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DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENT**

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X-A-000(052)
12958B**

**DRAFT ENVIRONMENTAL ASSESSMENT/
DRAFT SECTION 4(f) EVALUATION**



BERLIN
Reconstruction of NH 110
Coos County, New Hampshire

DRAFT ENVIRONMENTAL ASSESSMENT & SECTION 4(f) EVALUATION

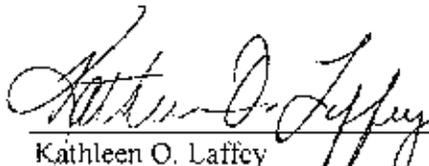
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PART I. DRAFT ENVIRONMENTAL ASSESSMENT

1.0 Purpose and Need

This project is required to improve the conveyance of traffic through an approximately 0.6 mile section of NH 110 in the City of Berlin. Presently, NH 110 traverses along a circuitous route along several neighborhood streets from downtown Berlin, at its intersection with NH 16 (Main Street), to the northern periphery of the urban compact of the City (Exhibit 1). Truck traffic must negotiate narrow residential streets with several tight intersections and make 90 degree turns while avoiding parked cars, pedestrian and bicycle traffic and other motor vehicles. The high volume of trucks and passenger cars negotiating these narrow, circuitous streets through the neighborhood compromises community cohesion of the neighborhood, bicycle and pedestrian movements and results in considerable concerns for safety.

Two major transportation routes pass through the City of Berlin. The NH 16 highway corridor, the State's easternmost north-south highway, is extremely important for the flow of goods and traffic regionally and through the City. The roadway network in Berlin has as its focal point the commercial/industrial district located along this NH 16 corridor. NH 110, is a key regional east-west highway that intersects with NH 16 in downtown Berlin and provides access to US 3, the State's westernmost north-south highway, in Groveton (Exhibit 2). Additionally NH 110 provides an interregional significance as Canadian trucking firms use NH 110 to travel to Berlin and areas further east in Maine through the NH 16 connection with US 2 in Gorham, another major regional east-west route, located just south of Berlin.

2.0 Project History

In the early 1960's the City of Berlin hired consultants to help the City write its first comprehensive planning document. Transportation thought the City was a major component of the plan published in 1964. A clear focus was the acknowledgement that NH 110, a major truck route through the City, did not belong through a residential neighborhood and that a major impediment was a narrow and severely deficient under-clearance of the Green Street railroad bridge, requiring the establishment of several truck detour routes within the City. The area is further constrained by surrounding mountains, the St. Lawrence & Atlantic railroad corridor, the Dead River and steep terrain. These natural and man-made features severely limit the possible roadway configurations for the area.

In the early 1970's the Haynes study focused on connecting NH 16 with NH 110. The designs involved a variety of ways to connect the two highways including bridges, railroad crossings, minor and major reconstructions, and bypass alternatives. One bypass alternative was looked at in-depth, but due to cost and major grade challenges the City focused on a route that involved the existing NH 110 area with the construction of new bridges over the railroad and the Dead River and improvements to York and Willow Streets. In the Fall of 1979 the City Council requested the Governor appoint a special commission to determine the necessity of the project and a public hearing was held in May 1980. The Commission rejected the necessity for the

layout of this alternative, due to the costs, the proposed construction of a new bridge over the St. Lawrence & Atlantic railroad, great impacts to York Street neighborhood and non-support of the alignment by the community. In the mid 1980's the City Planning Board decided that any alternative would not include any additional new bridges nor at-grade crossings of the railroad. In 1993 the City Manager requested that the Planning Board revive efforts and work towards a solution to address this on-going problem. Two routes were recommended by the Planning Board and in early 1995 the City Council submitted an application to the Regional Planning Commission to place the NH Route 110 Corridor project onto the State Ten Year Transportation Plan.

The project was included in the 2001 Ten Year Plan and divided into two Phases that were determined to have independent utility. Phase 1 centered on the replacement of the railroad bridge over Green Street, which would eliminate truck detour routes through the City that avoided the under-clearance limitations of the Green Street bridge. Construction on Phase 1 was completed in 2007.

For the Phase 2 project, conceptual alternative routes were developed in 2001-2002 and then presented at several meetings in Berlin for public comment. Following the initial scoping meeting, preliminary studies were performed to identify historic and socioeconomic concerns. Four alternatives for the Phase 2 project were presented to the City by the NH Department of Transportation (NHDOT). The Planning Board spent several months reviewing and evaluating the alternatives. In 2004, after holding public informational meeting about the project, the Planning Board amended the City's Master Plan to support Alternative 4E as the alternative with the best long-term planning benefits for the City. The City Council voted to support the selection of this alternative.

3.0 Existing Conditions

Existing NH 110 is an urban minor arterial that navigates along a circuitous route through the neighborhood streets of Green Street, Second Avenue, Madigan Street, Third Avenue and Wight Street. Apart from Third Avenue, which was conceived as a "Grand Boulevard" during the development of the Berlin Heights Addition subdivision and consists of two 16-foot travel lanes with 16-foot wide shoulders, the existing pavement width of these local urban streets consist of two 12-foot travel lanes with varying shoulder widths of 6 feet on Madigan Street to shoulder widths of 2 feet to 5 feet on Second Avenue. The existing sidewalks along the project area are 5 foot wide, apart from some 6 foot wide sidewalks on Green Street located adjacent to the recently reconstructed St. Lawrence & Atlantic Railroad overpass. The horizontal and vertical geometry is substandard and is not adequate for posted 30 mph speed limit at several locations within the project limits. The maximum grade is as great as 8% on Green Street as it approaches Second Avenue. Several street intersections have poor sight distances for the posted speed limit and their approaches are skewed. Several driveways intersect along the route.

The existing (2008) annual average daily traffic (AADT) is 5,260 vehicles per day (vpd) with 11% truck traffic. The opening year (2011) AADT of 5,530 vpd is anticipated to increase

to 6,760 vpd by the design year of 2031. During the January 1994 through December 2007 period 127 crashes, with 2 fatalities, were reported to have occurred within the project area.

Truck traffic must negotiate narrow residential streets with several tight intersections and make 90 degree turns while avoiding parked cars, pedestrian and bicycle traffic and other motor vehicles. The high volume of trucks and passenger cars negotiating these narrow, circuitous streets through the neighborhood compromises community cohesion of the neighborhood, bicycle and pedestrian movements and results in considerable concerns for safety. Noise associated with large truck traffic contributes to the continued deterioration of the quality of life through the residentially zoned portions of the project (see Section 6.10).

4.0 Alternatives Evaluation

As noted in Section 2.0 various alternatives were studied, including bypass options and several NH Route 110 on-line alternatives. Summarized below are brief descriptions and evaluations of the No-Build, the NH Route 110 reconstruction and bypass alternatives that were considered and dismissed, and alternatives that were retained for further consideration, Alternative 2, and the Preferred Alternative (Alternative 4E).

4.1 No Build

The No-Build alternative would not address the concerns with NH 110 and truck traffic, as well as through passenger traffic, traversing along a circuitous route through several neighborhood streets, the safety hazards and roadway deficiencies inherent to the project area would not be addressed. The existing sub-standard geometry of the roadway along several of the neighborhood streets would not be addressed. The No-Build would not address the minimum 4-foot shoulders desired for roadway within the State's Bike Route program in several locations within the project limits. The potential for safety hazards would increase over time as the traffic volumes increase. Additionally, this alternative would not improve the existing sub-standard sight distances. Furthermore, the No-Build would not address the truck noise, and deteriorating community cohesion to the neighborhood.

4.2 NH Route 110 Alternatives

Several alternatives were evaluated that relocated NH Route 110 along different alignments in the vicinity of the existing alignment. These characteristics and impacts of these alternatives are summarized in **Exhibit 3**.

4.2.1 Alternative 1

This alternative would reconstruct and relocate the alignment of NH 110 beginning in the vicinity of the existing St. Lawrence & Atlantic Railroad bridge over Green Street and continuing northerly on Green Street to Second Avenue, Madigan Street and Third Avenue to Wight Street (**Exhibit 4**). This option would reroute NH 110 by cutting through the Sessions Street/Madigan Street block.

Alternative 1 has marginal geometrics when compared with the others. Based on input received at Public Informational meetings and further consideration of the issues involved, this proposed alternative was not supported as Alternative 2 performed similar task with less impacts.

4.2.2 Alternative 3E

This alternative conveys NH 110 from Green Street down Second Avenue and then onto a new alignment paralleling the railroad before joining Wight St. in the vicinity of Fourth Avenue. This alternative has two variations. One variation holds to the existing edge of sidewalk on the western side of Second Avenue and widens to the east (Alternative 3E). The second variation holds to the existing edge of sidewalk on the eastern side of Second Avenue and widens to the west (see Alternative 3W).

This alternative would reconstruct and relocate the alignment of NH 110 beginning in the vicinity of the existing St. Lawrence & Atlantic Railroad bridge over Green Street and continuing northerly on Green Street following along the east side of Second Avenue past Mannering Street and Third Avenue to intersect with Wight Street.

Based on input received at Public Informational meetings and further consideration of the issues involved, this proposed alternative was not supported as Alternative 2 performed similar task with less impacts. Second Avenue cannot accommodate even a narrow typical, as the buildings are so close to the road that any widening would impact them.

4.2.3 Alternative 3W

This alternative would reconstruct and relocate the alignment of NH 110 beginning in the vicinity of the existing St. Lawrence & Atlantic Railroad bridge over Green Street and continuing northerly on Green Street following along the west side of Second Avenue past Mannering Street and Third Avenue to intersect with Wight Street.

Based on input received at Public Informational meetings and further consideration of the issues involved, this proposed alternative was not supported as Alternative 2 performed similar task with less impacts.

4.2.4 Alternative 4W

This alternative would reconstruct and relocate the alignment of NH 110 beginning at the existing St. Lawrence & Atlantic Railroad bridge over Green Street and continuing northerly on Green Street to First Avenue, with the widening occurring along the west side of First Avenue, through the existing dead end, forming a new T-intersection with Hillside Avenue (**Exhibit 5**). The alignment would then continue parallel to the rail corridor to join with Wight Street in the vicinity of the existing Third Avenue.

Based on input received at Public Informational meetings and further consideration of the issues involved, this proposed alternative was not supported as the alignment of Alternative 4E,

the Preferred Alternative, by being placed closer to the railroad corridor performs similar task with less impacts to the neighborhood.

4.3 Bypass Alignments

4.3.1 Area Wide Bypass Alternatives

Alignments, which completely bypass this section of NH 110 are beyond the scope of the project. Although construction of these bypass alternative would avoid all impacts to the Berlin Heights Addition Historic District they would require extensive acquisition of new right-of-way. The topography, which would be encountered with any full bypass alignment, would raise serious engineering and constructions concerns. These alignments would also have greater impacts to undeveloped properties, streams, wetlands and substantially increase costs. Additionally, existing topographic and land use features to the northeast of such as Mt. Jasper, the Dead River, the Dead River Pond, the railroad corridor, as well as the system of residential streets are substantial constraints to connecting NH 110 to NH 16 further to the north. Topographic features created by Mt. Forist and Jericho Mountain severely limit constructability of any bypass alignments to the west.

4.3.2 Area Specific Bypass Alternatives

Alignments, which shift this segment of NH Route 110 to the east to connect to Willow Street and York Street, would require new bridges to cross the Dead River and the railroad corridor. Impacts to the Berlin High School and athletic fields, and to developed neighborhoods located on the east side of the Dead River would occur. Engineering and constructions concerns with the topography would also be encountered, as well as the additional residential displacements and impacts to existing, as well as the system of residential streets are substantial constraints to connecting NH 110 to NH 16.

Alignments, which shift this segment of highway to the west would still impact the Berlin Height Addition District. Engineering and constructions concerns with the topography would also be encountered as well as areas which may have potential archeological sensitivity. Depending on the distance from the existing alignment, a new alignment alternative has the potential for additional residential displacements.

Both the east or west shift scenarios of NH 110 would require the acquisition of additional new right-of-way, would incur substantial increases in costs and is beyond the scope of the project, which is basically the reconstruction of an existing roadway.

For these reasons, bypass alignments are not considered feasible or prudent.

4.4 Alternatives Retained for Further Consideration

4.4.1 Alternative 2

This alternative would reconstruct and relocate the alignment of NH 110 beginning at the existing St. Lawrence & Atlantic Railroad bridge over Green Street and continuing northerly on Green Street to Second Avenue, Madigan Street, Mannering Street and Third Avenue to Wight Street (**Exhibit 6**). This option would reroute NH 110 by cutting through the Sessions Street/Madigan Street block and the Madigan Street/Mannering Street block.

This alternative would retain truck traffic through the center of the neighborhood. Based on input received at Public Informational meetings and further consideration of the issues involved, this proposed alternative was not supported as the Proposed Alternative 4E was determined to have less long-term impacts to the neighborhood and community. This alternative severely impacts the existing grid pattern at the center of the neighborhood by going through a city block and realigning three intersections.

Due to the relatively large right-of-way (ROW) impacts associated with Alternative 4E (the Preferred Alternative) compared to this Alternative, a more detailed evaluation was progressed through the Preliminary Design which assesses its impacts relative to the Preferred Alternative. For specific resources these impacts evaluations are discussed and contrasted with the Preferred Alternative below in Section 6.0 - Evaluation of Environmental Impact.

4.4.2 Preferred Alternative - Alternative 4E

The Preferred Alternative (Alternative 4E) involves the reconstruction and relocation of approximately 0.6 miles of NH 110, with a portion on new alignment, that would create a more direct route for the roadway between Green Street and Wight Street, and would remove through traffic from the largely residential neighborhood (**Exhibit 7**). The new alignment of NH 110 would begin on Green Street in the vicinity of the existing St. Lawrence & Atlantic Railroad overpass and extend northerly approximately 3,600 feet, initially following First Avenue, with widening occurring to the east side. The alignment would continue through the existing First Avenue dead-end forming a new T-intersection with Hillside Avenue, then proceeding northerly adjacent to the St. Lawrence & Atlantic Railroad rail corridor, and rejoining with the existing NH 110 alignment on Wight Street in the vicinity of its intersection with Fourth Avenue.

Reconstruction of Wight Street would extend $\pm 1,500$ feet on existing alignment from Fourth Avenue, matching in with an existing improved section of NH 110. Additionally, the changes in the NH 110 alignment would entail the reconfiguration of the intersection of Green Street with First Avenue, eliminate the Second Avenue connection with Hillside Avenue thereby ending Second Avenue at its intersection with Mannering Street, and reconfigure Third Avenue to form a T-intersection intersection with the relocated section of NH 110, south of it rejoining with the existing Wight Street alignment. Hinchey Street would remain a dead-end and would not connect with the relocated NH 110.

Minor approach work would also be necessary at the intersections of NH 110 with: Gilbert Street, the remaining westerly portion of Green Street; Roderick Street; Hillside Avenue; Third Avenue; Fourth Avenue; Fifth Avenue; Boulay Street; Sixth Avenue; and Duguay Street. Sidewalks would be constructed along both sides of NH 110 along the new alignment from Green Street to Fourth Avenue. North of Fourth Avenue, the existing sidewalks along both sides of Wight Street would be reconstructed. This alternative also maintains the existing grid pattern of the center of the neighborhood by relocating the alignment along the railroad tracks.

The following typical roadway configurations are proposed and will provide a 30 mph design speed (**Exhibit 7**). From the beginning of the project limits, the St. Lawrence & Atlantic Railroad overpass over Green Street, to ±200 feet north of the proposed Third Avenue intersection with Wight Street, the roadway will consist of two 12-foot wide travel lanes, each with 4-foot shoulders, 6-foot grass panels and 8-foot sidewalks. Continuing north along Wight Street to the end of the project limits, the roadway will match in with the existing alignment and will consist of two 12-foot travel lanes, each with 4-foot shoulders and 6-foot sidewalks. From Green Street to Third Avenue, NH 110 will be established with a right-of-way width of 66 feet. Along Wight Street the ROW width will be 46 feet.

None of the intersections warrant signalization. Stop sign control would be provided for all the side streets intersecting NH 110. The remnants of First Avenue north of Green Street will be discontinued, however driveway access will be provided to all properties along the corridor that remain viable lots. The reconstruction of the intersections with Wight Street would provide an adequate sight distances for the proposed 30 mph design speed of NH 110. The intersection of Roderick Street with First Avenue will be provided with a 25 mph sight distance.

6.0 Evaluation of Environmental Effects

The effects of the project relative to the following social, economic, natural and cultural resources/issues, if applicable, have been reviewed for Alternative 4E (the Preferred Alternative) and Alternative 2. Resources/issues, which are not discussed in the body of the report, were investigated, however, no impacts were evident and as such these resources/issues are omitted from the environmental documentation. The resources and issues deemed applicable for this project are indicated in **Bold** type.

6.1 Resources/Issues

	<u>Social/Economic</u>	<u>Natural</u>	<u>Cultural</u>
Safety	Land Acquisition	Water Quality	Historical
Displacements	Business Impacts	Surface Water	Archaeological
Neighborhoods	Farmlands	Ground Water	Stonewalls
Recreation	Community Services	Floodplains	Aesthetics
Public Lands	Energy Needs	Wildlife or Fisheries	
Construction Impacts	Utilities	NH Designated Rivers	
Air Quality	Land Use	Endangered Species/Natural Communities	

Noise
Oil/Petroleum and
Hazardous Materials
Transportation Patterns
Forest Lands
Coastal Zone

Environmental Justice
Wild & Scenic Rivers
Rechannelization
Wetlands
LCIP Properties

Discussion of the effects on the resources/issues follows:

6.2 Safety

- **Pedestrian patterns and concerns:**

A major concern in the NH Route 110 corridor area is pedestrian safety. The corridor area is home to the City's recreation department and adjacent recreation field. The Notre Dame Skating arena is also adjacent to the neighborhood. This part of the corridor is just outside of the downtown and there is a considerable amount of pedestrian traffic to all of the above-mentioned places. The alternative must address these concerns in a safe and straightforward manner that provides for the optimum in sight distance and intersection recognition to accommodate the school crossing zones. NH 110 will be relocated outside the neighborhood and allow unimpeded through movement from Green Street to Wight Street. As there will no longer be any sharp 90 degree turns along narrow neighborhood streets to negotiate, large trucks will remain within their respective travel lanes. Alternative 4E best addresses these concerns.

- **Bicycle routes and concerns:**

The NH 110 corridor is identified in State Bicycle maps as a recommended bicycle route through the City. The existing corridor poses safety concerns associated with bicycle due to the high volume of trucks and passenger cars negotiating these narrow, circuitous streets through the neighborhood, with several areas with narrow shoulders and conflicts with driveways. Bicycle use would be improved with the provision of paved 4-foot shoulders on either side of NH 110 along the new alignment and the improvement of sight distance with intersecting roadways. With the proposed reduction of driveways and intersection (see **Table 6.1**) Alternative 4E best addresses these concerns as compared with Alternative 2.

