VI. Appendix

MONTPELIER DISTRICT ENERGY

Central Plant Location Options
There are two possibilities for the location of an expanded central heating plant, each with its own benefits and drawbacks. The existing plant (located behind 120 State Street) could be retained, expanded and modernized. Or, a new plant could be built at another location.

Existing Plant Location
The existing plant has one wood boiler and two oil boilers, and has served the Capital Complex of State office buildings for 50 years. There is enough boiler capacity to meet a modest increase in use of the plant, but not enough to serve buildings in downtown Montpelier. To be used for an expanded district heating system, the building would need to be enlarged and a new, efficient wood boiler would need to be installed.

Introducing Biomass District Energy for Communities
Canada and the United States are some of the highest per-capita energy users among developed nations, relying heavily on fossil fuels and electricity to meet their heating and cooling needs. Concerns about the future costs and availability of fossil fuels, combined with a heightened awareness of the environmental risk associated with their use, are prompting many communities in these two countries to seek alternative ways of meeting local energy needs.

One attractive alternative is *biomass district energy*, the fueling of community energy systems with locally produced biomass. This promising approach is a positive marriage of two mature technologies: district energy and biomass-fueled systems.

This guide introduces communities to the concept of district energy, and it shows the potential advantages of modern, biomass-fueled systems.

What Is District Energy?
District energy systems use one or more central plants to provide thermal energy to multiple buildings. This approach replaces individual, building-based boilers, furnaces and cooling systems.

With a district energy system, thermal energy -- in the form of hot water, steam or chilled water -- is distributed by underground pipelines from the central plants to each of the connected buildings. Energy is extracted at the buildings and the water comes back to the central plants, through return pipes, to be heated or cooled again.

The concept of district energy dates as far back as ancient Rome, where hot water was used to heat public baths and other buildings. Urban steam systems first became common about 100 years ago (the first North American system was built in 1877) -- and modern hot water systems have been used extensively in Europe since the 1970s. Today, as modern district energy rapidly gains acceptance, systems are being built in increasing numbers in cities and communities across North America.

District heating systems can provide space heating and domestic hot water for large office buildings, schools, college campuses, hotels, hospitals, apartment complexes and other municipal, institutional and commercial buildings. Systems can also be used to heat neighborhoods and single-family residences. Some district energy systems have the capability to supply steam to industrial customers for "process heat," while others capture low-grade waste heat from industry to sell to other customers. Municipalities can incorporate district energy into the infrastructure of their downtown business districts, or encourage its use in new developments, such as office building complexes and industrial parks.

District energy plants can be designed to produce not only energy for heating and cooling, but also electrical power. This is called *combined heat and power,* or *CHP*. CHP plants are able to get more usable energy out of the input fuel than a plant that only produces electricity. In general, the efficiency of central power plants is low, with only 30-40% of the fuel converted to useful energy. Electricity production should always be considered when a district heating system is being planned.

Why Should a Community Choose District Energy?
District energy can be a significant community asset, and it can offer benefits to individual system customers as well.

Some **community benefits** include:

• *Fuel flexibility and access to fuels.*
District heating provides access to a much wider variety of energy sources -- including fossil fuels, industrial waste heat and locally produced renewable fuels -- than is available to individual buildings. District energy gives both large and small users access to low-cost fuels.

• *Low, predictable energy costs.*
Through bulk purchasing, access to the least-costly fuels and efficient central operation, district energy systems provide thermal energy at stable rates that are often lower than the price of fuel purchased by individual users.

• *Better air quality.*
Air quality improves -- as does community livability -- when emissions from a single, well-managed plant replace uncontrolled stack emissions from boiler plants in many individual buildings.

• *Community revitalization.*
District energy infrastructure and stable rates improve a community's business climate, make local businesses more competitive, and help to revitalize downtowns and urban core areas so they can better compete with suburban sprawl.

