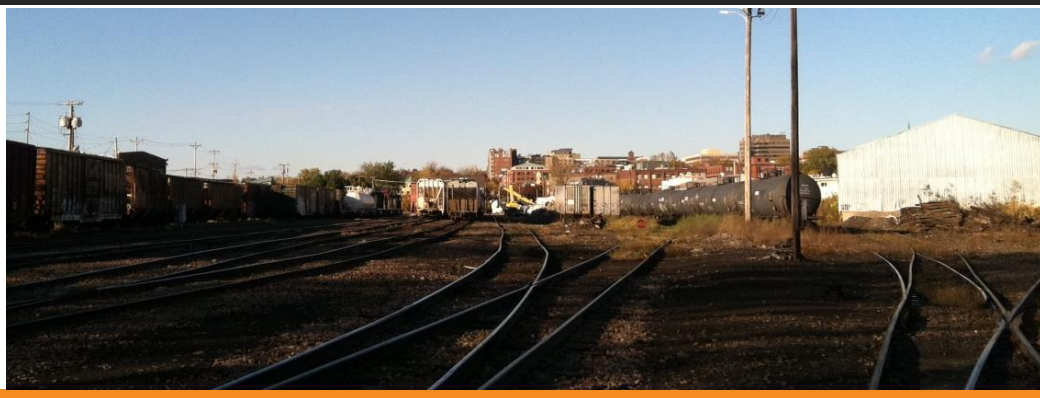
FINAL REPORT

RAILYARD ENTERPRISE PROJECT SCOPING/PEL, BURLINGTON, VERMONT

RSG
the science of insight

NOVEMBER 2016



PREPARED FOR:

CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION AND CITY OF BURLINGTON

SUBMITTED BY:

RSG

IN COOPERATION WITH:

UVM CAP

DLANDSTUDIOS

THIRD SECTOR ASSOCIATES

VHB

180 Battery Street, Suite 350
Burlington, VT 05401
802.295.4999
www.rsginc.com

Disclaimer:

"The preparation of this report has been financed in part through grant[s] from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(f)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation."

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES AND TABLES

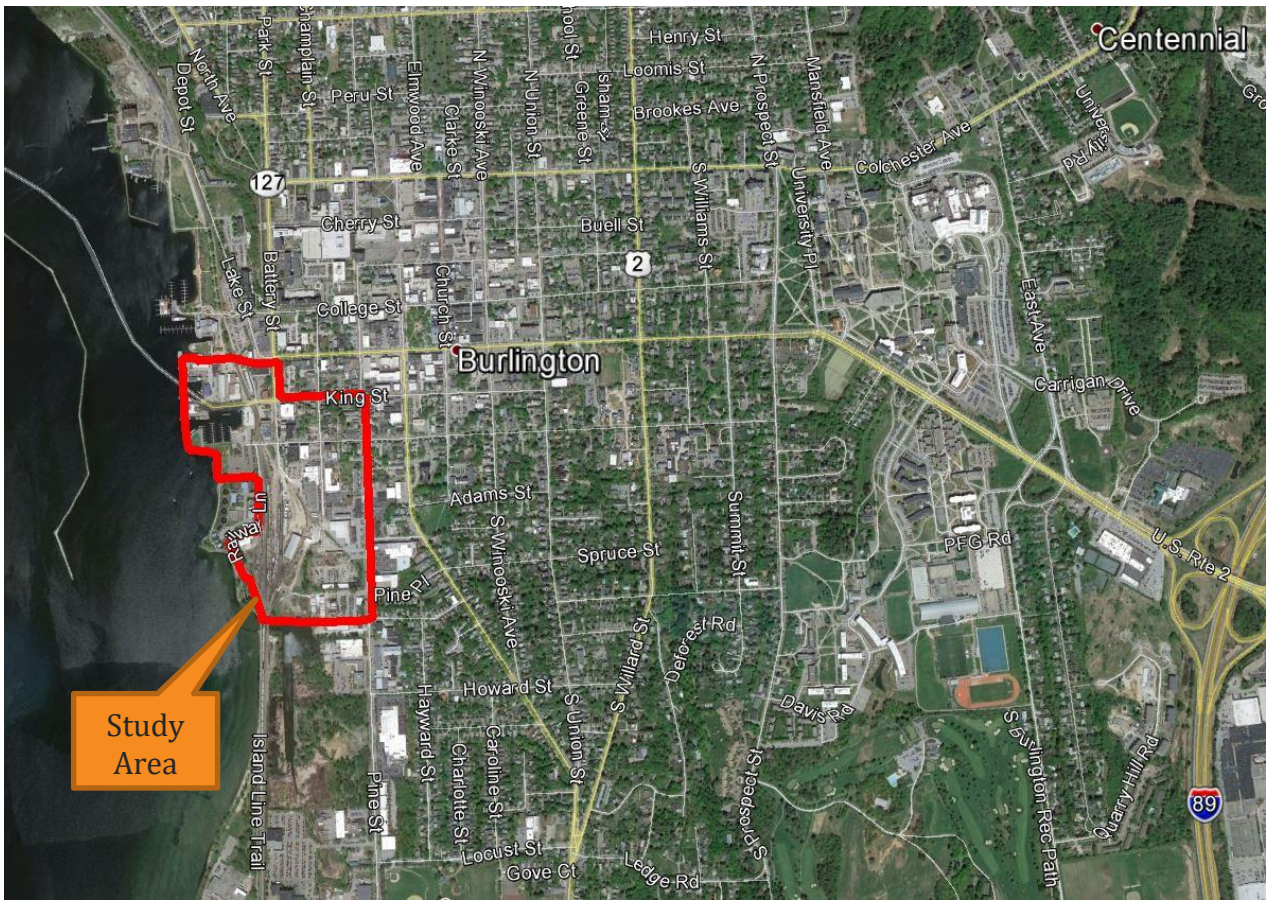
This page left intentionally blank.

1.0 INTRODUCTION

In early 2013, the City of Burlington, in partnership with the Chittenden County Regional Planning Commission (CCRPC), and in close cooperation with the Vermont Agency of Transportation (VTrans) and Federal Highway Administration (FHWA) initiated the *Railyard Enterprise Project (REP).* The REP aims to address multimodal safety, mobility and operational transportation issues and advance economic development opportunities, through new urban streets, in the Waterfront South Area of Burlington—see Figure 1

The REP followed an enhanced Scoping process under FHWA's Every Day Counts/Planning and Environmental Linkages (EDC/PEL) initiative.

FIGURE 1: PROJECT STUDY AREA



1.1 SCOPING

"Scoping" is the initial planning phase in the project development process for federally funded transportation projects. Scoping generally includes:

- An assessment of the multimodal transportation system;
- Evaluation of current and future travel conditions;
- Evaluation of environmental, cultural (historic and archaeological) and other resources in the study area;
- Solicitation of stakeholder input;
- Development of a *Purpose and Need* statement; and,
- Evaluation of feasible alternatives designed to meet the Purpose and Need and minimize impacts to resources.

In most cases, scoping results in identification of a preferred alternative, which can then move forward into the project design and permitting phase.

1.2 EVERY DAY COUNTS/PLANNING & ENVIRONMENTAL LINKAGES

The Planning and Environmental Linkages (PEL) process, under the Federal Highway Administration's (FHWA) Every Day Counts (EDC)[1] initiative aims to shorten project delivery time by incorporating the information developed in scoping into the National Environmental Policy Act (NEPA)[2] document. The EDC/PEL process is intended to lead to better decision-making and reduce the duplication of efforts as a transportation project moves from planning to design and permitting.

1.3 STAKEHOLDER COORDINATION & PUBLIC OUTREACH

The Chittenden County Regional Planning Commission (CCRPC) and the City's Department of Public Works (DPW) retained a team of consultants led by RSG, and including VHB, UVM CAP, DLandStudios and Third Sector Associates, to assist with the development of this project. The CCRPC managed this project and was responsible for its day-to-day progress.

LEAD STAKEHOLDERS

A group of the leading stakeholders for the REP met at critical junctures of the process to provide direction and guidance to the study team (DPW, CCRPC, consultants). This stakeholder group included representatives from:

- The City of Burlington, represented by the City Economic Development Office (CEDO), the Department of Public Works (DPW) and the Department of Planning and Zoning (P&Z)
- The Vermont Agency of Transportation (VTrans), represented by Policy and Planning, Rail and Environmental Sections and the Municipal Assistance Bureau
- The Federal Highway Administration (FHWA), Vermont Division

[1] See EDC/PEL information at http://www.fhwa.dot.gov/innovation/everydaycounts/

[2] See 40 CFR Parts 1500-1508. http://energy.gov/sites/prod/files/NEPA-40CFR1500_1508.pdf

STEERING COMMITTEE

A project Steering Committee was formed representing a broad spectrum of federal, state, local, public and private stakeholders. Committee members reviewed and commented on specific project outputs and provided general oversight to the process. The Steering Committee was comprised of the following members:

- Burlington City Council, CEDO, Public Works, and the Planning & Zoning Department
- Ward 5 Neighborhood Planning Assembly and Residents
- King Street Revitalization Corporation
- Champlain Housing Trust
- Vermont Railway System
- The Greater Burlington Industrial Corporation (GBIC) and a Business Representative
- Federal Highway Administration (FHWA)
- Vermont Agency of Transportation (VTrans)
- Chittenden County Regional Planning Commission (CCRPC)
- Local Motion
- Chittenden County Transportation Authority (CCTA)

VTRANS RESOURCE COORDINATION GROUP

A major component of the PEL process is the required coordination with the Resource Agencies throughout the scoping process. This coordination enables the agencies to comment on the environmental aspects of projects at the scoping stage thus assisting the refinement of alternatives that minimize environmental resources to the degree possible. The REP study team met with the VTrans Resource Coordination Group (RCG), consisting of a variety of resource agencies including the US Army Corps of Engineers, the US EPA, US Fish & Wildlife, VTrans, FHWA, and the Agency of Natural Resources (ANR), three times to inform them of the REP progress, and ensure their concerns were addressed[3]. A compilation of the comments provided by RCG members is provided in Appendix A.

PUBLIC & STAKEHOLDER OUTREACH

Public and stakeholder outreach was extensive and prevalent throughout the project, and included:

- Steering Committee Meetings
- Lead Stakeholder Group Meetings
- VTrans Resource Coordination Group Meetings
- Formal Public Meetings:
    - Local Concerns Workshop
    - Phase 1 (Preliminary) Alternatives Workshop
    - Phase 2 Alternatives
- Numerous Stakeholder and Individual Land Owner Meetings
- City Transportation Energy and Utilities Committee (TEUC) Briefing
- Public Works Commission Briefing
- Burlington City Council Meeting

Table 1 summarizes the various public, stakeholder, agency, and Burlington City meetings held throughout the REP. General project information, presentations, meeting material and notes, as

[3] A meeting with the VTrans RCG scheduled for August 13, 2014 was cancelled. In its place, the project team submitted a memorandum to the RCG describing the revised Purpose and Need Statement and next steps.

well as other relevant documents were made available on the project website: http://www.ccrpcvt.org/our-work/transportation/current-projects/scoping/railyard-enterprise-project/.

PowerPoint presentations, notes from project Steering Committee and public meetings as well as resource agency and public comments are included in Appendix A. City Council and TEUC related documents are provided in Appendix B.

1.4 STUDY TIMELINE

The REP study followed the general timeline outlined below:

- City Council Resolution — June 2012
- Public announcement of project (press conference) — September 2012
- Scoping Project Startup & Steering Committee Kickoff Meeting — January 2013
- Steering Committee Meeting #2 & Local Concerns Public Meeting — March 2013
- Public Design Workshop on Preliminary Alternatives — May 2013
- Steering Committee Meeting #3 — June 2013
- Steering Committee Meeting #4 — July 2013
- Preliminary Purpose and Need statement and draft alternatives were developed between the summer of 2013 and winter of 2014.
- Steering Committee Meeting #5 — December 2013
- February of 2014, the City of Burlington decided to pursue revisions to the preliminary Purpose and Need (P&N) statement to more clearly define the goals of the project and ensure that it fully captures the needs of the community.
- During the spring and early summer of 2014, the City, VTrans, FHWA and the CCRPC worked collaboratively to arrive at an agreed upon statement that satisfied the City's needs while adhering to federal and state requirements. All parties agreed to a revised P&N statement in July, 2014 that was accepted by the REP Steering Committee in September of 2014.
- Steering Committee Meeting #6 — Sept 2014
- Development & evaluation of Revised/New Phase 2 Alternatives based on the new P&N statement — Fall 2014 - 2015
- Steering Committee Meeting #7 — March 2015
- Steering Committee Meeting #8 — October 2015
- Final REP Public Meeting — December 9, 2015
- Selection of Preferred Alternatives by City Council — December 21, 2015
- Final PEL/Scoping Study — Fall 2016

TABLE 1. SUMMARY OF MEETINGS

Meetings	#	Date	Subject
General Public	1	3/7/2013	Local Concerns and Workshop
	2	5/22/2013	Design Workshop - Preliminary Alternatives
	3	12/9/2015	Alternatives Presentation
Brownfield Economic Resource Alliance (BERA)	1	5/23/2013	Coordination
	2	11/12/2013	Phase 2 Alternatives and Stormwater
	3	6/1/2014	Area Wide Planning; Stone Environmental report on Brownfields Assessment
	4	5/18/2015	Updates on REP; planBTV South End; EPA AWP; Brownfields (359 and 351 Pine St.)
Project Steering Committee (Public)	1	1/29/2013	Kickoff; Process; Background; Project Team; Scope of Work
	2	3/27/2013	Results of public meeting; Draft P&N and Preliminary Alternatives
	3	6/12/2013	Discussion of Draft Alternatives
	4	7/9/2013	Screening Criteria & Evaluation of Draft Alternatives
	5	12/11/2013	Phase 2 Alternatives and Railyard Impacts
	6	9/4/2014	Revised Purpose & Need and Draft Alternatives
	7	3/4/2015	Update and evaluation of revised Draft Alternatives and recommend Phase 2 Alternatives
	8	10/29/2015	Results of Phase 2 Alternatives evaluation; Selection of recommended Alternatives to advance into NEPA for the City Council's consideration
Public Works Commission (Public)	1	11/18/2015	Summary of REP process; Evaluation results; Recommended Phase 2 Alternatives to advance into NEPA for the City Council's consideration
VTrans Resource Coordination Group (RCG)	1	4/10/2013	REP Scope; Timeline; Draft P&N; Expectations for review from RCG
	2	6/12/2013	Screening and Review of Draft Alternatives
	3	12/17/2015	Phase 2 Alternatives; Evaluation results and recommended Alternatives for advancing into NEPA
Transportation Energy and Utilities Committee -TEUC (Public)	1	11/4/2015	Summary of REP process; Evaluation results; Recommended Phase 2 Alternatives to advance into NEPA for the City Council's consideration
Burlington City Council (Public)	1	12/21/2015	City Council resolution that advances three Phase 2 Alternatives into NEPA
Landowner Meetings/ Communications	Initial Meeting	Preliminary Alternatives Meeting	Phase 2 Alternatives Meeting
Albee	3/29/2013	6/27/2013	11/17/2015
Adams	3/29/2013	6/27/2013	11/17/2015
NE Flooring	3/29/2013	6/27/2013	11/17/2015
Curtis Lumber	3/5/2013	12/13/2013	11/24/2015
Havey	4/8/2013	7/8/2013	via email 11/2015 - 1/2016
Burlington Housing Auth.	3/27/2013	12/13/2013	

2.0 STUDY BACKGROUND & OTHER INITIATIVES

The Railyard Enterprise Project (REP) conforms to the process outlined in the CCRPC's Project Definition Studies Manual, which, in turn, incorporates the FHWA Planning-Environmental Linkages process. Further, development of transportation alternatives within the REP adheres to the City of Burlington's "Complete Streets" Guidance, in which all modes of transportation are included in development and evaluation alternatives[4].

Two recent transportation planning studies provide important background to the REP, discussed below.

2.1 RELATED PAST STUDIES

Waterfront South Access Project (final June 2010) - this planning study had a similar project area and similar goals as the current study - as described in a 2010 study excerpt:

"… to develop alternatives for access and circulation to and within the Waterfront South area with a primary objective of promoting economic development. To facilitate the development of the Waterfront South area, the emphasis in this project is to develop a street network, supported with appropriate municipal and transportation infrastructure that will in turn foster private commercial investment."

The report concluded with a recommendation for further study of several new street network alternatives.

The City of Burlington has been engaged in several comprehensive plans under the brand of planBTV since 2010 when the downtown and waterfront plan was initiated. These include:

planBTV – A comprehensive land use and development plan focused on Burlington's Downtown and Waterfront which was adopted in June 2015 (https://www.burlingtonvt.gov/planBTV/DW).

Walk, Bike planBTV – A comprehensive master plan effort to develop a comprehensive and interconnected network of bicycle and pedestrian facilities in the City and to select a priority corridor for further evaluation on how to improve the safety and comfort of people walking and biking (http://www.planbtvwalkbike.org/).

planBTV South End – a comprehensive master plan for the area south of Maple St. and west of Shelburne St./South Union St., and north of Queen City Park Rd. The area of concentration for this study is mostly west of Pine St., and includes the REP project area (https://www.burlingtonvt.gov/planBTV/SE).

planBTV Burlington Parks Master Plan - Provides a comprehensive plan for the future of Burlington parks amenities and recreation programming. It includes considerations for all of the City's parks, waterfront, trails, conservation areas, beaches, community gardens, cemeteries, facilities and program offerings (https://www.burlingtonvt.gov/planBTV/Parks-Master-Plan).

[4] See: https://www.burlingtonvt.gov/sites/default/files/DPW/CompleteStreets/Complete-Streets-Reporting-v2.2.1-workingdraft.pdf

Relevant findings for the REP project area from the planBTV plans include:

- The REP includes the largest underutilized area of the entire city, which provides great opportunity for thoughtful redevelopment.
- Redevelopment of areas such as the REP should include much-needed stormwater treatments that address not only the needs of new runoff generators but the discharge of stormwater from adjacent areas flowing through the project area.
- The railyard could be reorganized for better efficiency and to provide space for redevelopment. Reorganization of the railyard also creates the opportunity to extend the urban street grid and improve traffic flow in this part of the city.
- With the reorganization of the railyard and extension of the street grid, numerous opportunities will emerge for strategic infill and liner buildings to reinforce the urban street wall and have active ground floor uses that promote a vibrant streetscape.
- The lack of trail or bike path connections to the waterfront in this area could be addressed with the additional street grid and reorganization of the railyard.

2.2 BROWNFIELD ECONOMIC REVITALIZATION ALLIANCE (BERA) AND AREA-WIDE PLANNING GRANT (AWPG) COORDINATION

In 2013 the U.S. Environmental Protection Agency (EPA) awarded an Area Wide Planning Grant (AWPG) to the City of Burlington to develop strategies for near- and long-term cleanup, reuse, and redevelopment[5] of brownfield sites along Pine Street, including sites within the REP study area.

In addition to the AWPG, the REP and another brownfield site (453 Pine Street) south of the REP study area were selected in 2013 as pilot projects for the ***Brownfield Economic Revitalization Alliance (BERA)*** process in Vermont. The BERA is a joint effort between the Vermont Agency of Commerce and Community Development (ACCD), the Agency of Natural Resources (ANR) and VTrans, and its intent is to help expedite redevelopment of brownfields sites. Selected BERA project sites receive funding priority and increased coordination between the federal, state, regional and municipal government representatives and private sector developers to simplify and fast-track brownfield revitalization projects.

The REP study team coordinated with and attended all BERA meetings to inform them of REP project progress and goals, as well as learn the progress of the BERA efforts including Environmental Site Assessments of properties within the REP.

[5] See: http://cfpub.epa.gov/bf_factsheets/gfs/index.cfm?xpg_id=7942&display_type=HTML

3.0 PROJECT PURPOSE AND NEED

The Purpose and Need (P&N) statement of a project is essential for establishing a basis for the development and screening of alternatives and selection of preferred alternative(s). Significant effort within the REP was invested in developing a Purpose and Need Statement that would guide the development and evaluation of alternatives and ultimately the selection of preferred alternatives to advance into an environmental permitting process.

