PRELIMINARY

TRAFFIC AND ACCESS

NORTH END INDUSTRIAL AREA
REDEVELOPMENT STUDY
MIDDLETOWN, CONNECTICUT

HARRALL-MICHALOWSKI, ASSOC./MILONE & MAC BROOM, INC.

SCOTT FITTON & COMPANY, INC.
SOIL SCIENCE & ENVIRONMENTAL SERVICES, INC.

May 10, 1993

EXISTING TRANSPORTATION FACILITIES

The North End Industrial Area is served by a network of local and regional highways, local and regional bus service and a rail spur line. In addition, the Connecticut River, situated to the east of the site, provides opportunities for limited freight and cargo service via barges along with recreational boat traffic.

EXISTING HIGHWAY NETWORK

In the immediate vicinity of the Industrial Area, there are two principal state routes: CT Route 9 and CT Route 66.

Other major highways that provide regional and interstate access to Middletown include Interstate Route 91, CT Route 17 and CT Routes 3 & 72.

Connecticut Route 9, in the study area, is a four lane limited access divided highway. With two through lanes in each direction, plus exclusive turning lanes at the signalized intersections, the highway operates under a 45 mph speed limit, increasing to 55 mph, to the north/south. Direct access from the local road network from Route 9 is currently provided by at-grade intersections at Miller Street (unsignalized), Hartford Avenue (signalized) and Washington Street (signalized). CT Route 9, also known locally as the Central Connecticut Expressway, originates at I-95 in Old Saybrook and continues in a northwesterly direction through Middletown, crossing I-91 and terminates at Route 72 further west in New Britain.

Examination of State of Connecticut-Department of Transportation traffic logs shows the following traffic volumes for Route 9:

Year	Vehicles Per Day (vpd)
1987	49,000
1988	49,800
1989	50,300
1990	48,900
1991	48,900
1992	49,000 (est.)

Connecticut Route 66 runs east-west from Route 2 in Marlborough to Route I-691 near the intersection with Route I-91 in Middlefield, a total distance of approximately 19 miles. The highway is typically a two lane roadway, with at-grade intersections.

Route 66 enters the project area from the east via the Arrigoni Bridge. This four lane structure was built in 1938 and is the only vehicular crossing of the Connecticut River in Middletown. The bridge is two lanes in each direction, with its approach to Main Street at St. John's Square

providing two left-turn lanes to Hartford Avenue and two through lanes. The northbound Main Street approach to the Arrigoni Bridge eastbound is three lanes: one right-turn lane, a shared right and through lane, and a left-turn lane. Exclusive turns from North Main Street right onto the bridge and a right-turn bay from the bridge onto Spring Street are also provided. In downtown Middletown, Route 66 traffic follows Main Street south for several blocks, before turning west on Washington Street.

Posted speed limits on Route 66 vary from 35 mph across the Arrigoni Bridge to 25 mph as bridge traffic approaches downtown Middletown. Posted speeds are 30 mph on Washington Street and on Route 66 as it heads west from Middletown.

Traffic volumes on Route 66 for the time period 1987-1992 were:

Year	Vehicles Per Day (vpd)
1987	37,000
1988	37,300
1989	38,300
1990	38,200
1991	33,300
1992	33,400 (est.)

A quick review of the traffic volumes for both of these major highways indicates that Route 9 volumes have essentially returned to 1987 levels after peaking in 1989and the Route 66 volumes after peaking in 1989 has decreased by about 5,000 vpd from the 1989 peak and almost 3,600 vpd from 1987 levels.

Local Street Network

Within the context of the North End Industrial Area Study there are two general classifications of local roads: primary and secondary. Main Street, North Main Street, Hartford Avenue, and possibly Spring Street would be in the primary category, while Pease Avenue, Rome Avenue, St. John Street, Portland Street, Stack Street, Grove Street, High Street, Johnson Street, Catherine Street, Miller Street and Bridge Street would be classified as secondary local roads. Table 1 summarizes the physical and operating characteristics of each of these primary and secondary local streets.

Bus Service

While there are a number of local and inter-city bus routes that pass through the North Main Street/Main Street/Spring Street/Hartford Avenue intersection (St. John's Square) on route to the Arrigoni Bridge (Route 66) to Portland, or to Route 9 towards Cromwell and Hartford, there is no direct bus service into the North End Industrial Area at present.