District energy also offers several important **advantages to the customer**:

• *Simplified operation.*
With district heating, the individual building owner does not need to own and maintain a heating plant, or to procure and store fuel on-site. The "hassles" associated with operating a heating plant disappear. For large customers, on-site system operators (stationary engineers) may no longer be needed. Capital expenses for heating-plant equipment are also avoided.

• *Reliability.*
District energy systems have an unparalleled record of reliable service to users. They achieve this by well-managed central plant operation, by the use of multiple fuels, by having backup boilers in one or more locations, and by having standby power at the central plant.

• *Price stability.*
Compared to the purchase of fossil fuels by individual users, a central district energy system offers customers long-term price stability. District energy can also be a powerful means to make *renewable fuels* available to large numbers of buildings. And although district energy systems can use many different fuels and forms of energy, this guide focuses on district energy systems fueled with biomass.

Why Use Biomass for District Energy?
Using local energy resources for district energy systems makes sense because it keeps energy dollars in the local economy. Communities considering district energy should first consider whether local industries might produce saleable waste heat, or whether a local electricity-generating plant might be retrofitted for CHP operation. Many communities, however, will not have these resources in close proximity to their area of concentrated heat load. In many of these cases, locally produced biomass may be a more realistic source of energy for district heating.

Biomass refers to biological matter that can be burned for energy. Biomass fuel includes wood chips, bark, sawdust, other wood-product industry wastes, urban and forestry tree thinnings, cordwood, some clean forms of municipal

solid waste, landfill gas, animal manure, agricultural crop residues, food processing wastes and energy crops (grasses or fast-growing trees). Not all communities will have access to many of these forms of biomass. Most communities, however, will find that at least some are available from local sources.

Using Byproducts, Protecting Forests

Mill residues and whole tree chips are available in many areas where logging operations are common and there is a viable forest product industry.

The increased use of these forms of biomass for energy does not require more forest harvesting, since they are byproducts of activities that are already going on.

Any district energy project that uses whole tree chips from the forest should put in place protections to assure that responsible forest harvest practices are being used, including reforestation, replanting and creating a favorable environment for natural forest regeneration.

In many parts of North America, large quantities of biomass are available in two particular forms: sawmill wastes and chipped low-grade wood (also known as *whole tree chips*) from forest harvesting operations. Sawmill wastes include wood chips (from wood that is not of high-enough quality to be made into lumber), sawdust and bark. Whole tree chips are made in the woods from logs or parts of logs that are not of commercial quality. Both mill residues and whole tree chips can be considered low-grade "waste wood," suitable to burn for energy.

Biomass district energy, then, is the use of locally available biomass as the primary fuel for a district heating system. In certain specialized situations, biomass can also be the energy source for cooling. When the central biomass heating plant is designed to produce heat and electrical energy, this is called *biomass CHP*.

Combining the two mature technologies of clean-burning biomass combustion plants and modern district energy provides a community with added benefits beyond those supplied by district energy alone.

Additional Benefits of Linking Biomass and District Energy:

• *Increased community wealth.*
Using locally produced biomass can significantly increase community wealth by replacing dollars now spent on fossil fuels, and thus exported from the local economy, with dollars spent on fuels produced in the regional economy.

• *Locally priced energy.*
The use of locally managed resources provides more secure energy prices for a community, with less impact from global forces and events. In many cases, biomass is also the least costly fuel available.

• *Positive action on climate change.*
Biomass fuels can be a key component of a community's climate-change effort, since burning sustainably produced biomass adds no net carbon dioxide to the atmosphere -- unlike the burning of gas, oil, or coal.

• *Job creation.*
Combining district heating with biomass supports and can create jobs in the forestry sector, creates construction jobs when systems are built, and creates new jobs in plant operation and system extension.

• *Solid waste reduction.*
Some forms of biomass are currently being treated as wastes. Burning them for energy solves a waste disposal problem and the related environmental impact at the same time that it meets an energy need.

Enhancing the Forest Resource
At a time when the critical importance of protecting our natural resources is receiving more and more attention, it may seem irresponsible to suggest that forest biomass can play an increased role in meeting our energy needs. This section addresses that concern -- and it demonstrates how the use of low-grade forest wood for energy can complement society's use of higher-grade wood for other purposes.