Additionally, the safety of local bicycle use by children and others within the neighborhood would be enhanced with the removal of truck and through traffic presently bisecting the neighborhood. One fatality has been reported to occur with a bicyclist.

- **School Districts:**

A school bus garage is located on the west side of Third Avenue at Hinchey Street. This is in the vicinity of where the narrower Wight Street connects with Third Avenue. This area is on a curve and there are sight distance concerns with potential conflicts with school buses maneuvering into the garage and the through traffic, which includes large percentage of truck,

using NH 110. The Preferred Alternative would eliminate the through and truck traffic from Third Avenue, increasing the safety of the school bus operations.

- **Crash Data:**

The current crash data available reported 127 crashes within the project area from 1994 to 2007. Two fatalities were also reported to occur within the area. One fatal crash occurred with a bicyclist, and 27 other crashes resulted in personal injuries. The intersection of Second Avenue and Madigan Street had 10 crashes attributed to it, which was more than any other intersection. Three of these crashes were attributed to “unsafe backing.” The intersection of Second and Third Avenues with Mannering and Madigan Streets had 5 and 6 crashes each. Crash data from the Berlin Police Department from January 1, 2002 until May 9, 2007 shows three crashes at the Green Street and Second Avenue intersection. There were five crashes each at the following intersections: Second Avenue and Madigan, Second Avenue and Mannering, There were also five crashes each at the following intersections; Third Avenue and Madigan Street, Third Avenue and Mannering Street.

The number of driveways and intersections along the respective alignments for each alternative from the Green Street railroad overpass to the intersection of Fourth Avenue show that Alternative 4E has the least points of potential conflict between vehicles.

Table 6.1 - Traffic Conflict Points

NH 110	Driveways	Intersections
Alternative 2	30	7
Alternative 4E	10	6
Side Streets	Driveways	Intersections
Alternative 2	8	1
Alternative 4E	10	2

Safety concerns associated with bicycle use would be improved with the provision of paved 4-foot shoulders on either side of NH 110. Reduction of existing conflicts with driveways and sharp turns that would occur with the Preferred Alternative would enhance the traffic flow through the City.

6.3 Transportation Patterns

The annual average daily traffic (AADT) in 2008 along NH 110 was 5,260 vehicles per day, with 11% of the traffic consisting of heavy trucks. The traffic volume is estimated to increase to 6,760 AADT with 12% trucks by the 2031 design year. The proposed project would enhance transportation through the City of Berlin as well as the regional traffic pattern. The existing circuitous route through the center of an established neighborhood would be replaced with a straighter alignment that skirts the edge of the neighborhood. The proposed alignment

would provide a well-defined route through the City that would enhance the regional transportation connectivity of traffic from NH 16 to points west of the City. The relocation of the NH 110 alignment alongside the existing St. Lawrence & Atlantic Railroad ROW would consolidate a transportation corridor through the City.

The alignment of the Preferred Alternative would no longer provide a direct connection of Second Avenue with Hillside Avenue, requiring a minor detour along Third Avenue and the new NH 110 alignment for Second Avenue residents wishing to access Hillside Avenue. Through traffic, which presently use Second Avenue would be along the new alignment or along Third Avenue and would not be affected by this dead-ending of Second Avenue.

Green Street, Second Avenue, Madigan and Mannering Streets, and Third Avenue would no longer be on the NH 110 corridor reducing the amount and type of traffic that would be accessing these routes. Traffic would change from its existing function as a State highway with concurrent heavy truck traffic to primarily providing for neighborhood functions, and local access to and from other city neighborhoods. The intersections of Green Street and the proposed NH 110 alignment, as well as the intersection of Third Avenue with NH 110, would be reconfigured and would reflect the conversion of these existing through routes into their function for local uses.

6.4 Air Quality

The proposed project is located within an area of the State that is in attainment with respect to the National Ambient Air Quality Standards (NAAQS) for ozone and all other criteria pollutants (CO, NO_x, VOCs, PM₁₀ and PM_{2.5}). The proposed work is not considered a "Regionally Significant Project" as defined in the final Transportation Conformity rules (40 CFR 93.101) or in those rules adopted by the New Hampshire Department of Environmental Services in accordance with the interagency consultation provisions required by 40 CFR 93.105. When completed, the project is not expected to result in significant air quality impacts or contribute to violations of the NAAQS. Consequently, this project is exempt from the conformity requirements of the Clean Air Act Amendments of 1990. The project has been included in the *Statewide Transportation Improvement Program (STIP) 2009-2012*, dated January 23, 2009.

This project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the No-Build alternative. As such, the Federal Highway Administration (FHWA) has determined that this project will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special Mobile Source Air Toxics (MSAT) concerns. Consequently, this effort is exempt from analysis for MSATs.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next 20 years. Even after accounting for a 64 percent increase in Vehicle Miles Traveled (VMT), FHWA predicts MSATs will decline in the range of 57 percent to 87 percent, from 2000 to 2020, based on regulations now in effect. This will both reduce the

background level of MSATs as well as the possibility of even minor MSAT emissions from this project.

Though exempt from the requirements of the Clean Air Act, the National Environmental Policy Act also requires consideration of the project's impact on air quality. The proposed improvements include the elimination of several main-line stop signs allowing traffic on NH Route 110 to flow more freely. When completed, it is expected that congestion will be reduced and the overall efficiency throughout the corridor will be improved. Computer analyses of other projects (such as Manchester, 10622A and Londonderry, 12704) with substantially higher traffic volumes, flowing under more restrictive conditions, have consistently yielded maximum CO concentrations well below the one-hour NAAQS of 35 ppm and the eight-hour criteria of 9 ppm. As these projects were found not to have a detrimental impact on air quality, and for the reasons stated above, it can be concluded that this project will also not have an adverse impact on air quality.

6.5 Noise

The NH Department of Transportation's *Policy and Procedural Guidelines for the Assessment and Abatement of Highway Traffic Noise for Type I Highway Projects* (Noise Policy) provides guidelines for assessing noise impacts and determining the need, feasibility, and reasonableness of noise abatement measures for proposed Type I highway construction and improvement projects. Noise impacts associated with the proposed project were examined in accordance with the guidelines set forth in the Department's Noise Policy. The existing and predicted noise levels were calculated using FHWA's Traffic Noise Model (TNM) Lookup Tables.

The project area consists of primarily residential properties. The existing peak hour traffic noise levels for those properties directly adjacent to the existing roadway (first-row receptors) are between 62 and 64 decibels. The existing peak hour traffic noise levels for those properties farther away from the existing roadway are between 56 and 59 decibels.

Alternative 2 involves straightening out the existing alignment of NH Route 110 in order to eliminate several sharp corners and stop conditions (**Exhibit 6**). Existing peak hour traffic noise levels for the first-row receptors along NH Route 110 are between 62 and 64 decibels and are expected to be between 57 and 64 decibels upon completion of the project. As the roadway will be shifted away from some properties located along the existing alignment of NH Route 110, this alternative is expected to result in a 3 to 8 decibel decrease in noise levels for approximately 22 receptors located along the existing alignment of NH Route 110 (**Exhibit 8**). Of the receptors that will remain upon the completion of this alternative, none will be any closer to NH Route 110 than the existing alignment. As a result, this alternative is not expected to result in any noticeable increases in noise levels to any adjacent receptors.

The Preferred Alternative (Alternative 4E) involves relocating NH Route 110 between 275 feet and 600 feet east of its existing alignment (**Exhibit 7**). This shift would result in peak hour design year (2027) noise levels between 62 and 65 decibels for approximately 10 receptors

in the area of First Avenue and Roderick St. These noise levels represent a 4 to 7 decibel increase over existing noise levels which are between 56 decibels and 59 decibels. Conversely, this alternative would shift the NH Route 110 corridor away from many properties along Second Avenue, Third Avenue, Sessions St. and Madigan St., resulting in a 3 to 9 decibel decrease in noise levels for approximately 56 receptors (**Exhibit 9**). Existing noise levels for these properties are between 62 and 64 decibels and are expected to drop to levels between 54 and 60 decibels under the peak hour design year conditions.

Construction of either Alternative 4E or 2 will not result in noise levels that approach (within 1 decibel) or exceed the FHWA residential Noise Abatement Criteria of 67 decibels. Construction of this project is also not expected to raise noise levels by more than 7 decibels and in some cases will reduce noise up to 9 decibels for some properties. As such, no noise abatement is proposed for this project.

Construction activities will temporarily increase noise due to the use of heavy equipment, however these noise levels will return to normal after the project has been completed.

6.6 Oil/Petroleum and Hazardous Materials

An initial review of the NH Department of Environmental Services' (NHDES) files posted on their OneStop web site and a field evaluation was conducted to identify the potential for oil/petroleum contamination and hazardous materials (OHM) concerns within the project area. Several underground storage tanks located within the project area were identified in the NHDES files as closed. Due to historic and existing uses of properties, potential concerns with OHM were identified that may be of concern for both Alternative 2 and the Preferred Alternative on Parcels 9, 97, 107, and 127 (see **Exhibit 6** and **Exhibit 7**). Two additional properties of potential concern, Parcels 80 and 81, were also identified along Alternative 2.

Additionally, if construction of a stormwater treatment measure is deemed necessary (see Section 6.13), Parcels 174 and 175 would be of concern. Specifically, Parcels 174 and 175 have been identified by NHDES as containing polynuclear aromatic hydrocarbons (PAH's). As such, Activity and Use Restrictions have been placed on the properties and recorded in the deed. These restrictions may be amended upon application and approval of NHDES, who would determine whether any proposed changes would present an unacceptable level of risk to human health and environment. As a portion of these properties may be necessary for the construction of stormwater treatment, coordination will occur with NHDES on the design of any proposed treatment measures and the remediation that may be necessary to address the PAH contamination.

Initial site assessments (ISA's) will be conducted on the identified parcels to determine the actual risks associated with the purchase of these properties and/or construction of the project. It is anticipated that any contamination identified will be minor in nature and within standard treatment measures and protocols. Results of these investigations will be provided to the NHDES for their review and comments. Coordination will be on-going with NHDES on any

identified OHM sites identified along the Preferred Alternative. If necessary, tank closure assessments, will be performed following the removal of any underground storage tanks.

Due to health and safety concerns with the demolition of older buildings, the Department will conduct a comprehensive building audit to identify and quantify all regulated building materials and special wastes. Materials and wastes that may be inventoried include the presence of asbestos, mercury, refrigerants and lead paints that may be present within any buildings prior to their demolition. Audits for residential buildings will likely be limited to asbestos and lead paints, while those for commercial buildings will include a more comprehensive audit for other regulated materials. Appropriate measures and procedures will be undertaken to assure that these materials are properly handled and disposed of in accordance with State and Federal rules and regulations.

6.7 Zoning

According to the Zoning Ordinances of the City of Berlin, the project area is divided into four primary zoning districts (**Exhibit 10**): Residential Two-family, Residential General, Residential Single Family, and Business General. The Residential Two-family district provides for medium density residential development and associated uses that provided for amenities, such as home-based child care, public recreational facilities, schools and religious institutions. The Residential General, district accommodates high-density residential development, allowing two-family structures as well as multifamily. In addition to the amenities provided in the Residential Two-family district, this district also permits services to residences such as office space, restaurants and neighborhood grocery stores. The Residential Single Family district consists of low to medium density residential lots for single family homes. The Business General district allows intense commercial development and light industrial facilities with a commercial service area. This business district is designed to accommodate pedestrian and vehicular traffic.

6.8 Land Acquisition / Land Use / Tax Base

6.8.1 Alternative 2

Alternative 2 would affect approximately 50 properties with impacts to the properties ranging from minor strip takes and temporary construction easement to acquisition of the entire property. These impacts include:

- Considerable loss of the grid layout of the roadways within the neighborhood.
- Dead-ending Session Street at Second Avenue.
- Thirteen primary buildings to be demolished (five secondary).
- Loss of building density and pattern within the neighborhood.
- Loss of Madigan Street between Second Avenue and Third Avenue.
- Loss of three blocks of Third Avenue.
- Introduction of two new intersections.
- Introduction of new type of roadway with curvilinear design within the established neighborhood.

- Three sizeable intersection changes (Madigan Street at Second Avenue, Madigan Street at Third Avenue, and Green Street at Second Avenue).

The total acquisitions would consist of 10 residential buildings with 19 housing units, and two businesses. Of the 19 housing units that would be acquired through Alternative 2, four are single family and the remaining ones are in multi-family structures. These housing units account for almost one third of the existing housing units to be acquired. Most of the relocation efforts would have to focus on locating rental properties. The City of Berlin has 216 units available Citywide for rent and 87 are available for sale.

6.8.1.1 Property Values

Twelve properties, containing 19 housing units, would be acquired through Alternative 2, which would include four single family homes, four two-family dwellings, one three-family dwelling, one four-family dwelling and two commercial properties. Based on the 2003 assessment, summarized in Table 6.2, the total assessed value of these 12 properties was \$465,500 or 0.17% of the City's total assessed property values. This alternative would have a minor impact on the property values of the City.

Table 6.2 - 2003 Assessment Values and Tax Revenue for Alternative 2 Properties.

Parcel No.	Map-Lot	Dwelling Type	2003 Assessment Value	2003 Property Taxes
59	119-0405	3-family	\$22,600	\$1,004
57	119-0406	single family	43,800	1,946
55	119-0407	2-family	47,000	2,088
53	119-0408	single family	37,300	1,657
52	119-0409	2-family	37,400	1,661
51	119-0410	2-family	34,300	1,524
50	119-0413	single family	47,700	2,119
66*	119-0444	single family* (open lot)	12,100	537
68	119-0445	commercial	32,500	1,444
86	119-0503	4-family	48,800	2,168
84	119-0504	2-family	45,900	2,039
80	119-0505	commercial	56,100	2,492
Total		19 housing units 2 business units	\$465,500	\$20,679
City of Berlin			\$265,849,142 with utilities	\$6,028,045
Percentage of City			0.17%	0.34%

Source: NH Route 119 Relocation - Socioeconomic Impact Analysis, Maguire Group, Inc., November 19, 2004

*Note - house burned and demolished - 2008

6.8.2 Alternative 4E

The proposed action would affect approximately 65 properties with impacts to the properties ranging from minor strip takes and temporary construction easement to acquisition of the entire property. These impacts include:

- Thirty primary buildings to be demolished (17 secondary).
- Loss of grid (2 blocks).
- First Avenue no longer dead ends at the railroad.
- New through traffic along the edge of the District.
- Loss of direct connection of Second Avenue to Hillside Avenue.
- New connection of Third Avenue with Wight St.; slight grid pattern change.
- Introduction of a new roadway along the St. Lawrence & Atlantic railroad corridor.
- Loss of building density and pattern along the border of the neighborhood.
- Loss of setting for properties, including those houses adjacent to the railroad corridor.
- One sizeable intersection change (Green Street at First Avenue).

The total acquisitions would consist of 28 residential buildings with 48 housing units and two businesses. Of the 48 housing units to be acquired, ten are single family homes and the remaining are in multifamily structures. The City of Berlin has 216 units available citywide for rent and 87 are available for sale.

6.8.2.1 Property Values

There would be 28 properties, containing 48 housing units and two businesses, acquired for Alternative 4E. They consist of 11 two-family buildings, 10 single family homes, four three-family buildings, one five-family, one commercial and an open lot. Table 6.3 summarizes the properties that would be acquired, having a total assessed value of \$967,100, 0.36% of the City's total assessed properties.

Table 6.3 - 2003 Assessment Values and Tax Revenue for Alternative 4E Properties

Parcel No.	Map-Lot	Dwelling Type	2003 Assessment Value	2003 Property Taxes
32	119-0343	2-family	\$39,200	\$1,741
34	119-0344	2-family	42,900	1,906
35	119-0345	single family	44,700	1,986
36	119-0346	single family	29,900	1,328
37	119-0347	single family	38,000	1,688
33	119-0348	2-family	39,400	1,750
31	119-0349	open lot	2,300	102
29	119-0350	2-family	45,300	2,012
27	119-0351	single family	46,100	2,048
24	119-0352	3-family	36,100	1,604

Parcel No.	Map-Lot	Dwelling Type	2003 Assessment Value	2003 Property Taxes
20	119-0353	single family	32,300	1,435
16	119-0360	2-family	33,400	1,484
14	119-0361	5-family	29,500	1,310
8	119-0362	3-family	43,400	1,928
7	119-0363	single family	61,400	2,727
3	119-0364	2-family	34,500	1,532
105	119-0427	single family	20,600	915
106	119-0428	single family	29,600	1,315
38	119-0429	2-family	31,700	1,408
40	119-0430	single family	22,000	977
39	119-0431	2-family	4,400	195
41	119-0432	2-family	31,800	1,404
117	119-0487	single family	34,500	1,532
116	119-0488	2-family	33,900	1,506
115	119-0489	2-family	31,800	1,413
111	119-0491	3-family	46,800	2,079
109*	119-0492	3-family	37,300	1,657
107	119-0493	commercial	44,500	1,977
Total		48 housing units 2 business units	\$967,100	\$42,959
City of Berlin			\$265,849,142 with utilities	\$6,028,045
Percentage of City			0.36 %	0.71%

Source: *NH Route 110 Relocation - Socioeconomic Impact Analysis*, Maguire Group, Inc., November 19, 2004

*Note - vacant, burned July 2008

Residents would be relocated and provided with safe and reasonable living accommodations in compliance with the Federal Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970, as amended.

6.9 Business Impacts

Alternative 2 would impact a vacant commercial property located on Green Street (Parcel 68) and the Mr. Auto service garage located on Third Avenue (Parcel 80). The general effect of the business relocation on the local economy is expected to be minimal as the business would likely relocate and become reestablished in the community. The business would be afforded all the relocation benefits available to them according to the Federal Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Alternative 4E would impact the Guay, Bros. service garage located on Third Avenue (Parcel 107). The general effect of the business relocation on the local economy is expected to be minimal as the business would likely relocate and become reestablished in the community.

The business would be afforded all the relocation benefits available to them according to the Federal Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970, as amended.

The Building Blocks Day Care facility located on First Avenue (Parcel 16) is presently damaged by fire and is no longer occupied, if the day care does become re-established prior to the commencement of the project, the business would also be afforded all the relocation benefits.

6.10 Neighborhoods / Displacements

This neighborhood continues to deteriorate due in part to NH 110 and the heavy truck and car traffic going through the neighborhood. This neighborhood has low home values, brings a small amount of tax revenue to the City, and requires many services due to the condition of some of these buildings. The relocation of NH 110 would contribute to the revitalization of the neighborhood by moving the heavy truck traffic from the largely residential neighborhood.

The City has implemented a strong housing program with the intent of revitalizing the community's housing stock. The target is primarily multi-family homes that have code and structural deficiencies. There are a few vacant properties in the neighborhood and many properties have been sold and resold over the past several years. This neighborhood is in neglect and would benefit from the removal of the truck traffic from the interior of the neighborhood.