TABLE 1
LOCAL ROAD INVENTORY
NORTH END INDUSTRIAL AREA REDEVELOPMENT STUDY
MIDDLETOWN, CONNECTICUT

Street Name	Classification	Width Curb to Curb	Direction of Flow	Number of Lanes	Posted Speed (mph)	Adjustment Development	On Street Parking	Curb\ Sidewalk	Traffic Controls	Traffic Volumes (vpd)	Comments
Main St.	Primary	60+	N/S	3-NB 2-SB	25	Central Bus. District	Yes	Yes	Signal at Hartford Ave.	19,200	
North Main St.	Primary	36'	N/S	1-NB 1-SB	25	Industrial/ Manufacturing	Yes	Yes	Signal @ Hartford Ave.	2,240	Right Turn Only at St. John's Square
Hartford Ave.	Primary	30'-34'	E/W	2-EB 1-WB	N/A	Limited Religious	No	North Side Only	Signal @ Main & RT 9	16,700	
Spring St.	Primary/ Secondary	32'	E/W	1-EB 1-WB	N/A	Residential	Yes	Yes	Signal @ Hartford Ave.	2,000	Right Turn Only at St. John's Square
Pease Ave.	Secondary	26'-28'	N/S	1-SB @ Spring 1 @ N. Main	N/A	School/ Residential	Yes	E - No W-Yes	Stop @ N. Main Stop @ Stack	1,000	
Rome Ave.	Secondary	28'	N/S	1-NB 1-SB	N/A	Residential/ Industrial	Yes	Yes	Stop @ Spring St.	N/A	
St. John St.	Secondary	28'	N/S	1-NB 1-SB	N/A	Residential/ Cemetary	East Side Only	Yes	Stop & No Left Turn @ Hartford Ave.	N/A	
Portland St.	Secondary	30'	E/W	1-EB 1-WB	N/A	Residential	Yes	Yes	Dead End Sign	N/A	Dead End at Railroad Tracks
Stack St.	Secondary	36'	E/W	1-EB 1-WB	N/A	Industrial	Yes	Yes	Stop @ N. Main Stop @ Johnson	N/A	
Grove St.	Secondary	28'	N/S	1-NB 1-SB	N/A	Residential	Yes	Yes	Stop @ N. Main Stop @ Stack	N/A	New Construction
High St.	Secondary	30'	N/S	1-NB 1-SB	25	Industrial (N) Residential (S)	Some Re-strictions	Yes	Stop @ N. Main	N/A	
Johnson St.	Secondary	25'-26'	N/S	1-NB 1-SB	N/A	Industrial (N) Residential (S)	Not Posted	No	Stop @ Catherine	N/A	
Catherine St.	Secondary	24'	E/W	1-EB 1-WB	N/A	Residential	Not Posted	Yes	Stop @ High St.	N/A	
Miller St.	Secondary	20'	E/W	--	N/A	Business Residential	Not Posted	No	Dead End @ Bridge	N/A	Stop @ Railroad Tracks
Bridge St.	Secondary	26'-28'	N/W	1-NB 1-SB	N/A	Commercial/ Residential	Not Posted	No	None	N/A	

Rail Service (Based on the documentation in the Draft Route 9 EIS, dated 2/4/93.)

Connecticut Central Railroad (CCR) operates four freight rail lines in the general vicinity of the North End Industrial Area. Each line is single track with a right-of-way typically ranging from 50 to 100 feet. CCR property lines typically abut state or Middletown rights-of-way. All lines are leased from the State of Connecticut; the current lease expires in 25 years.

The main line, known as the Middletown Secondary, runs north-south from New Haven to Portland, but runs east-west through the project area. The line crosses Route 66 (Washington Street) west of the project area and passes under St. John's Square. A double span bridge carries the track over Route 9 and continues as the Middletown Swing Bridge, a "swinging bridge", over the Connecticut River allowing boat traffic to pass freely. South of Middletown, the line connects with Conrail service in Middlefield or New Haven. The CCR service schedule varies to accommodate the Conrail schedule, although typical service is one round-trip daily, three to four days a week, leaving Portland around midday.

The Laurel Branch runs south of the main line parallel to and west of Route 9. At-grade crossings are located at Washington Street, Williams Street Extension at Metro Square, and Union Street under the Route 9/17 overpass. East of Route 9 and Union Street, the track crosses River Road at-grade and follows along the western bank of the Connecticut River, crossing River Road at-grade two more times. While this track actually extends to Old Saybrook, CCR lease rights terminate just north of the Middletown-Haddam border. The primary function of the Laurel Branch is hauling sewage sludge under contract with the City of Middletown from the Middletown waste treatment facility on River Road to the Mattabassett Treatment Plant in Cromwell. Service operates five days a week with one round-trip departing Middletown about 9 or 10 a.m. and a second departure in the late afternoon; return trips depart Cromwell about 10 minutes after arriving and unloading tanks.

The Cromwell Branch runs north of the main line parallel to, and west of Route 9, connecting the Laurel Branch with the Mattabassett Treatment Plant on a portion of the old Valley Line to Hartford. CCR leases this track to a point about one-half mile south of Cromwell Center. There is one at-grade crossing in the project area as the track crosses through the Miller Street residential area. Use of this recently rebuilt track is primarily for the aforementioned sludge deliveries and for other freight deliveries to the treatment plant, as required. CCR has requested that the state extend the bounds of this lease to the Rocky Hill-Wethersfield border to service industrial land in that area.

The last project area rail line occupies a portion of the former Berlin Branch, switching northwest from the Cromwell Branch about one-tenth of a mile north of Hartford Avenue and just south of the Arrigoni Bridge. A freight yard for storage and switching covers about five acres immediately northwest of the Arrigoni Bridge. The track extends for approximately one mile and terminates at the Primary Steel Plant.

Accidents/Safety

An overview assessment study on the operations of the roadways serving the Redevelopment Area was undertaken. This assessment was based on discussions with Captain Uliano from the Traffic Division in Middletown's Police Department, a review of accident statistics presented in the Draft EIS for the Route 9 and Route 66 interchange, and through field reconnaissance of these roadways.