Since the earliest days of human history, from the first use of wood as a source of heat to its succeeding role as a provider of lumber, wood products, paper and energy, forests have helped to sustain humanity. This unique resource can be *both* used *and* regenerated. Much of the original forests of North America were cleared to open land for settlement; but large areas of forest still exist, while once-open land in many other areas has grown back to woods. These forests continue to provide our population with fuel, recreation, wood products and energy.

Forest biomass is the most common and most likely form of biomass to be used in district energy systems. For this reason, it is important to consider carefully the impact of this new use on the health and long-term sustainability of the forest resource.

The "Full Use" Philosophy
Native people across Canada and the United States share a traditional belief in making full use of anything that is taken from nature, leaving nothing to waste. Today we can adopt this environmental philosophy in the way we use and protect our forest resource.

In Canada and the United States, some forestlands have been set aside as protected wilderness areas, while others are used to produce commodities. When forest lands are harvested for lumber, it is good policy to make the best possible use of the harvest byproducts -- such as chipped waste or low-grade wood, sawdust and bark -- while leaving sufficient volumes of tops and branches in the forest to replenish soil nutrients. Although some of these byproducts have markets in paper production, or for uses like animal bedding or landscaping mulch, it makes sound economic and environmental sense to burn the remaining wood-harvest byproducts for energy.

Many parts of North America are particularly good candidates for the increased responsible use of wood byproducts for energy. In some regions, forests are growing in area; in others, sawmill or harvest byproducts are under-utilized and contribute to a significant waste disposal problem. In many areas, the volume of forestry byproducts is so great that it can readily accommodate large increases in the use of low-grade wood for energy.

Keeping the Forest Healthy
Careful human use of the forest resource is compatible with the idea of a healthy forest. The conscious effort required to both use the forests *and* sustain them for the long term is also an opportunity to keep the resource healthy through responsible forest management.

The commercial use of our forests involves harvesting trees and turning the wood into useful products and energy. For this activity to be sustainable, forestry practices must include:

• preventing soil erosion;
• replanting trees, or creating favorable conditions for regeneration;
• leaving adequate biological matter in the forest (tops, leaves and branches); and
• maintaining species diversity.

As logged areas regenerate, or as younger uncut trees grow to maturity, good forest management plays an important role in building and maintaining the health and vigor of the forest.

Using for energy the least commercially valuable forestry residues (including deformed trees or diseased wood) is part of a full-use strategy. Making conscious decisions to optimize the products, byproducts and energy that can be produced by the forest resources goes hand-in-hand with good forest management.
District energy provides a new market for low-grade wood, and increases the opportunities for sustainable forest management -- which in turn builds healthier forests.

Achieving Sustainable Forest Practices

Any significant increase in the use of forest biomass should be accompanied by some means of assuring that the forest resource is not damaged and is sustained for future generations. Even though regulatory controls on logging operations may not always be well-received or effective, other approaches have been proven to work.

Biomass district energy systems have adopted *wood procurement standards*, spelling out specific practices that must be followed by suppliers who provide fuel to the system.

As an example, the McNeil Generating Station in Burlington, Vermont, one of the world's largest biomass-fired generating plants, operates under a state permit that requires it to employ foresters to enforce strict wood procurement standards.

The Amount of Wood Fuel Available for Energy

Is there enough wood in your region to fuel a new biomass district energy system for your community? Vast areas of Canada, the eastern United States and the northern-tier U.S. States are forested. Canada alone accounts for 10% of the world's forestland. Even states and provinces that are not heavily forested do have areas with commercial logging and a significant forest-product industry.

