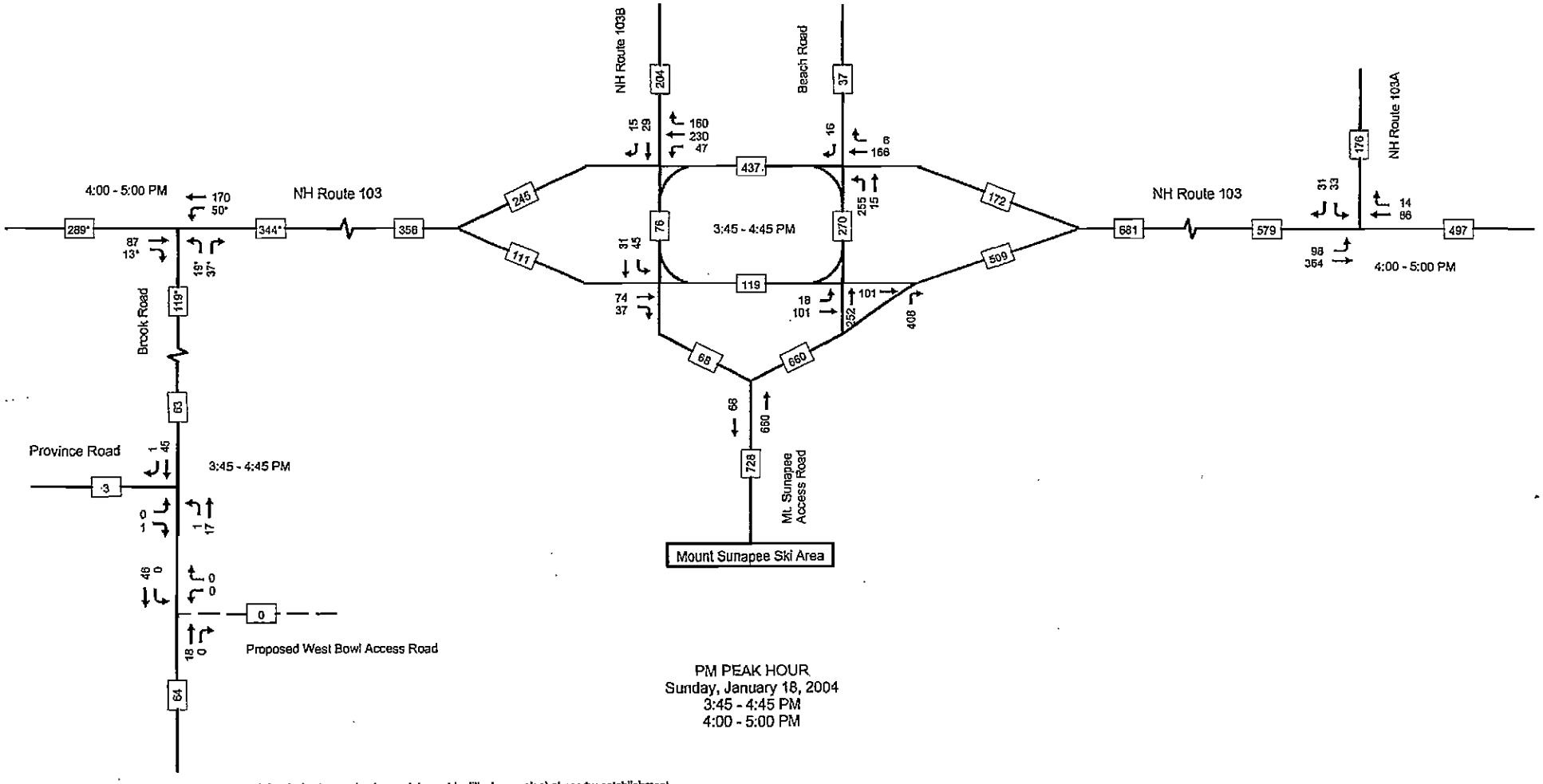
Figure 6

2004 Existing Traffic Volumes - AM Peak Hour

Traffic Impact & Site Access Study, Proposed Ski [illegible] Expansion, Newbury, New Hampshire

Pernaw & Company



* Atypical volumes due to special event (political campaign) at nearby establishment

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Figure 7

2004 Existing Traffic Volumes - PM Peak Hour

Traffic Impact & Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

IV. SITE GENERATED TRAFFIC VOLUMES

A. EXISTING SKI AREA – The manual traffic counts were conducted at the ski area access road throughout the day on Sunday, January 18, 2004, from 7:35 AM to 5:00 PM. The data in Table 1 are summarized on an hour-by-hour basis and shows that peak arrivals occurred from 8:00 to 9:00 AM and peak departures occurred from 4:00 to 5:00 PM. From these data it is estimated that the ski area generated approximately 4,400 daily trips on this Sunday.

Historically, Sundays during the Martin Luther King holiday period are amongst the busiest ski days of the season. However, ticket sales data confirm that less than ideal weather conditions and the evening NFL football playoff activities affected skier demand on January 18, 2004. Based on sales data of 3,457 tickets, along with an adjustment for season pass holders, the total skier demand for that day is estimated at approximately 3,837 skiers.

In an attempt to characterize these data, ticket sales data for all Saturdays and Sundays during the months of January and February were researched for the most recent four ski seasons (2000-2001, 2001-2002, 2002-2003, 2003-2004). Over the four-year period, weekend ticket sales averaged 3,140 tickets in the months of January and February. Since the January 18, 2004, count day is approximately ten percent higher than the historical average weekend, it constitutes a "typical weekend day" for traffic analysis purposes.

B. PROPOSED EXPANSION – Providing additional skier terrain (75 acres), a new lift facility, and a new base lodge is intended to 1) better serve the current clientele on busy days by increasing the comfortable carrying capacity of the mountain, and 2) keep the Mount Sunapee Resort competitive in terms of market share for the long-term future.

A linear regression analysis of annual ticket sales information shows that over the last four year period, the rate of growth has been negative (-1.7% per year) due to the recent downturn in 2003-2004. Removing the most recent ski season data from the analysis indicates that the prior three year period saw positive growth on the order of 3.3 percent per year. To provide conservatively high traffic projections for future years (2010 and 2020), skier visits for the typical weekend case were compounded annually at the rate of 3.0 percent per year.

Table 3 — Trip Generation Summary

	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
2004 Existing Conditions[1]						
Sunday 1/18/04	594 veh	75 veh	669 trips	68 veh	660 veh	728 trips
With West Bowl Expansion[2]						
2010 typical weekend day[3]	803 veh	138 veh	941 trips	122 veh	889 veh	1,011 trips
2010 Capacity Weekend Day[4]	1,159 veh	183 veh	1,342 trips	163 veh	1,285 veh	1,448 trips
2020 Typical Weekend Day[5]	1,052 veh	170 veh	1,222 trips	150 veh	1,167 veh	1,317 trips
2020 Capacity Weekend Day[4]	1,159 veh	183 veh	1,342 trips	163 veh	1,285 veh	1,448 trips

[1] Existing facility on Martin Luther King Holiday = 3,837 total skiers (note: historical data for 2000-2001 season through 2003-3004 season indicate that the average weekend day in Jan and Feb was 3,140 skiers)

[2] Includes increases due to ski trips, employee trips (+108 persons), and residential trips (250 recreational dwelling units)

[3] 4,562 total skiers, 108 additional employees, and 250 recreational dwelling units

[4] 6,850 total skiers (comfortable carry capacity); 108 additional employees, and 250 recreational dwelling units

[3] 6,157 total skiers, 108 additional employees, and 250 recreational dwelling units

Although the subject of this impact study pertains to the winter ski season, Mount Sunapee does host special events throughout the year. One example is the League of New Hampshire Craftsmen Fair which is a nine-day event held in August of each year. The following table summarizes the activity level associated with this particular event.

Year	Daily Attendance
1999	2,316 - 6,521 persons
2000	2,777 - 5,785 persons
2001	1,729 - 5,473 persons
2002	2,598 - 5,031 persons
2003	2,353 - 4,639 persons

Although a direct traffic comparison cannot be made between fairgoers and skiers due to vehicle occupancy and hourly variation reasons, it is clear that peak days for the Craftsmen Fair exceed the attendance associated with a typical weekend ski day. It appears that peak days in the winter season are comparable to peak days during the Craftsmen Fair.

C. TRIP DISTRIBUTION – Identifying the various travel routes that are used by skiers is an important consideration in preparing the future traffic projections for the West Bowl Expansion project. The annual "Guest Research Summary" reports prepared for the resort have consistently shown that approximately 65 percent of the visitors have trip origins from the following counties in southeast New Hampshire and eastern Massachusetts: Merrimack, Rockingham, Hillsborough, Essex, Middlesex, Suffolk, Norfolk, and Plymouth counties. The following travel patterns were derived from intersection turning movement count data and corroborate the finding from guest research information.

Gateway	Percentage
1. NH103 (east)	46%
2. NH103-A (north)	16%
3. NH103-B (north)	21%
4. NH103 (west)	12%
5. Brook Road (south)	5%
Total	100%

The distribution of vehicle trips associated with the future additional employees and the recreational homes are expected to be similar. It should be noted that the small percentage that utilizes Brook Road for access will likely utilize the West Bowl parking lot rather then continue up to NH103 and the traffic circle. Similarly, those traveling to/from points west on NH103 will likely use both points of access to the mountain. Such trip diversions to the new facility will translate into trip reductions on NH103 and the traffic circle, whereas the additional skiers, employees, and residents translate into traffic increases. The net changes to peak period traffic flows are presented in a later section.

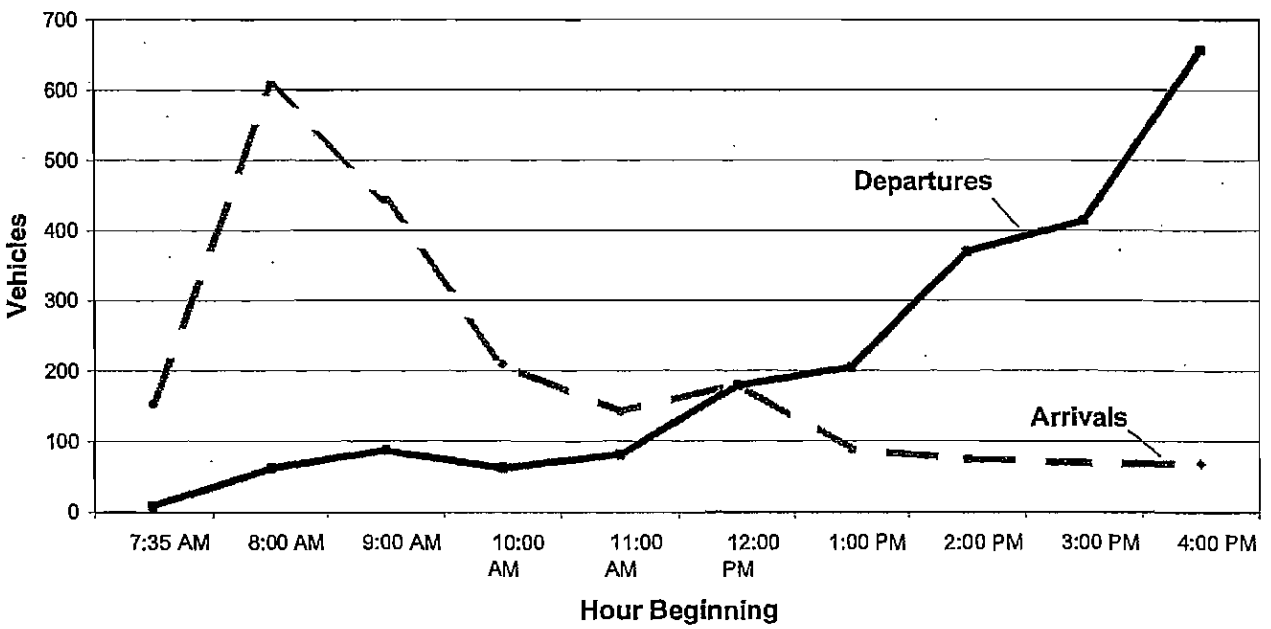
Table 1

Mount Sunapee Ski Area
Existing Site Generated Traffic Volumes

Sunday, January 18, 2004 (Martin Luther King Weekend)

	In		Out		Total	
7:35 - 8:00 AM*	218 veh	(10%)	14 veh	(1%)	232 trips	(5%)
8:00 - 9:00 AM	**607 veh**	**(29%)**	**62 veh**	**(3%)**	**669 trips**	**(16%)**
9:00 - 10:00 AM	443 veh	(21%)	87 veh	(4%)	530 trips	(13%)
10:00 - 11:00 AM	209 veh	(10%)	62 veh	(3%)	271 trips	(6%)
11:00 AM - 12:00 PM	142 veh	(7%)	81 veh	(4%)	223 trips	(5%)
12:00 - 1:00 PM	181 veh	(9%)	179 veh	(8%)	360 trips	(9%)
1:00 - 2:00 PM	88 veh	(4%)	205 veh	(10%)	293 trips	(7%)
2:00 - 3:00 PM	75 veh	(4%)	369 veh	(17%)	444 trips	(11%)
3:00 - 4:00 PM	69 veh	(3%)	414 veh	(19%)	483 trips	(11%)
4:00 - 5:00 PM	**68 veh**	**(3%)**	**657 veh**	**(31%)**	**725 trips**	**(17%)**
Sunday Total	2100 veh	(100%)	2130 veh	(100%)	4230 trips	(100%)

* Not a full hour



In addition to skiers, the West Bowl Expansion project will also generate traffic from the recreational homes (up to 250 condominium units), and additional employees (108 persons). Table 2 and Table 3 summarize the results of the trip generation analysis for the entire Mount Sunapee Resort.

Table 2 — Trip Generation Derivation

	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
I. 2010 Typical Weekend Day						
Skier Trips[1]	707 veh	89 veh	796 trips	81 veh	785 veh	866 trips
Recreational Homes[2]	41 veh	49 veh	90 trips	41 veh	49 veh	90 trips
Aditional Employees[3]	55 veh	0 veh	55 trips	0 veh	55 veh	55 trips
	803 veh	**138 veh**	**941 trips**	**122 veh**	**889 veh**	**1,011 trips**
II. 2020 Typical Weekend Day						
Skier Trips[1]	956 veh	121 veh	1,077 trips	109 veh	1,063 veh	1,172 trips
Recreational Homes[2]	41 veh	49 veh	90 trips	41 veh	49 veh	90 trips
Aditional Employees[3]	55 veh	0 veh	55 trips	0 veh	55 veh	55 trips
	1,052 veh	**170 veh**	**1,222 trips**	**150 veh**	**1,167 veh**	**1,317 trips**
III. Capacity Weekend Day						
Skier Trips[4]	1,063 veh	134 veh	1,197 trips	122 veh	1,181 veh	1,303 trips
Recreational Homes[2]	41 veh	49 veh	90 trips	41 veh	49 veh	90 trips
Aditional Employees[3]	55 veh	0 veh	55 trips	0 veh	55 veh	55 trips
	1,159 veh	**183 veh**	**1,342 trips**	**163 veh**	**1,285 veh**	**1,448 trips**

[1] Existing ski trips increased by a 3.0 percent annual growth rate

[2] ITE Land Use Code 260 - Recreational Homes; apply Sunday generator peak hour rates to both periods

[3] Expect 50 percent of total employees to arrive between 8:15 and 9:15 AM, and to depart between 3:45 and 4:45 PM

[4] Comfortable Carry Capacity (CCC) = 6,850 skiers

D. FUTURE TRAFFIC PROJECTIONS – Since full buildout of the West Bowl expansion project may occur by 2010, this year was selected as the base year for this study. Consistent with standard practice for conducting traffic impact studies in New Hampshire, a ten-year planning horizon (2020) was selected for analysis purposes.

These projections were prepared for the "Typical Weekend Day" case and for a "Capacity Weekend Day" for both the peak arrival period (AM) and the peak departure period (PM). The following table identifies the various cases and the corresponding traffic projection figures.

	2010 Base Year		2020 Horizon Year	
	Typical Weekend	Capacity Weekend	Typical Weekend	Capacity Weekend
AM Peak Hour (Arrival Period)	Figure 8	Figure 10	Figure 12	Figure 14
PM Peak Hour (Departure Period)	Figure 9	Figure 11	Figure 13	Figure 15

These traffic projections are all inclusive in that they reflect skier vehicles, service vehicles, shuttles, employee trips, and are predicated on full occupancy of all quarter-share units. For analysis purposes, the subsequent traffic projections are based on the upper limit of 250 condominium units.

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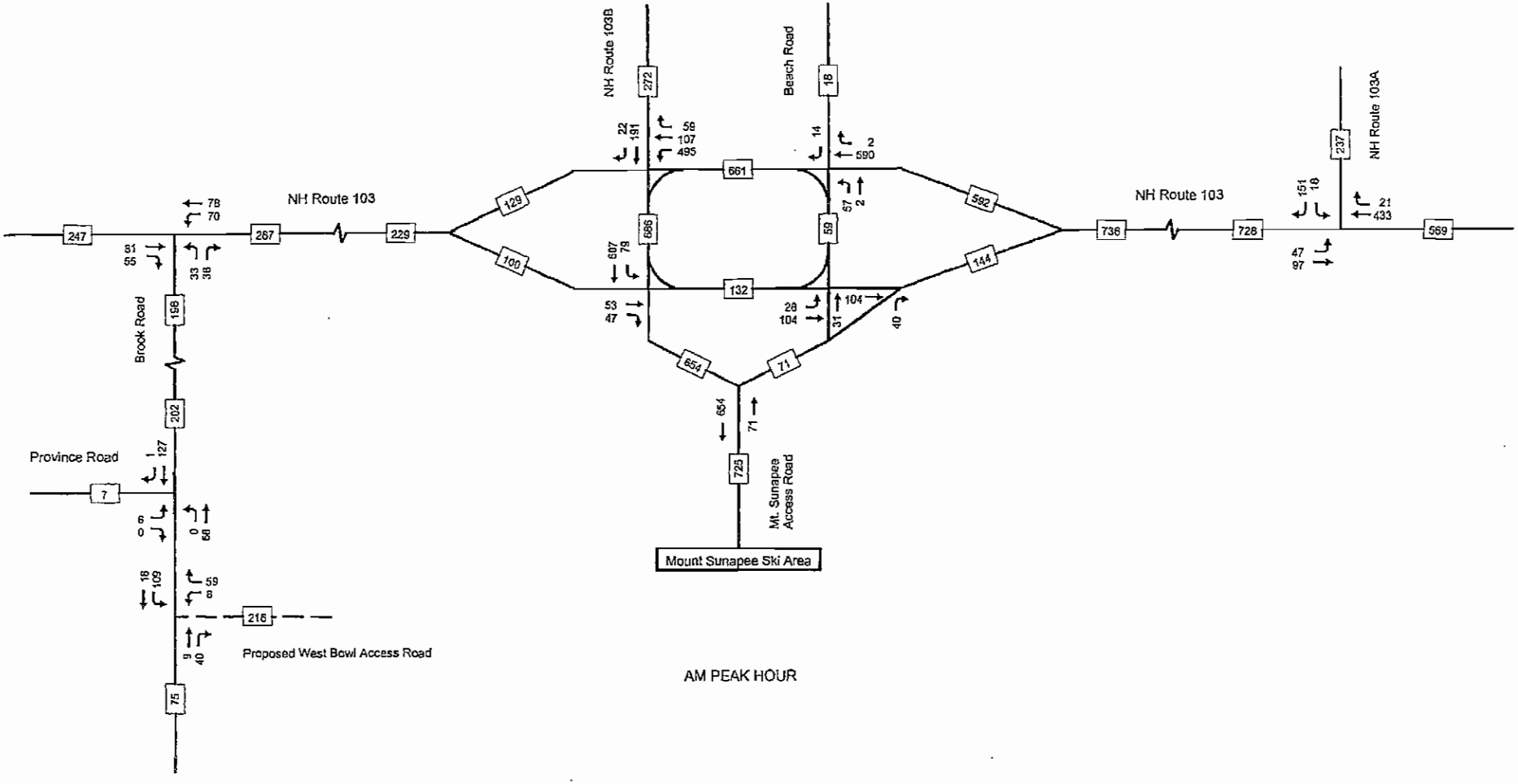

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Figure 8

2010 Typical Weekend Day Traffic Volumes - AM Peak Hour

Traffic Impact & Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

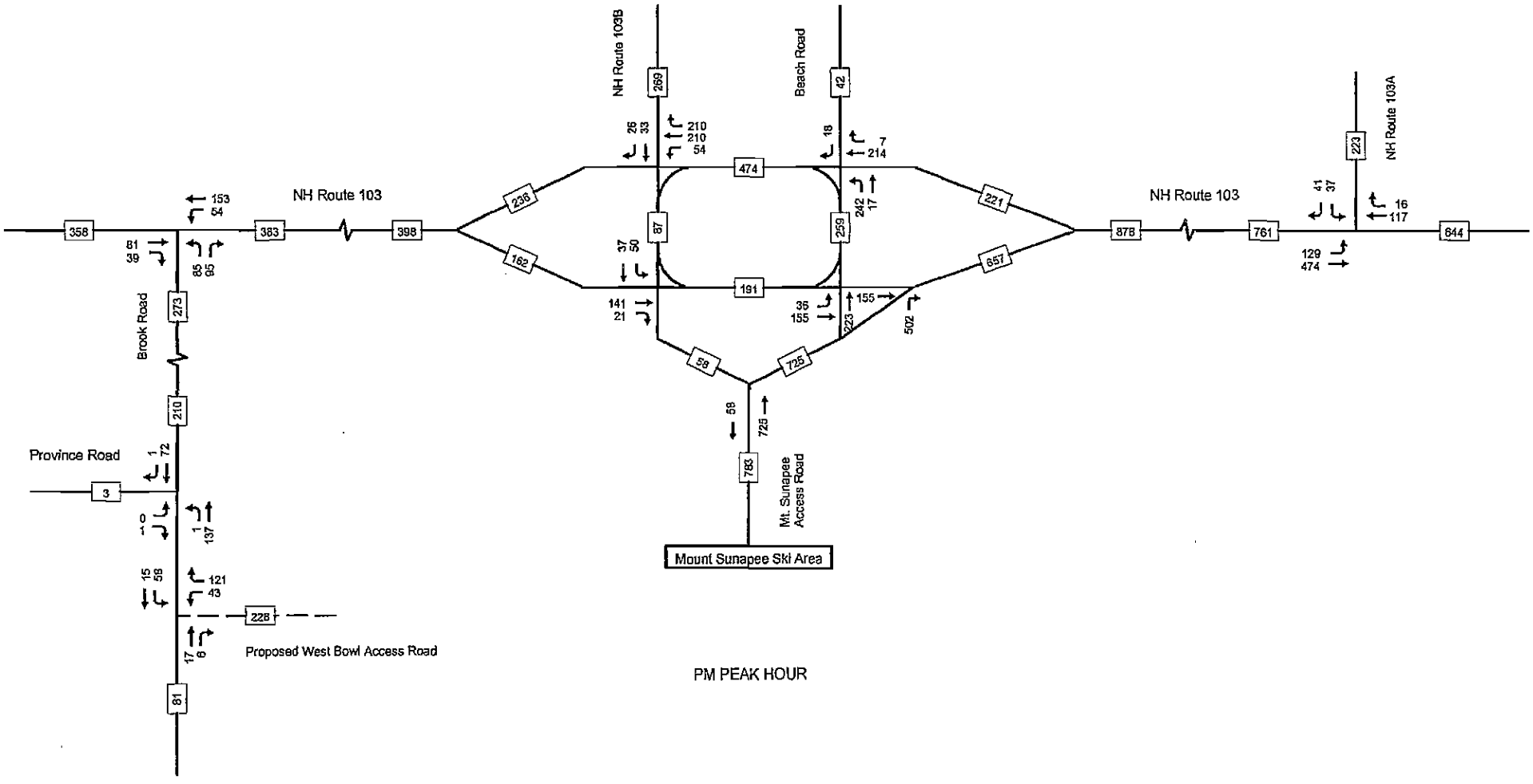

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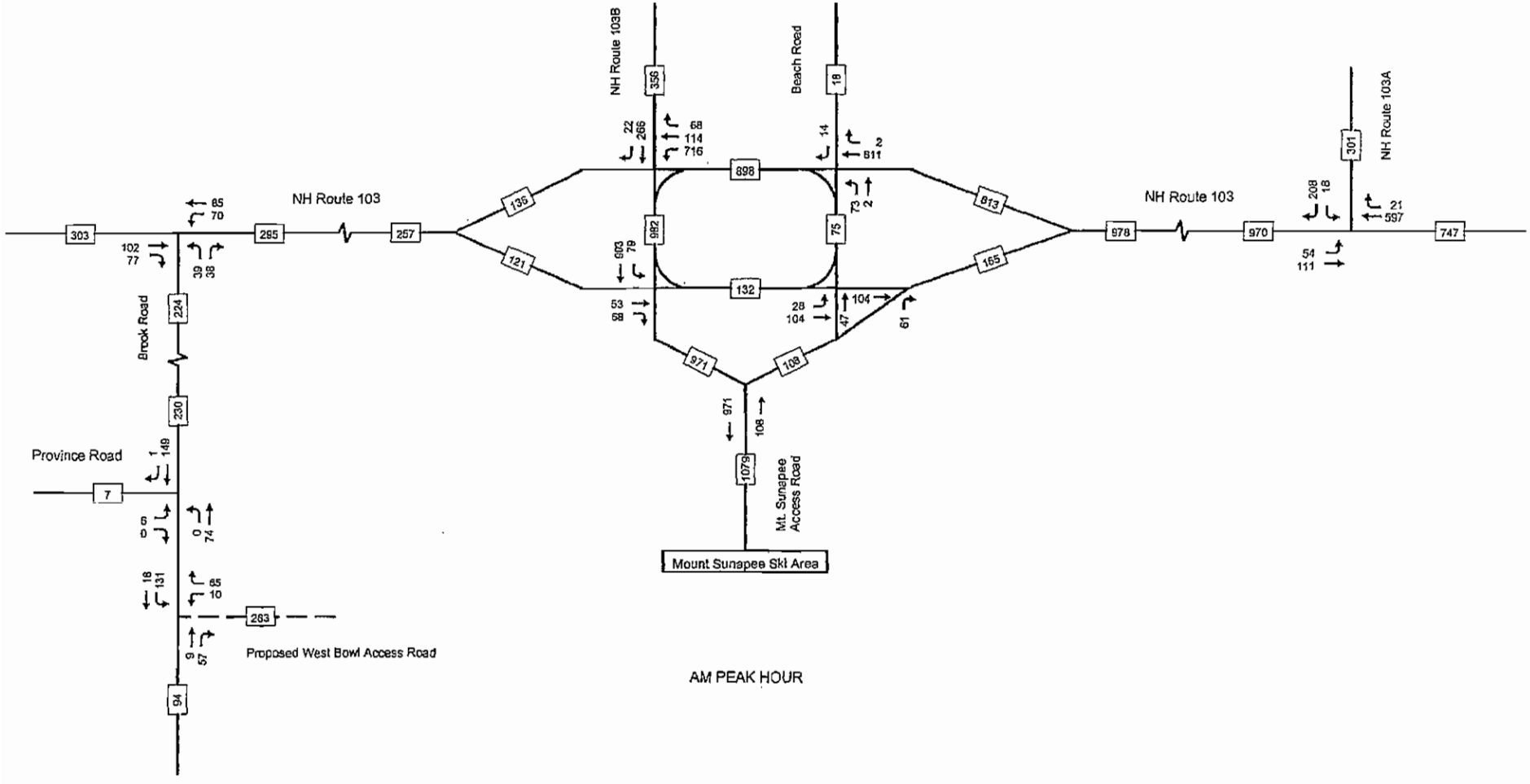
Figure 9

