

3. AFFECTED ENVIRONMENT

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3.1 Introduction

This chapter presents information on existing conditions and the existing environment in the study area.

The study area limits extend from the C-1 Section near Home Avenue, north to the CCD in the vicinity of Main Street, as shown on Figure 3-1.

The C-2 Section is bordered primarily by industrial development to the west and residential neighborhoods to the east. The industrial uses to the west of the C-2 Section buffer the Lakeside neighborhood which is located further to the west from the project corridor.

The C-6 Section is bordered on the east by commercial/industrial uses and residential neighborhoods. On the western side, the C-6 Section is primarily bordered by the Pine Street Barge Canal Superfund Site and the Vermont Railway (VTR) rail yard. Lake Champlain is located further to the west of the project corridor.

3.2 Transportation Systems

The traffic forecasts and corresponding analysis for this project was based on the Chittenden County Transportation Model, provided by the Resource System Group. The model was developed for the Chittenden County Metropolitan Planning Organization (CCMPO) for performing comprehensive regional transportation analysis using the ITM/TModel software. The model includes 350 internal Traffic Analysis Zones (TAZs) covering all of Chittenden County, 17 external zones representing the surrounding areas, 1200 intersections (nodes), and 1600 road segments (links).

3.2.1 Existing Traffic Operations

The study area for the traffic operations aspect of the project consists of a Primary traffic study area and a Secondary traffic study area (refer to Figure 3-1). The Primary study area comprises the immediate environs of the project alternatives. The Primary study area includes Pine Street from Home Avenue to Main Street, and the street network bounded by Battery Street, Pine Street, Main Street and Maple Street. The analyses of traffic operations within this Primary study area provide an evaluation of the traffic impacts and benefits of the project alternatives, and identify the geometric and traffic control configurations recommended for each alternative, to support the mobility objectives of the project.

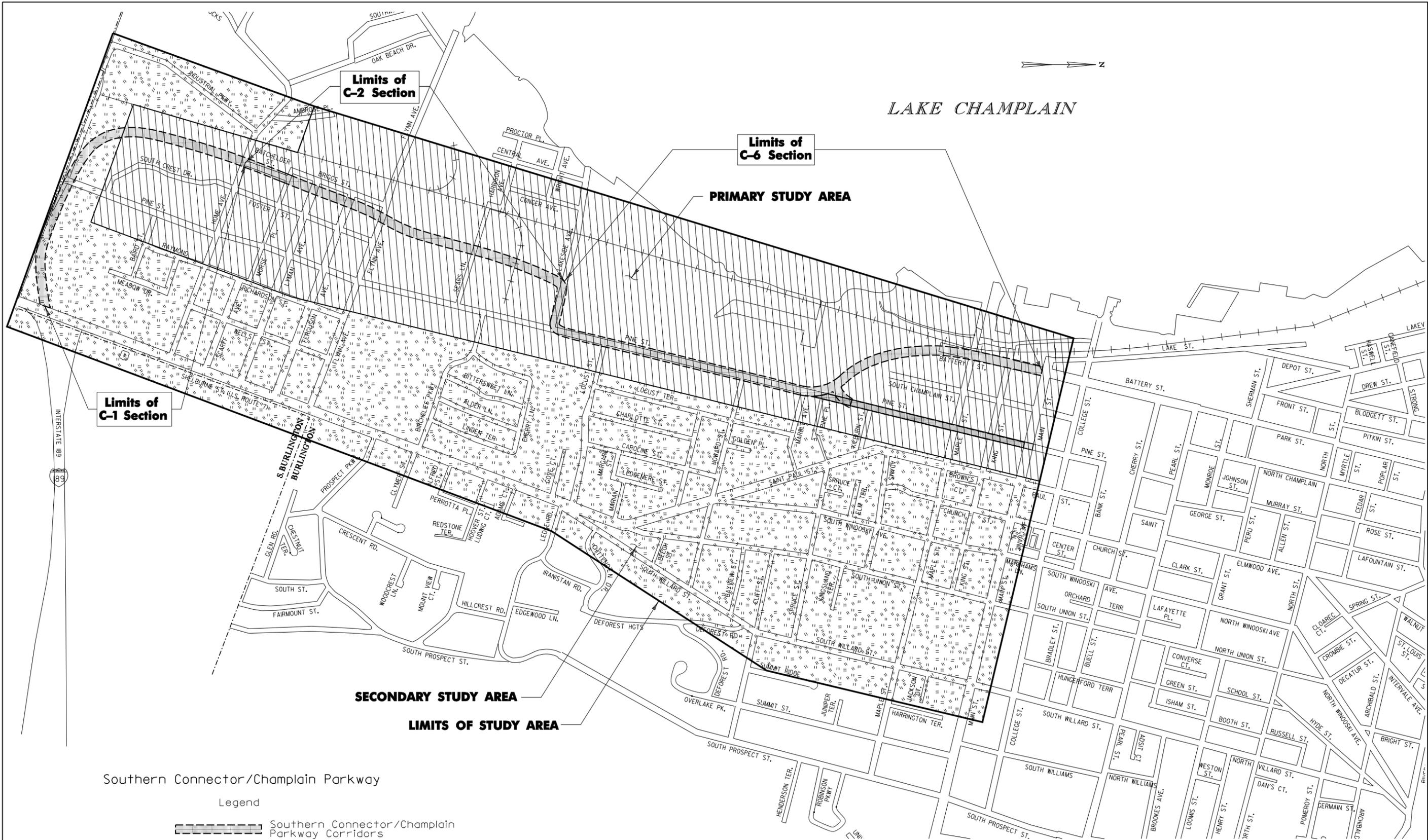
The general boundaries of the Secondary study area include the section of U.S. Route 7 (Shelburne Street) from the I-189 interchange to South Willard Street, South Willard Street from Shelburne Street to Main Street, and Main Street from U.S. Route 7 to Pine Street. The purpose for analyses of the Secondary study area is to provide a context for evaluating the potential ancillary effects of the project on the surrounding transportation system. The project does not include recommendations for improvements for the Secondary study area. The Primary and Secondary study areas are shown on Figure 3-1.

The principal corridors within the Primary study area include Pine Street, Battery Street and Main Street. Pine Street is a two-lane Minor Arterial that extends in a north/south direction, parallel to Shelburne Street (U.S. Route 7). Battery Street is a Principal Arterial, two-lane facility (from Maple Avenue to Main Street) that passes through the Battery Street Historic District. Main Street is a principal arterial connecting Interstate I-89 to Burlington’s CCD. Main Street is also the northern boundary of both the Primary and Secondary study areas. The existing land use within the Primary study area is comprised primarily of commercial/industrial uses, with residential properties located adjacent to the southern and northern sections of the Pine Street corridor.

Table 3-1 presents a summary of 2003 existing traffic volumes within the Primary study area. As indicated in this table, existing daily traffic volumes along Pine Street range from 5,500 vehicles per day to 14,100 vehicles per day.

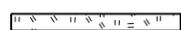
Table 3-1: Traffic Volume Summary – Primary Study Area: Existing Condition

Location	ADT	AM Peak Hour	PM Peak Hour
Pine Street: Home Avenue to Flynn Avenue	8,600	880	1,030
Pine Street: Flynn Avenue to Lakeside Avenue	14,100	1,255	1,550
Pine Street: Lakeside Avenue to Maple Street	12,800	1,195	1,410
Pine Street: Maple Street to Main Street	5,500	455	500
Battery Street: Maple Street to Main Street	9,500	1,040	1,250
Lakeside Avenue	4,300	345	430
Maple Street: Pine Street to Battery Street	7,400	740	890
King Street: Pine Street to Battery Street	4,000	320	445
Main Street: Pine Street to Battery Street	7,900	705	795



Southern Connector/Champlain Parkway

Legend

-  Southern Connector/Champlain Parkway Corridors
-  Limits of Study Area
-  Primary Study Area
-  Secondary Study Area

Scale: 1"=1000'

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FIGURE 3-1
 STUDY AREA LIMITS

The highest ADT volume is located between Flynn Avenue and Lakeside Avenue. PM peak hour volumes are generally higher than AM peak hour volumes.

The 2003 Existing AM and PM peak hour traffic volumes at twenty-six key intersections within the combined Primary and Secondary study areas are presented in Figure 3-2 and Figure 3-3, respectively. The existing conditions peak period traffic volumes are based on the 2003 AM and PM peak hour traffic model volumes reported by RSG. These volumes were calibrated by actual traffic movement counts conducted by VTrans.

Level of Service (LOS) analyses were conducted for existing (2003) conditions at the intersections within the Primary and Secondary study areas:

Primary Study Area Intersections

- Battery Street and Main Street
- Battery Street and King Street
- Battery Street and Maple Street

- Pine Street and Main Street
- Pine Street and King Street
- Pine Street and Maple Street
- Pine Street and Howard Street
- Pine Street and Locust Street
- Pine Street and Lakeside Avenue
- Pine Street and Birchcliff Parkway
- Pine Street and Sears Lane
- Pine Street and Flynn Avenue
- Pine Street and Home Avenue

Secondary Study Area Intersections

- Main Street and South Willard Street
- Main Street and South Union Street
- Main Street and South Winooski Avenue
- Main Street and Saint Paul Street

- Saint Paul Street and Maple Street
- Saint Paul Street and South Winooski Avenue/Howard Street

- U.S. Route 7 and South Union Street/Saint Paul Street
- U.S. Route 7 and South Willard Street/Locust Street/Ledge Road
- U.S. Route 7 and Birchcliff Parkway/Clymer Street

- U.S. Route 7 and Flynn Avenue
- U.S. Route 7 and Home Avenue
- U.S. Route 7 and Interstate I-189 Ramp C

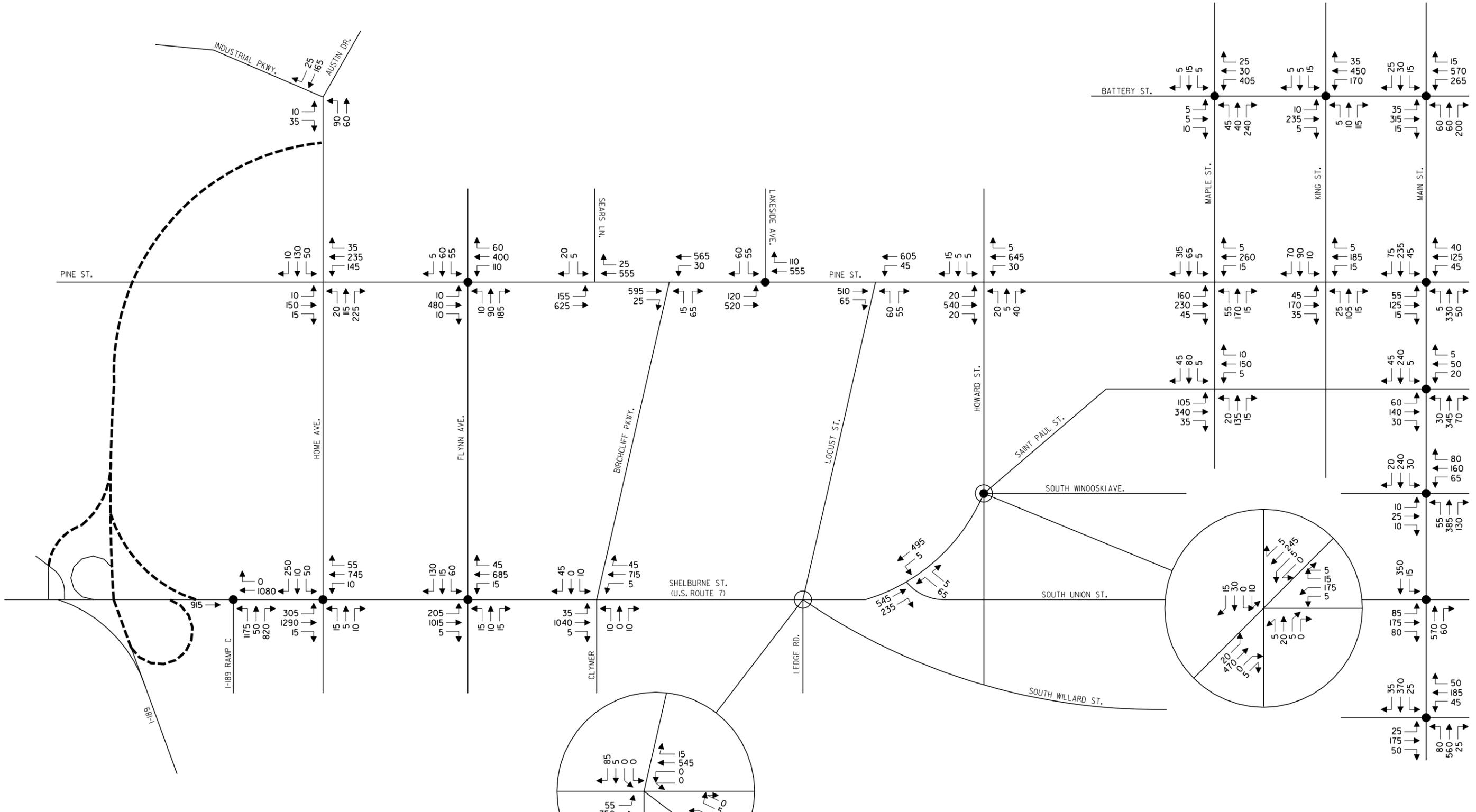
- Home Avenue and Industrial Parkway/Austin Drive

These analyses were conducted in accordance with the procedures within the *Highway Capacity Manual* (Transportation Research Board, 2000). These analytical procedures characterize the quality of traffic flow based on LOS, where a LOS A represents the best conditions and LOS F represent forced-flow congested conditions. LOS D is the targeted threshold for acceptable design for the Southern Connector/Champlain Parkway project. VTrans' Level of Service Policy states "In extreme circumstances, where the existing Level of Service is F, and where the necessary geometric improvements are not feasible, Level of Service F may be acceptable as long as an improvement over existing conditions can be demonstrated."

Congestion is a term used to describe the limitations on a vehicle's mobility. In a congested area, a vehicle cannot determine its own speed and maneuverability. There is an inverse relationship between congestion and LOS. As congestion increases, it is represented by a corresponding decrease in LOS.

For signalized and unsignalized intersections, LOS is defined in terms of average control delay (seconds). Control delay is a measure of stopped delay and the associated delay of slowing and queuing experienced by vehicles moving through an intersection. At signalized intersections, control delay is determined for each individual approach and for the intersection as a whole. At unsignalized intersections, control delay is determined for the traffic movements from the stop sign controlled approaches. Table 3-2 summarizes the LOS descriptions for signalized and unsignalized intersections.

The capacity analysis results reflect 2003 AM and PM peak hour traffic volumes using existing geometrics observed during field reconnaissance, and in the case of signalized intersections, include existing signal timings and phasing obtained from the City of Burlington. Table 3-3 presents the overall LOS results of these analyses in the Primary study area. Figure 3-4 and Figure 3-5 present the overall LOS at each study intersection within the combined Primary and Secondary study areas for the AM and PM peak hours. Detailed LOS and delay calculations are provided in Appendix 3.



LEGEND

- CLOSED TO TRAFFIC
- SIGNALIZED INTERSECTIONS

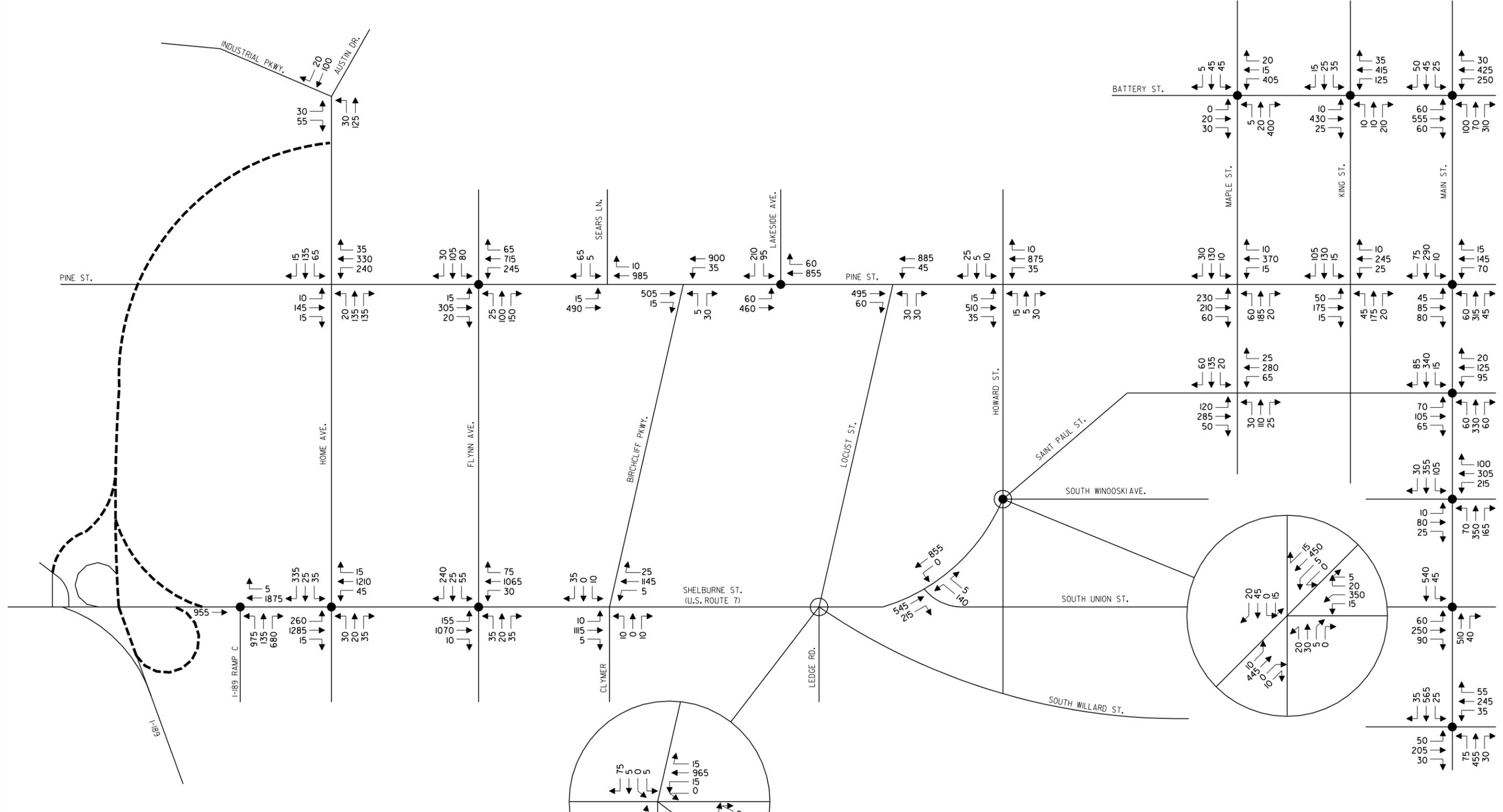
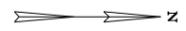
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FIGURE 3-2
 2003 AM PEAK HOUR TRAFFIC VOLUMES
 EXISTING CONDITIONS

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LEGEND

- CLOSED TO TRAFFIC
- SIGNALIZED INTERSECTIONS

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 <small>CHA 11 Wilkens Circle, PO Box 6289 • Albany, NY 12205-0289 Tel: (518) 483-4800 • www.chacompanies.com</small>	<p>FIGURE 3-3 2003 PM PEAK HOUR TRAFFIC VOLUMES EXISTING CONDITIONS</p>

Table 3-2: Levels of Service (LOS) Descriptions*

Category	Description	Signalized Intersections Delay Range** (Seconds Per Vehicle)	Stop-Controlled Intersections Delay Range*** (Seconds Per Vehicle)
LOS A:	Describes a condition of free flow, with low volumes and relatively high speeds. There is little or no reduction in maneuverability due to the presence of other vehicles and drivers can maintain their desired speeds. Little or no delays result for other side street motorists.	0.00-10.0	0.00-9.9
LOS B:	Describes a condition of stable flow, with desired operating speeds relatively unaffected, but with a slight deterioration of maneuverability within the traffic stream. Side street motorists experience short delays.	10.1-19.9	10.0-14.9
LOS C:	Describes a condition still representing stable flow, but speeds and maneuverability begin to be restricted. The general level of comfort begins to deteriorate noticeably at this level. Motorists entering from side streets experience average delays.	20.0-34.9	15.0-24.9
LOS D:	Describes a high-density traffic condition approaching unstable flow. Speeds and maneuverability become more seriously restricted, and the driver experiences a poor level of comfort. Side street motorists may experience long delays.	35.0-54.9	25.0-34.9
LOS E:	Represents conditions at or near the capacity of the facility. Flow is usually unstable, and freedom to maneuver within the traffic stream becomes extremely difficult. Very long delays may result for side street motorists.	55.0-79.9	35.0-49.9
LOS F:	Describes forced flow or breakdown conditions with queuing along critical approaches. Operating conditions are highly unstable as characterized by erratic vehicle movements along each approach.	80.0 or greater	50.0 or greater

* Source: "Highway Capacity Manual, " Transportation Research Board, National Research Council, 2000.

** Delay ranges relate to the control delay incurred by each vehicle entering the intersection and do not consider the effects of traffic signal coordination. Control delay includes initial deceleration delay, queue move-up time, stopped delay and final acceleration delay. This criterion is intended for use in the evaluation of signalized intersections.

*** Delay ranges relate to the average control delay per vehicle for each minor movement. This criterion is intended for use in the evaluation of unsignalized intersections.

Table 3-3: Level of Service Summary – Primary Study Area: Existing Conditions

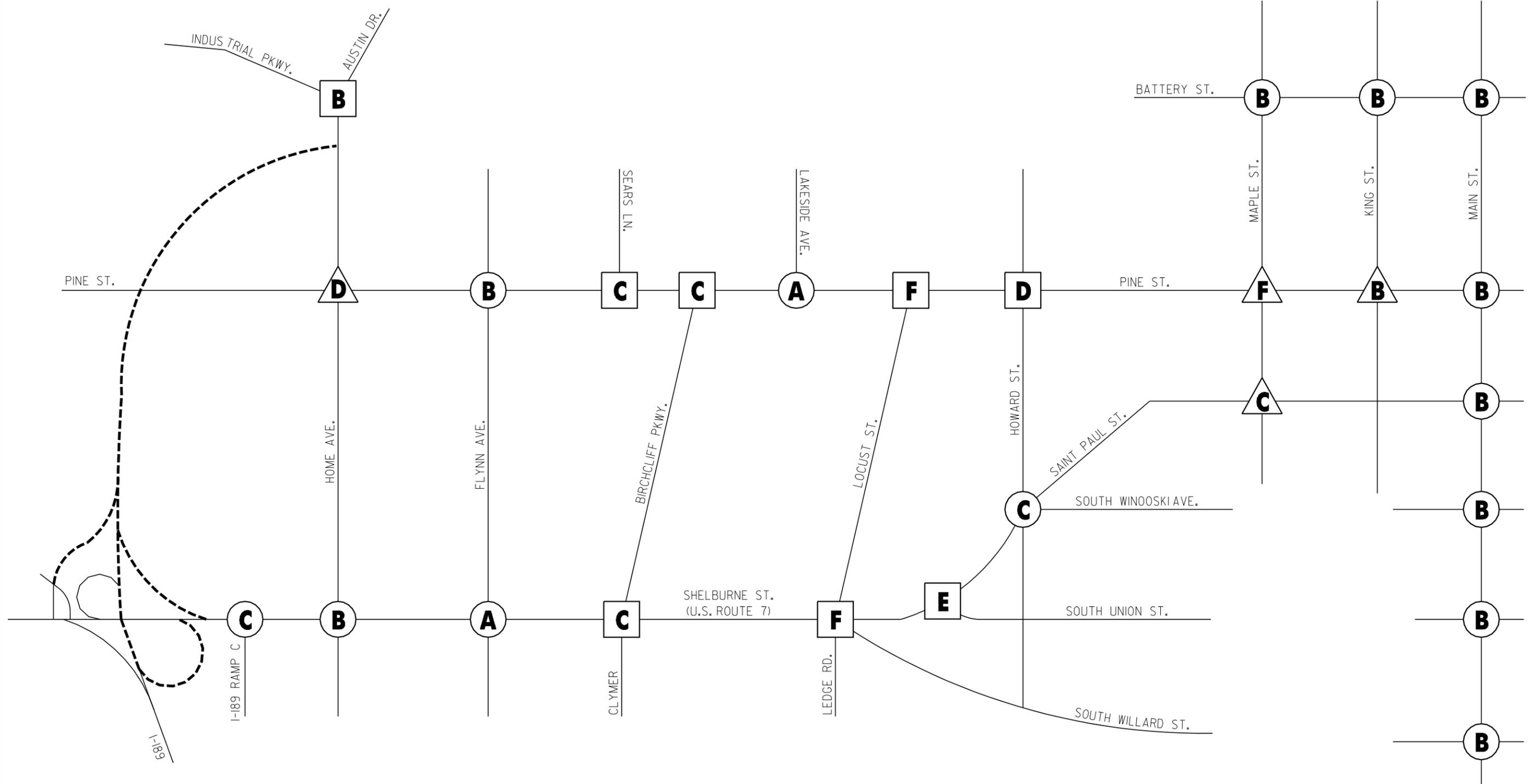
Location	2003	
	AM Peak Hour	PM Peak Hour
Signalized Intersections		
Battery Street & Main Street	B	B
Battery Street & King Street	B	B
Battery Street & Maple Street	B	C
Pine Street & Main Street	B	B
Pine Street & Lakeside Avenue	A	B
Pine Street & Flynn Avenue	B	B
AWSC ⁽¹⁾ Intersections		
Pine Street & King Street	B	C
Pine Street & Maple Street	F	F
Pine Street & Home Avenue	D	F
TWSC ⁽²⁾ Intersections		
Pine Street & Howard Street Eastbound Approach	D	E
Westbound Approach	D	E
Pine Street & Locust Street Westbound Approach	F	F
Pine Street & Birchcliff Pkwy Westbound Approach	C	E
Pine Street & Sears Lane Eastbound Approach	C	F
<p>(1) AWSC = All-Way Stop Control</p> <p>(2) TWSC = Two-Way Stop Control (i.e., Side Street Stop). Note that the LOS for TWSC intersections represents the operation of the minor stop-controlled approach movements. Mainline movements are free-flow.</p>		

Summary of Existing Analyses

Primary Study Area:

Under existing volumes and geometry, all of the signalized intersections within the Primary study area are operating at a LOS C or better during the peak hours. In most cases, these intersections currently operate at LOS B or better.