In many areas, the amount of new wood that grows each year exceeds the amount that is cut for lumber, other products and energy. This "excess" growth, which results both from the growth of individual trees and from land reverting to forest, may be available for increased, responsible harvesting for both wood products and energy. When considering wood use for a particular district energy project, it is necessary to assess carefully the capacity of the local forest resource, and the forest products industry, to supply fuel. Local forestry officials can supply federal, state, or provincial/territorial data on the size, use and availability of the resource. These officials can help your community determine if there is an adequate supply to meet the needs of the project you are considering.

Forests, Wood Fuels and Climate Change

The Industrial Revolution of the 19th Century began the large-scale extraction and burning of coal, oil and gas. Continuing to this day, fossil-fuel combustion has added huge amounts of carbon dioxide to the atmosphere. Over the last 200 years, atmospheric CO_2 levels have increased 30 percent. CO_2 is one of the "greenhouse gases" most responsible for global warming and climate change. Since growing trees take up carbon out of the atmosphere, healthy forests play an important role in countering the global buildup of atmospheric CO_2.

If the forests involved are managed and harvested sustainably, replacing the use of fossil fuels with the burning of forest biomass for energy will result in a net decrease of CO_2 levels in the atmosphere. Even though all fuel combustion -- whether of a fossil fuel or of biomass -- results in CO_2 coming out the stack and entering the atmosphere, the overall effect of wood burning is very different from that of fossil fuels.

Burning fossil fuels takes carbon that was locked away underground as crude oil, gas, or coal, combines it with oxygen, and discharges the resulting CO_2 to the atmosphere, where it accumulates. In the natural world, trees and other forms of biomass remove CO_2 from the atmosphere, store the carbon while they live, and release it back to the atmosphere as they decay on the forest floor. This process is called the *carbon cycle*. Burning sustainably produced wood recycles carbon that is already in the carbon cycle. As long as trees are replanted or regenerate to replace harvested trees, the combustion of forest biomass for energy adds no new CO_2 to the atmosphere.

Fully utilizing our forest harvests can bring multiple benefits to society. Long-lived products made out of wood lock up carbon and help to reduce the level of CO_2 in the atmosphere. When the waste wood from harvesting is used for energy, and high-grade wood is made into durable products, atmospheric CO_2 concentrations are reduced, wastes are utilized, non-renewable fossil fuels are conserved, beneficial products are produced, and the forest is kept healthy.

Biomass Energy and a Sustainable Future

If we try to conceive a positive vision of the future, in which the world's population can be well-accommodated over the next century and beyond, it seems inevitable that we will rely on renewable resources. While certain public forestlands will continue to be set aside as wilderness areas, others will continue to be harvested and used for lumber, paper and wood products. We will undoubtedly find new productive uses for waste wood and other forest byproducts. It also seems highly advantageous to continue using low-grade forest wood residues and recycled wood for energy. Society will have to find alternatives to burning fossil fuels to produce energy. Although new buildings that require very little heat will be designed and built, those of us who live in colder climates will continue to need combustion fuel for space heating. Biomass district energy systems are ideally suited for this purpose.