6.10.1 Alternative 2

Alternative 2, would require the acquisition of 10 residential properties and two commercial properties. There are approximately 15 tenant-occupied and four owner-occupied units that would be affected by this alternative. A Conceptual Relocation Study would be performed by the Department to assure that there is an adequate number of functionally similar, decent, safe and sanitary residential replacement housing to accommodate displaced residents would be conducted and provided in accordance with the Federal Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970, as amended.

6.10.1.1 Community Cohesion - Alternative 2

Currently, NH 110 travels along Third Avenue and divides the neighborhood. Third Avenue is wider than the other adjacent streets with little buffering between the sidewalk and the roadway. Physically, Alternative 2 would also maintain and worsens the division that Third Avenue creates between residences south of Sessions Street and north of Madigan Street, Second Avenue, and Green Street. The alignment would interrupt the established grid pattern of the street layout that is throughout the project area and the Berlin Heights Addition neighborhood. The proposed alignment retains this neighborhood division and in retaining its curved nature enhances the division.

Alternative 2 would continue to move existing heavy truck and passenger car through traffic through the same area of the neighborhood. Businesses would continue to get exposure

from through traffic and residences would still be impacted by the truck traffic. Noise impacts due to heavy truck traffic also affects the cohesion of the neighborhood.

Routing NH 110 through the Madigan Street block would eliminate the maneuvering of trucks through the narrow streets of the area and provide a more navigable route and safer roadway conditions for both drivers and pedestrians. The layout would have reduced the width of Third Avenue by providing a grass panel between the sidewalk and road.

6.10.2 Alternative 4E

The Preferred Alternative would require the acquisition of 26 residential properties, one business and one parcel with storage units. There are approximately 33 tenant-occupied and 13 owner-occupied units that would be affected by the Preferred Alternative. A Conceptual Relocation Study would be performed by the Department to assure that there is an adequate number of functionally similar, decent, safe and sanitary residential replacement housing to accommodate the displaced residents and sufficient replacement sites to accommodate the business relocation in the city of Berlin. The acquisition and relocation program will be conducted in accordance with the Federal Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970, as amended. The Department will assign Relocation Advisors to manage these relocations.

There would be impacts to the neighborhood of about 4.9 acres. The impacts to the neighborhood, apart from the total acquisitions would consist of slope impacts and driveway matches. The proposed roadway would be widened slightly, provided with paved shoulders and curbing.

The Preferred Alternative gives the area the best chance to be a residential neighborhood that was envisioned and that it used to be one hundred years ago. This neighborhood was laid out in the early 1900's and seemed to rely on Third Avenue as its center with the Catholic Church and Catholic School located along the roadway. The current route configuration has truck and car traffic maneuvering through the neighborhood. With this comes noise, speeding traffic - trucks and cars, and difficult turns due to the narrow streets, steep grades, and tight intersection. The area is not the quiet residential neighborhood that one can find just a block or two to the west.

6.10.2.1 Community Cohesion - Alternative 4E

Alternative 4E moves NH 110 from its existing route along Third Avenue A and realigns it along First Avenue, running parallel with the railroad tracks back to Wight Street. This would shift the heavy truck traffic from an area where heavy truck traffic is an existing condition to an area of the neighborhood where it does not currently exist. First Avenue is a dead end street with traffic only from those that live on it. The truck route would be removed from the center of the neighborhood and though the two businesses on Third Avenue would lose exposure from this through traffic, this would result in a minimal impact since these types of businesses typically do not necessarily rely on passing traffic as an integral part of their business.

Overall, this alignment maintains the existing grid pattern of the neighborhood even though some minor loss would occur with the First Avenue intersection with Green Street. The width of Third Avenue would remain and could continue to act as a division. However, Alternative 4E would produce a barrier between eastern portions of the neighborhood and remnant properties located on Roderick Street.

6.11 Environmental Justice

Executive Order 12898, enacted in 1994, requires an Environmental Justice evaluation be conducted for all transportation projects that are undertaken, funded, or approved by the Federal Highway Administration (FHWA) to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, and social and economic effects, on minority populations and low-income populations. There are no environmental justice properties located within the project limits. The US Housing and Urban Development (HUD) property, overseen by the Berlin Housing Authority, is located on Green Street south of the project limits. None of the alternatives would interfere with the low-income housing uses of this property.

A socioeconomic impact study was conducted to provide an analysis of the demographics of the project area and determine if the proposed alternatives disproportionately impact individuals based on their socioeconomic background such as race, ethnicity, age or household income. The results of the study were reported in the November 19, 2004 NH Route 110 Relocation - Socioeconomic Impacts Analysis prepared by Maguire Group, Inc. This report presents a snapshot of the project area and the City of Berlin as the data relate to the proposed alignments. The data presented in the report was used to evaluate potential adverse or beneficial impacts of the realignment and reconstruction of NH 110. Following is a summary of the results of this analysis.

6.11.1 Alternative 2

Alternative 2 does not disproportionately impact individuals based on socioeconomic characteristics. The acquisitions associated with this alternative are concentrated in three US Census Blocks, which shared the same proportions of low-income, minority and other special populations as the study area and the City of Berlin as a whole - 2% of the population was non-white; individuals 65 years old and older comprised 18% impacted population; and nearly one quarter (22%) was under the age of 18.

Alternative 2 would further worsen the division created by the existing truck route between those residences south of Sessions Street and north of Madigan Street, Second Avenue, and Green Street. This area between the alternative and the railroad tracks is divided between Census Block 1 and 3 and to gain a perspective on the economic standing of this population is difficult due to limited income data available at a small geographic scale. The 1999 median household income for Block Group 3 was reported to be \$35,859, higher than the median income of the City, \$29,647. For Block Group 1, it was reported to be \$17,765, much lower than the City. Although the area contains a lower-income population, they do not appear to be singled out or targeted by the impacts of the alternative.

6.11.2 Alternative 4E

Alternative 4E would not disproportionately impact minority and elderly populations. In the blocks where properties would be acquired, only 2.2% of the population was non-white and nearly one quarter (21.9%) of the blocks' population was 65 and older. However, one third (34.2%) of the impacted census blocks' population was under the age of 18 years, a slightly higher percentage than the City as a whole (21.3%).

Alternative 4E would acquire homes located in both Census Block 1 and 3 and, as with the Alternative 2; it is difficult to gain a perspective on the economic standing of this population due to limited income data available at a small geographic scale. The 1999 median household income for Block Group 3 was reported to be \$35,859, higher than the median income of the City, \$29,647. For Block Group 1, it was reported to be \$17,765, much lower than the City. Nineteen of the 28 properties (68.9%) to be acquired through the alternative are located in Block Group 1; therefore, the alignment appears to have a greater impact on the lower income population of the neighborhood. Additionally, Alternative 4E would isolate a small grouping of four homes between the proposed alignment and the railroad tracks. These homes are also located in Block Group 1.

6.12 Community Services / Recreation

Community services include local resources such as Police and Fire Departments, schools, libraries, or public health facilities. The Police Station is located within the project area on Green Street west of the existing St. Lawrence & Atlantic Railroad bridge. Green Street would remain open to traffic during construction and access to the Police Station would remain. Construction of the project is not anticipated to cause any undo delays in responses to and from the police station.

The Bartlett Elementary School located just south of the project on First Avenue and Mt. Forist Street, is scheduled to be closed by the City after the 2008-2009 school year. The Berlin Junior High Schools is located north and east of the project area across from the railroad corridor and the Dead River on Hillside Avenue, the Berlin Senior High School is also located across from the Dead River on Willard Street. These facilities are beyond the immediate project limits. During construction through traffic may detour temporarily along Hillside Avenue trying to avoid construction may contribute to temporary congestion.

The Gilbert Street Park is a small city park along Green Street and Gilbert Street which directly abuts the St. Lawrence & Atlantic Railroad Line to the west (**Exhibit 7**). This park is used as an outdoor ice skating rink during the winter months and is the site for children summer programs. No direct impacts to the park would occur as a result of the project. On-going coordination with the City of Berlin has confirmed that the proposed construction in the vicinity of this property would not substantially affect the recreational purposes of the park. Green Street would remain open to traffic during construction and access to the park would remain. Existing parking adjacent to the park along Green Street will be retained. The Recreation Department

sponsors activities year round at the Berlin Recreation Center and Parks Department located on First Avenue south of Green Street.

The physical impacts of the Preferred Alternative, as well as Alternative 2, are similar for the Park, Police Station and Recreational Center. However, the reduction of truck and general traffic on Green Street and in the neighborhood north and east of First Avenue resulting from the construction of the Preferred Alternative would provide safer pedestrian and bicycle access to the Recreation Center from the neighborhood. Alternative 2 would continue to bisect the neighborhood with the potential for conflict with large vehicles and heavy traffic remaining for children, teens, and parents, from the neighborhood located to the north and east, that would participate in recreational activities at the Center and the adjacent athletic field.

6.13 Water Quality / Surface Waters / Groundwater

The project area is located within the 1-mile surface water impairment buffers of the Androscoggin River, the Dead River and Jericho Brook. Impairments to these adjacent surface waters are associated with the presence of *Escherichia coli* bacteria (Table 6.4), likely the result of illicit sewer connections to storm drains. For the Androscoggin River this parameter is designated as a pollutant that is causing marginal impairment as defined by NH DES, but a TMDL is not necessary since other controls are expected to attain water quality standards within a reasonable time. For the Dead River and Jericho Brook this parameter is a more severe impairment that is causing poor water quality as defined by NH DES, but a TMDL is not necessary since other controls are expected to attain water quality standards within a reasonable time.

Table 6.4 - Surface Water Impairments within Project Area - 1-Mile Buffers

ASSESSMENT UNIT ID	BEACH?	ASSESSMENT UNIT NAME	IMPAIRMENTS
NHIMP400010606-02	N	ANDROSCOGGIN RIVER, IMP	ESCHERICHIA COLI
NIIRIV400010606-09	N	ANDROSCOGGIN RIVER, WTF	ESCHERICHIA COLI
NHRIV400010606-08	N	ANDROSCOGGIN RIVER, WTF	ESCHERICHIA COLI
NHRIV400010606-07	N	ANDROSCOGGIN RIVER, WTF	ESCHERICHIA COLI
NIIRIV400010606-02	N	DEAD RIVER, JERICHO BROOK	ESCHERICHIA COLI

Source: NHDES One Stop Web Geographic Information System <http://www2.des.state.nh.us/gis/onestop/>

Impacts associated with either Alternative 2 or the Preferred Alternative are within the Dead River watershed. The Dead River is located beyond the project limits approximately 200 feet east of the St. Lawrence & Atlantic Railroad corridor. The water is rated as Class B, whose primary use is for fishing, boating, and swimming.

Currently, stormwater over the majority of the project limits is collected into a closed drainage system and discharged through culverts to the Dead River. To manage the concerns associated with the existing conditions of the storm water drainage system within the limits of

the project, the proposed design may incorporate a new direct discharge point to the Dead River. Storm water could be directed from the existing stormwater system with a 36 inch diameter drainpipe being jacked under the active railroad line. If considered necessary, a detention pond could be constructed south of the railroad corridor in two possible locations, Parcel 174 (south of Hillside Avenue) and/or Parcel 178 (north of Hillside Avenue). If constructed, the detention area(s) would provide water quality treatment of the runoff prior to its discharge into the Dead River. This water quality treatment measure would reduce the Total Suspended Solids (TSS) within the runoff, which could consequently reduce the contribution of the project area to the existing impairment

Standard erosion control practices and appropriate roadway construction methods would be employed during construction to control siltation and minimize disturbance to the Dead River and any wetlands adjacent to the project. The contractor must submit a professionally prepared erosion and sedimentation control plan (detailing the control measures to be used) for approval before any work can be performed.

There are neither public water supply wells nor wellhead protection areas located within the project area. No private drinking water wells are located within the project limits.

6.14 Wetlands

For either the Preferred Alternative or Alternative 2, minor impacts to the Dead River could occur as a result of the construction of a new stormwater discharge point, as discussed in Section 6.13 above, into the Dead River is necessary. The Dead River in this location has been classified in accordance with the US Fish and Wildlife Service Manual FWS-OBS-79/31 as a riverine lower perennial unconsolidated bottom permanently flooded (R2UBH) wetland. If construction of a new drainage outlet to the Dead River is deemed necessary, the impacts are anticipated to consist of slight temporary impacts, which would require a minor impact permit from the NH Wetlands Bureau and which would qualify for a State Programmatic General Permit from the US Army Corps of Engineers. No other wetlands are located within the project area.

The possible project impacts were reviewed at a monthly Natural Resource Agency Meeting held on July 15, 2009. Agencies, in addition to NHDOT and FHWA that attended this meeting, included the NH Wetlands Bureau, US Army Corps of Engineers, US Environmental Protection Agency, NH Fish and Game Department, and NH Office of Emergency Management. No one objected to the impacts as presented. No wetland mitigation, outside of the proposed water quality treatment, would be necessary for either the Preferred Alternative or Alternative 2 if these impacts were deemed to be necessary.

6.15 Endangered Species / Natural Communities

A search of the NHI Natural Heritage Inventory Bureau database has been conducted for records of rare plant and animal species and exemplary natural communities within the project

limits of either the Preferred Alternative or Alternative 2. The database has demonstrated the presence of Bald Eagle (*Haliaeetus leucocephalus*) and Common Nighthawk (*Chordeiles minor*) in the greater City of Berlin area, but has not identified any known occurrences of these species within the specific project area (**Exhibit 11**).

6.16 Floodplains

For either the Preferred Alternative or Alternative 2, the project would temporarily impact the 100 year floodplain of the Dead River only if construction of the proposed new drainage outlet, as discussed in Section 6.13 above, is deemed to be necessary. These impacts would not cause a permanent loss of the flood storage capacity to the Dead River as a result of the construction of the project. No mitigation would be necessary as any impacts would only be temporary.

6.17 Cultural Resources

The Department has coordinated with by the NH Division of Historical Resources (NHDHR) the Federal Highway Administration (FHWA), and City of Berlin Officials to locate and identify National Register of Historic Places listed or eligible properties within the immediate area of the proposed project, and determine how they would be affected. Discussions with the NIIDIR and FHWA were held during Monthly Cultural Resource Agency Coordination Meetings held on June 6, 2002, July 15, 2002, February 26, 2003, March 24, 2003, April 8, 2004, May 13, 2004, June 10, 2004, July 2, 2008, December 4, 2008, January 22, 2009, February 12, 2009, May 14, 2009, June 4, 2009, and June 22, 2009. The City of Berlin, as a consulting party to the Section 106 process identified during the development of this project, was invited and attended several of these meetings.

An area form was completed to identify the cultural resources present within the limits of the project. The area form indicated that the Berlin Heights Addition Historic District, which is important for its local significance to the City of Berlin, was located within the project area. Two other districts previously determined eligible for listing in the National Register of Historic Places, the Atlantic & St. Lawrence Historic District and the Berlin Mills Railway Historic District, were identified as being adjacent to the project area.

The boundaries of the Berlin Height Addition Historic District were defined and properties were identified as contributing or non-contributing to the District. The portion of this large historic District that falls within the NH 110 Project Area (eighty-eight buildings) was documented in detail. Historical research on individually surveyed buildings, included examination of Sanborn maps and limited deed research conducted at the Coos County Registry of Deeds in Lancaster.

6.17.1 Historical Resources

There are three historical districts within the vicinity of the project area. Details on these districts are discussed below:

- **Berlin Heights Addition Historic District:**

The project is located within the Berlin Heights Addition Historic District (also known as “The Avenues”), which is important for its local significance to the City of Berlin. It reflects several important contexts in the history of the City, in the area of community planning and development. Significance focuses on the platting of the District and its settlement by ethnic groups during development of the paper mills and other industry in the late 19th century.

The Berlin Heights Addition, located on the west side of Berlin, was designed in a grid pattern between 1892 and 1893 by the Berlin Heights Land Corporation, adjacent to its earlier (and more affluent) residential neighborhood to the north, Berlin Heights. The densely settled neighborhood was platted by a private land corporation, in response to the 134 per cent increase in the city's population between 1880 and 1890, as local industries expanded. The actual build-out was done by individual home and business owners, and private small speculators over a 30 year period. The development was influenced by geographical and population pressures and by investment decisions of property owners, some of whom purchased more than one lot for buffering or later development. The norm for neighborhood residences was a single, freestanding, wood-framed dwelling with light, air, and land on all sides, a reflection of the 19th century ideal of the pastoral garden suburb; but the neighborhood also accommodated two- to three-story multifamily, often owner-occupied, dwellings and some commercial buildings, especially on the thoroughfares. Common features of the multi-family housing were the mortared stone foundations and walls, multi-story porches and horizontal divisions into flats. Of note are the secondary landscapes of: block interiors; sloping topography; rock outcrops, and; decorative and utilitarian stone walls to demarcate property boundaries and landscape features. It now appears that the ethnic residents of the District were associated through religious groups and perhaps other ethnic organizations, thus the population of the Addition was diverse. The District was one of several ethnic enclaves composed of individual families, French Canadians, Irish-Americans, Russian and Polish Jews, Italians and smaller members of other groups. These groups were dispersed across the District. Individual families might have lived in the District for several generations. From the beginning the identity of the Addition seems to have been more that of a residential neighborhood than as an area of workers' housing, and through time it reflected the assimilation and increasing prosperity of its residents.

The District is bounded on the east by the Grand Trunk Railroad tracks (St. Lawrence & Atlantic Railroad) from Mt. Forist Street to the south, extending north to the Wight Street (NH 110) intersection with Sixth Avenue. The western limits skirt the foothills of Mt. Forist on Sixth Avenue to Jolbert Street, then along Fifth Avenue to Mt. Forist Street, then along Russian Street ending at Harding Street. The southern boundary extends from Mt. Forist Street along Gerrish Street and First Avenue to Harding Street (**Exhibit 12**).

All buildings from the period of significance were considered to contribute to the District, unless they had lost so much integrity as to be unrecognizable. Many properties have replacement siding and windows, and enclosed porches are common, but these changes were considered acceptable to contributing properties status as long as the building retained the ability to convey its historic form, building type and usage. Non-contributing properties are relatively small within the District creating little intrusion into the visual continuity of the District.

Determinations of Eligibility and Effects on historic properties were made by the NHDHR, FHWA and NHDOT based on the Section 106 review process established by the National Historic Preservation Act of 1966 and outlined in 36 CFR 800.9.

The Berlin Heights Addition Historic District is eligible for listing on the National Register of Historic Places under Criterion A for Community Planning & Development; Ethnic Heritage and Industry, and under Criterion C for Architecture. Its period of significance is from c. 1892-c.1958 from its planning through the completion of its grid plan and peak population. This period encompasses the evolution of the building forms and commercial properties.

- **Atlantic & St. Lawrence Historic District:**

The Atlantic & St. Lawrence Historic District (St. Lawrence & Atlantic Railroad Co.), consisting of 52 miles of railroad right-of-way, including its branch lines, railroad stations, buildings and structures, has been previously determined eligible for listing in the National Register of Historic Places. This historic District is located immediately adjacent to the project area.

- **Berlin Mills Railway Historic District:**

The Berlin Mills Railway Historic District, consisting of 2.6 miles of railroad right-of-way, including its buildings and structures, has been previously determined eligible for listing in the National Register of Historic Places. This historic District is located in the vicinity of the project area.