The final Purpose and Need Statement, presented below, emphasizes the economic development aspects of the REP and the need to develop a multimodal transportation system, connecting Pine Street and Battery Street, to support future economic development within the REP study area.

3.1 PURPOSE

The purpose of the Railyard Enterprise Project is to develop a network of multimodal transportation infrastructure improvements connecting Pine Street and Battery Street, which incorporate the principles of Complete Streets, and to: 1) support economic development in the area; 2) improve Livability of the surrounding neighborhoods; 3) enhance multimodal travel connectivity between the Pine Street corridor and Battery Street in the Burlington Waterfront South area; and 4) improve intermodal connections to the Burlington Railyard, a National Highway System (NHS)-designated intermodal facility.

3.2 NEED

- **Develop supporting infrastructure to be consistent with the long-term vision of planBTV (Downtown and Waterfront part of the municipal plan) associated with the Railyard Enterprise Project area, that supports economic development in the area and enhances Railyard operations.** There is a need for a new street network connecting Pine Street to Battery Street and related infrastructure to support economic development in the area. planBTV has identified the Railyard Enterprise Project area as prime for infill, mixed use development to increase economic activity and to provide accessibility to underutilized lands adjacent to the Railyard.

- **Improve Livability and connectivity in the Railyard Enterprise Project area.** There is a need to improve the livability of residential areas and emerging mixed-use districts in the Railyard Enterprise Project area. Livability can be enhanced by dispersing traffic and reducing vehicle queues at neighborhood intersections, including the intersections of Pine Street with King and Maple Streets. Additional transportation connections between Pine Street and Battery Street, that do not involve Maple or King Street, will help improve Livability and travel conditions for all users in the Railyard Enterprise Project area.

- **Enhance multimodal travel connections and choices in the Railyard Enterprise Project area.** There is a need for additional multimodal connections in the Railyard Enterprise Project area to support transit system performance, enhance bicycle and pedestrian connectivity and access and facilitate travel for families from existing neighborhoods to Battery Street, the Waterfront, and Lake Champlain. There is also a need to create safe and efficient, family-friendly, dedicated pedestrian and bicycle connections from Pine Street neighborhoods between Maple Street and Lakeside Avenue to the

Waterfront, the Burlington Bike Path, and Lake Champlain and improve access from the King Street neighborhood.

- **Improve connectivity and access between nearby streets, the Burlington Railyard, a NHS-designated intermodal facility, and Battery Street, while reducing the impacts of freight operations on adjacent neighborhoods.** There is a need to improve connections to the Railyard in a way that enhances its operations while also reducing the impact of freight operations on adjacent neighborhoods. PlanBTV recognizes the importance of the Burlington Railyard to the City's economy and environment.

4.0 EXISTING CONDITIONS

4.1 PROJECT AREA

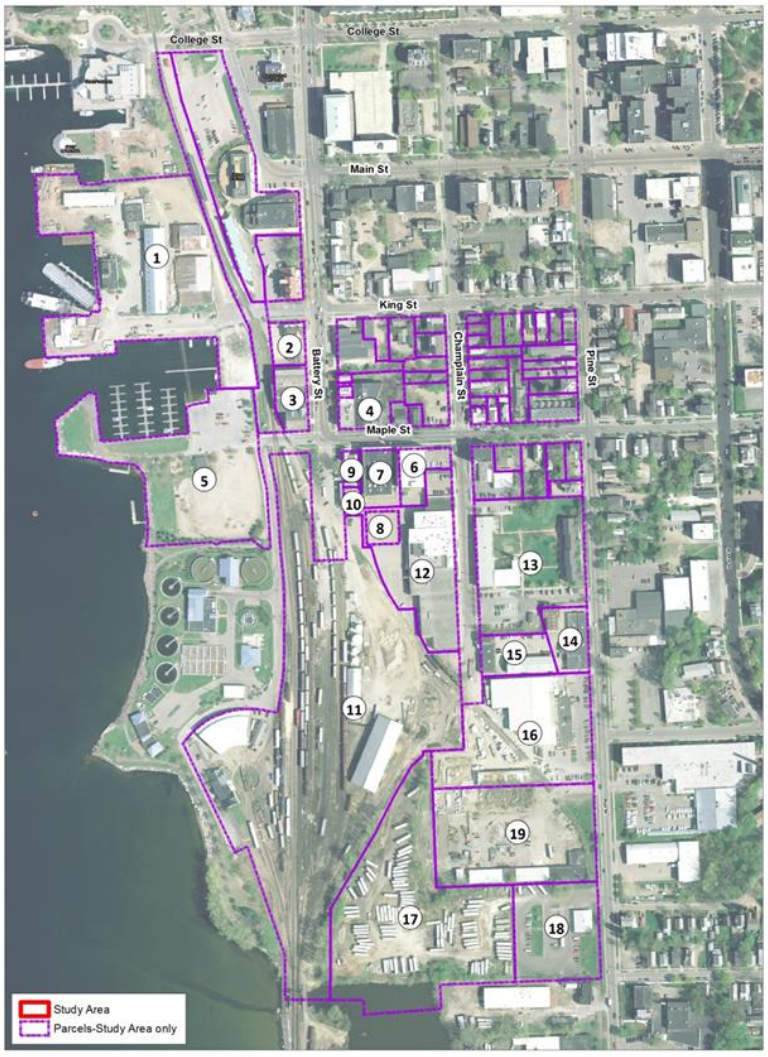
The project area is shown in Figure 2, outlined in red. The sections that follow within Chapter 4 provide existing conditions information on parcel ownership; bicycle, pedestrian and transit facilities; vehicular traffic in the area; brownfields and hazardous sites; wetlands and flood zones; pervious areas; prime agricultural soil; rare, threatened or endangered species; utilities; cultural resources (historic and archaeological).

FIGURE 2. PROJECT AREA

4.2 KEY PRIVATE LAND PARCELS

Key private land parcels in the project area are indicated in Figure 3.

FIGURE 3. KEY LAND PARCELS AND OWNERS



Parcel Map Key	Owner Name
1	LAKE CHAMPLAIN TRANSPORTATION
2	SPILLANE LOWELL
3	STONE STORE HOLDINGS LLC
4	130 SOUTH WILLARD STREET PARTNERSHIP
5	CITY DPW PARKS REC DEPT
6	WHARF LANE HOUSING LP
7	MGD INC
8	
9	COMPLEX ENTERPRISES LLC
10	
11	VERMONT STATE OF
12	INDEPENDENT BLOCK LLC
13	BOBBIN MILL BUILDING COMPANY
14	BENT PARTNERSHIP LLP
15	NEW ENGLAND FLOOR COVERINGS
16	PARKVIEW AT TICONDEROGA LLC
17	VERMONT RAILWAY
18	HAVEY DENNIS P
19	CITY DPW

4.3 TRANSPORTATION FACILITIES

BICYCLE / PEDESTRIAN FACILITIES

Figure 4 shows the existing bicycle/pedestrian facilities in the REP project area. Future improvements include a multi-use path on the west side of Pine Street as part of the planned Champlain Parkway.

FIGURE 4. BICYCLE AND PEDESTRIAN FACILITIES

TRANSIT – CCTA

The Chittenden County Transit Authority (now Green Mountain Transit – GMT) serves the project area with numerous bus transit routes shown in Figure 5.

FIGURE 5. TRANSIT ROUTES

VEHICULAR TRAFFIC

The base traffic conditions analyzed for this report assumes the 2018 traffic volumes projected by the Final EIS developed for the Champlain Parkway. Traffic volume assumptions and corresponding base condition intersection performance results are provided in Appendix C.

Future traffic conditions are based on the 2035 traffic volumes developed for the Final EIS for the Champlain Parkway. However, additional vehicle trips were added for 2035 analyses to account for estimated traffic that might be generated by the different levels of development that could be realized due to the new street network, for the different REP alternatives.

Using these traffic volumes, the expected vehicular delay and corresponding levels of service at the intersections in the study area are presented in Table 2.

TABLE 2. LEVEL OF SERVICE AT STUDY AREA INTERSECTIONS FOR 2018 AND 2035

Intersection	2018		2035	
	LOS	Delay (sec)	LOS	Delay (sec)
Battery St/King St	B	10	B	11
Battery St/Maple St	A	8	A	8
Champlain St/King St	B	12	B	12
Champlain St/Maple St	B	12	B	13
Pine St/King St	B	12	B	12
Pine St/Maple St	E	64	E	73
Pine St/Kilburn St	A	6	A	6
Pine St/Pine Pl	A	2	A	2
Pine St/Marble Ave	A	2	A	2

4.4 ENVIRONMENTAL RESOURCES

BROWNFIELDS AND HAZARDOUS WASTE SITES

As the REP project area has seen industrial development from the earliest days of Burlington's history, there have been a number of brownfields and hazardous waste sites identified within and nearby.

A brownfield is defined by the Environmental Protection Agency (EPA) as *"a property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant."*[6] The key factors in this description are that the site has contaminants and, due to strategic location, also has potential for redevelopment.

[6] https://www.epa.gov/brownfields/brownfield-overview-and-definition

The most recent summary of brownfields was compiled for the planBTV South End project[7] which, in turn, summarized information from the EPA brownfields "Area-Wide Plan" (AWP) program. Through AWP, EPA provides funding to conduct research to aid in the eventual cleanup and reuse of brownfield sites. Through the brownfields AWP approach, the community identifies a specific project area that is affected by a single large or multiple brownfields, then works to develop a reuse plan for the project area. The AWP Project Area is located primarily within the Burlington railyard and also includes other contiguous properties located to the west of Pine Street and extending as far south as the Burlington Electric Department property.

In addition to the Vermont Railway property, three other brownfield sites are within the REP study area:

- 351 Pine St. (currently owned by VT Railway, formerly owned by Havey);
- 345 Pine St (owned by Havey, site of the former VT Transit Passenger Terminal); and
- 339 Pine St (the former Public Works / Street Department site).

In addition to the brownfield sites described above, the Vermont Department of Environmental Conservation maintains a list of hazardous waste sites, and reports the priority and status of each site. Status relates to whether there are on-going investigations (open) or not (closed). Priority ranges as follows:

HIGH - Site with sensitive receptors that are affected with contamination

MED - Site with sensitive receptors that are threatened by contamination

LOW - Site with contamination to soils or groundwater, but no effect on sensitive receptors

SMAC - Site Management Activities Completed (closed)

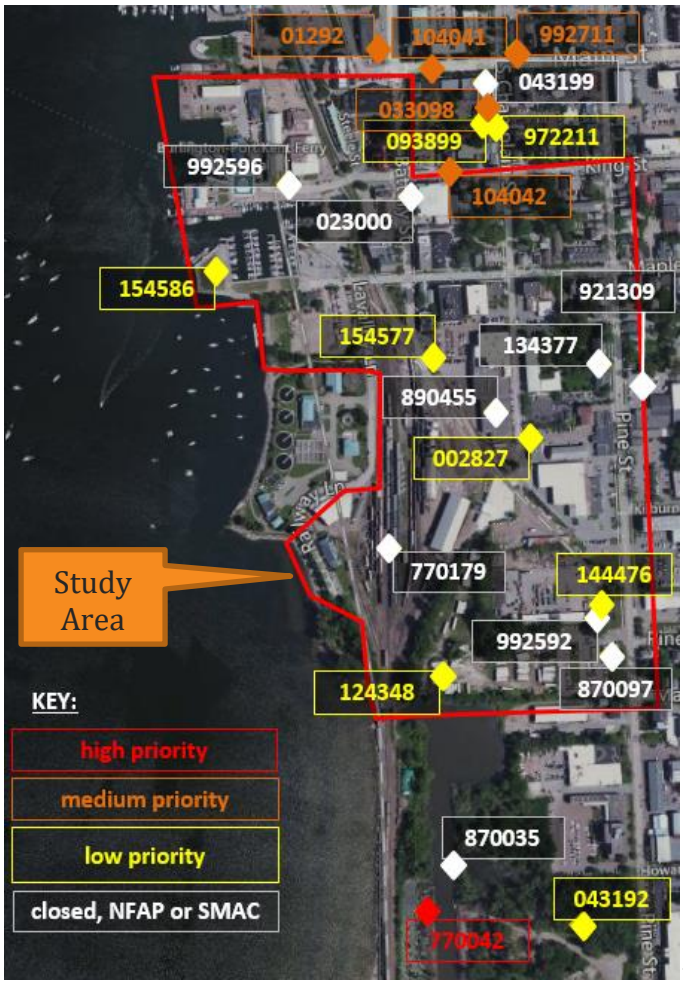
NFAP – No Further Action Planned (closed)

Figure 6 shows the approximate location of the various sites listed in or near the project area, and their priority. The majority of sites are closed or low priority, with known and stable contaminant envelopes. The medium priority sites at the north end of the project limits are not considered contained, and may change with time.

The one high priority site, located south of the REP project area, is the Pine Street Barge Canal Superfund Site (770042), which has seen extensive investigation in the past. Due to the presence of significant contaminants, the site has received mitigation remedies including construction of an outlet weir (separating the Barge Canal and Turning Basin from Lake Champlain) and the installation of a cap consisting of geotextile material covered by sand (in the Canal and Turning Basin) and by sand and topsoil in adjacent upland areas.

[7] https://www.burlingtonvt.gov/sites/default/files/PZ/planBTV/SouthEnd/2015.02.10_Report_Final.pdf, see page 55 and map in Appendix D

FIGURE 6. HAZARDOUS WASTE SITES IN PROJECT AREA



SITE NUMBER	ADDRESS (*)	PRIORITY
154586	Perkins Pier (5)	LOW
154577	203 Lavalley Ln. (11)	LOW
144476	339 Pine St. (19)	MED
134377	235 Pine St. (13)	MED
124348	351 Pine St. (17)	LOW
104042	33 King St.	MED
104041	30 Main St.	MED
093899	157 S. Champlain St.	LOW
043199	53 Main Street	SMAC
043192	453 Pine Street	LOW
033098	151 S. Champlain St.	MED
023000	23 King St.	SMAC
012892	131 Battery St.	MED
002827	266 Champlain St.	LOW
992596	King Street Dock (1)	SMAC
992592	Pine St.	SMAC
921309	226 Pine St.	SMAC
890455	S. Champlain St. (12)	SMAC
870097	Pine St. (18)	NFAP
870035	n/a	NFAP
770179	1 Railway La. (11)	SMAC
770042	Pine Street Barge Canal	HIGH

**Note: cross reference to parcel # in Figure 3*

Due to the potential for contamination to spread northward into the project area, three properties within the REP study area have deed restrictions as to what activities can and cannot occur on site. These properties are depicted in Figure 7. The deed restrictions for the former Street Department site (339 Pine St) and the Havey Parcel (345 Pine St.) are included in Appendix D.[8]

In 2013, the Vermont Railway System (VRS) acquired the property located at 351 Pine Street (DEC Site 124348). Under the Area-Wide Planning Grant, BERA commissioned a Phase II Environmental Site Assessment of this property. In February 2015, a Targeted Brownfields Assessment was reported for the Street Department site. The documents associated with each of these assessments are in Appendix J.

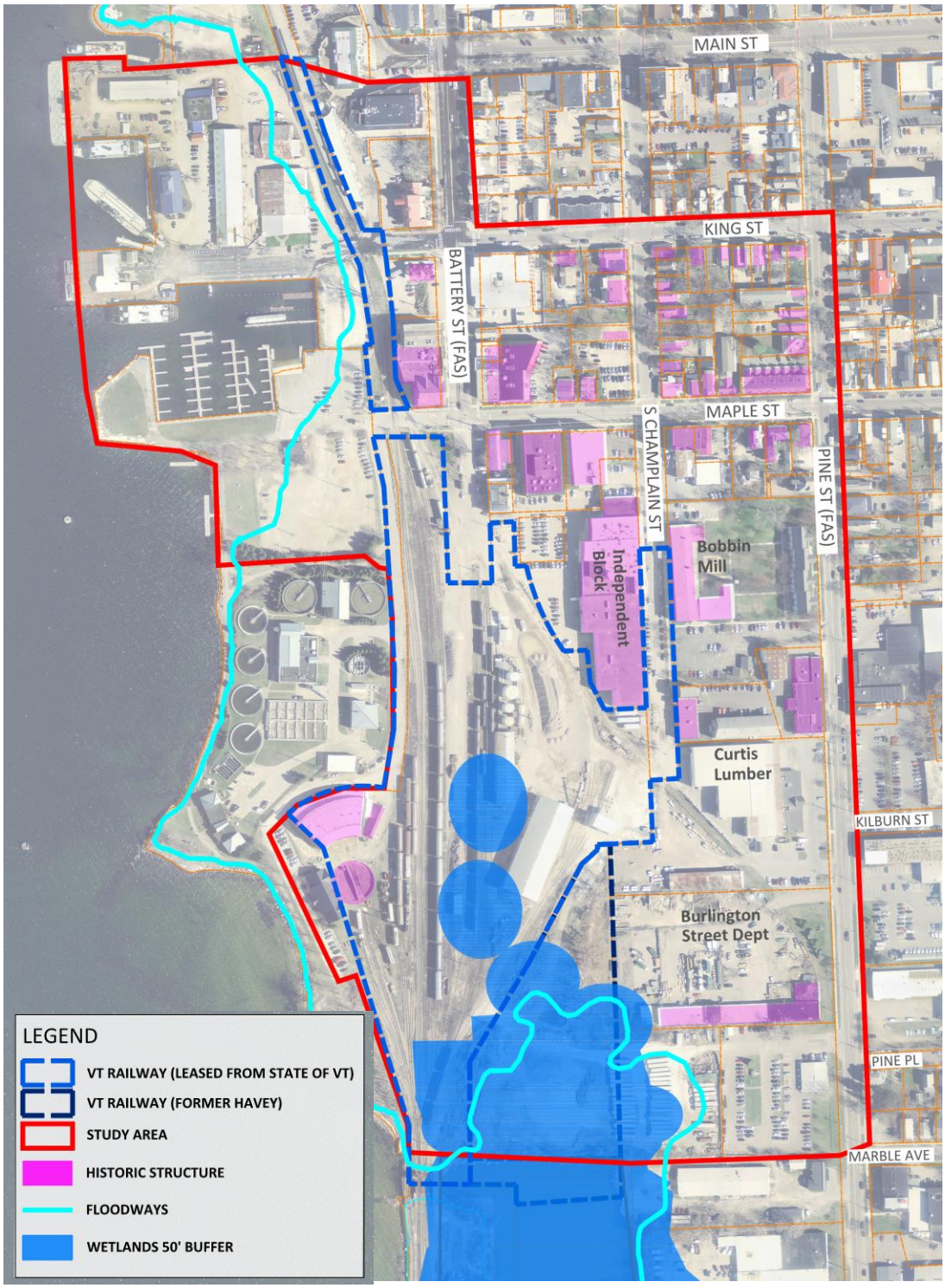
FIGURE 7. DEED RESTRICTED PROPERTIES

[8] All related restrictions (*Institutional Controls*) can be found on the EPA website here: http://semspub.epa.gov/src/collection/01/SC31736

WETLANDS & FLOOD ZONES

FEMA flood mapping, the Vermont state wetland inventory and wetlands delineated in the Champlain Parkway FEIS have been depicted in Figure 8.