2010 Typical Weekend Day Traffic Volumes - PM Peak Hour

Traffic Impact & Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

Pernaw & Company



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NORTH

Figure 10

2010 Capacity Day Traffic Volumes - AM Peak Hour

Traffic Impact & Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

Pernaw & Company

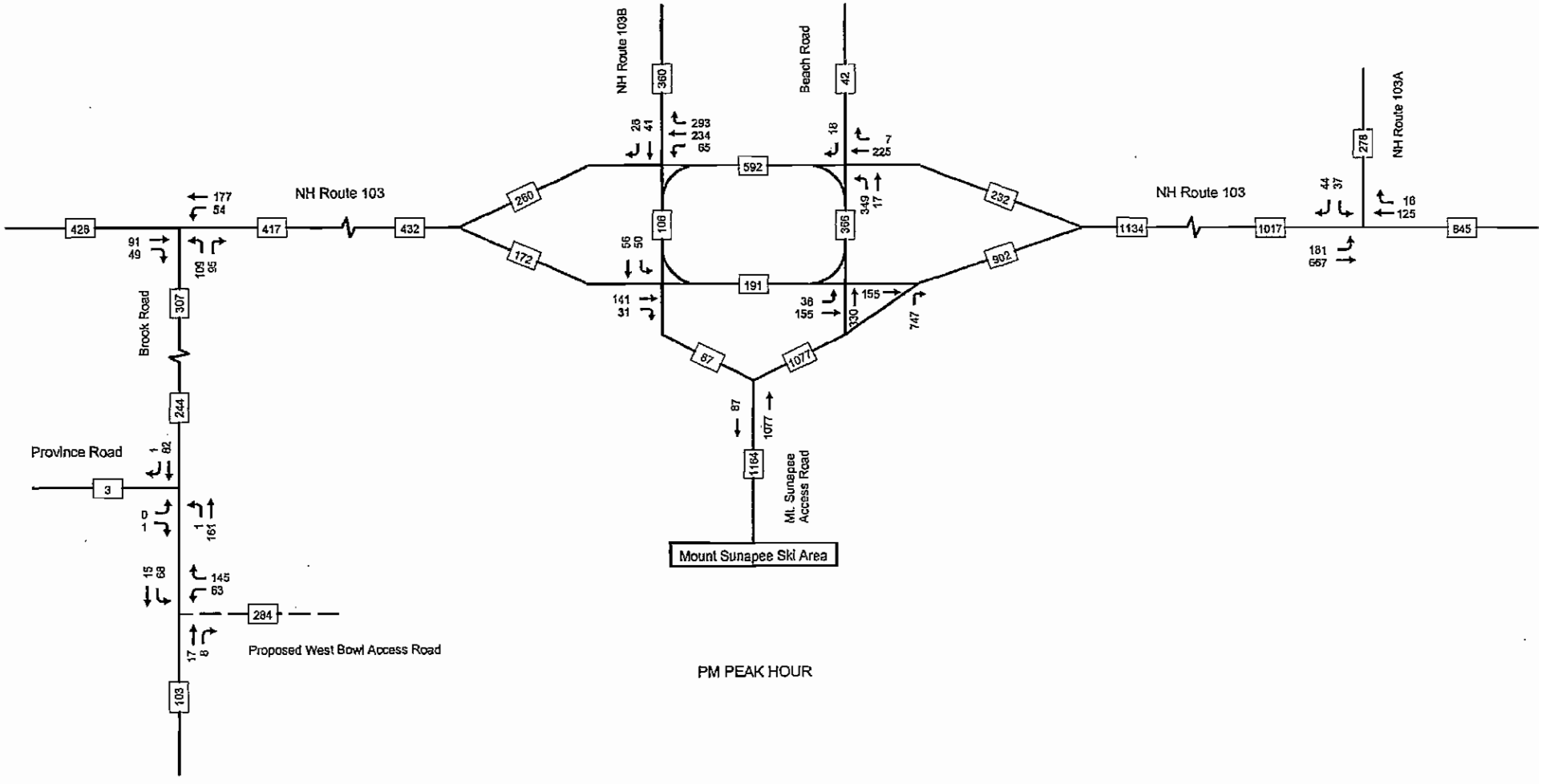

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Figure 11

2010 Capacity Day Traffic Volumes - PM Peak Hour

Traffic Impact & Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

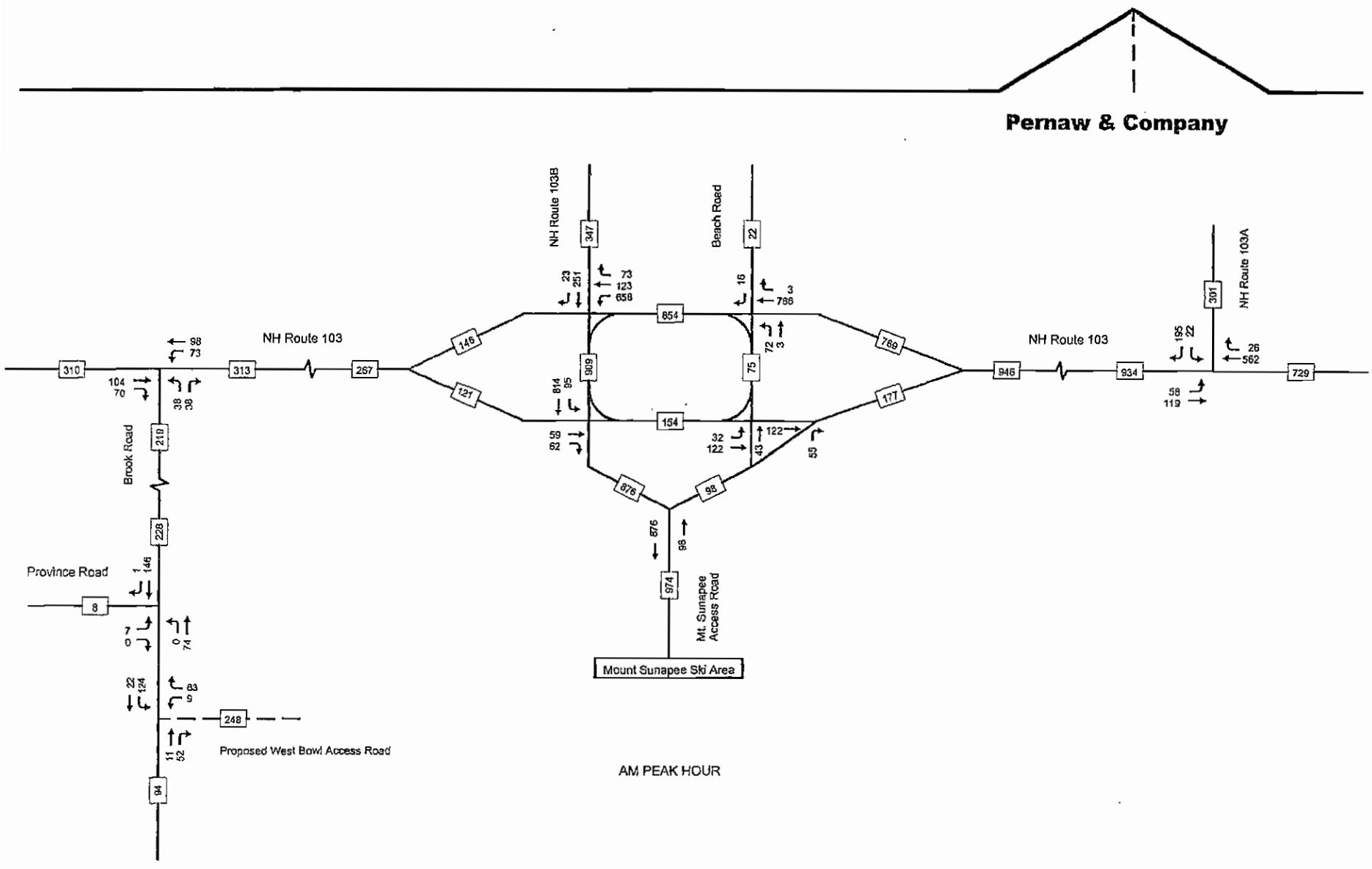

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Figure 12

2020 Typical Weekend Day Traffic Volumes - AM Peak Hour

Traffic Impact & Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

Pernaw & Company

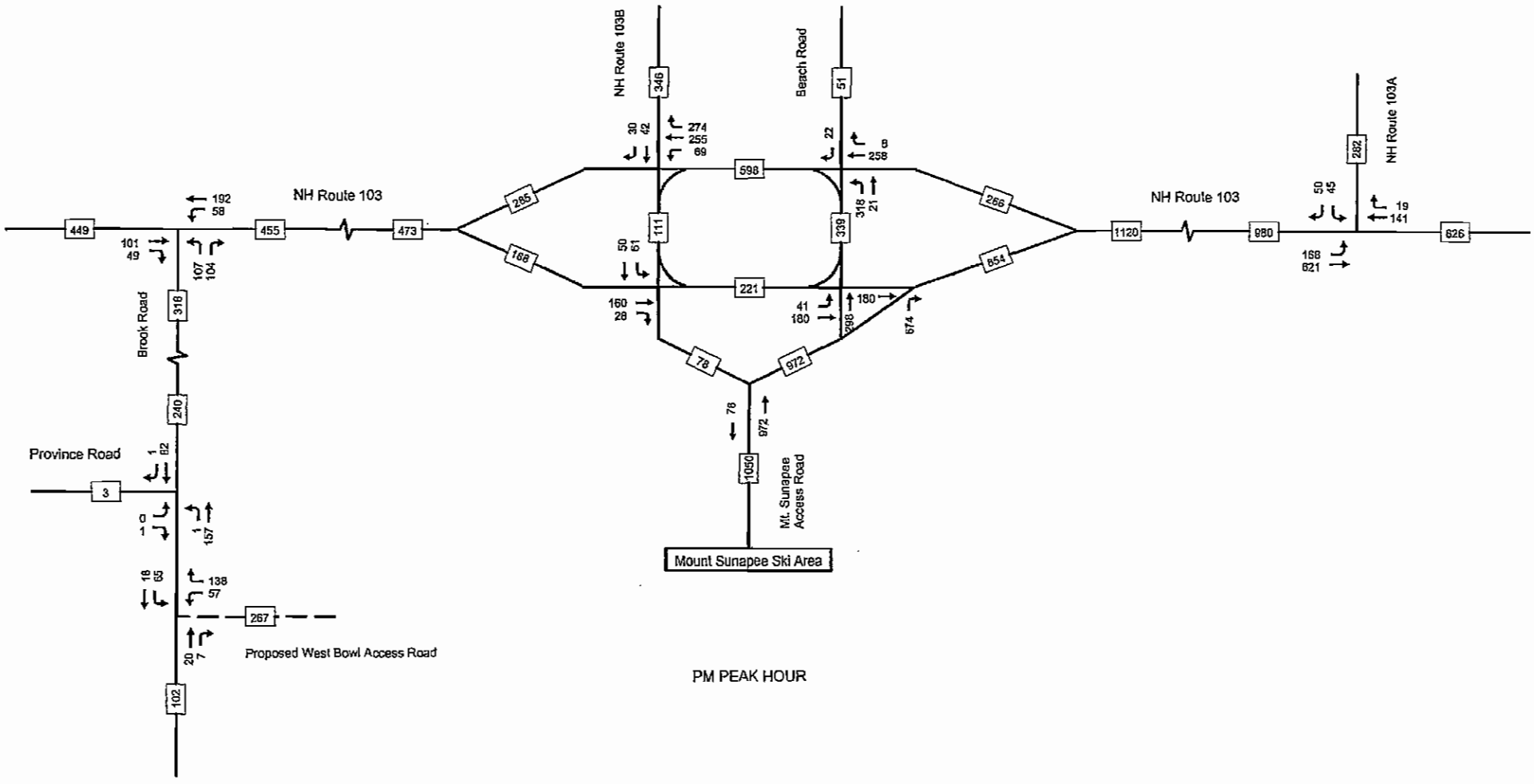

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Figure 13

2020 Typical Weekend Day Traffic Volumes - PM Peak Hour

Traffic Impact & Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

Pernaw & Company

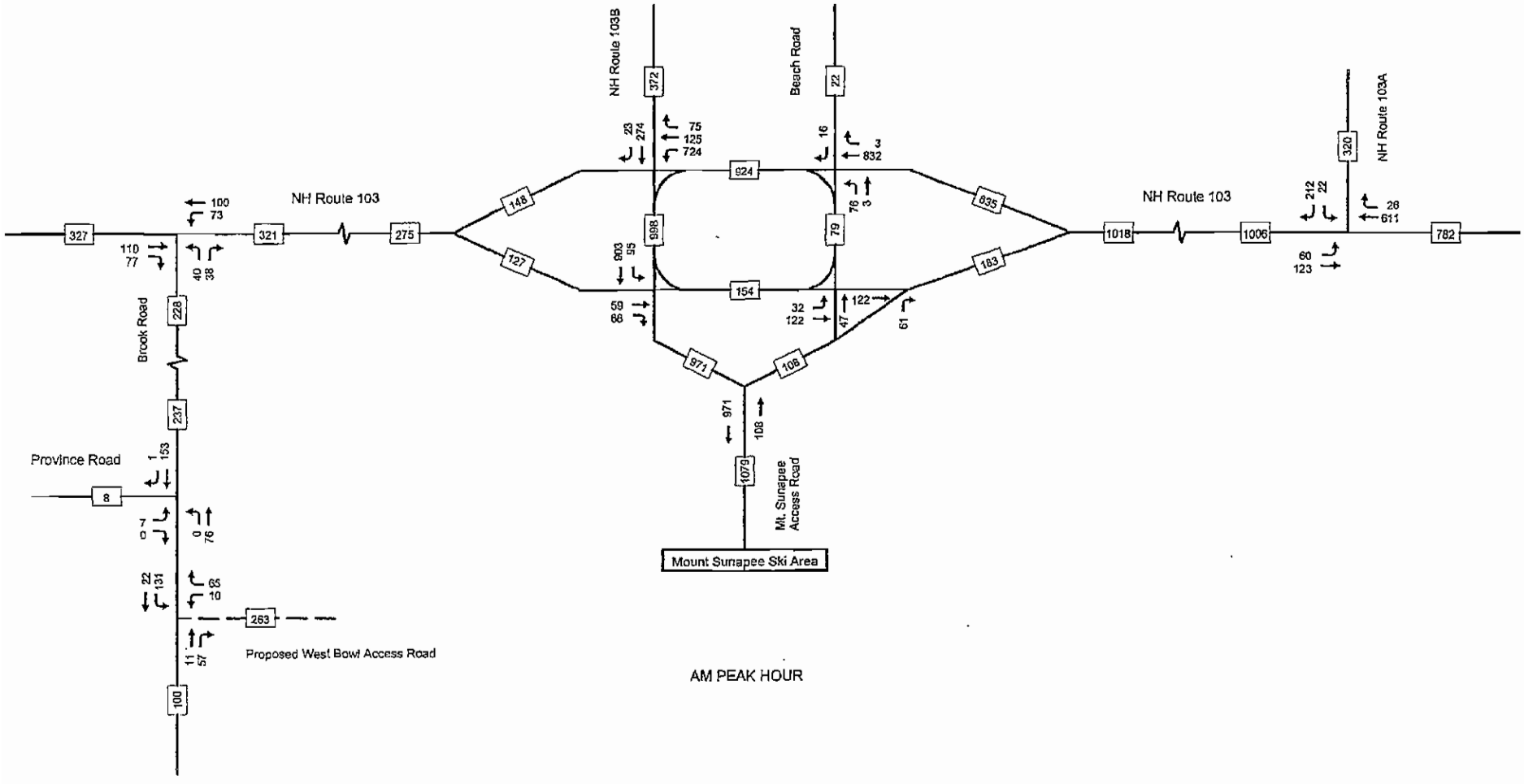

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Figure 14

2020 Capacity Day Traffic Volumes - AM Peak Hour

Traffic Impact & Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

Pernaw & Company

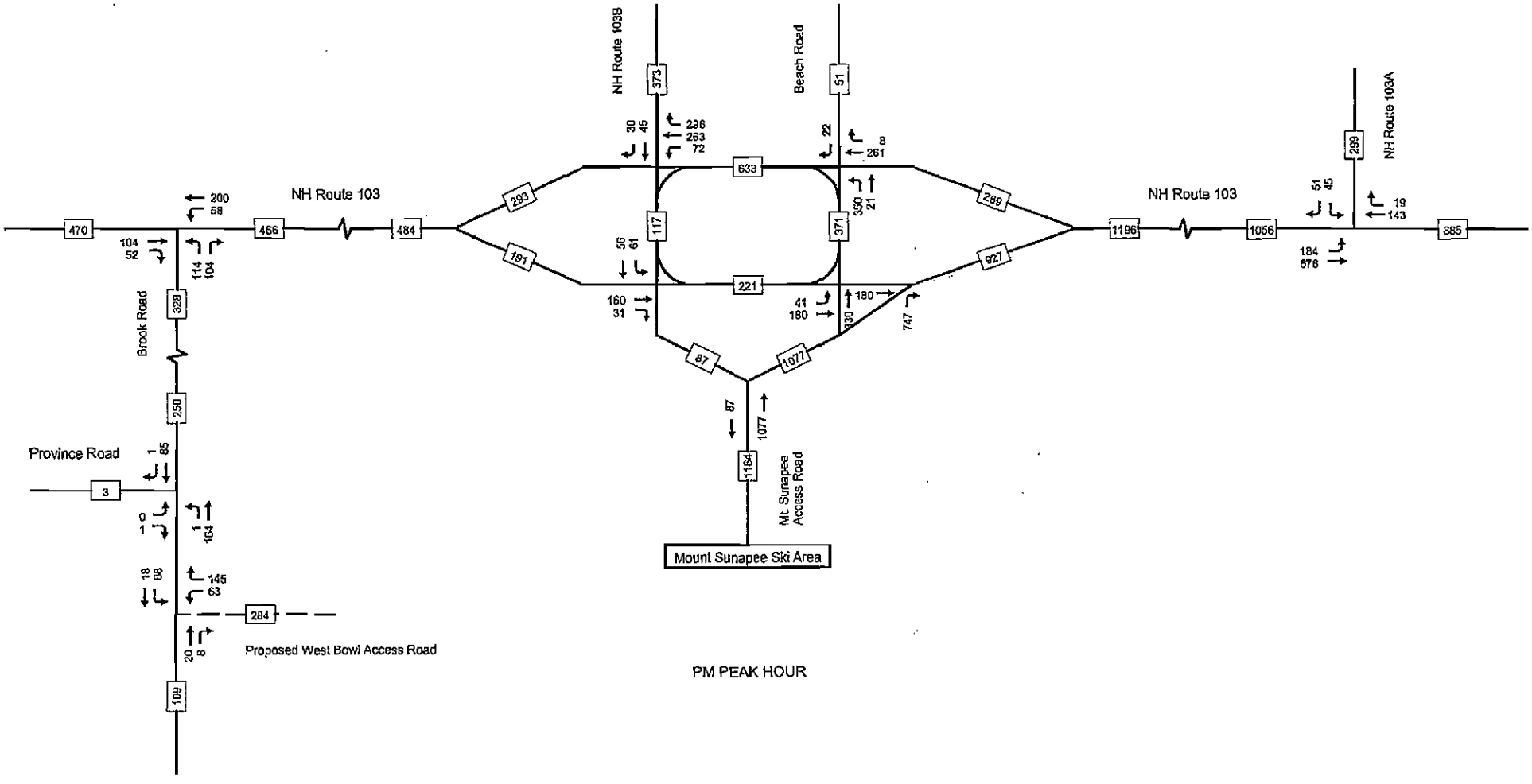

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Figure 15

2020 Capacity Day Traffic Volumes - PM Peak Hour

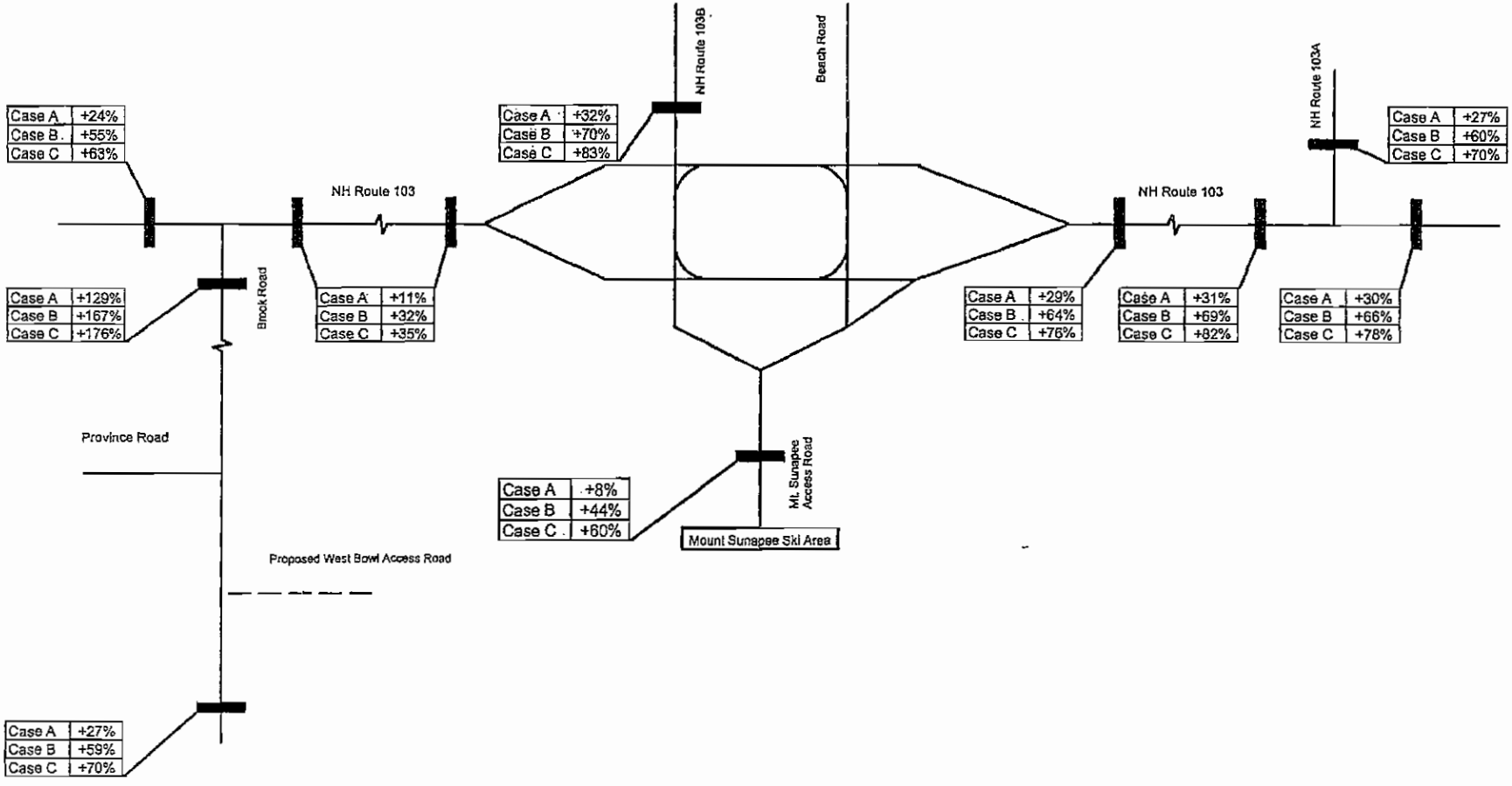
Traffic Impact & Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

V. IMPACT SUMMARY

A. ROADWAY VOLUMES – The overall changes to roadway traffic volumes in the local study area can be quantified by comparing the various 2010 and 2020 traffic projections with those observed on the count day in January 2004. The largest percentage gain occurs on the segment of Brook Road that lies between NH103 and the West Bowl. This high percentage is due to a low base year traffic volume, and the fact that this is the primary access route to the new facility. The roadway segment with the largest absolute gain occurs on the segment of NH103 that lies between the traffic circle and the NH103-A intersection. This highway segment receives the greatest increase due to the confluence of NH103 and NH103-A, and the heavy draw of skiers from southeastern New Hampshire and eastern Massachusetts. The diagram on Figure 16 summarizes the net increases in traffic flow as compared to 2004 conditions on a percentage basis. Table 4A and Table 4B summarize the anticipated traffic growth using six-year and ten-year periods respectively.