6.17.1.1 Historical Resources Impacts - Alternative 2

The following Effects of Alternative 2 to the Berlin Heights Addition Historic District were determined:

- Considerable loss of street grid.
- Dead-ending of Session Street.
- Nine primary contributing structures demolished (three secondary).
- Loss of building density and pattern.
- Loss of Madigan Street between Second Avenue and Third Avenue.
- Loss of three blocks of Third Avenue.
- Introduction of two new intersections.
- Introduction of new type of roadway with curvilinear design.
- Three large intersection changes.

- Loss of retaining walls.

6.17.1.2 Historical Resources Impacts - Alternative 4E

The following Effects of Alternative 4E to the Berlin Heights Addition Historic District were determined:

- Large number of buildings lost (contributing - 28 properties with 25 primary and 13 secondary, and 3 noncontributing primary structures).
- Minor loss of street grid.
- First Avenue no longer dead ends
- New through traffic along the edge of the District.
- Loss of direct connection of Second Avenue to Hillside Avenue.
- New connection of Third Avenue with Wight St.; slight grid pattern change.
- Introduction of a new road along railroad corridor.
- Loss of building density and pattern.
- Loss of setting for properties, including those houses adjacent to the railroad corridor.
- First Avenue no longer dead ends at the railroad.
- One large intersection change.
- Loss of retaining walls.

6.17.1.3 Comparison of Effects of Alternatives

Comparisons of effects of the Preferred Alternative and Alternative 2 are summarized below and outlined in **Table 6.5**. Comparisons of the visual impacts to the District of these alternatives are outlined in **Table 6.6**.

- Each has an Adverse Effect on the District. NISIPO stated that the Section 106 process does not allow for determination of which is more Adverse.
- More of the grid is lost with Alternative 2, with visual impacts to 29 contributing properties, compared to 16 with Alternative 4E.
- More contributing structures acquired with Alternative 4E at 25 (and 13 secondary structures) compared to Alternative 2, with nine (and two secondary structures).
- Acquisition of “good examples of types” would result in three from Alternative 2 and seven from Alternative 4E. Proportionally this is comparable between both alternative, though there is a higher concentration of multi family housing along Alternative 4E.
- Comparison of the loss of grid cannot be directly evaluated against the loss of architecture. However the visual impacts to the District shows that the loss of grid with Alternative 2 would result in a greater impact to the cohesion to and core of the District.
- Comparison of acreage, streets, block, and dwelling unit losses.
- Consideration of long-term impacts identify that the continued provision of a state route, with large truck traffic as provided with Alternative 2, would result in greater deterioration of the District through the continued separation of the neighborhood.

Table 6.5 - Effects Determination

	Alternative 2	Alternative 4E
Primary Contributing Structure Takes	9	25
Primary Non-Contributing Takes	2	3
Secondary (outbuildings) Contributing Structure Takes	3 (with 1 possible save)	13 (with 2 possible saves)
Secondary Non-Contributing Takes	2	4
Total Contributing Structures Takes	12	38
Total Contributing and Non-Contributing Structures Takes	16	45
Visual Impacts on Contributing Properties	29	16
No Effects or No Adverse Effects on Contributing Structures	14	6
Property Strip Takes	0	4
Loss of Representative Buildings	3 (33.3% of takes)	7 (28% of takes)
Intersection Takes	Third Ave. and Madigan St. Second Ave. and Madigan St. Green St. and Second Ave. (at the "Y" Intersection)	Green St. and First Ave.
Partial Blocks Lost	3	5
Dead Ends	Sessions St. at Second Ave.	Second Ave. at Hillside (loss of direct access)
Loss of Streets	Loss of Madigan between Second Ave. and Third Ave. Portion of Second Ave. Loss of Boulevard Feeling of Third Ave. Loss of "Y" Intersection at Green St.	Loss of First Ave between Roderick St. and Green St. Loss of Green St. between First Ave. and Gilbert St. Change of Direction / Symmetry of Third Ave. and Wight St.

Both alternatives present irreversible adverse effects to the historic nature and quality of the neighborhood. Alternative 2 introduces a great deal of vacant space throughout its length and a large new structure, a truck route built to modern design standards that disrupts its grid street pattern, one of the most character defining features of the District. Alternative 4E demolishes a large number of contributing properties in the District, but follows the eastern boundary of the

District and does less to compromise the feeling, association and linkages that are the defining characteristics of the District.

Construction of Alternative 2 through the middle of the District would visually and physically sever the District's continuity, effectively fragmenting what had been united historically by its physical development and evolution. Singly the buildings which comprise the Berlin Heights Addition Historic District may not be individually eligible; however it is their relationship to each other as parts defining the whole from which they gain their significance. Alternative 4E, the Preferred Alternative, maintains the sum of the parts of the District to a greater degree than Alternative 2.

Table 6.6 - Visual Effects on Contributing Properties

	Alternative 2	Alternative 4E
Parcel	48, 49, 54, 56, 58, 74, 78, 81, 83, 85, 87, 88, 89, 90, 92, 93, 94, 95, 96, 97, 98, 99, 108, 109, 110, 111, 112, 113, 115	6, 9, 10, 17, 18, 21, 25, 26, 28, 30, 42, 43, 103, 108, 110, 112
Number of properties	29	16

A Memorandum of Agreement addressing the Proposed Action and mitigation measures would be developed and signed by SHPO, FHWA and NHDOT. Additional information on these and other properties in the project area is on file at the NH Department of Transportation, Bureau of Environment, Hazen Drive and at the NII Division of Historical Resources offices, Pillsbury Street, in Concord, N.H.

6.17.1.4 Historical Resources Impacts Mitigation

Discussions by NHDOT with the City of Berlin have resulted in the following mitigation proposal for Alternative 4E of the NII Route 110 relocation project.

1. Documentation

- The level of documentation for each property will vary. Documentation for properties that best represent the different forms of architecture in the area of the Berlin Height Addition impacted by the project will be conducted at HABS/HAER Level I (*Federal Register*/Vol. 68, No. 139, July 21, 2003). This documentation would include large format photographs of interiors and exteriors; scaled floor plans; mapping; and a written narrative containing a description, property history, and a comparative analysis of the subject property with others in the city and other New England industrial communities. This form of documentation could apply to about six buildings.

All other properties, most of which have undergone some alterations, would receive a level III documentation including scaled sketch plans, a limited number of large

format photographs supplemented with black and white photographs, and a brief narrative with property description and history. This effort may include the results of interviews, capturing residents' memories of the property. These narratives would be made available on-line.

- The existing grid landscape of the Berlin Heights Addition Historic District will be documented with aerial photography.

2. Public Forum

The City of Berlin and a planning consultant would conduct a planning session with residents in the Berlin Heights Addition District Area using the charrette format to guide the historically compatible reuse of and reinvestment in the spaces vacated by the project and lying adjacent to the project areas as well as in the remainder of the District, particularly along Third Avenue. This effort would dovetail with some of the other planning efforts that are underway at the city level.

3. Workshop

A practical workshop on preservation would be presented for the residents of the Berlin Heights Addition Historic District.

4. Historically Compatible Landscaping

Landscaping would serve as historical mitigation when it minimizes the visual impact of the new corridor on the adjacent historic District. Vegetative screening, including evergreens and shrubs, would be used to visually separate the western edge of the highway corridor from the District.

5. Relocation of Historic Properties

Berlin is participating in the Neighborhood Stabilization Program, a HUD program being administered by the Community Development Finance Authority. As part of this program, the City would be amenable to relocating an intact historic property, conduct the necessary rehabilitation compatible with the Secretary of the Interior's Standards, and resell the property to the owner or a new resident. The building would be relocated within or adjacent to the historic District.

6. Public Outreach

- State historical markers would be placed at the intersection created in front of the Police Station and possibly at the Third Avenue/Wight Street intersection. The markers would potentially convey the history of the development of the District in companion with the paper mills. They would attempt to characterize the neighborhood that emerged within the District.

- User-friendly version of the historical studies that have been undertaken by NHDOT and the City would be uploaded to the City and NHDHR websites.

6.17.2 Archaeological Resources

A Phase IA archaeological sensitivity assessment of the Preferred Alternative and Alternative 2 routes was conducted on August 25 to 26, 2008. The study was to assess known and potential archaeological resources that may be present within the proposed project limits. The study included background research and visual inspection of the project area. All potentially impacted properties were noted, described, and photographed, with areas identified for each alternative that have undergone little or no visible disturbance or development and exhibited archaeological sensitivity. A tentative plan for Phase IB testing was also developed for each property that exhibits sensitivity.

No previously recorded Pre-Contact Native American sites are present in the project area. Due to the combination of shallow soils and extensive historic and modern disturbances that have affected every portion of the study area, the area does not retain any integrity for Native American sites and consequently no further study for Pre-Contact Native American resources is warranted.

The Phase IA Sensitivity Assessment recommended proceeding with Phase IB Intensive Archaeological Investigation at five properties on Alternative 2, and at 17 properties on Alternative 4E. One property, an abandoned, structurally unsound 1928 store (Parcel 39) whose basement may be testable, was left unexamined for safety considerations. These properties will require individual testing and interpretation, and should also be investigated at the macro-level, for the elements, patterns, and themes that tie them together as a neighborhood. These investigations will include yard deposits and house forms as artifacts that would open discussions on a wide range of culturally significant topics that include, but are not limited to: notions of class- and counter-culture formation, identity politics and immigrant's various interpretations - acceptance, rejection, or reformulation of the "American Dream". Such questions include:

- The presumed "meanings" behind the dominant house-forms in the project area and the meanings suggested by the census and directory data are seemingly at odds. What do the artifacts, or the yard deposits as a whole, suggest about where the interface was between how these people were defined from the outside and how they chose to define themselves from within?
- Can any differences be discerned in the use of yard space between owner-occupied and absentee-landlord-managed properties? Between dwellings occupied by a single family and those occupied simply by a collection of unrelated tenants? What might these suggest about working-class aspirations, projections of self, or socio-economic mobility?
- Can any differences be discerned in the deposits associated with single-family and multifamily residences?
- Is there any significant association between certain house forms and the owner/occupants of different nationalities or ethnic backgrounds? Can this lead to a discussion about ethnic or national differences in the interpretation of the American Dream?

Table 6.7 and Table 6.8 list each of the properties, by alternative route, and summarizes the findings and recommendations for each. Alternative 2 has 12 potentially impacted properties. Alternative 4E has 28 potentially impacted properties.

Table 6.7 - Phase IB Testing Alternative 2

Parcel	Phase IB Recommended Testing*	Comments
68	None	Built into slope; what is left looks like fill and a paved driveway.
66	None	Already demolished, foundation takes up entire lot. No testable yard space.
59	3 Shovel Test Pits (STPs) in side yard; 6-8 STPs under driveway	1928, side yard ca. 6 x 20m. Need to test under driveway in back.
57	None	No testable area.
55	None	No testable area.
53	4 STPs	1905, side yard ca. 8 x 10m. Front yard ca. 3 x 10m.
52	None	No testable area.
51	None	No testable area.
56	4-6 STPs	1914, back yard not very visible, but looks testable.
80	None	No testable area.
84	10 STPs	1914 tenement, big back yard, backhoe may be needed for gravel driveway.
86	10 STPs	1901 tenement, big back yard, but not visible from the street.

*After Phase IA Archaeological Sensitivity Assessment, NH Rt. 110, Berlin, New Hampshire, x-A000(034), 12935B Report Prepared for the New Hampshire Department of Transportation By Alexandra Chan, Ph.D. and Robert G. Goodby, Ph.D., January, 2009, Table 2

Table 6.8 - Phase IB Testing Alternative 4E

Parcel	Phase IB Recommended Testing*	Comments
3	None	No testable area.
7	15-20 Shovel Test Pits (STPs)	Current house is post WWII, but a pre-1914 dwelling shown in front/side yard of lot, with attached sheds/garage (latter still extant). Test under old foundation, and under paved driveway in front of sheds.
8	None	No testable area.
14	None	No testable area.
16	10-15 STPs	1901, small front and side yards; N.B. current preschool play yard of Parcels 14 and 8. Property lines adjusted in 1920-1928.
20	None	No testable area.

Parcel	Phase IB Recommended Testing*	Comments
24	4 STPs	1901, small side yard.
27	1 STP	1901, tiny yard in front ledge in back. May decide based on results of Parcels 33 and 29, above, that testing here is fruitless.
29	4-6 STPs	1905-1909, fair sized side yard, but likely very shallow soils. Ledge outcroppings, and tall bldg foundation.
33	10-15 STPs	Unknown date; large side and back yard, also a vegetable patch, but lots of ledge outcroppings as well.
32	2-4 STPs	1901, garage 1914; small back yard, narrow side yard.
34	2-4 STPs	1914, shed 1928; small paved back yard.
35	None	No testable area.
36	8-10 STPs	1905, side and back yards.
37	None	No testable area.
41	1 STP	Almost no testable area, but room for one STP in the nook of the "L" shape in back, the workshop/garage portion.
40	2 STPs	1 in front yard, 1 in sliver of west-side yard
39	Unknown (all necessary investigation are to be evaluated in consultation with NHDHR and NHSHPO)	Store building that takes up entire lot. See what basement may have before writing off? Safety an issue here, because building is abandoned and not necessarily structurally sound.
38	3 STPs	Back yard, not raised terrace patio, but in lower portion.
105	6 STPs	Yard space to NE and S, maybe some in back, but full of ledge outcroppings.
106	None	Only testable area in front, between house and RR.
107	None	Auto Body shop, disturbed, recent, and little testable area.
109 & 111 (113)	10-15 STPs	1926 Boulay Blocks, look to have integrity (parcel 113 Boulay Blocks workshop & garages where not separated out in report*).
115	4 STPs	1928, intact small back yard.
116	2 STPs	1928, small back yard, under gravel drive.
117	4-6 STPs	1928, intact small side, bigger back yard.
121	(all necessary investigation are to be evaluated in consultation with NHDHR and NHSHPO)	(property not evaluated in report*)

*After Phase IA Archaeological Sensitivity Assessment, NH Rt 110, Berlin, New Hampshire. x-A000(054), 129588 Report Prepared for the New Hampshire Department of Transportation By Alexandra Chan, Ph.D and Robert G. Goodby, Ph D., January, 2009, Table 2.

6.17.2.1 Archaeological Resources Impacts

Archeological investigations were conducted at a Phase IA level to determine areas of sensitivity within the proposed impact areas. An Effects Memo was signed based on reviews of the architectural significance of identified resources and the potential presence of archaeological remains in the project area (**Exhibit 13**).

Once drainage designs are finalized, and in consultation with NHDHR and FHWA, all necessary phases of archaeological investigations at the Phase IB through Phase III levels will be conducted. Data gained from this effort will be made available to the public to the extent permitted by the need to protect intact archaeological resources.

Archeological investigations would be performed to characterize the contents and eligibility of the sites, which may potentially be impacted by the project. Further Determinations of Eligibility and Effects on historic archeological properties will be made by the NHDHR, FHWA and NHDOT based on the Section 106 review process established by the National Historic Preservation Act of 1966 and outlined in 36 CFR 800.9.

The Preferred Alternative may involve the jacking of a drainage pipe under the Atlantic & St. Lawrence District to direct stormwater runoff for treatment into a detention area located south of the railroad tracks prior to its being outlet into the Dead River. No impacts would occur to this District as the work would consist of pushing the drainage pipe under the tracks without impacting any surface features. It is anticipated that there would be no archeological concerns due to previous disturbances from the construction of the railroad tracks.

No impacts will occur to this Berlin Mills Railroad Historic District as all work associated with the project will be located outside the District.

6.17.2.2 Archeological Resources Impacts Mitigation

All necessary phases of archaeological investigations at the Phase IB through Phase III levels would be conducted in consultation with NHDHR. Data gained from this effort would be made available to the public, to the extent permitted by the need to protect intact archaeological resources.

A Memorandum of Agreement among the SHPO, FHWA and NHDOT would be prepared outlining the specifics of this mitigation. Additional information on these and other properties in the project area is on file at the NH Department of Transportation, Bureau of Environment, Hazen Drive and at the NH Division of Historical Resources offices, Pillsbury Street, in Concord, NH.

6.18 Utilities

The proposed project would require the relocation of overhead utility lines and power poles, and modifications to buried utilities. The following utility companies have been identified within the project area:

<u>SERVICE</u>	<u>LOCATION</u>
AT&T Broadband (CATV)	Aerial and Buried
Public Service of New Hampshire (Electric)	Aerial and Buried
FairPoint (Telephone service)	Aerial and Buried
Fire Alarm Cable	Aerial
City of Berlin Water Works (Water)	Buried
City of Berlin Public Works Department (Sewer)	Buried

If, during the construction period, impacts to additional utilities are identified, then the appropriate utility companies would be notified to ensure disruption to service, if any, would be kept to an absolute minimum.

6.19 Construction Impacts

Appropriate precautions would be taken to protect the Dead River, a nearby surface water course, by implementation of a Surface Water Pollution Prevention Plan (SWPPP) during construction. The contractor performing the work will implement the professionally prepared erosion and sedimentation control plan as outlined in the SWPPP, which will be approved by the Department. Heavy equipment operations would cause temporary increases in noise and dust levels during construction. All standard measures would be employed to ensure such increases are minimized to the extent practicable and limited to the construction period. The proposed action would also inconvenience and disrupt motorists, pedestrians, and bicyclists. However, through traffic on the highway would be maintained during construction, though traffic may need to run on gravel surfaces for short periods of time. Any temporary suspensions of through traffic would be held to a minimum. Access to properties, including businesses, would be maintained at all times. Standard pollution prevention measures would be employed to assure all negative impacts would be minimized and restricted to the construction phase of the project to the extent practicable.