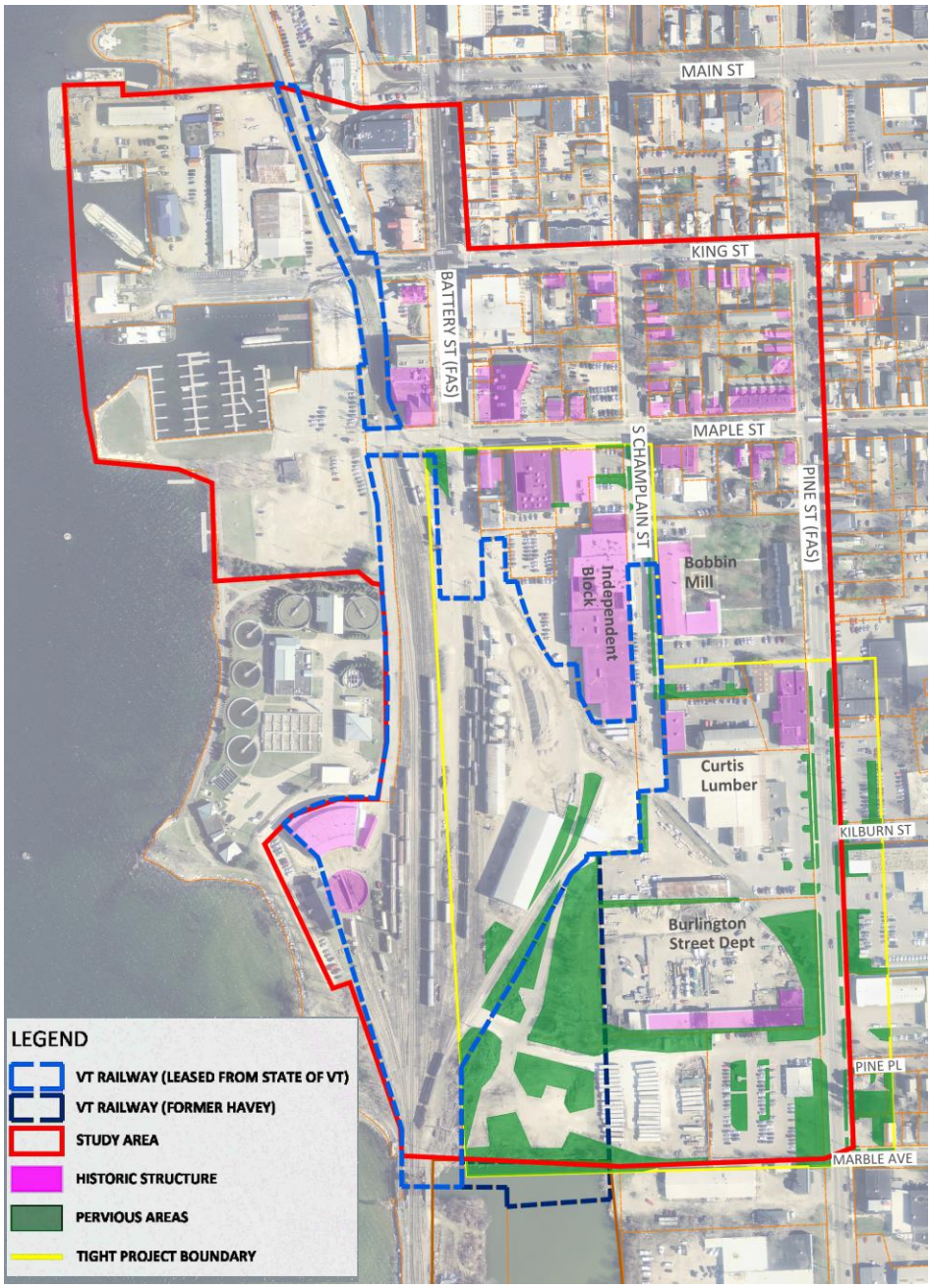
FIGURE 8. WETLANDS, FLOOD ZONE



PERVIOUS AREAS AND STORMWATER

Pervious areas -- areas where stormwater can currently percolate into the subsoil -- are a resource for stormwater management, which is an important challenge within the REP study area. Areas with pervious soils are shown in Figure 9. This figure also shows an area demarcated as "Tight Project Boundary." This area encompasses all the street alternatives considered in subsequent phases of the project, which is why pervious areas in the northeast section of the study area are not included.

FIGURE 9. PERVIOUS AREAS



PRIME AGRICULTURAL SOILS

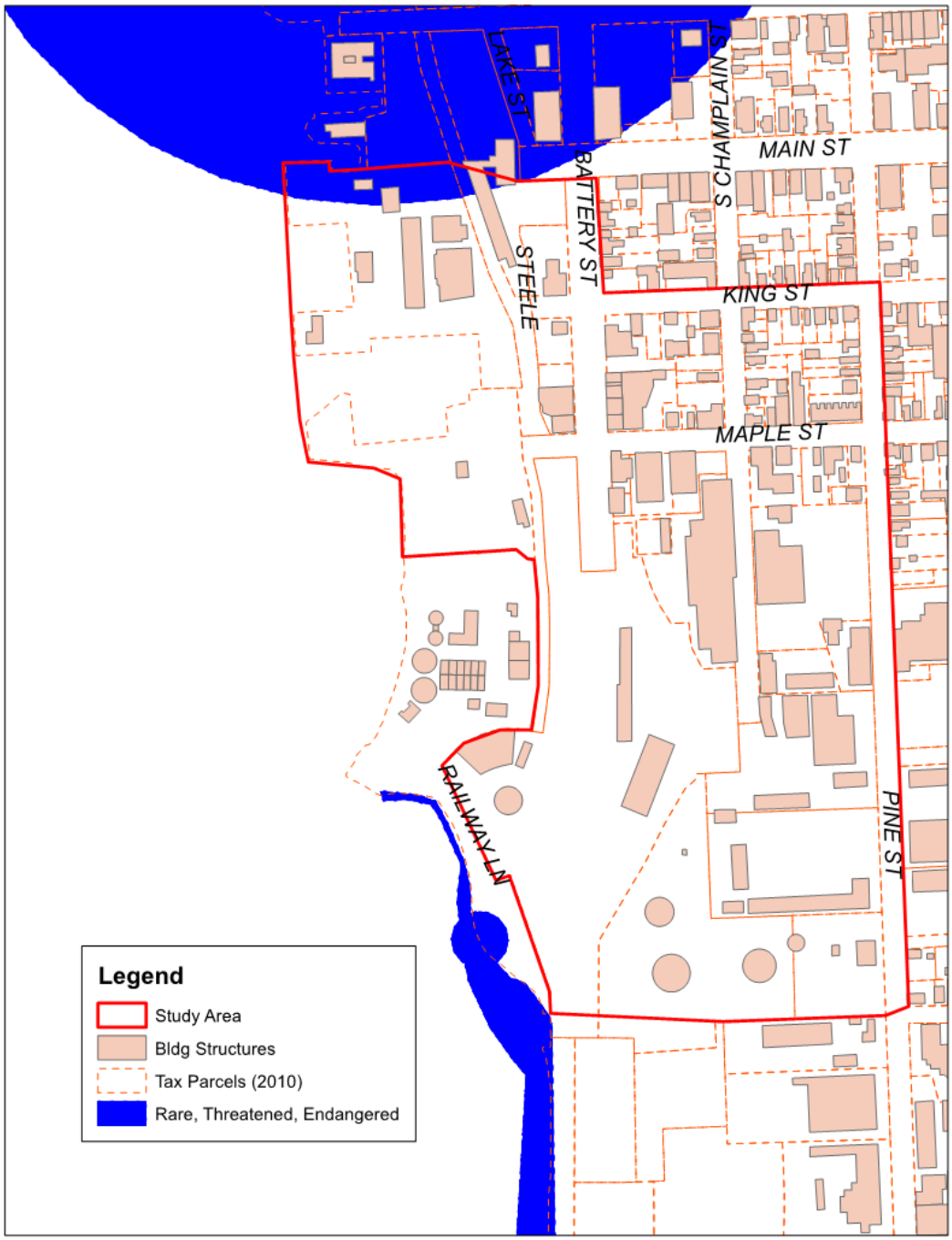
Valuable agricultural soils -- soils of "statewide" significance (purple) and prime soils (green) -- near the project area have been mapped by the US Soil Conservation Service and are shown in Figure 10. There are no valuable agricultural soils within the project area.

FIGURE 10. MAPPED PRIME AG SOILS IN PROJECT AREA

RARE, THREATENED OR ENDANGERED SPECIES AND SIGNIFICANT COMMUNITIES

A search of the VT DEC database for known Rare, Threatened or Endangered Species and Significant Communities resulted in the areas depicted in Figure 11. This includes both flora and fauna.

FIGURE 11. RARE, THREATENED OR ENDANGERED COMMUNITIES

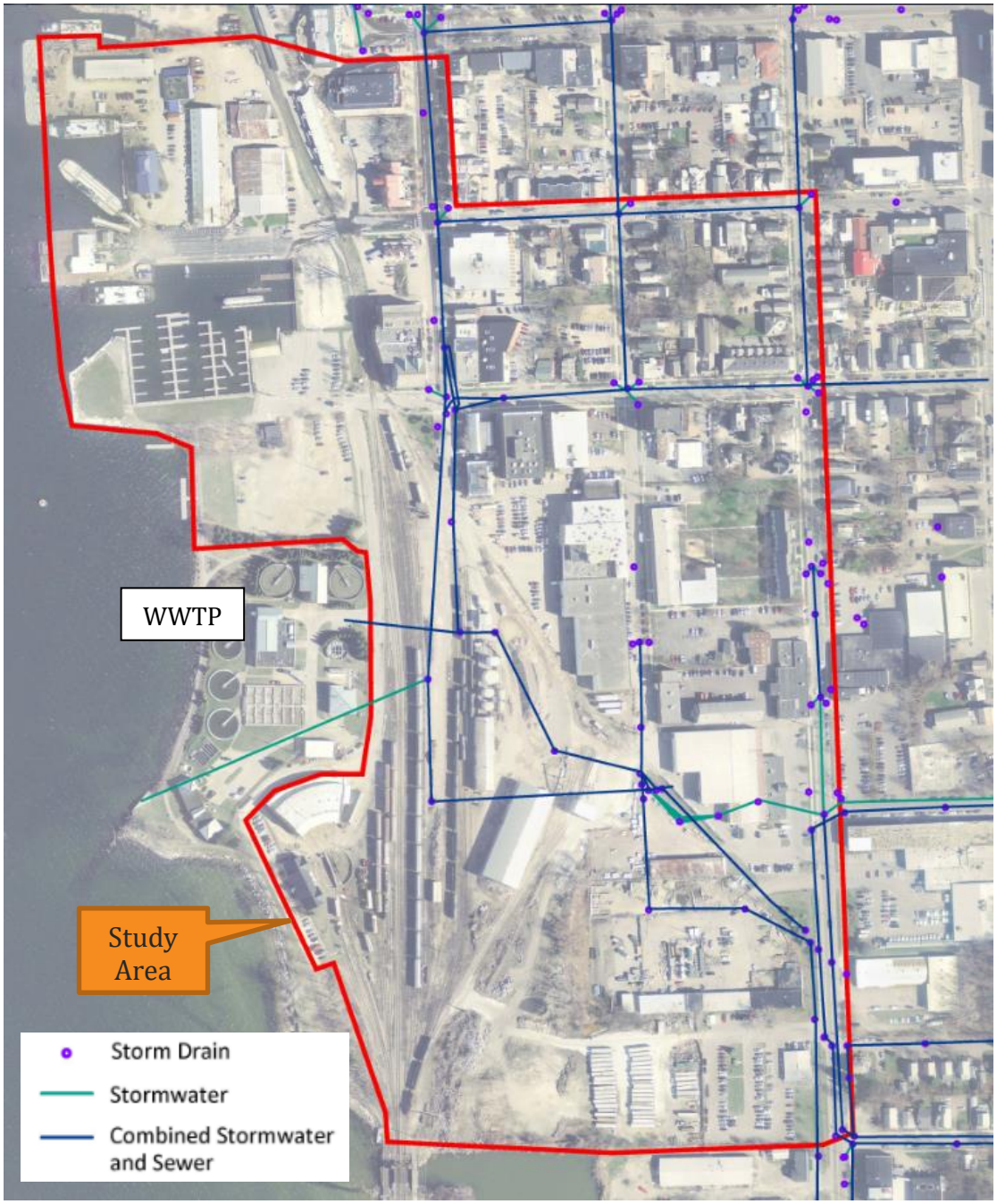


4.5 UTILITIES

SEWER / STORMWATER

The stormwater collection system is depicted in Figure 12. The majority of the system in the project area is combined with the sanitary sewer system, leading to the wastewater treatment plant (WWTP).

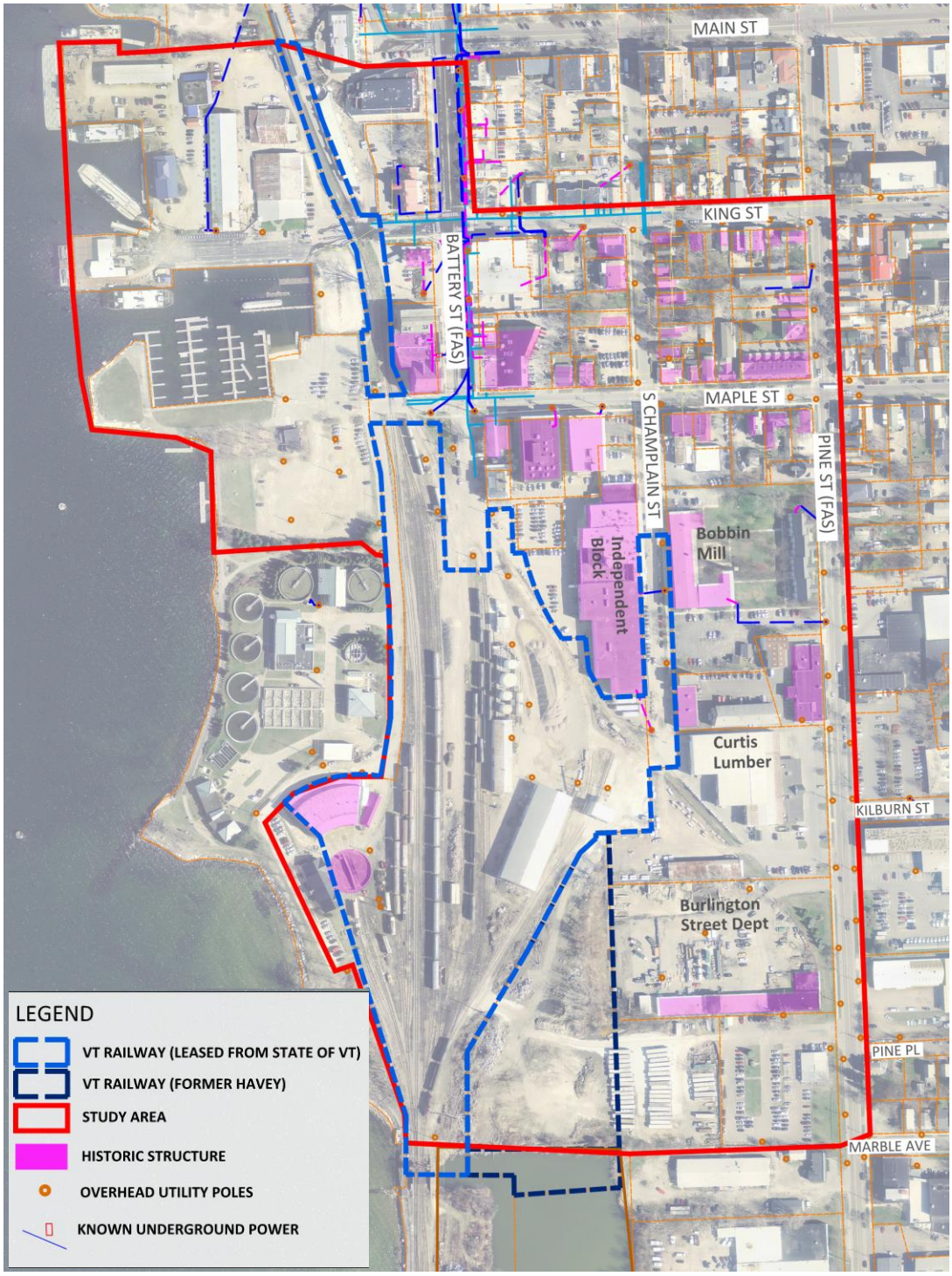
FIGURE 12. STORMWATER SYSTEM



PRIVATE UTILITIES

Mapped utility infrastructure (utility poles and underground powerlines) is shown in Figure 13, as reported by Burlington Electric Department.

FIGURE 13. ABOVE GROUND UTILITY POLES AND KNOWN UNDERGROUND POWER LINES



4.6 CULTURAL RESOURCES

The University of Vermont Consulting Archaeology Program (UVM-CAP) was engaged to review the historic and archaeological resources in the project area. The UVM-CAP team produced two separate reports that are included in Appendix E. The results are summarized below. In addition, the VTrans Archaeology and Historic Preservation Officers were consulted throughout the REP effort and participated in the Stakeholder Group that provided overall direction to this project.

HISTORIC

The project area includes portions of two historic districts – The Battery St and Pine St districts. The former is on the National Register of Historic Districts, and the latter is eligible. The district boundaries and historic resources are shown in Figure 14. "Contributing" resource refers to whether a structure is relevant to the district's designation.

FIGURE 14. HISTORIC RESOURCES IN PROJECT AREA

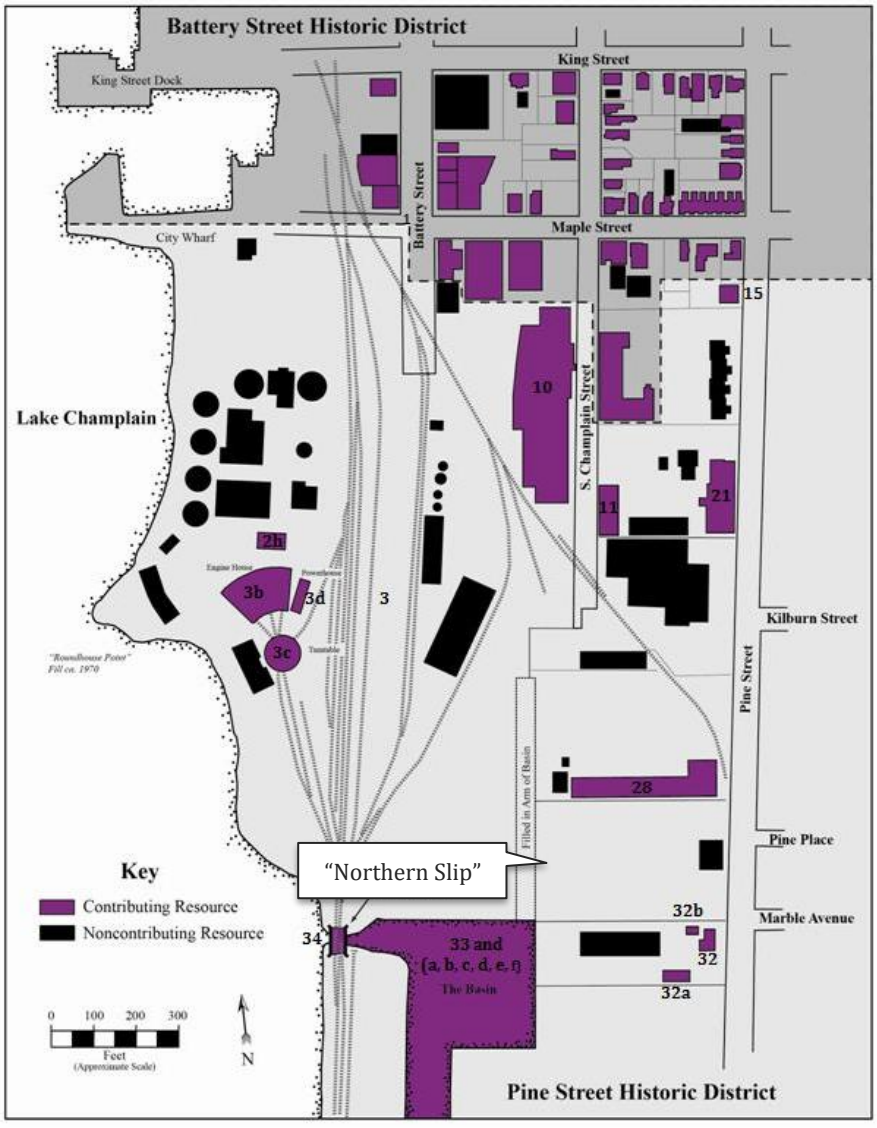


FIGURE 14 (Cont'd). HISTORIC RESOURCES IN PROJECT AREA

Structure Number*	Structure Name and Year Built
2h	Garage, 1951
3	Railyard, 1849
3b	Engine Roundhouse, 1916-18
3c	Turntable, ca. 1940
3d	Pumphouse / Boiler Room, ca. 1920
10	Champlain Valley Fruit Company, 1919
11	National Biscuit Company, 1923
15	Dwelling, ca. 1895
21	Bullocks Standard Steam Laundry, ca. 1925 / J.W. Goodell Stone Manufactory, ca. 1912
28	Burlington Street Department, 1934
32	Citizens Coal and Oil, 1900
32a	Wagon Shed, ca. 1906
32b	Stable/Carriage Barn, ca. 1910
33	Pine Street Barge Canal Basin, 1868
34	Drawbridge, 1919

*Structure numbers correspond to draft National Register Nomination assigned resource numbers.

