PRE-DEVELOPMENT PLANNING STUDY FOR A TRANSPORTATION CENTER

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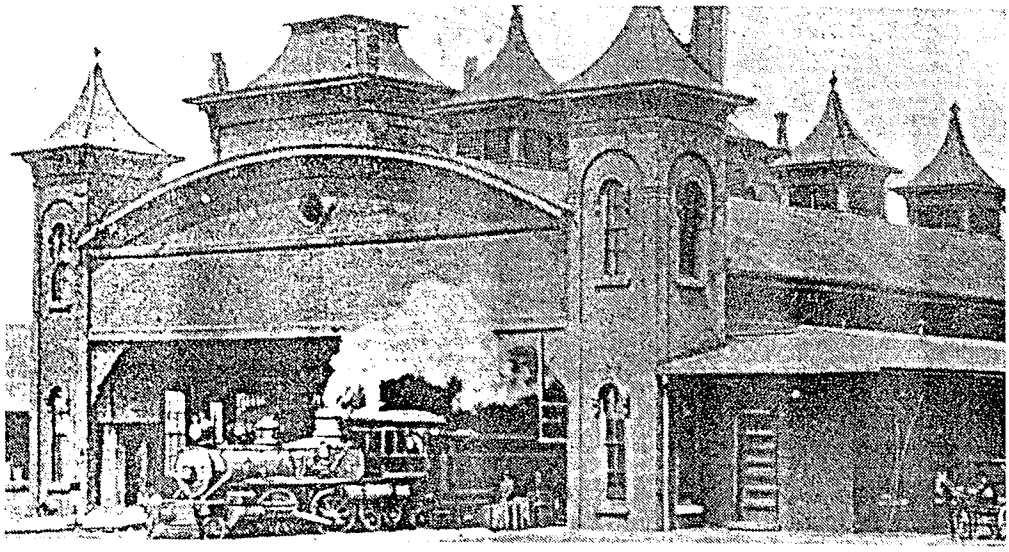

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INTRODUCTION

Purpose of the Study

The concept of a transportation center for Burlington was originally envisioned by the CEDO office as a way to obtain federal funds to assist with the financing for portions of two commercial developments on Burlington's waterfront. These projects were seen as critical elements in the redevelopment of the City's waterfront, acting as a catalyst for future development as well as providing necessary public parking for waterfront activities.

The focus of this study changed dramatically upon awarding the contract to determine the feasibility of creating a true multi-modal transportation center in Burlington. The study goals included: (1) analyzing the historic use of Burlington's waterfront as a transportation hub as well as the evolution and current trends of Burlington's transportation and land use patterns; (2) determining necessary program elements and facilities for a multi-modal transportation center; (3) identifying potential sites - their benefits and constraints and (4) suggesting traffic demand management (TDM) methods for the central business district.

The contract schedule allowed eight weeks for substantial completion of the feasibility study. During this time, data was gathered, analyzed and reviewed with a committee composed of the following people:

Arthur Hogan and/or Michael Oman	CCRPC
Arthur Sanborn and/or Betsy Rosenbluth	CEDO
Mark Eldridge	Burlington Planning Office
Scott Johnstone	Burlington Public Works
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HISTORY

The story of Burlington's historic waterfront should begin with the Abenaki legend of creation. The Abenaki believed that upon completing the creation of the earth, Odziozo, the creator of land, water and light turned himself into the small island that is currently known as Rock Dunder, to always admire his final and best creation, Lake Champlain. The Abenaki utilized Burlington's sand beaches for camping and meeting, but there is no evidence of permanent settlements in this area.

During 1609 Samuel de Champlain visited the natural bay, sandy beach and west facing forested hillside that is the present harbor of Burlington. The shoreline was significantly different than what is currently found. The foot of the escarpment met the lake and the beach stretched from Rock Point to Oakledge.

During 1750 General Wentworth of New Hampshire began selling lands in Vermont. Shortly thereafter the Allen Brothers purchased a large portion in the Burlington area. In 1763 the City of Burlington was chartered with the original 36 square miles divided into 72 lots of 320 acres each. Ira Allen then began to survey Burlington and created the Onion River Land Company, accumulating over 300,000 acres in Chittenden County. In 1773 Felix Powell purchased property in the Appletree Point area and became Burlington's firs permanent white settler. By the late 1700's, a permanent european settlement was established.

During the war of 1812, Burlington served as the base of operations for the Northern Army of the United States, stationed north of Pearl Street adjacent to Battery Park. After the war ended Burlington experienced significant growth. The opening of the Champlain Canal linking Lake Champlain to the Hudson River and the introduction of steamboats greatly increased trade. Burlington's waterfront became an important port and retail center serving all of northern Vermont.

In 1848, the railroad's arrival along the waterfront coincided with the lifting of trade tariffs on Canadian raw timber. Burlington quickly became the fifth largest lumber port in the world. Raw Canadian timber was sent to Burlington where it was stockpiled for processing, milling and sorting. A strong transportation network was established connecting Burlington with Albany, Boston, Hartford and New York City. The waterfront became the center of transportation for the entire region providing ferry, steamship and train travel.

The earliest train depot was located south of Maple Street adjacent to Perkins Pier. By 1869 the Grand Vermont Central Railway Station was built on the waterfront between College and Bank Street, where the Pease Grain Building once stood (see cover). With the wood/timber industry booming, more buildings for wood and lumber storage, wood mills and wood preparation complexes were constructed with numerous tracks leading to the train depot, the surrounding mill complexes and to several piers for meeting steamships. This station burned during the fire of 1908 and was replaced with Union Station at the foot of Main Street in 1914. Figures 1,2 and 3 show this increased progression of development.

In recent years, the waterfront has seen the design for the Champlain Parkway, a limited access roadway that will directly connect downtown Burlington with Interstate I-89 and 89 as

well as the completion of the northern connector that is planned to eventually connect with the circumferential highway.

The Lake Champlain Transportation Company (LCT) has operated a ferry service on the Burlington waterfront for 187 years. The ferry began operation at the foot of College Street then moved to its present location in the mid 1800's. The ferry carries tens of thousands of passengers during its six months of operation and is considered an important and successful component of LCT's overall operation.

The immensely successful Burlington Bicycle Path was completed in 1986 and has experienced increased use on a yearly basis. The path has become Burlington's outdoor living room, connecting the entire shoreline and all of the neighborhoods along it.

The waterfront has a strong history of serving as a transportation hub for the entire region. Expansion of multi-modal transportation systems is on-going, suggesting that the waterfront is a possible location for a multi-modal transportation center.

EXISTING TRANSPORTATION SYSTEMS

Roads

Historically, Routes 2, 2a, 7 and 15 had been the major north/south and east/west connections within the region and to points beyond Chittenden County. It was not until 1971 that Interstate 89 was constructed allowing for easier access to other parts of the state. In the late 1980's, Route 189 was constructed to connect Interstate 89 with Route 7 in an attempt to alleviate traffic problems in Burlington and allow for easier access south of Burlington.

During the past decade, the U.S and State routes in Chittenden County have become congested with traffic from expanding populations. Several plans have been pursued to help alleviate this problem.

The Southern Connector route has been in the design phase for the past ten years. It was designed to bypass downtown Burlington by connecting with Route 189 south of the city proper and reconnect with Route 7 north of the city. Part of this road has been constructed however, an existing EPA Superfund toxic waste site lies in the proposed path of this road causing considerable delays and studies of alternative routes. During the summer of 1993, there was talk of this route following Pine Street for some distance and connecting with Battery Street to continue north.

The other route that has been designed and partially constructed is the Circumferential Highway or Route 289. It is designed to bypass the greater Burlington area and Essex 5 corners by connecting with Route 89 in Williston travelling through Essex Center and the Lang Farm development to connect with The Beltway/Route 127. Several sections of this route have been constructed and officially opened in October of 1993 however, there are several stumbling blocks for completing the remainder of the route.

It is important to identify methods of reducing vehicular commuter traffic on the roads surrounding Burlington. The establishment of a multimodal transportation center within the city of Burlington would allow a wide range of transportation options to commuters and city residents by mitigating the increasing traffic congestion and providing the first step in breaking our love affair with personal vehicles.