Based on discussions with Captain Uliano, several areas of concern were noted. They included:

- If area is redeveloped, possible increase in truck traffic on Pease, Rome & Johnson.
- Difficulty in getting to Route 9 from North Main Street.
- Illegal left turns from St. John Street on to Hartford Avenue.
- Lack of connection between Portland Street and Bridge Street.
- Difficult access to/from Miller Street from Route 9.

A review of the accident statistics contained in the referenced Draft EIS (presented in part as Table 2 below), indicated that several locations on the local roadway network produced higher than normal accident rates. They include Miller Street at CT Route 9 and North Main Street at Main Street and Hartford Avenue (St. John's Square).

TABLE 2
Accident Summary
1987 to 1990*

Location	1987*	1988	1989	1990*	Total	Annual Avg.
Route 9						
at Miller St.	10	10	12	2	34	11.3
at Hartford Ave.	6	4	5	-	15	5.0
Route 66						
at St. John's Sq.	24	14	16	1	55	18.3
along Main St.	6	8	11	2	27	9.0

* Includes records for the period 4/87-3/90.
Source: Connecticut Department of Transportation, as documented in Draft EIS for Route 9 and Route 66 Interchange.

Access to the Industrial Area

Based on the existing unimproved highway network, access to the North End Industrial Area can be achieved from the following directions:

1. **From the North**

   Generally, traffic from the north would approach on CT Route 9, turn right onto Hartford Avenue, turn right at St. John's Square onto North Main Street.

2. **From the East**

   Traffic destined for the study area from the east would approach via Route 66 over the Arrigoni Bridge. After crossing the river, entering traffic would have to take a right onto Spring Street, then another right on Rome Avenue or High Street.

3. **From the South**

   Traffic destined for the study area from the south can approach from Route 9 via Hartford Avenue or Main Street, through the signalized intersection at St. John's Square, then northerly on North Main Street.

4. **From the West**

   Traffic approaching the redevelopment area from the west could use either CT Route 3 (Newfield Avenue) or CT Route 66 (Washington Street). From either of these routes, traffic would proceed north on Main Street, through the signal at St. John's Square and into the study area via North Main Street.

In addition to the above described principal or primary access routes into the North End Industrial Area, access can be achieved by using a number of local-residential streets, including Johnson Street, High Street, Columbus Avenue, Grove Street and Stack Street.

Egress from the Industrial Area

Again, based on the unimproved highway network, egress from the North End Industrial Area, can be provided as follows:

1. **To the North**

   Traffic leaving the site from North Main Street destined to Route 9 northbound, would approach St. John's Square, turn right onto CT Route 66, then make a quick "U-Turn" back towards St. John's Square, then a left onto Hartford Avenue, then left onto Route 9 north.

2. **To the East**

Traffic leaving the site destined to Portland and other points to the east, would travel south on North Main Street to St. John's Square, turn right onto Route 66 and cross the Connecticut River on the Arrigoni Bridge.

3. **To the South**

Traffic from the Redevelopment Area would travel south on North Main Street, turn right onto Route 66 at St. John's Square, make a quick "U-Turn" and proceed south through St. John's Square either straight to Main Street or left to Route 9 south.

4. **To the West**

Traffic leaving the site with destinations to the west would follow the above described southerly departure route and continues south on Main Street to Washington Street.

In addition to the above described principal or primary egress routes from the North End Industrial Area, egress can be achieved through the use of a number of local residential streets, including Johnson Street, Pease Street, Rome Avenue, High Street, and Stack Street. Traffic leaving the study area that uses Rome, Pease, High or Johnson to Spring Street, are essentially forced to travel south on Main Street from St. John's Square, as turn restriction, heavy traffic volumes and existing traffic signalization restrict other movements.

Access/Egress Summary

In general, while access into the North End Industrial Area is marginally better than the egress, neither could be classified or categorized as particularly conducive to safety and efficiently accommodating the potential traffic volumes that would be associated with or produced by a successful industrial area. In particular, access/egress routes for large tractor trailers are difficult and in some cases almost impossible due to the restrictive geometry and turn-movement prohibitions. Because of these noted circulation problems, truck traffic into or out of the industrial area has begun to use the local-residential streets as alternative routes. This practice is clearly inconsistent with good traffic engineering practices.

Anticipated Future Conditions

Based in part on the analysis of the existing transportation network conditions, and a recent determination by the Connecticut Department of Transportation that the long-planned Route 9-Route 66 Interchange would not be included on their ten (10) year Transportation Improvement Program (TIP), it was determined that alternate access strategies to the North End Industrial Area were needed.