7.0 Agency Coordination and Public Participation

Meetings were held periodically with various Federal, State and local agencies, as well as the general public throughout the development of this project. Project review meetings were held on the following dates:

<u>Topic</u>	<u>Date</u>
Cultural Resource Agency Meeting	June 6 , 2002
	July 15 , 2002
	February 26, 2003
	March 24, 2003
	April 8, 2004
	May 13, 2004
	June 10, 2004
	July 2, 2008
	December 4, 2008
	February 12, 2009
	May 14, 2009
	June 4, 2009
	June 22, 2009
	Natural Resource Agency Meeting
Public Officials Meeting	November 13, 2001 (Scoping) April 19, 2004 (City Council Meeting)
Public Informational Meeting	February 13, 2002 (Scoping)
	August 28, 2008 (NHDOT/FHWA)
	March 19, 2009 (NHDOT/FHWA)
ROW Public Hearing	August 13, 2009 (Scheduled)
NEPA Public Hearing	August 27, 2009 (Scheduled)

Letters were sent to various Federal, State and local agencies asking for input on this project on the following dates:

<u>Agency / Organization</u>	<u>Date Sent</u>	<u>Input Received</u>
City of Berlin		
Mayor	03/26/2009	
City Manager	03/26/2009	
City Planner	03/26/2009	
Planning Board	03/26/2009	
Public Works	03/26/2009	
Police Chief	03/26/2009	
Fire Chief	03/26/2009	
Emergency Management	03/26/2009	
Historical Society	03/26/2009	
North Country Council	03/31/2009	
NH Office of Energy and Planning (NFIP)		
NH Dept of Resources and Econ. Development (CLS)	03/31/2009	04/06/2009
NH Dept of Resources and Econ. Development (LWCF)	03/31/2009	04/14/2009
NH Natural Heritage Bureau	03/31/2009	04/02/2009
NH Fish & Game Department		
US Fish and Wildlife Service		01/02/2009

8.0 Draft Environmental Assessment/Section 4(f) Distribution List

- Honorable Raymond Burton, Executive Councilor, State of NH
- City of Berlin
 - Mayor David Bertrand
 - Patrick MacQueen, City Manager
 - Pamela Laflamme, City Planner
 - Michael Perreault, Public Works Director
 - Francoise Cusson, Chairman Planning Board
 - Peter Morency, Police Chief
 - Randall Trull, Fire Chief
 - Denise Jensen, Head Librarian
- Odette LeClerc, Berlin & Coos County Historical Society
- Michael King, Executive Director, North Country Council
- Elizabeth Muzzey, NH State Historic Preservation Officer
- Advisory Council on Historic Preservation, Washington, DC
- Department of Interior, Washington, DC

9.0 Summary of Environmental Commitments

The following environmental commitments have been made for this project.

1. The Department will perform Initial Site Assessments (ISA's) on identified parcels of concern for OHM to determine the actual risks associated with the purchase of these properties and/or construction of the project. (ENVIRONMENT / HIGHWAY DESIGN / CONSTRUCTION / RIGHT-OF-WAY) *Page 12*
2. The Department will perform comprehensive building audits to identify and quantify all regulated building materials and special wastes. (ENVIRONMENT / HIGHWAY DESIGN / CONSTRUCTION / RIGHT-OF-WAY) *Page 12*
3. The Department proposes to purchase 28 properties, containing 48 housing units and two businesses, for the Preferred Alternative. Residents and businesses will be relocated and provided with safe and reasonable accommodations in compliance with the Federal Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970, as amended. (RIGHT-OF-WAY) *Pages 14 & 16*
4. Access to community services located within the project area (Police Station, Recreational Center and Gilbert Park) will be retained during construction, though temporary detours and delays may be unavoidable during construction. (CONSTRUCTION) *Page 20*
5. The proposed design may incorporate a new stormwater discharge point to the Dead River. If considered necessary, detention area(s) may be constructed to provide water quality treatment of the runoff prior to its discharge into the Dead River. (ENVIRONMENT / HIGHWAY DESIGN / CONSTRUCTION / RIGHT-OF-WAY) *Page 21*

6. If construction of a new drainage outlet to the Dead River is deemed necessary, minor temporary impacts to the Dead River would be requiring a wetlands permit from the NH Wetlands Bureau and would qualify for a State Programmatic General Permit from the US Army Corps of Engineers. (ENVIRONMENT / HIGHWAY DESIGN) Page 22
7. Temporary impacts to the 100 year floodplain of the Dead River would be necessary only if construction of the proposed new drainage outlet. Precautions will be taken to assure that no permanent loss of flood storage capacity would result. (ENVIRONMENT / HIGHWAY DESIGN) Page 23
8. A Memorandum of Agreement addressing the proposed action and mitigation measures developed as a result of the impacts to the Berlin Heights Addition Historical District would be developed and signed by SHPO, FHWA and NHDOT. (ENVIRONMENT) Page 28
9. Historical Resources Impacts Mitigation have been proposed and will be finalized and implemented as agreed to in the Memorandum of Agreement. (ENVIRONMENT / HIGHWAY DESIGN / RIGHT-OF-WAY) Pages 28
10. Archeological investigations will be performed to characterize the contents and eligibility of any sites, which may be impacted by the project. All necessary phases of archaeological investigations at the Phase IB through Phase III levels will be conducted. (ENVIRONMENT / HIGHWAY DESIGN / RIGHT-OF-WAY) Page 33
11. The contractor performing the proposed action will implement a professionally prepared erosion and sedimentation control plan as outlined in a Surface Water Pollution Prevention Plan (SWPPP), which will be approved by the Department. (ENVIRONMENT / HIGHWAY DESIGN / CONSTRUCTION) Pages 34
12. Precautions would be employed to minimize noise and dust levels during the construction period, primarily for the abutting receptors located adjacent to the project area. (CONSTRUCTION) Page 34
13. During construction of the proposed action access to properties, including businesses, would be maintained at all times. Any temporary suspensions of through traffic would be held to a minimum. (CONSTRUCTION) Page 34

PART II. DRAFT SECTION 4(f) HISTORICAL EVALUATION

1.0 Introduction

Under Section 4(f) of the Department of Transportation Act as amended by the Federal-Aid Highway Act of 1983, and codified in 49 USC 303(c) the Secretary of Transportation "...may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge, or land of a historic site of national, State or local significance (as determined by Federal, State, or local officials having jurisdiction over the park, area, refuge or site) only if (1) there is no feasible and prudent alternative to the use of such land; and (2) such program or project includes all possible planning to minimize harm to such park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use."

This Draft Section 4(f) Evaluation provides the required documentation to evaluate the potential impacts to Section 4(f) historic resources. This evaluation also outlines coordination that has occurred and the measures proposed to minimize harm to these resources.

2.0 Proposed Action

This project's Purpose and Need is to improve the conveyance of traffic through an approximately 0.6 mile section of NH 110 in the City of Berlin. Presently, NH 110 traverses along a circuitous route along several neighborhood streets from downtown Berlin, at its intersection with NH 16 (Main Street), to the northern periphery of the urban compact of the City (**Exhibit 1**). Truck traffic must negotiate narrow residential streets with several tight intersections and make 90 degree turns while avoiding parked cars, pedestrian and bicycle traffic and other motor vehicles. The high volume of trucks and passenger cars negotiating these narrow, circuitous streets through the neighborhood compromises community cohesion of the neighborhood, bicycle and pedestrian movements and results in considerable concerns for safety.

Safety, efficient operations, neighborhood/community impacts, relocation, impacts to historic resources, consistency with long-term planning, and community support are the pertinent issues.

At present, traffic winds through a dense, residential neighborhood and must make sharp turns on narrow streets with steep grades. Large trucks account for a significant portion of the traffic and pose a significant safety hazard when attempting to negotiate the tight corners. Prior to the Phase 1 project, trucks were detoured away from the deficient clearance under the bridge on Green Street. One consolidated and designated route is desired to improve safety and alleviate congestion.

NH Route 110 in downtown Berlin is an urban minor arterial located within the City's urban compact. The average daily traffic in 2003 totaled 5,110 vehicles, 10.8% of which were trucks. An accident report from 1994-2002 listed a total of 96 accidents. One fatal accident occurred with a bicyclist, and 27 other crashed resulted in personal injuries.

Refer to Part I: Section 1.0, Purpose and Need; Section 3.0 - Existing Condition; and, Section 4.4.2- Preferred Alternative - Alternative 4E of the Draft Environmental Assessment for additional information.

3.0 Description Of Historic 4(f) Resources

The NH Division of Historical Resources (NHDHR) and the Federal Highway Administration (FHWA) have reviewed the project area pursuant to the National Historic Preservation Act and the Advisory Council on Historic Preservation's procedures for the "Protection of Historic Properties" (36 CFR 800). It was determined by consensus that:

- The Berlin Heights Addition Historic District is eligible for listing on the National Register of Historic Places under Criterion A for Community Planning & Development; Ethnic Heritage and Industry, and under Criterion C for Architecture. Its period of significance is from c.1892 - c.1958, from its planning through the completion of its grid plan and peak population.

Complete descriptions of the historic District and its contributing properties are on file at the NH Division of Historical Resources and at the NH Department of Transportation, Bureau of Environment. More information on this resource is located in Part I, Section 6.17 - Cultural Resources of the Draft Environmental Assessment, and **Exhibits 12 and 13**.

4.0 Avoidance Alternatives

An avoidance alternative is prudent and feasible if it avoids using the Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. In assessing the importance of protecting the Section 4(f) property, it is appropriate to consider the relative value of the Section 4(f) property to the preservation purpose of the Section 4(f) statute.

An avoidance alternative is not feasible if it cannot be built as a matter of sound engineering judgment. 23 CFR 774.117 sets forth six factors to consider when determining whether an alternative is prudent:

1. Compromises the project so that it is unreasonable given the purpose and need;
2. Results in unacceptable safety or operational problems;
3. After reasonable mitigation, still causes:
 - Severe social, economic, or environmental impacts;
 - Severe disruption to established communities;
 - Severe environmental justice impacts; or
 - Severe impacts to other federally protected resources;
4. Results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
5. Causes other unique problems or unusual factors; or
6. Involves multiple factors listed above that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

The following alternatives were considered in this analysis:

4.1 No-Build

This alternative would not meet the purpose and need for the project and does not address the safety deficiencies of the roadway. Normal maintenance activities are not adequate to correct these problems. Over time, this alternative would lead to increased safety hazards, risk of injury and possibly loss of life. This would not be tolerable given the importance of this major north-south State Highway (NH 110). Additionally, this alternative would not improve the existing substandard geometrics, poor sight distances, and desired minimum shoulder widths for bicycles.

See the discussion in the Draft Environmental Assessment for additional information at Part I, Section 4.1 - No Build. For these reasons this alternative is not considered prudent or feasible.

4.2 Bypass Alignments

The Berlin Heights Addition Historic District is present on both sides of NH 110. Shifting the alignment westerly or easterly to avoid the Historic District properties would require the complete realignment of NH 110 resulting in much greater right-of way acquisitions. Greatly increased impacts to developed properties and environmental impacts would result. The topography, which would be encountered with any full bypass alignment, would raise serious engineering and construction concerns. These alignments would also have substantially greater impacts to undeveloped properties, woodlands, streams, wetlands and substantially increased costs.

See the alternatives discussions in the Draft Environmental Assessment for additional information at Part I, Section 4.3 - Bypass Alignments. For these reasons, these alternatives are not considered prudent or feasible.

5.0 Impacts on Section 4(f) Properties

The realignment of NH 110 would require the total acquisition from the Berlin Height Addition Historic District of twenty-five properties with primary contributing buildings, containing eleven secondary contributing buildings. The proposed project would also require the total acquisition of three parcels with secondary contributing structures. Ten contributing properties would require permanent strip acquisitions. Additional impacts to the existing street and grid layout would also be required to reconfigure and modify existing intersections. Temporary slope easements would be placed on several properties to accommodate minor slope impacts during the construction of the Preferred Alternative (see **Exhibit 7**).

Impacts on Section 4(f) Properties

Berlin Heights Addition Historic District		Permanent Acquisitions*
Type	Parcels Contributing to District	New Right of Way
Primary structures (25 Total Acquisitions)	8*, 14, 16*, 20, 24, 27*, 29*, 31/33*, 32*, 34*, 35, 36, 37*, 38, 39, 40, 41, 105, 106, 109, 111*, 115*, 116, 117, and 121	2.76 ac (120,226 sq. ft.)
Secondary structures** (3 Total Acquisitions)	3, 7 and 113	0.43 ac (18, 731 sq. ft.)
Strip acquisitions	2, 30, 42, 43, 103, 122, 126, 130, 133, and 140	0.06 ac (2,677 sq. ft.)
Temporary Construction Easements	127, 133, 136, 138	NA
Reconfiguration of intersections	Green Street, First Avenue, Second Avenue, and Third Avenue - street and grid layouts	1.65 ac (71,810 sq. ft.)
Project Total		4.9 ac

** - parcels that include contributing secondary structures.

** - parcels with only contributing secondary structures (if present, primary structures are non-contributing).

Though Alternative 4E demolishes a larger number of contributing properties than Alternative 2 in the District, the alignment follows the eastern boundary of the District and does less to compromise the feeling, association and linkages that are the defining characteristics of the District. Singly the buildings which comprise the Berlin Heights Addition Historic District may not be individually eligible; however it is their relationship to each other as parts defining the whole from which they gain their significance. The Preferred Alternative, maintains the sum of the parts of the District by placing its impacts along the edge of the District.

6.0 Measures to Minimize Harm

The design of the Preferred Alternative was undertaken to minimize right-of-way acquisition and slope impacts to adjacent properties within the proposed alignment. This alternative was developed to provided a ROW width of 66 feet for a section of the alignment from Green Street to Third Avenue and a width of 46 feet along Wight Street within the Berlin Heights Historic District. However, avoidance of historic impacts were not feasible and prudent

where safety concerns, site conditions, cost and resource constraints occurred and where traffic demands warranted appropriate changes.

The following mitigation measures were included as part of the project and are further discussed in Part I, Section 6.17.1.4 - Historical Resources Impact Mitigation:

Documentation: The level of documentation for each property will vary and is in part dependent on the integrity of the resource.

Public Forums: Charrettes will be organized for planning of open spaces developed by the construction of the project.

Workshops: Practical workshops on preservation will be presented for the residents of the Berlin Heights Addition Historic District.

Historically Compatible Landscaping: Vegetative screening would be placed along portions of the proposed corridor.

Relocation of Historic Properties: Building relocation within or adjacent to the historic District will be considered. This element of mitigation is, in part, intended to help infill vacant areas in the District with compatible historic properties.

Public Outreach: Public outreach will include placement of state historical markers and the uploading of historical studies to websites.

7.0 Least Harm Analysis

If there is no feasible and prudent alternative to avoid harm to the Section 4(f) property, then only the alternative that causes the least overall harm in light of the statute's preservation purpose can be chosen. The least overall harm is determined by balancing the:

1. Ability to mitigate adverse impacts to each Section 4(f) resource;
2. Relative severity of the remaining harm, after mitigation, to the protected activities and attributes or features;
3. Relative significance of each Section 4(f) property;
4. Views of the officials with jurisdiction over each Section 4(f) property;
5. Degree to which each alternative meets the purpose and need;
6. After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
7. Substantial differences in costs among alternatives.

As discussed in Section 4.2 - NH Route 110 Alternatives several preliminary alternatives were evaluated that relocated NH Route 110 along different alignments in the vicinity of the existing alignment. Based on input received at Public Informational meetings, lack of support and the similarity of impacts, these alternatives (Alternative 1, Alternative 3E, and Alternative 3W) were not further developed as their alignments had horizontal, vertical and sight distance concerns, they performed similar functions as Alternative 2, and they were all determined to have greater impacts than Alternative 2, which is considered below.

Alternative 4W was also not further developed as its alignment is further away from the railroad corridor and closer to the center of the District than Alternative 4E, the Preferred

Alternative, considered below and which performs similar functions with less impacts to the neighborhood and the District.

The No-Build, Alternative 2 and Alternative 4E alternatives were considered in this analysis:

7.1 No-Build

1. No mitigation would be required under this alternative; however over time this alternative would lead to the continued deterioration of the District.
2. There would be continuing long-term deterioration of the District with the heavy truck and passenger car through traffic remaining within the center of the District. Further deterioration of the residential characteristic of this portion of the District may be subjected to increased commercialization and loss of character of the District.
3. There would be no impacts to Section 4(f) properties as no construction would occur; however over time continued deterioration of the District would occur.
4. The No-Build was not supported by the NH SHPO as over time continued deterioration of the District would occur.
5. The No-Build would not meet the Purpose and Need of the project.
6. The adverse impacts to safety, neighborhood cohesion, noise, and traffic patterns would continue to increase and would lead to further deterioration of the residential aspect of the neighborhood.
7. The No-Build would incur the least cost of the alternatives, but does not meet the Purpose and Need of the project.

7.2 Alternative 2

1. Similar mitigation as Alternative 4E would be required consisting of documentation of the resources contributing to the District, Public Forums, Workshops, Landscaping, Relocation of Historic Properties and Public Outreach. The secondary goals of the project to reduce through passenger and truck traffic that bisect the District would not be possible to mitigated as the alignment would continue to pass through the center of the District.
2. An Adverse Effect would remain on the District as Alternative 2 would maintain and intensify the division that the existing NH 110 alignment along Third Avenue creates between those residential areas cut off by NH 110, located to the east of Third Avenue, and the majority of the Historic District and remaining neighborhood located south of Green Street and north of Third Avenue. The alignment would interrupt the established grid pattern of the street layout that is throughout the project area and the Berlin Heights Addition neighborhood. The Alternative 2 alignment retains this neighborhood division and with the introduction of a curvilinear design would enhances the division. Construction of Alternative 2 through the middle of the District would visually and physically sever the District's continuity, effectively fragmenting what had been united historically by its physical development and evolution

3. There are less acquisitions to contributing buildings within the District than Alternative 4E. These contributing elements of the District are similar in type and there are no impacts to any outstanding or individually eligible properties. The alternative would present greater impacts to the street grid layout of the District by bisecting an existing urban block. The District would continue to deteriorate with the traffic remaining through the center of the District. The alternative would visually and physically sever the District's continuity, effectively fragmenting what had been united historically by its physical development and evolution.
4. The NH SHPO has determined that the alternative would have an Adverse Effect on the District. The NH SHPO have signed an effects memo with the FHWA and NH DOT to resolve the Adverse Effects of Alternative 4E. An MOA that details the mitigation measures will be included in the Final Section 4(f) Evaluation.
5. The alternative would not adequately address the concerns iterated in the Purpose and Need for the project. Conflicts with more driveways would remain than with Alternative 4E, safety issues would remain with heavy truck traffic continuing to pass through the same residential neighborhood area as presently occurs. The residences located within the neighborhood that contribute to the District would continue to be further impacted.
6. Impacts due to noise, safety, community cohesion would not be easily mitigated with the selection of Alternative 2. The alternative would contribute to the continued deterioration of the neighborhood by retaining a truck route through a residential area. The visual impacts of the alternative would be severe as it would realign NH 110 through a city block causing the loss of the existing street grid layout.
7. The alternative would be less costly, though not considered substantially so, than Alternative 4E. The costs would be mainly due to total number of acquisitions being less, the construction costs would be similar.

7.3 Alternative 4E

1. Mitigation of the adverse effect of the Preferred Alternative would consist of documentation of the resources contributing to the District, Public Forums, Workshops, Landscaping, Relocation of Historic Properties and Public Outreach (see Section 6.0 above). A Memorandum of Agreement addressing the Proposed Action and mitigation measures would be developed and signed by SHPO, FHWA and NHDOT.
2. An Adverse Effect would remain on the District as a large number of contributing properties in the District would be acquired. However, the alignment follows the eastern boundary of the District and does less to compromise the feeling, association and linkages that are the defining characteristics of the District than Alternative 2.
3. The contributing elements of the District are similar in type and there are no impacts to any outstanding or individually eligible properties. Singly the buildings which comprise the Berlin Heights Addition Historic District may not be individually eligible; however it is their relationship to each other as parts defining the whole from which they gain their significance. The Preferred Alternative, maintains the sum of the parts of the District by placing its impacts along the edge of the District.