State Department Space Use by Agency

AGENCY OR DEPARTMENT	LOCATION	EXISTING AREA	TOTAL EXISTING AREA BY DEPARTMENT	ADDITIONAL FUTURE AREA REQUIRED	ADDITIONAL FUTURE AREA REQUIRED BY DEPARTMENT	TOTAL FUTURE AREA REQUIRED BY DEPARTMENT
ADMINISTRATION						
Administration Secretary	Pavilion Building - 109 State	1,581	1,581	NR	NR	1,581
Buildings & General Services	Pavilion Building - 109 State	3,532				
	122 State	6,085				
	Adams House - 128 State	5,750				
	House & Garage - 132 State	450				
	Administration Building - 133 State	19,298				
	6 Baldwin	6,231				
	House - 10 Baldwin	2,253				
	Warehouse - 10 Taylor	2,325				
	2 Governor Aiken Drive	8,350				
	4 Governor Aiken Drive	5,275				
	US Rte. 302	6,500				
Travel Information Center	134 State	2,650				
	Central Heating Plant	6,825	75,524		2,700	78,224
Finance & Management	Pavilion Building - 109 State	3,992		0		
	Administration Building - 133 State	3,755	7,747	0[1]	0[1]	7,747[1]
GOVnet	House - 10 Baldwin	1,657	1,657	843	843	2,500
Personnel	**56 East State**	3,000				
	Personnel Building - 110 State	8,250				
	Administration Building - 133 State	3,148	14,398		500	14,898
Tax Department	Pavilion Building - 109 State	38,194		0		
	Pavilion Building - 109 State	2,486	40,680	0	0	40,680
Agriculture, Food and Markets	Agriculture Building - 116 State	16,250	16,250	1,250	1,250	17,500
Banking, Insurance and Securities	**89 Main**	14,562		0		
Health Care Administration	**89 Main**	3,735	18,297	0	0	18,297
Commerce and Community Development	**1 National Life**	18,668		2,620		
Tourism & Marketing, Vermont Life	House - 6 Baldwin	14,477	33,145	0	2,620	35,765
Defender General	**141 Main**	4,100	4,100	820	820	4,920
Education	State Office Building - 120 State	27,672		0		
	Capitol Plaza - 100 State	3,000		0		
Storage	Adams House - 128 State	400	31,072	0	0	31,072
ELECTED OFFICES						
Governor's Office	State Capitol & Annex - 115 State	1,799		0		
Governor's Office - Executive Offices	Pavilion Building - 109 State	11,007		0		
Governor's Office - Policy Research	Pavilion Building - 109 State	2,050		0		0
Governor's Office - Nat'l Community Service	Administration Building - 133 State		577	15,433	0	0 15,433
Lt. Governor	State Capitol & Annex - 115 State	761	761	0	0	761
Attorney General	Pavilion Building - 109 State	17,901	17,901	1,790	1,790	19,691
Auditor of Accounts	House & Garage - 132 State	2,394	2,394	0	0	2,394
Secretary of State	Redstone Building - 26 Terrace	8,615		0		

	81-83 River	3,500	12,115	0	0[2]	12,115
Treasurer	Administration Building - 133 State	8,147		3,259		
Retirement	Administration Building - 133 State	3,484	11,631	incl. above	3,259	14,890
Employment & Training	4 Green Mountain Drive	40,000		0		
	National Life Drive	5,000	45,000	0	0	45,000
Enhanced 9-1-1 Board	**58 East State**	1,650	1,650	1,000	1,000	2,650
Film Commisssion	House - 10 Baldwin	140	140	420	420	560
Friends of the State House	House - 1 Baldwin	112	112	0	0	112
Gov's. Comm. on Status of Women	126 State	1,745	1,745	873	873	2,618
Human Rights Commission	6 Baldwin	1,237	1,237	120	120	1,357
Human Services						
Human Services Boards	118 State	979		0		
Aging and Disabilities - DBVI Cafeteria [3]	Administration Building - 133 State	1,626		600		
Aging and Disabilities - DBVI Cafeteria [3]	State Office Building - 120 State	2,076	4,681	800	1,400	6,081
JUDICIARY BRANCH						
Court Administrator	111 State	7,030		5,000		
Supreme Court	Supreme Court Bldg. - 111 State	12,228	19,258	5,000	10,000	29,258
Labor & Industry	House - 13 Baldwin	325				
	National Life Drive	8,060	8,385	1,000	1,000	9,385
Labor Relations Board	House - 13 Baldwin	1,225	1,225	0	0	1,225
LEGISLATIVE BRANCH						
Legislature	State Capitol & Annex - 115 State	32,273		7,090		
Legislative Council	State Capitol & Annex - 115 State	7,363		400		
Sergeant at Arms	State Capitol & Annex - 115 State	9,261		0		
Legislature	House - 1 Baldwin	652		0		
Joint Fiscal	House - 1 Baldwin	3,102	52,651	650	8,140	60,791
Libraries	Pavilion Building - 109 State	13,841				
	Supreme Court Building - 111 State	15,064	28,905		2,850	31,755
Liquor Control	13 Green Mountain Drive	37,500		0		
	15 Green Mountain Drive	8,400	45,900	0	0	45,900
Medical Practice Board	**1 Prospect**	2,500	2,500	0	0	2,500
Mental Health	**155 Elm**	950	950	50	50	1,000
Mt. Mansfield TV Corporation	House - 9 Baldwin	2,875	2,875	0	0	2,875
Natural Resources						
Environmental Conservation - Radio Shop	**Rte. 2**	700		0		
Environmental Board	**National Life Drive**	4,500	5,200	7,500	7,500	12,700
Public Service Board	**100 State**	350				
	112 State	8,377	8,727	2,500[4]	2,500[4]	11,227
Public Service Department	112 State	13,104	13,104	500	500	13,604
State's Attorneys and Sherrifs	12 Baldwin	2,117	2,117	0	0	2,117