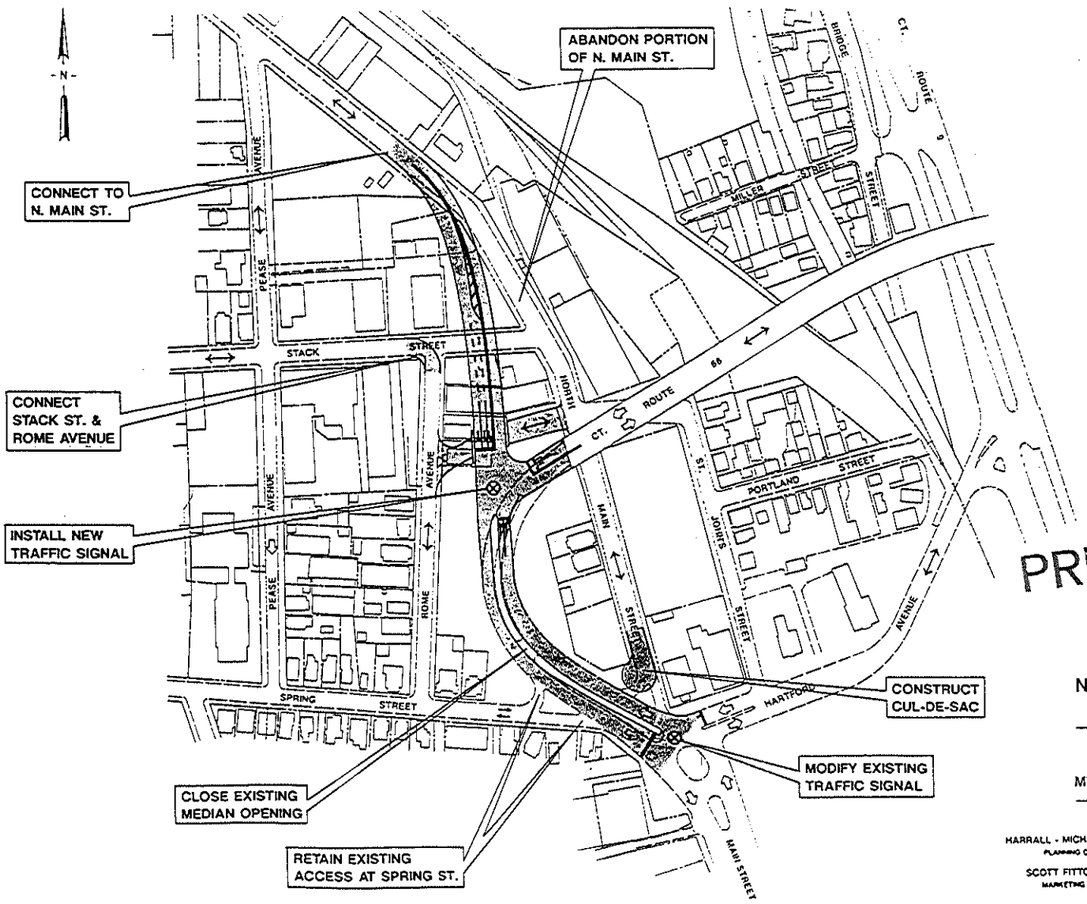
Utilizing the most recent 1989 AM and PM peak hour traffic volume data, as presented in the Draft Environmental Impact Study for the Route 9/66 Interchange, adjusted to 1993 based on ConnDOT Automatic Traffic Recorder (ATR) Count Data, and an estimation of potential traffic volumes that could be generated by the redevelopment and re-use of buildings and land in the North End Industrial Area, a number of preliminary traffic and access alternatives were developed. Initially four (4) alternatives -- A, B, C & D -- were developed and tested for acceptability. These alternatives ranges from relatively modest intersection improvements (Alternate B) to fairly major changes (Alternate A).

Following the preparation of these alternates at an initial meeting with the Middletown Economic Development Commission, informal workshops and discussions were held with the Connecticut Department of Transportation and the Department of Economic Development. These meetings were held to explain the proposed alternates and to solicit some level of confidence from ConnDOT that one of the alternates would ultimately receive the approval and support. Following a presentation to DED, it was suggested that it would be advantageous if the City/State and Regional Planning Agency could "support" one of the these alternates, so as to move forward with the allocation/appropriation of construction monies.

Accordingly, in late April 1993 a presentation was made at a combined meeting of City of Middletown officials (Public Works, Planning, Engineering, Economic Development, Chamber of Commerce, Police and Fire), State of Connecticut officials (Transportation and Economic Development) and to representatives from the Mid-State Regional Planning Agency.

Following this meeting it was generally agreed that a modified scheme, herein identified as Alternative E was the City's preferred traffic and access plan for the North End Industrial Area.

This "consensus" plan proposed traffic control and access improvements to be constructed in two phases, Phase I calls for the installation of a new traffic control signal at Spring Street and Route 66, closure of the existing median opening on the Route 66 approach to the Arrigoni Bridge, geometric modifications to the Spring Street approach to Route 66, revisions to the traffic signal at St.John's Square, revisions to the approach lanes on Main Street at St. John's Square along with landscaping and gateway signage improvements at North Main Street and Route 66.