4. The NH SHPO has determined that the alternative would have an Adverse Effect on the District. The NH SHPO has concurred with the Preferred Alternative and have signed an effects memo (**Exhibit 13**) with the FHWA and NII DOT to address the Adverse Effects of the proposed project. An MOA that details the mitigation measures will be included in the Final Section 4(f) Evaluation.
5. The Preferred Alternative better meets the Purpose and Need of the project than Alternative 2 by reducing the number of driveway conflict points, removing heavy truck traffic from the District and neighborhood, thereby increasing the safety of the residents and reducing the long-term deterioration of the District.
6. Alternative 4E will have less overall long-term impacts to the neighborhood than Alternative 2 by removing the heavy truck traffic from the center of a residential neighborhood and by moving the NH 110 alignment along the railroad to establish a transportation corridor along the edge of the neighborhood. Community cohesion and safety would improve to the neighborhood with the movement of truck and through traffic away from the middle of the neighborhood. The visual impacts of the alternative would be mitigated by landscaping along the edge of the alignment providing visual separation of the corridor from the residential area. The majority of the existing street grid layout would remain, contributing to retaining the residential neighborhood aspect.
7. Alternative 4E would be more costly, though not considered substantially so, than Alternative 2. The costs would be mainly due to total number of acquisitions being less, the construction costs are fairly similar. The City of Berlin has supported the extra costs as they would provide for long-term revitalization of the neighborhood and is consistent with the City's planning vision.

See the discussions in the Draft Environmental Assessment for additional information at Part I: Section 4.2 - NH Route 110 Alternatives; Section 4.4 - Alternative Retained for Further Consideration - Alternative 2, Section 6.10 - Neighborhoods / Displacements, and Section 6.17.1.3 Comparison of Effects of Alternatives.

8.0 Coordination

Coordination meetings have been held with the NH Division of Historical Resources, the Federal Highway Administration, the NH Department of Transportation, City of Berlin Officials, and concerned citizens to discuss alternatives and measures to minimize harm to the Section 4(f) properties. The measures which were considered feasible and prudent were evaluated and incorporated into the design of the project. See Part I, Section 7.0 - Agency Coordination and Public Participation in the Draft Environmental Assessment for more information on the dates of the public coordination and distribution of the document.

A Determination of Effects memo was prepared which addresses unavoidable impacts to the historic properties (see **Exhibit 13**). Pursuant to Section 106 of the National Historic Preservation Act (36 CFR 800), a Memorandum of Agreement addressing the Proposed Action will be developed and signed by SHPO, FHWA and NII DOT.

8.1 Monthly Cultural Resource Meetings/Discussions

June 6 , 2002, July 15 , 2002, February 26, 2003, March 24, 2003,
April 8, 2004, May 13, 2004, June 10, 2004, July 2, 2008, December 4, 2008,
February 12, 2009, May 14, 2009, and June 4, 2009.

8.2 Monthly Natural Resource Meetings

July 15, 2009

8.3 Public Officials and Public Informational Meetings

November 13, 2001 Scoping Public Officials
February 13, 2002 Scoping Public Informational
April 19, 2004 – City Council Meeting
August 28 , 2008 and March 19, 2009 – NHDOT/FHWA Public Informational Meetings

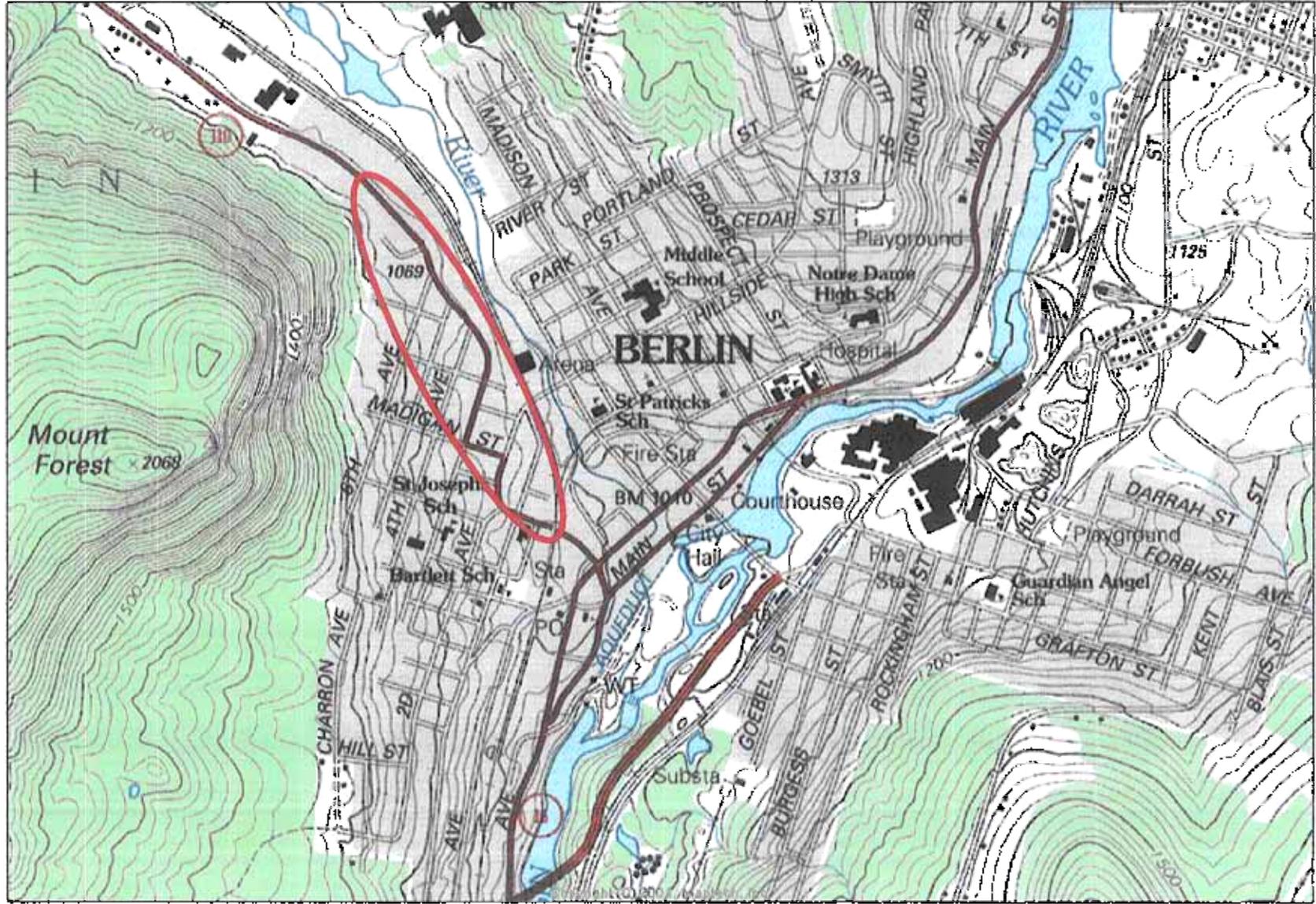
8.4 Public Hearing

ROW Public Hearing is scheduled for August 13, 2009.
NEPA Public Hearing is scheduled for August 27, 2009.

9.0 Summary Statement

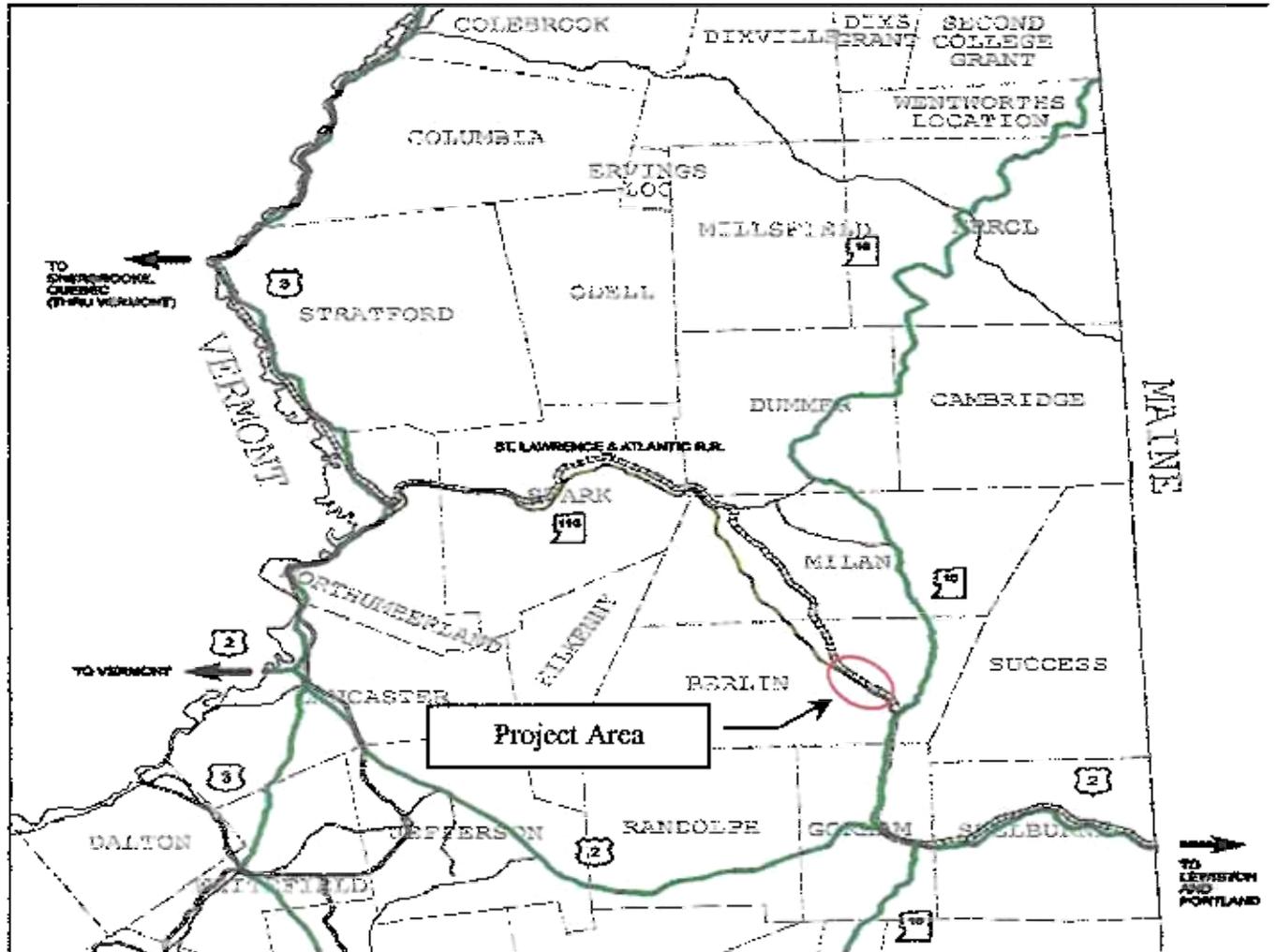
(To be completed in the final 4(f) document.)

EXHIBITS



Berlin, X-A-000(052), 12958B

Regional Map



SUMMARY OF IMPROVEMENT ALTERNATIVE CHARACTERISTICS / IMPACTS							
Characteristics/Impacts	Transportation Improvement Alternatives						
	Concept No:	Alternative 2	Alternative 3	Alternative 4	Alternative 4E	Alternative 5	Weight
Level of Community Support <small>(Measure of where acceptance by community [1 being best])</small>							Similar
Transportation System Efficiency & Safety: <small>(Rate of growth and loss of road space, if being built)</small>							
Length of NH 110 Improvement (ft) <small>(See map)</small>		1890			2075		15*0
Length of Side Roads Improvement (ft) <small>(See map)</small>		675			800		190
Number of Intersections <small>(See plan)</small>		7			6		4
Number of Drives <small>(See plan)</small>		20			10		
Horizontal Alignment <small>(See Map)</small>		(30 mph Design) Moderately curvy road	Existing		(30 mph Design) Micro Street	Micro Street	Closely follows existing alignment. Slight shifts west and east to minimize impacts
Vertical Alignment (Max. Grade) <small>(See Map)</small>		4.5% (7% vicinity of bridge)			4.0% (7% vicinity of bridge)		3.4%
Intersection Sight Distances		Sight distance is partially limited at 4 intersections			Sight distance is limited at 2 intersections		
Miscellaneous		Proximity of intersections of RR and SRD			Proximity of RR to RR crossing at intersection		
Property Impacts:							
No. of Parcels Impacted		30			45	39	34
No. of Total Property Acquisitions <small>(No. of Housing Units Affected)</small>		12 (15)			27 (46)	28	0
Additional Potential Total Acquisitions		0			1		0
Wetland Impacts:		None			None		None
Historic Properties		TBD			TBD	TBD	TBD
Archaeological Resources		TBD			TBD	TBD	TBD
Community/Neighborhood Integrity		Splits Neighborhood (Thru 2 City Blocks)			Preserves Neighborhood (Along RR Corridor)		
Cost: (2008 Dollars)							Construction Costs Included in Alternatives
Preliminary Engineering		\$500,000			\$500,000		
Right-of-Way*		\$3,090,000			\$5,600,000		
Construction		\$3,800,000			\$4,000,000		
Total		\$7,390,000			\$10,100,000		

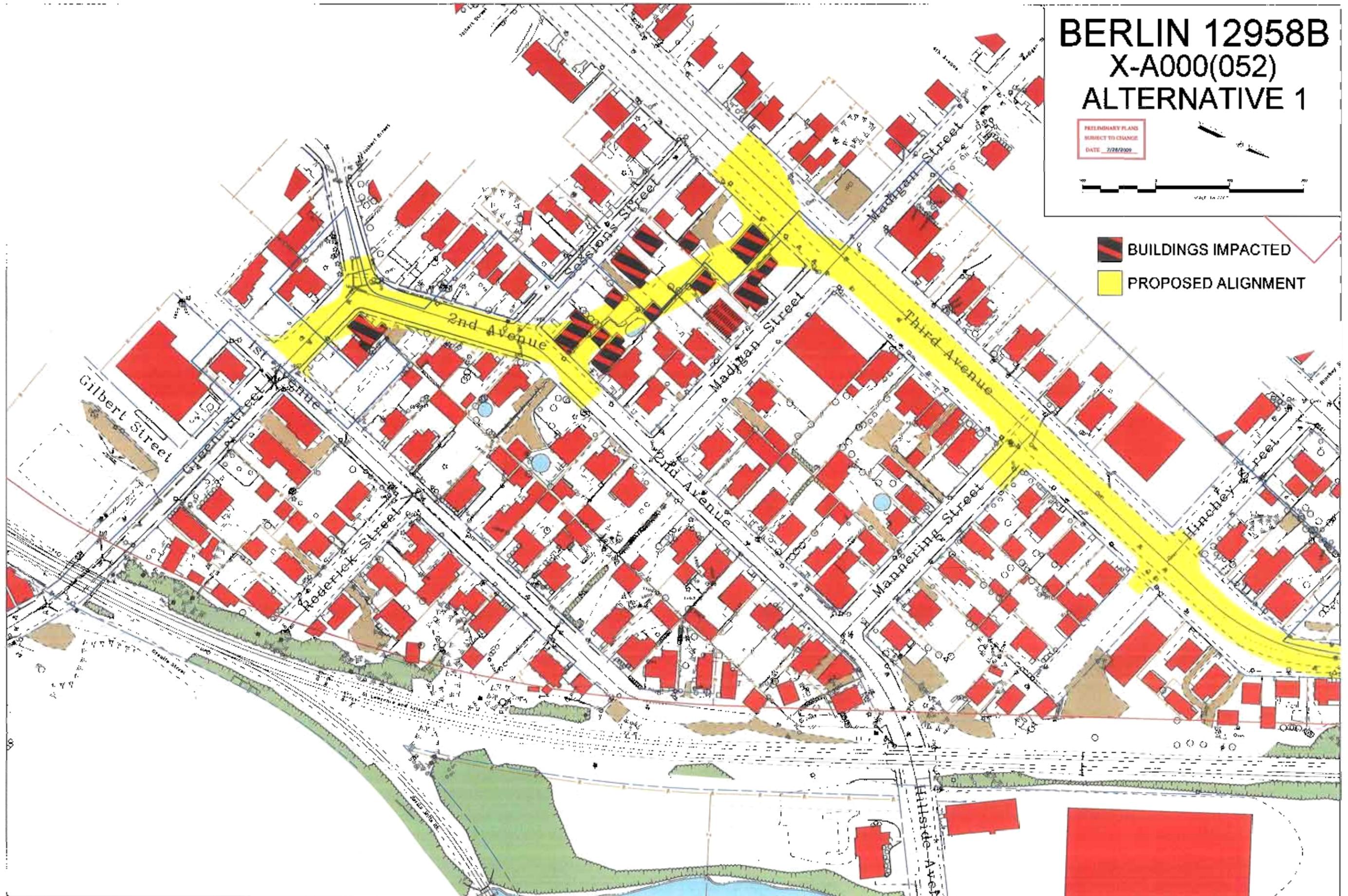
*ROW Cost includes Relocation, Business Re-establishment, Detention, & Administration Costs
TBD = To Be Determined