Bus Service

The Chittenden County Transit Authority, CCTA, provides commuter bus service to Burlington, South Burlington, Shelburne, Winooski, Essex and Essex Center with its main terminal on Cherry Street in Burlington. This service also connects with other transit systems: the Amtrak Train Station in Essex Center, the International Airport in South Burlington and Perkins Pier and Lake Champlain Ferries in Burlington.

The Vermont Transit system offers bus service within the state of Vermont as well as to New Hampshire, Massachusetts, Connecticut, Rhode Island, Maine, Massachusetts, New York and Montreal. Their terminal is presently located on Main Street in

Burlington. During the past year they have looked at other sites for relocating their terminal to provide easier access to the Interstate.

Train Service

Train service to Montreal, Massachusetts, and Connecticut is provided by Amtrak. Their train station is located in Essex Center. Train service also exists on the west side of Lake Champlain with connections to New York City and Montreal.

Ferry Service

The Lake Champlain Transportation Company provides ferry service from its terminal at the King Street Dock in Burlington to Port Kent, New York. The ferry operates from mid May to mid October using three boats each carrying approximately 26 vehicles. A boat departs every hour with the trip to New York taking one hour.

There are also scenic shoreline cruises provided by Green Mountain Boat Lines which operates seasonally from the end of May to mid October departing from the Burlington Boathouse.

Bikepath/Bike Routes

The Burlington Bikepath runs along the Lake Champlain waterfront and is very popular for commuting and recreation. Several other bike routes are planned to link with this path providing access to surrounding communities.

PROPOSED TRANSPORTATION SYSTEMS

Roads

There are plans for improvements to Route 7/Shelburne Road which are anticipated to begin in 1994. These improvements will be in the South Burlington - Shelburne portions of the road. The road is designed to have a center median with left hand turns at traffic lights and major intersections to help increase the level of service and flow of traffic. Sidewalks and bike route lanes are also planned as part of this expansion.

There has been some discussion of a 'Spur' to Route 7 which would begin in Middlebury or Vergennes and travel through the center of Addison and Chittenden counties to connect with Interstate 89 in Williston or Richmond. It is anticipated that this 'spur' would divert traffic heading to the interstate from Route 7 south of Burlington to help relieve congestion in the towns of Shelburne and South Burlington. This route is in the initial planning stages without any specific locations.

Bus Service

Future expanded service for the Chittenden County Transportation Authority includes a Multiple "Hub" system radiating from the Cherry Street terminal and connecting with South Burlington, Colchester and Williston. This will be dependent upon these towns voting to join the transit system. Some other services they will offer include later evening service, increased frequency of service, extension of seasonal service, and "Feeder" route service.

Train Service

At this time, a feasibility study is underway to determine if train service between Burlington and Charlotte is economically viable. The consensus of the Governor and the AOT is to progress with this project based upon receiving federal and state funds to subsidize it operation for it's first several years. It is designed to help with traffic rerouting during the Route 7/Shelburne Road improvements. Amtrak service from Albany, New York to Burlington is also being considered.

Light Rail Transit

A feasibility study for a light rail system within the municipalities of Burlington, Winooski, South Burlington, and Essex in conjunction with the Chittenden County Metropolitan Planning Organization is currently underway. There are several alternative routes currently being studied. Each route would pass within the proximity of the Union Station: Union Station to the Airport through the central business district; Union Station to Essex Junction through Winooski; and Union Station south through South Burlington to the Airport. The most challenging aspect for establishing a LRT is locating a right-of-way. With beneficial economic development impacts, this could be a promising form of transportation for Chittenden County.

Bikepath/Bike Routes

Over the past several years, towns in Chittenden County have been busy developing and building bikepaths and bike routes throughout their communities. Many of these towns are experiencing the strong use of their paths and are planning ways to connect their towns with other paths, developing entire 'greenway' systems throughout the county. Burlington and Colchester already have plans for a bikepath connection and Burlington and South Burlington have their routes link near the southern connector. Shelburne has conceptual plans to connect with this route and expand the network of paths to Hinesburg. This entire 'greenway' network and the potential of greatly increased use by commuters should be incorporated into the plans for the multimodal transportation center.

Figure 4 - Regional Circulation Analysis shows the relationship between existing and proposed transportation corridors.

CRITERIA FOR SELECTING POTENTIAL TRANSPORTATION CENTER SITES

The goals for a transportation center in the Burlington area should address the following objectives:

1. Centralize transit facilities to stimulate greater use of public transit by enhancing their visibility, providing adequate parking, and facilitating multi-modal connections.

2. Enhance the traveler experience by providing adequate facilities, comprehensive information and a variety of services such as directions to events and destinations within the region.

3. Relieve traffic congestion and parking problems in downtown Burlington.

TYPICAL TRANSPORTATION PLANNING PRINCIPLES FOR ACTIVITY CENTERS

These principles, from the Transportation Planning Handbook, give an overall outline for developing plans for a transportation activity center.

General

1. Transportation centers are to encourage coordination and effective use of all appropriate modes and forms of transportation - automobile, train, light rail, ferry, bus, bicycle and pedestrian.
2. The transportation and land use plans should be mutually supportive.
3. Transportation centers and land use should be arranged so that highest trip generating land uses are located nearest high accessibility transportation facilities.
4. The transportation facilities should be aesthetically attractive and blend in with its surroundings.
5. The transportation center should be comprehensible and easy to use for both frequent users and unfamiliar visitors.
6. The plan must be stageable with individual elements to be usable as they are completed.

Roadway System and Traffic Circulation

1. The transportation center street system should provide adequate access and circulation for transportation center traffic.
2. The transportation center circulation system should connect with both existing and proposed major thoroughfares.
   a. The transportation center street system should be flexible by providing more than one opportunity to reach a destination.
3. The circulation plan should be designed for incremental implementation with individual elements available for use as they are completed.

4. Emergency vehicles must be able to reach any portion of the transportation center in a reasonably direct manner.
5. Ideally, given streets should perform specific functions (for example, major arterials, minor arterials, collector/distributor streets, local streets) to the extent that a hierarchy can be identified. This hierarchy should be implemented through the use of street design techniques, traffic control measures, and parking regulations. Streets should have an appearance consistent with their function. Major streets should have wider pavements, rights-of-way, and building setback than minor streets to give the appearance of a more important street function.
6. Complex intersections and multiphase signals should be avoided.
    a. Streets and land development should be designed to complement each other. Arterial streets should border rather than sever land use activity areas. Land parcels should not be so large as to make circulation difficult; the street pattern should not cut land areas into parcels too small to permit sound development.
    b. Adequate spacing of arterial streets should be provided to meet both capacity and circulation needs.
7. Actions to make more efficient use of existing facilities should be considered in addition to physical improvement or construction of new facilities.
    a. To the extent possible within the fiscal capabilities of implementing agencies and organizations, all major roadways should be improved or constructed to appropriate geometric and safety standards; however, needed improvements should not be discarded only because all design standards cannot fully be met due to right-of-way or other constraints.
8. Transportation center roadway systems should recognize several basic principles:
    a. Continuity of both route and capacity.
    b. Abrupt changes in capacity should be avoided. Where multimodal systems are involved, care must be directed toward providing continuity of capacity in terms of people rather than vehicles.
    c. Mass transit and high-occupancy vehicles should be considered during the planning stage to ensure that the transportation modes complement one another.

Parking

1. Transportation center parking should be accessible from the primary approach routes and located at major vehicle entry points.
2. Transportation center parking facilities should be distributed in relation to vehicular approach to the area.
3. The parking system should provide space for explicit use of long-term, short-term, visitor, and errand parking.
4. Transportation center parking where possible, should facilitate dual or shared usage of facilities.

5. Adequate off-street facilities must be provided to accommodate the needs of regular delivery vehicles, quick-stop service (such as mail and newspaper trucks), and special-purpose vehicles such as construction and maintenance trucks.