PRELIMINARY

TRAFFIC & ACCESS
ALTERNATE A

NORTH END INDUSTRIAL AREA REDEVELOPMENT STUDY

PREPARED FOR:
CITY OF MIDDLETOWN
MUNICIPAL DEVELOPMENT DEPARTMENT

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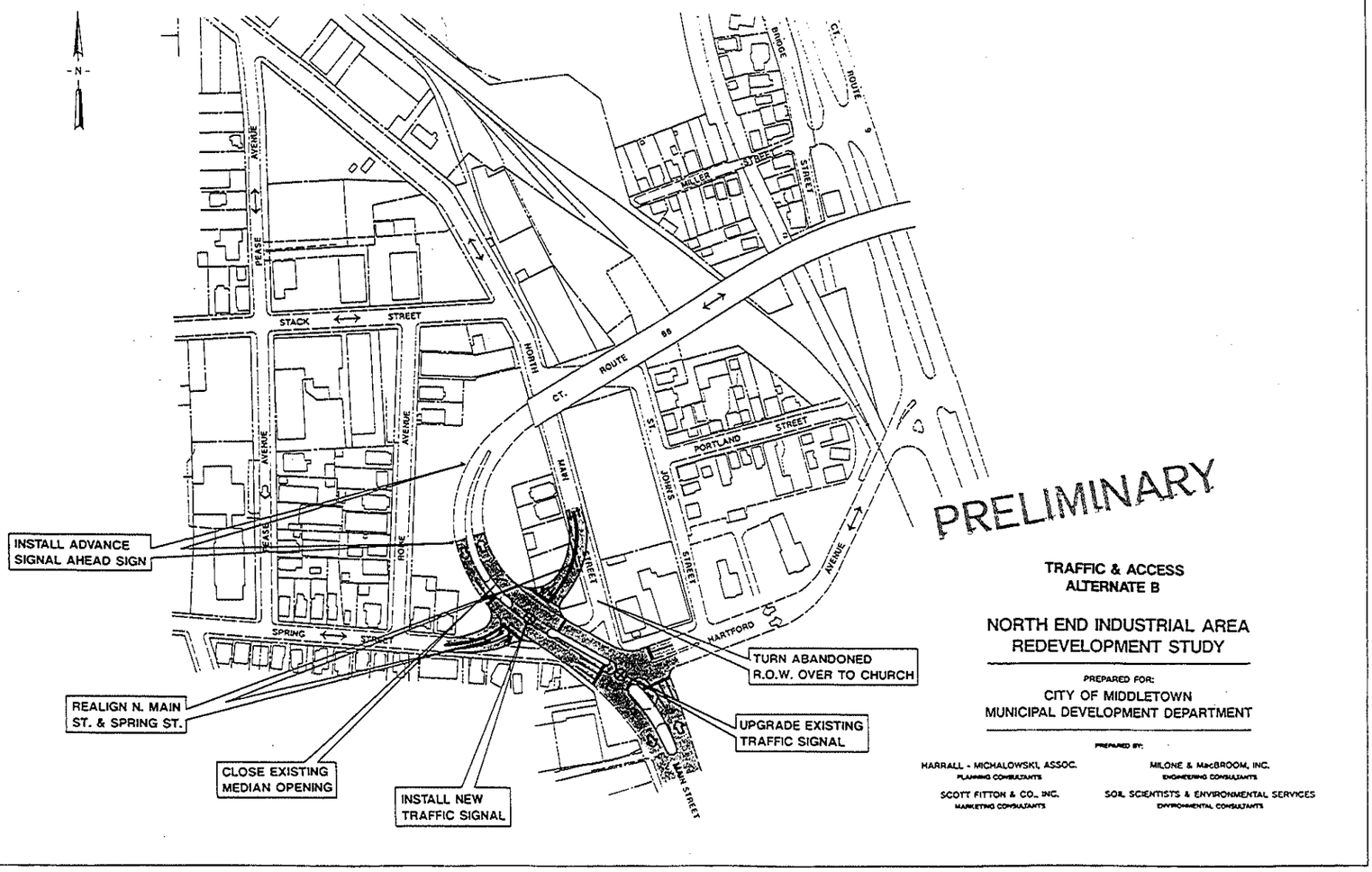