Table 4A	2004 - 2010 Impact Summary - PM Peak Hour				
Checkpoint	2004 Existing	2010 w/ West Bowl	2004-2010 Increase	2004-2010 Percent Change	2004-2010 Equivalent Annual Growth Rate
1. NH103 East of NH103A	497	644	+147	30%	4%
2. NH103 East of Traffic Circle	681	878	+197	29%	4%
3. NH103 West of Traffic Circle	356	398	+42	12%	2%
4. NH103 West of Brook Road	289	358	+69	24%	4%
5. Brook Road South of NH103	119	273	+154	129%	15%
6. Brook Road South of West Bowl Driveway	64	81	+17	27%	4%

Table 4B	2010 - 2020 Impact Summary - PM Peak Hour				
Checkpoint	2010 w/ West Bowl	2020 w/ West Bowl	2004-2010 Increase	2004-2010 Percent Change	2004-2010 Equivalent Annual Growth Rate
1. NH103 East of NH103A	644	826	+182	28%	3%
2. NH103 East of Traffic Circle	878	1120	+242	28%	3%
3. NH103 West of Traffic Circle	398	473	+75	19%	2%
4. NH103 West of Brook Road	358	449	+91	25%	2%
5. Brook Road South of NH103	273	318	+45	16%	2%
6. Brook Road South of West Bowl Driveway	81	102	+21	26%	2%



Case A - 2004 Count Day versus 2010 Typical Weekend Day
Case B - 2004 Count Day versus 2020 Typical Weekend Day
Case C - 2004 Count Day versus 2020 Capacity Weekend Day

NORTH

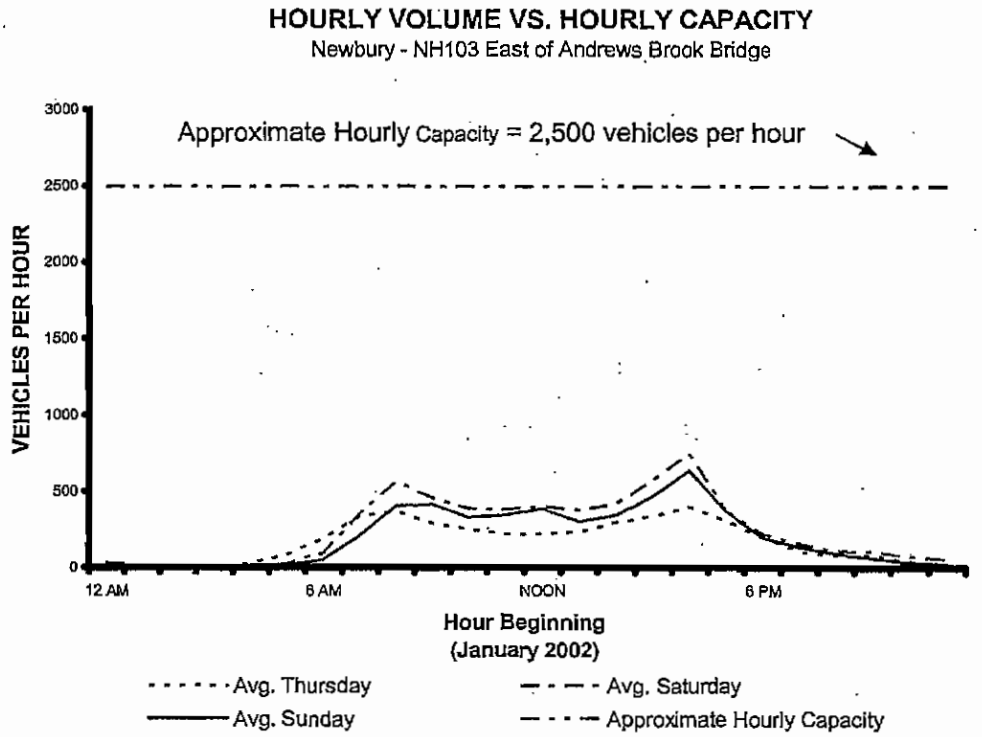
Figure 16

Traffic Volume Increases (2004 vs. Future Years) - PM Peak Hour Case

Traffic Impact & Site Access Study, Proposed Ski [illegible]pansion, Newbury, New Hampshire

B. ROADWAY CAPACITY – The term "roadway capacity" in this case refers to the maximum sustained hourly flow rate at which vehicles can reasonably be expected to traverse a uniform two-lane section under a set of roadway and traffic conditions. The capacity of a two-lane highway is 1,700 passenger cars per hour in each direction, with a maximum of 3,200 for travel in both directions. Taking into account that NH103 follows a rolling terrain (is not level) and that it accommodates a mix of passenger cars and trucks, the hourly capacity is conservatively estimated at approximately 2,500 vph (total both directions).

The future traffic projections for 2020 on Figure 15 indicate that the two-way traffic volume on NH103 is less than 1,200 vph during worst-case conditions. Accordingly, this two-lane section of NH103 exhibits ample capacity to accommodate the future traffic volumes during the ski season. There is no need to widen NH103 to a four-lane highway as a result of future growth at Mount Sunapee. The following diagram compares the hourly traffic volumes on NH103 at the permanent recorder station (east of Andrews Brook Bridge) with the approximate capacity of the highway. This graph shows that roadway capacity is not a constraint.



C. INTERSECTION CAPACITY – In addition to roadway capacity, intersections themselves have separate capacities and in some cases they can affect the flow of traffic on a particular roadway segment. Capacity and Level of Service (LOS) calculations pertaining to unsignalized intersections with STOP and YIELD sign control address the quality of service for those vehicles turning into and out of intersecting side streets. The availability of adequate gaps in the traffic stream on the major street actually controls the potential capacity for vehicle movements to and

from the intersecting side streets and driveways. Levels of Service are simply letter grades (A-F) that categorize the vehicle delays associated with specific turning maneuvers. Table 5 describes the criteria used in this analysis.

Table 5 — Level-of-Service Criteria for Unsignalized Intersections

Level of Service	Control Delay (seconds/vehicle)
A	≤ 10.0
B	> 10.0 and ≤ 15.0
C	> 15.0 and ≤ 25.0
D	> 25.0 and ≤ 35.0
E	> 35.0 and ≤ 50.0
F	> 50.0

Source: Transportation Research Board, Highway Capacity Manual 2000.

The base year (2010) and horizon year (2020) traffic projections form the basis for assessing traffic operations at each of the study area intersections from a capacity and delay standpoint. All study area intersections were analyzed according to the methodologies of the *Highway Capacity Manual 2000*[1], as replicated by *Synchro Traffic Signal Coordination Software (Version 6.0)*, which also performs unsignalized intersection capacity analysis. A traffic flow rate, capacity, Level of Service (LOS), and delay estimate was determined for each critical traffic movement at each location. The results of these analyses are summarized on Figure 17 (AM peak hour) and Figure 18 (PM peak hour) for the various cases. The results confirm that under existing conditions (2004), the NH103-B southbound approach to the traffic circle currently operates at capacity and with a poor LOS during instances within the AM peak hour period, when ski arrivals are at peak levels. This condition occurs because circulating traffic within the traffic circle has the vehicular right-of-way, and the majority of ski traffic is from points east. During the PM peak hour period when ski area departures are at peak levels, this and the other study area intersections operate below capacity and at much higher Levels of Service. These analyses pertain to the 15-minute period within the peak hour, and not the whole peak hour.

The analysis of the 2010 and 2020 cases revealed that during the arrival period (AM), two intersections within the traffic circle will become capacity deficient on capacity weekend days in 2010, and on typical weekend days by 2020. These two intersections are at the west side of the circle and include the NH103 (westbound)/NH103-B intersection and the NH103 (EB)/Circulating Ramp intersection. Analysis of the departure period (PM) indicates that the Mount Sunapee Access Road "slip ramp" to NH103 (eastbound) will experience congestion by 2020 on capacity days only. The remaining study area intersections will operate below capacity through the horizon year 2020, with the expanded ski area in full operation, and all quarter-share condominium units fully occupied.

[1] Transportation Research Board, *Highway Capacity Manual* (Washington, D.C., 2000).

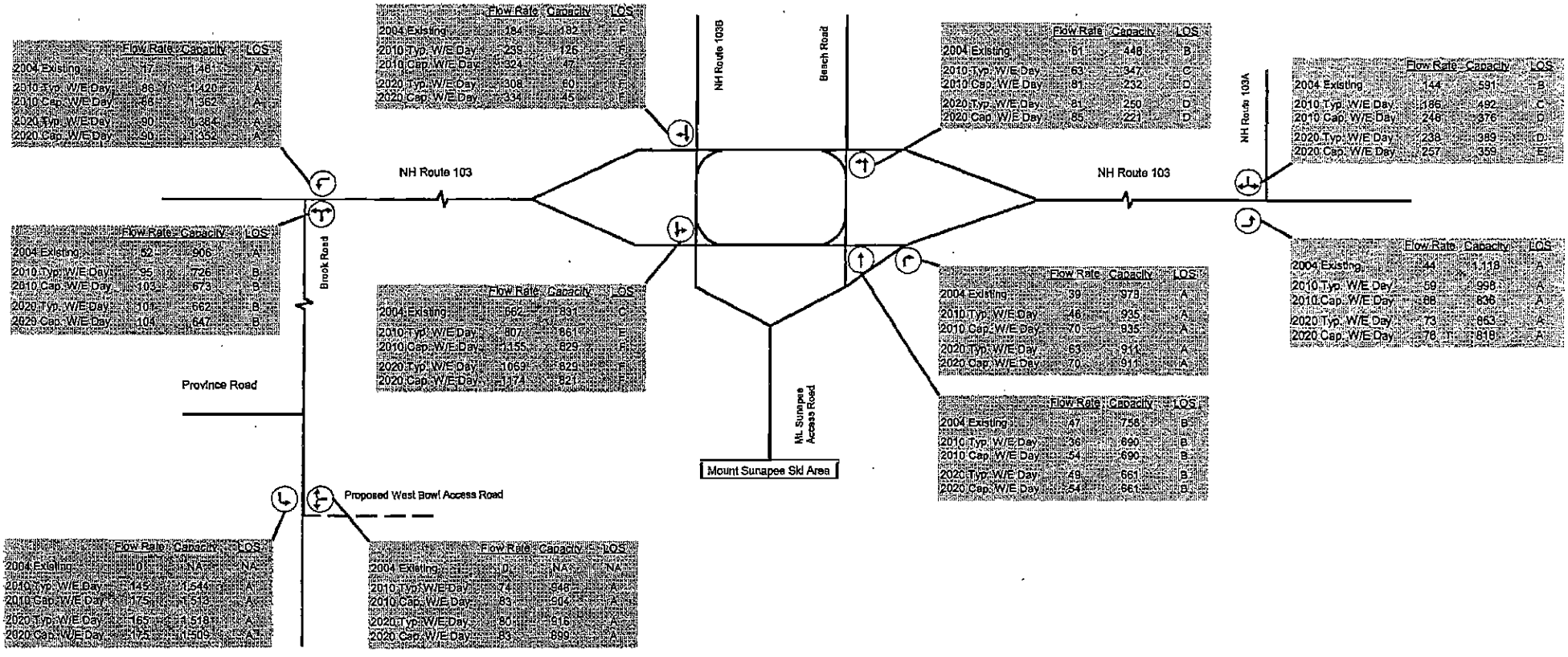


Figure 17

Stop & Yield Controlled Intersection Capacity Analysis Summary - AM Peak Hour

Traffic Impact & Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

Pernaw & Company

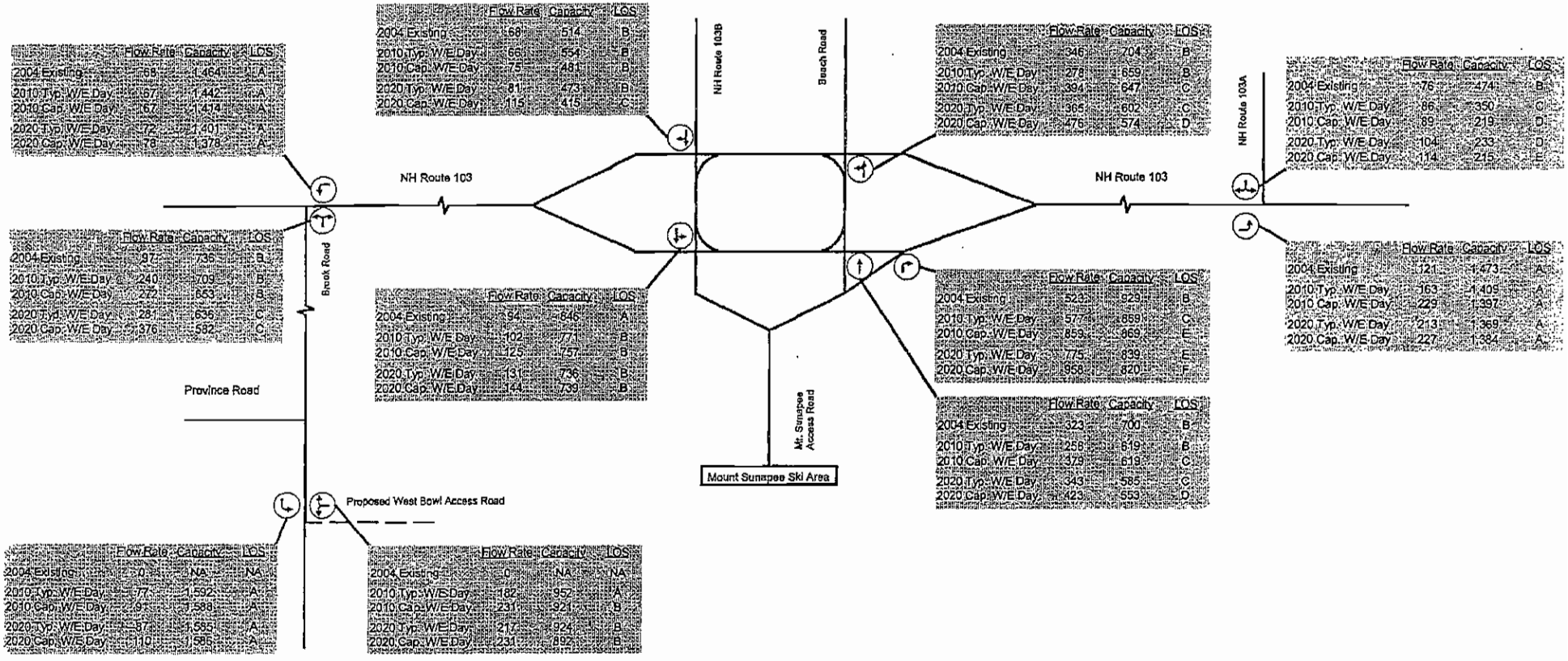


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Figure 18

Stop & Yield Controlled Intersection Capacity Analysis Summary - PM Peak Hour

Traffic Impact & Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

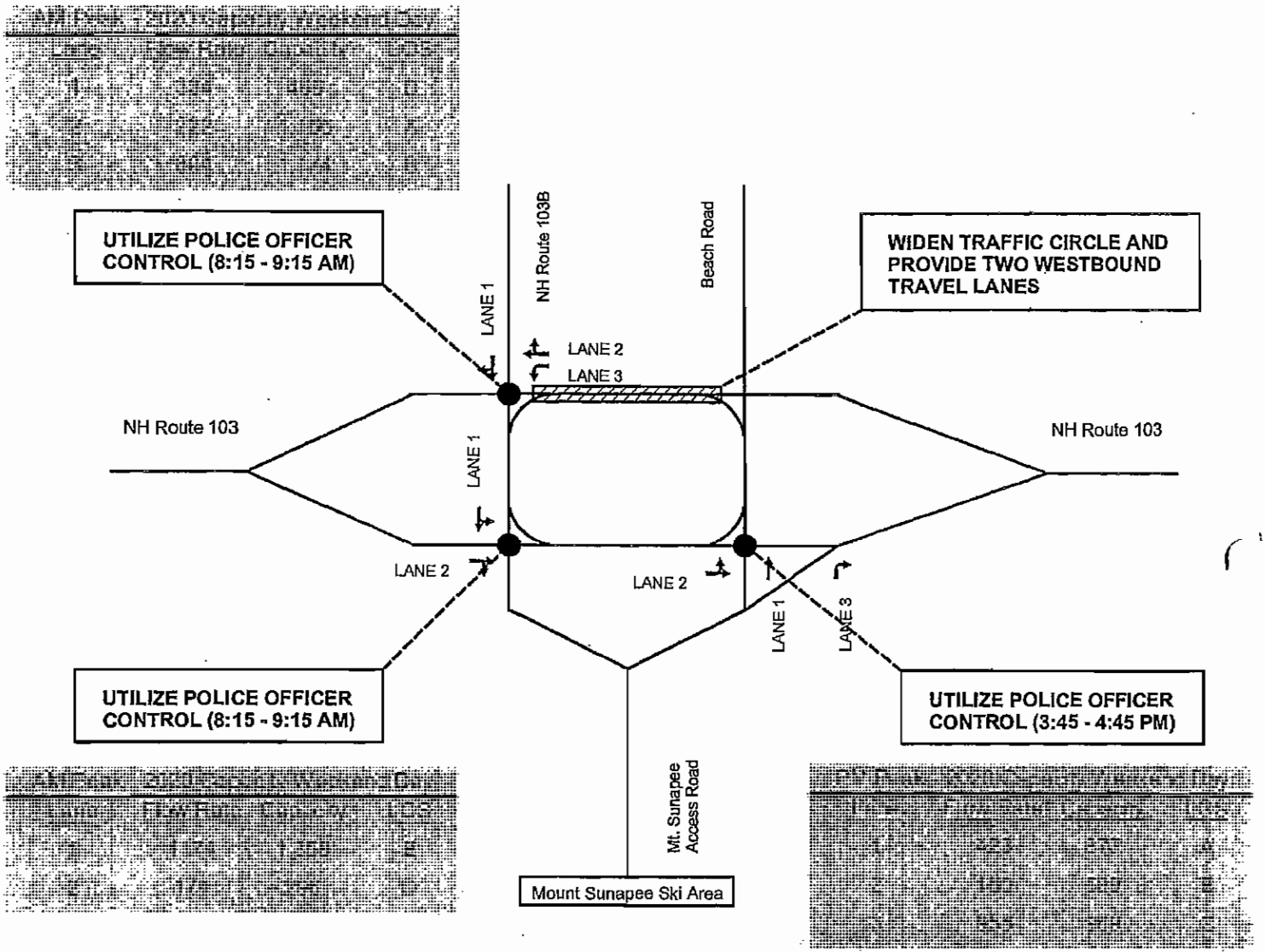

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Figure 19

Intersection Capacity Analysis Summary With Mitigation

Traffic Impact and Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

AM Peak - 2020 Capacity Weekend Day			
Lane	Flow Rate	Capacity	LOS
1	334	466	D
2	222	1,166	A
3	804	1,174	B

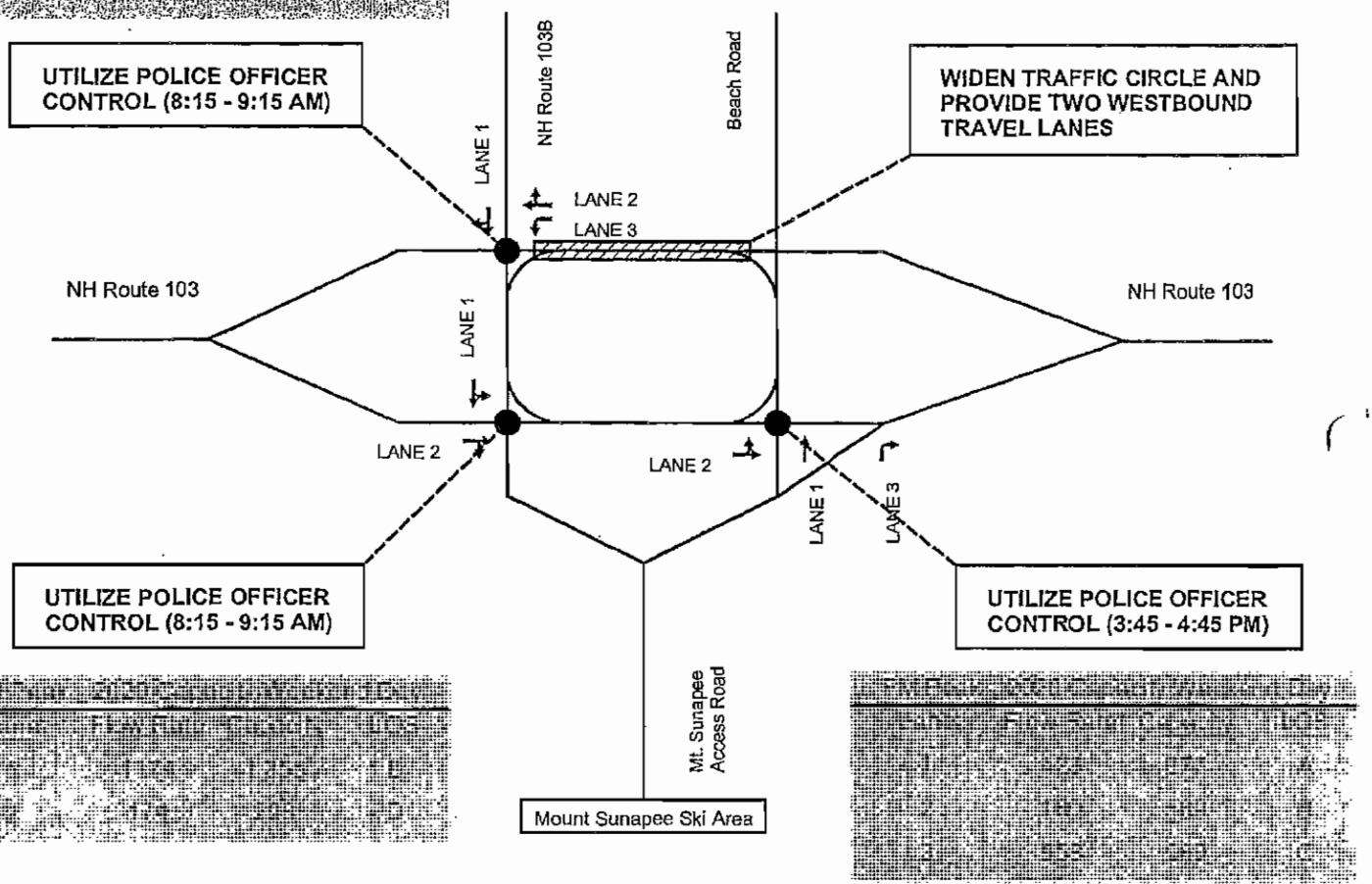

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Figure 19

Intersection Capacity Analysis Summary With Mitigation

Traffic Impact and Site Access Study, Proposed Ski Area Expansion, Newbury, New Hampshire

D. OTHER STREETS AND DRIVEWAYS – NH103 is punctuated with many residential driveways, commercial driveways, and local street intersections that operate in an uncontrolled fashion. The section of NH103 that extends between the traffic circle and the NH103-A intersection will receive the greatest increase due to the West Bowl expansion project for reasons stated earlier. For example, during the PM peak hour, the two-way traffic volume on this section of highway is expected to increase from 681 vehicles in 2004, to 878 vehicles in 2010, with the West Bowl in full operation. A generic intersection analysis, that is applicable to any intersecting street or driveway, shows that the increased delays for other vehicles (non-skiers) using these streets and driveways is nominal.