ARCHAEOLOGICAL

Several archaeologically sensitive sites were identified and shown in Figure 15, including those previously identified during the Champlain Parkway FEIS. Specifically, five sites were identified, as follows:

1. VT-CH-732-the historic "Gregory" site, comprised of a stone foundation;
2. VT-CH-733-the historic "Post" site, which may represent a portion of a wooden shed associated with a lumber yard at this location;
3. VT-CH-734-the historic "Coal" site, remnants of a coal storage facility consisting of two circular concrete foundations and a flat constructed stone surface;
4. VT-CH-735-the historic "Lawn" site, remnants of a concrete foundation and associated wiring and piping, judged by earlier investigations not to be archaeologically significant;
5. VT-CH-736-the historic "Rail" site, remnants of a circular foundation of the turntable portion of the roundhouse, described as "remarkably preserved beneath the current railroad yard."

In addition to these five specific sites, a general area in the northeast quadrant of the study area was identified as sensitive for precontact Native American sites.

A third area of sensitivity includes the area of the historic boat slip (aka: the "Northern Slip") adjacent to the Barge Canal. These sensitive areas and known sites are identified in Figure 15.

Recommendations for further investigation include:

1. Phase I site identification, via backhoe trenching, in the area of the historic boat slip, now filled, that extends north from the Barge Canal, and
2. Phase II site evaluations of sites VT-CH732, VT-CH-734 and VT-CH-735.

Further consultation with the VTrans Archaeology Officer regarding these sites is discussed in Section 6.1 of this report.

FIGURE 15. MAP OF ARCHAEOLOGICALLY SENSITIVE AREAS.

The technical effort in developing the PEL document did not include special investigations that are considered more appropriate to the subsequent environmental documentation occurring within the NEPA process. Examples of these special investigations are:

- Noise Impacts
- Air Quality Impacts
- Groundwater Impacts
- Surface Water Impacts
- Impacts to Underground Utilities, including:
    - Electric
    - Communications
    - Stormwater
    - Municipal Water
    - Municipal Wastewater
- Impacts to Fisheries and Wildlife
- Section 6(f) (LWCF) Impacts
- Visual Impacts
- Energy Impacts
- Construction Impacts
- Indirect Effects and Cumulative Impacts

As this project advances into NEPA, resource specialists will be engaged to evaluate the impacts of alternatives on the resources listed above.

5.0 ALTERNATIVES DEVELOPMENT AND ASSESSMENT

5.1 CONSIDERATION OF FULL RANGE OF ALTERNATIVES

Many alternatives, that met the Purpose and Need to various degrees, were considered in the initial phase of this project, and many were generated at the public workshop (May 21, 2013). Considerations included:

- Extending the existing city grid-street pattern and connecting Pine Street to Battery Street. Expected benefits include improved walkability, dispersion of vehicular traffic, increased green space, and additional on-street parking. Street frontage and lot size is also optimized that increase development opportunities and access.
- Impacts to the railyard (commercial and switching yard) due to the new grid streets. Additional access to the railyard from Pine Street, which could potentially reduce truck traffic from the Maple and King Street neighborhoods.
- Lining up new streets with existing street intersections on Pine Street (Kilburn, Pine Place, and Marble Ave.).
- Property and existing business impacts.
- Impacts to historic structures such as the Independent Block and the former Public Works Garage ("the street department" building).

Examples of the initial (draft) alternative alignments considered are sketched in Figure 16, primarily using a grid street pattern, and Figure 17, incorporating a diagonal alignment that threads the new street in a somewhat less disruptive manner to existing structures/land uses.

FIGURE 16. INITIAL STREET ALTERNATIVES SET 1 OF 2 (GRID STREETS)

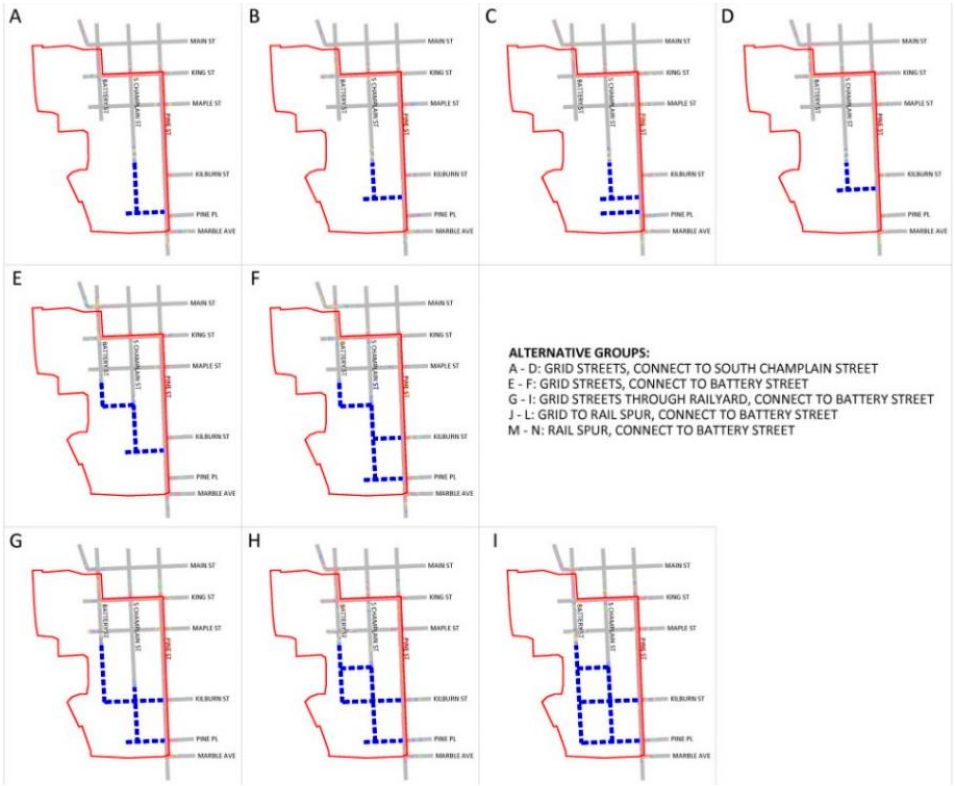
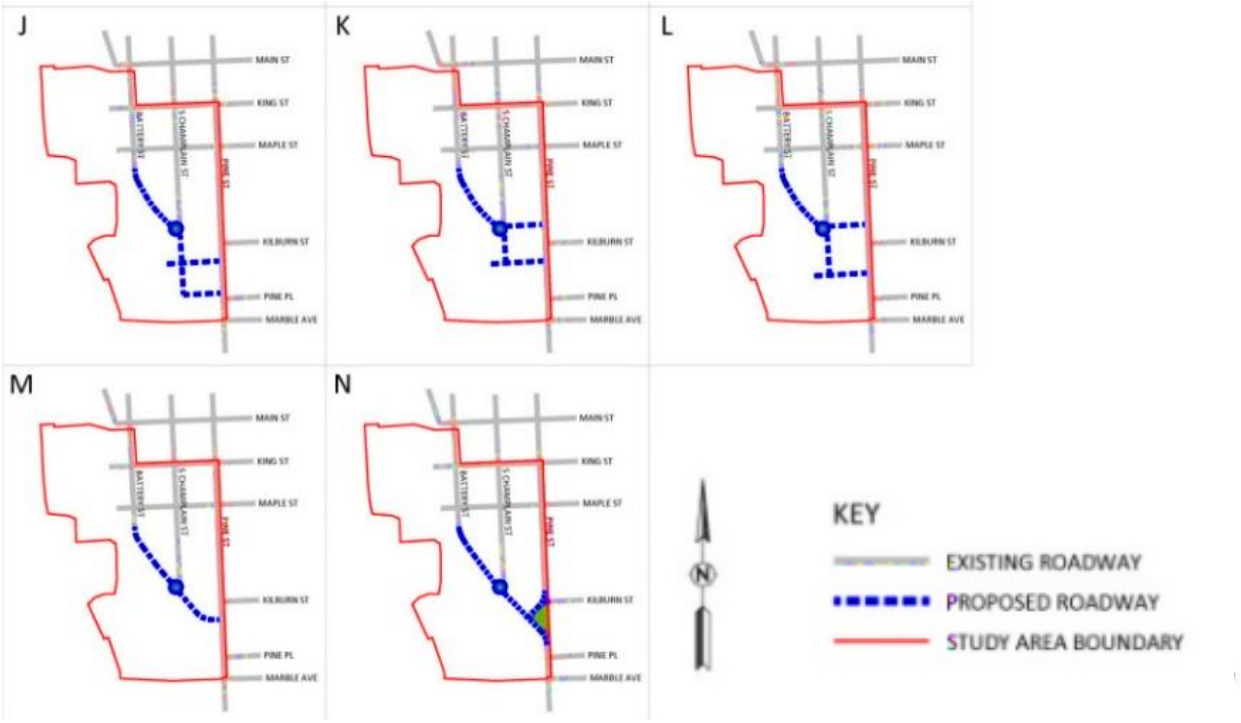


FIGURE 17. INITIAL STREET ALTERNATIVES SET 2 OF 2



From this initial group, Alternatives A, B, C and D were eliminated as they do not meet the Purpose and Need (July 2015), which calls for a direct connection from Battery Street to Pine Street.

5.2 PHASE 1 REP ALTERNATIVES

Commonalities and subtle differences allowed for a consolidation of alternatives into a set of 10 preliminary alternatives, referred to as the Phase 1 Alternatives, which have been separated into two categories – minor or major impacts to the railyard. Conceptual alignments of these alternatives (in dashed black lines) are depicted in Figures 18, 19 and 20.

FIGURE 18. PHASE 1 REP ALTERNATIVES A – D

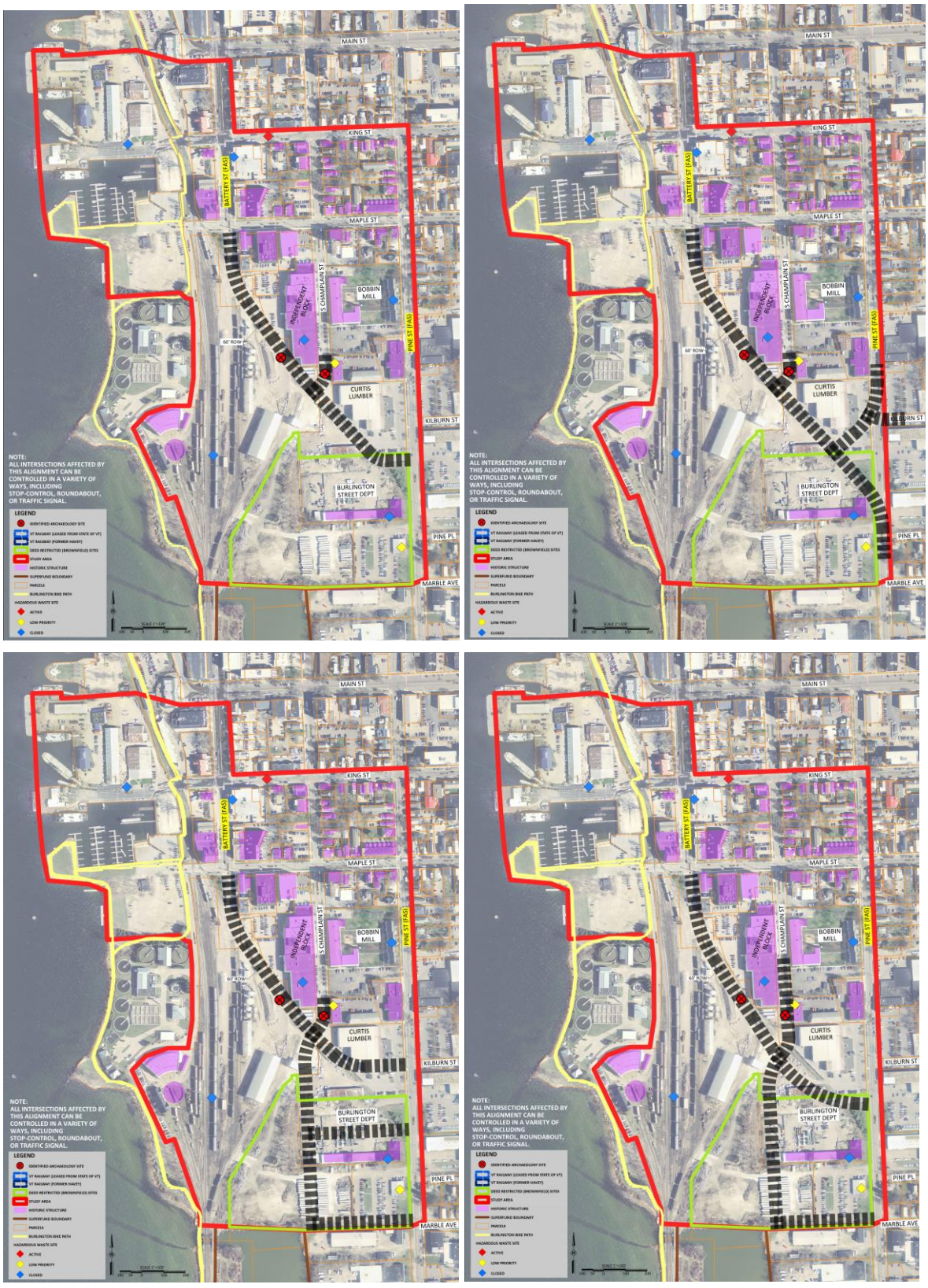


FIGURE 19. PHASE 1 REP ALTERNATIVES E - H

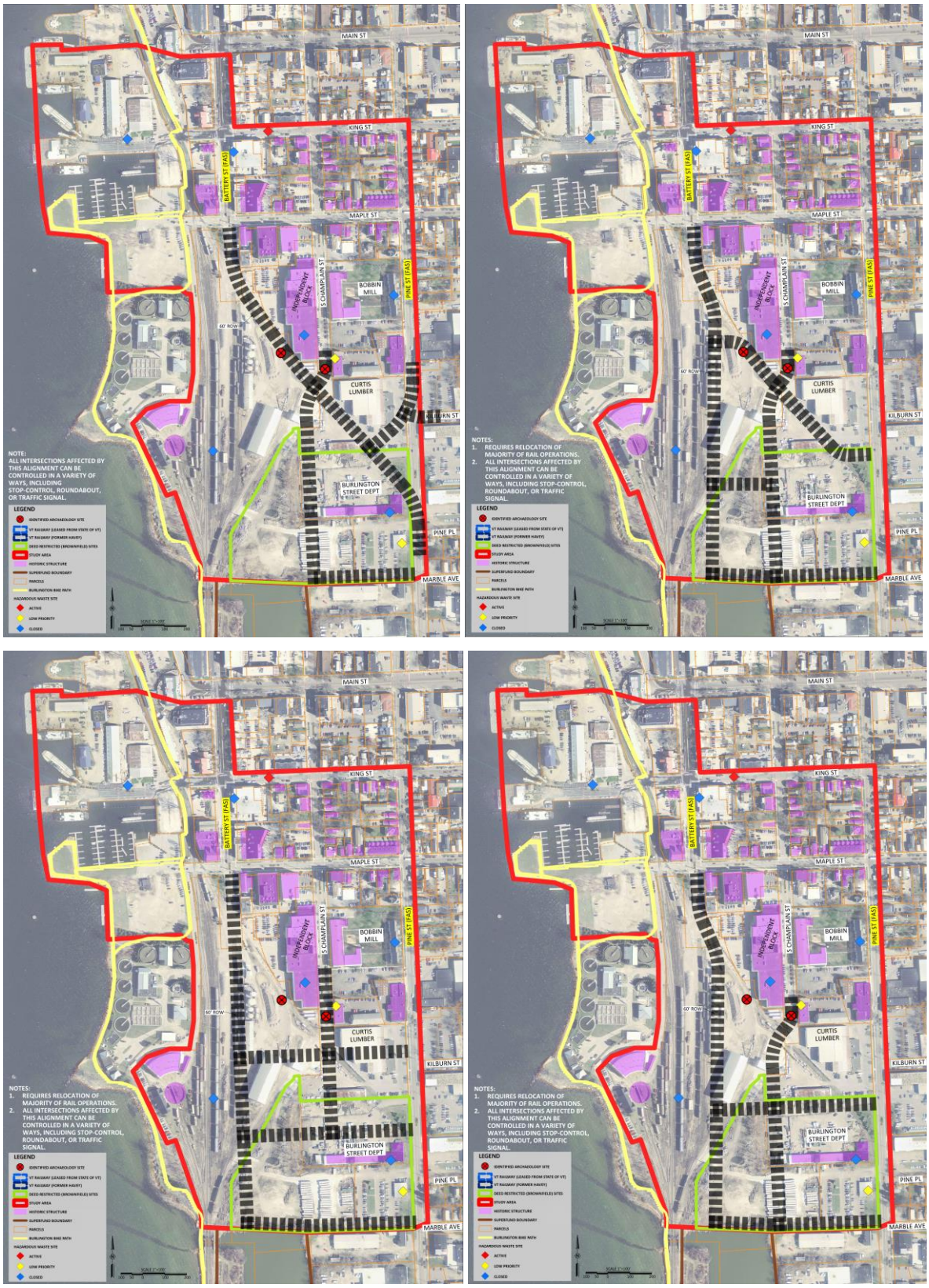
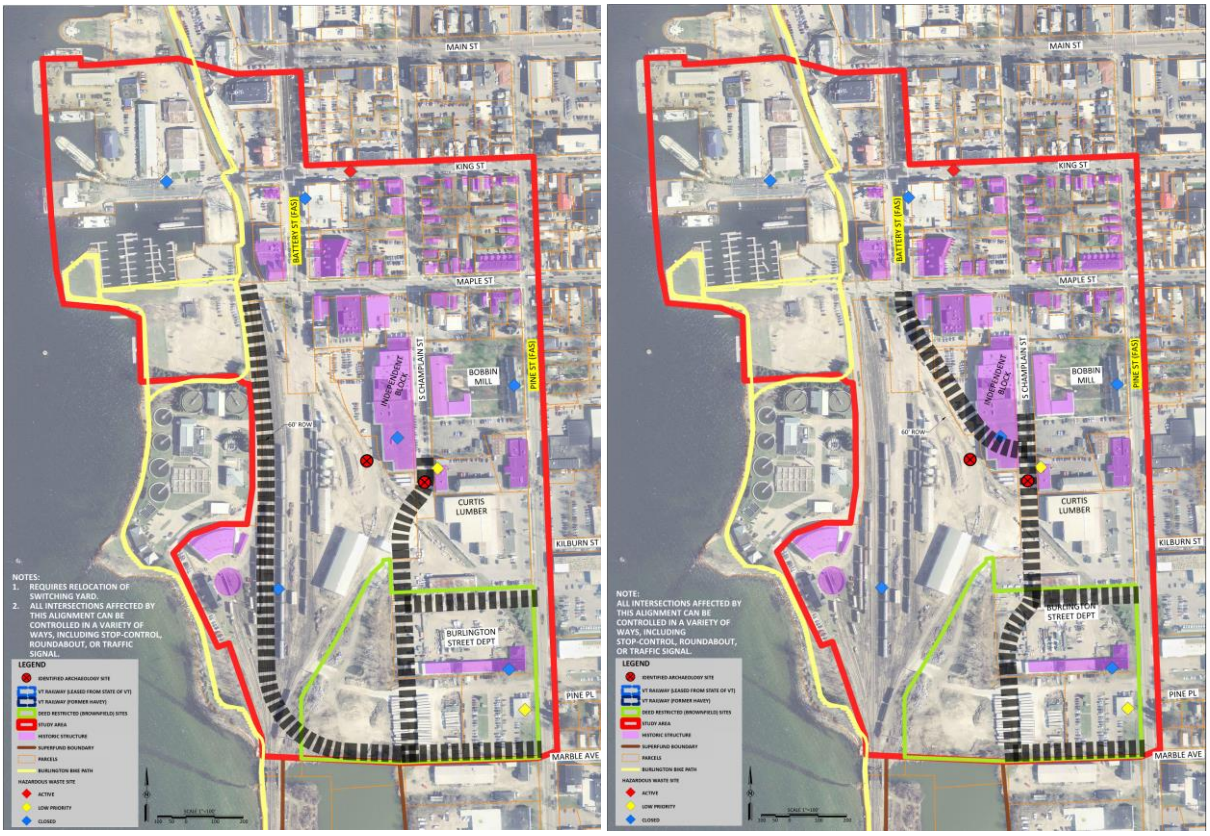


FIGURE 20. PHASE 1 REP ALTERNATIVES I - J



5.3 EVALUATION OF PHASE 1 ALTERNATIVES

Qualitative screening criteria were developed to evaluate the Phase 1 Alternatives with input from the stakeholder group. These were subsequently approved by the Steering Committee and they include:

- **Historic Block Pattern:** *Does an alternative create city blocks of 350-600 ft. on a side*
- **Street Frontage:** *Does an alternative create new developable street frontage*
- **Brownfield Redevelopment Potential:** *Does an alternative provide redevelopment potential to low/med risk brownfield sites*
- **Neighborhood Traffic:** *Does an alternative add or remove traffic from the Maple and King neighborhoods*
- **Connectivity between Pine Street and Battery Street Corridors**
- **Transit Operations:** *Does an alternative impact or enhance transit operations (input from CCTA)*
- **Railyard Switching and Commercial Operations:** *Does an alternative impact or enhance current railyard operations*
- **Historic Buildings/Resources:** *Does an alternative adversely impact historic buildings or resources*
- **Archaeological Resources:** *Does an alternative adversely impact archaeological resources*
- **Impacts to Private Properties:** *Does an alternative adversely impact private property*

The consultant team in close collaboration with Burlington's Department of Planning and Zoning developed possible land use scenarios for all Phase 1 Alternatives to assess the economic development potential of each alternative. Specific steps for this assessment included:

1. Identify new areas for development based on potential access via the new grid street network.
2. Develop various assumptions for the type of business, number of floors, and portion built within the planning horizon of the REP.
3. Fit typical building footprints to the identified new areas.
4. Assess new developments for parking requirements, expected number of employees and vehicle trip generation.
5. Estimate a potential development value based on typical property assessments for the land use type.