Of the intersections on Pine Street that are All-Way Stop Controlled (AWSC), the intersections with Maple Street and with Home Avenue are operating at LOS F



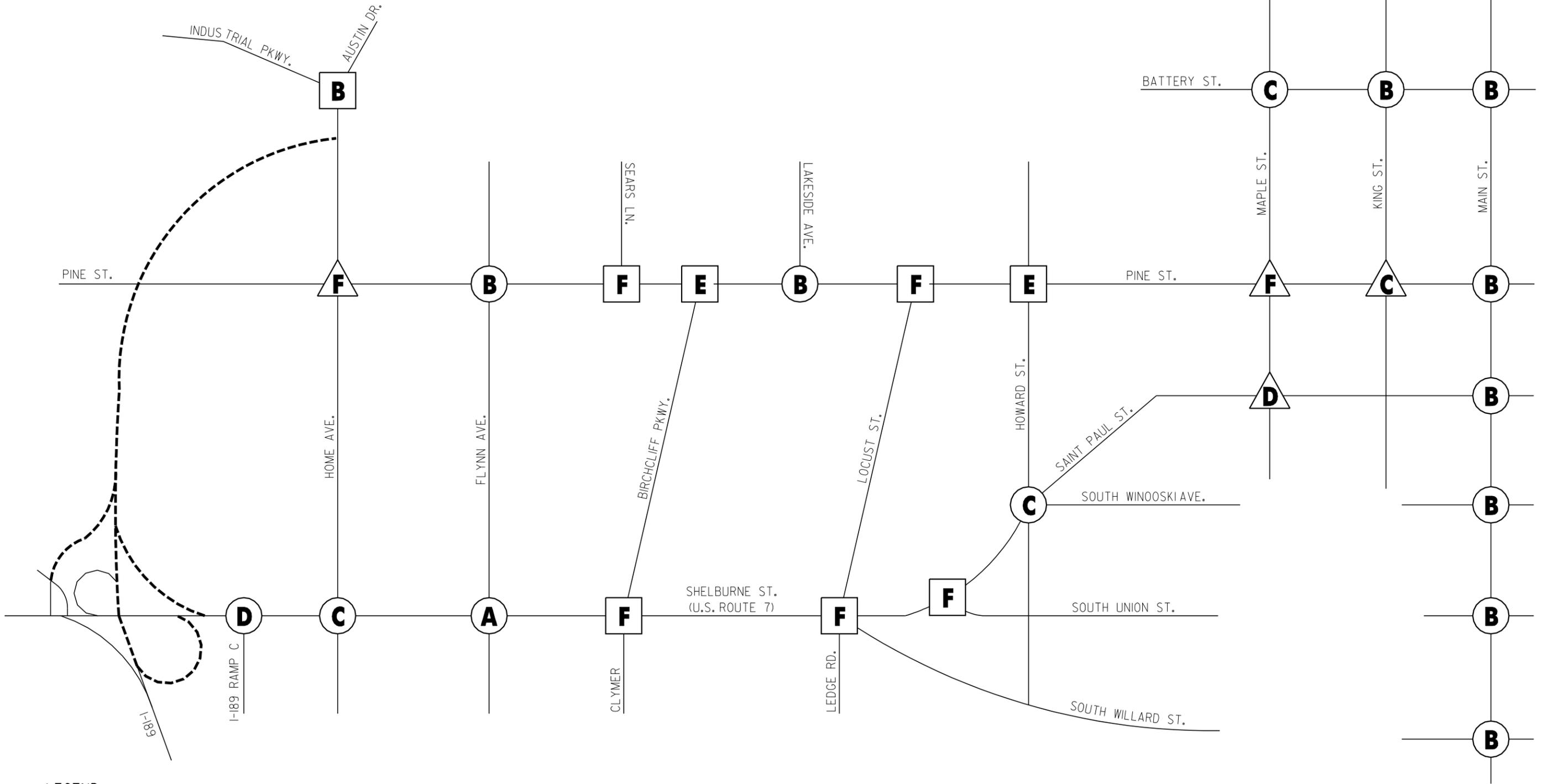
LEGEND

- CLOSED TO TRAFFIC
- (X) SIGNAL CONTROL (OVERALL LOS)
- (▲) ALL-WAY STOP CONTROL (OVERALL LOS)
- (X) 2-WAY STOP CONTROL (MINOR STREET APPROACH LOS)

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 <small>CHA 111 Wilkens Circle, PO Box 6289 • Albany, NY 12205-0289 Mats: (518) 485-4800 • www.chacompanies.com</small>	<p>FIGURE 3-4 2003 AM PEAK HOUR LEVEL OF SERVICE EXISTING CONDITIONS</p>

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LEGEND

- CLOSED TO TRAFFIC
- ⊗ SIGNAL CONTROL (OVERALL LOS)
- △ ALL-WAY STOP CONTROL (OVERALL LOS)
- ⊠ 2-WAY STOP CONTROL (MINOR STREET APPROACH LOS)

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FIGURE 3-5
 2003 PM PEAK HOUR LEVEL OF SERVICE
 EXISTING CONDITIONS

during one or both of the peak hours. The intersection of Pine Street and King Street operates at LOS C or better in both peak hours.

The two-way stop controlled (TWSC) intersections on Pine Street are currently operating with the stop controlled approach at LOS E or F during at least one of the peak hours.

Secondary Study Area:

The signal-controlled intersections in the Secondary study area operate at a LOS D or better under existing volume and geometric conditions. The AWSC intersections within the Secondary study area are also operating at a LOS D or better for both peak hours.

The TWSC intersections analyzed within the Secondary study area generally operate at acceptable levels of service under existing conditions, except for the following intersections:

- U.S. Route 7 and Birchcliff Parkway
- U.S. Route 7 and South Willard Street
- U.S. Route 7 and South Union Street

The stop-controlled approaches at these intersections currently operate at LOS E or F during both of the peak hours.

These analyses indicate that the transportation system within the Primary and Secondary study areas have sufficient capacity to accommodate current travel demand at good overall levels of service and mobility. Areas of peak-hour congestion within the system are primarily associated with side street access to the principal corridors at stop-controlled intersections, which is not unusual in urban settings. The AWSC intersections of [1] Pine Street and Maple Street, and [2] Pine Street and Home Avenue both exhibit overall intersection congestion during peak hours, indicating the need for improvement.

3.2.2 Rail Operations

The Burlington rail yard property and railroad infrastructure is located in the vicinity of the northern limits of the project area. The existing rail yard is located on the western edge of the City of Burlington adjacent to Lake Champlain. The property is owned by the State of Vermont and the rail yard is operated and maintained under a long-term lease agreement with VTR.

The Vermont Legislature directed VTrans to study the potential of relocating the Burlington rail yard out of the downtown and waterfront areas in an effort to redefine the land uses and economic development opportunities for this area.

VTrans' study was commissioned under Vermont State Law, Section 8 of the 2000 House Bill No. 853 with the intent "to evaluate the feasibility of funding options for the proposed relocation of the Burlington Railroad Yard". The first phase of the VTrans study was completed in February 2001 and found that it would be feasible to relocate the switching yard and commercial yard to another location somewhere in the greater Burlington area, but a site has not been determined.

The existing rail yard is the northern terminus of the VTR and serves the Greater Burlington area by providing the track and support facilities necessary to assemble and dispatch trains, as well as provide local service to businesses that need their commodities shipped by rail. The Burlington rail yard is an active facility which handles approximately 9,000 railcars per year. The largest commodities which are transferred or handled within the rail yard on an annual basis are 285,000 tons of stone, 70,000,000 gallons of petroleum products (e.g. diesel fuel, No. 2 home heating oil and kerosene), and 90,000 tons of salt.

Currently, there are four tanks on-site for the storage of petroleum products. These tanks include a 70,000 gallon tank used to store diesel fuel, a 70,000 gallon and a 150,000 gallon tank used to store No. 2 home heating fuel, and a 70,000 gallon tank used to store kerosene.

The Burlington rail yard is comprised of two primary freight-related operational components: the switching yard and the commercial yard. The portion of the yard where inbound trains are taken apart and put back together for destinations outside of the Burlington area is known as the switching yard. The portion of the yard that supports intermodal freight transloading between rail cars and trucks is known as the commercial yard.

The switching yard functions as the terminal switching operation involving the separation and organization of rail cars for inbound and outbound freight trains. This portion of the yard consists of the main track and several yard tracks. Yard tracks are identified as segments of track diverging from the mainline which are used for switching and storing rail cars. The existing switching yard consists of 12 tracks totaling approximately 17,000 feet of track and 22 switches.

The second operational facility is the commercial yard. The primary function of the commercial yard is the performance of commercial switching operations which predominantly consist of rail-to-truck transloading services to local freight customers in the greater Burlington area. This portion of the Burlington rail yard consists of several tracks used for the loading/unloading of rail cars by various internal and external freight

customers. Track segments which are included in the commercial yard include the Horn Track and the Industrial Track that previously provided access to off-site rail customers, such as, the former Specialty Filament, Inc. facility located on the eastern side of Pine Street. The existing commercial yard consists of four tracks totaling approximately 800 feet of track and four switches.

The switching yard and the commercial yard currently overlap and are required to utilize many of the same tracks on a daily basis. As a result, there are often operational conflicts and capacity constraints, particularly at the north end of the rail yard.

The existing rail yard operations and infrastructure elements were inventoried and confirmed from field reconnaissance and extensive coordination with representatives of VTR for the 2006 DSEIS. These operations have been identified in their approximate locations on the Existing Rail Yard plan (refer to Figure 3-6) and are summarized as follows:

1 – Horn Track: The Horn Track is primarily used as a running track that connects the south end of the switching yard to the north end of the rail yard. This 1500 foot bypass or runaround track provides VTR with access to the north end of the yard without needing to interfere with operations in the switching yard. VTR also utilizes the Horn Track to support some of the commercial operations that require long sections of open track and the use of a remote controlled engine in order to load or unload commodities such as ballast, aggregates and salt (see operations described below).

2 – Salt Shed: The existing Salt Shed is a metal warehouse that is owned and maintained by VTR. The Salt Shed is approximately 85' wide and 225' long and has the capacity to store about 11,000 tons of salt. Salt typically arrives in the rail yard in covered hoppers and is unloaded from Track 8 into the salt pit and conveyor. The salt conveyor is a steel truss structure that transports the salt from the pit into the Salt Shed. The grade of the Salt Conveyor is steep so it can allow for truck access underneath the conveyor at its highest point. Currently, VTR uses a remote controlled locomotive to maneuver a train set of 60 foot rail cars to the conveyor. The locomotive is able to advance the rail cars, one car length at a time as they are unloaded. Track 8 has sufficient capacity to unload approximately nine 60 foot rail cars. Therefore, in order to completely unload all nine rail cars approximately 1080 feet of clear track is required (approximately 540 feet on either side of the pit). A second conveyor located inside the Salt Shed distributes the material inside the Salt Shed for storage. Salt is also unloaded from the Horn Track (Operation 1) using the conveyor adjacent to the Salt Shed. This is typically done by transferring the salt from the railcars to the conveyor to a truck and then into the Salt Shed. Salt is typically loaded from the Salt Shed into 25 ton trucks from the north end of the Salt Shed with a front-end loader. An area approximately 100' x 100' is utilized at the entrance of the Salt Shed for loading and maneuvering trucks. Upon being loaded, trucks proceed to the Scale (see Operation 3) to be weighed prior to exiting the yard. Salt is handled year round in the

yard, but it is in a higher demand during winter months. Approximately 100,000 tons of salt is handled in the yard annually. During periods of high demand, the Salt Shed's 11,000 ton storage capacity has been exhausted in as little as six days.

3 – Scale: The existing Scale currently consists of an elevated truck scale with paved ramps on both ends for truck access. This operation is mostly used in conjunction with the Salt Shed, but the Scale does not prohibit any trucks with any commodity the ability to access the scale and be weighed on site. The existing scale can accommodate a vehicle approximately 53-feet long.

4 – Stone Loading Area: This is an open area in the yard that accommodates WB-62 vehicles and other equipment used for loading Ballast (Operation 5), Bulk Unloading (Operation 14) and Aggregates (Operation 15) into rail cars. This operation uses 600-foot sections of the Horn Track (Operation 1) at a time and requires an adjacent storage area that is about 100' x 100' in size consisting of both paved asphalt and gravel surfaces. As described above, this area is also used for the operations associated with the Salt Shed (Operation 2).

5 – Ballast Area: This operation consists of the storage and loading of ballast into rail cars along a 600-foot segment of the Horn Track. Ballast is initially brought into the rail yard via trucks (WB-62 vehicle) and stockpiled next to the Horn Track until it can be loaded into a string of open top hopper or ballast cars called a stone train. The transfer and storage area has a capacity of approximately 20,000 tons of ballast. A remote controlled locomotive on the Horn Track (Operation 1) typically moves twelve 50-foot ballast cars for loading from the ground using a front-end loader. The remote controlled locomotive advances the train one car at a time as they are loaded. This requires that 1200 feet of track be clear during loading (600 feet on either side of the loading area). A wash rack, located at the northeast corner of the Salt Shed, rinses the ballast after it is loaded into the cars. The water and debris removed from the ballast material is captured in the debris settling pond located just east of the water rack. VTR not only uses this ballast for its own track maintenance, but it also sells ballast to other railroads. This operation is most heavily utilized between the months of May and October. An average of 200,000 tons of ballast is handled annually, but volumes have reached as high as 300,000 tons.

6 – Type 1 Cement: This operation occurs on the northern end of Track 4 in an area near the northern limits of the rail yard and is designated for a VTR customer to transfer cement from 50-foot covered hopper rail cars to the customer's WB-62 vehicle. A portable blower system is connected to the rail car and the cement is then blown into a truck. A dust collector is also used to cover the truck during the loading process. The existing track can accommodate three rail cars for this operation.

7 – Type 2 Cement: This operation compliments the above Type 1 Cement operation for the same customer. The operation extends from the northern end of Track 6 in the

northern limits of the rail yard. The difference between Type 1 and Type 2 Cement is related to the grade of the cement. VTR's customers frequently require that both types of cement be available concurrently. Type 2 Cement is unloaded by the same process as Type 1 Cement and utilizes the same portable blower system and also requires access for an interstate type tractor trailer. The existing 100-foot track can accommodate two 50 foot covered hopper cars for this operation. VTR also uses this area to unload fly ash, which can be used as a cement additive, using the same portable blower and dust collection systems.

8 – Lumber: This operation consists of the unloading of various types of building materials from two 80-foot rail cars located on either Track 6 or the Horn Track (Operation 1) at the northern end of the yard. Forklift access is required on both sides of the track, as well as close proximity to a covered dock or storage shed, for the unloading and storage of building related commodities such as lumber, plywood, sheetrock, and brick. VTR currently utilizes the Transfer Area (Operation 17) to load directly into trucks or the covered portion of the Public Delivery Dock (Operation 16) for storing materials that require protection from inclement weather until it is loaded onto trucks.

9 – Clay Slurry: Clay slurry is brought into the rail yard via rail in 45-foot tank cars. The existing track (Track 6) has enough capacity to accommodate five tank cars (225-feet) for unloading directly to tanker trucks as needed. An air compressor is attached to the tank car to pressurize the car so the slurry can be off loaded directly from the tank cars into a tanker truck for distribution.

10 – Bulk Unloading: This area is designated for the unloading of freight that may have special handling requirements. This area is maintained obstruction free so that product which has been shipped via rail and requires a crane to transfer the freight to a flat bed truck, there is adequate space immediately next to the track to operate the crane. Also, this area provides the capability to unload freight from a rail car into a tractor trailer that needs to be perpendicular rather than parallel. The portion of the Horn Track and the short spur designated for this operation can accommodate approximately two rail cars (150-feet) with adjacent access.

11 – Cement: The 2006 DSEIS described this location as being programmed as a storage track and unloading area for other customers that require space to transfer cement from rail cars to trucks. Subsequent to the issuance of the 2006 DSEIS, VTR constructed this facility. An approximately 30-foot by 60 foot canopy structure protects this operation from inclement weather. There is also a structure which houses the mechanical equipment needed for this operation. This facility operates in a similar manner as the Type 1 Cement (Operation 6) and Type 2 Cement (Operation 7) sites. Three 50-foot hopper cars are able to be accommodated at this location. Since this operation was recently constructed, it does not appear in the 1999 aerial photographs taken for the project; however, the approximate location of this operation is shown on Figure 3-6.

12 – Calcium Chloride: This operation consists of the bulk storage and/or transfer of liquid calcium chloride. Calcium chloride is typically transported to the rail yard in 40-foot tank cars. The calcium chloride is either pumped from the tank car into the existing storage tanks that are located in the vicinity of the southern end of South Champlain Street or the contents remain in tank cars and are stored on the rail spur in the same vicinity. The existing rail siding that comes off the Industrial Track (Operation 21) can accommodate four 40-foot tank cars for storage. There are also three existing storage tanks next to the track, two above-ground and one underground, each with a capacity of approximately 11,000 gallons. A pumping manifold next to the track is used to pump the calcium chloride either from the rail cars to the storage tanks or from the storage tanks into tanker trucks. The tanker trucks access this area via South Champlain Street and must be able to drive next to the track to be loaded. A water supply is also required in this area since calcium chloride is frequently shipped by rail at higher concentrations than is required for use. Therefore, the calcium chloride is frequently diluted with water at the time it is transferred to the tanker trucks.

13 – Storage Shed: The existing Storage Shed is a 40'x 160'. The one-story metal warehouse structure is located adjacent to Track 8 just south of the Ultramar Energy storage tanks (formerly McIntyre). VTR uses the storage shed to store bagged material, plywood and various other materials. There are currently two spots (120-feet) for loading/unloading railcars at the storage shed. The storage shed also has an overhead door that accommodates a conventional commercial vehicle. Tractor trailers also load/unload at the dock area.

14 – Track Unloading (Bulk/Aggregates): This operation is typically performed using the existing Horn Track (see Operation 1). Typically, VTR unloads 14 open top hopper cars 50 feet long using a remote-controlled locomotive to advance rail cars, one car length at a time as they are unloaded. To completely unload all fourteen rail cars in one continuous move, 1400 feet of clear track is required (700 feet either side of the unloading area). A conveyor under the track unloads aggregates typically including sand, stone, and salt and piles the material in a 40'x 30' storage area adjacent to the stone loading area (Operation 4). This material is then transferred into awaiting WB-62 vehicles.

15 – Aggregates: This is another area designated for a specific customer that stores and ships aggregates and other building materials (see Operation 14). Ten 50-foot rail cars can be unloaded in this area of the yard using the remote control locomotive. This operation also requires an area adjacent to the tracks to store these materials on site and subsequently load them into interstate type tractor trailers for transport off site.

16 – Public Delivery Dock: This operation consists of both a ramp and a loading dock in close proximity to the tracks in order to provide direct access to a rail car. VTR can currently accommodate two 60 foot boxcars on Track 6 and side load/unload at the delivery dock. This operation usually consists of the unloading of box cars into trucks.

The Building Materials (Operation 8), Transfer Area (Operation 17) and trailer-on-flat-car (Operation 22) also use this facility.

17 – Transfer Area: This operation also requires both a ramp and a loading dock in close proximity to the tracks in order to provide direct access to a rail car. VTR can currently accommodate two 60 foot boxcars on Track 6 and side load/unload at the delivery dock. This operation can consist of either unloading box cars into trucks or vice versa. The Building Materials (Operation 8), Public Delivery Dock (Operation 16) and trailer-on-flat-car (Operation 22) also use this facility.

18 – Fuel Pumps: This fuel transfer facility used by Ultramar Energy (formerly McIntyre) includes the equipment necessary to transfer fuel from 65 foot rail tank cars on the north end of Tracks 7 and 8 into large storage tanks adjacent to these tracks. This operation involves the transfer of the fuel from the tanks into tractor trailer tanker trucks and conventional delivery trucks via fuel pumps for local distribution throughout the Burlington area. Currently, there is adequate capacity for a total of eight tank cars between Tracks 7 and 8. VTR handles approximately 1,000 tank cars and 6,000 fuel trucks per year at this facility.

19 – Turntable: The existing turntable is a steel-plate structure that is approximately 85 feet in diameter. It turns on a single rail and is powered by a small engine. A circular concrete retaining wall defines the perimeter of the structure. This turntable was originally constructed in 1927. The turntable provides access for the several bays of the adjacent roundhouse. VTR currently uses the turntable approximately 15-20 times per day to turn various types of railroad equipment.

20– Industrial Track: This track is commonly referred to as the Pine Street Lead and previously provided rail access to the former Specialty Filament facility on the eastern side of Pine Street. Currently, this 2,000-foot track does not provide service to any businesses; however, several businesses adjacent to Pine Street may have rights to the rail spur. The existing Industrial Track comes off the Horn Track and bisects the Curtis Lumber (formerly Gregory Supply) property, crosses the former Burlington Street Department property and proceeds along the western side of Pine Street to the vicinity of Howard Street where it crosses several private driveways. The track currently ends on the western side of Pine Street. As part of the recent redevelopment of the former Specialty Filament property, the portion of the rail spur on the eastern side of Pine Street was removed. Subsequently, in July, 2009, the City of Burlington removed the skewed grade crossing across Pine Street under a separate roadway project.

21 – Trailer-on-Flat-Car (TOFC): This operation is called Trailer-on-Flat-Car, “Piggyback” or “Circus Loading” operation and consists of the loading and unloading of tractor trailers directly onto or off of railroad flat cars. This operation requires that a ramp and loading dock be positioned at the end of a tangent track long enough to

accommodate a sufficient number of the 85-foot flat cars, in this case about five. The trailers are then backed-up onto the flat cars by employees in the yard.

Yard Access and Circulation: Vehicular access to the existing rail yard is only available from the northern side of the rail yard via Battery Street just south of the Battery Street/Maple Street intersection. Currently, this access is unsignalized and the actual separation between the City's right-of-way for Battery Street and the northern edge of the existing rail yard is not well-defined in the field.

No dedicated internal circulation road is needed in the existing rail yard because a significant portion of the northern side of the yard is paved and does not have any physical obstructions inhibiting access or movements by trucks. Concurrent operations are possible because there is adequate room to bypass adjoining operations.

Rail Crossings: Railroad infrastructure is prevalent within the study area. There are approximately 11 existing grade crossings (public and private) along the Southern Connector/Champlain Parkway project. VTR's mainline tracks are located just to the west of the project and there is one rail spur that crosses the alignment common to both Build Alternatives. The existing grade crossing warning systems at Home Avenue and Flynn Avenue would be modified as part of the project. A new grade crossing would be created between Sears Lane and Lakeside Avenue, where the Grocery Spur would intersect the C-2 Section. In July, 2009, the City of Burlington removed the skewed grade crossing across Pine Street under a separate roadway project.

3.2.3 Additional Transportation Services in the Study Area

Existing and planned transportation facilities may have an influence on the Southern Connector/Champlain Parkway. These facilities are discussed in the following sections.