Transportation						
Motor Vehicles	State Office Building - 120 State	40,402	40,402	4,040[5]	4,040[5]	44,442
Transportation Board and Arbitration Board	Adams House - 128 State	1,750	1,750	0	0	1,750
Technical Services/Administration	**1 National Life Drive**	24,000				
	House - 118 State	937				
	Administration Building - 133 State	50,571				
	6 Baldwin	128				
	House - 14-16 Baldwin	5,550				
Storage Facility	**Rte. 2, East Montpelier Rd.**	624	81,810	16,362	16,362	98,172
Vacant or Surplus Property	House - 1 Baldwin	112		0		
	House - 13 Baldwin	600	712	0	0	712
Vermont Council on the Arts	House - 136 State	4,485	4,485	0	0	4,485
Vermont Green Up	House - 1 Baldwin	150	150	0	0	150
Vermont Historical Society	Pavilion Building - 109 State	21,050	21,050	16,010[6]	16,010[6]	37,060
Vermont Statehouse Cafeteria[7]	115 State Street	4,213	4,213	1,000	1,000	5,213
Vermont Veteran's Affairs	House - 118 State	2,076	2,076	1,800	1,800	3,876
VFW, AMERICAN LEGION AND AUXILIARY						
American Legion and Auxiliary	126 State	1,245	1,245	700	700	1,945
VFW	126 State	500	500	500	500	1,000
		total:	709,441		90,547	799,988

Footnotes:

1. Replacement of the current financial system by a vendor-operated system is expected to be implemented over the next two to three years. This will create additional space needs (not included above) for temporary housing of vendor staff and training sites for state employees who will be using the new system. This change will also affect the departmental space requirements after implementation.

2. This survey response conflicts with the results of a 1993 study which predicts additional space needs in 2003 of 7,952 square feet (beyond existing net area in 1998.)

3. This space is assigned to the Division for the Blind and Visually Impaired, though cafeteria operation is contracted out to a private vendor.

4. Estimate of future needs assumes no change in current utility regulation. If deregulation of utilities occurs, this estimate will need to be significantly revised.

5. Estimate is based on continuing the same level of operations in downtown Montpelier.

6. From Study for the Center for State Archives and History (Summary Report) by Frank Guillot, Architects, Ltd., September, 1988. Total recommended area is 37,060 s.f..

7. This space does not fit neatly within any agency or department, therefore was listed independently. Additional future area is based on a Buildings and General Services estimate, for kitchen and storage expansion.