Transit

1. Service should be directly oriented to major destinations within the activity center.
2. Transfers for transportation center trips should be minimized.
3. Bus turns should be minimized.
4. Conflicts of buses with traffic and pedestrians should be minimized.
5. Transit access to primary activity center destination areas should be provided for convenience and to encourage patronage of retail facilities.
6. Land uses should be located to capitalize on transit facilities as well as to maximize the market for transit.
7. Surface transit should be given priority use of street facilities.
8. Internal transit service should generally be provided only for movements for which transit service is faster than walking.
9. Maximum accommodation of employee loads by transit will most effectively reduce peak-hour vehicular requirements.

Pedestrian and Bicycle Circulation

1. Continuous pedestrianways should link all activity nodes.
2. Pedestrian access from transportation center parking facilities to more activity centers should be located to avoid traffic conflicts and enhance safety.
3. Major pedestrianways should be properly defined and identified by landscaping and lighting.
4. To maintain safe and convenient pedestrian crossings, streets should have no more than four moving lanes, unless medians with suitable pedestrian refuges are provided.
5. A suitable environment for pedestrians should be established. This should include, in addition to other amenities, protection from adverse weather conditions.

The Burlington waterfront area has been identified as a potential location for a multimodal transportation center complex for several reasons. Current zoning allows for a mix of public and private uses in this district. The southern connector and northern connector/Route 127 are very close to Battery Street and the waterfront. Main Street/U.S. Route 2 terminates at the Union Station building on the waterfront which historically was the city's railroad hub. Ferry and train service provide numerous possibilities for multimodal connections as well as for special events and tourist destinations. The close proximity to the central business district, Church Street Marketplace, and to Battery Park and Waterfront Park make the waterfront area a logical place for such a hub to operate. See Figure 5 - Land Use.

In addition to the planning principles and land use/linkage possibilities for Burlington's waterfront, the following criteria were developed for review of possible sites for a transportation center.

a. Location:
   - A close relationship to the Central Business District
   - Regional transportation connections for multi-modal use
   - Ease of access to and from major roads
   - Access to recreational opportunities

b. Sites of Sufficient Size:
   - A structure to accommodate indoor seating, ticket booth area, bicycle storage, car storage, retail services, and lockers
   - Stacking room and covered structure for buses
   - Stacking room for taxis
   - Stacking room and covered structure for trains

PROPOSED USES AND NEEDS

Each transportation mode was evaluated and projections for future needs was determined. These projections vary and more specific results will be needed for the study of future phases.

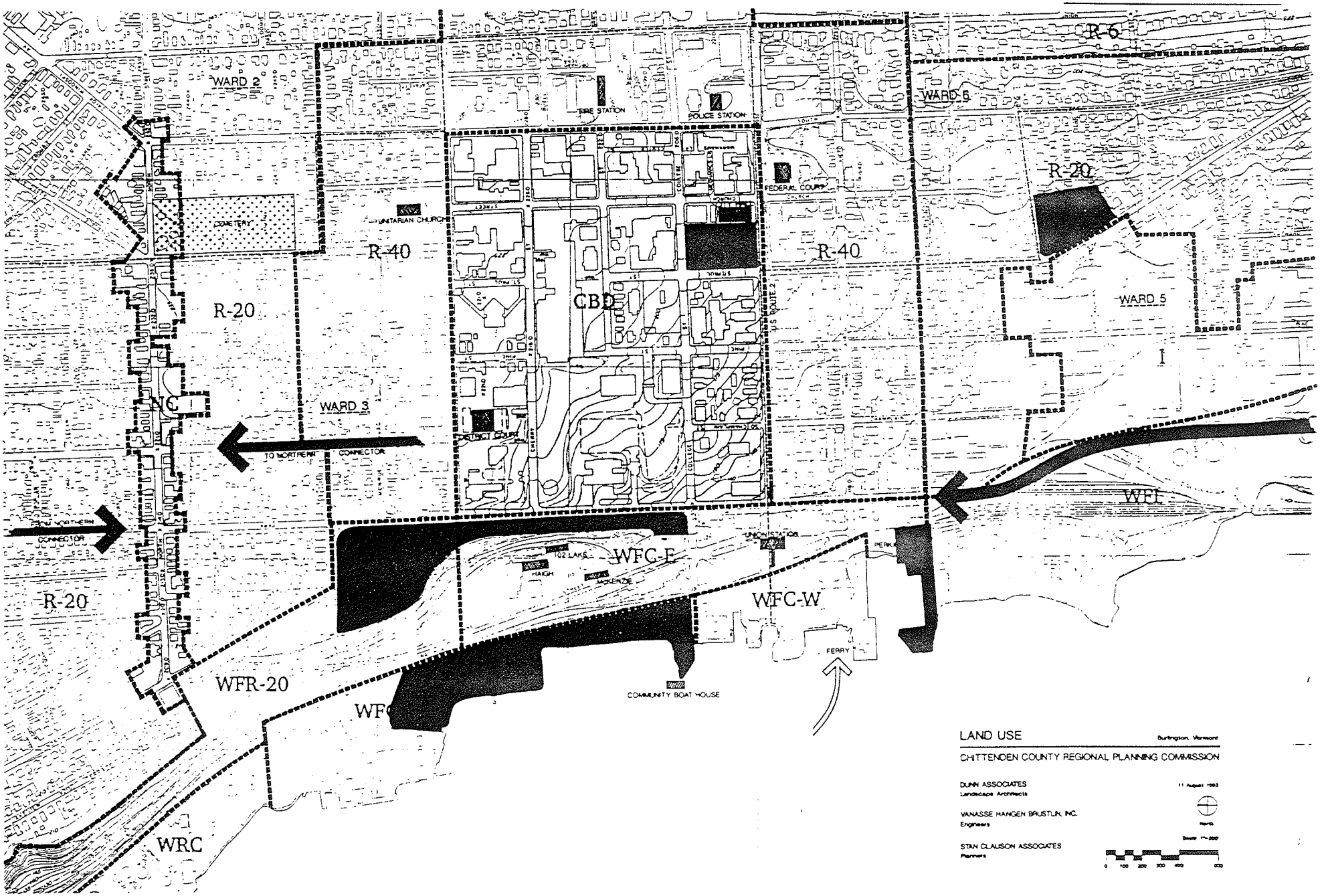
Bicycles

Storage lockers and bike racks are essential to allow for ease of multimodal connections and to access anticipated destinations downtown. Lockers and bike racks should be lockable and safe. Shower facilities have bee requested for use by bicycle commuters as well as by boaters using transient docks.

a. Storage lockers or cabinets for 50 bicycles.
b. Bike racks for 100 bicycles.
c. Shower facilities for bicyclists - separate male and female facilities.

Trains

The proposed Charlotte/Burlington commuter trains will utilize the Central Vermont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COMMUNITY BOAT HOUSE
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LAND USE
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Planners
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Figure 5

tracks and may need additional tracks in the future. The proposed light rail transit service is still undetermined as to what the routes will be and how frequently they will operate. When the feasibility studies are competed on these transit modes, specific recommendations will be available and should be incorporated into the future phases of study for the transportation center.

a. Plan for 2 commuter trains each hour during peak hours in the morning and evening from Charlotte to Burlington. One train will provide service each hour during off peak times.
b. Future Light Rail transit service connecting the airport and other towns.
c. Existing Freight trains - approximately 5 trains per day.
d. Existing Amtrak train in Essex Junction - bus or taxi service exists to Burlington.
e. NY Route accessible by Ferry to Charlotte, Burlington and Grand Isle.

Buses

CCTA is very enthusiastic about becoming part of a transportation center complex however, they will keep their terminal on Cherry Street as their main hub because of past infrastructure investments. They see the center as a small hub for connecting with other routes and transportation modes. Vermont Transit has expressed reservations about becoming involved with the center. They would prefer to be closer to the interstate for easier access however, they do see the advantages of multimodal transit connections. Tour buses are currently a small portion of tourist traffic in the city however, they have no central place to drop off and pick up passengers. Planning for tour bus parking should address these limitations and attract a greater volume of tour buses in Burlington.