3.2.3.1 Existing Facilities

- **Bus Service:** The City of Burlington is currently served by four types of transit services. These include:
 - Chittenden County Transportation Authority (CCTA) which provides a fixed-route service throughout the City, park-and-ride lot express shuttle service, and a county-wide ridesharing program including operation of the College Street Shuttle for the City of Burlington, and service into neighboring communities;

- Special Services Transportation Agency (SSTA), that provides a demand-response van service within Chittenden County for area human service agencies;
 - Campus Area Transportation Management Association (CATMA), which provides fixed-route service within the University of Vermont Campus; and
 - Vermont Transit, which provide inter-city bus service throughout Vermont and New England.
- **Burlington Bike Path:** Burlington's Waterfront Bike Path is a 7.6 mile recreational route that runs from the southern end of the City of Burlington at Oakledge Park to the northern end at the Winooski River, where it connects via the newly constructed bike path bridge to the Colchester Bike Path. The Bike Path rides along the Lake Champlain shoreline, offering wonderful views of the lake and the Adirondack Mountains to the west. The bike path links six major waterfront parks, along with the Burlington High School and the central Waterfront district. Utilized by an estimated 150,000 bicyclists, walkers, joggers and in-line skaters annually, the Bike Path is among Burlington's most popular amenities. The College Street shuttle is a primary link from the Bike Path to downtown Burlington and the University of Vermont.
 - **Ferry Service:** The Lake Champlain Transportation Company provides ferry service between the City of Burlington and Port Kent, New York during the spring, summer and fall. This service provides an opportunity to decrease vehicle traffic in the City of Burlington. This is especially true for commuters and visitors from the New York side of Lake Champlain whose primary destination is Burlington, or a neighboring community conveniently linked by another form of public transportation.
 - **Park and Ride:** The Downtown Park and Ride Connection (PARC) offers commuters parking in the South End surface lot located between Sears Lane and Lakeside Avenue. A shuttle service between the South End surface lot and Burlington's downtown is provided by CCTA.

3.2.3.2 Planned Facilities

- **Downtown Transit Center:** The City of Burlington and the Community and Economic Development Office (CEDO) are in the conceptual design phase of developing a Downtown Transit Center in the area of Cherry Street and Saint Paul Street. The project consists of a major renovation along Saint Paul Street to include enhanced passenger amenities and services, development of bus staging areas and the creation of an all-weather passenger waiting area. The project

would be designed to enhance the image of the Downtown CCTA transfer point as the gateway to the CCTA system.

The facility would serve as the central point for all transit based and commuting activities in the region. This facility would be multi-faceted and multi-purposed. It would serve as the terminating node of the downtown shuttle systems, and would be ideally suited to serve as a common distribution and consolidation point for both inbound and outbound transit based trips.

- South End Neighborhood Transit Center: The City of Burlington, CATMA and CCTA have partnered to develop the South End Neighborhood Transit Center in the vicinity of the proposed intersection of the Southern Connector/Champlain Parkway and Sears Lane. The goal of the Transit Center is to increase public transit service, remove traffic from neighborhood streets and to provide commuter parking. Construction of the Transit Center is pending completion of the Southern Connector/Champlain Parkway.
- Bicycle/Pedestrian: The CCMPO has developed a Bike/Pedestrian Plan that would be integrated with the Metropolitan Transportation Plan (MTP). On-road bicycle facilities, shared-use paths and sidewalks can provide transportation alternatives to automobile travel. The Bike/Pedestrian Plan contains the bicycle and pedestrian facilities that provide safe, convenient access to Chittenden County's major activity centers.

The CCMPO, working with the City of Burlington and several other area towns, prepared a feasibility study for a proposed 12-mile bicycle/pedestrian path that would connect the Charlotte Railroad Station with the Burlington Bike Path.

- Park and Ride: Park and ride lots along I-89 have proven to be successful transfer points for car and van pools reducing congestion on Burlington's roadways and parking system and improving access to downtown. Various studies have identified sites for park and ride lots throughout Chittenden County that could serve commuters into downtown Burlington and other destinations in the region. These studies have recommended instituting a regional park and ride program with the overall goal of fostering the construction of commuter lots throughout Chittenden County so that dispersed populations can be served by rideshare programs, shuttles, vanpools, buses or other forms of "mass" transportation. The City of Burlington continues to support the development of commuter park and ride lots throughout the region, and continues to promote their implementation at the regional level. Of particular interest is the potential for developing park and ride, or commuter capture lots at the outskirts of the City to reduce congestion in the City street network. Commuters and visitors could leave their cars outside of the City and enter via bicycle or public transportation - bus or rail.

- Passenger Rail: The Chittenden County Metropolitan Planning Organization (CCMPO) and VTrans are currently in the design stages of implementing the Burlington – Essex Rail Project, which would provide commuter train service between the two cities.

In late 2000, the Boston to Montreal route was designated as one of the nation's three new High Speed Rail Corridors by the Federal Railroad Administration (FRA). High Speed Rail Corridors have been established to facilitate planning for future transportation needs which would provide alternative travel modes for specific regions. The High Speed Rail service could reduce growing traffic volumes for I-89. The corridor is proposed to run from Montpelier to Burlington and then St. Albans.

Passenger rail services could provide an important access into Burlington making use of existing infrastructure in the Downtown Waterfront.

3.3 Land Use and Socio-Economics

This section describes land uses and socio-economics in the study area.

3.3.1 Existing Neighborhoods

Burlington's "South End" (which encompasses most of the immediate project area) has seen substantial increases in residential and industrial development in recent years. This area of the City has become increasingly attractive for residential growth given its proximity to downtown and the Lake Champlain waterfront. However, residents are faced more and more with the impacts (most typically noise and truck traffic) resulting from the expansion of industrial uses in close proximity to the residential areas. The competition for limited available real estate for residential and industrial development creates possible conflicts as the City of Burlington looks to attract additional businesses to this area, the largest industrial zone in the city.

The South End area is comprised of several smaller neighborhood areas, identified in Figure 3-7. In general, the neighborhood areas are located along the fringe of the project corridor with the exception of the Flynn Avenue/Home Avenue neighborhood. The older, more established neighborhoods include the King Street/Maple Street neighborhood, the South Park neighborhood, the Lakeside neighborhood, and the Flynn Avenue/Home Avenue neighborhood.

In 1994, a portion of the City of Burlington was designated as an Enterprise Community by the United States Department of Housing and Urban Development, one of 75 nationally. This designated area, known as the Old North End Enterprise Community, begins in the northern limits of the study area (refer to Figure 3-7). The area encompasses the residential neighborhood of the Old North End, the Downtown

Waterfront, the CCD, and the residential neighborhoods south of the CCD, bounded by King Street and Willard Street. This area was defined by its pervasive poverty, high unemployment and general distress. Based on the census data, the Old North End Enterprise Community qualifies for consideration under Executive Order 12898 on Environmental Justice (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations).

The 2000 Census data for the City of Burlington shows that the median household income is \$33,070. The data also shows that approximately 58% of the City's population resides in rental property and that 20% of the City's population lives below the poverty level. Refer to Appendix 6.

3.3.2 Current Land Use

This section describes the current uses in the study area.

3.3.2.1 C-1 Section

The C-1 Section is located at the southern end of the project area and consists of the I-189/Shelburne Street (U.S. Route 7) Interchange to approximately Home Avenue. The C-1 Section was constructed in the late 1980's, with the exception of final pavement overlay, signs, pavement markings, a bike path and landscaping. The C-1 Section, west of Shelburne Street (U.S. Route 7) currently remains unfinished and unopened to traffic.

3.3.2.2 C-2 Section

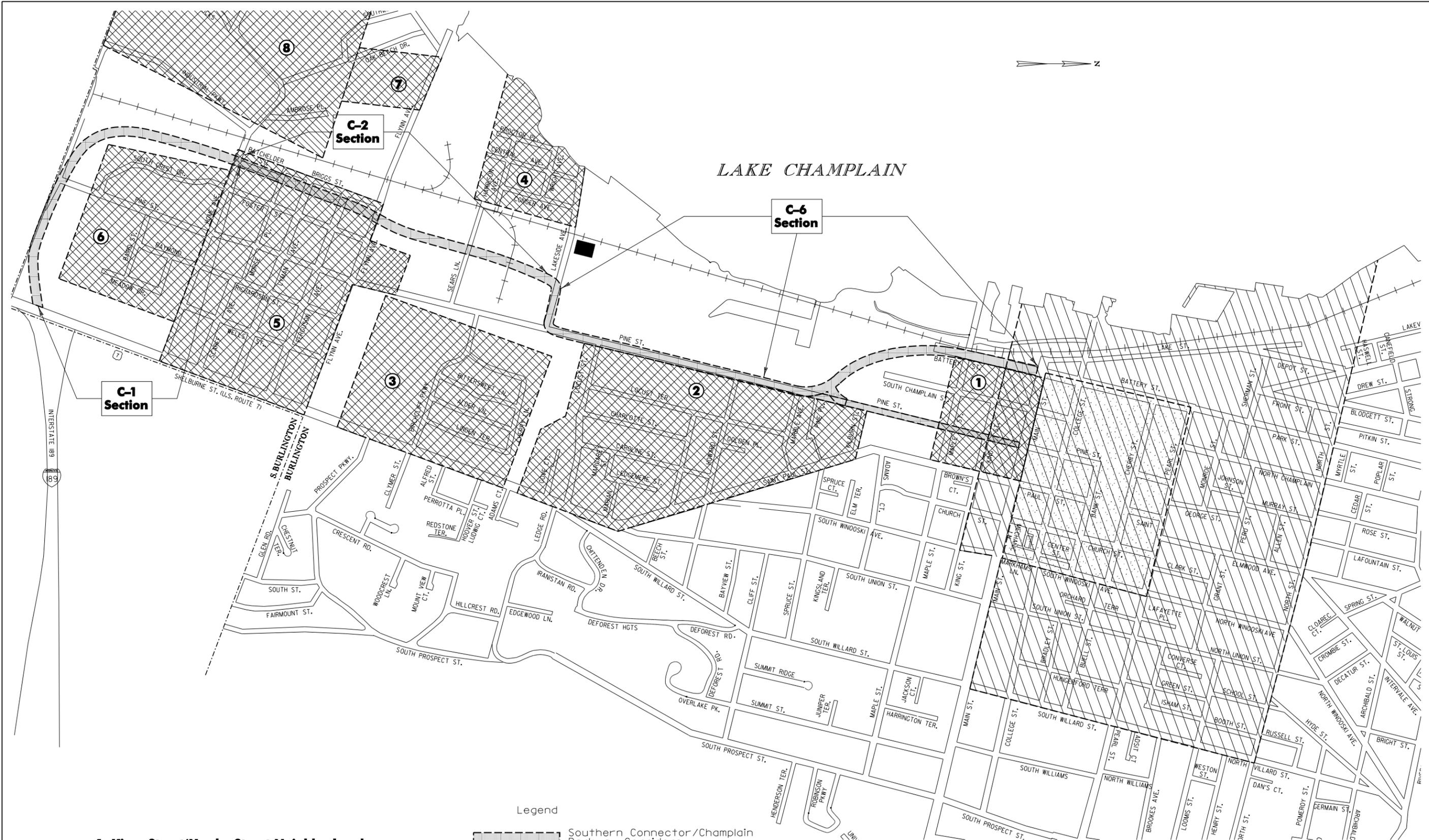
The C-2 Section is located from the terminus of the C-1 Section at Home Avenue and extends northerly to Lakeside Avenue. The C-2 Section is primarily located through vacant land which is owned by the City of Burlington and is adjacent to residential and commercial/industrial areas. The C-2 Section is located within previously acquired right-of-way for the project.

3.3.2.3 C-6 Section

The C-6 Section commences at the terminus of the C-2 Section at Lakeside Avenue and proceeds easterly along Lakeside Avenue to the intersection of Pine Street. The C-6 Section alignment follows Pine Street north to the vicinity of the former Burlington Street Department property.

The Lakeside Avenue portion of the C-6 Section is adjacent to several commercial/industrial businesses, such as Casella Waste Management, the Gilbane

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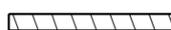


C-1
Section

C-2
Section

C-6
Section

- 1 King Street/Maple Street Neighborhood**
- 2 Calahan (South) Park Neighborhood**
- 3 Birchcliff Parkway Neighborhood**
- 4 Lakeside Neighborhood**
- 5 Flynn Avenue/Home Avenue Neighborhood**
- 6 South Meadows Neighborhood**
- 7 Oakledge Neighborhood**
- 8 Austin Drive Neighborhood**

- Legend
-  Southern Connector/Champlain Parkway Corridors
 -  Neighborhood
 -  Old North End Enterprise Community
 -  Burlington City Center District (CCD)

Scale: 1"=1000'

Southern Connector/Champlain Parkway MEGC-M5000(1)



FIGURE 3-7
EXISTING
NEIGHBORHOOD AREAS

Properties, Cumberland Farms and the City of Burlington Department of Public Works. A residential neighborhood, the Lakeside neighborhood, is located to the west of this portion of the C-6 Section.

In the vicinity of the intersection of Lakeside Avenue and Pine Street, adjacent to the eastern side of Pine Street, is an approximately five-acre recreational area known as Calahan Park (South Park). Calahan Park is higher in elevation than Pine Street and is separated from the roadway by a steep, wooded slope extending along the eastern side of Pine Street.

The Pine Street portion (Lakeside Avenue to Pine Place) of the C-6 Section consists primarily of commercial/industrial buildings; however, the Jackson Terrace residential apartment complex is located on the eastern side of Pine Street just north of Locust Street. This multiple residential use is located within and surrounded by commercial and industrial uses. There are approximately 80-units in this complex, which has approximately 116 private, off-street parking spaces. There are sidewalks in the area along Pine Street with an established green strip and approximately 25 public parking spaces along the eastern side of Pine Street. Some residents of the Jackson Terrace complex use the eastern side of the street for short-term and guest parking. Opposite the apartments on the western side of Pine Street is the Burlington Electric Department (BED) facility. The BED building is separated from Pine Street by a sidewalk and green space area that is composed of grass, shrubs and trees. On the western side of Pine Street, just north of the BED property, is the former site of the Burlington Coal Gasification plant. Land-use restrictions for the BED property and other properties located west of Pine Street are discussed in more detail in Section 3.3.2.3.3 C-6 Section - Land-Use Restrictions.

Continuing north along the Pine Street Corridor is a 900-foot section between the Maltex Building and the former Burlington Street Department building in the vicinity of Pine Place. This section includes the well-developed commercial-manufacturing area from Howard Street to Pine Place. There is a continuous sidewalk and green strip along the eastern side of the Pine Street. On the western side of Pine Street is the rail spur that previously served the former Specialty Filament Company. It runs parallel to the roadway and is offset approximately 20-feet from the existing curblines of Pine Street.

Overhead utilities exist on each side of Pine Street in this area. Beneath Pine Street there are multiple municipal water, sewer and storm drainage pipes, as well as gas and telephone utilities.

There have been few changes in land use along Pine Street between Lakeside Avenue and Pine Place in the period from 1979 to 2006.

Where changes in land use have occurred, it has most often been a shift from manufacturing to retail or office use (industrial to commercial). This type of shift usually results in increased automobile traffic and reduced commercial vehicle movements. Several former manufacturing buildings, including the Maltex Building, are now occupied by multiple small businesses including: retail trade, wholesale trade, office use and small manufacturing. In those buildings where this shift has occurred, there has often been associated construction of new and/or larger parking areas.

Since 1979, there have been a few minor changes along Pine Street. First, the construction of the new City of Burlington Department of Public Works facility on the former St. Johnsbury Trucking Company property. This new facility was constructed as mitigation for the proposed impacts to the former Burlington Street Department building caused by the Southern Connector/Champlain Parkway project. The site is located at the northwest corner of the Pine Street and Lakeside Avenue intersection. Although the property has been redeveloped, the use of this property as the City of Burlington Department of Public Works is similar to the previous use when the property housed the St. Johnsbury Trucking facility. Second, the Cumberland Farms store located on the southwestern corner of this intersection has been redeveloped with a larger and more modern store. Most recently, the former Specialty Filament property located on the eastern side of Pine Street near its intersection with Howard Street has been redeveloped. The site continues to serve as a manufacturing use of the property.

3.3.2.3.1 C-6 Section – Build Alternative 1

Build Alternative 1 commences at the intersection of Pine Street and Pine Place, in the vicinity of the former Burlington Street Department building, and follows a northwest alignment, referred to as the Battery Street Extension, which connects Pine Street with Battery Street at its intersection with Maple Street.

Build Alternative 1 would connect Pine Street with Battery Street at its intersection with Maple Street, refer to Figure 2-12 in Chapter 2. This alternative for the C-6 Section corridor is occupied by portions of the former Burlington Street Department property, Curtis Lumber (formerly Gregory Supply Company), and the VTR facilities.

Build Alternative 1 would proceed north along Battery Street from its intersection with Maple Street to Main Street. Battery Street consists of a mix of retail trade, offices and several restaurants and cafes. Also, the Lake Champlain Transportation Company ferry is located just west of Battery Street on King Street. There are approximately 33 public, on-street parking spaces that are constantly used.

3.3.2.3.2 C-6 Section – Build Alternative 2

Build Alternative 2 also commences at the intersection of Pine Street and Pine Place, in the vicinity of the former Burlington Street Department building, and continues north along Pine Street, refer to Figure 2-13 in Chapter 2. This section includes the densely-developed commercial/manufacturing area from Pine Place to Kilburn Street including Curtis Lumber (formerly Gregory Supply Company) on the western side of Pine Street. Continuing north along Pine Street, the area transitions to a residential area beginning with the Bobbin Mill Apartments on the western side of Pine Street. As Pine Street approaches Maple Street, the area is heavily developed with single and multi-family residential houses. This residential use continues along Pine Street from Maple Street to Main Street. There is a continuous sidewalk and green strip along both sides of Pine Street from Pine Place to Main Street.

Overhead utilities exist on each side of Pine Street in this area. Beneath Pine Street exists multiple municipal water, sewer and storm drainage pipes, as well as gas and telephone utilities.

There have been few changes in land use along Pine Street between Pine Place and Main Street in the period from 1979 to 2006.

3.3.2.3.3 C-6 Section – Land-Use Restrictions

The properties located west of Pine Street, bounded by Lakeside Avenue, Pine Street, Lake Champlain and the rail yard have deed restrictions imposed upon them by the EPA's 1998 Record of Decision for the Pine Street Barge Canal Superfund Site (PSBC ROD). These properties are either located within or adjacent to the Pine Street Barge Canal Superfund Site. Refer to Appendix 10 for figures depicting the boundary of the Pine Street Barge Canal Superfund Site.

Studies conducted under the direction of the EPA since 1988 have examined a 70 to 80-acre area. The EPA's 1998 PSBC ROD defined the Superfund Site as a smaller 38-acre area where contaminants associated with wastes from a manufactured gas plant have been found. The remaining portions of the 70-acre study area are not considered to be part of the Pine Street Barge Canal Superfund Site. Future land use within the Superfund Site and the parcels outside the Superfund Site boundary that have been identified in the 1998 PSBC ROD are subject to legal controls (known as "institutional controls") to limit the potential for unacceptable risk to human health and the environment.

As part of the EPA's selected remedy for the Pine Street Barge Canal Superfund Site, institutional controls were included to ensure protection of human health over the long term. The institutional controls impose certain groundwater use and land use restrictions on the site and on parcels adjoining the site, in order to prevent

unacceptable exposures to contaminants and to prevent further migration of contaminants. The institutional controls were crafted so that they run with the land in perpetuity, and are enforceable by either EPA, the State of Vermont, or other appropriate entities.

The institutional controls include restrictions for parcels of property within the site boundary, as well as certain properties outside the site boundary, where restrictions are necessary to ensure that the on-site remedy remains effective (collectively, the "Properties"). The restrictions include:

- The Properties will not be used for residential use or for children's day care centers;
- Groundwater under the Properties shall not be used for potable drinking water purposes. No production well (e.g. for industrial use) will be installed at any location where free phase contamination has been shown to be present;
- The Properties will not be used so as to interfere with investigations of environmental conditions, or cause recontamination of the Site or contamination of off-site properties following completion of the remedy.
- No construction activities that will change hydrogeologic conditions and that would cause migration of contaminated groundwater to Lake Champlain will be allowed;
- Excavations to depths greater than five feet (including those below the water table) on the Properties will be prohibited unless one or more of the following exceptions apply: (a) the excavation is performed to install, repair, maintain, service or remove underground utility components, conduits, installations or channels, which may presently be in place deeper than five feet and which may be below the water table; (b) drilling, driving or boring to install pilings for otherwise allowable construction is permitted; or, (c) the excavation is performed in a location on the property in which current contaminant concentrations at depths greater than five feet are below 140 mg/kg total PAH. In the case of exceptions (a) and (b), workers conducting the excavations and working in the area must use appropriate personal protective equipment as required by the Occupational Health and Safety Administration or its successor agencies, unless a site-specific risk assessment is performed and its results have been approved by EPA prior to the excavation.

3.3.3 Community and Emergency Services

Community and emergency services within the study area include:

- Baird Center for Children and Families (Pine Street);
- Howard Center for Community Service (Flynn Avenue);
- Champlain Elementary School (Pine Street);
- King Street Youth Center (King Street);
- City of Burlington Fire Department Station 5 on Ferguson Avenue;
- City of Burlington Police Department Substation (located on the first floor of Fire Station 5 on Ferguson Avenue); and
- City of Burlington Department of Public Works facility at the intersection of Lakeside Avenue and Pine Street.

3.3.4 Existing Zoning

The City of Burlington's Municipal Development Plan recognizes the development pressures for more intense use along Pine Street, and proposes that this area remain primarily in manufacturing, warehousing and transportation (i.e. rail, highway and waterfront) activities. In accordance with the current Municipal Development Plan, residential uses shall not be permitted in this area, except for those that currently exist, and retail uses shall be limited to an accessory use role only.

Subsequent to the circulation of the 2006 DSEIS, the City of Burlington modified the zoning districts. This had only minor effects on the districts within the project study area. Most of the project study area is located in the "Enterprise" District. The Enterprise District, shown in Figure 3-8, is intended primarily to accommodate enterprises engaged in the manufacturing, processing, distribution, creating, repairing, renovating, painting, cleaning, or assembling of goods, merchandise, or equipment. This District is also intended to ensure that sufficient land area is appropriately designated within the City to ensure an adequate and diversified economic base that would result in job creation and retention. The waterfront portion of the Enterprise District, formerly known as the Waterfront Enterprise District, was intended to protect existing industrial uses and to provide for their future orderly development and eventual conversion from industrial uses to uses more appropriate to the Burlington waterfront. The waterfront areas have been rezoned as recreation or enterprise districts.

All of the western side of Pine Street, between Lakeside Avenue and Curtis Lumber (formerly the Gregory Supply Company), falls within the Enterprise District. The northern end of Pine Street is either medium density or high density residential. The existing residential areas along the eastern side of Pine Street remain zoned as either medium residential or low density residential, with the remaining areas also zoned as an Enterprise District. The Enterprise District is the City's "industrial" zone. Residential and most retail uses are prohibited in this zone. Retail uses permitted include: restaurants, those uses requiring outdoor storage (except automobile sales), and those stores tied to local manufacturing and wholesale trade. Manufacturing, most office uses, warehousing, recycling facilities and transportation companies and facilities are permitted in this zone, and this is the only zone in the City where many of these uses are permitted.

Current zoning for this area offers little relief for South End residents. Setbacks between residential and industrial zones are small, and use restrictions do little to limit the types of uses that are most likely to generate high volumes of truck traffic. At the same time, zoning has encouraged increased residential development in close proximity to the waterfront in what has traditionally been a predominately industrial area. The result has been the completion of several large residential developments (i.e. Red Rocks, Lake Forest, Ledgewood, Southwind).

3.4 Land Resources

This section describes land resources in the study area.