PRELIMINARY

TRAFFIC & ACCESS ALTERNATE B

NORTH END INDUSTRIAL AREA REDEVELOPMENT STUDY

PREPARED FOR:
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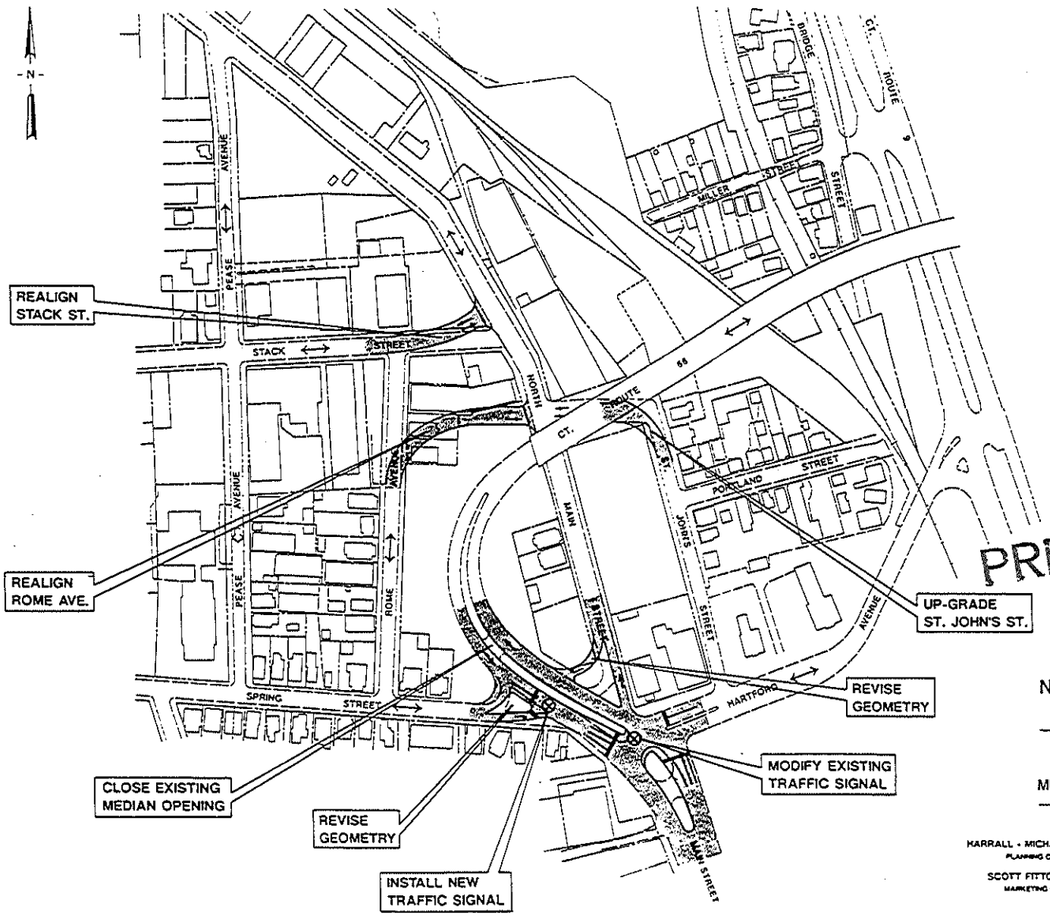