A detailed memorandum explaining this process and the outcome is provided in Appendix F.

SCREENING PROCESS AND RESULTS:

Each Phase 1 Alternative was compared to the existing/no-build condition. Each alternative was evaluated by applying a unique scale ranging from "++" to "- -" for each criterion listed above. Under this evaluation methodology, a "++" signifies a substantial benefit and a "- -" signifies a substantial shortcoming of an alternative. Alternatives that are neutral would be rated as a "0". Partial positives or negatives will be rated as "+" or "-", respectively. See table below:

Scoring Key	Score	Description
--	-2	substantially deficient or negative
-	-1	deficient or negative
0	0	neutral
+	1	beneficial or positive
++	2	substantially beneficial or positive

Results of the evaluation of Phase 1 REP Alternatives are presented in Tables 3 through 6. Overall scoring and ranking of each Phase 1 Alternative are presented in Table 7.

TABLE 3. EVALUATION RESULTS OF ECONOMIC POTENTIAL - PHASE 1 ALTERNATIVES

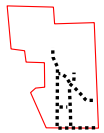
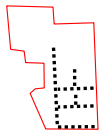
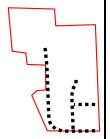
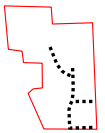
	Screening Criteria	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Alternative H	Alternative I	Alternative J
											
Development Impacts	**Historic Block Pattern** Does an alternative create city blocks of 350-600 ft. on a side *- Rectilinear grid consistent with historic pattern*	0	0	++	+	+	+	++	+	+	+
	Street Frontage Does an alternative create new developable street frontage *- Street length created*	+	+	++	+	+	++	++	++	++	+
	Brownfield Redevelopment Potential Does an alternative provide redevelopment potential to low/med risk brownfield sites *- Based on PlanBTV South End Existing Conditions Report* *- Parcels closer to Pine St identified as low/medium risk*	+	+	++	+	++	++	++	++	++	+

TABLE 4. EVALUATION RESULTS OF RESOURCE IMPACTS – PHASE 1 ALTERNATIVES

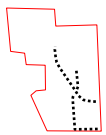
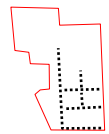
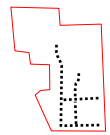
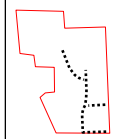
	Screening Criteria	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Alternative H	Alternative I	Alternative J
											
Resource Impacts	**Historic Buildings/Resources** Does an alternative adversely impact historic buildings or resources	-	--	-	-	--	-	-	-	--	--
	Archaeological Resources Does an alternative adversely impact archeological resources	--	--	--	--	--	--	-	-	-	-
	Impacts to Private Properties Does an alternative adversely impact private property *- Does not include impacts to railyard property* *- Impacts to multiple buildings = "- -"* *- Impacts to business operations considered equivalent to impact to building*	-	-	-	-	-	-	-	0	0	--

TABLE 5. EVALUATION RESULTS OF TRANSPORTATION IMPACTS – PHASE 1 ALTERNATIVES

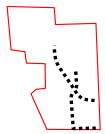
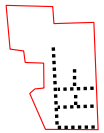
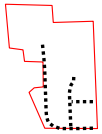
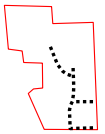
	Screening Criteria	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Alternative H	Alternative I	Alternative J
											
Transportation Impacts	**Neighborhood Traffic** Does an alternative reduce traffic from the Maple and King neighborhoods *- Lower friction connection reduce traffic from neighborhood*	++	++	++	++	++	+	+	+	0	+
	Connectivity between Pine & Battery Corridors Does an alternative enhance connectivity between the Pine & Battery Street corridors	++	++	+	+	++	++	++	+	0	+
	Transit Operations Does an alternative impact or enhance transit operations *- Potential for development positive impact on ridership* *- Potential to reduce bus travel time in and out of service*	0	0	+	0	0	0	0	0	0	0

TABLE 6. EVALUATION RESULTS OF RAILYARD IMPACTS – PHASE 1 ALTERNATIVES

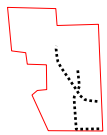
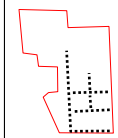
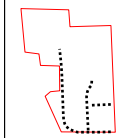
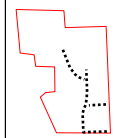
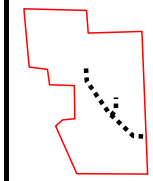
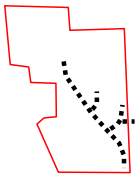
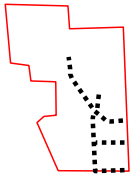
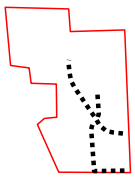
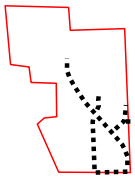
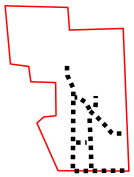
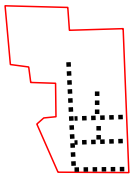
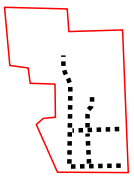
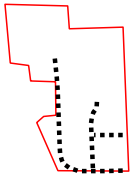
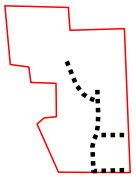
	Screening Criteria	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Alternative H	Alternative I	Alternative J
											
Railyard Impacts	**Railyard Switching Operations** Does an alternative impact current rail yard switching operations	0	0	0	0	0	-	--	-	--	+
	Railyard Commercial Operations Does an alternative impact current rail yard commercial operations	-	-	-	-	-	--	--	--	--	+

TABLE 7. SUMMARY OF EVALUATION RESULTS – PHASE 1

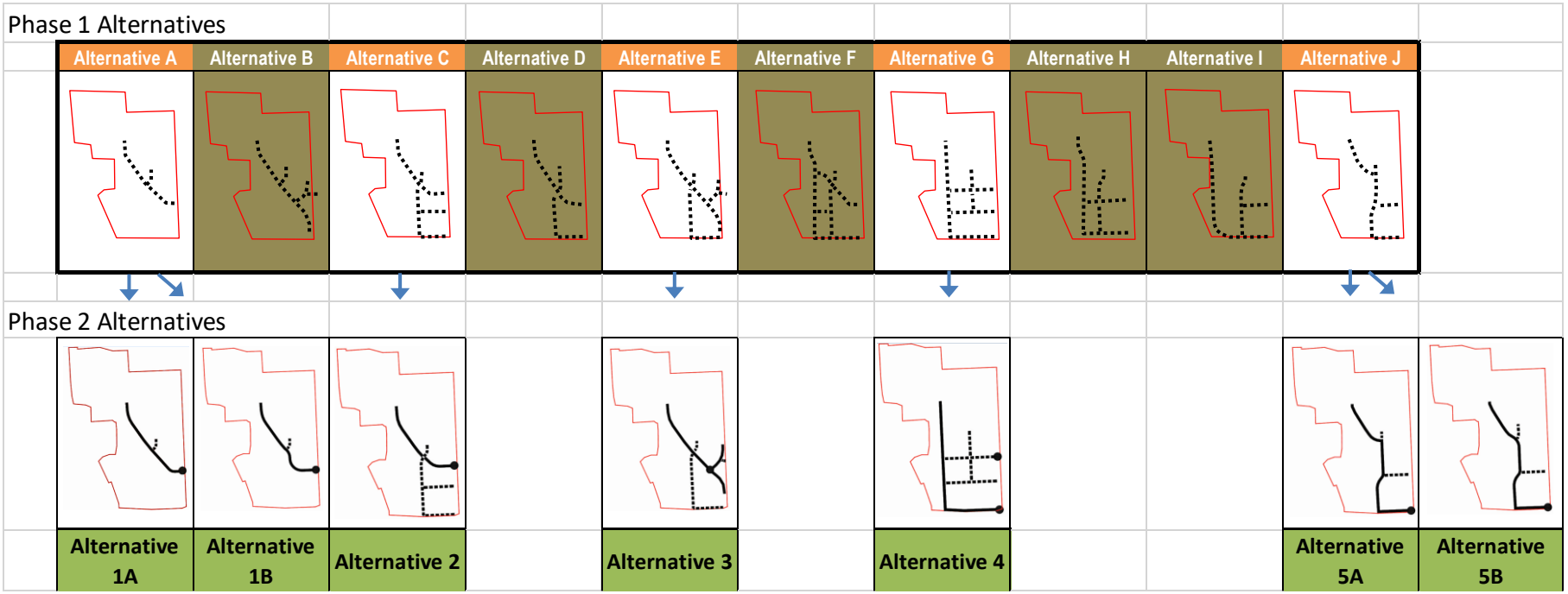
	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Alternative H	Alternative I	Alternative J
										
TOTAL SCORE	1	0	5	1	2	1	2	2	-2	2
RANKING	6	9	1	6	2	6	2	2	10	2

The scoring results from the Phase 1 Alternatives evaluation and the need to select a wide range of alternatives for further evaluation were discussed extensively with the Stakeholder Group and the Steering Committee. Based on those discussions, scoring results and identified need to advance a wide range of alternatives for further evaluation, ***Alternatives A, C, E, G and J*** were selected to advance into Phase 2, for more detailed evaluation.

5.4 SELECTION OF PHASE 2 ALTERNATIVES

The selection of the ***Alternatives A, C, E, G and J*** to advance into Phase 2 evaluation was further enhanced with the addition of two more alternatives that are slight variations of Alternatives A and J. Figure 21 shows the transition from Phase 1 (Preliminary) to Phase 2 Alternatives. Phase 2 Alternatives were renamed for clarity and simplicity as Alternatives 1A, 1B, 2, 3, 4, 5A and 5B as shown in Figure 21.

FIGURE 21. TRANSITION FROM PHASE 1 TO PHASE 2 ALTERNATIVES



5.5 DESIGN CRITERIA FOR PHASE 2 ALTERNATIVES

Engineering criteria were developed to inform the conceptual alignments and street cross-sections for the Phase 2 REP Alternatives, which are consistent with the VT Act 34 (An act relating to a transportation policy that considers all users) and City of Burlington policy on complete streets.

A memorandum detailing the engineering criteria and conceptual cross-sections of the new grid-streets in the REP area as well as proposed intersection treatments is included in Appendix G, and is summarized below.

CROSS SECTIONS

The Steering Committee approved the proposed design criteria and cross-sections with the understanding that these are conceptual and that further modifications will occur as this project advances into the environmental permitting process.

The complete streets cross-sections shown in Figures 22 - 24 were used for the conceptual designs of the main connecting roadway between Battery Street and Pine Street, which is expected to carry a significant amount of traffic, and include a separated shared use path that connects to the planned path along the west side of Pine Street (Champlain Parkway Project). These cross-sections vary so that impacts to area resources including the railyard and private properties are minimized to the degree possible.

Appendix G includes detailed information on the proposed design criteria, cross-sections, and intersection treatments (signals, roundabouts, stop signs) as well as figures indicating which sections of the new grid-streets are proposed to have a “Complete Street” or a “Slow Street” cross-section.

VTrans Comments on Cross Sections

VTrans staff expressed reservations about the conceptual cross-sections approved by the Steering Committee and on August 14, 2015 the Secretary of Transportation sent a letter to the city and CCRPC detailing their concerns – this letter is included in Appendix G. In their letter, VTrans expresses their support of the REP while raising the following concerns with the conceptual cross sections:

- Impacts to the Railyard must be minimized to ensure its functionality is maintained; and
- Overall project costs need to be minimized to deliver the project in a timely fashion.

VTrans reiterated that some of the proposed new roads and design elements might not be eligible for federal funding participation and that impacts to the Railyard and total project costs are of real concern to VTrans as the project advances. VTrans asked that a disclaimer be included in any REP presentation stating that the various complete streets cross sections accepted by the Steering Committee may not be representative of the final configuration as design details will be worked out during the EIS and later stages of the design process.

FIGURE 22. COMPLETE STREET CROSS-SECTION #1

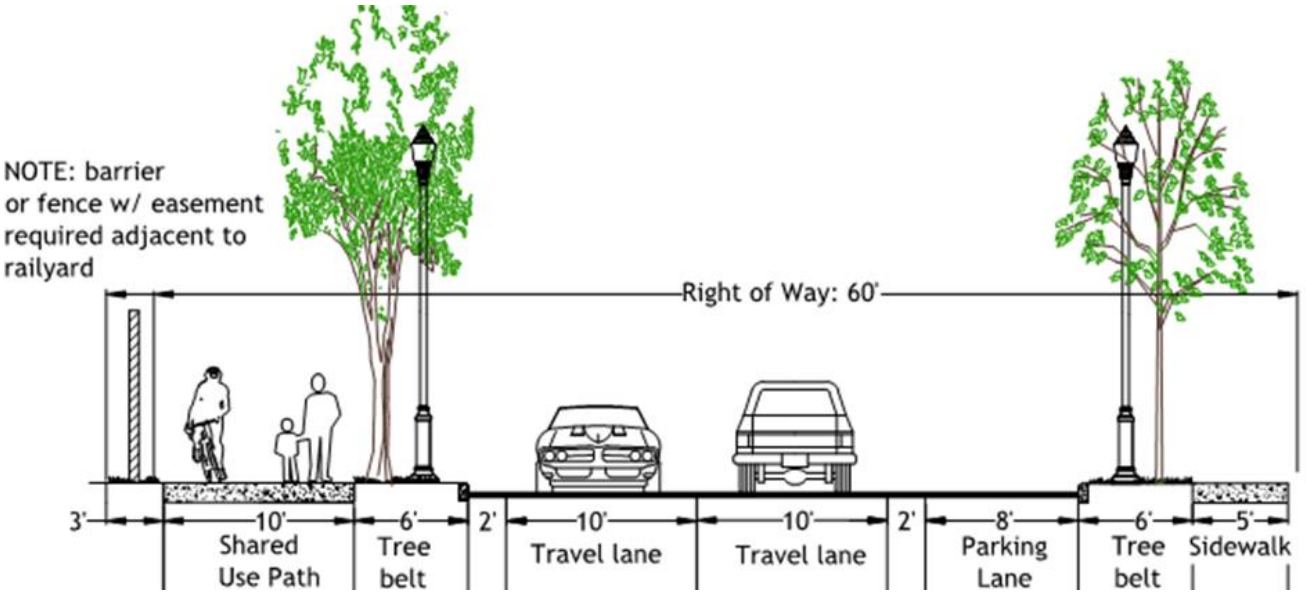


FIGURE 23. COMPLETE STREET CROSS-SECTION #2

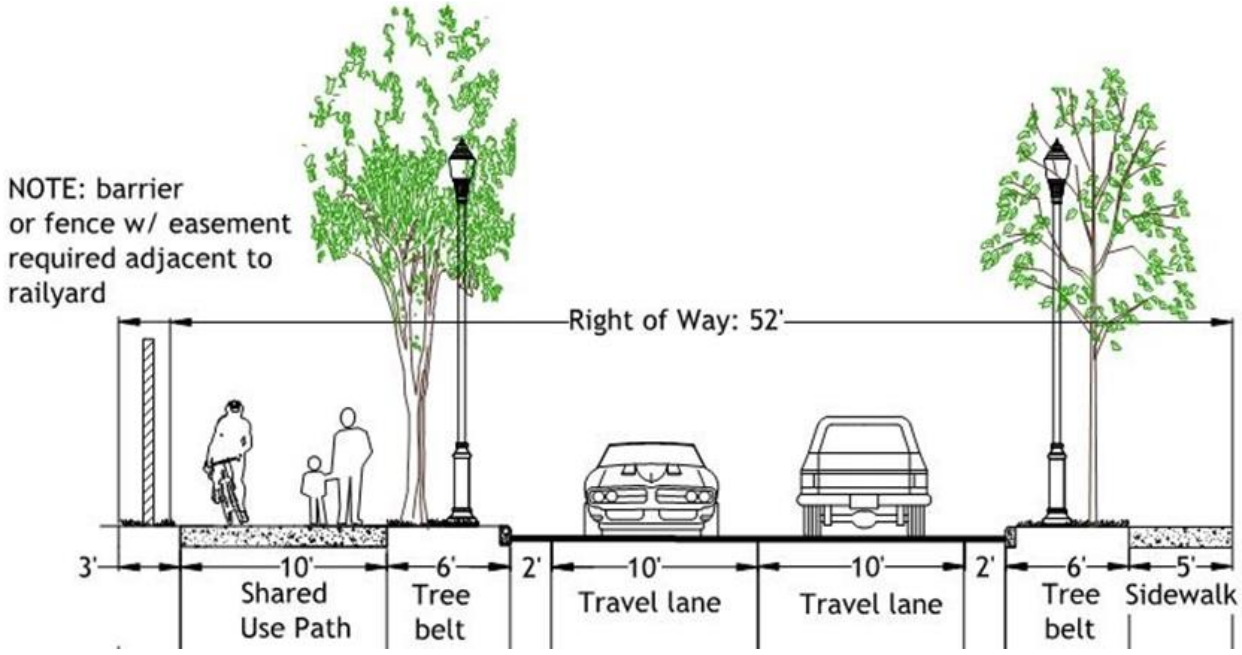
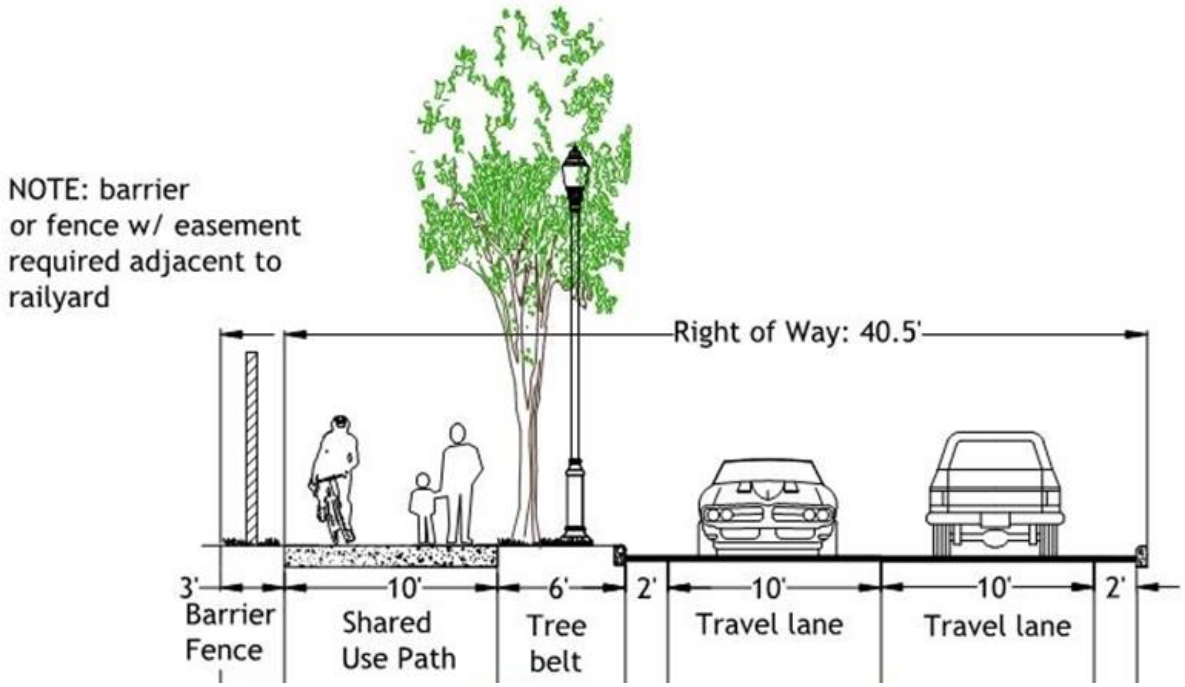


FIGURE 24. COMPLETE STREET CROSS SECTION #3



Where additional grid-streets are proposed (other than the connecting road between Battery and Pine) a different cross-section will be applied, as traffic is expected to be lighter with fewer commercial and transit vehicles. These sections are depicted in Figure 25 (parking both sides) and Figure 26 (parking one side only).