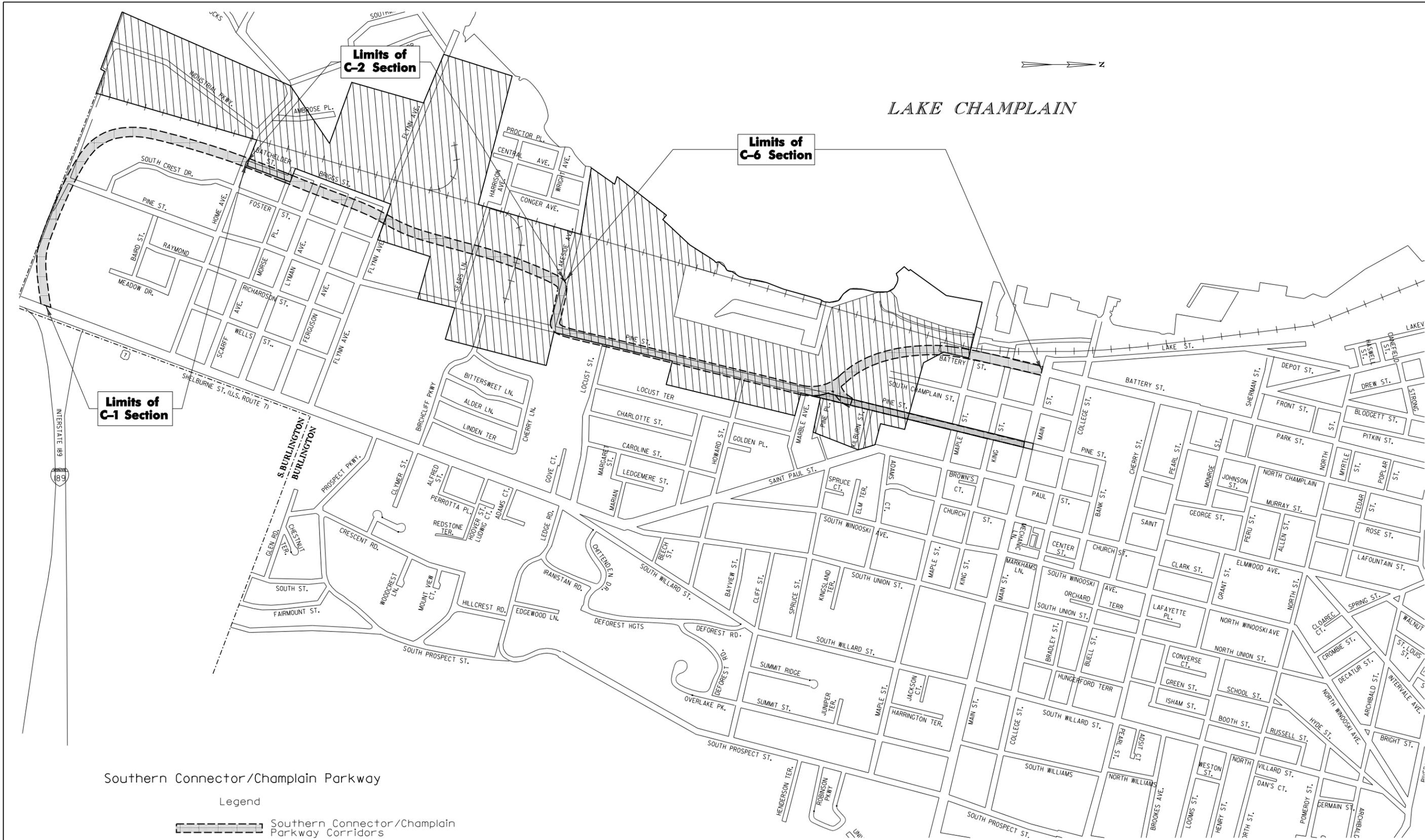
3.4.1 Farmlands and Woodlands

The 1979 FEIS described the historical significance of farming in the development of Chittenden County. The study area, however, has developed into a moderately sized metropolitan area centered on commerce and industry. The current land uses along the study area are residential, commercial, and industrial.

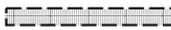
There are no farmland or woodland resources along the proposed Southern Connector/Champlain Parkway.

3.4.2 Earth Resources

The study area is located within the Champlain Lowland. The Champlain Lowland is an area of low relief (elevation 500± NGVD), about 12 to 15 miles wide between Lake Champlain on the west, and the Green Mountains (elevation 3,500± NGVD) on the east. Generally, the area has been subject to severe alluvial erosion, but because of preglacial structural features, topography of the area has not been greatly altered (United States Department of Agriculture, Soil Conservation Service, 1989).



Southern Connector/Champlain Parkway

- Legend
-  Southern Connector/Champlain Parkway Corridors
 -  Approximate Limits of Enterprise Zoning District

Scale: 1"=1000'

Southern Connector/Champlain Parkway MEGC-M5000(1)	
 <small>CHA 11 Winans Circle, PO Box 0200 - Albany, NY 12205-0200 Tel: (518) 485-4800 - www.chacompany.com</small>	<p>FIGURE 3-8 ENTERPRISE ZONING DISTRICT</p>

FILE NAME: H:\A\8659\RP\T\S\FSEIS\Dep\ojys\FIG 3-7.dgn
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The areas of the C-2 Section and C-6 Section have undergone changes due to development in the City of Burlington. Currently this area is mapped, in the Soil Survey of Chittenden County, Vermont, January 1989, as Fu (fill land). Fill land consists of areas where soils have been removed for construction purposes or moved by equipment to reshape the landscape. Fill land material ranges from sand to clay. Areas of fill land are used for buildings, airports, rest areas, parks, parking lots, and highways (United States Department of Agriculture, Soil Conservation Service, 1989). The area of the C-1 Section also consists of fill material used for the construction of the highway in the late 1980's.

3.5 Water Resources

This section describes water resources in the study area.

Water resources include wetlands; surface waters; groundwaters; floodplains; and wild and scenic rivers. These resources are described below:

3.5.1 Wetlands

Wetlands provide many valuable and irreplaceable functions that benefit the public and environment. Some functions and values that wetlands provide include surface and groundwater quality maintenance, flood water storage, fish and wildlife habitat, erosion control, threatened and endangered species habitat, open space and aesthetics, recreation and education. Although every wetland may not serve all functions, each wetland works in combination with other wetlands as part of a complex integrated system. These functions and values are consistent with the wetlands in the study area.

Wetland delineations were conducted in June 2002, June 2003 and May 2004 in the project study area. The delineation of wetland boundaries was conducted in accordance with the procedures provided in the United States Army Corps of Engineers Wetland Delineation Manual (1987). The "Routine Wetland Delineation" method was used based on the characteristics of the project.

Prior to visiting the site, various maps and other sources of background information were reviewed. These included: the United States Geological Survey (USGS) topographic map (Burlington Quadrangle) (1987); the United States Department of Interior, Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) map (Burlington Quadrangle); the Vermont Agency of Natural Resources (ANR) Department of Environmental Conservation, Vermont Significant Wetlands Inventory (VSWI) map (Winooski, South Burlington, Burlington Quadrangle) and the United States Department of Agriculture Soil Conservation Service Soil Survey of Chittenden County, Vermont (January 1989).

The NWI and VSWI maps both indicate the presence of a large palustrine, forested/scrub shrub/open water wetland northwest of the Pine Street/Locust Street intersection which may be connected to a delineated wetland on-site (Wetland G). The NWI map indicates a small palustrine, open water wetland located southwest of the I-189/U.S. Route 7 interchange. This wetland does not appear to be connected to any wetlands on-site. The NWI map labels the section of Potash Brook near the project site as a riverine, upper perennial, open-water permanent stream.

A total of 20 wetlands (Wetlands A, B, C/D, E, F, G, H/I, J, K, L, M, N, O, Y, Z, AA, BB, CC, DD and EE) were identified and delineated within the project limits. As shown in Table 3-4, all wetlands on-site are classified by the ANR as Class III wetlands with the exception of Wetland G, Wetland Y and Wetland DD, which are classified as Class II. The Class III wetlands are low value wetlands and do not provide functions at a significant level. Figure 3-9 illustrates the approximate location of each wetland area in relation to the project study area. These wetlands are described as follows:

Wetland A

This wetland is located on the southern side of Lakeside Avenue, directly opposite the Burlington Department of Public Works building. This area has been significantly disturbed and consists of a small roadside field dominated by herbaceous species common to roadsides and waste places. Dominant species in this wet meadow include common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*). Some rush and sedge species occur within this wetland, but in very low numbers.

According to the United States Department of Agriculture Soil Conservation Service (currently renamed as Natural Resources Conservation Service – NRCS) Soil Survey of Chittenden County, Vermont (January 1989), soils within this area are mapped as Fill land (Fu) soils which have been manipulated for construction purposes. On-site soil sampling was conducted and soils consist of a mix of soils, primarily sand and clay with small rocks and pieces of blacktop throughout the matrix.

Hydric (i.e., wetland) soil characteristics observed include low chroma and a gleyed soil matrix in the A and B horizons, respectively. Secondary indicators of hydric soils observed in the samples included oxidized rhizospheres and a slight sulfidic odor. Areas of standing water were present at the time of the field survey and all soils within the wetland were saturated. This area has been significantly disturbed by development.

Table 3-4: Existing Wetlands - Class and Size

Wetland Area	Vermont Wetland Class	Approx. Wetland Size (acres)
Wetland A	III	0.190
Wetland B	III	0.012
Wetland C/D	III	0.138
Wetland E	III	0.145
Wetland F	III	0.320
Wetland G	II	N/A *
Wetland H/I	III	0.782 **
Wetland J	III	0.005
Wetland K	III	0.010
Wetland L	III	0.056
Wetland M	III	0.010
Wetland N	III	0.080
Wetland O	III	0.306
Wetland Y	II	0.467 ***
Wetland Z	III	0.049
Wetland AA	III	0.009
Wetland BB	III	0.013
Wetland CC	III	0.049
Wetland DD	II	***
Wetland EE	III	0.018

* This wetland was originally delineated in June 2002 and subsequently has been modified by the EPA as part of the Pine Street Barge Canal Superfund Site Remediation Plan. No impacts are anticipated to this wetland.

** Only 0.782 acres (34,065 square feet) of wetland were delineated based on anticipated project limits. Previous estimates presented in the 1997 Final Environmental Impact Statement indicate that this wetland area encompasses approximately 13.3 acres (579,350 square feet).

*** These are part of the approximately 11.5 acre (500,950 square feet) Class II wetland associated with the Pine Street Barge Canal Site. No impacts are anticipated to these wetlands.

Based on coordination with the ACOE in June 2003, it is anticipated that this wetland is not considered a water of the United States under ACOE jurisdiction. A letter was sent in June 2003 requesting a formal determination from the ACOE for this wetland.

Wetlands B and C/D

These wetlands are located on the northern side (Wetland B) and southern side (Wetland C/D) of Home Avenue, east of the Austin Drive intersection with Industrial Parkway. These wetlands are drainage ditches/wetlands and run along the eastern side of the existing railroad tracks. Wetland B is a shallow emergent marsh with cattail (*Typha latifolia*) as the dominant species.

Wetland C/D is a shallow emergent marsh and scrub/shrub wetland with dominant species including black willow (*Salix nigra*), gray dogwood (*Cornus foemina*) and sensitive fern (*Onoclea sensibilis*).

Soils within Wetland B were covered by large cobbles which were placed along the sides of the railroad tracks during construction. The soils of this area were saturated during the time of the field investigation; however, it was difficult to identify the soil types due to the presence of track ballast.

Soils in the areas of Wetlands B and C/D are mapped as the deep and somewhat poorly drained Munson and Raynham silt loam (MyB) soils. These soils are identified by the NRCS Soil Survey for Chittenden County as "Hydric Soils". Hydric soil conditions within Wetland C/D were present and include a gleyed matrix in the A horizon, oxidized rhizospheres and a slight sulfidic odor.

Wetland E

This wetland is located west of Shelburne Street, south of Ramp F of the Southern Connector/Champlain Parkway. This roadside drainage wetland is a monotypic stand of common reed.

Soils within this wetland are mapped as Fill land (Fu).

On-site soil sampling concluded that hydric soil characteristics are present and include a low chroma matrix in the A horizon, a gleyed matrix in the B horizon and secondary indicators including oxidized rhizospheres and a strong sulfidic odor. This entire area was previously altered as a result of construction of the roadways in the area.

Wetland F

This shallow emergent marsh and scrub/shrub wetland is located north of Ramp F, south of Ramp E of the Southern Connector/Champlain Parkway and approximately 300 feet west of Shelburne Street. The majority of this wetland is dominated by common reed and spotted touch-me-not (*Impatiens capensis*) in the herbaceous layer with shrubs and young trees occurring along the wetland/upland edge.

Dominant tree and shrub species include black willow, American elm (*Ulmus americana*), and eastern red cedar (*Juniperus virginiana*). Soils are mapped as Fill land (Fu) and on-site soil sampling showed the same hydric soil characteristics as Wetland E.

Wetland G

Wetland G formerly existed as a shallow emergent marsh and forested wetland located north of Lakeside Avenue, north of the Burlington Department of Public Works building and extended northward. Species dominating the former shallow emergent marsh portion of this wetland were limited to common reed and spotted touch-me-not. The forested portion of this wetland was dominated by black willow, American elm and red maple (*Acer rubrum*) trees in the canopy with herbaceous species including spotted touch-me-not, skunk cabbage (*Symplocarpus foetidus*), rushes, sedges and poison ivy (*Rhus radicans*). Shrubs consisted of saplings of the dominant tree species.

Soils are mapped as Fill land (Fu) and on-site soil sampling concluded that hydric soil characteristics were present and include low chroma and gleyed matrix colors with secondary indicators including oxidized rhizospheres and a strong sulfidic odor.

This wetland appeared to be connected to a palustrine, forested/scrub shrub wetland (the Pine Street Barge Canal Superfund Site), depicted on the NWI and VSWI maps approximately 700 feet north of Wetland G. This VSWI wetland is classified as a Class II wetland by the ANR. These two wetlands appear to be connected by a large culvert. If a connection between the surveyed wetland and the state mapped wetland is deemed present as a result of a Jurisdictional Determination by the ANR, the wetland may be deemed a Class II wetland, and therefore would be subject to state regulations.

Since the June 2002 delineation, this wetland has been graded and leveled under the supervision of the Environmental Protection Agency (EPA) as part of the on-going Pine Street Barge Canal Superfund Site Remediation Plan. None of the natural features that existed at the time of the June 2002 delineation currently exist.

This area continues to be a regulated wetland.

Wetland H/I

Wetland H/I is located within the ravine that contains Englesby Brook, between Flynn Avenue and Sears Lane. Englesby Brook is an urban drainage way oriented east to west which discharges to Lake Champlain. This system extends from approximately 2.2 miles east of the project area to Lake Champlain, and contains wetlands approximately 13-acres in size. The ravine is well-defined by steep slopes on both sides. Wetland areas surround the stream within this ravine and are dominated by herbaceous species including false hellbore (*Veratrum viride*), spotted touch-me-not and sensitive fern. Mature black willow and boxelder trees occur in low numbers throughout this wetland.

Munson and Belgrade silt loam soils (MuD) which consist of the somewhat poorly drained Munson soils and/or the moderately well-drained Belgrade soils are mapped within this area. On-site soil sampling showed hydric conditions occurring in these soils which included mottling combined with low chroma and gleyed matrix colors within the first 12-inches of the soil.

This wetland is classified as a Vermont Class III wetland under state statute, which means that it is not regulated under state law. However, this wetland is defined as a water of the United States under the 1990 Clean Water Act (CWA).

Wetland J

Wetland J is a drainage channel located north of Ramp D originating from a culvert that drains runoff from the C-1 Section of the Southern Connector/Champlain Parkway downslope to Potash Brook. This drainage channel is manmade, has a rock bottom and contains relatively no vegetation.

Wetland K

This wetland occurs on the edge of Potash Brook approximately 450 feet east of the existing Pine Street crossing over the C-1 Section. Vegetation is limited to herbaceous species including stinging nettle (*Urtica dioica*) and spotted touch-me-not. On-site soil sampling showed soils with a low chroma matrix with mottling and secondary indicators including oxidized rhizospheres and saturation within the first 12-inches of the soil. These soils are mapped as the moderately well drained Belgrade and Eldridge soils, 8 to 15 percent slopes (BIC).

Wetlands L, M, N

These wetlands are all monotypic stands of common reed with little to no other vegetation present. Hydrology is primarily a result of surface water runoff from higher-lying roadside areas.

Soils within these wetlands are mapped as Fill land (Fu). On-site soil sampling concluded that hydric soils are present and show hydric soil characteristics including a low chroma and gleyed matrix colors within the first 12-inches.

Secondary indicators are also present and include oxidized rhizospheres and a slight sulfidic odor. These wetlands all occur on steep slopes associated with the low lying areas adjacent to the Southern Connector/Champlain Parkway ramps in the vicinity of the I-189/U.S. Route 7 (Shelburne Street) interchange.

Wetland O

This shallow emergent marsh and scrub/shrub wetland is located between Ramp G of the Southern Connector/Champlain Parkway and Queen City Park Road. Dominant species include common reed and spotted touch-me-not in the herbaceous layer with American elm and eastern red cedar occurring as shrubs and small trees. Soils are mapped as Fill land (Fu).

On-site soil sampling showed hydric conditions within the first 12-inches of the soil surface. Primary and secondary indicators were present and include a low chroma and gleyed soil matrix in the A and B horizons, oxidized rhizospheres and a slight sulfidic odor. This wetland receives runoff from the surrounding roadways as a primary hydrology source.

Wetland Y

This reedgrass/purple loosestrife marsh/forested wetland and scrub/shrub wetland occurs northwest of the BED building, west of Pine Street and appears to be indirectly connected to the palustrine, forested/scrub shrub wetland depicted on the NWI and VSWI maps. Wetland Y is located southeast of the VSWI/NWI wetland and is classified as a Class II wetland by the ANR.

Common reed has taken over and dominates the reedgrass/purple loosestrife marsh portion of this wetland. The forested and scrub/shrub wetland portion is dominated by green ash, black willow (*Salix nigra*) and speckled alder (*Alnus rugosa*) saplings and small trees in the canopy with sensitive fern, soft rush (*Juncus effusus*) and fringed sedge (*Carex crinita*) occurring as the dominant groundcover species.

According to the NRCS Soil Survey of Chittenden County, Vermont (January 1989), soils within this area are mapped as Fill land (Fu) soils which have been manipulated for construction purposes. On-site soil sampling was conducted and soils consist of dark brown sandy soils with small rocks and pieces of blacktop throughout the soil.

Hydric (i.e., wetland) soil characteristics observed include low chroma and a gleyed soil matrix in the O, A and B horizons. Secondary indicators of hydric soils observed in the samples included oxidized rhizospheres and a slight sulfidic odor. Areas of standing water were present at the time of the field survey and all soils within the wetland were saturated. This area has been significantly disturbed by development within the area.

Wetland Z

This shallow emergent marsh/shrub swamp occurs east of Pine Street immediately northeast of the Pine Street intersection with Lakeside Avenue. This wetland acts as a drainage corridor that collects runoff from the higher-lying surrounding areas and diverts the water under Pine Street and away from the wetland via a culvert. Vegetative species include green ash (*Fraxinus pennsylvanica*) saplings and silky dogwood (*Cornus amomum*) shrubs with spotted touch-me-not, water horsetail (*Equisetum fluviatile*), fox sedge (*Carex vulpinoidea*), and cattail (*Typha latifolia*) dominating the herbaceous layer.

Soils within this area are mapped as the deep and poorly drained Scantic silt loam, 0 to 2 percent slopes (ScA) soils which are listed on the Hydric Soils List of Chittenden County. On-site soil sampling was conducted and soils consist of dark brown silt loam soils in the A horizon and gleyed soils after six inches. Secondary hydric soils indicators observed include oxidized rhizospheres and a slight sulfidic odor. Areas of standing water were present at the time of the field survey and all soils within the wetland were saturated. This area may have been significantly disturbed by past development activities associated with the construction of Pine Street.

Wetlands AA – EE:

Wetlands AA, BB, CC, DD, and EE are located within the area associated with the rail yard mitigation site as part of the C-6 Section for Build Alternative 1.

Wetlands AA and BB

Wetlands AA and BB are located along the northwest boundary of the property along a gravel roadway in an area that has been significantly disturbed by past activities. These wetlands are completely dominated by the highly invasive and exotic common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*). No native wetland vegetation was present within these areas at the time of the survey.

Soils within this area are mapped as Fill land (Fu) soils which have been manipulated for construction purposes. On-site soil sampling was conducted and soils consist of a mix of soils, primarily sand and clay with small rocks and pieces of blacktop throughout the matrix.

Hydric (i.e., wetland) soil characteristics observed include a low chroma soil matrix in the A horizon. Secondary indicators of hydric soils observed in the samples included oxidized rhizospheres and a slight sulfidic odor. Areas of standing water were present at the time of the field survey and all soils within the wetlands were saturated. This area has been significantly disturbed by development.

Wetlands CC and EE

Wetlands CC and EE are located in the center of the property in a previously disturbed area. These wetlands consist of ponded areas with depths ranging from approximately 18" (wetland EE) to approximately 36" (wetland CC). Wetland CC appears to have been excavated in the past as a stormwater retention basin.

Vegetation within these wetlands is limited to the shallow areas along the edges and is limited to common reed and purple loosestrife with scattered boxelder (*Acer negundo*) shrubs and saplings. No native wetland vegetation was present within these wetlands at the time of the survey.

Soils within this area are mapped as Fill land (Fu) soils which have been manipulated for construction purposes. On-site soil sampling was conducted and soils consist of a mix of soils, primarily sand and clay with small rocks and pieces of blacktop throughout the matrix.

Hydric (i.e., wetland) soil characteristics observed include gleyed and low chroma soil matrixes in the A horizon. Secondary indicators of hydric soils observed in the samples included oxidized rhizospheres and a slight sulfidic odor. Areas of standing water were present at the time of the field survey and all soils within the wetlands were saturated. This area has been significantly disturbed by development in the past. The wetlands resemble remnant wetland areas that survived past filling activities.

Wetland DD

The northern boundary of the Pine Street Barge Canal was flagged as wetland DD. The northern extent of this lacustrine wetland extends into the southern portion of the property.

This open water habitat had no fringe wetland within the property and was generally contained by steep slopes. The surrounding upland areas have been disturbed by past activities associated with converting the area into its current land use. No

wetland vegetation was present and vegetative species occurring along the adjacent upland areas consisted of species common to disturbed areas of the region. These included boxelder trees, saplings and shrubs, sugar maple (*Acer saccharum*) shrubs and various forbs such as burdock (*Arctium minus*), grasses and common reed.

Soils are mapped as Fill land (Fu). Soil sampling was not conducted in the wetland areas associated with the Barge Canal due to the presence of steep slopes and the lack of fringe wetland.

3.5.2 Surface Waters

The existing surface water resources located within the project corridor include Potash Brook, the “Oakledge Tributary”, Englesby Brook, the Pine Street Barge Canal, and Lake Champlain. The location of each surface water resource is depicted in Figure 3-10. Each of the surface water resources are discussed below:

- **Potash Brook**

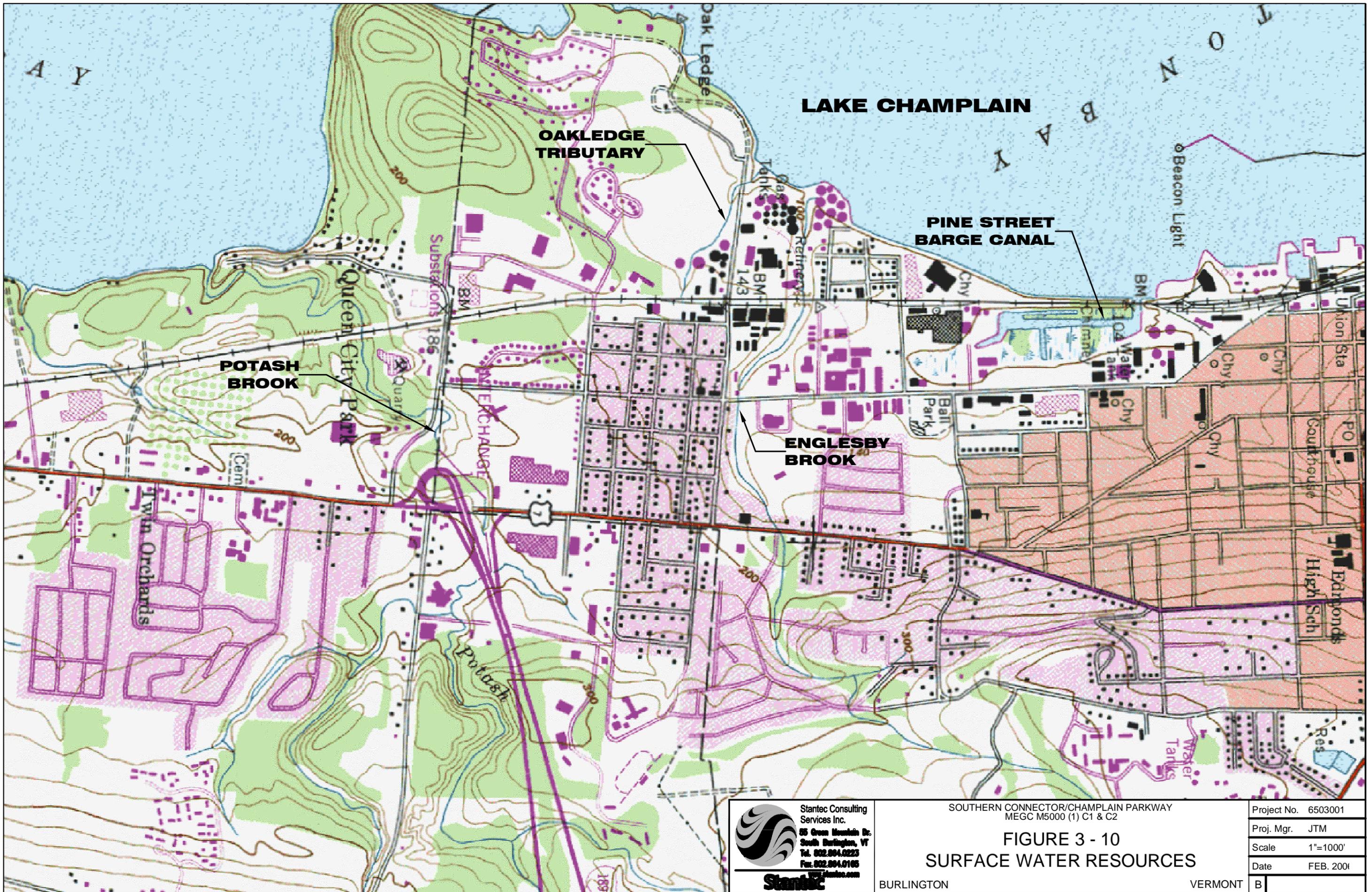
Potash Brook is an urban stream originating along the eastern boundary of the City of South Burlington. Its course runs westerly through the C-1 Section project corridor with discharge into Lake Champlain at Red Rocks Park (formerly Queen City Park). Previously constructed in the mid-1980’s, the C-1 Section crosses over Potash Brook west of Shelburne Street in the City of Burlington.