GENERALIZED DRIVEWAY DELAYS ON NH103 - PM Peak Hour Period

	2004 Existing	2010 w/West Bowl	Increased Control Delay
Typical Left-Turn Delay (from minor street)	14.4 sec	17.7 sec	+3.3 sec/veh
Typical Right-Turn Delay (from minor street)	11.8 sec	13.4 sec	+1.6 sec/veh
Typical Left-Turn Arrival Delay (to minor street from NH103)	0.1 sec	0.1 sec	neg

In all cases there is triple digit capacity for each of the critical turning movements at these other streets and driveways on NH103. It should be noted that the increase in delay is not a result of the West Bowl expansion project alone, but is also affected by normal background traffic growth by non-skiers.

E. BROOK ROAD – The width and condition of Brook Road is varied over its entire length between NH103 in Sunapee and NH10 in Goshen. The post development traffic projections for 2020 show that the section north of the West Bowl parking lot will accommodate a total of 250-330 vehicles during peak periods. The section immediately south of the West Bowl complex will accommodate approximately 110 vehicles on a peak hour basis.

Based on these anticipated traffic loads, and a design speed of 35 miles per hour, the minimum suggested pavement width for Brook Road is 24 feet (between NH103 and West Bowl), and 22 feet to the south of West Bowl. In all cases, graded shoulders are considered to be desirable.

Brook Road is a State maintained facility. Accordingly, a driveway permit from the NHDOT, District 2 will be required to construct the proposed driveway on Brook Road for the West Bowl area. Analysis of the traffic projections contained herein demonstrates that a single shared approach lane is sufficient on each leg of the Brook Road/West Bowl driveway intersection. Intersection sight distances at the proposed driveway will need to be evaluated at the driveway permit stage.

F. TECHNICAL APPENDIX – A separate technical appendix includes traffic data, growth rate calculations, and capacity analyses that were performed in the course of this study.

VI. SUMMARY OF FINDINGS AND CONCLUSIONS

The Mount Sunapee Ski Resort in Newbury, New Hampshire currently offers 62 slopes and trails on 230 skiable acres that are serviced by ten ski lifts. Vehicular access to the mountain is provided by a single access road that intersects NH Route 103 at the Mount Sunapee traffic circle. The West Bowl expansion project includes adding approximately 75 acres of terrain that is skiable from the main summit, a new lift facility, a new base lodge, and 175 to 250 quarter-share condominium units. These improvements will increase the comfortable carrying capacity of the ski area to approximately 6,850 skiers, and is intended to better serve existing skier demand and maintain market share for the long-term future. Vehicular access to the new West Bowl facility is proposed via a two-way driveway that will intersect the east side of Brook Road in Goshen, at a point approximately 2.1 miles south of NH103 in Sunapee, New Hampshire.

The traffic counts that were collected at the traffic circle on Sunday, January 18, 2004 (Martin Luther King holiday weekend) revealed that the ski area generated 669 vehicle-trips (594 in, 75 out) during the peak ARRIVAL period from 8:15 to 9:15 AM, and 728 vehicle-trips (68 in, 660 out) during the peak DEPARTURE period from 3:45 to 4:45 PM. Due to weather and other conditions, this particular count is representative of a typical weekend day.

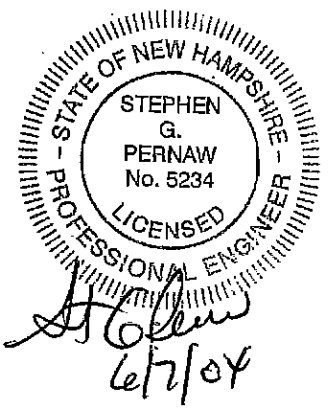
Future traffic projections were prepared for 2010 (base year = project completion) and 2020 (horizon year) for the entire study area, and reflect both typical weekend day and capacity weekend day conditions. By 2020, the Mount Sunapee Resort is expected to generate a total of 1,222 (AM) and 1,317 (PM) peak hour trips on a typical weekend day with the condominium units completely occupied. Under this scenario, the West Bowl driveway will accommodate approximately 248 (AM) and 267 (PM) trips. This translates into approximately 20 percent of the total trips utilizing the new access point on Brook Road, and the remaining 80 percent utilizing the existing access road at the traffic circle.

An intersection capacity and Level of Service analysis of all study area intersections using the 2020 traffic projections revealed that traffic operations and capacity deficiencies will occur at two locations within the traffic circle during the arrival period, and at one location during the departure period. To mitigate these situations, a combination of roadway widening along a portion of the traffic circle is necessary, along with police officer control from 8:15 to 9:15 AM (two persons) and 3:45 to 4:45 PM (one person) on typical winter weekends. For the base year case (2010), the need for police officer control will likely be limited to capacity weekend days only. In terms of roadway capacity, the two lane section of NH103 was found to be appropriate, and it will operate well below capacity on winter weekend days through 2020 and beyond, with the West Bowl Expansion project in full operation.

At the multitude of intersecting streets and driveways along the NH103 corridor (east of Mount Sunapee), the net increase in through traffic (due to ski area expansion and normal background growth) will result in longer delays for those using these various points of access during peak arrival and departure periods. Analysis of a generic case shows that increase in such delays will be limited, and on the order of an additional 2-4 seconds of delay per side-street vehicle, when comparing 2004 existing conditions with 2010 (full expansion). In the case of Brook Road,

capacity conditions do not govern; however, the minimum roadway width should be 24 feet on the section between NH103 and the West Bowl driveway, and 22 feet south of the driveway, based on the anticipated traffic volumes and a thirty-five mile per hour design speed.

With implementation of the basic measures and recommendations contained herein, vehicular access to and from the Mount Sunapee Resort as proposed, will be reasonably safe and efficient from a traffic engineering and operations standpoint. Both the recommended modifications to the traffic circle and the proposed driveway on Brook Road will require the review and approval of the New Hampshire Department of Transportation – District 2 through the Driveway Permit system.



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Preliminary Wildlife and Wildlife Habitat Assessment Mount Sunapee Resort -- West Bowl Expansion

General

Field work to determine the presence of wildlife and the potential for significant habitats was undertaken on 4 and 13 May 2004. In both instances, investigations began at the summit, the first day concentrating on the area proposed for the ski lift, the second day concentrating on areas to the south and west. On both occasions, observations were made during a 'wander search', with objectives to note any wildlife or wildlife sign, and to characterize the vegetative cover and potential wildlife habitat.

On 4 May, snow cover from a storm the night before extended from the summit to about 750 meters elevation. The day was cool but with increasing sunshine and light wind. The second day, 13 May, was warm and sunny with light wind. Between the two dates, the season had advanced significantly, with development of leaves and spring flora much more evident by 13 May.

Land Use

There is little evidence of past human activity on the upper slopes, with the exception of the hiking trail. Although apparently undisturbed for many years, the number of large trees is small. At ca. 600 meter elevation, a few scattered yellow birch (Betula alleghaniensis) measuring as much as 87 cm. diameter (34.25 inches) were noted, but most trees are of modest height and diameter. The coniferous forest on a rocky shoulder near the state park boundary contains a few large red spruce (Picea rubens) but such trees are uncommon on the project site.

Uniformity of cover type found at higher elevations is missing below ca. 550 meters where recent cutting has taken place, and evidence of old logging roads and fencelines is found. The southern edge of the study area is bounded by a stone wall, indicating that one side or both was once cleared land. Clearings have grown to brush (primarily brambles, pin cherry and aspen), and the general aspect is of a diverse but broken canopy. The base area is a combination of broken woodlots, old field association and remnant orchards typical of once-settled farmland.

Old growth, as described in Neid, et al. (2003) was not observed on the study area. Isolated large trees were exceptionally uncommon, as noted above. The forest cover above 550 meters was generally uniform in height and apparent age, with a sparse shrub understory. There are few downed logs or dead snags in this forest, indicating a relatively even-aged forest that has developed since logging occurred prior to 1924.

Vegetative Cover

From summit to base, the dominant forest changes in distinct bands from coniferous growth at the summit, northern hardwoods between ca 780 and 480 meters elevation, and mixed growth below 480 meters. The summit forest is primarily spruce-fir (*Picea rubens* and *Abies balsamea*) with numerous birches (*Betula papyrifera*). The northern hardwood community includes beech (*Fagus grandifolia*), paper birch (*Betula papyrifera*), yellow birch (*B. alleghaniensis*) and black cherry (*Prunus serotina*), with sugar maple (*Acer saccharum*), white ash (*Fraxinus americana*), hophornbeam (*Ostrya virginiana*) and aspen (*Populus tremuloides*) increasingly common at lower elevations. Below 510 meters, stands of hemlock (*Tsuga canadensis*) and scattered red oak (*Quercus rubra*) appear, and in the vicinity of the proposed base facilities, white pine (*Pinus Strobus*) is common.

The high elevation coniferous woods has an understory of small trees of overstory species along with hobblebush (*Viburnum alnifolium*) mountain maple (*Acer spicatum*), red maple (*Acer rubrum*) and mountain ash (*Sorbus americana*) and a mossy ground cover which includes wood sorrel (*Oxalis montana*), Canada mayflower (*Maianthemum canadensis*), blue-bead lily (*Clintonia borealis*), wild sarsaparilla (*Aralia nudicaulis*) and goldthread (*Coptis groenlandica*).

The northern hardwood forest is open, with little in the way of saplings or understory shrubs except for striped maple (*Acer pensylvanicum*) and scattered hobblebush. Typical spring flowers such as Canada mayflower, false Solomon's-seal (*Smilacina racemosa*), Indian-cucumber (*Medeola virginiana*), purple trillium (*Trillium erectum*), painted trillium (*T. undluatum*), twisted-stalk (*Streptopus roseus*), bellwort (*Uvularia sessilifolia*) and yellow violet (*Viola rotundifolia*) occur sporadically in these woods, with blue-bead lily becoming uncommon at lower elevations. Ferns (*Osmunda claytoniana, O. regalis, O. cinnamomea, Thelypteris noveboracensis* and *Polystichum acrostichoides*) occur in the hardwood forests, as do clubmosses (*Huperzia lucidula, Diphasiastrum digitatum, Lycopodium obscurum* and *L. annotinum*).

The lower section of northern hardwood forest has been logged in the past, and regeneration includes sprouts and saplings of the trees listed above, along with shadbush (*Amelanchier* spp.) and pin cherry (*Prunus pensylvanica*). Hayscented fern (*Dennstaedtia punctilobula*) and bracken (*Pteridium aquilinum*) are common in logged forests and clearings.

Lower elevation forests contain a greater diversity of species. All the higher-elevation species are present, with the addition sweet birch (*Betula lenta*), apple (*Malus pumila*), cottonwood (*Populus deltoides*) and basswood (*Tilia americana*). Several shrub species absent on upper slopes are common at lower elevations, including meadowsweet (*Spiraea latifolia*), steeplebush (*S. tomentosa*), brambles (*Rubus idaeus*, R. *alleghaniensis* and *R. occidentalis*), willows (*Salix* spp.), choke cherry (*Prunus virginiana*) and hawthorn (*Crataegus* sp.). Weedy non-native species are common at the base.

One species listed on the New Hampshire Natural Heritage Bureau proposed list of Endangered, Threatened, Watch, Extirpated and Intermediate Plant Species was noted during field work. A single butternut tree (*Juglans cinerea*) occurs on the north side of the existing access road off Brook Road. The area appears to have been an old house site, and there are likely to be additional butternuts nearby. Butternut is of concern because of the threat posed by canker dieback (*Melanconis juglandis*), a widespread fungus disease that weakens and then kills the tree. The tree noted at Brook Road can likely be avoided and therefore not be affected by the project.

Wildlife Observations

The greatest concentration of wildlife sign was observed in the area where logging operations have recently taken place. While occasional evidence of moose (primarily scat) was noted as high on the mountain as 700 meters, such sign is abundant in the upper area of the cut. In addition, there are localize areas of concentrated bark stripping (mostly on red and striped maple) and browsing on maples, ash, aspen and elm. Evidence of deer was sporadic, consisting of widely scattered pellet groups and occasional browsing.

Pine and hemlock stands at lower elevations were investigated specifically to determine whether there was evidence of use by overwintering deer. The stands tend to be small and fragmented, and the overstory does not appear to be dense enough to prevent deep snows from accumulating or to shield the interior from winter winds. Hemlock foliage, within reach of deer, remained unbrowsed. No deer sign was noted in these stands.

No trees scarred by bears were noted during field work, and potential denning sites appear to be limited to areas with ledges and tumbled stone at higher elevations. Such an area was observed on a small spruce-covered promontory at ca. 700 meters near the southern edge of the project area. Talus-like rocks on the west side of this area could provide shelter for hibernating bears, although no indication of such use was seen (Photo 1). This area is south of the southernmost proposed ski trail, and would not be affected by the project as I understand it.

Bird life at Mount Sunapee is typical of deep forest environments at this latitude. Because field work was conducted in early to mid-May, much of the spring migration had not occurred, however, and most birds observed were resident species (hairy and downy woodpeckers (*Picoides villosus* and *P. pubescens*), chickadees (*Parus atricapillus*), blue jays (*Cyanocitta cristata*), ruffed grouse (*Bonasa umbellus*). Ovenbirds (*Seiurus aurocapillus*) are common in the northern hardwood forests. The extensive hardwood forests can be expected to provide habitat for numerous migratory and resident species.

Two partial twig nests were noted in tops of beech trees near the hiking trail at ca. 660 meters (Photo 2). There was no evidence of recent use (fresh twigs, feathers or droppings near the nests, so it was assumed that they were built last year. Being incomplete, the nests were not identifiable as to species. The fact that there were two nests, in trees that

did not stand appreciably above the general canopy, would tend to eliminate raptors as the builders, and I conclude that they were most likely built by great blue herons (*Ardea herodias*).

Miscellaneous observations included evidence of porcupine (*Erethizon dorsatum*) in a small hovel beside a tote road, and a red-bellied snake (*Storeria occipitomaculata*) at ca. 480 meter elevation.

Summary

With the exception of a few scattered large trees, the area appears to have a history of timber operations: prior to 1924 on state park lands, and within the past 20 years on remaining properties. No areas answering to the description of old growth forests as used in Neid, et al. (2003) were observed.

One plant species of concern to the New Hampshire Natural Heritage Bureau was noted next to Brook Road. A single butternut tree occurs at an old house site north of the existing access road, but it appears to be far enough from the road not to be affected by improvements that might take place on the existing footprint. Before work is done, the tree (and any others nearby) should be flagged and a suitable protective buffer established.

The most significant wildlife observation was the two twig nests, possibly built by great blue herons, in tree tops at ca. 660 meters near the Summit Hiking Trail. Neither nest appeared to be finished or under active construction, but their presence indicates potential use of these woods for nesting by such birds. If the nests were active, a large buffer zone would be recommended within which no human activity should take place. Here, however, the birds who built these nests were acclimated to an active hiking trail lies a few yards away.

Wildlife on this parcel is typical of large wooded tracts in the state. Moose are the most obvious large animal, and the species is having impacts on woody plant succession where there is concentrated activity. A broad zone at ca. 540 meters (the upper edge of areas that have seen logging operations) is heavily used by moose, and ash, maples, elms, yellow birches and hophornbeams are especially affected by browsing. Bark stripping on striped maple and red maple is locally common.

Deer sign is light across most of the site, with pellet groups and evidence of browsing uncommon. Areas used by deer as overwintering habitat was not observed on the project area. Pine and hemlock stands occur at the lowest elevations, but they are fragmented and have relatively open canopies. In most instances where hemlocks, a favored browse species, occurs, foliage at heights available to deer showed only sporadic evidence of browsing.

Conclusions

The principal impact of the proposed ski trail development on wildlife will be the fragmentation of a relatively uniform forest. Certain deep-woods species of birds may be affected, depending on the width of the trails, but the number of species is likely to be increased as extensive "edge" habitat is created on both sides of all trails. In addition, the trails themselves will offer openland habitat that is currently not available.

Edge habitat will also provide ample browse for deer and moose, and both species can be expected to increase in numbers. There should be minimal impact on other species of resident mammals.

Literature Cited

Neid, S.L., D.D. Sperduto and K.F. Crowley. 2003. Natural Heritage Inventory of the East Bowl at Mount Sunapee State Park. A report submitted to the State of New Hampshire by the New Hampshire Natural Heritage Bureau. DRED Division of Forests & Lands and the Nature Conservancy. Concord.

Photo 1. Partial twig nests in beech trees, near Summit Hiking Trail at ca. 660 meters.

Isolated rock at ca. 675 meters, midway between proposed lift line and park boundary. With the exception of a rocky promontory at ca. 700 meters near the southern edge of the project area, such rock was rare, but could offer denning sites for black bear.

Characteristic Plant Species
Mount Sunapee West Bowl Expansion

TREES		
Eastern white pine	*Pinus strobus*	Scattered mid-slope, in stands at base
Eastern hemlock	*Tsuga canadensis*	Scattered mid-slope and below, occasionally in small stands
Balsam fir	*Abies balsamea*	Co-dominant at higher elevations
Red spruce	*Picea rubens*	Co-dominant at higher elevations, scattered individuals at mid-slope
Trembling aspen	*Populus tremuloides*	Minor component at lower elevations
Bigtooth aspen	*Populus grandidentata*	Scattered
Butternut	*Juglans cinerea*	One tree near Goshen Road entrance
Hophornbeam	*Ostrya virginiana*	Minor component at lower elevations
Black birch	*Betula lenta*	Uncommon
Yellow birch	*Betula alleghaniensis*	Co-dominant in mid to upper level deciduous woods
Paper birch	*Betula papyrifera*	Co-dominant at high elevations, common at mid-slope
Gray birch	*Betula populifolia*	Lower elevations
Beech	*Fagus grandifolia*	Common, often dominant, component of northern hardwood stands
Red oak	*Quercus rubra*	Minor component in NHW stands
American elm	*Ulmus americana*	Minor component, lower elevations
Mountain ash	*Sorbus americana*	Common at higher elevations
Shadbush	*Amelanchier* sp.	Occasional
Black cherry	*Prunus serotina*	Common species, lower mid-slopes and above
Hawthorn	*Crataegus* sp.	Uncommon; lower elevations
Apple	*Malus pumila*	Lower elevations (old farm sites)
Striped maple	*Acer pensylvanicum*	Common species lower mid-slopes and above
Sugar maple	*Acer saccharum*	Common below conifer belt
Red maple	*Acer rubrum*	Common
Basswood	*Tilia americana*	Uncommon, below mid-slope
White ash	*Fraxinus americana*	Common on bottom 2/3 of mountain
SHRUBS		
Willows	*Salix* spp.	Occasional, along watercourses
Beaked hazelnut	*Corylus cornuta*	Common mid-slope and below
Currant	*Ribes* sp.	Occasional
Meadowsweet	*Spiraea latifolia*	Frequent, mid-slope and below
Steeplebush	*Spiraea tomentosa*	Uncommon, lower slopes
Shadbush	*Amelanchier* sp.	Occasional, lower 2/3 of mountain
Blackberry	*Rubus alleghaniensis*	Frequent
Black raspberry	*Rubus occidentalis*	Lower elevations
Raspberry	*Rubus idaeus*	Lower elevations
Dewberry	*Rubus hispidus*	Lower elevations
Choke cherry	*Prunus virginiana*	Near base
Pin cherry	*Prunus pensylvanica*	Common from mid-slope & below

Mountain maple	*Acer spicatum*	Common understory tree
Low sweet blueberry	*Vaccinium angustifolium*	Clearings at lower elevations
Elderberry	*Sambucus* sp.	Scattered
Hobblebush	*Viburnum alnifolium*	Abundant at higher elevations
Mtn fly honeysuckle	*Diervilla lonicera*	Occasional

HERBACEOUS

Shining clubmoss	*Huperzia lucidula*	Common at higher elevations
Ground-cedar	*Diphasiastrum digitatum*	Occasional at lower elevations
Princess-pine	*Lycopodium obscurum*	Occasional at lower elevations
Bristly clubmoss	*Lycopodium annotinum*	Occasional
Long beech-fern	*Phegopteris conectilis*	Occasional
Cinnamon fern	*Osmunda cinnamomea*	Common
Interrupted fern	*Osmunda Claytoniana*	Common
Hay-scented fern	*Dennstaedtia punctilobula*	Common in cutover areas
Sensitive fern	*Onoclea sensibilis*	Common at lower elevations
Bracken	*Pteridium aquilinum*	Common in clearings & edges
Canada mayflower	*Maianthemum canadense*	Common
False hellebore	*Veratrum viride*	Occasional in wet sites
Blue-bead lily	*Clintonia borealis*	Common, esp. at upper elevations
Purple trillium	*Trillium erectum*	Occasional
Painted trillium	*Trillium undulatum*	Uncommon
Indian-cucumber	*Medeola virginiana*	Common
Twisted-stalk	*Streptopus roseus*	Occasional in hardwood forests
Bellwort	*Uvularia sessilifolia*	Common
False Solomon's seal	*Smilacina racemosa*	Common
Goldthread	*Coptis groenlandica*	Common
Buttercup	*Ranunculus acris*	Common at lower elevations
Partridgeberry	*Mitchella repens*	Occasional
Blue-eyed grass	*Sisyrinchium montanum*	Occasional
Starflower	*Trientalis borealis*	Common
Mountain sorrel	*Oxalis montana*	Common at higher elevations
Sarsaparilla	*Aralia nudicaulis*	Common
Cinquefoil	*Potentilla simplex*	Common at lower elevations
Strawberry	*Fragaria virginiana*	Common at lower elevations
Yellow violet	*Viola rotundifolia*	Common at higher elevations
White violet	*Viola blanda*	Occasional, damp openings
Blue violet	*Viola* sp.	Occasional
St. John's-wort	*Hypericum perfoliatum*	Occasional
Beechdrops	*Epifagus virginiana*	Occasional under *Fagus*
Bunchberry	*Cornus canadensis*	Occasional
Indian-pipe	*Monotropa uniflora*	Occasional
Speedwell	*Veronica officinalis*	Disturbed areas at lower elevations
Rough goldenrod	*Solidago rugosa*	Common at lower elevations
Ox-eye daisy	*Chrysanthemum leucanthemum*	Common, lower elevations

Economic and Fiscal Impact Analysis

for the proposed expansion of the
Mount Sunapee Resort

Prepared for
The Sunapee Difference, LLC

For inclusion in the
Mount Sunapee Resort
Environmental Management Plan

Appendix K

Prepared by
RKG Associates, Inc.
Durham, New Hampshire

June 4, 2004

TABLE OF CONTENTS

I. INTRODUCTION

This report was prepared to examine the potential economic and fiscal impacts associated with the proposed expansion of the Mount Sunapee Resort. The first portion of the study focuses on the potential impacts that are expected to occur within the broader regional and state economies as a result of the project. The second portion of the analysis has a more narrow scope that examines the potential fiscal impacts that could occur in the two towns, Newbury and Goshen, within which the proposed expansion would take place.

The project is expected to include the creation of approximately 75 acres of new ski slopes and trails in the area referred to as the West Bowl. The ski area presently operates within the boundaries of Mount Sunapee State Park, on state-owned land, which is leased from the State of New Hampshire's Department of Resources and Economic Development (DRED). The proposed expansion would occur on both state-owned land, as well as on private land in the Towns of Newbury and Goshen. In addition to the ski area expansion, the project is also expected to have a residential component that would include the construction of 175 to 250 seasonal housing units, on private land, in the Town of Goshen. The regional economic and local fiscal impacts associated with this proposed housing development have been evaluated as a separate component of the overall project.

II. SUMMARY OF MAJOR FINDINGS AND CONCLUSIONS

This section of the report highlights a number of major findings that were identified in the course of conducting the analysis of the proposed project at Mount Sunapee. It also presents a summary of the conclusions reached with regard to the potential economic and fiscal impacts expected to occur at the state, regional and local levels.