FIGURE 25. SLOW STREET CROSS-SECTION #1

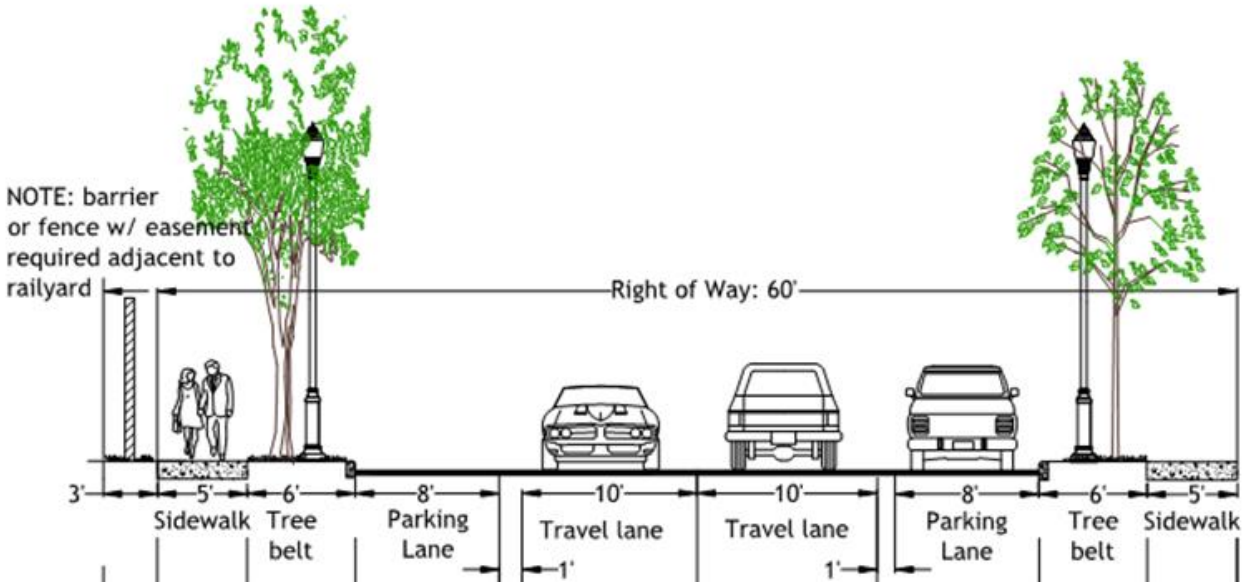
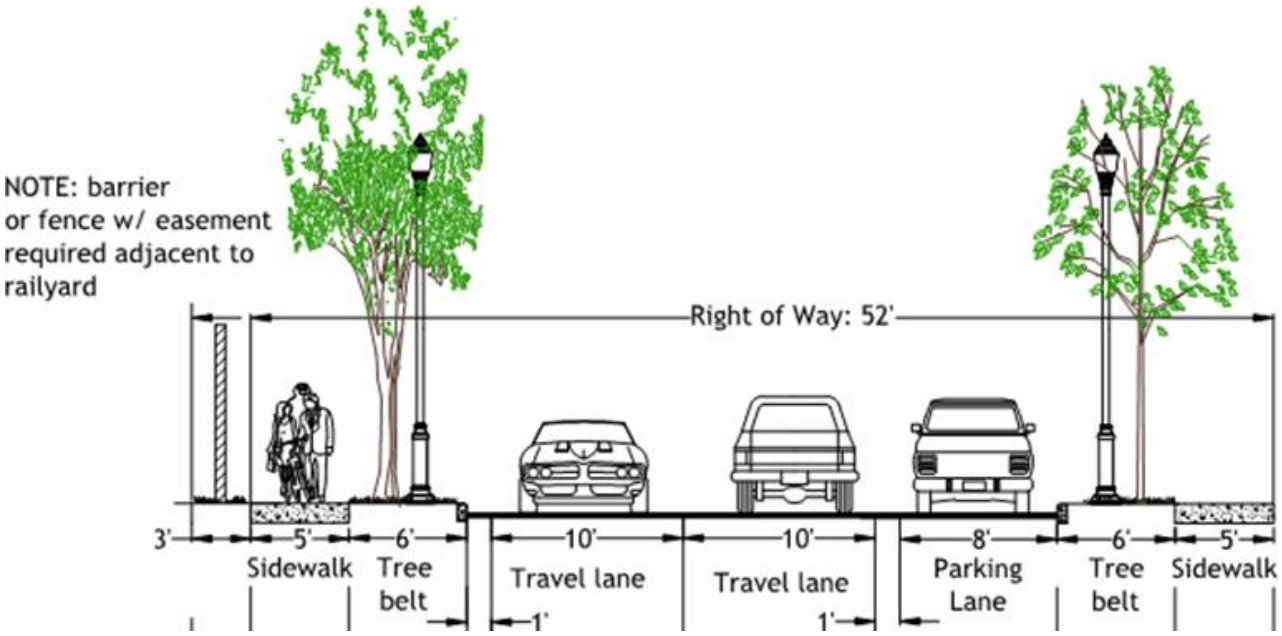


FIGURE 26. SLOW STREET CROSS-SECTION #2



5.6 PHASE 2 REP ALTERNATIVES

Using the proposed engineering criteria, cross-sections and intersection treatments, the Phase 2 Alternatives were developed in AutoCAD and are shown in Figures 27 through 33.