State Department Space Use by Building

BUILDING	SS AREA (s.f)	DEPARTMENT	BUILDING NET (s.f.)	N.TOTALS
56 East State	4,500	Personnel	3,000	
		Enhanced 9-1-1 Board	1,500	4,500
100 State	1,354	Tax	304	
		Public Service Board	350	
		Public Service Department	700	1,354
Pavilion Building - 109 State	124,188	Administration Secretary	1,581	
		Bldg. & General Services	3,532	
		Finance & Management	3,992	
		Tax - Office	26,495	
		Tax - Storage	2,486	
		Development & Comm. Affairs	11,699	
		Attorney General	17,901	
		Executive Offices	11,007	
		Office of Policy Research	2,050	
		Libraries	13,841	
		Vermont Historical Society	21,050	115,634
Personnel Building - 110 State	11,675	Personnel	11,675	11,675
Library & Supreme Court 111 State	38,284	Court Administrator	7,030	
		Supreme Court	12,228	
		Libraries	15,064	34,322
112 State	22,662	Public Service	20,931	
		Vacant	709	21,640
State Capitol & Annex 115 State	62,418	Governor	1,799	
		Lt. Governor	761	
		Legislative Council	7,363	
		Legislature	32,273	
		Sergeant at Arms	9,261	51,457
Agriculture Building - 116 State	22,550	Agriculture	16,250	16,250
House - 118 State	4,817	Fair Hearing Office	979	
		Transportation	937	
		Vermont Veteran's Affairs Office	1,116	
		Vermont Veteran's Affairs Office- Storage	960	3,992
State Office Building 120 State	75,672	Motor Vehicles	40,402	
		Education	27,672	
		Social & Rehab. Services	2,076	70,150
122 State	7,825	Bldgs. & General Services	6,085	6,085
126 State	5,665	Governor's Comm. On Status of Women	1,745	
		VFW	500	
		America Legion	700	
		America Legion Auxiliary	545	3,490
Adams House - 128 State	9,250	Bldg. & General Services	5,750	
		Education	400	
		Motor Vehicles	1,750	7,900
House & Garage - 132 State	3,950	Bldgs & General Services	450	
		Auditor of Accounts	2,394	2,844
Administration Building 133 State	103,160	Bldgs & General Services	19,298	
		Finance & Management	375	
		Personnel - Payroll	3,148	
		Governor's Office	577	
		Treasurer	8,147	
		Social & Rehab. Services	1,626	
		Retirement & Social Security	3,484	
		Transportation	50,571	87,226
House - 134 State	3,000	Development & Community Affairs	2,650	2,650
House - 136 State	4,905	Vermont Council on the Arts	4,485	4,485
House - 1 Baldwin	4,405	Friends of the State House	112	
		Legislative Branch	3,102	
		Joint Fiscal	3,754	
		Vacant	112	
		Vermont Green Up	150	7,230
Administration Building Annex 6 Baldwin	23,980	Bldgs & General Services	6,231	
		Development & Comm. Affairs	13,887	
		Human Rights Commission	1,237	
		Transportation	128	
		Vacant	590	22,073
House - 9 Baldwin	**3,250**	Mt. Mansfield TV Corporation	2,875	2,875
House - 10 Baldwin	5,200	Bldgs. & General Services	2,253	
		GOVnet	1,657	
		Film Bureau	140	4,050
12 Baldwin	4,000	State Attorneys and Sherrifs	2,117	2,117
House - 13 Baldwin	2,600	Labor & Industry	325	
		Labor Relations Board	1,225	
		Vacant	600	2,150
House - 14-16 Baldwin	6,525	Transportation	5,550	5,550
112 Baldwin	20,931	Public Service	12,554	
		Public Service Board	8,377	20,931
Redstone / Brown Building 26 Terrace	9,925	Secretary of State	8,615	
		Bldg. & General Services	5,750	14,365
House - 2 Western	9,500		9,500	9,500
Garage & Barn - 4 Western	5,700		5,700	5,700
Warehouse - 10 Taylor	2,450	Bldgs. & General Services	2,325	2,325
Liquor Control Office & Warehouse - 15 Memorial Drive	9,025		9,025	9,025
Maintenance Headquarters Dog River Road	12,500		12,500	12,500
13 Green Mountain Drive	39,200	Liquor Control	37,500	37,500
15 Green Mountain Drive	9,025	Liquor Control	8,400	8,400
2 Governor Aiken Drive	9,500	Bldgs. & General Services	8,350	8,350
4 Governor Aiken Drive	5,737	Bldgs. & General Services	5,275	5,275
Route 302	6,500	Surplus Property	6,500	6,500
89 Main	18,297	Banking & Insurance	14,562	
		Vt. Health Care Authority	3,735	18,297
141 Main	4,100	Defender General	4,100	4,100
81-83 River	3,500	Secretary of State	3,500	3,500
384 River	5,373	Employment & Training	5,373	5,373
155 Elm	950		950	950
Rte 2, East Montpelier Rd.	1,104	Court Administrator	480	
		Transportation	624	1,104
National Life Drive	36,560	Labor & Industry	8,060	
		Natural Resources	4,500	
		Transportation	24,000	36,560
		Division for Historic Preservation		
Central Heating Plant	6,825		6,825	6,825
			total:	708,779