- The ski resort is located on state-owned land which has been leased from the State of New Hampshire for the last six years by the current management company, The Sunapee Difference, LLC (dba as the Mount Sunapee Resort). Prior to this time-period, the facility was managed by the State of New Hampshire.

- The Mount Sunapee Resort operates on a year-round basis offering recreational activities such as skiing, snowboarding, hiking, and sightseeing, as well as hosting special events, such as the League of New Hampshire Craftsmens' annual fair. However, the vast majority of visitors to the facility arrive during the winter and spring ski seasons, a four to five month period between December and April.

- The average number of skiers that presently visit the ski area on an annual basis is approximately 247,500. With the increased capacity added as a result of the proposed West Bowl expansion it is estimated that total skier visits could increase by approximately 54,600, or 26%, after the completion of total build-out. The availability of the proposed seasonal housing development will be a component of this total build-out capacity.

- Proposed expansion plans include the construction of 175 to 250 seasonal housing units that would be located in the Town of Goshen. These units would include a mix of hotel-style condominiums, townhouse condominiums, and single family dwellings. Some of the units are likely to be fractionally owned and managed by a private association.

- The State of New Hampshire presently receives an average of approximately $644,000 annually in revenues from operations directly related to the ski area. These include: annual lease payments and base rent from the management company, which are based on total revenues; state meals and rooms taxes collected for food and beverage sales at the facility; and state business profits taxes paid by the management company based on annual profits. Revenues paid to the state over the last six years will total approximately $2.41 million through December 2004. It is estimated that expansion of the ski area will eventually result in annual average revenues paid to the state totaling approximately $810,500, an increase of $166,500 over the current amount.

- Prior to 1998, when the facility was managed by the state, total employment at the ski area was approximately 315. Sixteen (16) of these jobs were full-time year-round positions. The ski area presently employs a total of 520 people during peak periods, including 29 full-time year-round employees, 186 full-time seasonal employees, and 305 part-time seasonal employees. This represents an increase of 65% in the number of people employed over the last six years. Projected increases in employment related to the proposed ski area expansion is estimated to be 76 additional positions, or about 11% over current levels. The annual additional wages associated with this employment increase would be approximately $437,000 which is a 17% increase over the existing $2.5 million annual payroll. Management of the seasonal housing unit development would result in the creation of 32 additional jobs and annual wages of approximately $262,000.

- The increase in skier visits related to ski area expansion will generate additional spending in the local and regional economies. It is estimated that off-mountain expenditures will approach approximately $1.0 million, a portion of which will be captured by area businesses. It is anticipated that most of these expenditures can be accommodated within existing businesses and will not result in any significant demand for new construction of commercial building space.

- From a regional perspective, the proposed construction of seasonal housing in the West Bowl area would be expected to have a primarily positive effect on the area's housing market. The limited amount of housing construction over the last decade has resulted in an inadequate supply of units to support the continued economic growth of the region. This has resulted in the conversion of existing seasonal units to year-round use which could adversely affect the tourism-based portion of the area's economy.

- As part of the proposed ski area expansion plans, the Mount Sunapee Resort would agree to give the state a minimum of 100 acres of high-elevation, conservation land. These lands are adjacent to Mount Sunapee State Park and the Monadnock-Sunapee

Greenway corridor, which will help to preserve the scenic and natural resource qualities of these recreational facilities.

- Construction of the proposed ski facilities and housing units would result in direct, short-term economic impacts in the form of construction wages and materials. It is estimated that total construction wages for the ski area alone would total $1.0 million to $1.6 million and result in the creation of 25 to 38 full-time equivalent (FTE) jobs. Housing construction, which is expected to occur over a five to seven year time period, would result in an estimated $13.3 million to $19.2 million in wages and annual FTE jobs of 46 to 93 FTE jobs.

- The direct local fiscal impacts related to the proposed ski area expansion and housing development would occur primarily in the Towns of Newbury and Goshen. Since the existing ski area has operated in Newbury for many years, the proposed expansion is expected to have only incremental impacts in terms of additional expenditures related to the provision of municipal services. In the Town of Goshen, which does not presently service the ski area on a regular basis, the initial impacts are likely to have a more noticeable effect on municipal revenues and expenditures, especially in the short-term period as the expanded facilities begin initial operations.

- Presently, the greatest demand for local services generated by the ski area in the Town of Newbury is for police services. There were 211 calls for assistance to the Newbury Police Department related to the ski area in 2003. Of that total, 144 were building checks and 37 were for theft of property. There were also, according to the Police Chief, an estimated 390 traffic stops on the public highways related to ski area traffic. Based on average costing methods, the total cost for all of these incidents was approximately $35,000 in departmental costs. It is estimated that the ski area expansion could result in an additional 36 to 55 calls for police assistance annually, representing $2,000 to $3,000 in costs. The Police Chief believes that the anticipated increase in demand for services that may occur as a result of the proposed ski area expansion can be accommodated within the department's existing capacity.

- There have been very few calls for fire and emergency medical assistance since the ski area provides its own first aid personnel and contracts with the Newport Ambulance Service for transporting injury victims. The ski area also provides for the disposal of all solid waste generated at the facility resulting in no additional costs to the town. These practices would continue with regard to the proposed expansion resulting in no additional costs to either Goshen or Newbury for these types of services.

- In the Town of Goshen it is estimated that the ski area expansion could result in an additional 23 to 33 calls for police service per year, based on past experience from the Town of Newbury. The project could also result in 24 additional traffic stops per year. In 2003, the Goshen Police Department responded to 783 total calls for assistance. The estimated cost of these additional calls would range between $3,800 and $4,600 annually.

- The primary source of local revenues generated by the ski area expansion would be related to municipal property taxes. In the Town of Newbury, the proposed West Bowl expansion would increase assessed property value by approximately $325,000 to $370,000 resulting in an additional $4,200 to $4,800 in taxes collected. This represents a 3% increase in the annual average of $131,700 in property taxes presently paid to the town by the ski area. Annual payments have ranged from a high of $165,800 to a low of $89,935 with the lower figure occurring after a recent townwide property revaluation in 2003.

- In the Town of Goshen, the ski area expansion is expected to increase assessed property value by approximately $1.7 million to $2.5 million, due to the construction of ski slopes and trails, as well as the anticipated base lodge and support infrastructure. This assessed value would result in the collection of annual property taxes of between $41,000 and $59,000, based on current tax rates.

- The cost of providing municipal services to the proposed 175 to 250 seasonal housing units in Goshen is estimated to be between $295,750 and $422,500, based on the town's current average cost per dwelling unit of $1,690. This estimate is considered to be conservatively high since the units will be occupied by seasonal residents who will not require all of the services provided by the town. In comparison, the proposed housing development would result in an estimated $39.2 million to $78.5 million in increased local property valuation in the Town of Goshen. Based on the town's current assessment ratio and tax rate this property would generate an additional $944,000 to $1.9 million annually in property taxes for the town.

- Given the intended seasonal usage of the proposed housing units they would not be expected to have any impact on the school system related to an increase in the number of school-aged children. However, some research has indicated that a small percentage of housing units at ski resorts, typically between 5% and 10%, could be converted to year-round use in the future. This type of conversion was found to occur primarily in older units that were in excess of 30 years old. Based on Goshen's current number of school-aged children and cost per pupil, it was estimated that conversion of 5%-10% of the housing units would result in 6 to 9 additional school-aged children that would represent approximately $57,600 to $86,400 in total school district costs. However, many years of property tax revenues would have been collected prior to the seasonal units being converted without any school-related costs.

III. SOCIO-ECONOMIC CHARACTERISTICS

A. Mount Sunapee Resort - Existing Conditions

The Mount Sunapee Resort is a year-round recreational facility that functions primarily as a ski area that offers lifts, trails and other special facilities for skiing, snowboarding, ice skating, snowshoeing, and outdoor winter events. The winter season activities typically occur during the months of December through April. In addition to these primary winter and spring activities the ski area also offers a range of activities during the summer and fall months. The largest of the summertime events held annually at the

ski area is the New Hampshire Craftsmen's Fair. This nine-day event is held every August and has averaged between 3,500 and 4,000 people per day over the last five years. The base lodge facilities are also available for community events or private functions such as weddings.

1) Fiscal Characteristics

The Mount Sunapee Resort is operated by The Sunapee Difference, LLC, a New Hampshire based company (hereafter referred to as the management company) under a lease agreement with the State of New Hampshire. The management company has leased and operated the facility from the state since 1998 based on a fiscal year beginning May 1st and ending April 30th.

There are a number of activities associated with the operation of the ski facility that represent direct sources of revenue for the local, regional, and state economic areas. The major revenues include annual lease payments to the state, the levy of New Hampshire Meals and Rentals Tax (often referred to as the Meals and Rooms Tax), the payment of business profits tax by the ski area to the state, and payment of wages to employees of the ski area. These revenues are considered to be *direct* revenues because they are directly generated by the operations of the ski area as opposed to *secondary* revenues that occur due to the multiplier effect of these funds within the broader regional economy.

Since revenues generated by the facility fluctuate on an annual basis, due to a variety of factors that affect the operation of a ski area, it is necessary to examine multiple years of financial information in order to establish reliable trend data. The ski area has operated under its present management company for the last six years. However, after assuming responsibility from the state in 1998, the management company instituted a number of changes during the first two years that included considerable upgrading of the lift and snowmaking equipment, trails, base facilities, as well as changes in the marketing of the resort. These improvements resulted in a significant increase in the various revenues generated by the facility in years three through six of operation. Therefore, it was considered more appropriate to use the financial trend data established over the most recent four years of operation when evaluating the reasonably sustainable amount of revenues that could be generated by the ski area in the future. It is estimated that approximately 97% of the facility's total revenues are generated during the winter/spring ski season, with the remaining 3% occurring from summer and fall activities.

Lease payments to the state from the management company, based on the current operating agreement, are guaranteed at 3% of annual gross revenues in addition to a base fee of $150,000, which is adjusted annually for inflation. Over the last four years the total amount of lease revenues paid to the state have been approximately $1.71 million. This represents an annual average of approximately $450,000 in lease revenues for the state since 2000. Total lease revenues paid to the state for the entire six-year period of the management company's operations will be approximately $2.41 million through December 2004.

Meals and Rooms taxes paid to the state by the ski area are generated from the sale of food and beverages at the facility. Therefore, the amount of taxes generated annually can vary based on a number of factors including the state's tax rate (which is now 8%), the number of visitors at the ski area, the cost of the products and the amount purchased, as well as the number of special functions, such as weddings, held at the ski area. Meals and Rooms taxes paid by the ski area over the last four years have totaled approximately $372,500 which represents an annual average of $93,100. Although these taxes are levied by the state a portion of the revenues are returned annually to local communities based on an allocation formula. For example, in fiscal year 2003/04 the Town of Newbury received an estimated $52,900 and the Town of Goshen an estimated $22,900 in distributed Meals and Rooms tax revenues.

Table 1
Average Annual Revenues Paid to State by the Mount Sunapee Resort

Lease Payments	$450,000
Meals & Rooms Taxes	$93,100
Business Profits Tax	$100,900
Total	$644,000

Source: The Mount Sunapee Difference, LLC

The ski area also pays a Business Profits Tax to the state on an annual basis. Total taxes paid to the state over the last four years by the management company was approximately $403,500, or $100,900 annually.

2) Ski Area Employment

Employment at the Mount Sunapee Resort presently totals 520 employees during peak periods (although the total labor pool includes 716 people)[1] in positions that are designated as full-time year-round, full-time seasonal, and part-time. The most recent staffing levels at the facility include 29 full-time positions, 186 full-time seasonal (FTS) employees, and 305 part-time (PT) employees. Prior to the current management company's engagement, there were a total of approximately 315 employees, of which, 16 were full-time year-round positions. This represents a total increase of approximately 205 employees, or 65%, over the last six years of operation. It is interesting to note that the master plan submitted by the management company to the State of New Hampshire in 1998 projected that total employment at the ski area would be approximately 480, including 30 year-round positions, by the eighth year of operation. These projections have been met or exceeded as of the sixth year of operation under the original ten-year management plan.

Although there are some exceptions, the majority of FTS and PT employees are hired each year during the winter/spring ski season and typically work 40 hours and 18 hours per week, respectively. The total payroll at the ski area exceeded $2.5 million for fiscal year 2003/04 as compared with approximately $900,000 in 1997/98, the last year of operation by the state. This represents a total increase in payroll of approximately $1.6 million, or 178%, over the six year time period.

[1] The difference between the total labor pool and peak employment is related to the fact that part-time employees do not necessarily work every day or week of the ski season but instead, "rotate" onto the active work roster as necessitated by demand at the resort and availability of the employee.

The majority of existing positions at the ski area can be grouped into the 11 categories illustrated in Table 2. The Table also shows the typical hourly wage rates that apply to each position. A review of general wage rates for the labor market area in which the facility is located indicates that the ski area's pay rates are competitive with comparable positions in the region.

Table 2
Typical Hourly Wage Rates for Positions at the Mount Sunapee Resort

Department	FTYR or DH*	Full-time Seasonal	Part-time Seasonal
Food & Beverage	$15.25	$8.00	$7.00
Snowmaking	$14.30	$10.00	$8.50
Lift Maintenance	$15.30	$10.00	–
Ski Patrol	$14.25	$10.00	$8.50
Accounting	$18.50	$11.00	–
Retail	$15.00	$9.00	$7.75
Vehicle Maintenance	$15.00	$9.45	–
Grooming	$19.00	$12.00	$10.00
Lift Operations	$15.50	$8.50	$7.50
Marketing	$20.00	$12.00	$9.00
Rentals	$17.00	$7.50	$7.00
Ski School	$17.00	$11.00	$8.50
Tickets	$13.00	$8.50	$7.50
Buildings & Grounds	$18.00	$9.50	$8.00

*Full-time Year Round or Department Head
Source: The Mount Sunapee Difference, LLC

The ski area draws its labor force from a broad geographic area. Although the majority of employees reside in New Hampshire some employees also come from Massachusetts and Vermont, with a smaller percentage from other New England states. Of the 716 ski area employees hired by the resort throughout the course of the season, 660 resided in New Hampshire, 27 in Massachusetts, 21 in Vermont, and 8 in all others locations. Within New Hampshire, the ski area is able to draw from a fairly wide geographic region for its employment base, as illustrated in Figure 1, due to the good highway access afforded by the state's transportation network. As shown in Table 3, there is a core group of 11 communities surrounding the ski area from which the majority (approximately 500) of the facility's employees are drawn. However, the remaining 160 employees residing in New Hampshire commute from an area that extends to the northern portion of the Upper Valley area, to the southwestern portion of the state around the Keene area, and to the south-central portion of the state that includes the Concord, Manchester, and Nashua areas. This dispersion of the ski area's labor base indicates that the facility provides employment opportunities within a number of labor markets. It also serves as a source of employment for students that are seeking temporary employment during the school year.

Table 3
Major Employee Locations
Mount Sunapee Resort

Municipality	# Employees
Newport	116
Sunapee	105
Newbury	69
New London	68
Bradford	36
Goshen	21
Claremont	21
Warner	20
Hopkinton	19
Sutton	13
Henniker	13

Source: The Mount Sunapee Difference, LLC

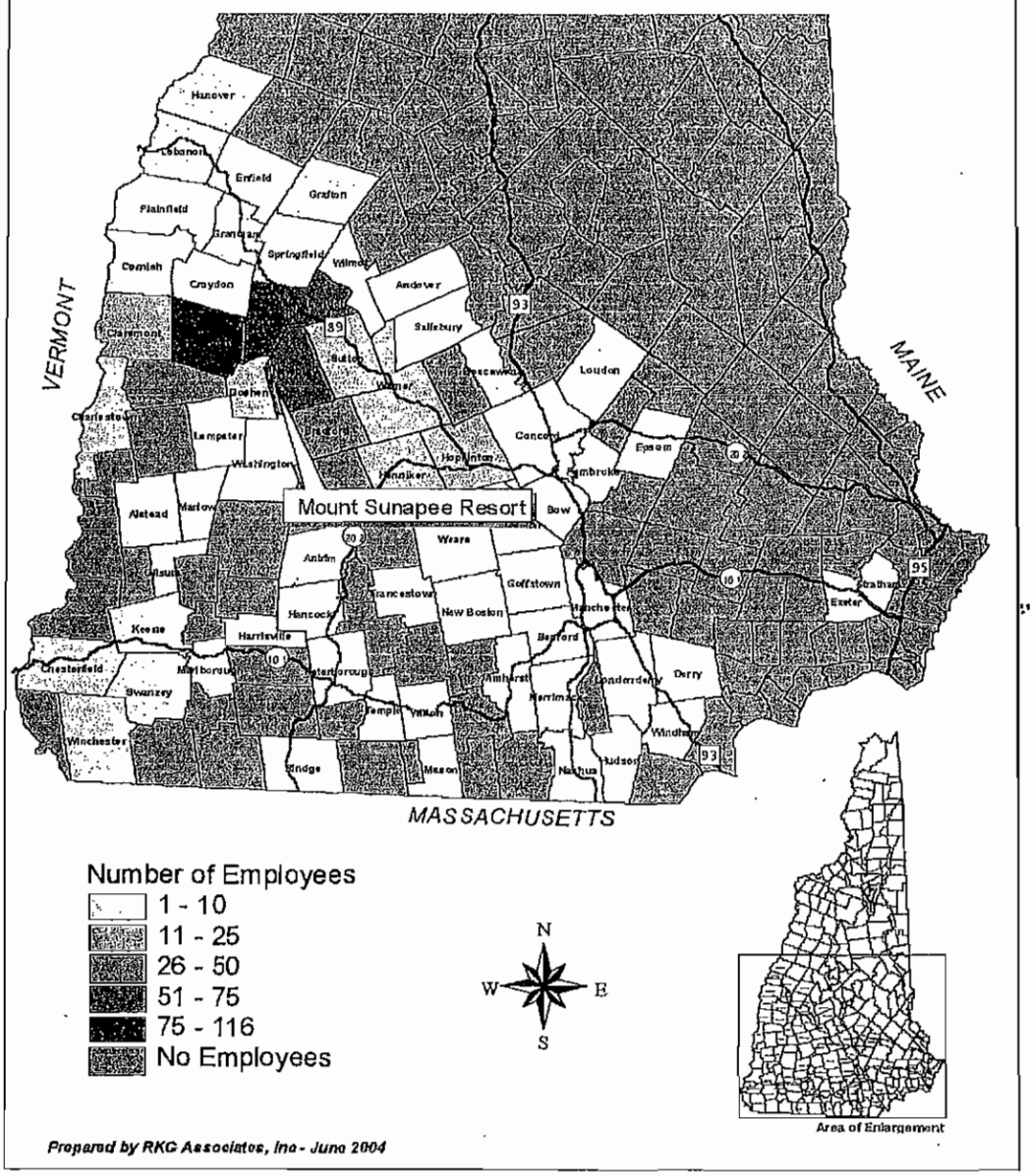
Figure 1 - Location of Mount Sunapee Resort Employees Residing in New Hampshire
VERMONT
MAINE
MASSACHUSETTS
Mount Sunapee Resort
Hanover
Lebanon
Enfield
Grafton
Plainfield
Springfield
Wilmot
Andover
Cornish
Croydon
Claremont
Salisbury
Sutton
Warner
Boscawen
Loudon
Charlestown
Lempster
Bradford
Concord
Epsom
Washington
Hopkinton
Pembroke
Alstead
Marlow
Bow
Acworth
Unity
Wilton
Antrim
Weare
Francestown
Goffstown
Hancock
New Boston
Manchester
Exeter
Keene
Harrisville
Bedford
Chesterfield
Marlborough
Peterborough
Amherst
Londonderry
Derry
Swanzey
Merrimack
Temple
Milton
Windham
Winchester
Ringe
Mason
Nashua
Hudson
Number of Employees
1 - 10
11 - 25
26 - 50
51 - 75
75 - 116
No Employees
N
W
E
S
Area of Enlargement
Prepared by RKG Associates, Inc - June 2004

B. Labor Market Overview

In order to provide an economic context for evaluating the proposed changes at the Mount Sunapee Resort a variety of socio-economic data has been collected and analyzed for the regional labor market area (LMA). The state is divided into a number of labor market areas by the New Hampshire Department of Employment Security (DES). These LMAs represent discrete groups of municipalities that are considered to have an economic affinity based on employment characteristics, commuting patterns, and other indicators used by the DES.

The Mount Sunapee Resort is located in the Claremont LMA, a group of 13 adjoining communities[2], which includes the population centers of Claremont (population 13,190), Newport (population 6,340), and New London (population 4,230). Mount Sunapee also lies within the larger Upper Valley Lake Sunapee Region (UVLS), which is one of the state's regional designations for planning purposes, and is administered by the Regional Planning Commission (UVLSRPC). The UVLS planning region includes the Claremont LMA as well as the Hartford/Lebanon LMA[3] and a few other outlying communities located in different LMAs. While the main focus of this economic overview centers on the Claremont LMA consideration is also given to the characteristics of the larger UVLS planning region, of which Mount Sunapee is an integral part, since growth and development in one of the LMAs usually has ramifications and potential impacts on an adjoining LMA. Furthermore, the regional planning commission recently updated its regional plan[4] which has provided useful insight for this analysis and is referenced on a number of occasions in this report as the *Regional Plan.*

1) Labor Force, Employment and Wages

Information presented in the Regional Plan indicates that there was significant growth in employment in the UVLS region over the last decade. The data suggests that total job growth within the two LMAs that comprise the region was approximately 14,500. There was however, considerable disparity in the apportionment of this growth between the two respective LMAs. The Hartford/Lebanon LMA had an estimated job growth of approximately 10,800 between 1991 and 2000. Conversely, the Claremont LMA added slightly less than 3,800 jobs during the same time period.

As noted in the Regional Plan, the higher growth rate that occurred in the Hartford/Lebanon LMA was largely driven by internal employment centers such as Dartmouth College, the expanded Dartmouth-Hitchcock Medical Center, new technology firms locating in Centerra and the Airport Business Park, and expanded retail activities in Lebanon. In contrast, Claremont continued to experience an erosion

[2] Municipalities contained within the Claremont Labor Market Area include Charlestown, Claremont, Croydon, Goshen, Lempster, New London, Newbury, Newport, Springfield, Sunapee, Sutton, Unity, and Wilmot.

[3] Both the UVLS and the Hartford/Lebanon LMA contain several communities located in the State of Vermont. However, the data presented in this analysis typically excludes the municipalities in Vermont.

[4] *Regional Plan 2004,* Upper Valley Lake Sunapee Regional Planning Commission, February 2004. This document includes a supplementary housing study entitled *Upper Valley Housing Needs Analysis,* which was prepared by Applied Economic Research, August 2002.

of its former manufacturing base with most of the job growth occurring in the lower paying Service and Retail sectors of the economy. Average weekly wages in the Claremont LMA were $503 which was approximately 20% below the statewide average of $618. In contrast, wages in the Hartford/Lebanon LMA were $649, approximately 5% higher than the state average. Wages paid to employees of the Mount Sunapee Resort, which are discussed earlier in this report, are considered to be at competitive levels to those offered within the LMA as a whole.

Despite the disparity in job growth both LMAs experienced considerable reductions in unemployment rates over the last decade. As of 2003, the unemployment rate in the Hartford/Lebanon area was 1.3% while Claremont's was 2.7%. Generally, a rate of less than 4% is considered "full employment" by the state employment office. By comparison, unemployment rates in 1990 were 5% and 6.3%, respectively.

2) Population and Housing

Population growth within the Mount Sunapee area over the last decade is presented in Table 4. As the data illustrates there has been considerable variation in the actual population change, as well as the rate of growth, depending on which portion of the region is being considered. While the UVLS region as a whole grew by 9.2% between 1990 and 2000, population in the Claremont LMA increased by approximately half that rate at 5.4% for the decade. Conversely, the Hartford/Lebanon LMA outpaced both areas with a growth rate of 12.5%, which was also a slightly higher rate of growth than the state experienced as a whole during that time period.