FIGURE 27. PHASE 2 REP ALTERNATIVE 1A

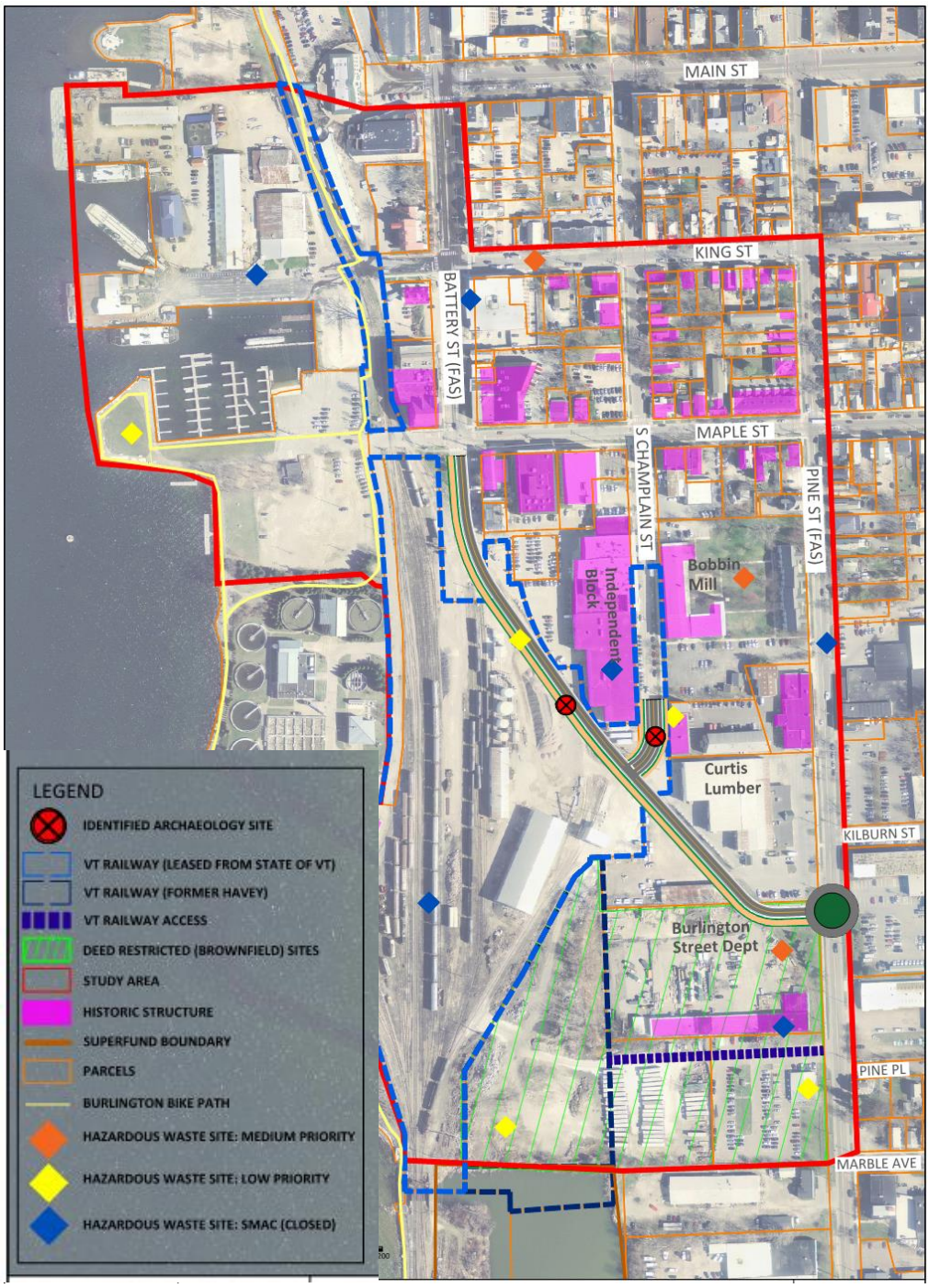


FIGURE 28. PHASE 2 REP ALTERNATIVE 1B

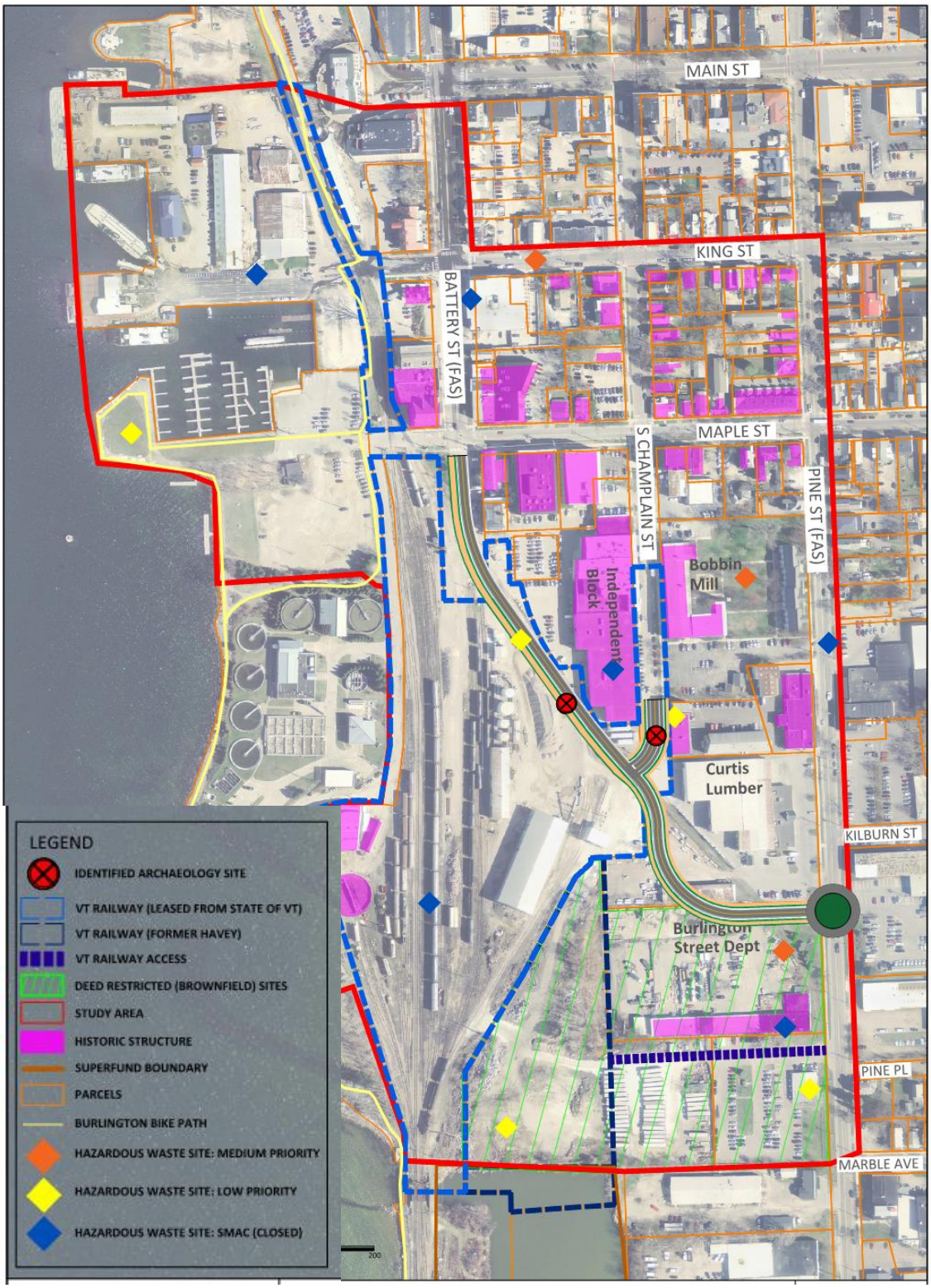


FIGURE 29. PHASE 2 REP ALTERNATIVE 2

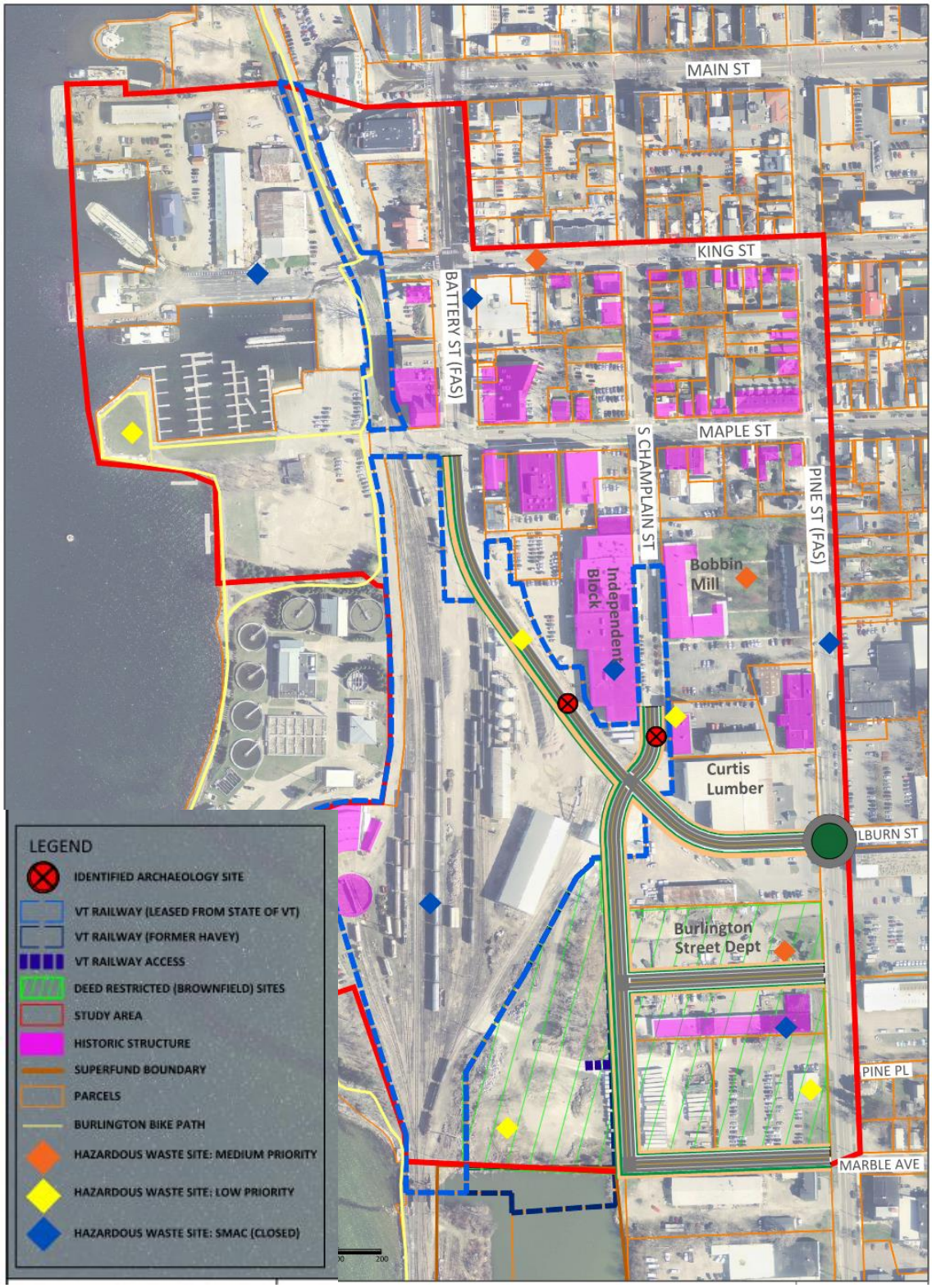


FIGURE 30. PHASE 2 REP ALTERNATIVE 3

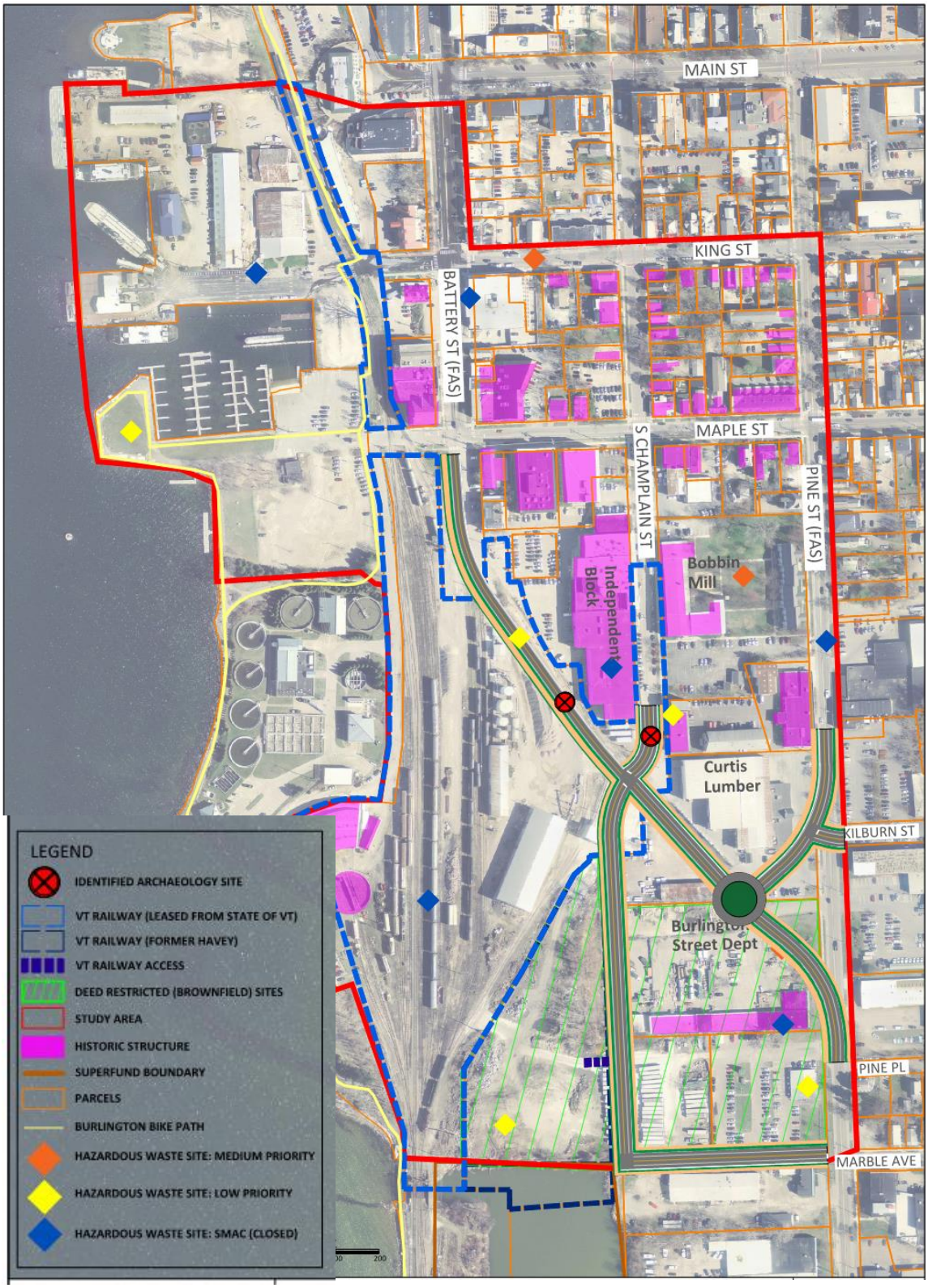


FIGURE 31. PHASE 2 REP ALTERNATIVE 4

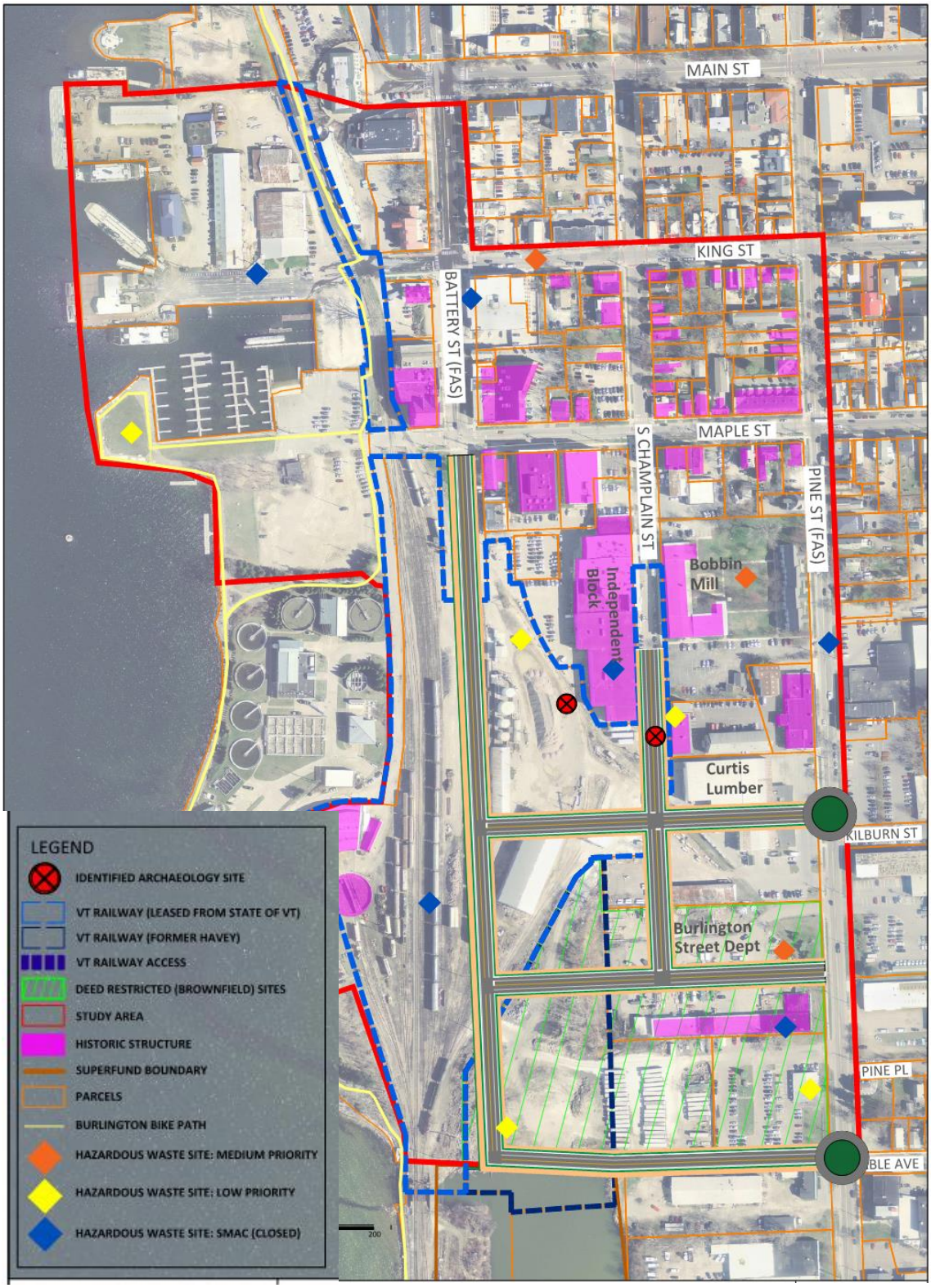


FIGURE 32. PHASE 2 REP ALTERNATIVE 5A

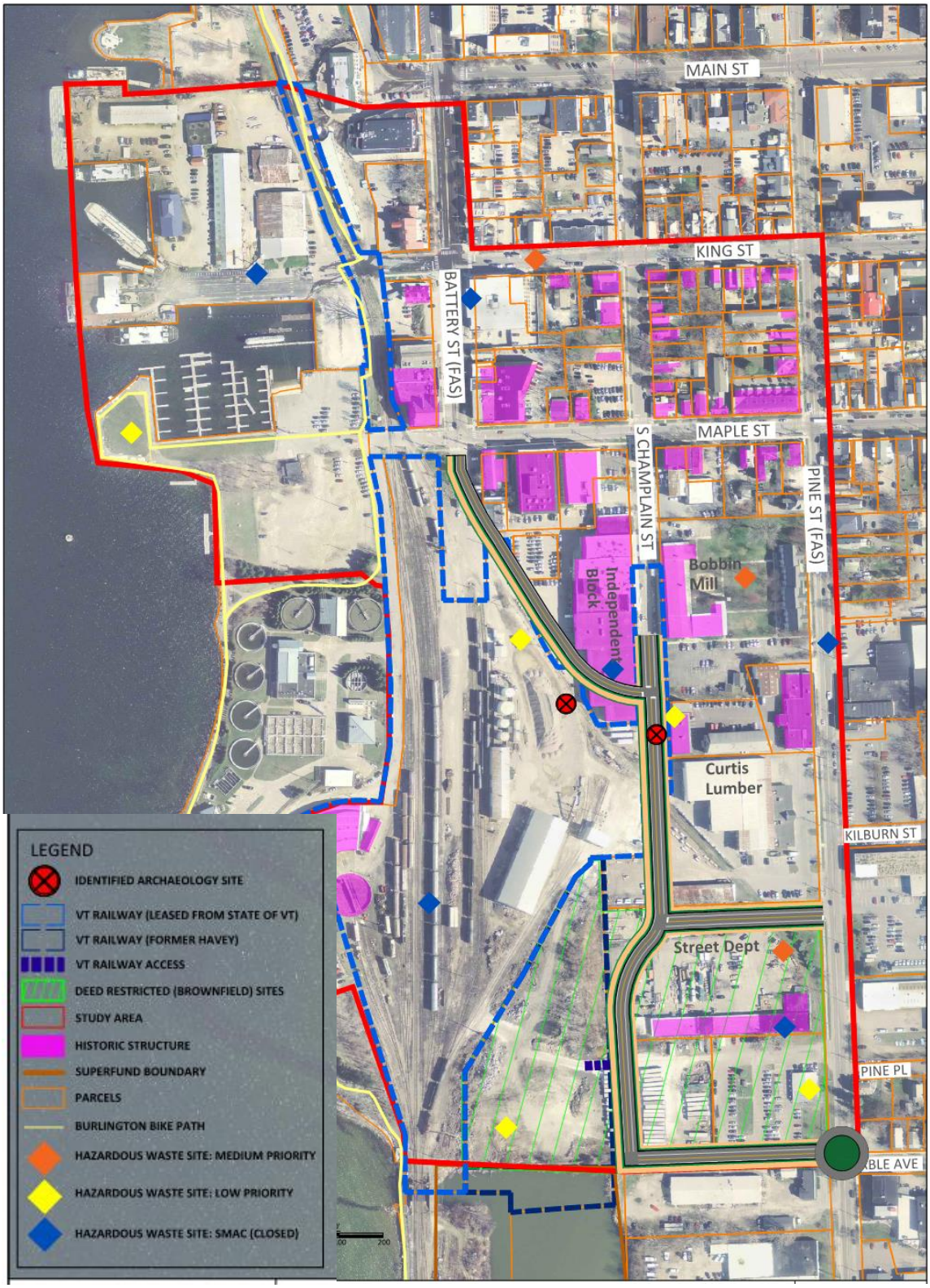
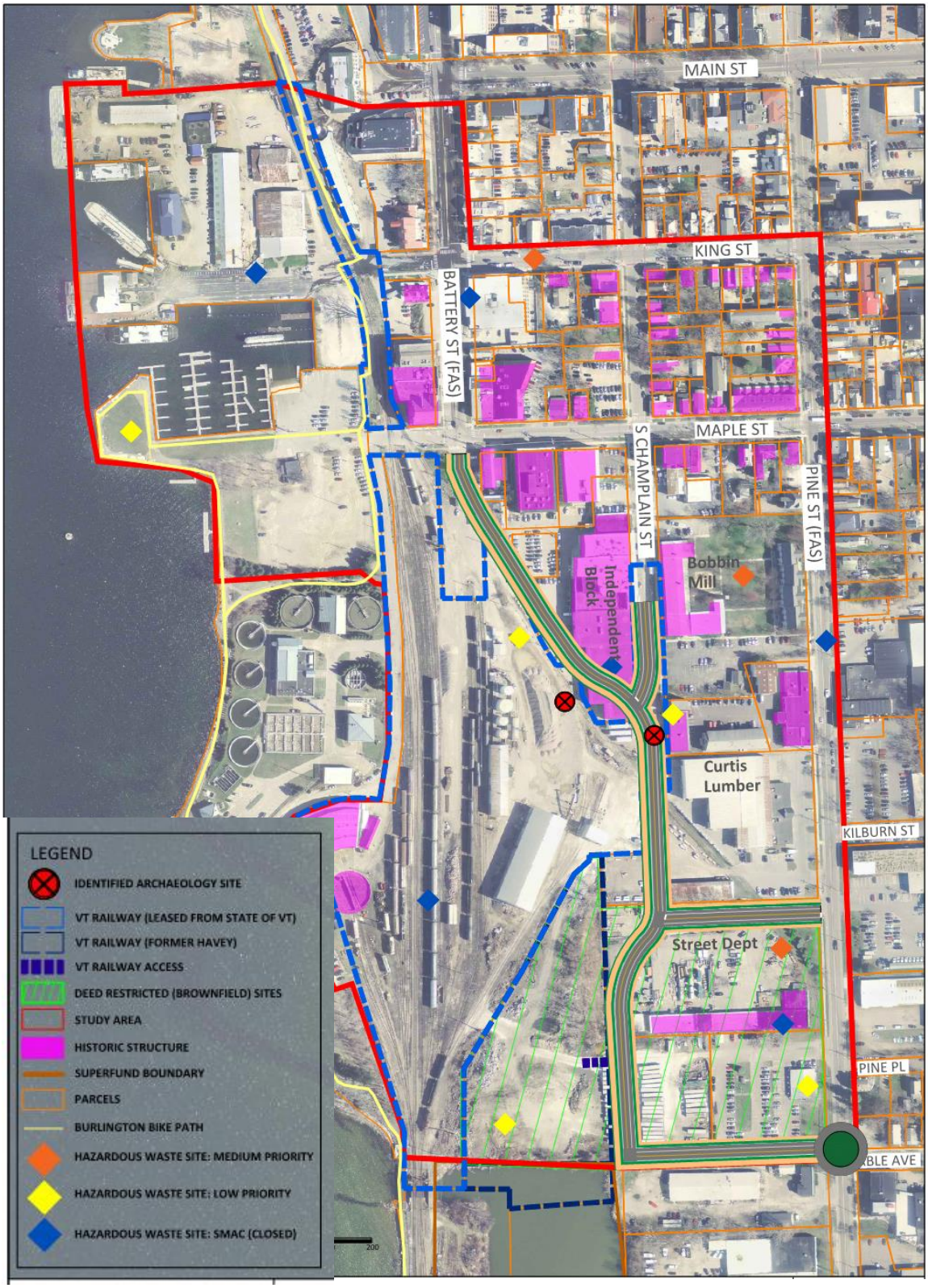


FIGURE 33. PHASE 2 REP ALTERNATIVE 5B



6.0 PHASE 2 REP ALTERNATIVES EVALUATION

6.1 EVALUATION CRITERIA

More detailed criteria (qualitative and quantitative) were developed for the evaluation of the Phase 2 alternatives. The criteria were divided into four distinct categories: Transportation Systems, Environment & Resources, Local & Regional Issues, and Project Costs. The criteria are discussed below and the results of the Phase 2 evaluation are presented in Section 7.0. Appendices C, F, and I, offer more detailed information on evaluation methodologies and results.

TRANSPORTATION SYSTEMS

- *Bicycle/Pedestrian Mobility* – several metrics were used to differentiate each alternative regarding this criterion:
    - Linear feet of separated paths
    - Linear feet of sidewalk
    - Number of additional street crossings
- *Switching & commercial railyard operations* – impacts to the railyard were assessed in cooperation with VTrans and Vermont Rail Systems. Possible mitigation for these impacts was conceptualized with the assistance of VHB, and cost estimates were developed. See railyard mitigation concepts in Appendix H.
- *Impacts to Transit Service* – impacts to transit services due to the REP Phase 2 alternatives were evaluated by CCTA (now GMT).
- *Vehicular Traffic* – redistribution of traffic in the project area, due to the new grid-streets, and the resulting changes in vehicle delays was analyzed by the consultant team. The percent of traffic diverted from existing neighborhoods was also estimated for 2035 (future year). This was assessed through the development of a microsimulation model resulting in two important measures:
    - Vehicle mobility index – which reflects the relative total delay experienced by all traffic in the peak hour for the entire project area network for each alternative – see Figure 34.
    - Diversion of traffic from Pine Street – effectively quantifying the percent of the Pine Street traffic that will be using the new connection to Battery Street, thus avoiding the Maple Street and King Street neighborhoods – see Figure 35.

FIGURE 34. TOTAL NETWORK DELAY FOR EACH ALTERNATIVE

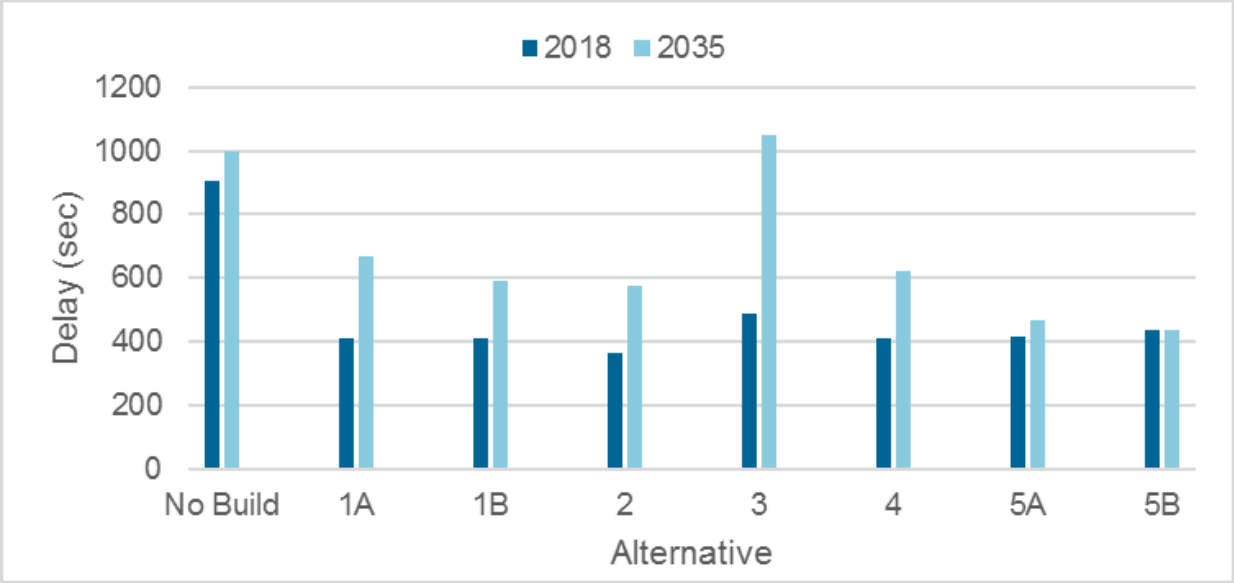
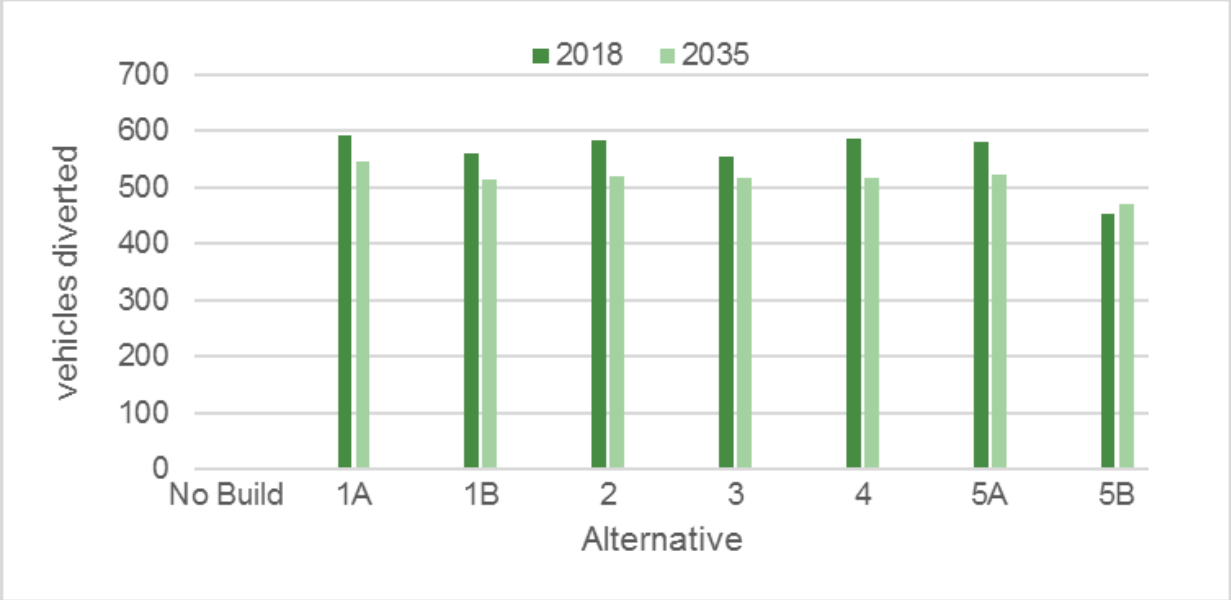


FIGURE 35. VEHICLES DIVERTED FROM PINE ST BY EACH ALTERNATIVE



ENVIRONMENT / RESOURCES

Archaeological & Historic Resources – impacts to known cultural resources were identified by the UVM-CAP consultants (Appendix E). The VTrans Cultural Resource team (Archaeology and Historic Preservation Officers) provided the assessment for the Phase 2 REP alternatives that is included in the Evaluation Matrix.