BERLIN 12958B X-A000(052) ALTERNATIVE 1

PRELIMINARY PLANS
SUBJECT TO CHANGE
DATE 7/28/2009



-  BUILDINGS IMPACTED
-  PROPOSED ALIGNMENT

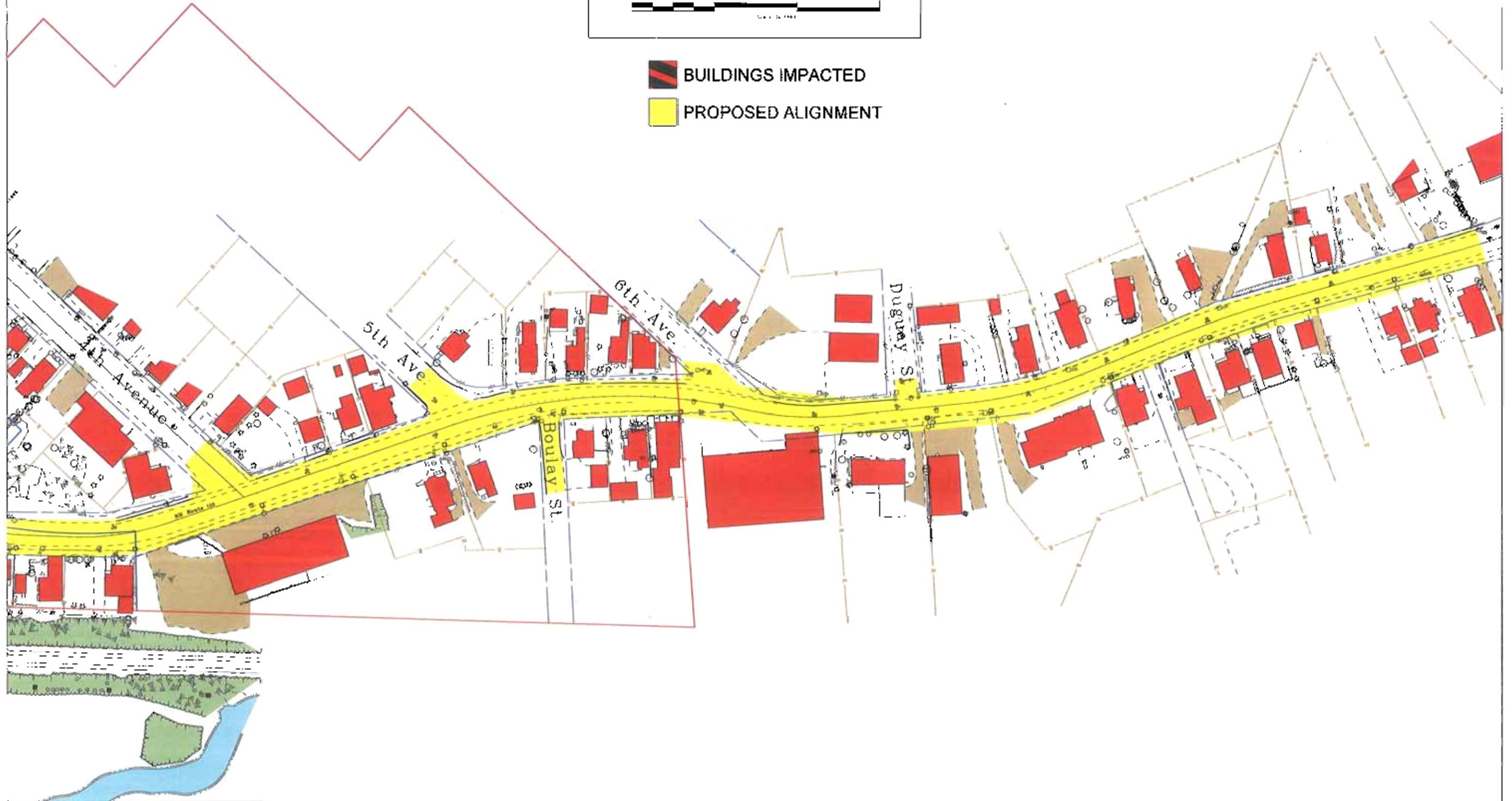


BERLIN 12958B X-A000(052) ALTERNATIVE 1

PRELIMINARY PLAN
SUBJECT TO CHANGE
DATE 7/28/2009



-  BUILDINGS IMPACTED
-  PROPOSED ALIGNMENT

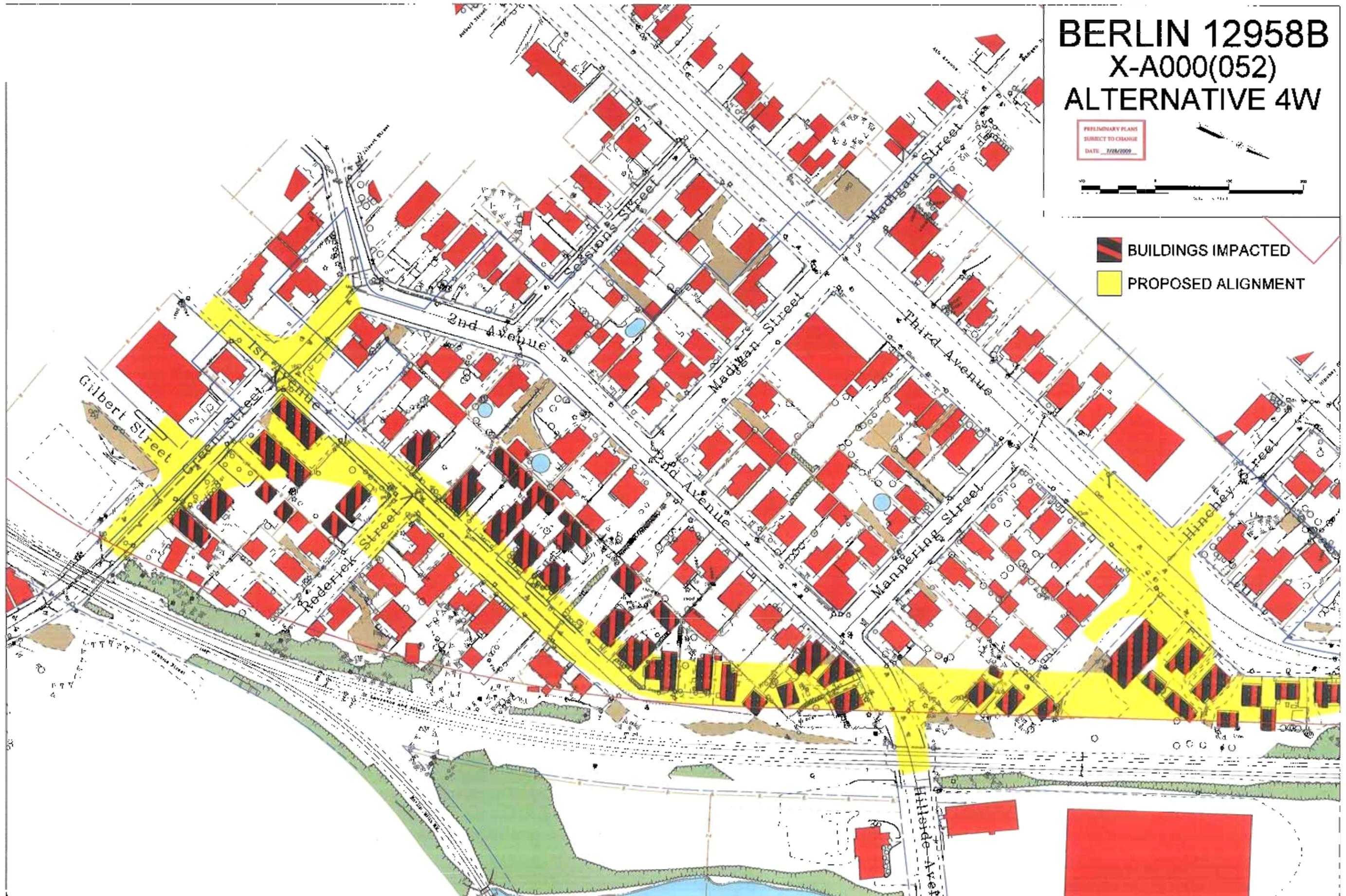


BERLIN 12958B X-A000(052) ALTERNATIVE 4W

PRELIMINARY PLANS
SUBJECT TO CHANGE
DATE 7/28/2009



-  BUILDINGS IMPACTED
-  PROPOSED ALIGNMENT

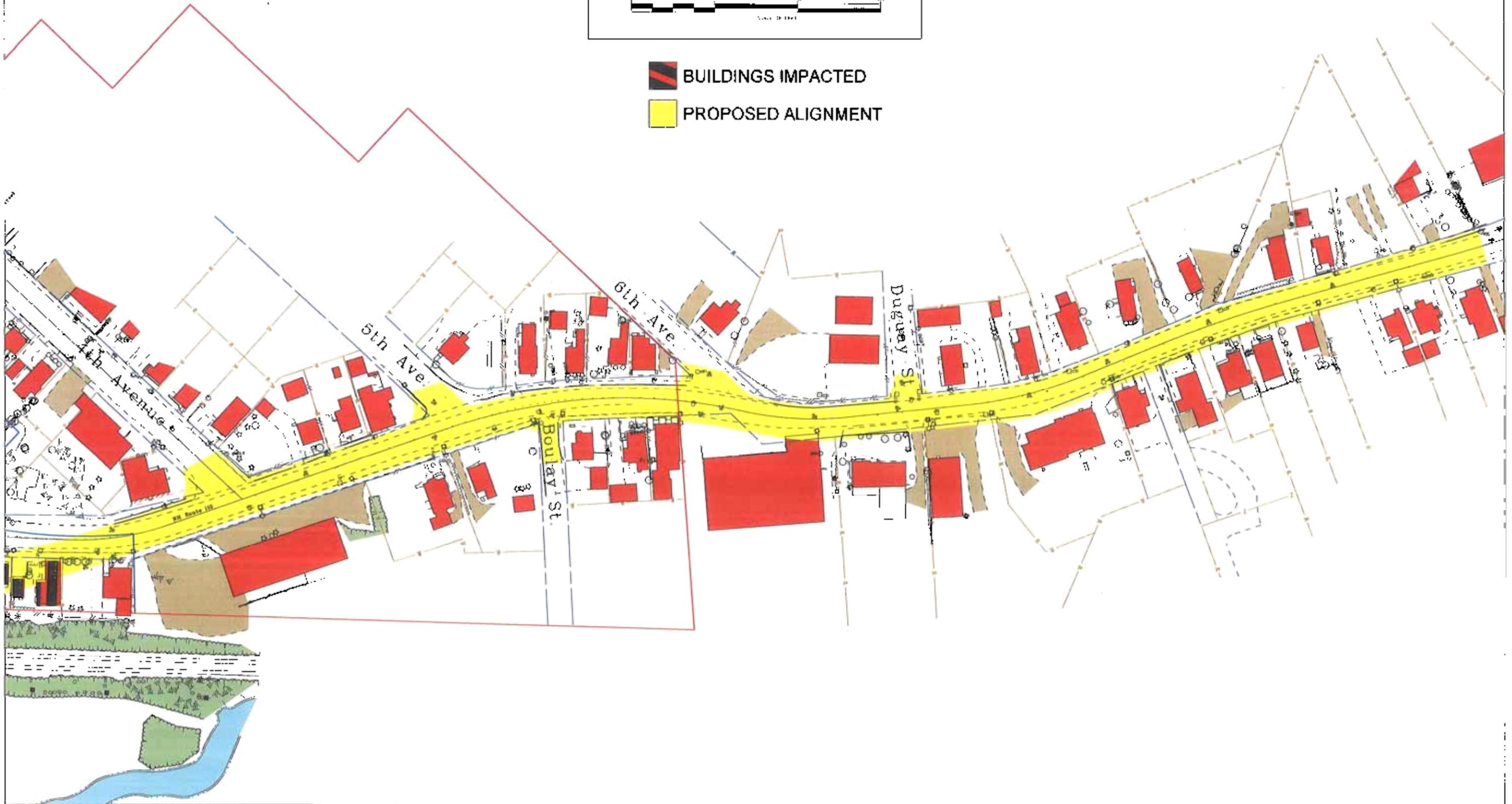


BERLIN 12958B X-A000(052) ALTERNATIVE 4W

PRELIMINARY PLANS
SUBJECT TO CHANGE
DATE 7/28/2009



-  BUILDINGS IMPACTED
-  PROPOSED ALIGNMENT

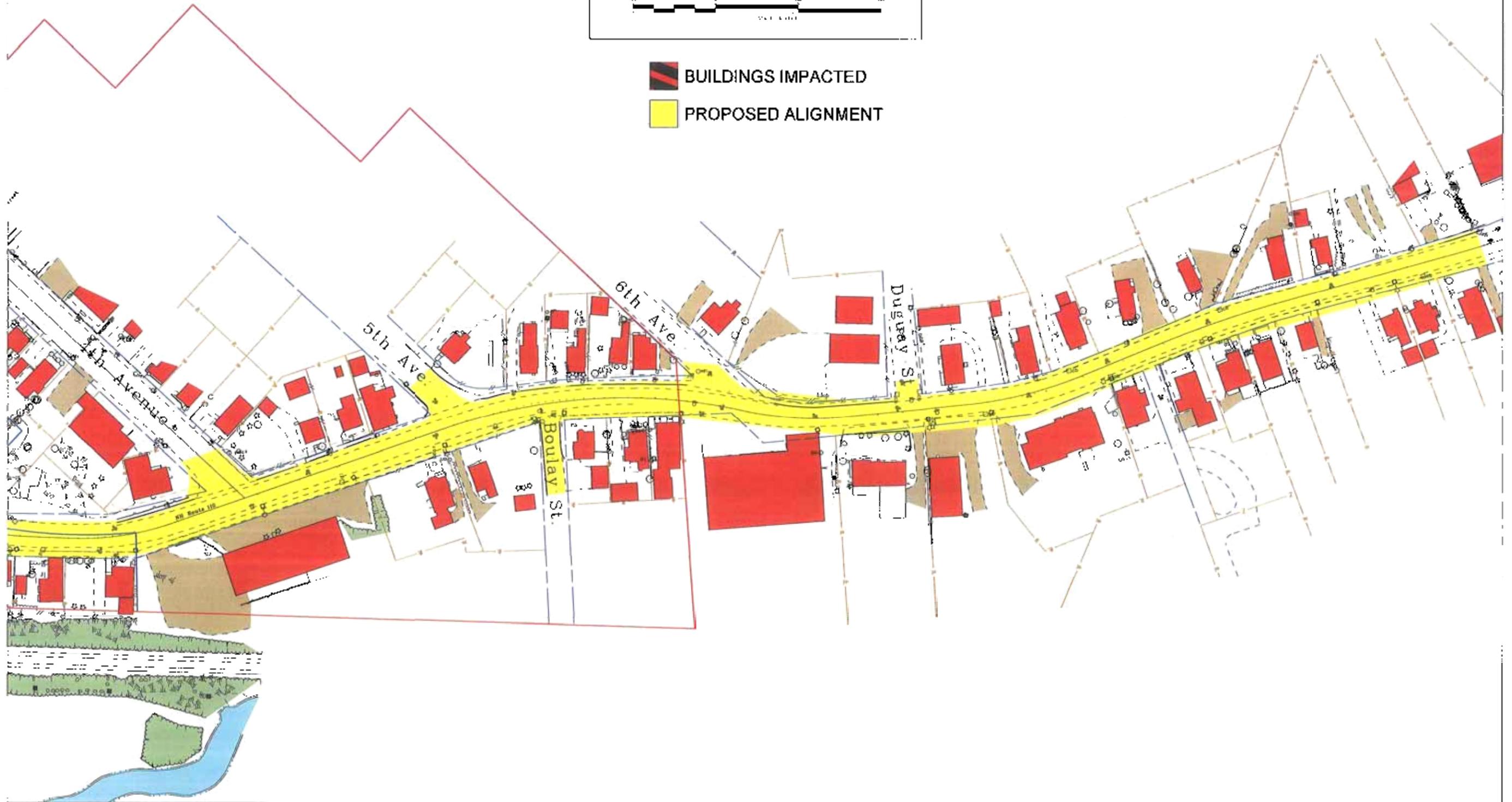


BERLIN 12958B X-A000(052) ALTERNATIVE 2

PRELIMINARY PLAN
SUBJECT TO CHANGE
DATE 7/28/2009

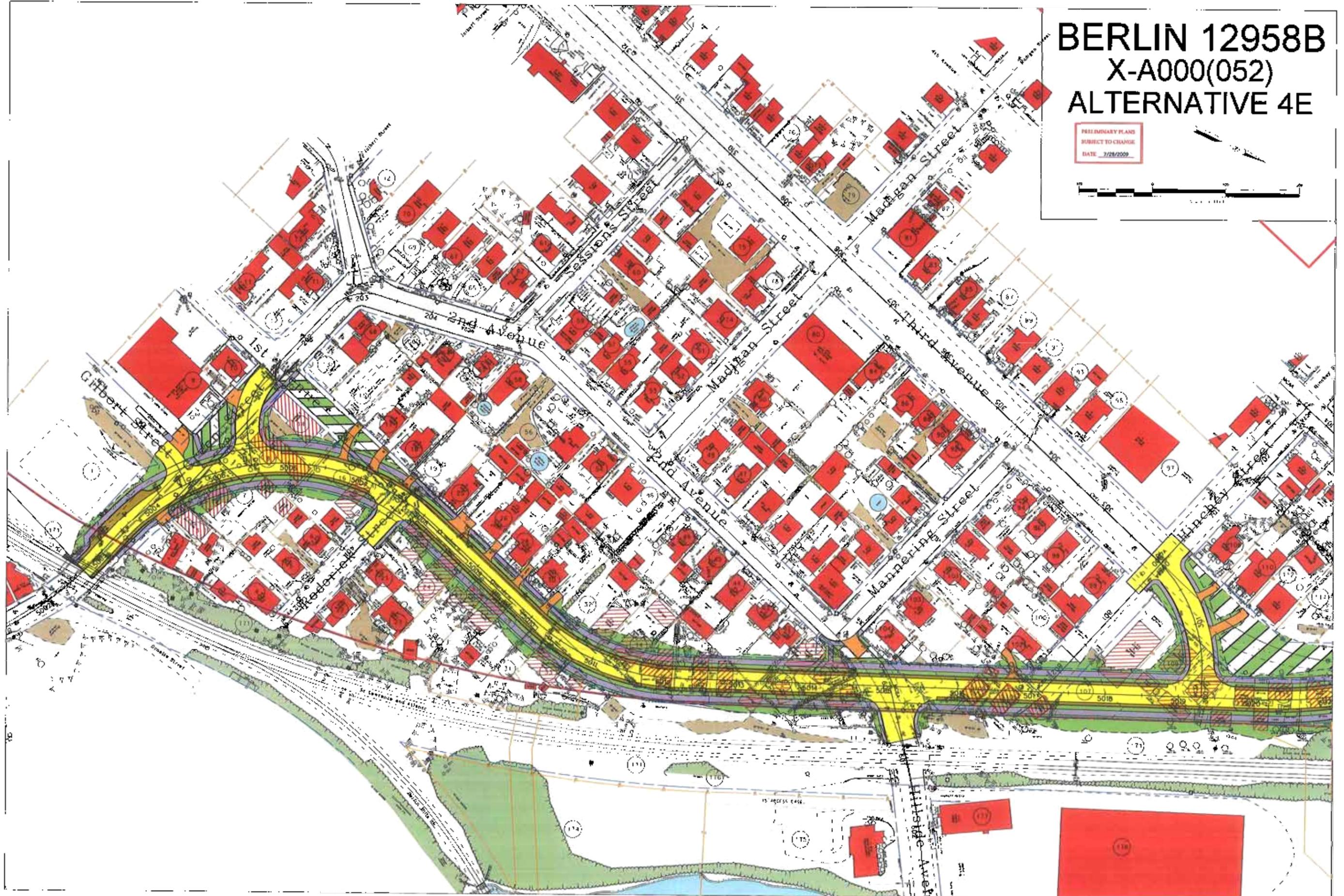


-  BUILDINGS IMPACTED
-  PROPOSED ALIGNMENT



BERLIN 12958B X-A000(052) ALTERNATIVE 4E

PRELIMINARY PLAN
SUBJECT TO CHANGE
DATE 7/28/2009



BERLIN 12958B X-A000(052) ALTERNATIVE 4E

PRELIMINARY PLANS
SUBJECT TO CHANGE
DATE 7/28/2009



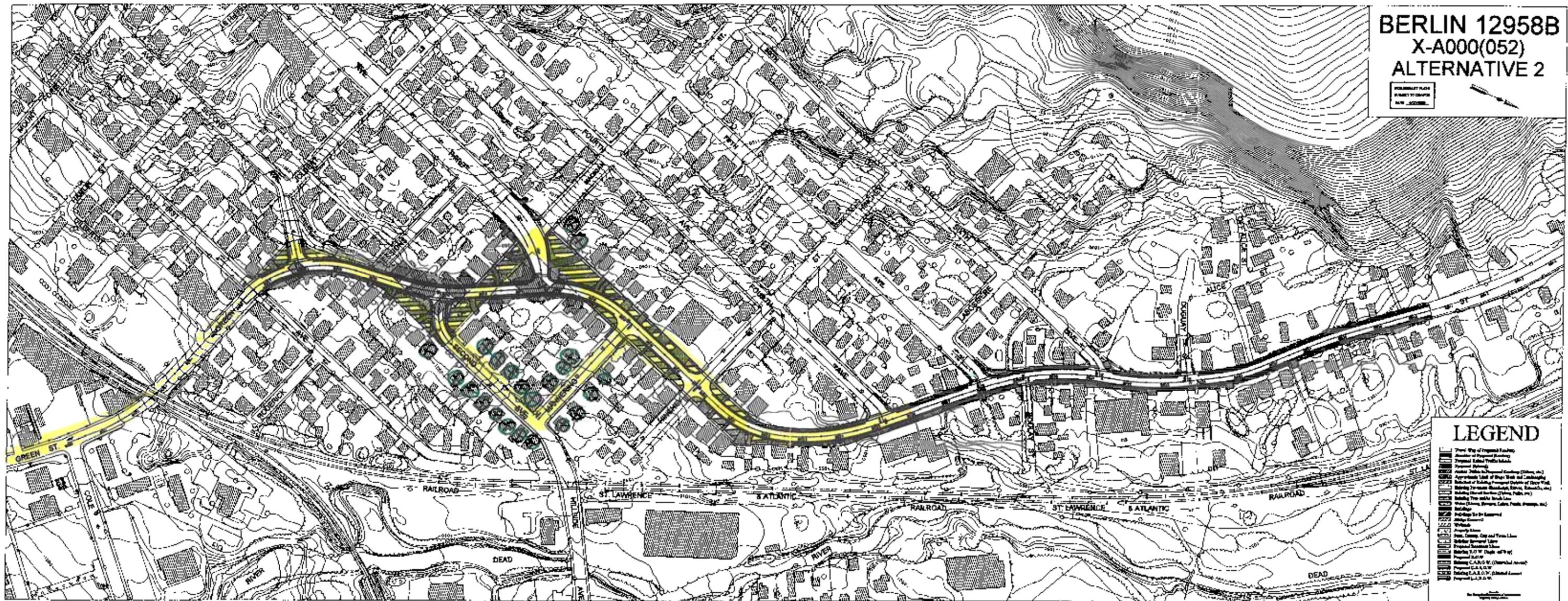
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EM
CONSTR