At the town level, Goshen and Newbury also had growth rates that contrasted quite significantly. Over the course of the decade, Newbury's population increased by 355, a rate of 26.4%, whereas, Goshen had virtually no change in its population base, according to Census data. However, population projections developed by the N.H. Office of State Planning (OSP) suggest that significant changes will occur in these trends during the course of the current decade. As the data in Table 4 shows, population growth in the Claremont LMA between 2000 and 2010 is projected to increase by 3,676, a rate of 9%, which is almost twice the rate

Table 4
Actual and Projected Population 1990, 2000 & 2010

	Actual Population			
	1990	2000	Change	% Change
Goshen	742	743	1	0.1%
Newbury	1,347	1,702	355	26.4%
Claremont LMA	38,565	40,664	2,099	5.4%
Hartford/Lebanon LMA*	37,669	42,396	4,727	12.5%
UVLSRPC*	76,573	83,599	7,026	9.2%
State of NH	1,112,384	1,240,472	128,088	11.5%
	Actual	Projected Population		
	2000	2010	Change	% Change
Goshen	743	850	107	14.4%
Newbury	1,702	1,950	248	14.6%
Claremont LMA	40,664	44,340	3,676	9.0%
Hartford/Lebanon LMA*	42,396	46,700	4,304	10.2%
UVLSRPC*	83,599	92,171	8,572	10.3%
State of NH	1,240,472	1,385,210	144,738	11.7%

*New Hampshire Portion Only
Source: US Census and NH Office of State Planning

experienced during the 90s. As least part of this increased growth rate in the Claremont area is likely to be attributable to the continued economic growth in the Hartford/Lebanon area, which is projected to add approximately 4,300 residents by 2010. As noted in the Regional Plan, this *spillover* growth is partially attributable to the lack of an adequate housing supply to support the region's economic expansion. As the shortage of housing in the Hartford/Lebanon area increases it will continue to push housing prices higher, thus making the Claremont area a more viable location for work-force housing that supports the greater UVLS region as a whole.

By 2010, the Town of Newbury is projected to add 248 residents, an increase of approximately 15%, which is considerably slower than the 26% growth rate of the 90s. Conversely, Goshen is projected to have a higher growth rate than the previous decade's at 14.4%, which represents approximately 100 additional residents added by 2010.

An interesting finding presented in the Regional Plan relates to the change in age composition of the region's population. Over the last decade the age group that experienced the largest percentage increase was the 65 and over category, which increased by 21%. In comparison, the 18-64 and the 17 and under age groups had population increases of 9% and 4%, respectively. Although this demographic trend is being experienced nationally due to the overall aging of the population, the UVLS area is exceeding the typical rates of change. This, the Regional Plan concludes, is due to seniors moving into the area as a place to retire; a factor which has placed added strain on the already tight housing supply.

The change in the region's housing supply and households[5] over the last decade is illustrated in Table 5. The data indicates that approximately 1,980 new units were added between 1990 and 2000, representing a growth rate of 5.4%. The majority of the new units were constructed in the Hartford/Lebanon portion of the region, which grew at a rate of 7.2% (1,235 units) versus a 3.8% (739 units) growth rate in the Claremont LMA. However, Claremont's total housing supply still exceeds that of the other LMA by approximately 2,000 units (20,117 versus 18,282). The Town of Newbury added 147 housing units over the last decade resulting in a growth rate of approximately 12%, which exceeded the rate of both LMAs. Goshen, according to Census data, had a net decline in total housing units which suggests that while new units may have been constructed others were removed from the inventory for various reasons.

Household growth over the last decade far exceeded the number of new housing units constructed. As illustrated in the Table, the rate of household growth in the region was over 13% between 1990 and 2000, which represented an additional 3,890 households. The fact that approximately 1,900 more households were created, in comparison to housing units constructed, highlights how the demand for housing has outpaced the increase in supply.

[5] Households differ from the housing supply in that a household represents an occupied dwelling unit whereas the housing supply includes all dwelling units, both occupied and vacant.

Table 5
Housing Units, Households and Vacancy Rate 1990-2000

	Housing Units			
	1990	2000	Change	% Change
Goshen	394	389	(5)	-1.3%
Newbury	1,184	1,331	147	12.4%
Claremont LMA	19,378	20,117	739	3.8%
Hartford/Lebanon LMA*	17,047	18,282	1,235	7.2%
UVLS Region***	36,425	38,399	1,974	5.4%
	Households			
	1990	2000	Change	% Change
Goshen	263	279	16	6.1%
Newbury	506	691	185	36.6%
Claremont LMA	14,991	16,537	1,546	10.3%
Hartford/Lebanon LMA*	13,663	16,007	2,344	17.2%
UVLS Region***	28,654	32,544	3,890	13.6%
	Vacancy Rate**			
	1990	2000	Change	
Goshen	4.7%	2.1%	-2.6	
Newbury	11.6%	2.1%	-9.5	
Claremont LMA	5.6%	2.7%	-2.9	
Hartford/Lebanon LMA*	5.2%	1.4%	-3.8	

*NH Portion Only
**Year-round Units Only
***Represents the combined total of both LMAs
Source: US Census

A good portion of this demand for housing was met through the absorption of available vacant units, a fact which is illustrated by the significant decline in vacancy rates over the last decade, as shown in the Table. Another portion of the demand for housing was met through the conversion of seasonal housing units into year-round dwellings. The Regional Plan estimates that approximately 1,000 units experienced such a conversion during that time period.

These findings have a number of ramifications for the region. The first is that an inadequate supply of housing will be a detriment to the future economic growth of the area since workers will not be able to find housing within reasonable proximity to existing or new job opportunities. Second, a housing shortage will continue to push housing costs even higher in an area which already has very expensive housing, as observed in the Regional Plan. Lastly, the continued conversion of seasonal units to year-round use has the potential to adversely impact the area's tourism industry which represents an important component of the region's overall economic base.

3) Income Characteristics

Table 6 presents a comparison change in household income levels over the last decade. The income estimates, which were obtained from the 2000 Census, includes figures for the Towns of Goshen and Newbury, as well as Sullivan and Merrimack Counties and the state as a whole. The counties were substituted for the LMAs in this instance because the Census Bureau does not gather income information at the labor market level.

Table 6
Median Household Income 1989 & 1999

	Median HH Income				
	1989	1999	Change	% Change	Real Growth (CPI)
Goshen	$32,813	$42,625	$9,812	29.9%	-5.1%
Newbury	$35,821	$58,026	$22,205	62.0%	27.0%
Sullivan County	$29,053	$40,938	$11,885	40.9%	5.9%
Merrimack County	$35,801	$48,522	$12,721	35.5%	0.5%
State of NH	$36,329	$49,467	$13,138	36.2%	1.2%
U.S. Consumer Price Index (CPI)	123.1	166.2	43.1	35.0%	

Source: US Census Bureau and US Bureau of Labor Statistics

As the Table illustrates, all areas experienced double-digit increase in household income levels between 1990 and 2000. The Town of Newbury showed the largest increases with a 62% growth in household income while the Town of Goshen had the smallest percentage increase at approximately 30%. However, in relation to the Consumer Price Index (CPI), which increased by 35% over the decade, only Newbury experienced substantial "real growth" of 27%, in comparison to inflation during that time period. The Town of Goshen's household income level experienced negative growth in relation to the CPI, while the counties and the state had moderate growth of 6% or less.

IV. OVERVIEW OF PROPOSED SKI AREA IMPROVEMENTS

This section presents a description of existing conditions and proposed improvements at the Mount Sunapee Resort. The first part of the section presents an overview of the ski area as it relates to current facilities, capacity and usage. This is followed by a generalized overview of the proposed expansion plans and the corresponding estimated future usage that may result. Lastly, the methodology used for the economic and fiscal impact analyses presented in this report is described.

A. Description of Existing Ski Area Facilities

The Mount Sunapee Resort presently offers approximately 230 acres of mountain-side terrain that is improved with 65 ski slopes/trails, 10 ski lifts, and snowboard facilities, as well as two base lodges and other service buildings that contain skier services and hospitality areas. All of these facilities are located on state-owned land which is leased from the State of New Hampshire. Although the majority of the ski-related facilities are

situated within the Town of Newbury, a small portion of the lower level slopes are located in the Town of Goshen.

After assuming operations of the facility approximately six years ago the management company initiated the construction of numerous capital improvement projects, as specified in the 1998 Master Development Plan (MDP), which were authorized by the state as part of the management transition process. A description of these improvements and their completion status can be found under separate cover in the updated MDP being submitted to the state.

Based on the existing slopes/trails and lift capacity currently available the ski area has an estimated comfortable carrying capacity (CCC) of approximately 5,220 skiers per day. This figure refers to the number of skiers that can be *comfortably* accommodated at the facility, but does not necessarily reflect the actual number of people skiing on a daily basis. After completion of the planned improvements yet to be implemented under the existing MDP, the CCC will be increased to approximately 5,650. Over the last four years of operation at the ski area (which are considered to be representative of expected future trends) the number of skier visits has averaged approximately 247,500 annually. Based on the length of a typical ski season, which averages approximately 130 days but can vary depending on weather conditions and other factors, the number of daily skier visits to the facility has been approximately 1,900, which represents a 35% utilization rate of the mountain's CCC of 5,220. As indicated, the 1,900 skier visits per day is an average and as such, does not represent the actual daily amount which varies considerably depending upon the day of the week. For example, Saturday and Sunday are the busiest days and might average 4,200 skiers per day. Whereas, Wednesday's through Friday's usage could range between 1,100 and 1,200 while Monday and Tuesday drops to between 500 and 700.

B. Proposed Ski Area Improvements and Residential Development

As noted earlier, the proposed activities being evaluated as part of this analysis include two separate but related activities. One is the expansion of the ski area and the other is construction of seasonal housing units. Each of these proposed actions are discussed below.

1) Proposed Ski Area Improvements

The proposed improvements to the Mount Sunapee Resort would involve the expansion of existing ski slopes and lift facilities and the creation of new base area support infrastructure. The expansion would occur partially on state-owned land and partially on private property in the Towns of Newbury and Goshen.

The proposed ski area improvements, which are referred to as the West Bowl expansion, would include the creation of approximately 75 acres of new slopes and trails and the installation of a new base-to-summit chair lift. Along with the construction of new ski slopes and lifts, the proposed ski area improvements would also include the creation of some base area support facilities such as a small lodge building, ticketing/ski rental facilities, parking areas, and other infrastructure.

The 75 acres of additional ski terrain would encompasses approximately 25-30 acres in the Town of Newbury for the creation of new slopes and trails. This acreage includes both privately-owned land and state-owned leased land. In the Town of Goshen, approximately 45-50 acres of privately-owned land would be developed as active ski terrain for slopes/trails and lifts. An additional 300-335 acres of privately-owned land would be used to support development of the base area facilities, future development of seasonal housing units, or remain as undeveloped open space.

Transportation access to these new facilities would be via Brook Road in Goshen and no vehicular access is proposed from the existing base lodge facilities which are located in Newbury. Brook Road is accessed from the south off Route 10 in Goshen and from the north off Route 103 in the Town of Sunapee.

2) Proposed Residential Development

Along with the proposed ski area improvements discussed above, the expansion plans also envision the creation of approximately 175 to 250 seasonal housing units near the resort's base area in Goshen. These units would be created primarily as ski resort housing and as such, would be accessible to the West Bowl expansion area either directly onto the slopes/trails or by some other means (such as lift access or shuttle service). Therefore, these housing units are considered to be an integral part of the expansion plan but would be developed, owned and operated as a separate entity under the auspices of the management company.

The housing would be comprised of a mix of unit types that are planned to include hotel-style condominiums, townhouse condominiums and single family dwellings. Most of the housing units are likely to be sold as fractional ownership units with four quarters available for purchase. The residential properties would be managed by a private condominium (or some other type of management group) association that would have responsibility for maintaining all buildings, grounds and utilities (including roadways) located on the property.

The proposed housing is still in the preliminary stages of planning at this time. The final mix of unit types, square footage of the units, and architectural design of the buildings will be dependent on the completion of a market study that is yet to be undertaken. At this time it is estimated that approximately 40% of the units will be hotel-style condominiums (70-100 units), 50% would be townhouses (88-125 units), and 10% would be single family houses (17-25 units).

It is anticipated that the hotel-style condominiums would be one bedroom, or one bedroom with a second sleeping area (such as a loft), with the potential to link units together (through a common doorway) to create a suite arrangement. All of the units are expected to be located in a single building. The townhouse condominiums are likely to be attached, two-story units that would contain two or three bedrooms. The units would be located in multiple buildings containing possibly three to five units per structure. The single family houses would be stand-alone structures located on separate lots and expected to contain at least four bedrooms.

C. Regional Economic and Fiscal Impact Analysis Methodologies

As discussed throughout the preceding portions of this analysis the Mount Sunapee Resort is a property that is integrated into both the regional and local economies in which it is located. Therefore, evaluation of the potential impacts associated with the proposed expansion has been separated into two major sections. The first involves an evaluation of the potential impacts of the proposed project at the broader regional or state levels. The second major focus of the impact analysis examines the local fiscal impacts that are likely to be experienced within the Towns of Newbury and Goshen. This section describes the methodologies used for evaluating both the regional and local impacts.

1) Regional Economic Impact Methodology

Evaluating the potential regional impacts of a significant development project typically necessitates the creation of an economic input-output (I-O) model that takes into account the complexities of an array of integrated components within the regional economy. While the creation of such an economic model is not appropriate for this type of project, the same types of concepts have been applied to this analysis in a more generalized manner. These include the use of standardized multipliers for the area to estimate the direct and secondary impacts related to the proposed project. It also includes the use of historical economic trend information gathered from previous years of operating the ski facility.

These regional impacts can be further separated into the short-term (or temporary) impacts associated with construction of the new ski facilities and residential housing and the long-term impacts associated with operating the expanded facilities. The short-term direct impacts focus on the additional employment, wages, and purchase of materials needed to construct the proposed ski slopes and lifts, the associated base area buildings and parking lots, as well as the planned residential housing units. These direct expenditures also have a secondary multiplier effect within the regional economy as those dollars are passed to other employees and businesses that support the construction sector industries.

The long-term direct regional impacts are related to the operation of the ski area after it is completed and includes changes in lease revenues, meals and rooms taxes, and business profits taxes paid to the state. They also include changes in employment and wages for staffing the expanded ski area and managing the residential properties. The secondary long-term impacts are primarily associated with how the expected increase in usage of the ski area and planned housing units could affect expenditures at area businesses, as well as the seasonal and year-round housing markets.

2) Local Fiscal Impact Methodology

Fiscal impact analysis, as applied in this context, encompasses the identification of both public service costs that may be related to the proposed project, as well as the potential public revenues that would also result from the development. In this case, the public costs are those that may be incurred by the Towns of Newbury and Goshen that are associated with the expansion of a non-residential ski area as well as the construction of seasonal residential dwelling units. The corresponding local municipal revenues have also been estimated.

There a number of different methodologies that can be applied to estimate fiscal impacts. All of these techniques however are based on the same general assumptions. First, it is assumed that current municipal operating costs and revenues are the best basis for determining future costs and revenues. A second major premise made in preparing a fiscal impact analysis is the assumption that the proposed project comes "on line" all at once. This assumption permits a comparison of the financial effect of the entire project on municipal costs and revenues. Although this approach is hardly realistic since many projects, including the proposed ski area expansion, are constructed over a multi-year time period, this approach allows all impacts to be examined in their entirety.

Calculating municipal revenues, which are generally a function of the types of taxes and fees charged (and to a lesser extent the use of shared revenues from the state or Federal governments), requires a clear understanding of the community's existing revenue stream. In order to obtain this information municipal budgets were examined for both Newbury and Goshen from the last three fiscal years. For the most part, property taxes are the single largest source of local revenues in the municipal budget and therefore, the increase in assessed value of the proposed ski area improvements and housing units will provide the largest amount of long-term revenues for the communities. However, there would also be some short-term revenues for building construction permits, but little in the way of fees from vehicle registrations or licenses since the residential units are expected to be occupied by seasonal residents. Property tax calculations were completed by multiplying the estimated increase in local assessed value related to the proposed project, by the town's assessment ratio. Goshen's assessment ratio is currently 67.9% of market value while Newbury is at 100% of market value, after its recent revaluation. The resulting adjusted property value was then multiplied by the local tax rate per $1,000 of assessed value. The tax rate used for this analysis was the total tax rate which is comprised of a local municipal tax, a local school tax, a state school tax, and a county tax.

For calculating municipal expenditures the *average cost* approach has been used. With average costing, municipal expenditures are attributed to a new development based on the average cost per unit of municipal service. The average cost is determined by dividing the most recent municipal cost for a specific service, such as emergency services, by the number of users of that service. The results, or average costs, are then multiplied by the number of people or households in the new development that will use the municipal service considered.

While this approach can readily be applied to the proposed housing development it required some modification for use with regard to the ski area expansion. Since the ski area is a commercial recreation facility the unit of measurement for calculating usage is the number of skiers. These skiers are for the most part, not residents of the town's in which the facility is located and therefore, cannot readily be adapted for per capita multipliers in estimating municipal costs. Furthermore, the ski area's present operations are located almost entirely in the Town of Newbury which means there is no historical expenditure information that can be used for the proposed expansion into the Town of Goshen. For non-residential development, such as a ski area, a more preferable methodology for estimating fiscal impacts is the *case study* approach. The case study methodology relies on analyzing the operation of comparable facilities to the one being proposed and developing an understanding of the existing impacts generated within the host community. For the proposed expansion of the Mount Sunapee Resort into the Town of Goshen a suitable case study exists in the Town of Newbury where the ski area has operated under its present management company for the last six years. Therefore, it was considered reasonable to assume that the historical demands of the ski area's operation in Newbury would be comparable to the potential future impacts of the proposed expansion into the Town of Goshen.

V. REGIONAL ECONOMIC IMPACT ASSESSMENT

This section presents the assessment of potential regional economic impacts associated with the proposed ski area expansion and seasonal housing development. The impact assessment is divided into the short- and long-term time periods of constructing and operating the facilities with regard to the estimated direct and secondary impacts in and around the Claremont region, as well as within the broader context of the state's economy as a whole.

A. Short-term Regional Impacts

The short-term economic impacts related to the West Bowl expansion of the ski area centers around construction jobs and wages, as well as the purchase of construction materials, related to the creation of ski slopes and trails, the installation of ski lifts and their associated facilities, and the construction of a base lodge and other secondary structures. Similar impacts have also been estimated separately for the construction of the proposed seasonal housing units.

It is estimated that the purchase and installation of the proposed ski lift and related equipment will result in the direct expenditure of approximately $2.75 million. Due to the specialized nature of these facilities, as well as insurance liability issues, it is expected that the manufacturer of the equipment will also oversee installation. Therefore, the majority of these expenditures would occur out-of-state. However, it is estimated that a portion of the total costs, ranging between $100,000 and $300,000, would be distributed to local and regional firms for the completion of ancillary construction projects associated with lift installation as well as the purchase of materials such as concrete, gravel and lumber.

The construction of ski slopes and trails related to the West Bowl expansion will cost an estimated $450,000[6] in addition to the costs noted above. This includes such tasks as timber clearing, grading of the terrain, and the installation of various erosion and stabilization measures. It is expected that these expenditures would primarily be direct impacts for the construction industry within the local and regional economies.

The third component of the ski area expansion involves the construction of a new base lodge, which would include ticketing and food service facilities, as well as parking areas, access roadways and related infrastructure. The preliminary estimate for labor and materials to construct these facilities is between $1.3 million and $2.0 million[7] of direct expenditures within the local and regional economies.

In total, the estimated cost for construction of all ski area components discussed above is approximately $4.5 million to $5.4 million. Of those totals, approximately $1.75 million to $2.65 million represent direct local expenditures in the local and regional economies for labor and the purchase of materials, with the remaining $2.75 million for lift construction expected to impact areas outside the state.

The planned development of approximately 175-250 seasonal housing units as a component of the West Bowl expansion will also have direct economic impacts in the local and regional economies. As discussed previously, this would include 70-100 hotel-style condominiums, 88-125 townhouse condominiums, and 17-25 single family homes. The estimated construction value for these units would be approximately $3.5 million to $5.0 million for the hotel condominiums, $12.7 million to $18.0 million for the townhouse condominiums, and $6.1 million to $9.0 million for the single family homes.[8] The combined construction cost for all unit types totals an estimated $22.3 million to $32.0 million of direct economic impacts.

The construction costs for both the ski area expansion and housing development are comprised of two major components; labor and materials. Based on historical analysis of similar types of construction projects it is estimated that approximately 60% of total costs are typically related to labor and 40% to the purchase of materials. At 60%, total labor costs for the local/regional expenditures ($1.75 million to $2.65 million) related to ski area expansion would range between $1.0 million and $1.6 million in construction wages. The average weekly wages for construction workers in the LMA and the state as a whole in 2002, ranged between $620 and $970.[9] Since construction workers for the project are expected to come from both the local and regional areas the mid-point of those salary ranges ($795) was applied to estimate average annual construction wages of $41,340 for the project. By applying this weekly wage to the total labor costs of

[6] Based on an estimated cost of $6,000 per acre for 75 acres of terrain.

[7] Based on total building area of approximately 10,000 sq. ft. plus an estimate for other site amenities and improvements.

[8] These costs were estimated based on the following average construction value factors: hotel condos, 500 sq. ft. at $100/sq. ft.; townhouse condos, 1,200 sq. ft. at $120/sq. ft.; and single family homes, 2,400 sq. ft. at $150/sq. ft.

[9] 2002 Annual Covered Employment and Wages (ES-202), NH Department of Employment Security.

$1.0-$1.6 million for the ski area expansion it indicates that approximately 25 to 38 full-time equivalent (FTE) construction jobs would be created as a result of the proposed project. This does not necessarily mean that new job positions would be created but that this number of construction workers would be engaged full-time during the duration of the construction projects. In actuality there will likely be some contractors employed for a few weeks or a few months, but on average, the proposed project would result in 25-38 workers working for a full year.

By applying the same approach to the planned construction of the residential housing units, 60% of the total construction costs ($22.3 million to $32.0 million) represents approximately $13.3 million to $19.2 million in direct labor costs. Based on the average weekly wage rates for the area these costs would represent approximately 323 to 464 FTE construction jobs related to the proposed housing development. This employment would occur over a period of five to seven years since housing development would most likely be phased in over that time period. Therefore, the annual FTE job estimates would range from a low of 46 to a high of 93.

The direct labor impacts discussed above also have a secondary effect in the local and regional economies as wages earned within the construction industry are passed to other establishments for the purchase of goods and services. The economic impacts of these inter-industry relationships can be estimated by applying multipliers developed by the U.S. Bureau of Economic Analysis (BEA) as part of its Regional Industrial Multiplier System (RIMS). The RIMS created a regional input-output model (I-O) that established relationships for specific regions, in this case the State of New Hampshire, regarding how income and employment in one sector is likely to affect others using standardized multipliers. More specifically, for every dollar earned by construction industry workers, 1.32 dollars are earned by all other industry sectors that interact with the construction workers.[10]

This multiplier was applied to the construction wages estimate above for the proposed expansion of the ski area, as well as the residential development. The estimated local/regional portion of the ski area construction wages was approximately $1.0 million to $1.6 million. Based on these figures, secondary wage impacts in the local and regional economies would range between $1.4 million and $2.1 million in earned income as a result of the project. For the residential development portion of the proposed ski area expansion construction wages for the local and regional areas was estimated to range between $13.3 million to $19.2 million in direct expenditures. Applying the RIMS multiplier to these figures suggests that the secondary impacts of this portion of the construction project would result in an estimated $17.7 million to $25.5 million in local and regional earned income for supporting industry sectors.

[10] The actual multiplier for Construction Trades related to new construction is 1.3279. *Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System,* U.S. Department of Commerce, May 1992.

B. Long-term Regional Impacts

The long-term economic impacts associated with the proposed ski area expansion fall into several main categories that relate to the anticipated increase in usage of the facility as well as the construction of seasonal housing units. These include changes in revenues for lease operation and taxes paid to the State of New Hampshire, changes in local and regional expenditures due to increased skier visits, and potential impacts on the regional housing market.

Estimating the types of regional economic impacts noted above requires projecting future usage of the ski area that is likely to occur due to expansion into the West Bowl area. As discussed in a previous section of this report, the current comfortable carrying capacity (CCC) of the ski area is approximately 5,220 skiers per day. Planned improvements to the existing terrain and equipment that were authorized by the state in 1998 under the initial Master Development Plan (MDP) would increase the CCC to 5,650 skiers per day. The proposed West Bowl expansion will add an estimated capacity of 1,200 resulting in a total CCC of 6,850 skiers per day.

As noted earlier CCC is not reflective of the actual number of skiers using the facility. Based on the most recent four-year average of skier visits to Mount Sunapee the ski area has an average annual utilization rate of approximately 35% of its total CCC. It should be noted that this average utilization rate fluctuates dramatically depending on the day of the week. For example, the weekday utilization rate typically range between 15% and 20% while the weekend rates usually average 80%, and can go higher on six to eight peak days during the ski season.

It is anticipated that the utilization rate of 35% for the ski area would remain fairly constant when the West Bowl expansion initially comes on line. However, the expectation is that having the added terrain and lift capacity will begin to draw additional skier visits in future years. It is also expected that the addition of the proposed slope-side seasonal housing at the base of the West Bowl expansion will also help to increase the utilization rate of the facility in the future. It is estimated that the combination of increased capacity and the addition of lodging facilities could push the utilization rate to approximately 40% over the next five to ten years. It is also expected that the availability of slope-side housing will help to increase the utilization rate for weekdays since skiers will have the ability to easily visit the ski area for multi-day stays. This could serve to spread the peak demand that normally occurs on weekends over more days of the week and thus diminish the traffic growth and other localized impacts that are greatest on those days.