Potash Brook is classified as impaired by the State of Vermont under the Federal Water Pollution Control Act, Section 303(d) requirements as amended through March 1, 2007. Potash Brook is impaired from the mouth to five miles upstream. This includes the C-1 Section drainage area. Pollutants identified in Potash Brook include stormwater and E. Coli and the identified impaired uses are aquatic life support and contact recreation. Surface water quality problems for the Potash Brook include stormwater runoff, land development and erosion. Periodically, beach closures at Red Rocks beach are required for protection of swimmers.

- **“Oakledge Tributary”**

The “Oakledge Tributary” is an unnamed tributary originating at the western boundary of the C-2 Section of the project corridor. Beginning in the vicinity of Home Avenue, the “Oakledge Tributary” runs westerly terminating with a discharge into Lake Champlain at Blanchard Beach.

The “Oakledge Tributary” is a drainage-way fed from surface runoff and existing closed drainage systems. A portion of the C-1 Section’s watershed area currently drains to the “Oakledge Tributary” via a small detention facility. Surface runoff from watersheds along the C-2 Section between Home Avenue and Lyman Avenue,




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SOUTHERN CONNECTOR/CHAMPLAIN PARKWAY
 MEGC M5000 (1) C1 & C2

FIGURE 3 - 10
SURFACE WATER RESOURCES

BURLINGTON VERMONT

Project No.	6503001
Proj. Mgr.	JTM
Scale	1"=1000'
Date	FEB. 2001
B	

including the South Crest Avenue development, also contribute to the “Oakledge Tributary”. (No specific data is available as to contaminants carried by the “Oakledge Tributary”). Blanchard Beach was previously closed due to high levels of bacteria detected. The beach has been reopened with completion of a watershed restoration plan. It still periodically closes following periods of heavy rain

- **Englesby Brook**

Englesby Brook is an urban stream originating near the University of Vermont’s Redstone campus. Its course runs southwesterly through the C-2 Section project corridor near Flynn Avenue with discharge into Lake Champlain at Blanchard Beach.

Englesby Brook is classified as principally impaired by the State of Vermont under the Federal Water Pollution Control Act, Section 303(d) requirements as amended through March 1, 2007, and can be referenced in Appendix 4 of this document. Englesby Brook is principally impaired due to stormwater runoff for the entire length of the watercourse. Pollutants identified in Englesby Brook include stormwater and E. Coli and the identified impaired uses are aquatic life support and contact recreation. Blanchard Beach was previously closed due to high levels of bacteria detected. The beach has been reopened with completion of a watershed restoration plan. It still periodically closes following periods of heavy rain. The implementation of the restoration plan has not removed the brook from the State of Vermont 303(d) list.

- **Pine Street Barge Canal**

The Pine Street Barge Canal is located west of the C-6 Section project corridors. The 38-acre Pine Street Barge Canal Superfund Site consists of the Pine Street Canal, a turning basin, an adjacent wetland, and an area formerly known as the Maltex Pond. Surface runoff from contributing areas located west of Shelburne Street are conveyed either by overland flow or via the City of Burlington’s existing closed drainage system for discharge into the Pine Street Barge Canal.

In 1983, the United States Environmental Protection Agency (EPA) placed the Pine Street Barge Canal on the National Priorities List (NPL) of hazardous waste sites as a Superfund Site. Contaminants in the groundwater include polycyclic aromatic hydrocarbons (PAH’s) and volatile organic compounds (VOC’s) including benzene, toluene, ethylbenzene and xylenes. Canal sediments are contaminated with PAH’s, VOC’s, and metals. In order to maintain water levels and to prevent erosion of contaminated soils, a weir was constructed in 2001 where the canal empties into Lake Champlain. Portions of the site are seasonally flooded. Recent remediation includes installation of a sand cap over the most contaminated areas and the installation of a sedimentation basin located north of Lakeside Avenue for treatment of stormwater runoff.

Within the project corridors, the C-2 Section north of Sears Lane currently drains to the recently constructed, Pine Street Barge Canal sedimentation basin. The sedimentation basin consists of a sedimentation forebay and a “polishing pond” with discharge over a weir to the Pine Street Barge Canal. Currently, stormwater from the area in the vicinity of the C-2 Section is discharged to the “polishing pond” via a 24” corrugated metal pipe. Runoff from the C-6 Section corridors in the vicinity of the Pine Street and Lakeside Avenue intersection discharges to the sedimentation forebay via an existing 48” corrugated metal pipe outfall.

Along the C-6 Section corridors south of Howard Street, runoff drains to a third outfall. The 42” corrugated metal pipe outfall, which discharges directly to the Pine Street Barge Canal, is located west of Pine Street, behind the Burlington Electric Department facilities.

- **Lake Champlain**

In the project study area, the City of Burlington has a combined sewer system. The following areas are currently served by a combined sewer system that co-mingles sanitary waste and stormwater runoff.

Along the C-2 Section, the City of Burlington’s combined (storm and sanitary waste) sewer currently serves portions of the area adjacent to Batchelder Street, Briggs Street, Morse Place and Ferguson Avenue. Along the C-6 Section corridors, stormwater runoff is collected on Pine Street, north of Howard Street, and is conveyed to the Wastewater Treatment Plant for treatment prior to discharge to Lake Champlain.

Discharge to Lake Champlain of both treated sanitary sewage and collected stormwater runoff is via the Burlington Wastewater Treatment Plant’s outfall. Burlington’s Main Wastewater Treatment Plant and outfall are located at a point southwest of the Maple Street and Battery Street intersection.

The Burlington Bay area of Lake Champlain is classified as impaired by the State of Vermont under the Federal Water Pollution Control Act, Section 303(d) requirements as amended through March 1, 2007. The identified pollutants for Burlington Bay include mercury and PCBs and the identified impaired use is fish consumption. Surface water quality problems for Burlington Bay include elevated levels of mercury in walleye and elevated levels of PCBs in Lake Trout.

3.5.3 Groundwaters

Groundwaters in the State of Vermont are classified as either Class I, II, III, or IV. All groundwaters within the State of Vermont are presumed to be Class III groundwaters unless reclassified. Class III groundwaters are suitable as sources of water for individual domestic water supplies, irrigation, agricultural use, and general industrial and commercial use. Effective May 5, 1993, the groundwater beneath the Pine Street Barge Canal

Superfund Site was reclassified from Class III to Class IV. Class IV groundwater is only suitable for some agricultural, industrial and commercial uses.

3.5.4 Floodplains

The most recent Federal Emergency Management Agency (FEMA) floodway map for Burlington was reviewed for information of flood hazards. The most recent Community Panel (5000320010C), revised January 16, 1987, does not indicate any 100-year floodplains within the study area.

3.5.5 Wild and Scenic Rivers

There are no wild and scenic rivers within the project corridor.

3.6 Vegetation and Wildlife Resources

This section describes vegetation and wildlife resources and threatened and endangered species in the study area.

3.6.1 Vegetation and Wildlife Resources

The vegetation within the project study area consists primarily of upland species typical of urban areas. The area use is primarily commercial or industrial with occasional vacant lots interspersed. The vacant lots contain a mixture of early successional vegetative species including low growing shrubs and herbaceous plants that are common to the area. There are also areas associated with businesses that are landscaped. In some cases, the vacant lots are disturbed and vegetation is sparse. Characteristic trees in these areas are often exotics introduced as fast growing ornamentals tolerant of harsh urban environments.

The proposed alignment common to both Build Alternatives also crosses Englesby Brook which is a small seasonal brook that discharges to Lake Champlain. The brook runs from east to west through a ravine that is well defined by steep slopes on both sides. Vegetation within this area includes eastern cottonwood (*Populus deltoides*), red maple (*Acer Rubrum*), gray birch (*Betula populifolia*), box elder (*Acer negundo*) and black willow (*Salix nigra*) in the overstory. Understory vegetation includes false hellbore (*Veratrum viride*), spotted touch-me-not (*Impatiens capensis*), red-osier dogwood (*Cornus stolonifera*), tatarian honeysuckle (*Lonicera tatarica*), reed canary-grass (*Phalaris arundinacea*), ostrich fern (*Matteuccia struthiopteris*) sensitive fern (*Onoclea sensibilis*), rushes (*Juncus sp.*), and sedges (*Carex sp.*).

The 1979 FEIS contained detailed information on vegetation and wildlife resources for the entire study area. The 1979 FEIS concluded "there is nothing here with the exception of common plants, which are found almost everywhere".

3.6.2 Threatened and Endangered Species

Project coordination was conducted in 2003 to the ANR Vermont Nongame and Natural Heritage Program (NNHP) and the United States Fish and Wildlife Service (USFWS) for information regarding protected species in the vicinity of the proposed Southern Connector/Champlain Parkway (See Appendix 1). The NNHP indicated that “A search of our database reveals no known occurrences of significant natural communities or rare, threatened, or endangered animals or plants along the proposed Southern Connector”. Later, in 2003, NNHP indicated the potential for a State endangered plant species, *Juncus torreyi*, to exist along the project corridor. An NNHP staff botanist surveyed the project corridor and was unable to locate this plant species. According to the USFWS, “Based on information currently available to us, no federally-listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the USFWS are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under Section 7 of the Endangered Species Act is not required.” Project coordination continued with USFWS in 2005. The USFWS confirmed their 2003 findings. Coordination with NNHP continued in 2006. At this time, NNHP indicated that there are rare fish species, Mottled Sculpin (*Cottus bairdi*) and Rosyface Shiner (*Notropis rubellus*), known to exist in Englesby Brook.

Other rare and uncommon species located within the study area, but not along the alignment of either Build Alternative, are Canada Buffaloberry (*Shepherdia Canadensis*) and Border Meadow-rue (*Thalictrum venulosum*).

The Southern Connector/Champlain Parkway is proposed along residential and/or commercial/ industrial areas that do not support any notable populations or species of fish or wildlife.

The 1979 FEIS noted that the Unique or Fragile Area Map of Chittenden County, in the Land Capability Map series published by the Vermont State Planning Office, identifies no area of specific or unusual interest in the project area.

Common wildlife species within the area of Englesby Brook include those typical of residential and/or commercial/industrial environments. Those species would include song birds, small mammals, skunks, raccoons, reptiles, and amphibians.

3.7 Historic and Archaeological Resources

This section describes historic and archaeological resources in the study area.

3.7.1 Overview

The project study area was surveyed to identify the historic structures, districts and/or archaeological sites listed in, or eligible to be listed in, the National Register of Historic Places (National Register). The investigations began as part of the effort to complete the 1977 DEIS. (Note: A survey of individual buildings was completed as part of the 1979 FEIS to identify historic structures which were eligible for inclusion in the National Register of Historic Places. At that time, the former Burlington Street Department Building was not eligible. In 1989, the former Burlington Street Department Building was determined to be eligible for inclusion on the National Register, and there was an identification of the Pine Street Historic District). Evaluation of historic resources located within the study area has continued.

The 1997 FSEIS presented available information on historic and archaeological resources within the project area. The 1997 FSEIS involved agency coordination and a determination of eligibility for inclusion on the National Register of Historic Places was issued by the SHPO, FHWA and VTrans for those resources within the project area. Subsequent to the circulation of the 1997 FSEIS, the following additional research has been conducted:

- A Cultural Resource Evaluation Preliminary Assessment (July 2000) was prepared to provide an assessment of the cultural resource studies which had been completed to date and an estimation of future studies required.
- A Historic Resources Study of the Pine Street Canal Superfund Site (May 2001) was conducted prior to implementation of the EPA's remedial action for the Pine Street Barge Canal. This study identified a number of structures (including sunken barges, boathouse and marine railway remains, drawbridge, cribbing) that are believed to be eligible for the National Register of Historic Places.
- A Cultural Resources Investigation Phase IA Site Identification Study for the C-1 Section (September 2001) was conducted to identify historic resources, potential project induced disturbances and to allow for accurate planning of additional field testing, as required.
- A Cultural Resources Investigation Phase IA Site Identification Study for the C-2 Section (September 2001) was conducted to identify historic resources, potential project induced disturbances and to allow for accurate planning of additional field testing, as required.

- Photodocumentation of Historic Canal Cribwork Identified During the Construction of the Pine Street Canal Weir (November 2001) documents the historic cribbing unearthed during the construction of the weir.
- A Cultural Resources Investigation Phase IA Site Identification Study for the C-6 Section (October 2002) was conducted to identify historic resources, potential project induced disturbances and to allow for accurate planning of additional field testing, as required for Build Alternative 1.
- A Cultural Resources Investigation Phase IA Site Identification Study for the Lakeside Avenue Drainage Outlet (July 2002) was conducted to identify historic resources, potential project induced disturbances and to allow for accurate planning of additional field testing, as required. An addendum to the Phase IA Site Identification Study for the Lakeside Avenue Drainage Outlet (May 2003) was also prepared to identify modifications to the project as a result of adjacent development.
- A Cultural Resources Investigation Phase IB Site Identification Study for the C-1 Section and C-2 Section (April 2002) was conducted to identify archaeological resources in the project area. An addendum to the Phase IB Site Identification Study for the C-1 Section Shared-Use Path (May 2003) was also prepared to identify modifications to the project as a result of development adjacent to the project corridor.
- Several Cultural Resources Investigations were conducted by the University of Maine at Farmington including Phase IA, Phase IB, and Phase II studies on the C-6 Section for Build Alternative 1, the Mobil Wye, and Lakeside Avenue Drainage between 1996 and 1998. In conclusion, these studies identified a total of five historic archaeological sites (VT-CH-732, VT-CH-733, VT-CH-734, VT-CH-735 & VT-CH-736), and only one, the Rutland and Burlington Rail Site (VT-CH-736), was recommend to the National Register of Historic Places. It consists of the earliest railroad roundtable and engine house in Burlington dating to 1851-1917 and is preserved under fill in the existing rail yard today. It is approximately located 115-feet north of the existing salt shed and about 50-feet east of a weight scale and diesel fuel pumps which may be in the impact area of this project.
- An Archaeological Resource Assessment was conducted by the University of Maine at Farmington (May 2004) to identify archaeological resources in the area designated for potential rail yard mitigation.
- VTrans' Historic Preservation Officer assessed the C-6 Section for Build Alternative 2 for historic resources (November 2005).

A more detailed explanation of the historic and archaeological resources is presented below.

3.7.2 Historic Structures and Districts

A report has been prepared documenting the Historic Districts, including photographs, the history of the area, and an evaluation of the eligibility of the Pine Street and Queen City Cotton Mill Districts. The SHPO, VTrans and FHWA have determined that these two Districts are eligible to be listed in the National Register of Historic Places. A summary of the Cultural Resource Surveys completed for the Southern Connector/Champlain Parkway project has also been completed (Refer to Appendix 5).

A summary of the existing and eligible Historic Districts in the area are listed below:

- National Register Listed Historic Districts (refer to Figure 3-11):
 - Battery Street Historic District
 - Lakeside Historic District

- National Register Eligible Historic Districts (refer to Figure 3-11):
 - Pine Street Historic District
 - Queen City Cotton Mill Historic District

3.7.2.1 Battery Street Historic District

This National Register District, formerly called the Battery Street Neighborhood Historic District, and renamed by the National Park Service, was approved for listing in the National Register on November 2, 1977. This District embodies Burlington's earliest settlement which evolved from 1790 to the present. The District was extended on June 28, 1984, to include 126 structures dating from the 19th and early 20th century structures in the residential area known as the "South End". The architecture of the majority of these buildings has not been substantially altered, thus the period of historic, social and economic development is well represented in the area. The street network and water-related transportation facilities are essentially unchanged in location.

The southern boundary of the Battery Street Historic District is shown on Figure 3-12, as points B through L. Buildings within the boundaries at this location are predominately industrial and commercial, facing onto Maple Street from Battery Street to South Champlain Street. The Bobbin Mill located at 235 Pine Street bordering Champlain Street is a dominant feature in this Historic District and is located on the

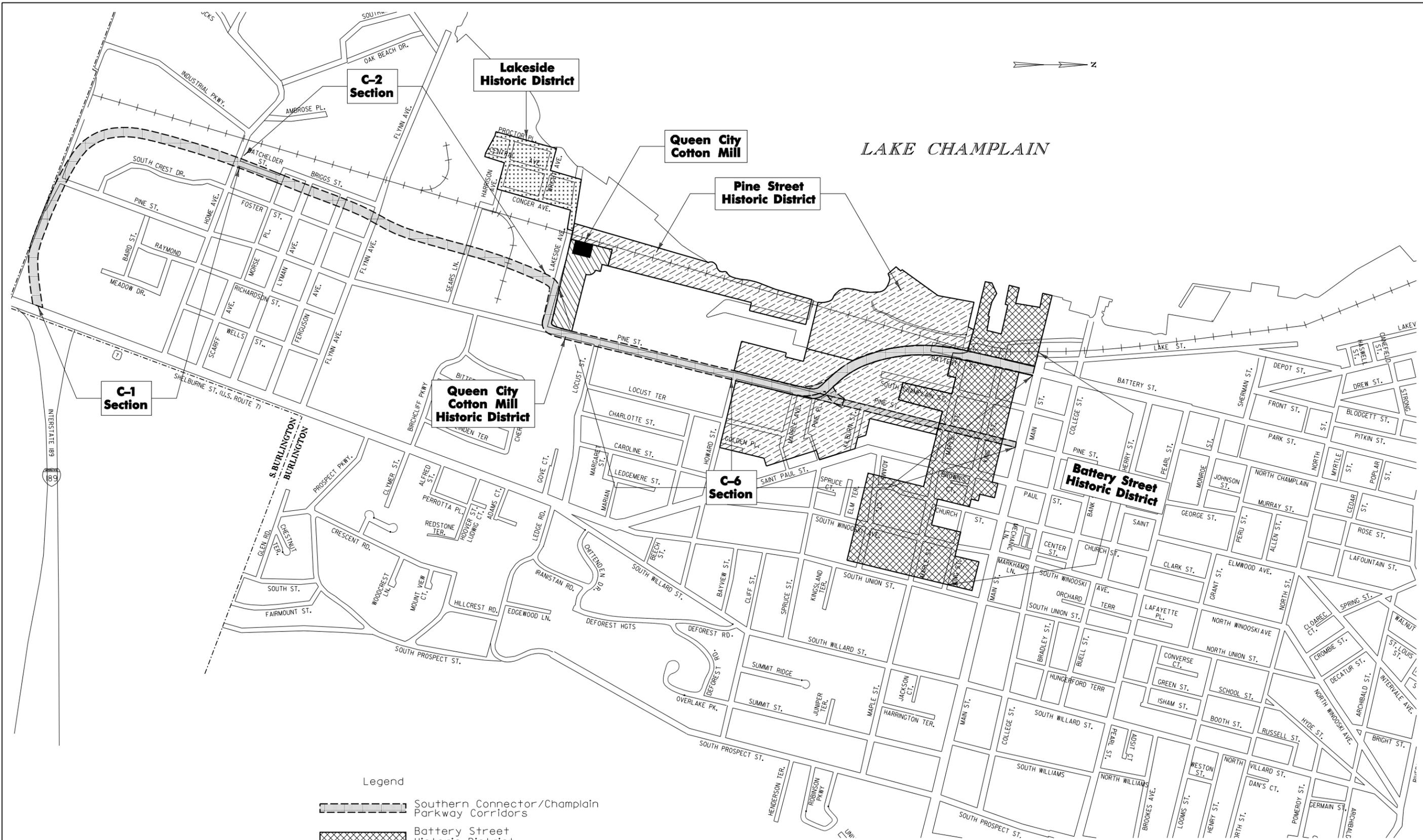
border between the Battery Street Historic District and the Pine Street Historic District (Figure 3-12, Building 125).

A summary of the existing and eligible historic properties in the area are listed below:

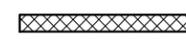
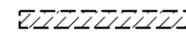
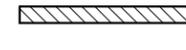
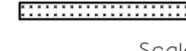
- National Register Eligible Contributing Structures Within the Battery Street Historic District
 - 39 Maple Street (Atkinson)
 - 47 Maple Street (Holbrook Grocery Co.)
 - 57 Maple Street (Blodgett Co.)
 - 234 South Champlain Street (Vermont Spool and Bobbin Mill)
 - 75 Maple Street (Arbuckle Building)
 - 81 Maple Street (Triarch, Inc.)
 - 89 Maple Street (Hunt)
 - 93 Maple Street (Hunt)
 - 103 Maple Street (Robin DM Enterprises)

3.7.2.2 The Pine Street Historic District

This Historic District comprises an area along the Pine Street corridor that historically was defined by the lumber industry in Burlington from the end of the Civil War to around 1900, when Burlington ranked third in the nation for lumber production (refer to Figure 3-13). After the Civil War, commercial activity shifted somewhat from the busy corner by South Wharf at Maple Street and Battery Street, to the rail yards, canal basin and lumber yards in the newly emerging corridor along Pine Street, south of Maple Street to Howard Street. Planing mills, bobbin mills, a venetian blind factory, and a furniture factory were all established along Pine Street during the late 19th century. After the turn of the century, and the downturn of the lumber industry, new businesses took over existing lumber yards and mills, and other establishments such as Malted Cereals and Whiting Brush; and the residential streets opened and housing emerged generally following the patterns of industrial development from north to south along Pine Street. From the 1870s, housing for employees was developed along Pine Place, Marble Avenue, and Howard Street as well as Hayward's Plan, an early development between Marble Avenue and Howard Street.