LEGEND

- Travel Way of Proposed Roadway
- Shoulder of Proposed Roadway
- Proposed Raised Traffic Islands
- Proposed Sidewalk
- Access Points to Proposed Roadway (Drives, etc.)
- Approximate Layout of Slope Work and Landscaping
- Removal of Existing Pavement Outside of Slope Work
- Existing Pavement (Roadways, Drives, Sidewalks, etc.)
- Existing Gravel Surface (Drives, Driveways, etc.)
- Existing Tree and/or Enclosed Area
- Water (Lakes & Streams, Lakes, Ponds, Swamps, etc.)
- Buildings
- Buildings To Be Removed
- Bridge Removal
- Wetlands
- Property Lines
- State, County, City and Town Lines
- Existing Pavement Lines
- Proposed Pavement Lines
- Existing R.O.W. (Right-of-Way)
- Proposed R.O.W.
- Existing C.A.R.O.W. (Controlled Access)
- Proposed C.A.R.O.W.
- Existing L.A.R.O.W. (Limited Access)
- Historic District

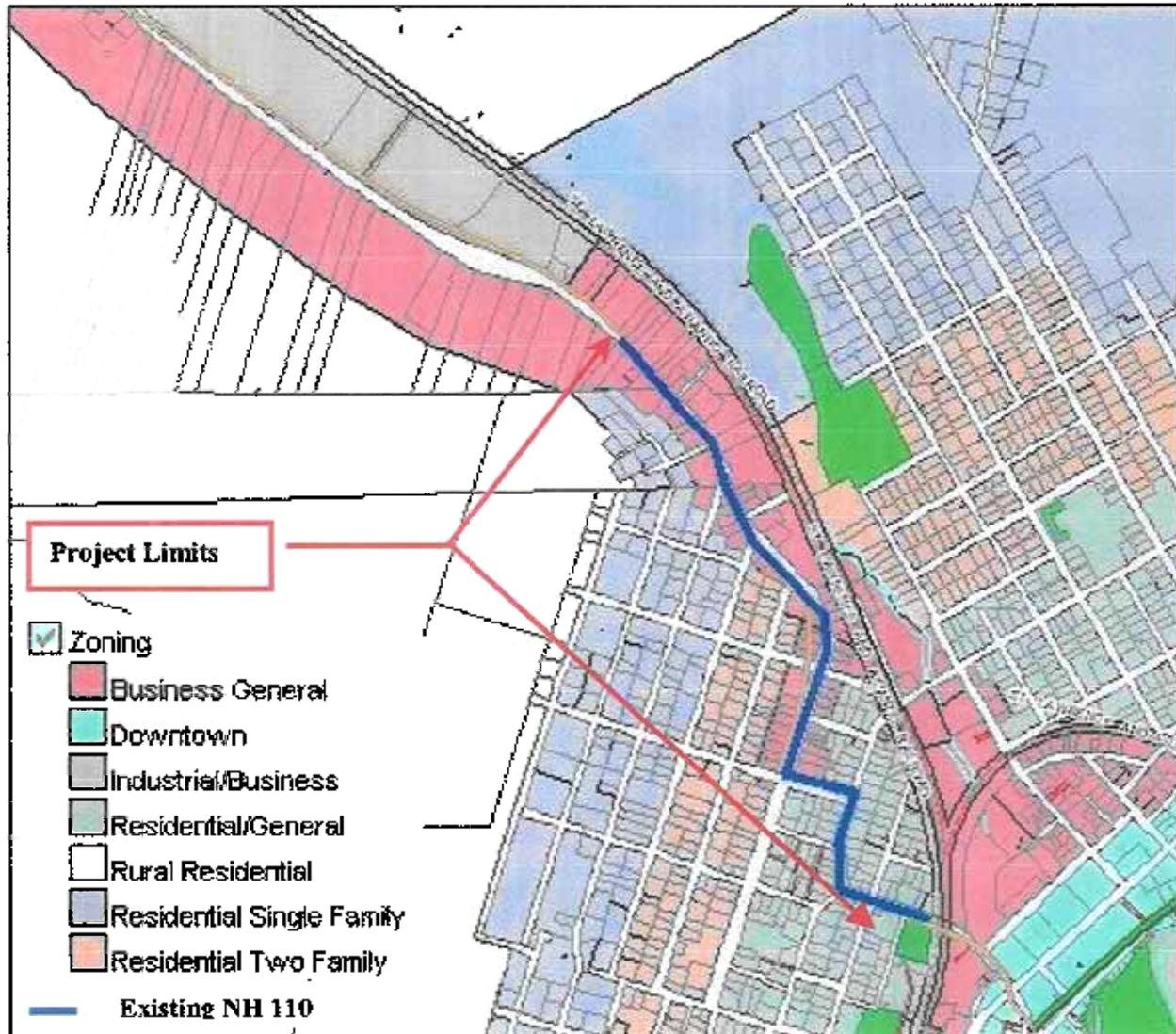
Map Prepared by: [unreadable]
Engineering: [unreadable]

BERLIN 12958B
X-A000(052)
ALTERNATIVE 2



- ⊗ Noise level decrease
- × Noise level increase
- Existing NH Route 110 corridor

City of Berlin
Zoning Map of Project Area



Memo



NH NATURAL HERITAGE BUREAU

To: Catherine Goodman, NH DOT
7 Hazen Drive
P.O.Box 483
Concord, NH 03302-0483

From: Melissa Coppola, NH Natural Heritage Bureau

Date: 4/2/2009 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau

NHB File ID: NHB09-0585

Project type: Roads, Driveways, Bridges: Road construction, etc.

Town: Berlin

Location: Route 110 through City of Berlin

cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments:

Vertebrate species

	State ¹	Federal	Notes
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	T	M	Contact the NH Fish & Game Dept (see below).
Common Nighthawk (<i>Chordeiles minor</i>)	E	--	Contact the NH Fish & Game Dept (see below).

¹Codes: "E" = Endangered, "T" = Threatened, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. For some purposes, including legal requirements for state wetland permits, the fact that no species of concern are known to be present is sufficient. However, an on-site survey would provide better information on what species and communities are indeed present.

EXHIBIT 11

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NEHB
PO Box 1856
Concord NH 03302-1856

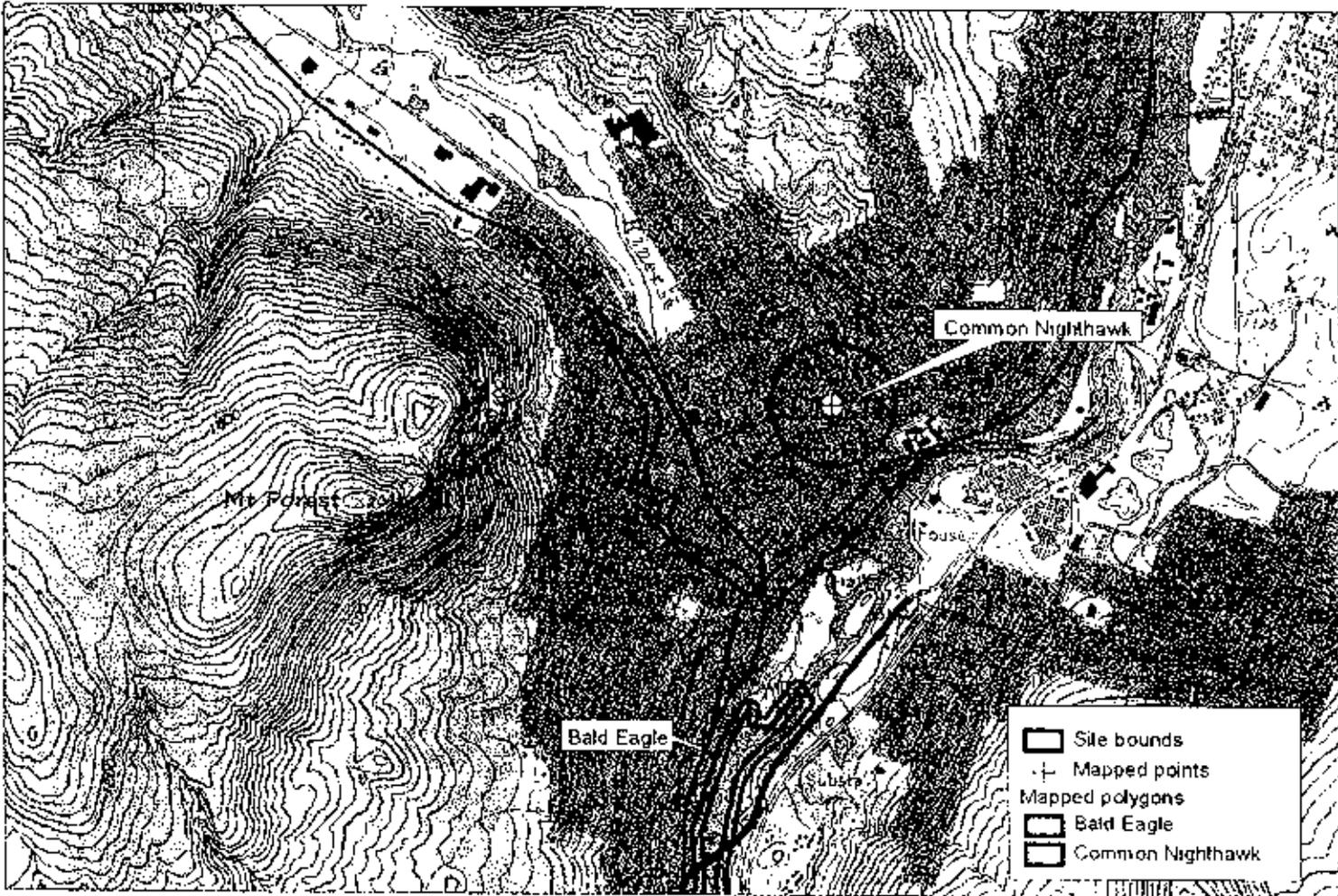
NHB09-0585



NH NATURAL HERITAGE BUREAU

Known locations of rare species and exemplary natural communities

Note: Mapped locations are not always exact. Occurrences that are not in the vicinity of the project are not shown.



0.25 0 0.25 0.5 0.75 : Miles
1:9000

Historical record

Valid for one year from this date 02 Apr 2009

New Hampshire Natural Heritage Bureau - Animal Record

Common Nighthawk (*Chordeiles minor*)**Legal Status**

Federal: Not listed
 State: Listed Endangered

Conservation Status

Global: Demonstrably widespread, abundant, and secure
 State: Not ranked (need more information)

Description at this Location

Conservation Rank: Not ranked
 Comments on Rank:

Detailed Description: 1990: 26 adults, sex unknowns (Obs_id 939).
 General Area: 1990: Terrestrial - Urban / suburban (Obs_id 939).
 General Comments: 1990: Number above represents the high count for the period 1982-1992. Young were documented in 1985, and perhaps other years during this period (Obs_id 939).

Management
 Comments:

Location

Survey Site Name: Berlin
 Managed By:

County: Coos	USGS quad(s): Berlin (4407142)
Town(s): Berlin	Lat, Long: 442827N, 0711050W
Size: 30.8 acres	Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 1990: Downtown [Berlin] (Obs_id 939).

Dates documented

First reported: 1990-07-22	Last reported: 1990-07-29
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Berlin Heights Addition Historic District

BERLIN 12958B
X-A000(052)

CITY PLAN





GEORGE N. CAMPBELL, JR.
COMMISSIONER

JEFF BRILLHART, P.E.
ASSISTANT COMMISSIONER

Berlin
X-A000(052)
12958B
Page 1

Adverse Effect Memo

Pursuant to meetings and discussions on January 3 and May 6, 2002; April 8, May 13, and June 10, 2004; July 2 and December 4, 2008; January 22, February 12, April 10, May 14, 2009; and June 4, 2009 and for the purpose of compliance with regulations of the National Historic Preservation Act, as amended, and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of Historical Resources (NHDHR) and the NH Division of the Federal Highway Administration (FHWA) have coordinated the identification and evaluation of historic and archaeological properties with plans to reconstruct NH Route 110 between First Avenue and Wight Street along Alternative 4E in the City of Berlin, New Hampshire.

Based on reviews pursuant to 36 CFR 800.4 of the historical and architectural significance of identified resources and the potential significance for archaeological remains in the project area, we agree that the Berlin Heights Addition Historic District, also known as The Avenues, is eligible for listing in the National Register of Historic Places.

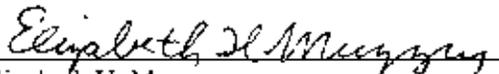
Applying the criteria of effect at 36 CFR 800.5, we have determined that the project will have an adverse effect on the Berlin Heights Addition Historic District through direct and visual impacts. Adverse effects to the district include:

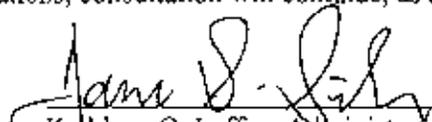
- The removal of twenty-five contributing primary with thirteen secondary buildings, resulting in the loss of building density and pattern along the edge of the district;
- Total project impacts involving 4.9 acres;
- Strip takes along four contributing properties;
- Loss of retaining walls; and
- Visual impacts/impacts to the setting of buildings in the district resulting from:
 - Loss of two blocks and of partial blocks, which disrupts the plat's grid pattern;
 - Loss of sections of streets;
 - First Avenue no longer dead-ends at the railroad;
 - Through traffic along the edge of the district with the construction of a new road along the railroad corridor;
 - Loss of the direct connection between Second Avenue and Hillside Avenue;
 - New connections of Third Avenue and Wight St. with a grid pattern change;
 - New connections of First Avenue and Green Street with redirection of traffic along First Avenue;
 - Loss of setting for those houses adjacent to the railroad corridor; and
 - Two large intersection changes, totaling 2.8 acres.

We will evaluate the following areas of mitigation for resolution of these adverse effects:

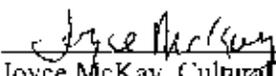
1. Documentation: The level of documentation for each property will vary and is in part dependent on the integrity of the resource.
2. Public Forums: Charrettes will be organized for planning of open spaces developed by the construction of the project.
3. Workshops: Practical workshops on preservation will be presented for the residents of the Berlin Heights Addition Historic District.
4. Historically Compatible Landscaping: Vegetative screening would be placed along portions of the proposed corridor.
5. Relocation of Historic Properties: Building relocation within or adjacent to the historic district will be considered. This element of mitigation is, in part, intended to help infill vacant areas in the district with compatible historic properties.
6. Public Outreach: Public outreach will include placement of state historical markers and the uploading of historical studies to websites.
7. Archaeology: All necessary phases of archaeological investigations at the Phase IB through III levels will be conducted. Data gained from this effort will be made available to the public to the extent permitted by the need to protect intact archaeological resources.

In accordance with the Advisory Council's regulations, consultation will continue, as appropriate, as this project proceeds.


Elizabeth H. Muzzey
State Historic Preservation Officer


Kathleen O. Laffey, Administrator
Federal Highway Administration

Concurred with by the New Hampshire Department of Transportation:

Date: 6/22/09 By: 
Joyce McKay, Cultural Resources Manager

c.c. Jamie Sikora Donald Lyford Christopher Waszczuk
Elizabeth H. Muzzey Marc Laurin Pamela Laflamme

PHOTOGRAPHS

Berlin 12958B



Green Street view west from Railroad Bridge. Begin of project limits.



Green Street view east from First Ave intersection to Railroad Bridge



First Ave. intersection with Green Street view north



Green Street at Second Ave intersection view east.



Second Ave at Green Street intersection view north



Madigan Street view West from Second Ave.



Second Ave view south from Mannering Street



Third Ave view north.



Logging truck negotiating turn onto Madigan Street from Third Ave.



Truck tracking over sidewalk. Madigan Street and Third Ave.



Conflict of trucks negotiating turn onto Madigan Street from Second Ave.



Wight Street from Third Ave view northwest



Wight Street at Fourth Ave. view south.



Wight Ave. view south. End of project limits



End of First Ave looking north. Proposed alignment of Alternative 4E.



First Ave view south from dead end. Proposed alignment of Alternative 4E.



Hillside Ave at Railroad crossing.
Looking to the northwest at proposed alignment of Alternative 4E.



Hillside Ave view west to Second Ave.