Shaded numbers denote where square footage numbers from January 1986 do not agree with those from June 1997. The square footages taken June 1997 are assumed correct.

Bold text denotes leased space.

Transit Center Site Location Evaluation

Number	Name of Site	Location	Type of Facility Suitable at Site	Existing Use	Utilities	Ownership	Proximity to I-89	Proximity to Downtown	Proximity to Capitol Complex
1	State Street	In front of the Vermont Tourist Info Bureau	Bus Stop	Municipal Parking Spaces	Yes	City	Good	Acceptable	Excellent
2	State Street	Behind Vermont Tourist Info Bureau	Bus Stop	State Parking Lot	Yes	State	Good	Poor	Excellent
3	Taylor Street	Vermont Transit ticketing trailer on Carr Property	Bus Station or Intermodal Center	Bus Stop and city parking lot	Yes	Private	Good	Excellent	Excellent
4	DET Peripheral Lot	Green Mountain Drive	Bus Station or Intermodal Center	State Parking Lot	Yes	State	Excellent	Poor	Poor
5	Taylor Street	Across from Vermont Transit trailer on State property.	Bus Station or Intermodal Center	State Parking Lot	Yes	State	Good	Excellent	Excellent
6	Taylor Street	Behind Chittenden Bank on State Property	Bus Station or Intermodal Center	State Parking Lot	Yes	State	Good	Excellent	Excellent
7	Court Street	Behind Thrush Tavern	Bus Station	Municipal Parking Lot	Yes	City	Poor	Acceptable	Excellent

Scoring:	
Excellent	5 Points
Very Good	4
Good	3
Average/Acceptable	2
Below Average	1
Poor/None	0

Number	Name of Site	Connection to Other Modes	Bike Path & River Connection	Visibility of Site	Overall Suitability of Site	Meets Project Purpose	Comments	Numerical Score	Rank	Name of Site
1	State Street	Average connection/no tour bus space	None	Good	Below Average no parking; no rail or river connection	No	Removes public on-street parking. Long walk to downtown.	16	5	State Street
2	State Street	Poor no rail connection	None	Poor	Below Average no parking; no rail or river connection	No	Removes parking used by state employees. Long walk to downtown.	9	7	State Street
3	Taylor Street	Excellent bus, rail, shuttle, taxi	Excellent	Very Good	Good near parking and rail connection	Yes	Site is tight due to narrow dimension between rail and river. Question if final design will work.	30	2	Taylor Street
4	DET Peripheral Lot	Good no rail connection	Excellent	Excellent	Good near parking; rail proximity an issue	No	Far from downtown and Capitol Complex. Poor pedestrian connection to work centers.	21	4	DET Peripheral Lot
5	Taylor Street	Excellent bus, rail, shuttle, taxi	Excellent	Very Good	Excellent near parking and rail connection	Yes	Removes potential office site and potential greenway area along river	32	1	Taylor Street
6	Taylor Street	Excellent bus, rail, shuttle, taxi	Below Average	Good	Average	Yes	Too close to existing and proposed buildings. Requires two at-grade crossings of rail line. Not optimum situation.	24	3	Taylor Street
7	Court Street	Good us, shuttle, taxi but no rail	None	Poor	Below Average	No	Better site for parking garage and office development. Joint site development possible. Poor pedestrian connection to downtown.	11	6	Court Street