Based on the average number of skiers that have visited Mount Sunapee over the last four years the daily number of skier visits is approximately 1,900. With an estimated CCC of 6,850 due to the proposed expansion plans, and a utilization rate of between 35% and 40%, the daily number of skier visits would range between approximately 2,400 and 2,740. This represents an increase of approximately 26% to 45% over the average number of skiers who have visited the ski area over the last four years on a daily basis.

1) State Revenue Impacts

The State of New Hampshire presently receives lease payments from the management company based on 3% of annual gross revenues in addition to a base fee of $150,000, which is adjusted annually for inflation. Over the last four years the management company has made annual payments to the state that averaged approximately $450,000. It is reasonable to assume that if skier visits increase due to the proposed expansion there would be a corresponding increase in revenues paid under the lease agreement since more lift tickets would be sold.

Given this assumption, a 26% increase in skier visits could potentially result in total annual lease payments to the state of approximately $569,000, an increase of $119,000 over the most recent four-year average of $450,000. Since revenues can fluctuate considerably from one year to the next due to the impacts of weather and snow conditions, a realistic range in estimated lease payments would be +/-5% of the projected figure. This suggests that a reasonable range in estimated lease payments to the state after the proposed expansion would be between $540,000 to $590,000 (an increase of 20% to 30%). This range in increased lease payments can also reasonably be assumed to account for the potential increase in the utilization rate up to 40% at some time within the next five to ten years, once the planned expansion and housing development is fully completed.

As discussed previously, the state also receives Meals and Rooms (M&R) taxes from the ski area due to the sale of food and beverages at the facility. The average payments made to the state over the last four years has been approximately $93,100 annually. Since the amount of taxes collected is directly related to purchases made by skiers the current per capita tax payment of $0.38 per skier is considered a reasonable multiplier to use for projecting future revenues. Based on the anticipated increase in skier visits of 26% the estimated M&R taxes collected by the state could increase to approximately $118,000 annually. If the ski area does reach a utilization rate of 40% the M&R taxes collected could reach approximately $135,000. As with the estimated lease revenues, these M&R estimates could vary considerably in a given year depending on ski conditions. However, they are considered somewhat conservative since they do not factor in the normal increases that regularly occur due to inflation.

Another portion of the development that will contribute to an increase in the state M&R taxes are the proposed seasonal housing units that would be constructed in the Town of Goshen as part of the West Bowl expansion. Although these units will be privately owned, they will also be available as rental units during periods when not in use by their owners and as such, will be subject to payment of the Meals and Rooms tax. The number and type of housing units to be constructed as part of the proposed project, as well as the potential rental rates and number of occupied room-nights, are still very conceptual and will require further market analysis. Therefore, estimating the amount of potential M&R taxes generated by this phase of the development was considered to be too speculative for a calculation to be made at this time.

Although the M&R taxes are collected by the state a portion of these taxes are distributed to local communities each year based on an allocation formula that relates primarily to total population as well as other factors. As noted previously, the towns of Newbury and Goshen received approximately $52,900 and $22,900 in shared M&R taxes from the state in Fiscal Year 2003/04. Estimating the local share of future M&R taxes is difficult since it depends on the total amount collected by the state as well as a number of budgetary factors. However, over the last three years the amount of taxes distributed to Newbury and Goshen has increased by approximately $2,000 to $3,000 annually in each community.

The third type of state revenue generated from the operation of the ski area is the business profits tax (BPT). Presently, the ski area has made average annual payments to the state for BPT of approximately $100,900. The historical BPTs have represented almost 22% of average lease payments over the last four years. Assuming that this relationship will remain relatively constant in future years the state could receive between $118,000 and $129,000 in BPT as the ski area's utilization rate begins to increase after implementation of the proposed expansion.

2) Employment Impacts

Expansion of the ski area and construction of seasonal housing units as proposed in the West Bowl area will necessitate increased staffing at the facility that will result in direct impacts to the local and regional employment base. It is estimated that the ski area expansion alone will result in the need to hire an additional 76 employees including 4 full-time year-round (FTYR), 26 full-time seasonal (FTS), and 46 part-

Table 7
Projected Employment Related to
Ski Area Expansion and Housing Development

Ski Area Expansion Only	Full-time Year-round		Full-time Seasonal		Part-time Seasonal	
	Employees	Salary/HR	Employees	Salary/HR	Employees	Salary/HR
Food & Beverage	1	$15.25	5	$8.00	4	$7.00
Snowmaking	1	$14.30	2	$10.00	2	$8.50
Lift Maintenance	1	$15.30	1	$10.00		
Ski Patrol	1	$14.25	3	$10.00	4	$8.50
Buildings & Grounds			2	$9.50	4	$8.00
Grooming			2	$12.00	2	$10.00
Lift Operations			4	$8.75	2	$7.50
Marketing			1	$12.00	2	$9.00
Rentals			2	$7.50	4	$7.00
Ski School			2	$11.00	20	$8.50
Tickets			2	$8.50	2	$7.50
SUB-TOTAL	4		26		46	
Housing Development Only						
Reservations	1	$12.00	4	$9.00	2	$8.00
Housekeeping	1	$12.00	4	$10.00	8	$9.00
Maintenance	1	$12.00	3	$10.00	2	$9.00
Properly Mgmt	1	$18.00	2	$12.00	2	$10.00
Accounting			1	$10.00		
SUB-TOTAL	4		14		14	

Source: The Mount Sunapee Difference, LLC

time seasonal (PTS) positions. It is anticipated that the majority of these new positions would be filled by residents of the communities living in the regional towns surrounding the ski area that were identified in a previous section of this report. Table 7 provides a more detailed breakdown of these new positions by category as well as their estimated wage rates.

For estimating total wages paid for these new positions it was assumed that FTYR and FTS employees worked a 40-hour week while PTS employees worked 18 hours per week. The length of the season was assumed to be an average of 130 days or approximately 19 weeks. Based on these assumptions the total additional wages paid to new employees working at the expanded ski area would be approximately $437,000 annually. This represents an increase of approximately 17% over current payroll levels of $2.5 million for the existing facility.

Since the proposed housing development will be seasonally occupied it will require the establishment of staff to manage the upkeep and rental of the units. These positions, which are illustrated in Table 7 will be new positions that do not presently exist within the ski area's organizational structure. The total new positions created to oversee operations of the proposed housing development would be 32 including 4 FTYR, 14 FTS, and 14 PTS. Since the units will be used all year round, as opposed to just during the ski season, total wages have been estimated based on a 52-week pay period. However, it is possible that staffing levels could be reduced during the off-peak seasons. Given these parameters, the total wages paid to employees working at the proposed housing development would be approximately $262,000 annually. Therefore, the combined total of additional wages paid annually for both the ski area expansion and housing development in the West Bowl area would be approximately $699,000.

3) Impacts on Area Businesses

The proposed expansion of the Mount Sunapee Resort is expected to result in additional skier visits. From an economic perspective, increased skier visits represents a potential source of revenues for local and regional businesses in the form of expenditures for goods and services such a gasoline, food, lodging accommodations, and other consumer items.

As discussed previously, the ski area expansion is expected to potentially increase skier visits to the facility by approximately 26% within the first five years after completion. This would result in an estimated increase in skier visits of approximately 54,600 annually, based on a 35% utilization rate of the expanded facilities.

Although an increase in visitors to the ski area will result in additional expenditures at the ski area, it also represents the potential for increases in off-mountain expenditures as well. The amount of these additional expenditures is dependent on a number of factors related to each visitor such as their length of stay (are they "daytrippers" or "overnighters"), the availability of goods and services in the area or along their travel route, and the distance they have traveled.

Making these types of determinations regarding spending patterns of existing visitors to the facility would require conducting a consumer survey that was beyond the scope of this analysis. However, there is extensive information from other research related to the ski industry that can provide a reasonable assessment of how these impacts may affect the Mount Sunapee area based on the projected increase in visitation. A study recently completed for the State of Michigan evaluated the economic impacts of skiers and snowboarders in that state which offers a reasonable comparison for the potential impacts related to the Mount Sunapee project.[11] The Michigan study included a detailed analysis of spending patterns, based on a survey of skiers coming to the state, based on the type of trip which was segmented as local trips, day trips of more than 60 miles, and overnight stays. Expenditures were further segmented as to whether they occurred at the ski area or in the local area, the latter of which is relevant for this portion of the analysis.

The Michigan study estimated that 72% of expenditures made by skiers took place at the ski resort and 28% in the local area. These so-called off-mountain expenditures averaged $5.50 for local trips, $9.00 for daytrippers, and $42.00 for overnighters staying at motels. Table 8 provides more detail about how these expenditures were divided amongst various consumer goods and services.

Table 8
Local, Off-Mountain Expenditures Per Skier Visit By Type of Trip

	Local	DayTrip	Overnight*
Equipment Rental	$0.06	–	$1.06
Lodging	–	–	$19.22
Restaurant	$1.61	$1.60	$9.72
Groceries	$0.96	$0.68	$3.34
Gas & Oil	$2.76	$5.60	$5.65
Other Auto	$0.03	$0.07	$0.10
Entertainment	$0.01	–	$0.74
Other Retail	$0.05	$1.02	$2.17
Total	$5.48	$8.97	$42.00

*Staying at a motel.
Source: Michigan State University 2001

These average multipliers were used to estimate the total expenditures that could occur within the local and regional economies based on the proposed ski area expansion. With the West Bowl expansion it is estimated that skier visits to Mount Sunapee will increase by approximately 54,600 annually. Based on surveys conducted of skiers presently visiting the ski area it is estimated that existing trips to the ski area are 10% local, 60% daytrippers, and 30% overnighters. These percentages were applied to projected skier visits of 54,600 and multiplied by the category expenditures from the Michigan study to estimate potential impacts in the local economy, which are illustrated in Table 9.

The data in the Table suggests that an additional $1.0 million could be spent in local and regional area businesses as a result of increased skier visits resulting from the proposed ski area expansion for items such as gasoline, meals, lodging, and other retail goods and services. The Table also provides an estimate of the demand that these expenditures could create in the local market area based on industry standards for the amount of gross sales per square foot required to support various types of

[11] *Economic Impacts of Michigan Downhill Skiers and Snowboarders, 2000-01,* prepared by D. Stynes and Y. Sun, Department of Park, Recreation and Tourism Resources, Michigan State University, June 2001.

businesses. Most retail establishments typically require in the vicinity of $250/sq.ft. while grocery stores need to maintain a higher average of approximately $450/sq.ft.

Table 9
Projected Annual Off-Mountain Expenditures Related to Proposed Ski Area Expansion and Demand for New Building Square Footage

Type of Expenditure	Local	DayTrip	Overnight	Total	Avg $/SF	New SF Demand
Equipment Rental	$328	$0	$17,363	$17,690	$250	71
Lodging	$0	$0	$314,824	$314,824	$0	–
Restaurant	$8,791	$52,416	$159,214	$220,420	$250	882
Groceries	$5,242	$22,277	$54,709	$82,228	$450	183
Gas & Oil	$15,070	$183,456	$92,547	$291,073	$250	1,164
Other Auto	$164	$2,293	$1,638	$4,095	$250	16
Entertainment	$55	$0	$12,121	$12,176	$250	49
Other Retail	$273	$33,415	$35,545	$69,233	$250	277
Total	$29,921	$293,857	$687,960	$1,011,738	–	2,641

Source: Michigan State University and RKG Associates, Inc.

What this data suggests is that while the ski area expansion would generate additional expenditures within the market area it is unlikely that there would be sufficient spending to create the demand for a significant amount of new business square footage, which is estimated to be approximately 2,600 sq. ft. Although a study to determine the potential of the market area to absorb additional demand was beyond the scope of this analysis, it is reasonable to assume that the projected demand in square footage could be relatively easily accommodated by area businesses. For comparison purposes, a typical convenience store/gas station contains approximately 1,800 sq. ft. while a grocery store might contain 45,000 sq. ft.

The amount of additional lodging space was not included in the Table because these types of establishments typically rely on indicators other than building square footage for estimating demand. Furthermore, some of the projected growth in overnight lodging expenditures would be absorbed both by area hotels/motels as well as seasonal housing rentals. Once again, the additional expenditures for overnight lodging ($314,824) are considered to represent a relatively moderate increase in total demand for additional room-nights over the course of the ski season given the higher in-season rates typically charged for at hotels and privately-rented housing units. It is likely that this increase could readily be absorbed within the existing inventory of lodging rooms (hotels, motels, and seasonal homes) as well as the new housing development that is proposed for construction in the West Bowl area.

It should be noted that the proposed expansion of the Mount Sunapee Resort will not result in the creation of a "ski village" type of development that is more common at the larger ski areas in Colorado and other major skiing destinations. These ski villages are in effect, self-contained communities that often include many hundreds of housing units as well as a significant concentration of commercial development. While this

type of resort village development can result in considerable impacts on local housing markets and existing businesses, the proposed expansion at Mount Sunapee will not resemble this scale of development. Therefore, overall impacts are expected to be relatively small with regard to the effects on area businesses.

4) Regional Housing Impacts

The proposed West Bowl expansion of the ski area would involve, as a separate but integrated component, the construction of 175 to 250 seasonal housing units. As described previously, the housing units would include a mix of hotel-style condominium units, townhouse condominiums, and single family homes. Some of the units are likely to be sold in a timeshare form of ownership with four, quarter shares available for each unit. These housing units are intended to be solely used as recreational lodging for visitors to the ski area as well as other tourism-related activities available in the Lake Sunapee region. However, the possibility that some small percentage of these units will be occupied year-round is evaluated in a subsequent section that analyzes local fiscal impacts.

A previous section of this report discussed recent housing trends that have occurred within the region over the last decade. These trends, which were identified in the Regional Plan for the Mount Sunapee area, indicated that an ever tightening housing market has been emerging due to the continuing economic and population growth being experienced within the region. There is a deficiency in the number of housing units being constructed in comparison to the growing demand which has resulted in low vacancy rates, higher housing costs, and the conversion of seasonal housing units for year-round use. Construction of the proposed 175-250 housing units would represent an increase of approximately 1.2% of the 20,000 housing units that existed in the Claremont LMA in 2000. Since the units are intended for seasonal use only, they will not directly support the need for work-force housing that was identified in the Regional Plan. However, their construction will serve to support the portion of the economy which is tourism-related and which represents an important component of the overall employment base for the area. The proposed housing will help to maintain an adequate supply of seasonal housing within the region that has been eroded over the last decade due to the conversion of these types of units for year-round use. Census estimates indicate that the number of seasonal housing units in the LMA decreased by approximately 230 units between 1990 and 2000, resulting in a current total of approximately 2,700 units.

5) Conservation/Open Space Impacts

As part of the management company's proposal to expand the existing ski area it was requested that the State of New Hampshire lease additional land within the Mount Sunapee State Park boundaries that is not presently used for skiing. This request for expansion encompasses approximately 175 acres of state-owned land located in the Town of Newbury. The state would continue to retain ownership of this land even though the management company will pay for the ski area expansion.

The state will receive additional lease revenues, as well as increases in other revenues, due to projected skier visits associated with the expansion into this area of the park. However, the management company has also agreed to give the state other land which it owns in exchange for use of this park land. The parcels that would be transferred to state ownership are located adjacent to the park boundaries as well as the Monadnock-Sunapee Greenway, a hiking trail that traverses the ridge which terminates at the ski area's summit. This conservation land would serve to widen the Greeway corridor at one of its narrowest points and thus help to preserve the integrity of the hiking trail from potential encroachment in the future. The land area proposed to be transferred by the management company to the state is expected to total a minimum of 100 acres of high-elevation conservation lands, all of which is located in the Town of Newbury.

The socio-economic value associated with the preservation of these additional conservation lands is not easily quantified in this instance. However, considerable research has been conducted which illustrates that there are economic benefits for the community, as well as neighboring properties, associated with preserving open space in this manner.

VI. LOCAL FISCAL IMPACT ASSESSMENT

This section of the report analyzes the potential municipal impacts of the proposed ski area expansion and seasonal housing development from a fiscal perspective as it relates to the Towns of Newbury and Goshen. The impacts are expressed, to the extent possible, in terms of projected revenues and expenditures within the municipal budgets. In some instances the potential impacts, which may be positive or negative, cannot readily be quantified in terms of specific budgetary items. In those instances, a narrative approach is used to qualitatively represent the potential impacts based on information obtained from discussions with local officials as well as municipal master plans and reports.

The municipal expenditure impacts are presented in terms of existing budget categories and services currently provided by each municipality. In order to establish a framework for evaluating these impacts the first portion of this section presents historical appropriations and expenditures for both communities from the last three fiscal budget years. Separate impact analyses are presented for the expansion of the ski area facilities and the development of the seasonal housing units in the West Bowl area.

Tables 10 and 11 present a summary of appropriations and revenues for the Towns of Newbury and Goshen for the three fiscal years of 2002 to 2004. Appropriations represent the amount proposed and/or adopted at the annual Town Meeting for each community as reported on the MS-6 Forms submitted to the State's Department of Revenue Administration. Revenues presented in the Tables represent estimates submitted by the towns and approved by the state. Both the appropriation and revenue estimates may vary somewhat from the actual expenditures and revenues realized by each town over the course of the year due to normal fluctuations in administering municipal activities.

Municipal appropriations presented in the Tables are segmented into major department categories. Similarly, revenues are grouped by major sources of funding. For both communities the largest annual expenditures are related to general government administration functions, public safety services such as police and fire, highway and street construction and maintenance activities, and sanitation needs related to waste disposal. Special Warrant Article items have been kept separate since these types of appropriates can fluctuate dramatically from year-to-year and are likely to be paid for over an extended number of years through bond amortization. From a revenue perspective, local property taxes are by far the largest single source of revenues in each community with the categories of Licenses, Permits and Fees, and total State Revenues, following a distant second and third. Overall, appropriations in Newbury have increased by approximately $505,000, or 25% over the last three years, exclusive of Warrant Articles. In Goshen, total appropriations have either declined or remained relatively constant over the same time period.

The potential impacts in Newbury and Goshen related to the ski area expansion are likely to vary from one town to the other since the ski area has existed in Newbury for many years. Therefore, impacts related to the expansion in Newbury are expected to be incremental in nature and more easily absorbed into the levels of service currently provided by the town. In the Town of Goshen, which does not presently service the ski area on a regular basis, the impacts are likely to have a more noticeable effect on municipal expenditures and revenues, especially in the short-term period, when the West Bowl expansion first begins operation and the housing units are constructed.

The primary demand for municipal services related to the ski area are emergency services such as police, fire, and ambulance. There are no sanitation expenses since the ski area uses a private service to dispose of its solid waste. Similarly, there are no costs associated with health and welfare or culture and recreation portions of the municipal budgets, at least in Newbury, since there is no housing development proposed in that town. There may be some costs in these latter two categories in Goshen although the housing is proposed for seasonal occupancy only and is therefore expected to have minimal impacts on these types of services normally provided to year-round residents. Similarly, Goshen may experience more of an increase in general government administrative costs related to the review and permitting process associated with constructing the proposed project, but these impacts would be relatively short-term in duration.

Expenditures for highway and street maintenance are likely to be affected to some degree by the proposed project since there will be an increase in the amount of vehicles using the roadways as a result of the proposed expansion. However, any increases in highway maintenance related to the project is expected to be incurred primarily at the state level since the majority of the roadways used to access the facility are state-maintained.

Table 10
Town of Newbury Appropriations and Revenues* 2002-2004

	FY 2002		FY 2003		FY 2004	
APPROPRIATIONS	Amount	% Total	Amount	% Total	Amount	% Total
General Government	$501,419	24.7%	$575,082	23.6%	$708,250	27.9%
Public Safety						
Police	$252,738	12.4%	$241,492	9.9%	$254,156	10.0%
Ambulance	$1,000	0.0%	$1,000	0.0%	$1,000	0.0%
Fire	$59,040	2.9%	$62,034	2.5%	$81,575	3.2%
Other	$27,024	1.3%	$53,313	2.2%	$57,780	2.3%
Highways & Streets	$579,466	28.5%	$626,576	25.7%	$654,441	25.8%
Sanitation	$182,383	9.0%	$184,330	7.6%	$212,070	8.4%
Health & Welfare	$22,243	1.1%	$25,695	1.1%	$41,844	1.6%
Culture/Recreation/Conservation	$83,336	4.1%	$91,653	3.8%	$97,509	3.8%
Debt Service	$40,175	2.0%	$40,115	1.6%	$53,505	2.1%
Capital Outlay	$58,233	2.9%	$285,853	11.7%	$51,087	2.0%
Operating Transfers Out	$225,140	11.1%	$247,400	10.2%	$324,560	12.8%
SUBTOTAL	$2,032,197	100.0%	$2,434,543	100.0%	$2,537,777	100.0%
Warrant Articles	$146,000		$164,100		$1,990,600	
TOTAL	$2,178,197		$2,598,643		$4,528,377	
REVENUES						
Taxes						
Local Property Taxes	$1,364,400	62.6%	$1,556,329	59.9%	$1,713,268	37.8%
Other Taxes	$149,500	6.9%	$120,500	4.6%	$109,010	2.4%
Licenses, Permits & Fees	$240,000	11.0%	$360,700	13.9%	$377,038	8.3%
State						
Shared Revenue	$12,000	0.6%	$12,000	0.5%	$14,000	0.3%
Meals & Room Tax Distribution	$48,000	2.2%	$50,000	1.9%	$52,900	1.2%
Highway Block Grant	$82,369	3.8%	$86,804	3.3%	$86,804	1.9%
Other	$1,400	0.1%	$1,500	0.1%	$171,302	3.8%
Charges for Services	$30,000	1.4%	$120,000	4.6%	$46,665	1.0%
Misc Revenues	$95,000	4.4%	$49,000	1.9%	$16,000	0.4%
Interfund Operating Transfers In	$105,528	4.8%	$201,810	7.8%	$351,390	7.8%
Other Financing Sources	$50,000	2.3%	$40,000	1.5%	$1,590,000	35.1%
TOTAL	$2,178,197	100.0%	$2,598,643	100.0%	$4,528,377	100.0%

*NOTE: Figures in this table were taken from the "approved" or "estimated" appropriations and revenues categories presented on the State of NH, Dept. of Revenue MS-6 forms. These figures may vary somewhat from the actual expenditures and revenues recorded by the town in a given year.
Source: NH Dept. of Revenue Administration MS-6 Forms, Town of Newbury

Table 11
Town of Goshen Appropriations and Revenues* 2002-2004

	FY 2002		FY 2003		FY 2004	
APPROPRIATIONS	Amount	% Total	Amount	% Total	Amount	% Total
General Government	$219,083	40.6%	$197,930	39.0%	$210,125	39.7%
Public Safety						
Police	$60,058	11.1%	$63,691	12.5%	$69,305	13.1%
Ambulance	$5,678	1.1%	$5,678	1.1%	$6,000	1.1%
Fire	$18,600	3.5%	$19,060	3.8%	$16,300	3.1%
Other	$4,150	0.8%	$5,900	1.2%	$5,650	1.1%
Highways & Streets	$108,077	20.1%	$109,037	21.5%	$113,277	21.4%
Sanitation	$78,227	14.5%	$79,662	15.7%	$80,022	15.1%
Health & Welfare	$13,312	2.5%	$13,600	2.7%	$14,655	2.8%
Culture/Recreation/Conservation	$10,776	2.0%	$10,536	2.1%	$11,497	2.2%
Debt Service	$3,000	0.6%	$3,000	0.6%	$3,000	0.6%
Capital Outlay	$0	0.0%	$0	0.0%	$0	0.0%
Operating Transfers Out	$18,000	3.3%	$0	0.0%	$0	0.0%
SUBTOTAL	$538,961	100.0%	$508,094	100.0%	$529,831	100.0%
Warrant Articles	$21,896		$114,796		$128,311	
TOTAL	$560,857		$622,890		$658,142	
REVENUES						
Taxes						
Local Property Taxes	$365,562	65.2%	$338,009	54.3%	$366,393	55.7%
Other Taxes	$25,600	4.6%	$41,300	6.6%	$45,300	6.9%
Licenses, Permits & Fees	$96,275	17.2%	$123,525	19.8%	$126,225	19.2%
State						
Shared Rev	$12,000	2.1%	$11,500	1.8%	$11,800	1.8%
Meals & Room Tax Distribution	$18,000	3.2%	$21,000	3.4%	$22,900	3.5%
Highway Block Grant	$24,920	4.4%	$25,000	4.0%	$26,050	4.0%
Other	$1,000	0.2%	$1,000	0.2%	$1,100	0.2%
Charges for Services	$11,500	2.1%	$4,500	0.7%	$5,650	0.9%
Misc Revenues	$0	0.0%	$20,756	3.3%	$10,824	1.6%
Interfund of Transfers In	$6,000	1.1%	$36,300	5.8%	$41,900	6.4%
Other Financing Sources	$0	0.0%	$0	0.0%	$0	0.0%
TOTAL	$560,857	100.0%	$622,890	100.0%	$658,142	100.0%

*NOTE: Figures in this table were taken from the "approved" or "estimated" appropriations and revenues categories presented on the State of NH, Dept. of Revenue MS-6 forms. These figures may vary somewhat from the actual expenditures and revenues recorded by the town in a given year.
Source: NH Dept. of Revenue Administration MS-6 Forms, Town of Goshen

Although Goshen would be expected to have more expenses due to the proposed project from a proportional perspective, it would also receive a correspondingly greater proportion of projected revenues. While both towns would receive increased property taxes from the creation of additional ski slopes and trails, Goshen would receive additional revenues related to the construction of West Bowl's base area buildings as well as the proposed housing development.