PRELIMINARY

TRAFFIC & ACCESS ALTERNATE C

NORTH END INDUSTRIAL AREA REDEVELOPMENT STUDY

PREPARED FOR:
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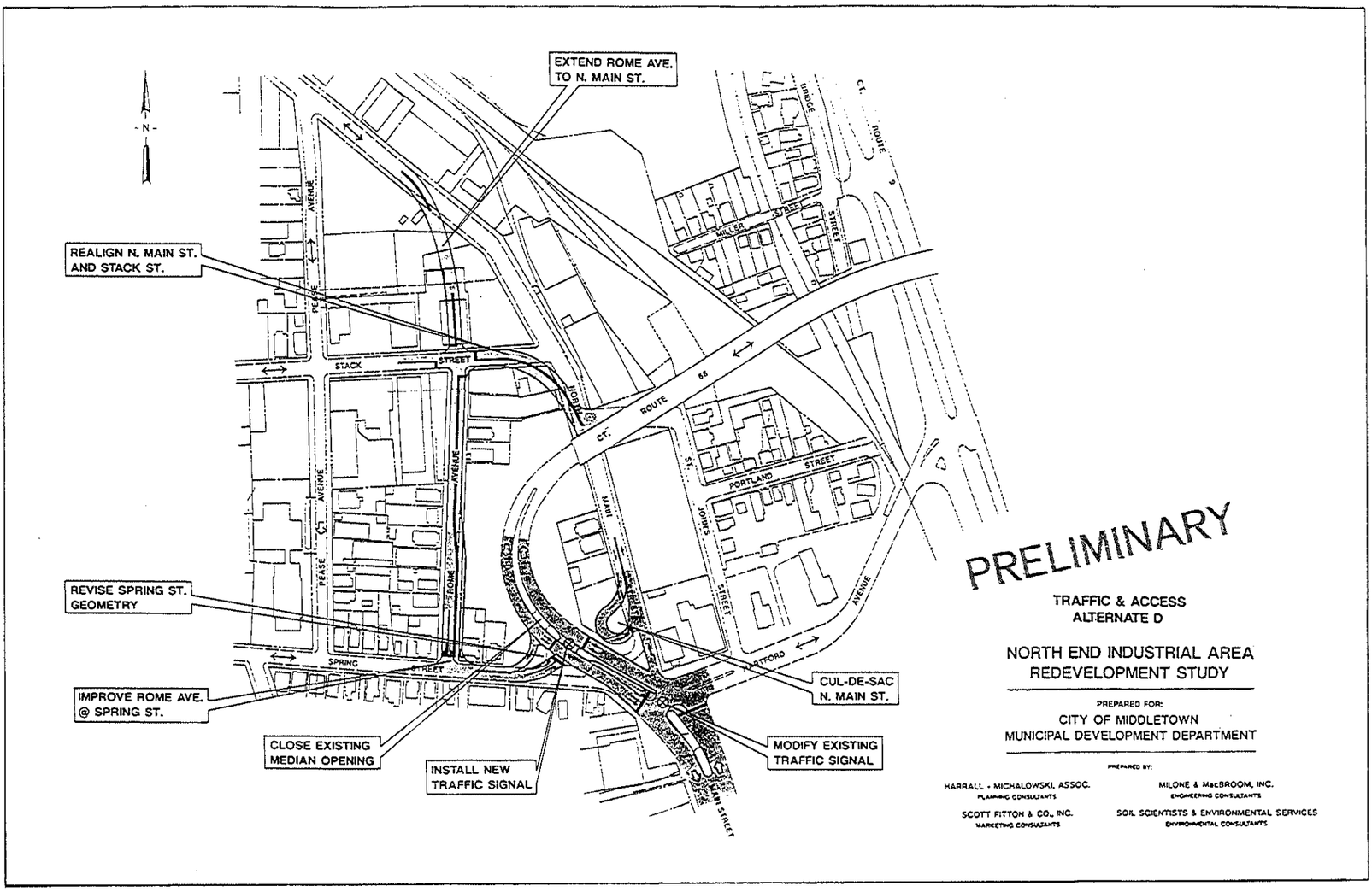
EXTEND ROME AVE. TO N. MAIN ST.
REALIGN N. MAIN ST. AND STACK ST.
REVISE SPRING ST. GEOMETRY
IMPROVE ROME AVE. @ SPRING ST.
CLOSE EXISTING MEDIAN OPENING
INSTALL NEW TRAFFIC SIGNAL
MODIFY EXISTING TRAFFIC SIGNAL
CUL-DE-SAC N. MAIN ST.
- N -
PEASE AVENUE
STACK STREET
ROME AVENUE
SPRING STREET
MAIN STREET
JONES STREET
PORTLAND STREET
HARTFORD AVENUE
ROUTE 66
ROUTE 9
LINDALE CT.
MILLER STREET
PRELIMINARY
TRAFFIC & ACCESS
ALTERNATE D
NORTH END INDUSTRIAL AREA
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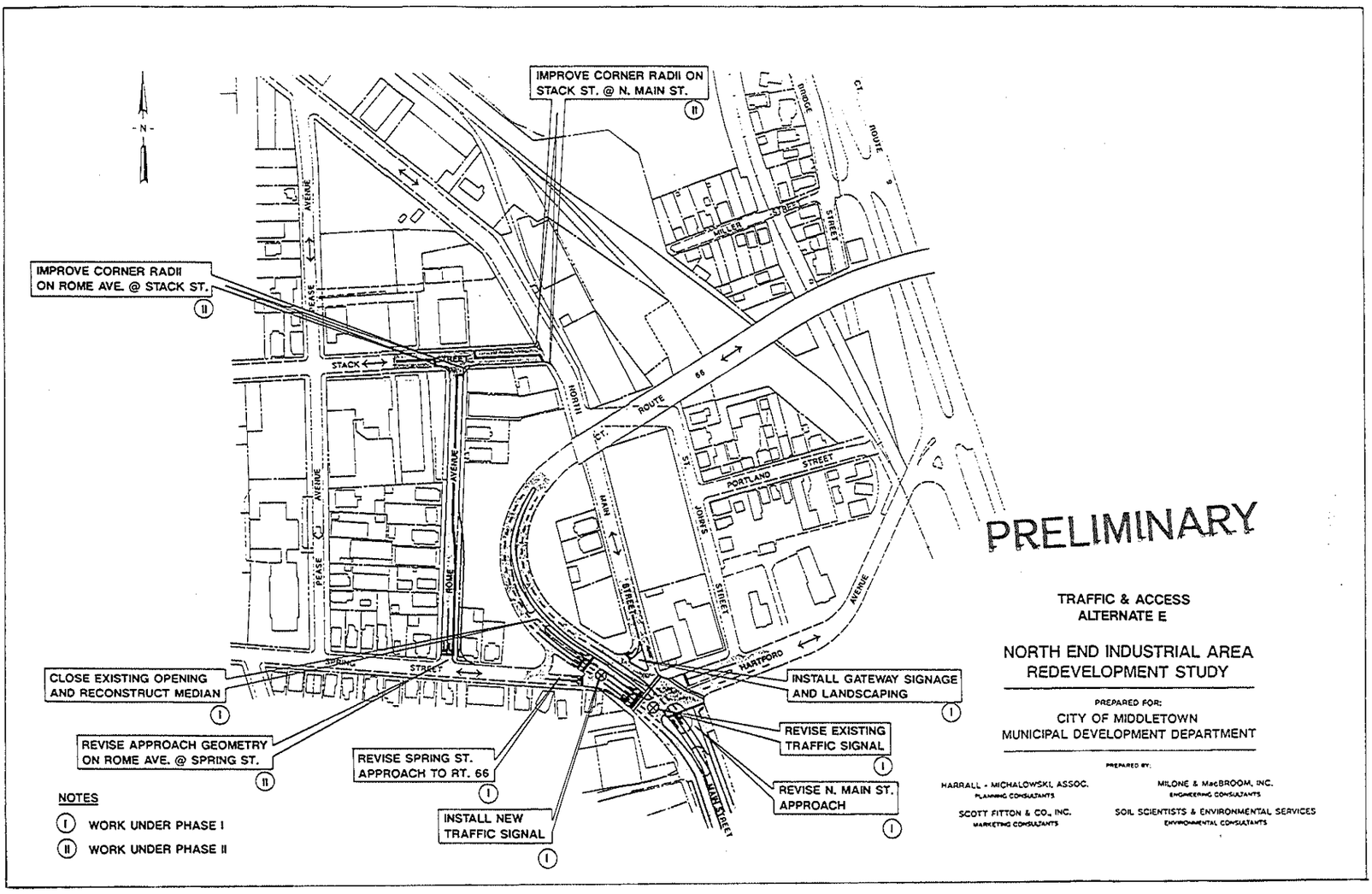