Current bus service includes:

a. College Street Shuttle presently runs in the summer only; from the end of May to Mid October. This service provides free bus service between the UVM campus, the CBD and the waterfront.
b. CCTA offers service to the Greater Burlington Area, Winooski, Essex, South Burlington, Shelburne. Presently 7 to 8 buses leave every half hour from the Cherry Street location. 4 bus spaces at the transportation center would be ideal. The buses parked head on is ideal for easy viewing for riders.
c. Vermont Transit operates service in Vermont and to New Hampshire, Massachusetts, and Quebec. Space for at least 5 buses was requested.
d. CATMA has bus service mostly connected with the universities however, they may provide service from the waterfront in the future, especially if there is a multimodal transportation center.
e. Tour buses - Plan for parking of up to 8 buses.

Airport

a. Burlington International Airport, located in South Burlington, is presently accessible from Burlington by bus or taxi. There are plans for future light rail service.

Ferry

a. Lake Champlain Transportation, Inc. is located at the King Street Dock. It has ferry service which runs from the end of May to Mid October; approximately fourteen times a day at peak times. This service could expand over the years.
b. Existing and future marinas need expanded services, water and shower facilities and fueling areas.
c. Future water shuttle to Shelburne and Charlotte will need a landing point, expanded services and parking.
d. Existing and future cruise lines will need services and parking.

Taxis

Taxis move to locations that they service on a regular basis. As private enterprises, they respond quickly to market needs. A designated area for 10 taxis should be established at the center.

a. Several taxi services are presently available within the central business district and waterfront area.

Parking

A parking garage in the vicinity of the transportation center has been proposed to accommodate approximately 400 parking spaces. This garage is anticipated to accommodate users of the transportation center, area development, and special event parking. In order to confirm the need for the proposed 400 parking spaces, a more detailed study is required. One component, parking for the transportation center should be determined by a recommended 0.32 spaces per originating passenger.[1] This determination will require more detail on passenger projections at the center. In addition, an evaluation of proposed projects, Lake Street and CBD overflow parking and shared parking by area users must all be evaluated.

a. Approximately 200 displaced cars from the Residential Parking Program should be accommodated.
b. The parking garage structure should be designed to have two lanes for entering and 1 lane for exiting.
c. Approximately 30 to 100 spaces will be needed for anticipated train service.
d. The future southern connector will displace approximately 30 spaces from Lake Street, College Street, and Battery Street. These will need to be accommodated.

Pedestrians

a. Routes connecting major nodes and destinations should be incorporated into the overall plan.

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[1] Transportation Planning Handbook, Institute of Transportation Engineers, 1992.

b. Areas with seating for pedestrians will be needed.

DIMENSIONAL REQUIREMENTS

This summary addresses the minimum building and parking area requirements for a multimodal transportation center in downtown Burlington.

Parking

A total of 400 parking spaces are to be accommodated at the transportation center. For planning purposes 350 SF/parking space is required. This dimension includes the parking and circulation space. In addition, 10 taxi spaces and a 15-space loading platform for buses will be needed. A summary of the parking and circulation needs are presented below.

Parking Requirements: (Includes Roadway)	400 Spaces	350 SF/Space =	140,000 SF
Taxi Spaces:	10 spaces	350 SF/Space =	3,500 SF
Bus Area:	15 spaces	(45 degree parking 40' X 8'6" Bus)	20,000 SF
			163,500 SF

Office and Common Space

Chittenden County Transit Authority and Vermont Transit each require 1500 SF for ticketing and office areas. 500 SF was assigned for the ferry and train ticket area and an additional 500 SF for a restrooms/lockers/shower area. The public area was based upon a peak passenger requirement of 100 passengers at a time with 14 SF provided per passenger.[2] A summary of the building area is presented below. The total building size should be approximately 6,000 SF.

Building Area

CCTA	1,500 SF
Vermont Transit	1,500 SF
Ferry Ticket	500 SF
Showers/Lockers/Restrooms	500 SF
Public Area	1,400 SF
	5,400 SF

[2] Transportation Engineering Planning and Design, 2nd Edition, Institute of Transportation Engineers, 1992.

SELECTED SITES

Based on the established site criteria, dimensional requirements and planning principles, four sites have been selected. One site is east of Battery Street and the remaining three sites are west of Battery Street. The four sites are:

1. Milot Site - on the corner of Battery and College Street.

2. Pease Grain Site - on Lake Street bordering the railroad tracks and Waterfront Park.

3. Lake Champlain Transportation, Inc. Site - at the base of King Street.

4. Main Street Landing Site (Union Station) - at the base of Main Street.

Each site has its strengths and weaknesses in terms of size, ability to handle the multimodal relationships desired and provide parking. Figure 6 - Proposed Burlington Transportation Center Sites plan shows these sites.

1. The Milot Site

The Milot site is attractive for a parking structure because of the sandy soils and depth to the water table allowing a multi-level parking structure to be built beneath a proposed hotel. The site could accommodate all 400 parking spaces. However, it is less than desirable for bus and train access. Buses would need to park along College Street to access the site and negatively impact pedestrian access and eliminate the opportunity for tour buses to park for any length of time. The site could provide an underground pedestrian and vehicular route under Battery Street to connect with Lake Street. The underground route is very desirable from the city's viewpoint for pedestrian travel and it would provide a safe connection between the central business district and the waterfront. This site is too small to accommodate the other suggested uses and too distant for multimodal connections.

2. The Pease Grain Site

The Pease Grain site would work well for a train depot and track spur. It could accommodate some parking and possibly one or two buses however, the site's narrowness restricts its use. There has been discussion of this site working in combination with another site and it could offer more visitor oriented facilities.

3. The Lake Champlain Transportation Inc. Site

The site best able to handle all the desired activities is the Lake Champlain Transportation, Inc. site. It has the necessary space for parking facilities, office and ticketing space, bus, train and taxi service. The ferry service is currently based on the King Street dock and with the transportation center in its vicinity, it could expand its services and facilities. A 400 space parking structure could

be very easily incorporated onto the site and be very convenient to the other forms of transportation. This facility would be easily accessible from major roads including the proposed southern connector and Main Street. There is the possibility of connecting a road through the Naval Reserve site to College Street for a second access. This would provide an ideal bus connection. The drawback to this site is its close proximity to the lake edge and the public perception of locating parking on the waterfront.

4. The Main Street Landing Site (Union Station)

The Union Station building was once the train depot of Burlington and it could easily be used for this purpose again. The covered walkway and platform still exist along the tracks and the main building could be added onto to house a train ticket office, lobby space and public facilities. Limited bus service could locate along Lake Street combined with limited taxi service. Public parking could not be accommodated on this site due to a high ground water table and the property owners desire to create a low impact development on the site.

After presenting all four sites to city and CCRPC officials, two of the sites were identified as the preferred site and were studied in greater detail. The Lake Champlain Transportation, Inc. site and the Pease Grain site were recommended for further study and conceptual plans were prepared for how the center could work on each site.

Transportation Center Option A - Pease Grain Site

The proposed building of square feet, envisioned as a two story structure similar in character to the old Vermont Central Railway Station that was lost to fire in 1910. The building would accommodate the following uses:

- Transportation: limited bus service, train service and bikepath connections.
- Exhibits/gallery space.
- Historic museum: illustrating the history of Burlington's transportation development.
- Government agency office space:
  - City Public Works
  - City Parks & Recreation
  - City Harbormaster
- Public meeting space: to supplement the Boathouse space.
- Parking of automobiles to be accommodated on the Milot site with underground pedestrian connections between the two sites.

There is a plaza space along College Street to be used for bus service and a landing area for train service along the railroad tracks. A plaza is also designed to greet Lake Street and cross it for a tunnel connection to the Milot site. The existing Pease Grain tower would be incorporated into the structure. This building would need to work in concert with another structure to be able to accommodate all the anticipated multimodal transit uses. Figure 7 illustrates this option.

Transportation Center Option B - Lake Champlain Transportation,Inc. Site

The proposed building of square feet, was envisioned as a three story, 35' tall structure that would integrate all of the mulitmodal activities in Burlington while providing convenient access to downtown Burlington and the waterfront. This building would accommodate the following uses:

- Transportation: 400+ parking space structure, 15 space bus parking, taxi service, bikepath connections, and ferry connections.
- Lobby and ticket booth space for train, bus, and ferry service.
- Office space associated with transportation center.
- Commercial space along the perimeter of the building.