- *Pervious Areas* (change from the No Build) – these areas were quantified and the data is included in the Evaluation Matrix.

- *Public Lands* – there are no public lands in the project area.
- *Rare, Threatened, Endangered (RTE) Species* – there are two areas associated with RTE communities shown in Figure 11. Alternative 4 is the only alternative that impacts either of these areas.
- *Wetlands* – several wetlands have been identified in the project area as shown in Figure 8. Impacts to wetlands or the statutory buffer are quantified in the Evaluation Matrix.
- *Hazardous Waste Sites and Brownfields* – alternatives that impact properties with known hazardous waste sites or brownfields were tallied in the Evaluation Matrix.
- *Utilities* – impacts were noted where existing utility poles were found within the footprint of the alternative alignments, and tallied in the Evaluation Matrix.
- *Right-of-Way* – impacts to private properties or businesses, full and partial takings were considered, excluding the railyard, which was assessed separately.

Following the development of the Evaluation Matrix and of conceptual plans to mitigate impacts to the railyard (see Appendix H), the VTrans Archaeology Officer provided additional comments as follows:

> *"Both Alt 1B and Alt 2 show significant impacts in the location of significant archaeological site VT-CH-736 (historic railyard engine and round house). Phase 3 studies will be necessary in this location regardless of impact levels to determine both the extent of the vertical and horizontal site limits but we want to limit the amount of Phase 3 studies necessary because this is a 4f property and ideally it is most significant for its location within the rail property as being the oldest surviving component of the original railyard. The project itself has adverse impacts but the rail relocation increases those impacts exponentially.*
>
> *While both Alt 1B and Alt 2 present adverse impacts to the site, Alt 2 presents greater impacts in terms of the number of track systems that span the known site (3 vs 1 in Alt 1B). It is feasible that the one track in Alt 1B may be able to be shifted slightly to avoid the majority of the known site but it will be impossible to shift 3 tracks to avoid the site.*
>
> *There may also be potential impacts to archaeological resources in the far southern area of the site within the location of the superfund area and north of the Havey Property."*

LOCAL AND REGIONAL ISSUES

- *Satisfies Purpose and Need* – alternatives were assessed whether they meet the Purpose and Need of the project.
- *Conformance to local (planBTV, 2014) and regional (ECOS, 2013) plans.*
- *Environmental Justice* – Phase 2 alternatives were assessed as to whether they positively or negatively affect the existing low-income Maple Street and King Street neighborhoods in the project area. Evaluation results indicated that all alternatives improved the quality of life for residents of these neighborhoods by decreasing traffic, increasing safety and reducing the environmental impacts of vehicle and truck traffic in these neighborhoods, while also increasing economic development and providing for improved multimodal travel within the project area. A memo describing the environmental justice assessment is provided in Appendix K.

- *Economic Benefits* – A 20-year build-out scenario was developed (see Appendix F), made possible by the new urban grid-streets in the area. The value of the new development was estimated and possible employment assessed and carried forward to the Evaluation Matrix.

PROJECT COSTS

Each alternative was assessed for cost based on the following elements:

- Street sections described in the Design Criteria memo.
- Complete Street Sections – assumed eligibility for the Federal aid system (FAU status) and use of federal funding.
- Slow Street Sections – assumed to be City-funded.
- Mitigation cost of Railyard Impacts, as estimated by VHB. See railyard mitigation concepts in Appendix H.
- Include provisions for:
    - Mobilization/Demobilization
    - Traffic Control
    - Demolition
    - Stormwater Treatment
    - Final Engineering
    - Construction Management
    - Environmental Oversight
    - Contingency
    - Right-of-Way acquisition

7.0 EVALUATION MATRIX

Results and corresponding scoring of the various criteria are presented in Figure 36, and the final scores are summarized in Figure 37. Details regarding the quantitative calculations for resource impacts are provided in Appendix I.

FIGURE 36. EVALUATION MATRIX

	Criteria	Specific Measure	Alternative 1A	Alternative 1B	Alternative 2	Alternative 3	Alternative 4	Alternative 5A	Alternative 5B
COST	Conceptual Cost Estimate - Complete Street Sections	Construction Cost	$5,930,000	$6,040,000	$5,980,000	$6,660,000	$7,950,000	$7,550,000	$7,460,000
		ROW Estimate	$280,000	$245,000	$1,870,000	$500,000	$300,000	$6,350,000	$6,380,000
	Conceptual Cost Estimate - Slow Street Sections	Construction Cost	$330,000	$330,000	$2,620,000	$2,690,000	$7,790,000	$850,000	$1,090,000
		ROW Estimate	$3,000	$170,000	$470,000	$310,000	$2,200,000	$170,000	$170,000
	Conceptual Cost Estimate - Mitigation of Railyard Impacts	Rail Relocation/Reconfiguration Cost	$6.5 million	$6.5 million	$6.5 million	$6.5 million	$40-60 million	$0	$0
TRANSPORTATION SYSTEM IMPACTS	Bike/Ped Impacts	Linear feet of separated paths (multiuse paths)	1331	1401	1303	1678	2219	2135	2087
		Linear feet of sidewalk	864	928	3447	3987	6317	2362	2563
		Number of additional street crossings	4	4	10	8	15	8	8
	Railyard Impact	Impact to Switching Operations	0	0	0	0	-	+	+
		Impact to Commercial Operations	-	-	-	-	--	+	+
	Traffic Impact	Vehicle Mobility Index - 2035	0.52	0.47	0.42	0.82	0.70	0.41	0.38
		Diversion of Traffic from Pine (%) - 2035	37%	35%	36%	35%	35%	36%	32%
	Transit Impact	from CCTA	0	0	+	-	0	0	0
ENVIRONMENT/RESOURCES	Agricultural Lands	GIS	0	0	0	0	0	0	0
	Archaeological	Vtrans Review	--	--	--	--	--	0/-	0/-
	Historic Structures/Sites	Vtrans Review	0	0	0	0	--	--	--
	Floodplain	Area within Floodway (SF)	0	0	18,600	18,600	33,670	19,045	19,045
	Fish and Wildlife	Not evaluated	not evaluated	not evaluated	not evaluated	not evaluated	not evaluated	not evaluated	not evaluated
	Noise	Not evaluated	not evaluated	not evaluated	not evaluated	not evaluated	not evaluated	not evaluated	not evaluated
	Pervious Areas (Possibilities for Green Infrastructure)	Increase in Pervious Area Relative to No Build (SF)	13,655	15,623	9,692	14,296	900	10,153	14,941
	Public Lands	GIS	0	0	0	0	0	0	0
	Rare, Threatened & Endangered	Area within a RTE Area (SF)	0	0	0	0	12,445	0	0
	Wetlands	Area within 50' of Wetlands (SF)	0	0	24,465	24,465	85,590	25,460	25,755
	Hazardous Waste Sites	# of DEC Hazardous Waste Sites Impacted**	1	1	2	1	3	2	2
	Underground Utilities	Not evaluated	not evaluated	not evaluated	not evaluated	not evaluated	not evaluated	not evaluated	not evaluated
	Overhead Utilities	Number of utility poles affected	6	6	8	12	14	10	11
	Right of Way Impacts	ROW Impact - Railyard only (SF)	26,980	26,765	36,250	36,730	86,825	4,970	6,280
		ROW Impact - Non-Railyard Partial Takings (SF)*	24,945	30,550	88,395	120,415	116,790	101,975	104,020
		# of Partial Takings - Non-Railyard	3	3	7	8	9	8	8
		# of Full Takings - Non-Railyard	0	0	1	0	1	2	2
LOCAL & REGIONAL ISSUES	Satisfies Purpose & Need	See Purpose and Need Statement	Yes	Yes	Yes	Yes	No. This alternative would require that the railyard be moved to other locations, directly contrary to the Purpose and Need Statement.	Yes	Yes
	Economic Benefits	Assessed Value of 20-Year Build-Out	$14,950,000	$15,430,000	$18,160,000	$17,120,000	$34,860,000	$16,840,000	$16,840,000
		Estimated Employment, 20-Year Build-Out	430	440	520	490	1000	480	480
	Conformance to Local/Regional Plans	PlanBTV & ECOS plans	Yes	Yes	Yes	Yes	No. The local municipal development plan, PlanBTV, supports the continuation of rail operations in its current location.	Yes	Yes
	Environmental Justice		+	+	+	+	+	+	+

FIGURE 37. ALTERNATIVE EVALUATION SUMMARY SCORE

	1A	1B	2	3	4	5A	5B
Transportation System Impacts	2	2	4	2	1	7	7
Environment/Resources	-5	-5	-10	-10	-20	-12	-12
Local & Regional Issues	5	5	5	5	3	5	5
TOTAL	**2**	**2**	**-1**	**-3**	**-16**	**0**	**0**

Proposed Alternatives to Advance into NEPA

The REP Steering Committee met on October 29, 2015 to review the Phase 2 evaluation scores and select several wide-ranging alternatives to recommend to the Burlington City Council for advancement into an Environmental Permitting Process (NEPA). Based on the scoring and following an extensive discussion, the Steering Committee supported the advancement of Alternatives 1B, 2, and 5B into NEPA—see Figures 36, 37, and 38.

1) **Alternative 1B** – Scored the highest, along with 1A, but due to subtle alignment differences that minimize some property impacts, 1B is preferred over 1A.
2) **Alternative 5B** – Scored second highest along with 5A. It was preferred over 5A due to better facilitation of through traffic traveling between Battery Street and Pine Street.
3) **Alternative 2** – Scored third highest, offering an expanded area for possible development over 1B, but with higher resource impacts.

Steering Committee members were unanimously supportive of the benefits of the recommended Phase 2 REP Alternatives but some members expressed concerns with alternatives that have major impacts to private properties and existing business in the Railyard Enterprise area.

The recommended alternatives were presented to the Transportation, Energy and Utilities Committee (TEUC) of the City Council at their November 4, 2015 meeting. The TEUC supported the Steering Committee's alternatives recommendation to the City Council.

The recommended Phase 2 REP Alternatives were also presented to the VTrans Resource Coordination Group on December 17, 2015. Conceptual sketches and planning level cost estimates of a possible reorganization of the railyard to mitigate REP Alternative impacts were also presented at the meeting. Resource agencies (ANR, EPA, VTrans, and others) as well as representatives of the Pine St. Canal Superfund Site Performing Defendants expressed concerns with the proposed relocation of some railyard functions to VRS' 351 Pine St. parcel (former Havey) which is just north of the Pine Street Barge Canal and they strongly recommended the following:

- Ensure that moving essential railyard operations south to the current VRS (former Havey) property does not cause an impact to the remedy for the Pine Street Barge Canal Superfund site.
- Conduct detailed geotechnical and engineering work and develop accurate cost estimates to support the proposed relocation of railyard operations.
- Assess archaeological/historic impacts around the Northern Slip area.

8.0 SELECTED ALTERNATIVES TO ADVANCE INTO NEPA

The recommended REP alternatives were presented to the Burlington City Council for approval at their December 21, 2015 meeting. The City Council resolved to support the advancement of the REP Phase 2 Alternatives 1B, 2 and 5B (see Figures 38, 39 and 40) into NEPA and they also expressed their strong preference for alternatives that have the least impact to private property and existing businesses. The Burlington City Council Resolution is included in Appendix B.

FIGURE 38. REP ALTERNATIVE 1B

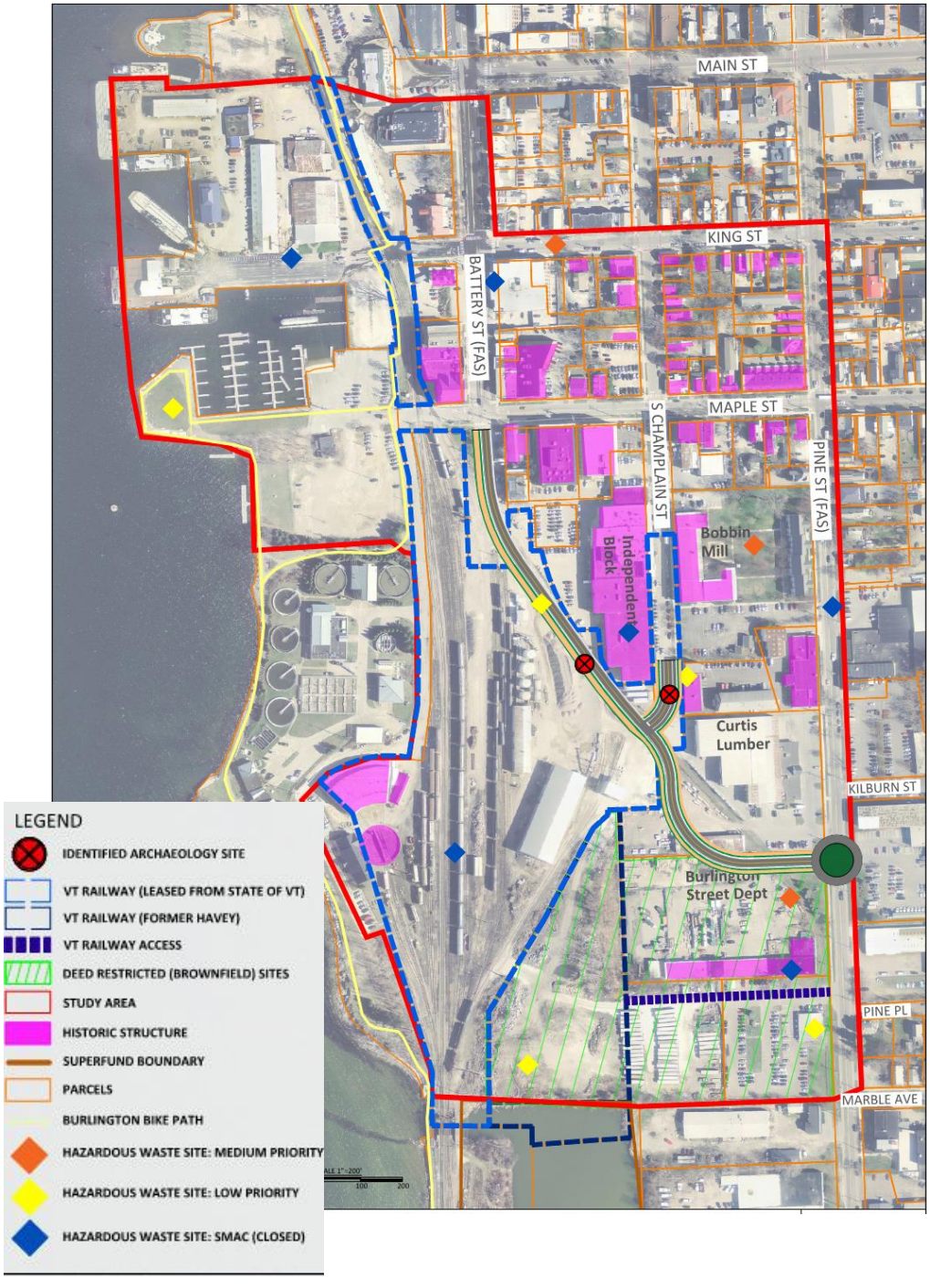


FIGURE 39. REP ALTERNATIVE 2

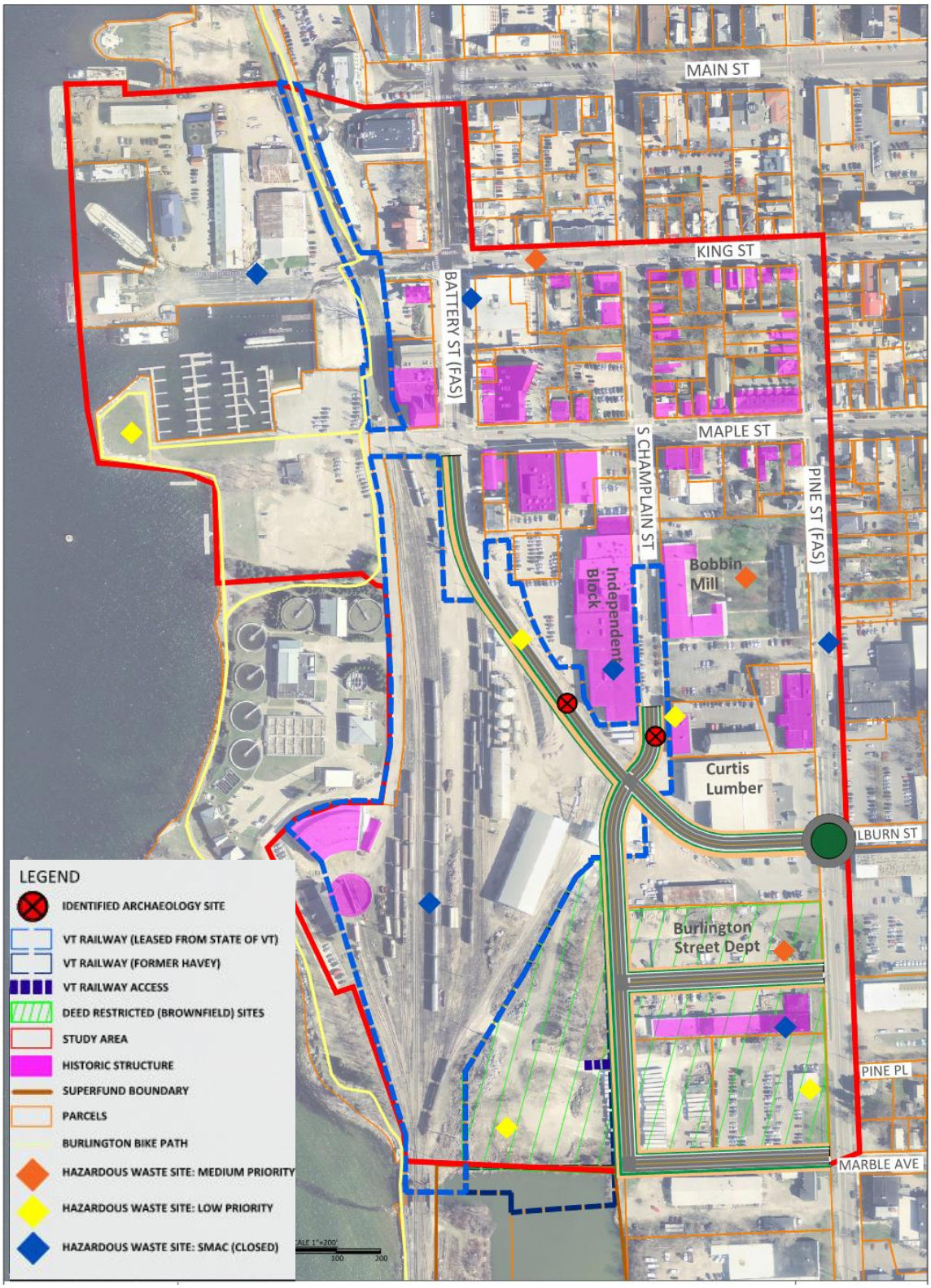


FIGURE 40. REP ALTERNATIVE 5B