Legend

-  Southern Connector/Champlain Parkway Corridors
-  Battery Street Historic District
-  Pine Street Historic District
-  Queen City Cotton Mill Historic District
-  Lakeside Historic District

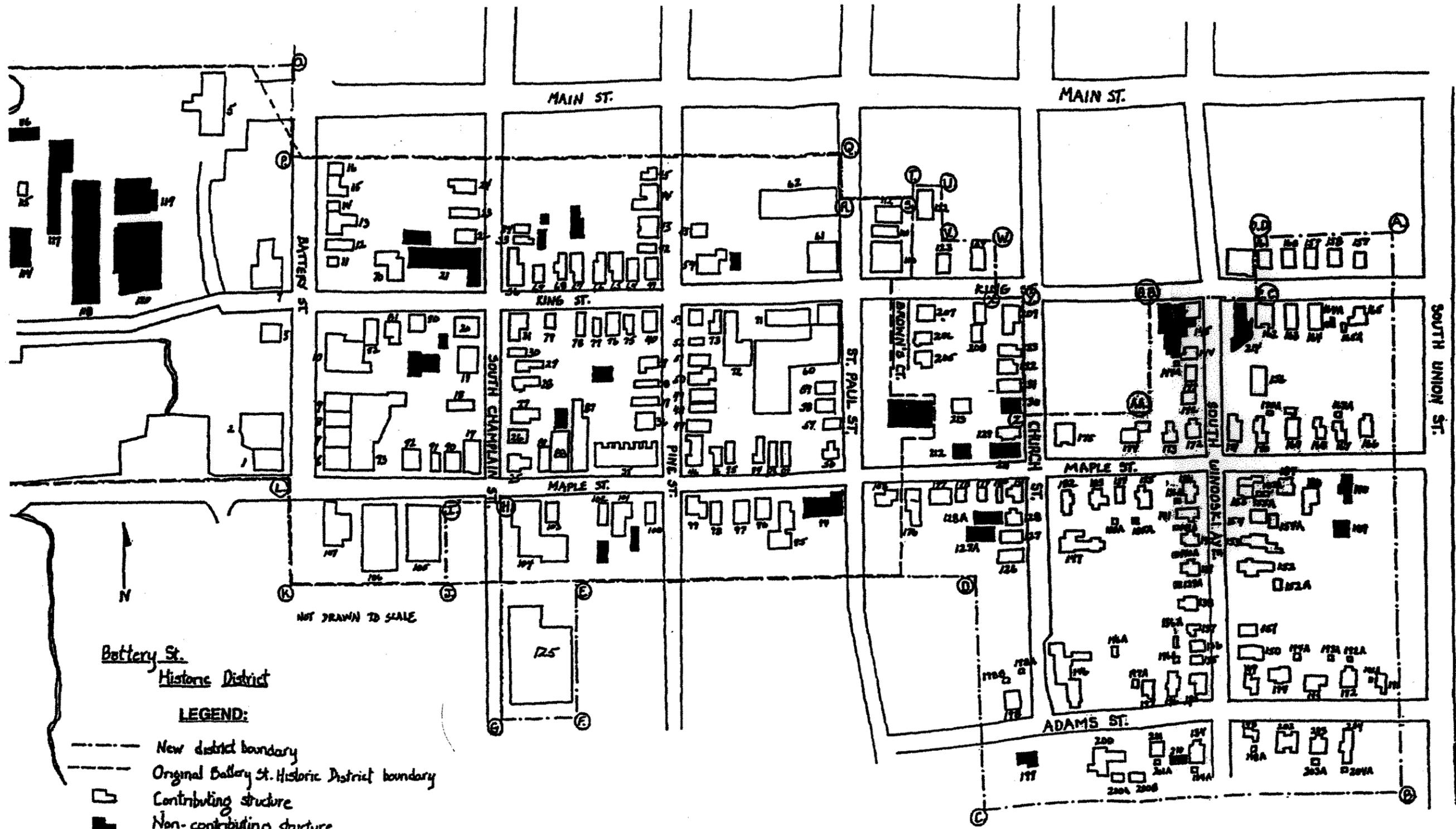
Scale: 1"=1000'

Southern Connector/Champlain Parkway MEGC-M5000(1)



FIGURE 3-II
HISTORIC DISTRICTS

FILE NAME = U:\1565\9\BRTS\FSEIS\Display\FIG 3-8.dgn
DATE = 1/27/2009
USER = 1932



Battery St.
Historic District

LEGEND:

- New district boundary
- - - Original Battery St. Historic District boundary
- Contributing structure
- Non-contributing structure

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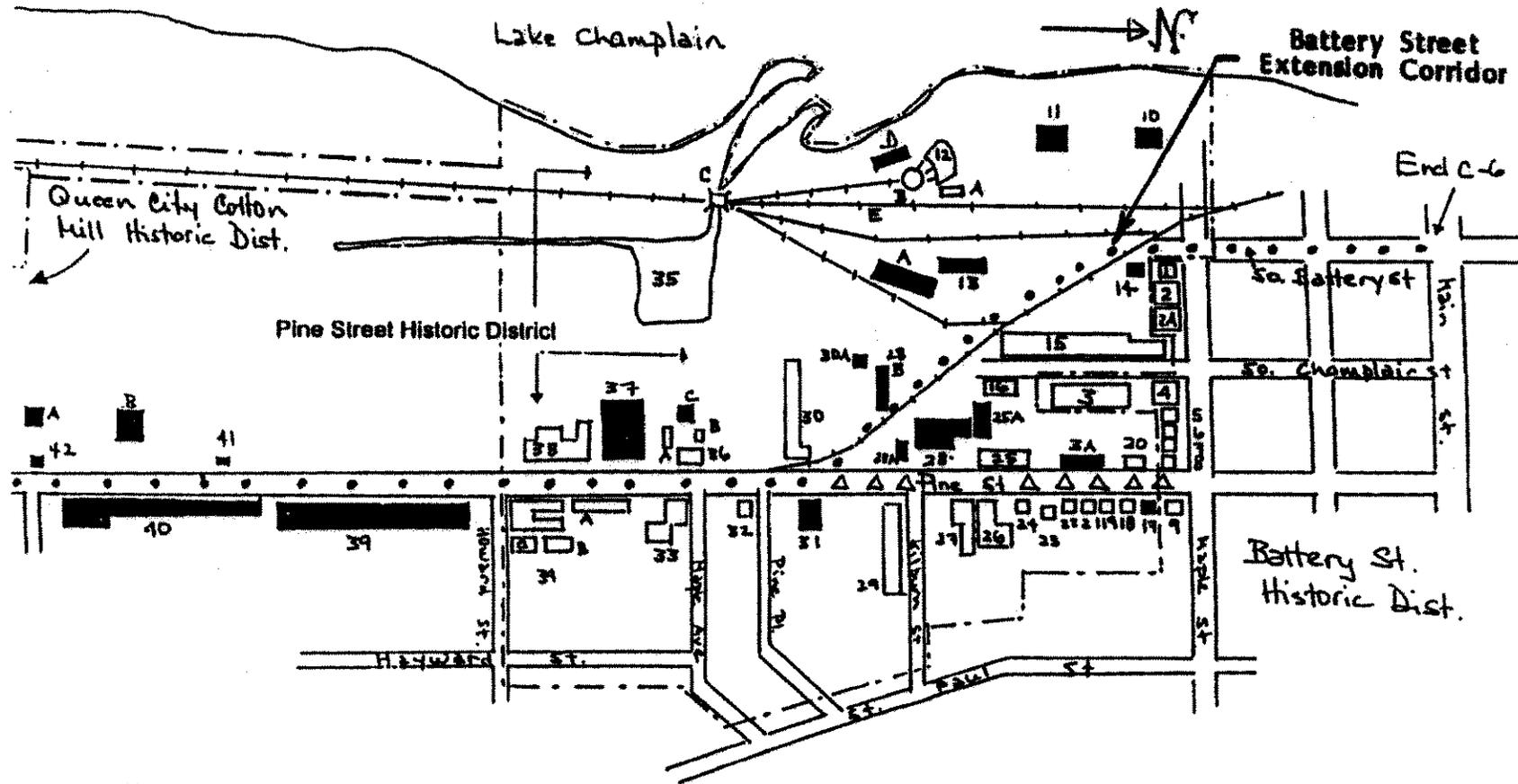


FIGURE 3-12
BATTERY STREET HISTORIC DISTRICT

The boundaries of the Pine Street Historic District are largely defined by the area that prospered after the Civil War to around 1900. The northern boundary is coterminous with the southern boundary of the Battery Street Historic District; the western boundary is Lake Champlain; the southern boundary is coterminous with the southern property lines of the Maltex Partnership and the Canal Basin, and the properties along the south side of Howard Street, to the intersection with Locust Terrace (formerly Hayward Street). The District includes the rail lines south to Lakeside Avenue. The eastern boundary is defined by the properties that front the east side of Pine Street, as far south as Howard Street, extending to the east along both sides of Kilburn Street, Pine Place, and Marble Avenue to St. Paul Street; Locust Terrace (formerly Hayward Street), between Marble Avenue and Howard Street is also included in the District (Figure 3-13).

A summary of the existing and eligible historic properties in the area are listed below:

- Eligible Contributing Structures Within the Pine Street Historic District
 - LaValley Street, Rutland Railroad/State of Vermont and VTR Roundhouse
 - 237-241 South Champlain Street (Champlain Valley Fruit Co.)
 - 266 South Champlain Street (Nabisco)
 - 218 Pine Street (Beloit)
 - 220 Pine Street (Garrecht)
 - 219-221 Pine Street (Burlington Community Land Trust)
 - 230 Pine Street (Gero)
 - 234 Pine Street (Gero)
 - 240 Pine Street (Santo)
 - 257-277 Pine Street (Bullocks Standard Steam Laundry)



Key

C-6 Alignment Corridors
 (BUILD ALT. 1)
 - - - - - (BUILD ALT. 2)

Historic District Boundary
 - - - - -

Contributing Structure
 [White Box]

Non-Contributing Structure
 [Black Box]

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**FIGURE 3-13
PINE STREET HISTORIC DISTRICT**

- 270 Pine Street (Burlington Venetian Blind Co.)
- 308-310 Pine Street (Kilburn and Gates)
- 339 Pine Street (former Burlington Street Department)
- 1 Pine Place (Strong)
- 7 Marble Avenue (Welsh Brothers Maple Co.)
- 364 Pine Street (Whiting Co.)
- Pine Street Barge Canal Basin
- 377 Pine Street (Citizens Coal Co.)
- 431 Pine Street (Maltex Partnership)

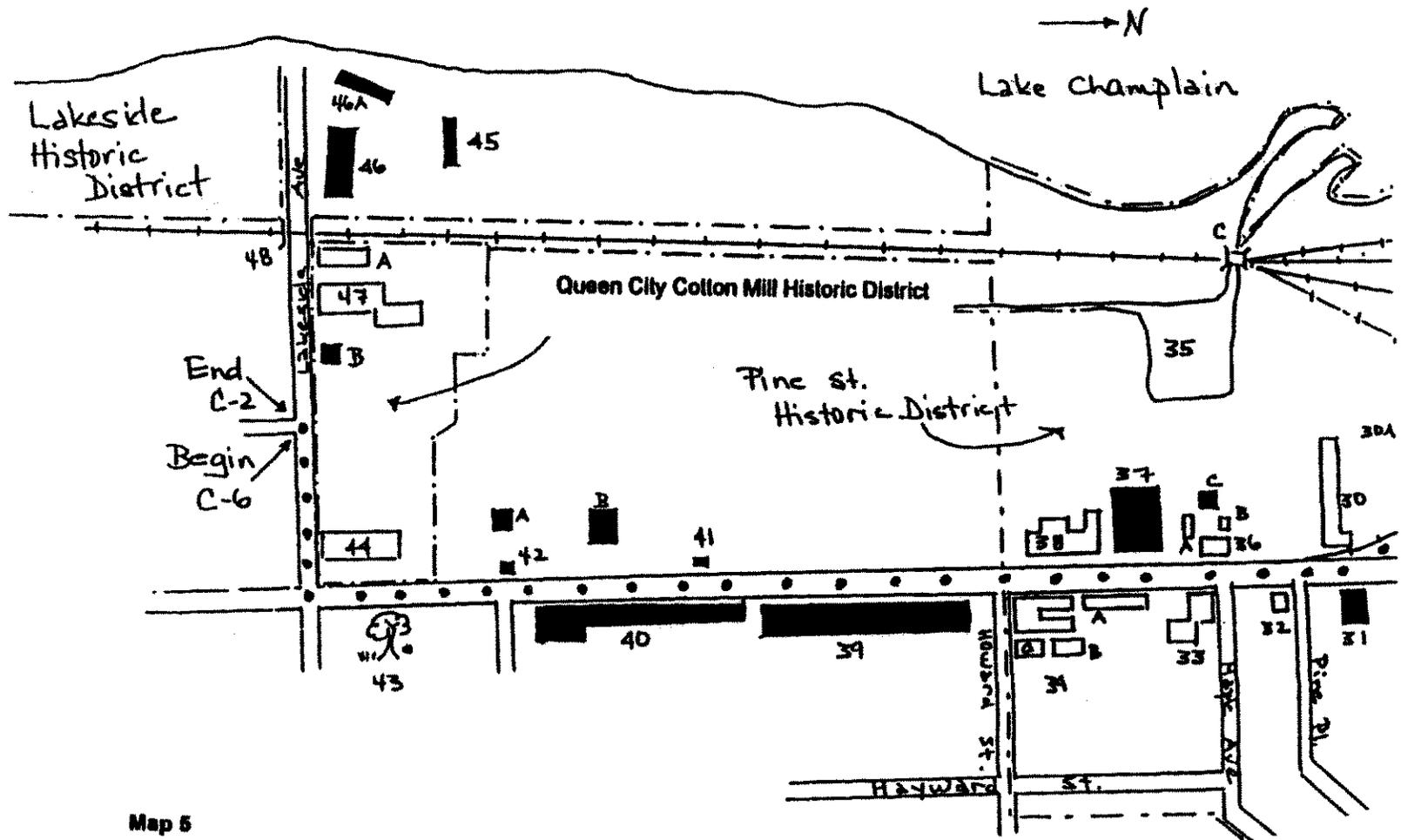
3.7.2.3 Queen City Cotton Mill Historic District

As developers continued to be lured by the open land and new opportunities further south along Pine Street, Lakeside Avenue opened around the time the Queen City Cotton Mill was built in 1894 (refer to Figure 3-14). The Queen City Cotton Mill (currently Gilbane Properties) and a related property, the concrete bridge built by the Rutland Railroad in 1909 crossing Lakeside Avenue are eligible as contributing structures to the Queen City Cotton Mill Historic District. These resources date from the end of the 19th to the mid-20th century, when Lakeside Avenue was an active industrial center, focused around the Queen City Cotton Mill.

The Queen City Cotton Mill Historic District is bounded on the west by the right-of-way for VTR on the north by the northern property lines of the Gilbane property and City Public Works; on the east by the eastern property line of the City of Burlington Department of Public Works property (former St. Johnsbury Trucking property) and the western side of Pine Street; and on the south by the northern side of Lakeside Avenue (refer to Figure 3-14).

A summary of the existing and eligible historic properties in the area are listed below:

- Eligible Contributing Structures Within the Queen City Cotton Mill Historic District
 - 128 Lakeside Avenue (Queen City Cotton Mill)
 - Railroad bridge over Lakeside Avenue



Map 5

Queen City Cotton Mill Historic District

Key

C-6 Alignment Corridor

Historic District Boundary - - - - -

Contributing Structure 

Non-Contributing Structure 

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FIGURE 3-14
QUEEN CITY COTTON MILL HISTORIC DISTRICT

3.7.2.4 Lakeside Historic District

This District was entered on the National Register on May 6, 1982. The Lakeside District was constructed, managed and maintained by the Queen City Cotton company (site 47) for its employees. Begun in 1894, and originally known as the Lakeside Development, it is the only industrial housing development of its type in Burlington. Historic resources in the project area include industrial, commercial, railroad, residential, and municipal structures (refer to Figure 3-15).

- Eligible Contributing Structures Within the Lakeside Historic District
 - The eligible contributing structures within the Lakeside Historic District include most structures within the District. Due to the number of structures, they are not listed below, but are indicated as numbered buildings on Figure 3-15.

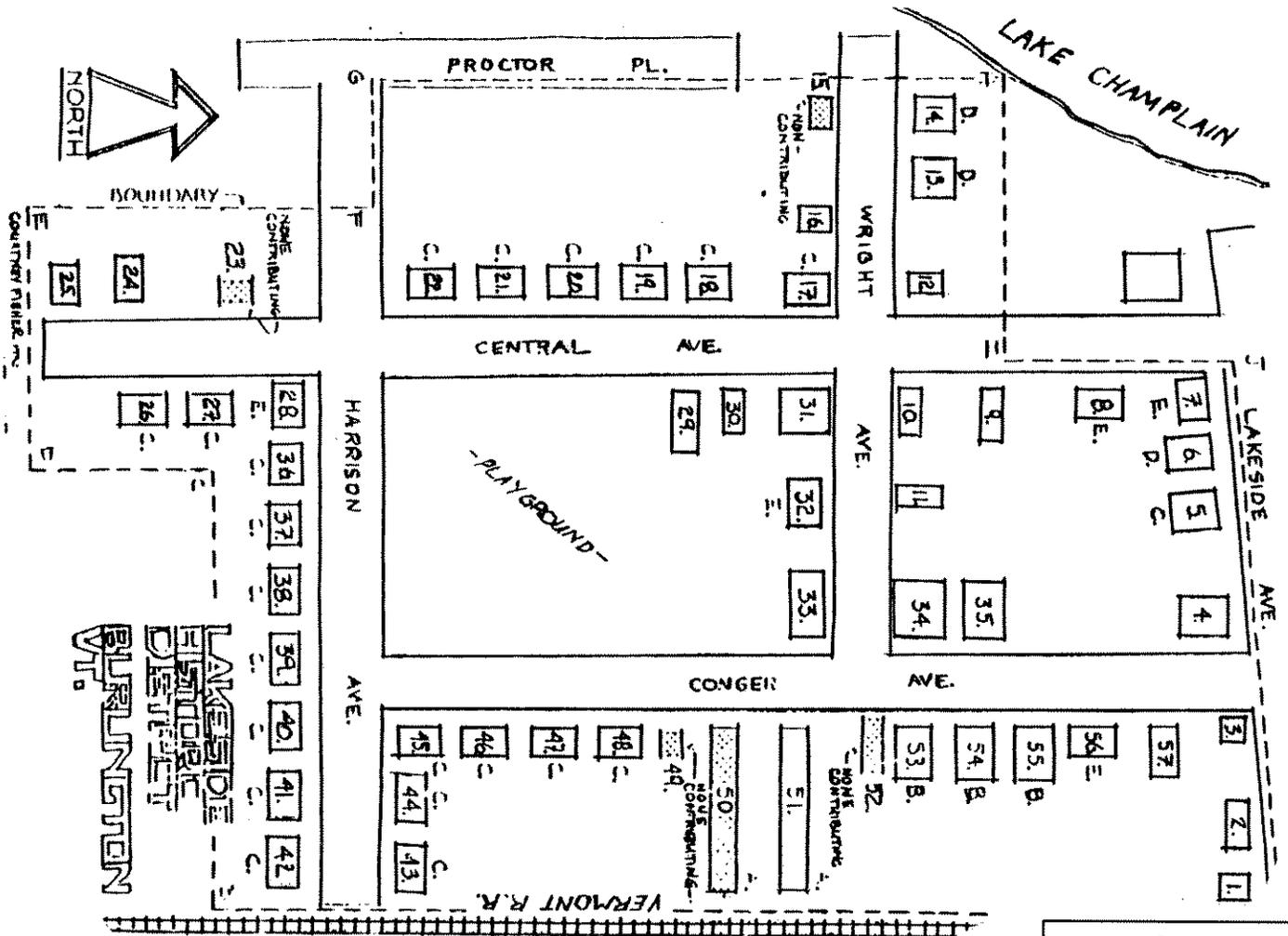
3.7.2.5 Individual Structures

Two additional structures within the study area are eligible for the National Register of Historic Places, but are not located within a historic district (refer to Figure 3-16).

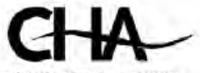
- Eligible Structures
 - 100 Main Street (Champlain Motor Company Showroom)
 - 101 Main Street (Opry)

The Champlain Motor Company Showroom is located in the northeastern corner of the Pine Street and Main Street intersection. This structure is a 20th century commercial style two-story structure. This building was one of the first structures in the City of Burlington built expressly to handle the new and lucrative automobile trade of the 1920's. It is part of a complex of buildings known as the Wells-Richardson Complex.

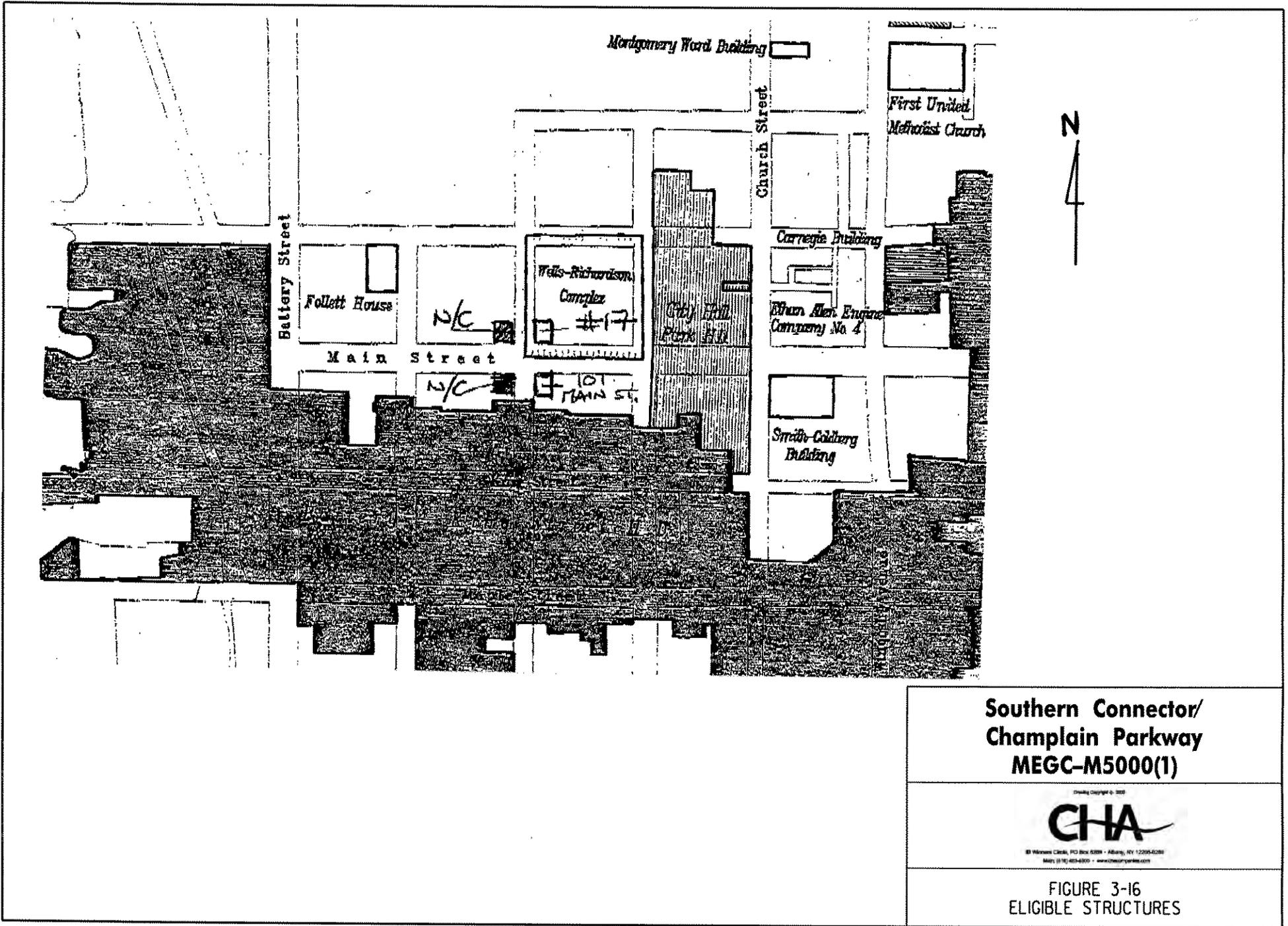
The Opry is located in the southeastern corner of the Pine Street and Main Street intersection. This two-story stone building constructed in 1904 was originally an armory.



**Southern Connector/
Champlain Parkway
MEGC-M5000(1)**



**FIGURE 3-15
LAKESIDE HISTORIC DISTRICT**



**Southern Connector/
Champlain Parkway
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Map (312) 404-6000 - www.cha.com

**FIGURE 3-16
ELIGIBLE STRUCTURES**

3.7.3 Archaeological Resources

Archaeological investigations within the study area have been comprised of detailed research on the prehistoric and historic settlement patterns in the area. Research efforts include the entire project corridor from the C-1 Section to the CCD. The area is highly industrialized, and has been for at least 150 years. A hazardous waste Superfund Site has been documented in and surrounding the Pine Street Barge Canal Basin and slips. Therefore, archaeological test excavations at this site have been limited due to the potential presence of hazardous waste, and the risks associated with the waste. Archaeological testing continues to proceed in concert with the hazardous waste study.

Historic research and excavations in other parts of Burlington and Lake Champlain have identified a number of historic episodes of filling in swamp and marsh areas to provide for better access for shipping and use of the lake. The shoreline is assumed to have been at several different locations (from east to west) since Burlington was first settled. There is a possibility that prehistoric sites and historic sites may be buried under fill in the area between Pine Street and Battery Street (i.e., along the proposed Battery Street Extension corridor, refer to Figure 3-13).

Historical research has been conducted for the area comprising the various alternatives for the project site. This research included a review of numerous historic maps and other research reports pertinent to the area of the alternatives described in this 2009 FSEIS. Information about the location of past structures/facilities and current structures/facilities has been placed on a base map and each of the alternatives has been plotted separately. Each of the alternatives has been evaluated as to their degree of archaeological sensitivity for prehistoric and historic resources. Factors that influence the archaeological sensitivity of any given alternative include the estimated degree of past disturbance, the proximity to the buried Pine Street Barge Canal Basin and slips associated with this feature, and areas within the rail yards that contained railroad structures, such as the abandoned round house and turntable which was destroyed by fire.

The archaeological survey work conducted to date has indicated that various portions of the Southern Connector/Champlain Parkway project alternatives are in locations that may contain prehistoric Native American and historic Euro-american archaeological sites. This is particularly the case for the proposed Battery Street Extension corridor.

The project site is a complex area in terms of its known or suspected cultural resources. The entire area is sensitive for prehistoric Native American sites, given its proximity to the original shorelines for Lake Champlain. Thus, the project alternatives are not differentiated on this basis.

A substantial number of historic structures and facilities (such as railroad tracks, barge slips, etc.) have been built in the Battery Street area over the past 200 years or so. Many of these have been replaced by newer structures and facilities, likely disrupting the remnants of previous structures/facilities. However, it cannot be assumed that all traces of former structures and facilities were effaced by later development. In some cases, such traces may have been merely buried and/or filled prior to new construction.

3.8 Air Quality

The State of Vermont is categorized as an attainment area for all of the United States Environmental Protection Agency (EPA) criteria pollutants (total suspended particulates, carbon monoxide, sulfur dioxide, nitrogen oxides, ozone and lead).

In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), EPA also regulates a group of emissions called “air toxics”. The Clean Air Act identified 188 air toxics, also known as “hazardous air pollutants”. The EPA has assessed this expansive list of toxics and selected a group of 21 that it considers mobile source air toxics. More recently, the EPA has extracted a subset of this list of 21 and developed what it now labels the six priority Mobile Source Air Toxics (MSATs). These are *benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene*. While EPA has identified these as the more significant MSATs, the EPA has not proposed to establish ambient standards for any of these pollutants.