A plaza along King Street announces the entrance while strengthening the pedestrian connections from Battery Street to the ferry dock. A small building proposed for the south side of King Street was designed to include a train station and service, bicycle storage, and lockers and showers. It was determined that the train station, bicycle storage, and ferry connections should be all in one building to be more efficient. Figure 8 illustrates this option.

RECOMMENDATIONS

The Burlington waterfront has historically acted as the regional transportation hub. Because of this, there is a substantial transportation infrastructure still in place: ferry terminal, railroad tracks, arterial roadways, and bicycle paths all adjacent to Burlington's central business district. The waterfront sites all rate favorably when compared with the transportation planning principles for activity centers. Based upon this analysis, we recommend the Burlington waterfront area - the land between South Champlain Street and Lake Champlain, and between Bank and King Streets - as the ideal location for a multimodal regional Transportation Center.

The challenge facing our planning team was to identify one site that could accommodate all of the programmatic elements specified. Three of the four sites can easily accommodate portions of the program while respecting the site and its surroundings.

Milot Site:

Accommodates 400+ parking spaces below grade in a structured facility. The majority of parking for the transportation center should be located on this site.

Pease Grain Site:

The land area is too small and constricted by surrounding uses to adequately host multiple transportation functions. This site should not presently be considered for any transportation center uses.

Lake Champlain Transportation Inc. Site:

The land area is more than adequate to accommodate all of the transportation center needs. The limiting factors on this site are the railway crossing, conflicts with existing queuing patterns for ferry access and public opposition to placing large parking facilities adjacent to the lake. This site is seen as a location for a regional visitor's center with parking for 100 to 200 automobiles, a tour bus center similar to Newport, Rhode Island's facility (see Appendix D) and some accompanying retail space.

Main Street Landing (Union Station) Site:

The historic Union Station, at the foot of Main Street, is best suited to accommodate train travellers and bicycle commuters with their accessory transportation needs such as a CCTA stop and taxi stand. Lloyd Robinson, Assistant Secretary of the Vermont Agency of Transportation, has agreed in concept to lease a portion of the Union Station Building for commuter rail service. The Main Street Landing owners have prepared designs for a new facility, attached to the west

side of Union Station, to provide train ticketing, lobby space, bicycle storage and locker rooms. It is important that the Main Street Landing site and the Lake Champlain Transportation Inc. Site be physically linked, providing easy pedestrian access across the tracks.

Transportation District

The concept of utilizing more than one site as a multimodal transportation center is very attractive for a city of Burlington's size. Rather than creating a monolithic structure to accommodate all the transportation needs, the city should develop a series of appropriately scaled facilities adjacent to one another that are linked in such a way that pedestrians can move easily between terminals. With the creation of a transportation district, the various structures can be built in an incremental fashion better responding to future changes in future transportation modes and patterns than a single large facility can.

Infrastructure Improvements

For a transportation district to be successful in downtown Burlington, a number of improvements must be made to the surrounding infrastructure:

1. Completion of the Southern Connector/Champlain Parkway: Providing direct access to the interstate highway system. Once this link is completed, an interstate bus company such as Vermont Transit may occupy a portion of the Transportation Center.

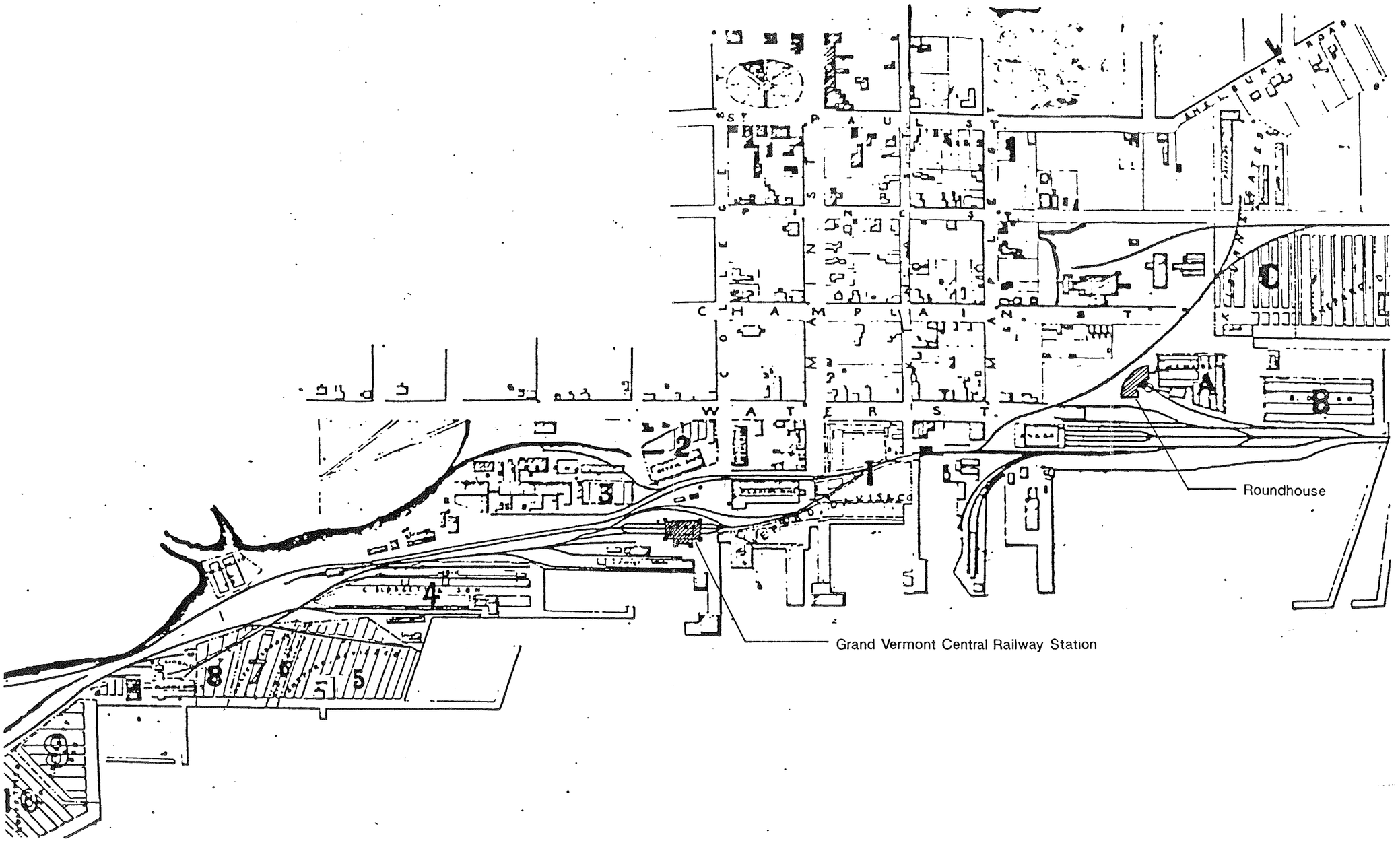
2. Upgrading of Surrounding Streets: Battery Street, Lake Street, Lower Main Street and King Street (west of Battery Street) will require pavement and geometric upgrades allowing convenient access to the three preferred sites.

3. Improved pedestrian linkages: Safe pedestrian access in the waterfront area is currently non existent. An efficient, convenient pedestrian network must be created linking the Transportation District with the Central Business District. There is an opportunity to create an enclosed pedestrian network connecting the waterfront with the entire central business district which should be studied further and integrated into future design proposals.