A. Estimated Fiscal Impacts of Proposed Ski Area Expansion – Town of Newbury

1) Estimated Expenditures

Police Services - The Town of Newbury Police Department is currently staffed by 3 full-time officers, 6 part-time officers and 1 secretary. Based on discussions with the Police Chief these staffing levels have not changed over the last six years that the Mount Sunapee Resort has been operated by the management company, even though annual skier visits increased by approximately 50% on average, during that time. The Chief did note that the number of hours part-time officers work on a weekly basis has doubled over the past year (from approximately 1.5 hours to 4 hours on average), he expects that current staffing levels are adequate for the foreseeable future barring any major changes within the town.

Over the 12 month period between January and December 2003, police records indicated there were 211 service calls of a various nature related to the ski area. The vast majority of these service calls involved building checks (144) that occured, for the most part, on the department's normal patrolling of the property. The remaining calls for service included thefts (37), alarm responses (6), motor vehicle accidents (5), and other miscellaneous incidents (19). In comparison, there were 4,166 total calls for service within the Town of Newbury in 2003 indicating that incidents related to the ski area represented approximately 5% of all calls.

Based on the police department's record system the incidents noted above can be tracked directly to those occurring on the ski area's property. However, other traffic incidents occurring on the public roads which may involve visitors to the ski area are not directly tracked in the same manner. The Chief estimates that approximately 80% of all traffic stops occurring during the winter (December through March) may be related to ski area traffic, although this percentage is not based on actual statistics collected by the department. For this time period in 2003/04 there were 361 traffic warnings and 126 tickets issued for a total of 487. Eighty percent (80%) of that total would be approximately 390 traffic stops.

The Police Chief noted that the anticipated incremental increase in demand for services related to the planned expansion of the ski area can most likely be accommodated within the department's existing capacity. The Chief has indicated that services related to traffic safety and theft of property are the primary concerns for the department as it relates to existing and proposed activities at the ski area. It should be noted that on peak traffic weekends or holidays the ski area currently pays the police department, at an hourly rate, for traffic control assistance at the resort's access

road entrance on Route 103. It is possible that there may be a need to expand this type of service in the future based on increased activities at the ski area. However, the Chief indicated that the Mount Sunapee Resort is a well run facility and that from an overall perspective, the current management practices generally result in positive impacts within the region.

In order to provide an estimate of the potential fiscal impacts associated with the ski area expansion a per capita value was calculated for departmental calls for assistance. As mentioned above, the department had 4,166 calls for assistance in 2003. The departmental budget for FY2003 was $241,492 which translates into approximately $58 per call. This per capita figure is of course an average since some assistance calls will take less time to process than others and thus, represent less of a cost to the department. This suggests that assistance calls at the ski resort in 2003 represented approximately $12,238 of the department's total budget. The estimate of 390 traffic stops related to the ski area represents an additional $22,620 in departmental expenditures.

As discussed previously in this report, skier visits to the mountain may increase by an estimated 26%, or 54,600 skiers annually, as a result of the increased capacity resulting from the West Bowl expansion. Approximately 30% (16,380 skiers) of that capacity will be available in the Town of Newbury and 70% (38,220 skiers) in the Town of Goshen. Of course, this is only a gross approximation since these additional skiers will have access to the entire facility.

Based on the four-year annual average of 247,500 skiers visiting the mountain there is a ratio of 0.00085 calls for police service for each skier in the Town of Newbury. This suggests that the addition of 16,380 skiers in Newbury due to the proposed expansion would result in an additional 14 calls for assistance at the ski area itself. If it were assumed that the increase in skier visits would be equally distributed between the two towns (50% each) it would represent an additional 23 calls for assistance. Based on traffic projections completed in a separate study for the proposed project, it is estimated that traffic related to the ski area expansion will increase by approximately 5.6% annually over the next six years. This suggests that there could be an additional 22 traffic stops carried out by the police department each year due to increased traffic volumes. [12] The combination of 14 to 23 service calls and 22 traffic stops represents a total of 36 to 55 additional calls for assistance related to the mountain which, at the per capita rate of $58 per call, would represent an additional $2,088 to $3,190 in additional expenditures for the police department in Newbury.

Fire and Emergency Medical Services - Fire protection and emergency medical services in Newbury are provided by an all volunteer department, who receive some stipend pay, which presently consists of 32 call firefighters. Aside from fire protection the department also operates a First Aid Stabilization Team (FAST) that responds to

[12]This was calculated as follows: taking the 211 calls for assistance at the ski area in 2003 divided by 247,500 equals 0.00085. The estimated 390 traffic stops related to the ski area multiplied by 5.6% equals 22 additional traffic stops.

medical emergencies and prepares victims for transport by ambulance or other mode. The town does not have its own ambulance service but uses either New London's or Bradford's ambulance service to transport victims as needed.

The Fire Department had a total of 147 calls for assistance in 2003. The majority of calls were related to auto accidents (29), in-house medical emergencies (28), falls/trauma (18), and false alarms (14). On a per capita basis, each call for service cost the department approximately $421 based on a total budget of $62,024 in FY2003.

The exact number of calls for the department related to the ski area were not available. However, the Fire Chief indicated that there were probably fewer than 5 calls at the ski area in 2003, of which none were fire emergencies and 2 were false alarms. Police department records showed that the police department assisted the fire department on 5 calls related to the ski area last year. The Fire Chief indicated that a few of the 29 auto accidents were probably related to ski area traffic but the exact figure was not available. On the assumption that 5 to 10 departmental calls were related directly to the ski area or its off-site traffic, the total annual expenditures were approximately $2,105 to $4,210, based on $421 per call.

The Fire Chief believes that the proposed expansion of the ski area will not result in an increased demand for fire or emergency medical services that cannot be accommodated within the department's existing capacity. In addition, the ski area provides its own first response emergency medical stabilization services, through the use of Ski Patrol personnel, who are employees of the facility.

Ambulance Services - The ski area contracts with the Newport Ambulance Service, a Fire Department based municipal service within the nearby Town of Newport. The ambulance service transports skiers, or other injured individuals, to the hospital during ski season. These services are typically paid for by the injured person's insurance provider and do not represent a cost for the Town of Newbury. As mentioned above, the ski area's Ski Patrol personnel are responsible for first response and stabilization of anyone injured on the mountain.

Based on discussions with the emergency ambulance services' Division Chief the department typically receives between 80 and 100 calls for transport during the ski season. The Chief indicated that the department had no problem in providing this level of service to the ski area and did not expect that the projected expansion would pose a problem with regard to future levels of service.

Solid Waste Disposal Services

The Mount Sunapee Resort presently maintains a contract with a private waste hauler to dispose of solid waste generated at the resort. This practice will be continued after the proposed expansion resulting in no additional costs to the Town of Newbury.

2) Estimated Revenues

Local Property Taxes - Property taxes paid to the Town of Newbury by the Mount Sunapee Resort over the last five years have totaled $658,635, or approximately $131,700 annually, making the facility one of the top-three highest taxpayers in the community. Annual payments have ranged from a high of $165,800 to a low of $89,935 with the lower figure occurring after a recent townwide property revaluation in 2003. The property taxes paid by the ski area to the town are assessed both on buildings and structures as well as improved ski terrain areas (trails) and unimproved land.

Due to the proposed ski area expansion it is estimated that the amount of improved ski terrain in Newbury will increase by approximately 25-30 acres, and will also include the construction of a new summit chair lift building. This could increase the assessed value of the resort's property by approximately $325,000 to $370,000 (based on $9,000 per acre of land and an estimated $100,000 for the building). Based on the town's current tax rate of $12.88/$1,000 of assessed value this represents an additional $4,200 to $4,800 in tax revenues, or about $4,500 on average. Therefore, based on the amount of taxes paid over the previous five years it is estimated that the total taxes paid annually by the ski area will be approximately $134,435, an increase of 3%.

Permits and Fees

It is likely that the town will receive several hundred dollars in application and permit fees for building permits and other administrative requirements related to the proposed ski area expansion.

B. Estimated Fiscal Impacts of Proposed Ski Area Expansion – Town of Goshen

1) Estimated Expenditures

Police Services – The Town of Goshen's Police Department is presently administered by a part-time Police Chief, and staffed with 1 full-time officer and 4 part-time officers, according to information provided by town officials. It is assumed that the current level of staffing is adequate to meet the needs of the town. Numerous attempts were made to contact the Police Chief but without success.

In 2003, the Police Department responded to 783 calls for service, according to the town's Annual Report. The majority of these were traffic offense warnings (333) and traffic offense citations (61). Other significant numbers of responses were related to business/residence checks (53), weapons permits (29), assistance to fire department (26), and stray animals (22). Based on the department's total budget of $63,691 in 2003, the average per capita cost for each assistance call was approximately $81.

Estimating the potential increase in demand for police services due to the proposed ski area expansion, based on existing levels of service, is difficult since it is an unique type of land use that does not presently exist in the town. However, a reasonable basis for estimating potential demand is based on levels of service provided in the Town of Newbury, where the ski area has operated for many years. Although the total

population and current police staffing levels are not exactly the same they are similar enough to facilitate a reasonable comparison.

As described above, in the assessment of police related impacts in the Town of Newbury, the ski area's current operating levels results in a ratio of 0.00085 calls for service for every skier visiting the mountain. The proposed ski area expansion will result in an annual increase of approximately 54,600 skiers. Of the 75 acres of ski terrain created as part of the West Bowl expansion approximately 70% (38,220 skiers) will be available in the Town of Goshen and 30% (16,380 skiers) in Newbury. In fact, the distribution of additional skiers may be more evenly distributed between the two towns (27,300 skiers). Applying this range of 50%-70% of the additional skier visits to the ratio found in Newbury with regard to police services suggests that the proposed ski area expansion in Goshen could result in 23 to 33 additional calls for service. Based on the current per capita cost of $81 per call this represents $1,863 to $2,673 in additional expenditures for the department annually. It is also likely that there will be an increase in the number of traffic warnings and citations issued given the projected increase in traffic related to the expansion. In 2003, the department responded to a total of 423 traffic related offences. Based on the projected increase of 5.6% in ski area related traffic it is possible that the number of traffic calls for service could increase by 24 per year. This would represent an estimated $1,944 in additional expenditures for the police department.

Fire and Emergency Medical Services - The Goshen Fire Department, like Newbury's, is manned by an all volunteer roster of firefighters. In 2003, the department responded to 66 calls for service. The majority of these calls were medical emergencies (20), mutual aid calls from other towns (18), auto accidents (9), and fire calls (8). The department's total budget in 2003 was $19,060 which results in an average cost per call of approximately $288.

As discussed previously under the Town of Newbury's impact assessment the number of fire calls related to operation of the existing ski area has been relatively minimal, and none have involved fire-related calls. It is reasonable to assume that the same scenario would be true for the proposed expansion of the ski area into the Town of Goshen. Although the number of calls for service may increase due to the operation of the facility it would not amount to more than a few thousand dollars in additional expenditures for the department, based on the current per capita cost. The proposed expansion would not be expected to require any specific changes in the Fire Department's current staffing or equipment needs.

Ambulance Services - The provision of ambulance services to the proposed ski area expansion in Goshen would be provided through a contract with the Newport Ambulance Service. As a result, there would be no additional costs to the town for this type of service related to the proposed facilities.

Solid Waste Disposal Services
The Mount Sunapee Resort presently maintains a contract with a private waste hauler to dispose of solid waste generated at the resort. This practice will be continued after the proposed expansion resulting in no additional costs to the Town of Goshen.

2)Estimated Revenues
Local Property Taxes – Property taxes paid to the Town of Goshen over the last five years by the management company have averaged only $5,630 annually because the ski area presently owns little in the way of improved land or buildings within the town. However, the proposed expansion will result in the creation of approximately 45-50 acres of improved ski trails as well as the construction of a base lodge and other support infrastructure. Assuming the same assessed value for land improved with ski slopes that is currently used by Newbury ($9,000/acre), the ski terrain in Goshen would have an assessed value of $405,000 to $450,000.

The base lodge and associated parking and infrastructure has an estimated construction value of $1.3 million to $2.0 million. Although construction value does not necessarily translate directly to assessed value it does provide a reasonable approximation. Therefore, the combined value of improved land and buildings in Goshen related to the proposed ski area expansion could range between $1.7 million and $2.5 million in local assessed value. Based on the town's current assessment ratio of 67.9% this would represent assessed property value of $1.2 million to $1.8 million and, based on the 2003 tax rate of $35.41/$1,000, total annual property taxes ranging between $41,000 and $59,000.

Permits and Fees – The town will also receive a modest amount of additional revenues in application and permit fees for building permits and other administrative requirements related to the proposed ski area expansion that may total a few thousand dollars based on the estimated building construction values.

C. Estimated Fiscal Impacts of Proposed Housing Development– Town of Goshen

1)Estimated Expenditures
As discussed throughout this report, a separate component of the proposed ski area expansion would include the development of 175 to 250 seasonal housing units. This housing would include a mix of unit types including hotel-style condominiums (70-100 units), townhouse condominiums (88-125 units), and single family homes (17-25 units). It is expected that some of the units are likely to be fractionally owned with four, quarter shares available for each unit. The housing development would be managed by a private association that would have responsibility for maintaining all buildings, grounds, and utilities (including roadways) located on the property.

For estimating the potential fiscal impacts related to the proposed housing development, the average cost approach has also been applied. However, unlike the impacts related to the ski area expansion where individual multipliers were used for services such as police and fire, a blended average cost related to all municipal

services has been used for the housing development impacts. Based on total municipal appropriations in FY 2004 of $658,142, and the 389 total housing units reported in 2000, the cost for providing municipal services in Goshen is approximately $1,690 per housing unit. By applying this multiplier to the proposed housing development for the ski area it results in expenditures totaling $295,750 to $422,500. These estimated costs are considered to be conservatively high since the units will be occupied by seasonal residents who will not require all of the services provided by the town, such as solid waste disposal, health and welfare, and recreation. Furthermore, it is likely that the town would be able to provide services to these units within the existing delivery systems of town departments and therefore, would not experience a one-to-one increase in costs as represented by the average cost multiplier of $1,690 per housing unit.

The proposed housing development would represent a 64% increase in the town's existing housing supply. Although this is a significant increase, build-out would occur over a five to seven year time-frame representing an annual increase of between 5% and 10%, assuming that 50 units were constructed per year. It might be concluded that such a large increase in the housing supply would result in dramatic changes in the demands placed on municipal services in a small town like Goshen and that the addition of the proposed housing units would result in the need for more full-time staffing versus the volunteer and part-time personnel currently used. However, based on the case study information provided in the neighboring Town of Newbury, this is not necessarily true. Newbury had 1,331 total housing units in 2000 and an average cost of approximately $1,900 per dwelling unit for providing municipal services. The town still maintains an all volunteer fire department and a slightly greater number of full-time police personnel than Goshen. The total number of police officers in Newbury has not changed over the last six years but the amount of part-time hours worked weekly has increased. This is a more likely scenario for Goshen as well where future growth necessitates more hours worked by existing staff but not necessarily the hiring of additional full-time personnel.

Since the proposed housing will only be occupied by seasonal residents there will be no direct impact to the local school system due to an increase in the number of students typically generated by housing development. However, there is often a concern in communities that this type of housing could be converted to year-round use resulting in greater school-related impacts. Research conducted of existing housing developments at ski resorts around the country indicates that this is an uncommon occurrence. In instances where units have been converted it is a relatively small percentage of the total (generally 5%-10%) and the units are generally in excess of 30 years old.[13]

The potential school impacts have been estimated based on the assumption that this type of conversion could occur at the Mount Sunapee development at some point in

[13] Research conducted by RKG Associates, Inc. related to a review of the Draft Environmental Impact Statement (DEIS) for the proposed Crossroads Resort in the Catskill region of New York, December 2003. The research examined 21 ski resorts across the Country and in Canada.

the future. It is considered unlikely that a portion of the hotel-style condominiums would be converted to year-round use given the size and design of these units. Therefore, 10% of only the townhouse condominiums and single family units have been considered, a total of between 105 and 150 units, which represents the potential conversion of 10 to 15 units for year-round use.

In 2000, Goshen had 174 school-aged children in the town, according to Census data. This represents 0.62 school children per housing unit based on the total number of occupied dwellings. Although this multiplier is considered high for the potential number of school children that might reside in the townhouse units it has been used for the analysis in order to be more conservative.

Based on this multiplier, the 10 to 15 housing units converted to year-round use would generate 6.2 to 9.3 school-aged children. According to the N. H. Department of Education, the total expenditure per pupil at the Goshen-Lempster Cooperative School District in FY2002/03 was $9,291, although not all of this cost is paid by local property taxes; some is defrayed by other revenues. However, based on the total expenditure per pupil, the additional cost of school children generated by the conversion of seasonal units to year-round use would be approximately $57,600 to $86,400 annually.

2)Estimated Revenues

Local Property Taxes – As in the impact assessments completed for the ski area expansion, the primary source of local revenues generated by the housing development would be property taxes. Although the final design and sizes of the proposed units are still subject to future revision based on market characteristics and site constraints, it is estimated that the sale price of the units will be as follows. The hotel-style condominiums would range between $125,000 and $200,000 per unit, the townhouse condominiums between $250,000 and $350,000, and the single family homes between $500,000 and $600,000 per unit. The price ranges for all these units are varied based on size of the unit, location in the structure (e.g. end unit versus interior townhouse unit), number of bedrooms, lot size, and location within the development (e.g. access to ski slopes or available views).

Based on the price ranges indicated above, the total sale value for all units would be approximately $39.2 million to $78.5 million. Given the town's current assessment ratio of 67.9% of market value the estimated sales values would represent approximately $26.6 million to $53.4 million in local assessed value. At the town's 2004 tax rate of $35.41/$1,000 the proposed housing development would generate between $944,000 and $1.9 million in local property taxes annually once all of the units were built.

Permits and Fees – Additional revenues for building permits and fees to the Town of Goshen related to housing construction are estimated to range between $10,000 and $15,000. The potential variation in these figures is related to the number of units that may eventually be constructed as part of the proposed project.

VII. SUMMARY AND CONCLUSIONS

This report has presented an analysis of the potential economic and fiscal impacts related to the proposed expansion plans for the Mount Sunapee Resort. These proposed changes are expected to impact economic conditions at the state level, as well as the regional and local areas within which the facility is located.

As with all impact analyses, the findings and conclusions presented in this report are based on a set of assumptions related to the current conceptual development plans for the resort. In addition, the methodology employed assumed that historical operating trends at the facility, and the market area as a whole, provided a reasonable basis for estimating potential future impacts. If the conceptual development plans for expanding the resort are modified from their current configuration it would necessitate a re-evaluation of the estimated impacts to reflect such changes.

The state and regional economic impacts associated with the proposed expansion have both short-term and long-term components. The short-term impacts are related to the construction phases of the project and the estimated construction jobs and wages expected to result from both the ski area expansion and housing construction. The construction of the ski area facilities are estimated to result in the creation of 25 to 38 full-time equivalent jobs and the payment of $1.0 to $1.6 million in wages during the period of construction. The proposed development of 175 to 250 seasonal homes would result in 46 to 93 FTE annual construction jobs and a total of $13.3 to $19.2 million in wages over the estimated five to seven-year build-out of these housing units. In addition, it is estimated that the construction wages for both the ski area and housing development would result in secondary impacts of approximately $17.7 to $25.5 million in non-construction income distributed throughout the broader regional economies.

Long-term impacts of the proposed resort expansion are primarily related to the state revenues generated by the ski area as well as the additional employment that would result from the project. state revenues generated by the operation of the ski area includes annual lease revenues paid by the management company, Meals & Rooms taxes, and business profits taxes. Presently, the state has received a combined total of approximately $644,000 annually from the management company, based on the last four years of operation. This amount is expected to increase to approximately $810,500, an increase of 26%, after full build-out of the project. Along with an increase in state revenues, long-term impacts of the project are also expected to include expansion in peak-level employment at the ski area of 76 jobs and an additional 32 jobs related to managing the housing development. Wages for these new positions are estimated to total approximately $699,000 annually, an increase of approximately 28% over current payroll levels. It is expected that most of the jobs would be filled by residents from communities in the surrounding region.

Impacts to the area businesses and the housing market related to the proposed project are expected to be fairly moderate and generally positive. The increase in skier visits to the

resort could result in an estimated $1.0 million in off-mountain expenditures for consumer goods and services. It is anticipated that most of these expenditures can be accommodated within existing businesses and thus, will not result in increased demand for a significant amount of new commercial construction. The housing market, as noted in the Regional Plan, is experiencing a shortage in the number of newly constructed dwelling units required to sustain economic growth in the area. This has resulted in the conversion of some seasonal housing to year-round units. The proposed project will replace some of the lost seasonal housing which will help to support the tourism-based portion of the area's economy.

From a local economic perspective, the proposed project will result both in additional municipal expenditures and revenues in the Towns of Newbury and Goshen. Based on the existing and projected demand for services at the expanded ski area, as well as the proposed housing development, it is estimated that revenues generated by the project will exceed the increase in expenditures, resulting in a net positive fiscal impact to the communities. The total municipal expenditures in Newbury related to the ski area after the proposed expansion will be approximately $40,000-$45,000, which is considered to be a conservatively high estimate. These costs are related to the entire ski area and not just the proposed expansion, which is expected to result in a relatively small incremental increase in existing costs. Total property tax revenues paid to Newbury after the expansion are estimated to be approximately $134,000 annually. Most of the costs noted here are primarily related to police services and traffic control, however, both the Police and Fire Chiefs expect that the likely increases in demand for services resulting from the proposed expansion can be accommodated within their respective departments' existing capacity.

Town of Goshen does not presently provide municipal services to the resort on a regular basis. However, based on the demand for services observed in the Town of Newbury, it is estimated that the proposed expansion could result in an estimated $5,000-$6,000 in additional direct costs for the police and fire departments in Goshen, as well as some additional short-term administrative costs associated with project review and construction. Total property tax revenues paid to the Town of Goshen resulting from the ski area expansion are estimated to range between $41,000 and $59,000 annually.

The proposed housing development, which would be located entirely within the Town of Goshen, could result in estimated expenditures for municipal services ranging between $295,750 and $422,500, based on the town's current average cost per housing unit. However, this estimate is also considered to be conservatively high since the units will be occupied by seasonal residents who will not require many of the services typically provided to year-round residents. In comparison, total estimated property tax revenues generated by the housing units after build-out would range between $944,000 and $1.9 million annually.

STATE OF NEW HAMPSHIRE
DEPARTMENT of RESOURCES and ECONOMIC DEVELOPMENT
OFFICE of the COMMISSIONER
172 Pembroke Road P.O. Box 1856 Concord, New Hampshire 03302-1856

R. SEAN O'KANE
Commissioner

603-271-2411
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E-MAIL: sokane@dred.state.nh.us

May 6, 2005

Timothy Mueller, President
Mount Sunapee Resort
PO Box 2021
Newbury, NH 03255

RE: Mount Sunapee Ski Area 2005-2009 MDP and EMP

Dear Mr. Mueller,

I am providing you with limited approval of your 2005-2009 Master Development Plan and Environmental Management Plan dated June 1, 2004. I concur with two of the three categories of proposed upgrading plans and projects. They are: 1) The improvements approved as part of the 2000-2004 MDP that are not yet implemented and 2) Additional proposed improvements within the current lease boundary.

As you know, I have made my recommendation to Governor Lynch regarding the third proposed category contained in the MDP: the West Bowl expansion. (Refer to my letter to Governor Lynch dated May 2, 2005.) Pursuant to the Lease and Operating Agreement, an amendment of the agreement requires approval by the Governor and Executive Council. As the West Bowl expansion request requires a lease agreement amendment, the matter is now with the Governor.

I wish to thank you and your staff for your commitment to this process, for meeting the conditions asked of you all through the leasehold expansion request that originated in 2001, and for continuing to deliver a high-quality ski product to the citizens and visitors of New Hampshire. I look forward to our on-going partnership at Mount Sunapee Ski Area.

Sincerely,

R. Sean O'Kane
Commissioner

cc: Allison McLean, Director, Division of Parks and Recreation
Mount Sunapee Advisory Committee

RSO/ttl