3.9 Noise Environment

Noise is defined as unwanted or excessive sound which interferes with normal activities such as sleep, work or recreation. The noise analysis evaluated highway noise according to VTrans’ guidelines and procedures in order to determine the existing sound levels within the study area.

VTrans has issued guidelines and procedures for the analysis of traffic noise, based on procedures developed by the FHWA for evaluating noise impacts from highway projects in new locations or from highway projects which substantially change an existing highway’s geometric design. The FHWA highway traffic noise and construction noise procedures are documented in the Code of Federal Regulations, 23 CFR part 772. These procedures are designed to protect public health and welfare by establishing a noise abatement criteria and a uniform method of impact determination. The procedures require that the noise analysis identify locations which are impacted by sound levels from the highway project and evaluate the potential for noise abatement measures.

The noise environment throughout the City of Burlington is typical of an urban setting. Contributing noise sources throughout the City include automobiles, trucks, and light industry, among other sources. Typical noise receptors within the project area include residential neighborhoods adjacent to the project corridor and Calahan Park (South Park). The ambient noise levels along the project corridor range from 53 – 67 decibels (additional information is provided in Section 4.9)

3.10 Public, Conservation and Recreation Land

The publicly owned parks in the study area are Baird Park, Lakeside Park, Calahan Park (South Park), Champlain Street Park, Perkins Pier, Smalley Park, City Hall Park. Recreation also occurs on Lake Champlain.

The most recent records of properties improved by the Land and Water Conservation Fund (LWCF) were obtained from the ANR. Coordination with the Department of Forests, Parks and Recreation indicated that the only LWCF projects in the City of Burlington are associated with Perkins Pier, North Beach, Ethan Allen Park, Calahan Park (South Park), Oakledge Park, the Waterfront Shelter, Leddy Park, Pomeroy Park, Schmanska Park, Roosevelt Park, Episcopal Diocesan Acq., Lakeside Park, Smalley Park, McKenzie Acq., Flynn Estate Park and the Burlington Harbor Mooring Project. The only LWCF projects in the study area are Calahan Park (South Park), Perkins Pier, Lakeside Park and Smalley Park. These parks, in addition to Baird Park, Champlain Street Park, City Hall Park and Lake Champlain are the only public parks and recreational resources in the study area (refer to Figure 5-1 in Section 5).

3.11 Hazardous Materials

This section discusses hazardous materials in the project study area.

The biggest contributing factor regarding hazardous materials is the industrial area of the City of Burlington which includes the Pine Street Barge Canal Superfund Site.

3.11.1 Introduction

An assessment of the potential hazardous materials along the C-2 and C-6 Sections was conducted for Build Alternative 1 as part of the 1995 DSEIS, based upon existing, available information. This included a review of data collected on, or adjacent to the Pine Street Barge Canal Superfund Site, a review of Sanborn maps, a review of Vermont Department of Environmental Conservation (DEC) files as accessed and summarized by First Search Technology Corporation, and visual observations made during a walk-through of the project corridor. The 1995 DSEIS recommended a supplemental sampling program, to be conducted during the 1997 FSEIS process.

For the 1997 FSEIS effort, supplemental soil and groundwater sampling was conducted along the C-6 Section and is discussed in detail in Section 4.11.2 of this 2009 FSEIS. Additional work has also been performed to review historic industrial uses along the alignment of Build Alternative 1.

In addition, a Field Activities Work Plan for work on properties adjacent to the Pine Street Barge Canal Superfund Site was submitted to the EPA in March 2003, outlining additional subsurface investigation along Build Alternative 1. This investigation was completed between December 2003 and November 2004.

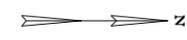
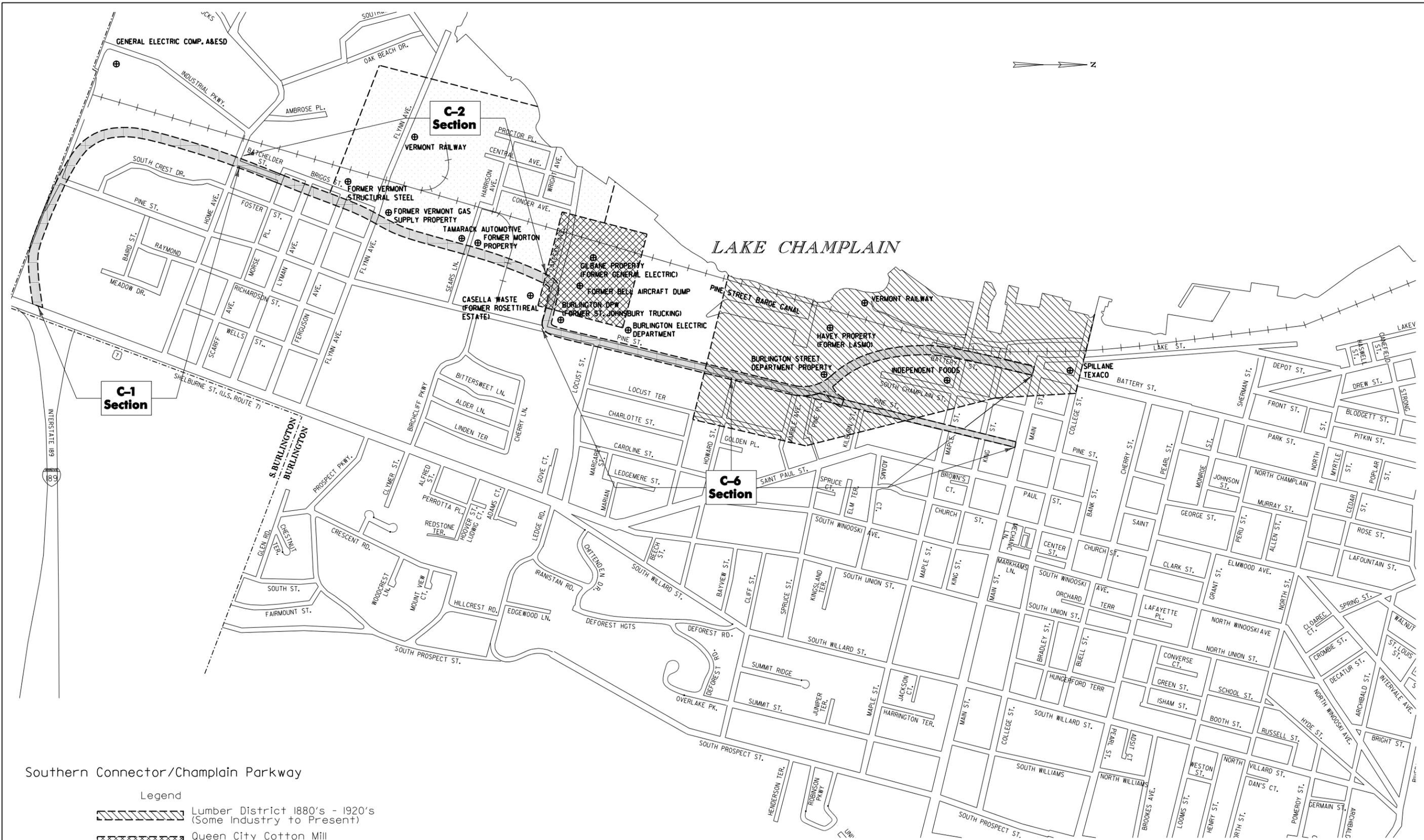
3.11.2 Potential Historic Hazardous Waste Sources In The Area

Sanborn Fire Insurance maps for the City of Burlington were reviewed for the C-2 and C-6 Section corridors and adjacent areas. The years reviewed were: 1885, 1889, 1894, 1896, 1912, 1926, 1942, 1960, and 1978. The intent of the review was to identify past industrial uses indicated on the maps. Conclusions were then drawn regarding the relative potential for hazardous waste impacts along the C-2 and C-6 Sections based on the previous industrial uses. A summary, by Sanborn map year, follows (refer to Figure 3-17).

- 1885: At this early date, as well as the rest of the 1800's, Sanborn maps only covered the C-6 Section, where there were several lumber yards and coal storage bins.
- 1889: This year shows growth in the number and size of lumberyards along the C-6 Section, as well as the addition of a marble works near the south end of South Champlain Street.
- 1894: No substantial changes in industrial use are indicated for 1894, compared to those in 1889.
- 1896: By 1896, the Rutland Railroad used the railroad tracks near the C-6 Section and the lumberyards were still in business. An iron works (the Burlington Manufacturing Company) was in existence on South Champlain Street. The fuel used at the time was coal, which was commonly stored in coal bins located at each facility.
- 1912: By 1912, the C-6 Section corridor north of Howard Street was labeled the "Lumber District" on the Sanborn maps. Chase Mills, a cotton mill, was constructed on Kilburn Street, and the Robinson Edwards Lumber Company was located in the vicinity of the Havey property (former LASMO property). The Queen City Cotton Mill was constructed north of Lakeside Avenue, between the railroad tracks and the proposed corridor.

The only industrial use shown along the C-2 Section during this period was the Vermont Construction Company, along Briggs Street, which had an iron foundry and a coke oven.

- 1926: The largest industrial use shown along the C-2 Section was the Burlington Rendering Company, south of Flynn Avenue. This business had a fertilizer mill and fertilizer storage bins.
- 1926: The "Lumber District" was still in existence in the same area shown on the 1912 series. However, EJ Davis Machine Works was in operation at the corner of King Street and Battery Street at the northern end of the C-6 Section, and the City of Burlington located its water pump works and Municipal Generating Plant in the vicinity of the present day Vermont Railway yard. The Queen City Cotton Mill was still in operation, and a rendering company with a fertilizer mill was located near the C-2 Section, just west of Briggs Street and south of Flynn Avenue. No other industry along the C-2 Section was noted on the 1926 maps.
- 1942: This series of Sanborn maps shows a marked increase in industrial activities along both the C-2 and C-6 Sections, and a general decrease in the number and size of lumber yards. Starting from the northern end of the C-6 Section and working southward, there were many auto sales and service businesses, as well as a laundry, a coal and ice company and the Vermont Spool and Bobbin Company. An auto junkyard was in existence to the west of the C-6 Section (west of the corner of Marble Avenue and Pine Street). Coal and coke storage existed near the location of the former LASMO building. By 1942, the Green Mountain Power Gas Plant was in operation and had several tar pumps, separators and tanks on-site. Industry along the C-2 Section was limited to areas south of Sears Lane, including a broom handle manufacturer, an electrical supplies manufacturer, and a milk chocolate company. Several oil companies were in operation along Flynn Avenue, including Colonial Beacon Oil Company, Citizen's Service Company, Gulf Oil, and Standard Oil of New York. These oil companies had bulk storage areas for gasoline and various oils.
- 1960: The 1960 series of Sanborn maps were based on modifications made to the 1942 maps. The industrial uses from 1942 to 1960 were similar.



C-1 Section

C-2 Section

C-6 Section

LAKE CHAMPLAIN

Southern Connector/Champlain Parkway

- Legend**
-  Lumber District 1880's - 1920's (Some Industry to Present)
 -  Queen City Cotton Mill 1910 - 1920's
 -  Bulk Oil & Gasoline Storage 1940's to Present
 -  Southern Connector/Champlain Parkway Corridors
 -  Hazardous Waste Site

Scale: 1"=1000'

Note: Hatched areas show general industrial users only. Specific businesses are not shown.

Source: Vermont GIS (c)1994 State of Vermont
Vermont DEC, Hazardous Materials Division.

Southern Connector/Champlain Parkway MEGC-M5000(1)



FIGURE 3-17
POTENTIAL HAZARDOUS WASTE
SITE LOCATIONS

FILE NAME = J:\18655\DRP\TS\FSEIS\Display\FIG 3-12.dgn
DATE = 11/13/2005
USER = 11933

Significant additions included a sewage plant near the present day VTR, another coal and oil company in the same area, and Sun Oil Company (bulk gasoline storage), north of the C-6 Section on the end of College Street. Along the C-2 Section, bulk oil and gasoline storage became prevalent to the west of the portion near the shore of Lake Champlain (Northern Oil Company, at the end of Harrison Avenue).

- 1978: This series of Sanborn maps shows similar industrial uses as the 1960 maps, with even more bulk oil and gasoline storage near Flynn Avenue. G.S. Blodgett Co., Inc. stored coal along Lake Champlain at the western edge of Lakeside Avenue.

In summary, industrial uses along the C-6 Section from the 1880's to the 1920's consisted mostly of lumber yards. There were not any industrial uses shown along the C-2 Section in the 1880's and 1890's. By 1942, the size and number of lumber yards had decreased substantially, and a large number of coal and oil companies were established. Oil and gasoline storage were the primary industries along both the C-2 and C-6 Sections from 1942 to the present.

3.11.3 Vermont Department of Environmental Conservation (DEC) Listed and EPA Listed/Permitted Regulatory Sites and Facilities

The review of the DEC listings of active and closed hazardous sites identified several sites within or in the immediate vicinity of the C-2 and C-6 Sections. Table 3-5 presents a summary for these sites, and Figure 3-17 shows the approximate location of each site.

In addition, a GIS-based search of DEC and EPA regulatory databases identified sites within or immediately adjacent to the project corridor which are listed in additional regulatory databases such as hazardous waste sites, permitted hazardous waste generators, registered tank facilities, spill and/or leaking underground storage tank (LUST) sites, and solid waste disposal sites. In September, 2005, the GIS-based search was updated to account for Build Alternative 2. The GIS-based search was again updated in April, 2009, to account for the three-year period since the 2006 DSEIS was circulated. The current GIS based search is provided in Appendix 2 of this 2009 FSEIS.

**Table 3-5: SUMMARY OF DEC AND EPA REGULATORY DATABASE SEARCH
THE SOUTHERN CONNECTOR/CHAMPLAIN PARKWAY**

<u>Site ID/Name</u>	<u>Location</u>	<u>Summary</u>
94-1740 Tamarack Automotive	53 Sears Lane	<p>The site is located on the western side of the C-2 Section and regional groundwater flow is toward Lake Champlain. This site is just outside the project corridor at a downgradient location relative to the project corridor.</p> <p>In 1988, laboratory analysis of two soil samples collected by AquaTech, east of the site and within the proposed C-2 Section, indicated trace or no levels of contamination. In December 1994, two waste oil tanks (one 500 gal. and one 1,000 gal.) were removed from this site. 300 gallons of an oil-water mixture were removed from an excavation near the USTs. VGES were exceeded in the on-site monitoring well.</p> <p>The Vermont Active Hazardous Site List – December 2008 indicates that Tamarack Automotive is still an active hazardous site. The source of contamination had been removed and residual contamination was contained onsite. Semi-annual groundwater monitoring is on-going. The next sampling event was to be conducted in March 2009. The results of the latest sampling event indicated that concentrations are declining.</p> <p><u>LUST</u> – 2 UST’s removed 1994, contamination above standards.</p> <p><u>RCRA Generator</u> – CSQG.</p>
91-1069 Casella Waste (former Rosetti Real Estate site)	175 Lakeside Avenue	<p>The site is located on the eastern side of the C-2 Section and site groundwater flow is to the northeast direction.</p> <p>In June 1991, three USTs were removed from the site. Samples from two on-site monitoring wells indicated that contamination existed in the area of the former tanks and to the northeast of the tanks. In November 1994, three additional USTs were removed from the site. 80 cubic yards of contaminated soil were excavated adjacent to the tanks and fill pipes and stockpiled for disposal. In December 1994, DEC requested the services of a consultant to conduct further work on this site. VGES were exceeded in several wells on site.</p> <p>The Vermont Active Hazardous Site List – December 2008 indicates that Casella Waste is still an active hazardous site. The source of contamination had been removed and some contamination was identified offsite. Semi-annual groundwater monitoring is on-going with the last sampling event conducted in December 2008. The results of the most current sampling event indicated that several on-site wells exceeded the VT GES standards.</p> <p><u>LUST</u> – 3 UST’s, contamination above standards.</p> <p><u>Spills</u> – 9/20/96, AST spill, closed.</p>

<u>Site ID/Name</u>	<u>Location</u>	<u>Summary</u>
77-0041 Gilbane Properties (Former General Electric Co.)	10 Lakeside Avenue	<p>Listed as part of the Pine Street Barge Canal Superfund Site, which is on the EPA's National Priorities List (NPL) of hazardous waste sites. The Vermont Active Hazardous Site List – October 2005 indicates that a Resource Conservation and Recovery Act (RCRA) Corrective Action Permit is pending.</p> <p><u>Spills</u> – 8/3/92, chromic acid release, closed. 2/19/93, chromic acid release, closed. 2/5/93, photo rinse water to storm drain, closed. 5/1/92, coolant oil spill, closed. 4/21/92, machine coolant spill, closed. 4/14/92, dumping cleaners on ground, closed. 10/25/90, cooling coil leak of chromium, closed. 7/9/92, acid line leak, closed. 7/2/92, fuel leak in machinery, closed. 5/18/92, oil contaminated soil, closed. 7/1/95, coolant spill, closed. 12/7/90, dripping sump line leaking cutting oil and coolants, closed. 5/15/92, hydraulic oil leak from machinery, closed. 5/9/90, mineral oil/cutting oil release, closed. 9/30/93, bromine release, closed.</p>
77-0039 Former Bell Helicopter Dump	Lakeside Avenue	<p>The property is located north and west of the proposed C-6 Section. The groundwater in this area is expected to flow away from Lakeside Avenue and towards the Pine Street Barge Canal and/or wetlands north of the site. The site is considered part of site 77-0041 Gilbane Properties (Former General Electric Co), 10 Lakeside Avenue and is located along the eastern side of the former Lockheed Martin building on Lakeside Avenue.</p> <p>Between 1947 and 1968, plating waste, paint sludge, and magnesium tailings and scraps were reportedly disposed on the eastern side of the former Lockheed Martin building.</p>
Former General Dynamics Armament Systems	128 Lakeside Avenue	<p><u>LUST</u> – 11 UST's removed, contamination above standards.</p> <p><u>RCRA TSD</u> – several violations over several years, all resolved.</p> <p><u>UST Registry</u> – 11 UST's, fuel oil, gasoline, used oil</p>
Former Weissner Property	Lakeside Avenue	<p>This site was located in the vicinity of Lakeside Avenue where C-2 Section intersects the C-6 Section.</p> <p>A site inspection on 1987 revealed drums and containers of various chemicals, paints, oils, and solvents. A contractor was retained in 1988-89 to properly dispose of these materials. In addition, a 2,000 gallon fuel oil UST was removed in August 1988. A subsurface investigation performed in 1988-89 reported spotty and localized VOC contamination on the site. Portions of the site were required to be remediated. The contaminated soils were treated to Vermont Class I standards, and have been stockpiled for future use as backfill in accordance with ANR requirements.</p> <p>This site is considered to have been remediated and has been removed from the Vermont Active Hazardous Site listing.</p>

<u>Site ID/Name</u>	<u>Location</u>	<u>Summary</u>
89-0455 Independent Foods	South Champlain Street	<p>This area is 100 to 200 feet away from the proposed Build Alternative 1 alignment. Groundwater generally flows southwest toward Lake Champlain.</p> <p>In 1989, a 275 gallon fuel oil tank was removed. Seven other UST's closed in 1989 remain in-place. Free product was bailed from two wells in 1992 and 1993. As of August 1994, the existing plume had not spread past the garage area of the site. On-going groundwater monitoring is being performed.</p> <p>The Vermont Active Hazardous Site List – December 2008 indicates that Independent Foods is still an active hazardous site. Semi-annual groundwater monitoring is on-going.</p>
94-1722 Spillane's Texaco	125 Battery Street	<p>This site is at the northern end of Build Alternative 1 and is outside of the project area. Groundwater flow is towards the west.</p> <p>In October 1994, two of the three gasoline UST's located on site failed the tightness tests. Test pits showed soil contamination in excess of 1,000 ppm with heavy petroleum sheen on the surface. Free phase petroleum was encountered on the groundwater surface measured at 11-feet below ground surface. Preliminary indications show contamination was migrating to the western portion of the site. In January 1995, VTDEC requested that the owner retain a consultant to further define the extent and movement of contamination and recommend a plan for remediation. VGES were exceeded in one monitoring well.</p> <p>VTDEC indicated that continued semi-annual groundwater monitoring was warranted. The Vermont Active Hazardous Site List – December 2008 indicates that the VT GWES standard was exceeded in one monitoring well.</p> <p><u>LUST</u> – 1 UST removed 1988, 3 UST's removed 1996, 2 UST's removed 2000, contamination above standards.</p> <p><u>UST Registry</u> – 5 UST's, gasoline, used oil.</p>

<u>Site ID/Name</u>	<u>Location</u>	<u>Summary</u>
EPA Site ID No. 0101479, VTDEC 77-0042 Pine Street Barge Canal Superfund Site	Pine Street	<p>This site is a designated Superfund site and exhibits coal tar contamination from gasification processes formerly performed on the site.</p> <p>In 1998, a Record of Decision (ROD) called for the placement of a sub-aqueous cap in the canal to address risk to ecological receptors, long term monitoring, and the imposition of land use restrictions on the site to prevent migration or unacceptable human exposure to contaminants.</p> <p>In February 2000, a Consent Decree was signed. The remedy would be implemented in two phases. The first phase involved the installation of a weir where the canal empties into Lake Champlain. The weir would maintain desired water levels in the canal to prevent future erosion of the sub-aqueous cap. Construction of the weir was completed in November 2001. The second phase involved capping contaminated soils at the southern end of the site, placing the sub-aqueous cap over contaminated sediments in the canal and turning basin, making improvements to the stormwater control system, and wetlands restoration.</p> <p>The remedial activities for the second phase started in July 2002. In June 2003, a breakout of coal tar was discovered in an uncapped area adjacent to the canal. In August 2004, the final phase of capping was completed. The expanded cap appeared to address the ongoing release of contamination until sheens and globules of coal tar were observed floating on the surface water at the southern end of the canal beginning in spring 2005 and continuing to the present time.</p> <p>The Record of Decision has Institutional Controls/Deed Restrictions imposed for the site and adjacent parcels which include the following: Excavations to depths greater than five feet (including those below the water table) on the Properties are prohibited unless one or more of the following exceptions apply; (a) the excavation is performed to install, repair, maintain service, or remove underground utility components, conduits, installations or channels, which may presently be in place deeper than five feet and which may be below the water table; (b) drilling, driving or boring to install pilings for otherwise allowable construction is permitted; or (c) the excavation is performed in a location on the property in which current contaminant concentrations at depths greater than five feet are below 140 mg/kg total PAH. In the case of exceptions (a) and (b), workers conducting the excavations and working in the area must use appropriate personal protective equipment as required by OSHA unless a site-specific risk assessment is performed and its results approved by EPA prior to the excavation.</p> <p>Long-term monitoring and observation is being conducted by the PRPs with EPA providing oversight. The first 5-year site review was conducted in 2006. Based on the results of the five year review, EPA concluded that site conditions are protective of human health and the environment in the short term except for the ongoing releases of coal tar in a limited area of the subaqueous cap in the canal as stated above. Additional investigations conducted by the responsible parties of the cleanup, concluded that NAPL is migrating upward through the existing cap into the water column, primarily when gas bubbles are released from the peat below the cap during warm weather.</p>

<u>Site ID/Name</u>	<u>Location</u>	<u>Summary</u>
EPA Site ID No. 0101479, VTDEC 77-0042 Pine Street Barge Canal Superfund Site Continued	Pine Street	As of December 2008, the EPA is seeking public comment on a document entitled a draft “Explanation of Significant Differences” that proposes steps to repair and change the leaking portion of the underwater cap installed in 2004. As of April 2009, the EPA announced a plan to partially replace the existing underwater cap with a new cap system that will capture the tar and oil, which will be shipped off-site for treatment.
87-0097 City of Burlington Property / Havey Property (former Ultramar Tank farm)	North of turning basin at the Pine Street Barge Canal site	The former tank farm is located immediately north of the Pine Street Barge Canal turning basins. In 1992, a Supplemental Remedial Investigation was prepared that indicated floating free product was detected in one well adjacent to a large fuel tank in the former Ultramar tank farm. Groundwater samples from the well contained BTEX compounds, petroleum aromatic hydrocarbons, barium, lead, and zinc. It was concluded that the free product at the former tank farm was unlikely related to the former coal gasification plant. Per the Vermont Active Hazardous Site List – October 2005 indicates the site was closed, with no further monitoring planned. According to the Vermont Active Hazardous Site List – December 2008, the site has been delisted.
2004-3192 Vacant Lot/State Brownfield Site	453 Pine Street	Vacant lot south of the Maltex property and north of the Burlington Electric property. Phase I and II investigations have been completed. Groundwater monitoring continues at the site. The Vermont Active Hazardous Site List – December 2008 indicates the site may no longer be a Brownfield site. A work plan for a site investigation was received by SMS and ECS is the current consultant for the site.
Burlington Electric Department	585 Pine Street	Site is part of the Pine Street Barge Canal Superfund Site. Refer to deed restrictions imposed on the Superfund site and adjacent parcels. <u>ERNS</u> – 7/90, transformer leaking non-PCB oil to land. <u>LUST</u> – 1 UST removed 1990, 1 UST removed 1994. <u>RCRA Generator</u> – SQG, several violations, all resolved. <u>Spills</u> – 9/2/93, gasoline spill, closed.