Funding Sources

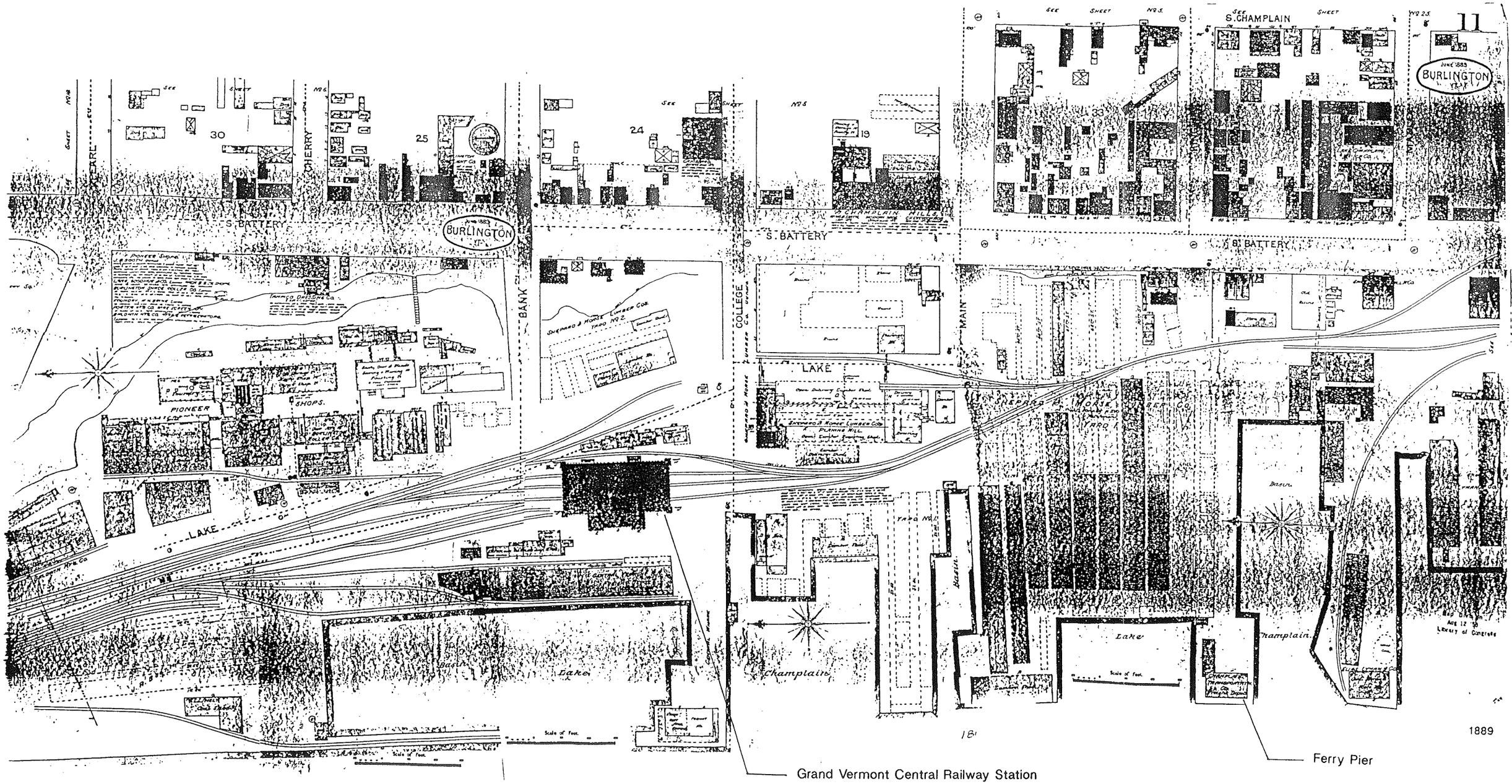
The costs of developing a transportation district, the various structures and infrastructure improvements are substantial. A completed transportation district is a regional resource providing convenient access to numerous modes of transportation in a centralized location. Because of the regional nature of this facility, a range of funding sources should be pursued:

1. ISTEA funding
2. Tax incremental financing
3. General obligation Bond.



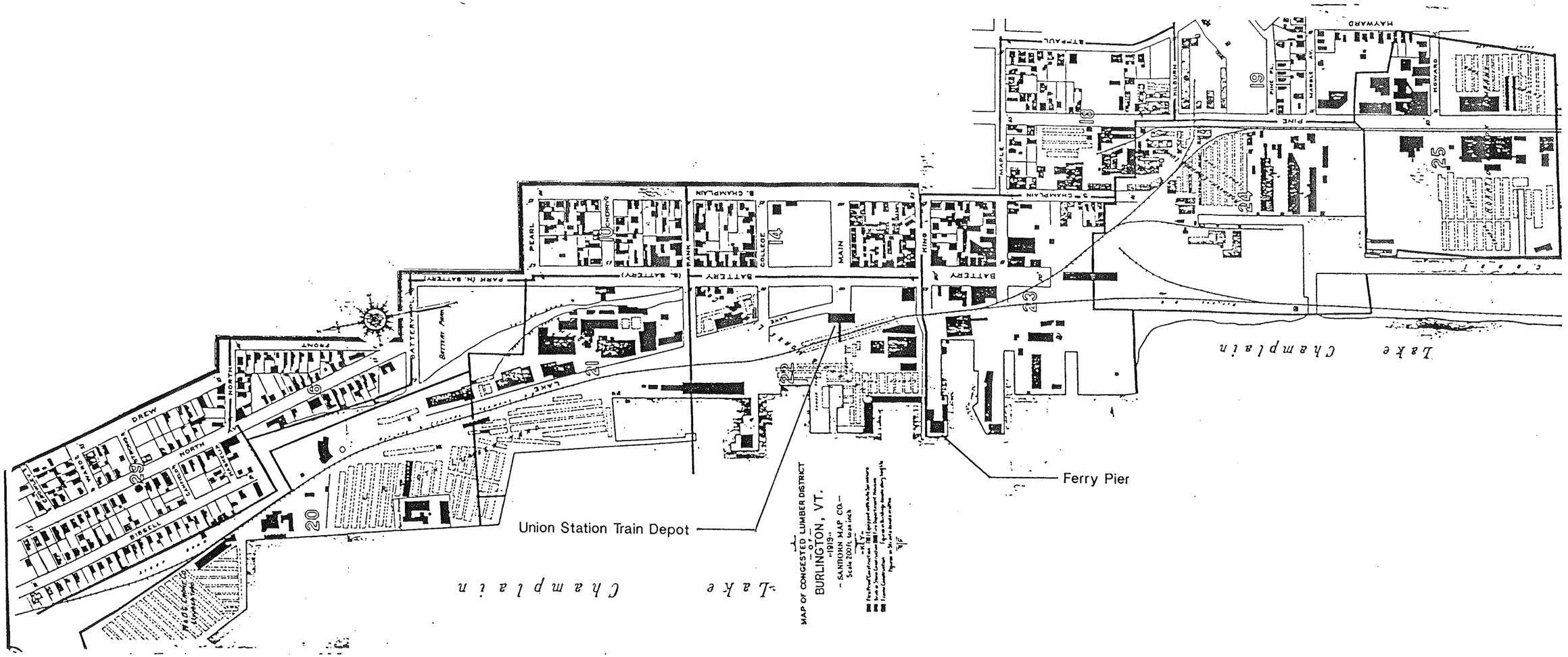
HISTORIC DEVELOPMENT PATTERNS OF BURLINGTON'S WATERFRONT

Figure 1



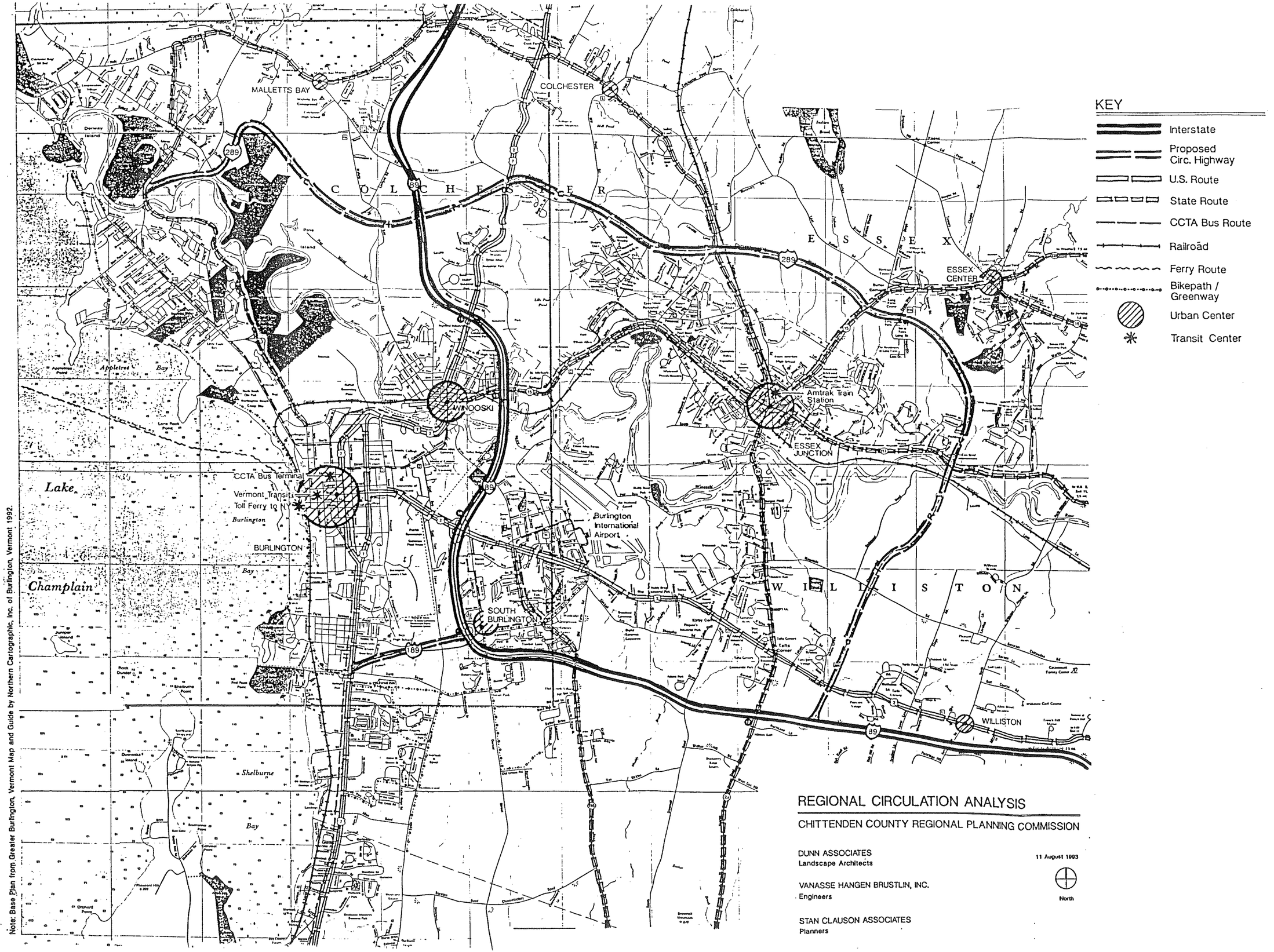
HISTORIC DEVELOPMENT PATTERNS OF BURLINGTON'S WATERFRONT

Figure 2



HISTORIC DEVELOPMENT PATTERNS OF BURLINGTON'S WATERFRONT

Figure 3



Note: Base Plan from Greater Burlington, Vermont Map and Guide by Northern Cartographic, Inc. of Burlington, Vermont 1992.

Figure 4

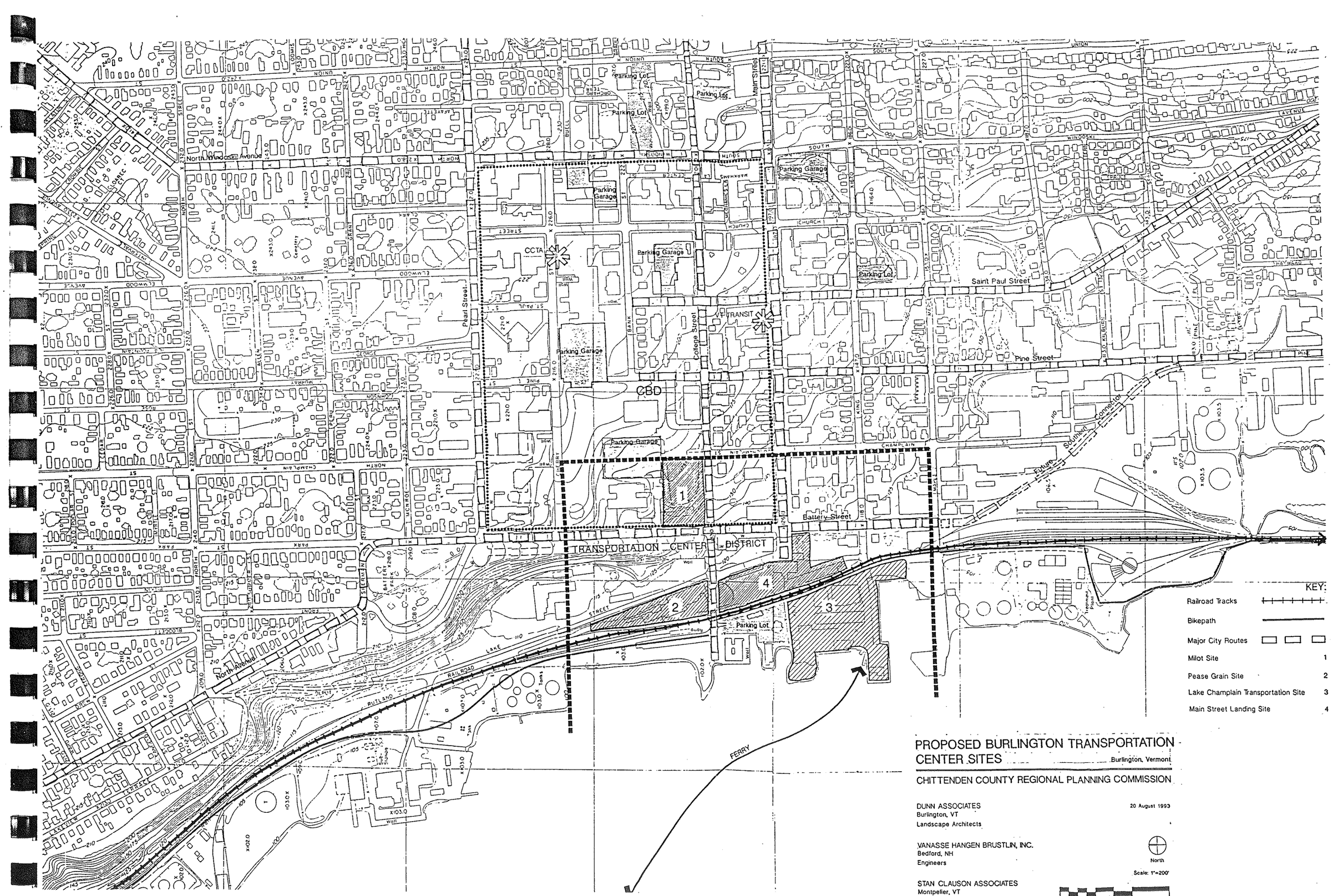

CCTA
TRANSIT
CBD
TRANSPORTATION CENTER DISTRICT
Parking Garage
Parking Lot
Pearl Street
College Street
Saint Paul Street
Pine Street
Battery Street
North Winooski Avenue
North Avenue
Main Street
Future Southern Connector
FERRY
RAILROAD
RUTLAND
1
2
3
4
KEY:
Railroad Tracks
Bikepath
Major City Routes
Milot Site 1
Pease Grain Site 2
Lake Champlain Transportation Site 3
Main Street Landing Site 4
PROPOSED BURLINGTON TRANSPORTATION CENTER SITES
Burlington, Vermont
CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION
DUNN ASSOCIATES
Burlington, VT
Landscape Architects
20 August 1993
VANASSE HANGEN BRUSTLIN, INC.
Bedford, NH
Engineers
North
Scale: 1"=200'
STAN CLAUSON ASSOCIATES
Montpelier, VT
Planners
0 100 200 300 400 600