<u>Site ID/Name</u>	<u>Location</u>	<u>Summary</u>
99-2592 Former Burlington Public Works Garage	Pine Street	<p>Phase I and Phase II investigations have been completed. Several UST's have been closed and removed. In June 1999, soil and groundwater contamination was detected.</p> <p>The Phase II included the installation of nine groundwater monitoring wells. No sheen or free product was detected in any of the wells. Laboratory results indicated petroleum contamination was present in five of the monitoring wells. Soil remediation has been completed and the impacted area has been paved. September 2002 groundwater monitoring results indicated elevated BTEX contamination in three of the groundwater monitoring wells in the area of the former USTs.</p> <p>The Vermont Active Hazardous Site List – December 2008 indicates that this site is an active hazardous site and that the Phase II investigation for in-place tank closure is pending.</p> <p><u>LUST</u> – 3 UST's removed 1999, 3 UST's removed 2000, contamination above standards.</p> <p><u>RCRA Generator</u> – LQG</p> <p><u>Spills</u> – 5/8/00, LUST, contaminated soils to be removed, referred to Site Management. 9/26/98, AST overflow, closed.</p> <p><u>UST Registry</u> – 5 UST's, fuel oil, gasoline, used oil, diesel.</p>
99-2591 Burlington DPW (Former St. Johnsbury Trucking)	645 Pine Street	<p>Phase I site investigation has been completed. Several USTs have been removed from this site.</p> <p>The Vermont Active Hazardous Site List – December 2008 indicates that this site is an active hazardous site and that the site investigation is underway.</p> <p><u>LUST</u> – 4 UST's removed 1986, 1 UST removed 1989, 2 UST's removed 1998, 1 UST removed 1999, contamination above standards.</p> <p><u>UST Registry</u> – 2 UST's, diesel.</p>

<u>Site ID/Name</u>	<u>Location</u>	<u>Summary</u>
77-0179 Vermont Railway	1 Railway Lane	<p>In July 1989, a preliminary assessment was conducted which indicated several problem areas in the vicinity of the maintenance garage and rail yard areas. The impacted areas are located downgradient of the proposed C-6 Section. In May and June 1992, additional information indicated that two tanks partially underground along the rail line near South Champlain Street contained asphalt-like material and liquid. The two tanks were removed and the contents and excavated soils were recycled in an asphalt batching plant. There was no sheen observed on groundwater encountered at two to three feet below ground surface during the excavation activities. Soils beneath the tank were indicated to be clean by DEC personnel that observed the clean-up activities. A later fuel oil UST removal and groundwater investigation showed limited soil and groundwater contamination. Groundwater monitoring continues relative to the fuel oil tank removal.</p> <p>The Vermont Active Hazardous Site List – December 2008 indicates that this site had limited soil and groundwater contamination and continued groundwater monitoring is being conducted on-site.</p> <p><u>RCRA Generator</u> – transporter.</p> <p><u>UST Registry</u> – 3 UST’s, fuel oil, gasoline.</p>
93-1521 Vermont Railway	207 Flynn Avenue	<p>The Vermont Active Hazardous Site List – December 2008 indicates VTDEC is pending notification from Vermont Railway that contaminated soils were spread or were used as backfill on the site.</p>
Herschberg/ Jordan Foods	Battery & King Streets	<p><u>LUST</u> – 3 UST’s removed in 2002, contamination above standards.</p> <p><u>UST Registry</u> – 2 UST’s, gasoline, diesel.</p>
McAuliffe, Inc.	208 Flynn Avenue	<p><u>LUST</u> – 3 UST’s removed, contamination above standards.</p> <p><u>RCRA Generator</u> – CSQG.</p>
2008-3804 Burlington Grocery	747 Pine Street	<p>The Vermont Active Hazardous Site List – A subsurface investigation was conducted in January 2007. As a result of the findings of the subsurface investigation, additional monitoring was required. One UST was discovered on January 8, 2008. The UST was removed and contaminated soil was encountered. At this time, the site files do not contain any additional information relating to the requested additional monitoring. The WMID records for this site were last updated March 31, 2009.</p> <p>An additional investigation, separate from the Southern Connector/Champlain Parkway project, may be required.</p>

<u>Site ID/Name</u>	<u>Location</u>	<u>Summary</u>
2003-3138 Former Kilburn & Gates Industries	20 Kilburn Street	The Vermont Active Hazardous Site List – December 2008 indicates that one UST was removed and contaminated soil was discovered. The sub-surface investigation is underway and potential migration onto the site from Duncan Auto (site 90-0594) is also being investigated,
2001-2892	131 Battery Street	The Vermont Active Hazardous Site List – December 2008 indicates soil samples have been collected and groundwater monitoring wells have been installed on-site. VTDEC indicates that a cleanup is required.
2003-3098 Blinn House	151 South Champlain Street	The Vermont Active Hazardous Site List – A CAP was approved on April 21, 2003 to protect the buildings from vapor intrusion. Additional air quality data was submitted on May 16, 2006 and an indoor air corrective action plan had been submitted for review in January 2007. VTANR has not yet selected or put in place institutional controls at the site. A Land Record Notice was filed on March 14, 2008 stating that soils and groundwater at the property are impacted by an unknown amount of chlorinated solvents. The Land Record Notice also states that prior to any subsurface work, any excavation, or groundwater extraction on the property, the Site Management Section (SMS) of VTANR DEC must be notified. The records for this site were last updated March 31, 2009.
98-2418 Cumberland Farms	661 Pine Street	The Vermont Active Hazardous Site List – One UST was removed and soil and groundwater contamination were encountered. Semi-annual groundwater monitoring from May 1999 through April 2001 revealed that levels in three out of the four on-site monitoring wells exceeded the VTDEC standards. The records for this site were last updated January 22, 2003.
99-2711 Salvation Army	64 Main Street	The Vermont Active Hazardous Site List – December 2008 indicates that one UST was removed and contamination was discovered. A sub-surface investigation was completed and the VTDEC is evaluating for Site Management Activity Completed (SMAC) designation that would require no further action.

<u>Site ID/Name</u>	<u>Location</u>	<u>Summary</u>
2004-3311	151-161 St. Paul Street	<p>The Vermont Active Hazardous Site List – Four USTs were removed that were formerly located beneath the sidewalk on June 20, 2006. The tanks were reportedly in poor condition and the sub-surface investigation is incomplete. On August 31, 2006, the workplan for the investigation of one of the former USTs was not received within the requested VTDEC timeline.</p> <p>A tank closure report was received by the VTDEC in September 2006. An additional tank was discovered on the west side of the building on February 5, 2008. Action on this tank was completed on September 11, 2008. A report relative to an additional investigation on the south side of the building was received by the VTDEC in January 2009. The files for this site were last updated March 6, 2009 and indicated that the VTDEC was waiting for missing data to the January 2009 report.</p>
2007-3738 Mansfield Professional Building	183 St. Paul Street	The Vermont Active Hazardous Site List – December 2008 indicates that five groundwater monitoring wells have been installed on-site and the groundwater results revealed the presence of VOCs. The groundwater investigation is not complete at this time.
2008-3862 Former Maynard Auto Supply	696 Pine Street	The Vermont Active Hazardous Site List – December 2008 indicates that two previously abandoned USTs have been removed and no additional details are available.

3.11.4 Site Visit/Project Walkover

On September 6, 2001, the City of Burlington's consultant conducted a visual site inspection of the proposed C-2 Section and C-6 Section portions of the Southern Connector/Champlain Parkway corridor. Based on visual observations of property usage and/or conditions noted from the perimeters of the project corridor, areas of potential concern identified as a result of the Site Visit/Project Walkover are listed in Table 3-6.

**Table 3-6: Potential Properties of Concern Identified By The Site Visit/Project Walkover
The Southern Connector/Champlain Parkway**

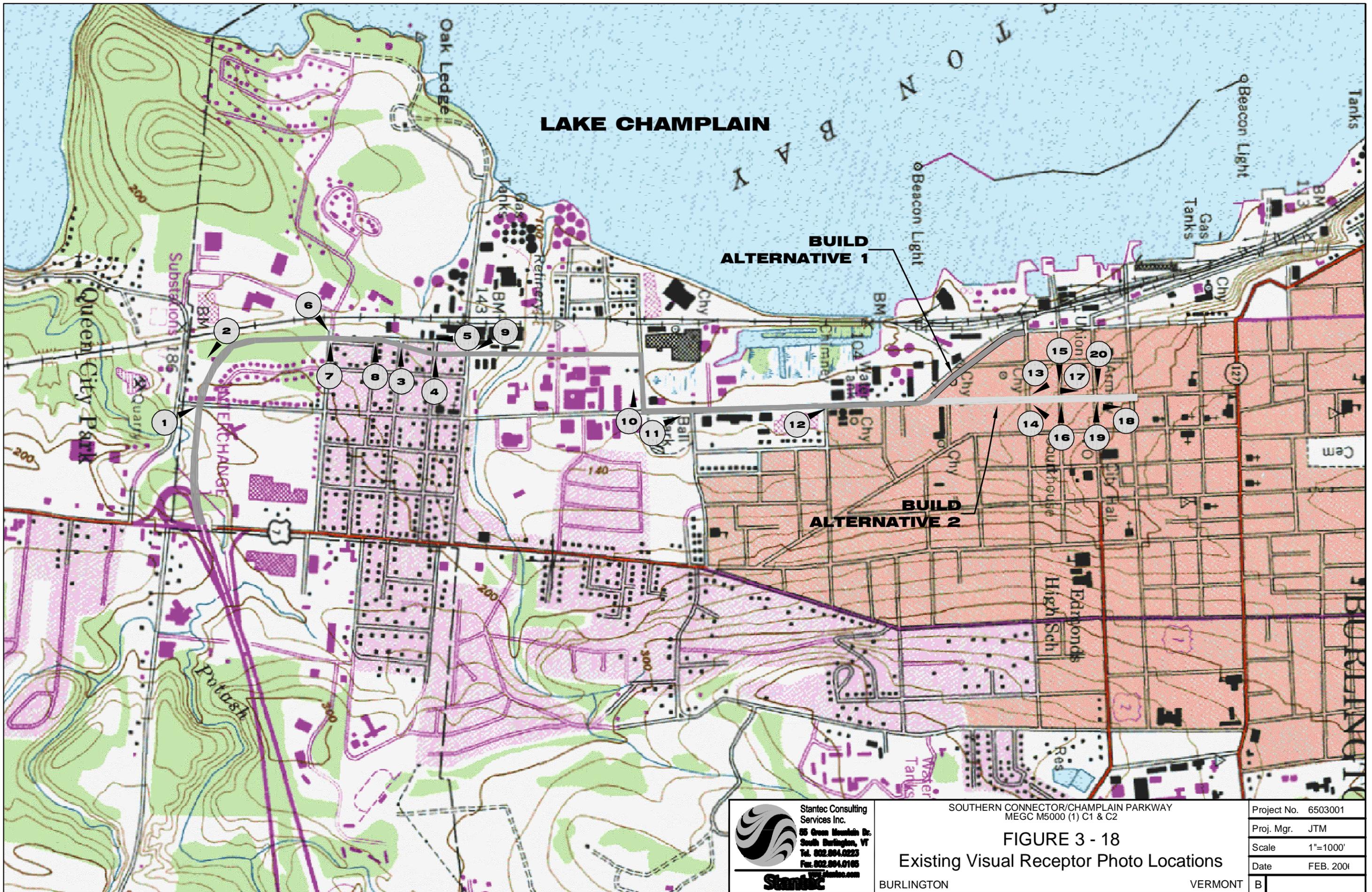
<u>Property Name</u>	<u>Location</u>	<u>Portion of project potentially impacted</u>
Automotive and truck repair centers, including Tamarack Automotive	53 Sears Lane	C-2 Section
Casella Waste and former Rosetti Real Estate	175 Lakeside Avenue	C-6 Section
Gilbane Properties (Former General Electric Co.)	10 Lakeside Avenue	C-6 Section
Former Bell Helicopter Dump	10 Lakeside Avenue	C-6 Section
Former General Dynamics Armament Systems	128 Lakeside Ave.	C-6 Section
Former Weissner Property	Lakeside Avenue	C-6 Section
Pine Street Barge Canal Superfund Site	Pine Street	C-6 Section
Havey Property (former Ultramar tank farm)	Pine Street	C-6 Section (Build Alternative 1 Only)
Vacant Lot/State Brownfield Site	453 Pine Street	C-6 Section
Burlington Electric Department	585 Pine Street	C-6 Section
Former Burlington Public Works Garage	Pine Street	C-6 Section (Build Alternative 1 Only)
Burlington DPW (Former St. Johnsbury Trucking)	645 Pine Street	C-6 Section
Vermont Railway	1 Railway Lane	C-6 Section (Build Alternative 1 Only)
Vermont Railway	207 Flynn Avenue	C-2 Section
Former Green Mountain Gas Plant	Pine Street	C-6 Section
Industrial area including Vermont Gas Supply and former Vermont Structural Steel property	Briggs Street/Flynn Avenue	C-2 Section

3.12 Visual Setting

The existing visual characteristics within the project corridor vary along the following segments:

- C-1 Section
- C-2 Section - (Home Avenue to Flynn Avenue)
- C-2 Section - (Flynn Avenue to Lakeside Avenue)
- C-6 Section – (Lakeside Avenue between the C-2 Section and Pine Street) Build Alternative 1 and Build Alternative 2
- C-6 Section - (Pine Street between Lakeside Avenue and Pine Place) Build Alternative 1 and Build Alternative 2
- C-6 Section - (Battery Street Extension) Build Alternative 1
- C-6 Section - (Battery Street) Build Alternative 1
- C-6 Section - (Pine Street between Pine Place and Main Street) Build Alternative 2

Photographs of the existing neighborhoods were taken at locations indicated on Figure 3-18.



BUILD ALTERNATIVE 1

BUILD ALTERNATIVE 2



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 Fax. 802.994.0165
 www.stantec.com

SOUTHERN CONNECTOR/CHAMPLAIN PARKWAY
 MEGC M5000 (1) C1 & C2

FIGURE 3 - 18
 Existing Visual Receptor Photo Locations

BURLINGTON VERMONT

Project No.	6503001
Proj. Mgr.	JTM
Scale	1"=1000'
Date	FEB. 2001
B	

The general visual characteristics and sensitive visual receptors along these segments are discussed below:

- C-1 Section

The C-1 Section was constructed in the mid- to late 1980's as a principal arterial with two lanes in both the northbound and southbound direction. While never opened to traffic, a primary visual feature associated with the existing roadway is a precast concrete median barrier constructed in the center of the majority of this portion of the Southern Connector/Champlain Parkway. Additionally, as part of construction, a barrier wall, vegetation and landscaping were included in the C-1 Section construction to serve as a visual screen between the roadway and the South Meadows Neighborhood. (PICTURE 1) Landscaping installed during the construction of the C-1 Section is still present, but through lack of maintenance, the majority of trees and shrubs are unpruned, and in some instances, would need to be replaced. Invasive trees like poplars would also need to be removed to help ensure proper growth of the desired plant material. A townhouse development has been built on the southwestern side of the roadway. As part of this development, landscaping was planted to act as a visual barrier from the yards and first floors of the homes to the Southern Connector/Champlain Parkway and the adjacent shared-use path. The second story of this development, as well as a few residential properties located on Pine Street adjacent to the intersection of the C-1 Section and Pine Street, can be considered sensitive visual receptors. (PICTURE 1)



PICTURE 1: C-1 SECTION AT PINE STREET LOOKING NORTH

These two areas create a situation where the residents on Pine Street would look over a proposed cul-de-sac and the Southern Connector/Champlain Parkway beyond. Also, the residents in the townhouse development, while recognizing the road as currently not used for traffic, could also be considered sensitive visual receptors. (PICTURE 2)



PICTURE 2: C-1 SECTION LOOKING SOUTHEAST TOWARDS U.S. ROUTE 7

- C-2 Section - (Home Avenue to Flynn Avenue)

The majority of the right-of-way acquisition for this portion of the C-2 Section has already been secured and is now entirely vacant land. This section traverses the western portion of a south end neighborhood consisting of Batchelder Street, Morse Place, Lyman Avenue and Ferguson Avenue. (PICTURES 3, 4 and 5) The eastern side of this portion of the C-2 Section is residential use. Two residential properties exist in the vicinity of Batchelder Street that front on Home Avenue; one to the west of Batchelder Street and one to the east of Batchelder Street. (PICTURES 6 and 7) These residences may be considered visual receptors. The western side of Briggs Street is primarily industrial use; however, two residential units exist on the western side of Briggs Street (opposite the current terminus of Morse Place) and may be considered visual receptors. (PICTURE 8)



PICTURE 3: FACING WEST, DOWN LYMANN AVE. TOWARDS BRIGGS STREET



PICTURE 4: FACING WEST, ALONG FERGUSON STREET TOWARD BRIGGS STREET



PICTURE 5: LOOKING SOUTH, DOWN BRIGGS FROM ITS INTERSECTION WITH FLYNN AVENUE (HIGHLIGHTED AREA WOULD BE POCKET PARK)



PICTURE 6: C-1/C-2 SECTION BORDER FACING EAST



PICTURE 7: FACING WEST DOWN HOME AVENUE TOWARD BRIGGS STREET



PICTURE 8: FACING WEST, DOWN MORSE PLACE AT BACHELDER ST. TOWARD BRIGGS STREET

- C-2 Section - (Flynn Avenue to Lakeside Avenue)

The majority of the right-of-way acquisition for this portion of the C-2 Section has also been obtained and is now entirely vacant land. This section traverses a wooded area from Flynn Avenue to Sears Lane. A Co-op Flynn Avenue Housing project is located at the northeastern corner of the intersection of Flynn Avenue and the C-2 Section right-of-way. (PICTURE 9) There are also residential units located to the southeast of the intersection of Flynn Avenue and the C-2 Section right-of-way. These facilities would overlook this portion of the project and may be considered visual receptors. The first portion of this section crosses Englesby Brook and is bounded to the west by a parking lot serving commercial office space. After crossing Englesby Brook, the section intersects with Sears Lane. From Sears Lane, the right-of-way

acquisition crosses a large bituminous parking lot serving the Gilbane Properties. The wooded area, industrial uses along Sears Lane and the parking lot contains no receptors considered of visual importance.



PICTURE 9: LOOKING EAST, DOWN FLYNN AVENUE TOWARDS PINE STREET (RESIDENCES ARE POTENTIAL VISUAL RECEPTORS)

- C-6 Section – (Lakeside Avenue between the C-2 Section and Pine Street) Build Alternative 1 and Build Alternative 2

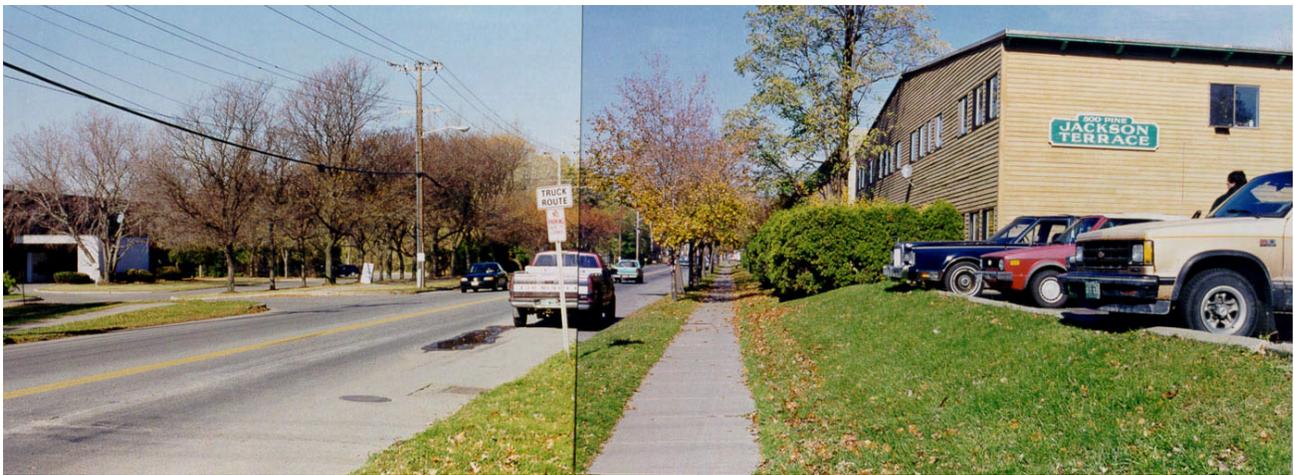
Lakeside Avenue (between the C-2 Section and Pine Street) is industrial and commercial use and is bordered to the north by the City of Burlington’s Public Works Building. None of these uses are considered receptors of visual importance. However, this segment would traverse the border of the Queen City Cotton Mill Historic District. Lakeside Avenue visual setting is framed by typical power and communication poles and the accompanying aerial lines. (PICTURE 10)



PICTURE 10: LOOKING WEST DOWN, LAKESIDE AVENUE TOWARD LAKE CHAMPLAIN

- C-6 Section – (Pine Street between Lakeside Avenue and Pine Place) Build Alternative 1 and Build Alternative 2

Pine Street (between Lakeside Avenue and Pine Place) is primarily fronted by industrial or commercial uses on both the east and west except for a vacant area to the west which encompasses the Pine Street Barge Canal Superfund Site. To a greater extent than appears on Lakeside Avenue, this existing roadway is framed on both sides with aerial utilities and the corresponding poles extending the length of the section. At the northeast corner of Locust Street and Pine Street intersection are the Jackson Terrace apartments which may be considered sensitive visual receptors. While not directly abutting Pine Street, there is residential development east of the industrial/commercial uses which may be considered sensitive receptors. The Calahan Park (South Park) recreation area, which borders the neighborhood area to the south in this vicinity, also may be considered a sensitive receptor. (PICTURES 11 and 12)



PICTURE 11: FACING NORTH, UP PINE STREET TOWARD DOWNTOWN



PICTURE 12: FACING NORTH, UP PINE STREET AT HOWARD STREET (HIGHLIGHTED BUILDING IS BUS STATION)

- C-6 Section - (Battery Street Extension) Build Alternative 1

The Battery Street Extension would connect Pine Street with Battery Street. This alternative would traverse an area currently used for a variety of railroad operations and industrial/commercial uses.

- C-6 Section - (Battery Street) Build Alternative 1

Battery Street is currently a commercial/business corridor. The proposed project is not expected to alter the uses along Battery Street.

- C-6 Section - (Pine Place to Main Street) Build Alternative 2

Pine Street, between Pine Place and Main Street, is fronted by commercial uses on both the east and west from approximately Pine Place to Kilburn Street. From just north of Kilburn Street the character of Pine Street switches from that of commercial to primarily residential until just prior to Main Street. Approximately 29 multi-family residential buildings or apartment complexes exist on this section of Pine Street. Present in follow series of pictures is the residential dwellings from south of Maple Street to just south of Main Street. These buildings are considered sensitive visual receptors. Similar to the prior section on Pine Street this existing roadway is framed on both sides with aerial utilities and the corresponding poles extending the length of the section.



PICTURE 13: PINE STREET FACING SOUTHEAST, RESIDENTIAL MULTI-FAMILY DWELLINGS EASTERN SIDE OF PINE STREET – SOUTH OF MAPLE STREET



PICTURE 14: PINE STREET FACING SOUTHWEST, RESIDENTIAL MULTI-FAMILY DWELLINGS WESTERN SIDE OF PINE STREET – SOUTH OF MAPLE STREET. BOBBIN MILL APARTMENTS COMPLEX – FURTHEST SOUTH



PICTURE 15: MAPLE STREET FACING WEST, RESIDENTIAL MULTI-FAMILY DWELLINGS/APARTMENTS WESTERN SIDE OF PINE STREET, MAPLE STREET INTERSECTION



PICTURE 16: MAPLE STREET FACING EAST, RESIDENTIAL MULTI-FAMILY DWELLINGS EASTERN SIDE OF PINE STREET, MAPLE STREET INTERSECTION



PICTURE 17: PINE STREET FACING NORTH, RESIDENTIAL MULTI-FAMILY DWELLINGS FROM MAPLE STREET TO KING STREET INTERSECTIONS



PICTURE 18: PINE STREET FACING NORTH, RESIDENTIAL MULTI-FAMILY DWELLINGS FROM KING STREET TO MAIN STREET INTERSECTIONS



PICTURE 19: KING STREET – PINE STREET INTERSECTION FACING EAST, RESIDENTIAL MULTI-FAMILY DWELLINGS/APARTMENT KING STREET YOUTH CENTER (INNER BOX)



**PICTURE 20: KING STREET – PINE STREET INTERSECTION FACING WEST,
RESIDENTIAL MULTI-FAMILY DWELLINGS**