Figure 6

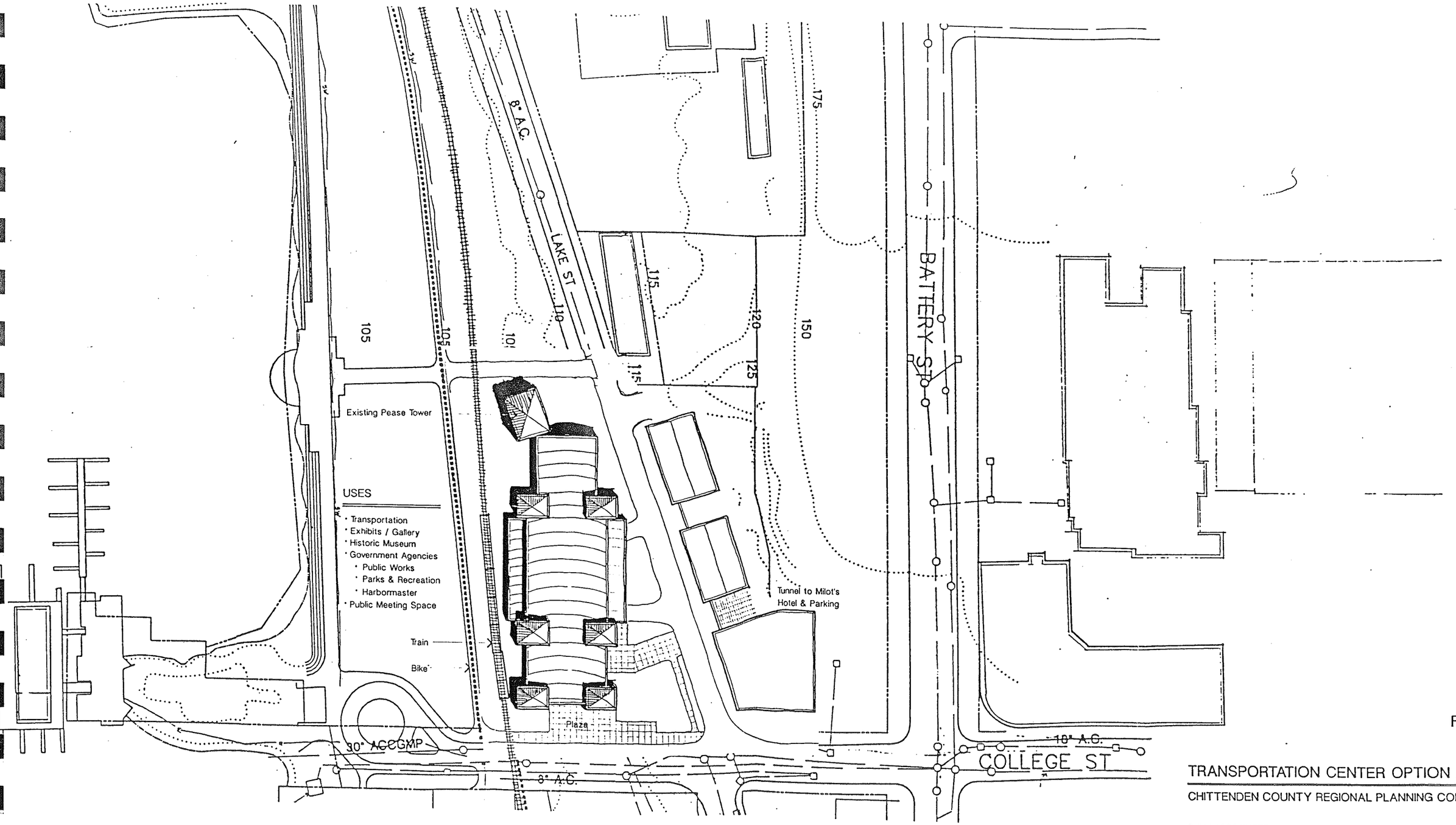


Figure 7

TRANSPORTATION CENTER OPTION A

CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION

DUNN ASSOCIATES
Burlington, VT
Landscape Architects

25 August 1993

VANASSE HANGEN BRUSTLIN, INC.
Bedford, NH
Engineers

North

STAN CLAUSON ASSOCIATES
Montpelier, VT
Planners

Scale 1"=50'

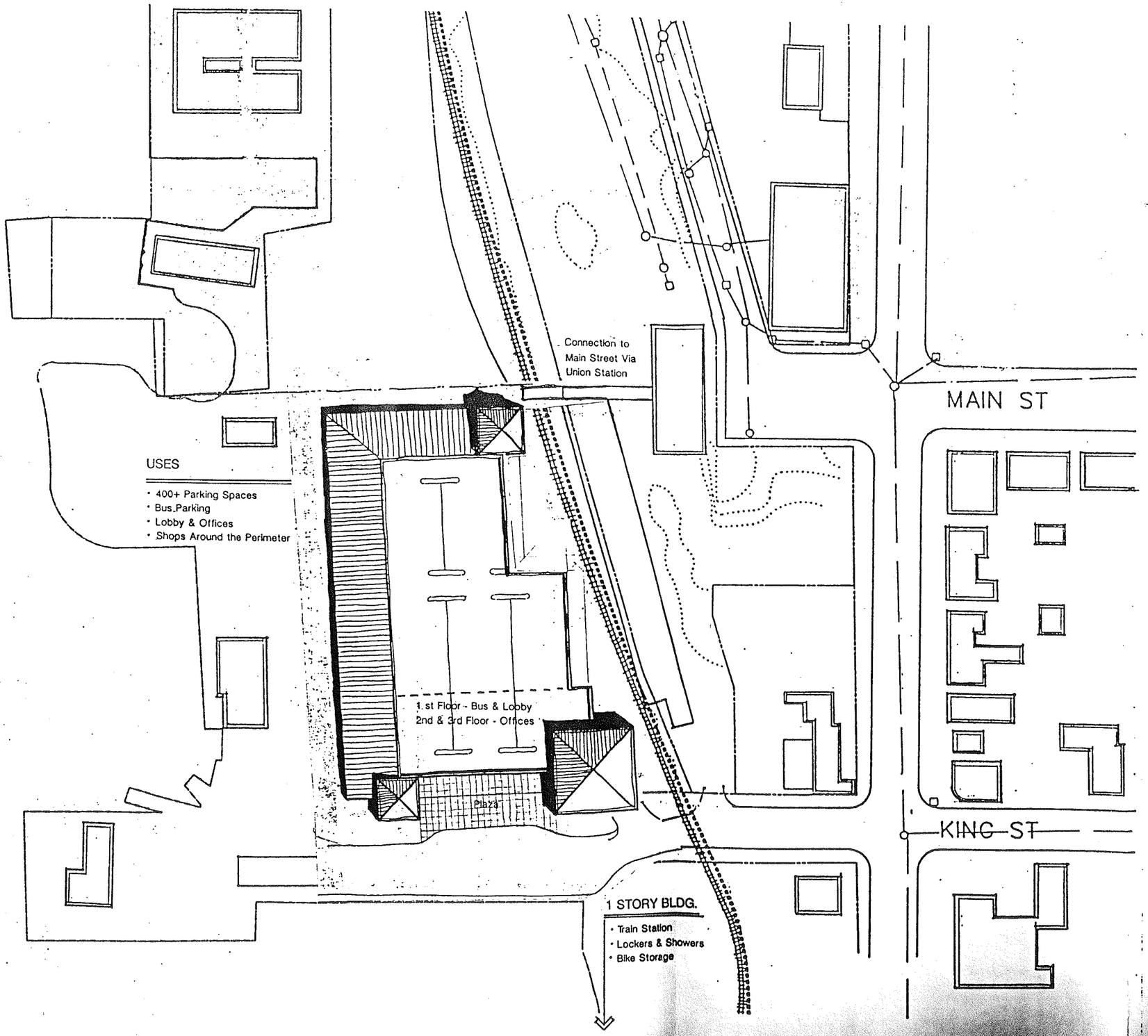


Figure 8

TRANSPORTATION CENTER OPTION B

CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION

DUNN ASSOCIATES
Burlington, VT
Landscape Architects

VANASSE HANGEN BRUSTLIN, INC.
Bedford, NH
Engineers

STAN CLAUSON ASSOCIATES
Montpelier, VT