IMPROVE CORNER RADII ON STACK ST. @ N. MAIN ST.
II
IMPROVE CORNER RADII ON ROME AVE. @ STACK ST.
II
CLOSE EXISTING OPENING AND RECONSTRUCT MEDIAN
I
REVISE APPROACH GEOMETRY ON ROME AVE. @ SPRING ST.
II
REVISE SPRING ST. APPROACH TO RT. 66
I
INSTALL NEW TRAFFIC SIGNAL
I
INSTALL GATEWAY SIGNAGE AND LANDSCAPING
I
REVISE EXISTING TRAFFIC SIGNAL
I
REVISE N. MAIN ST. APPROACH
I
NOTES
I WORK UNDER PHASE I
II WORK UNDER PHASE II
PRELIMINARY
TRAFFIC & ACCESS
ALTERNATE E
NORTH END INDUSTRIAL AREA
REDEVELOPMENT STUDY
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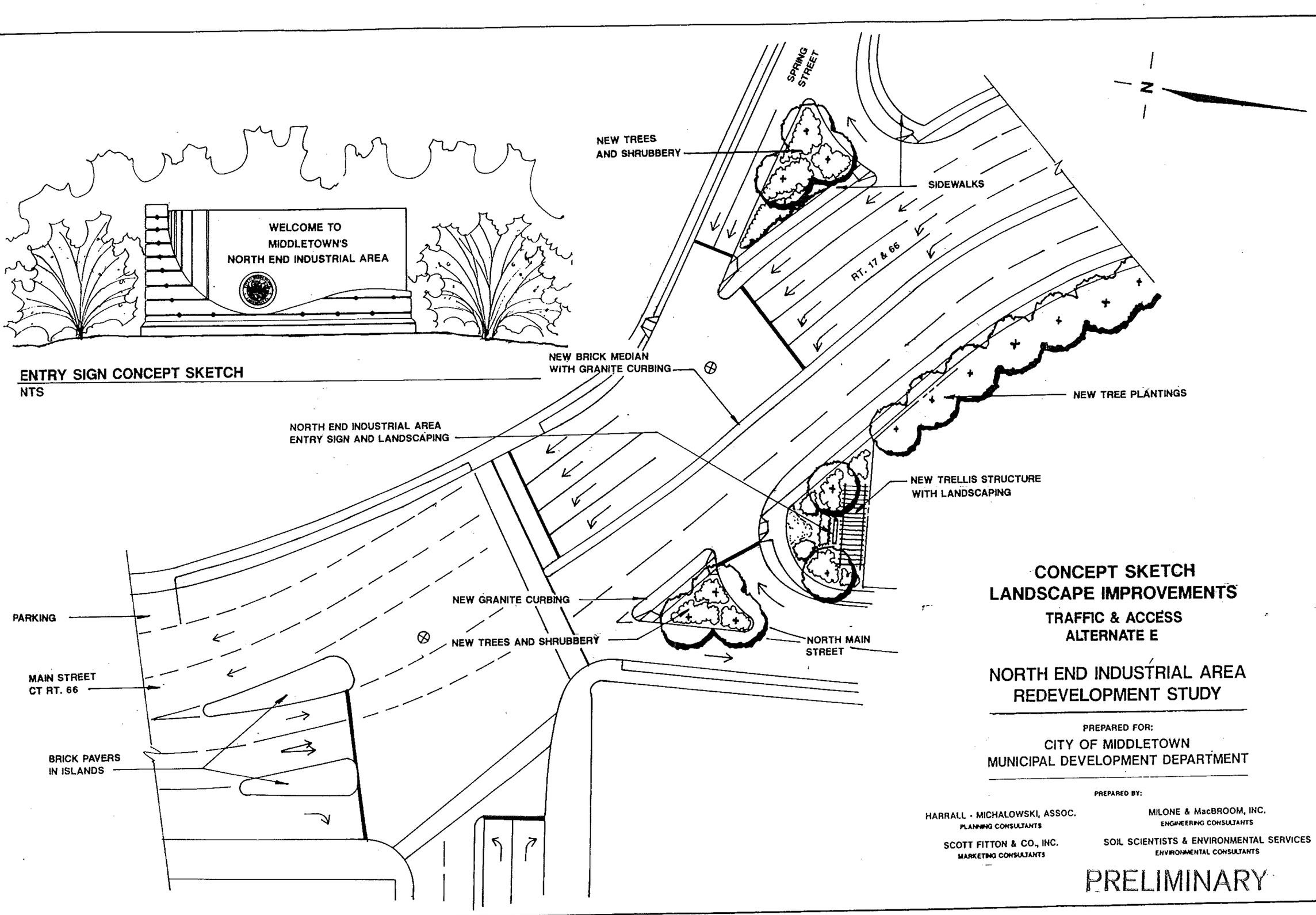
ENTRY SIGN CONCEPT SKETCH
NTS



CONCEPT SKETCH
LANDSCAPE IMPROVEMENTS
TRAFFIC & ACCESS
ALTERNATE E

NORTH END INDUSTRIAL AREA REDEVELOPMENT STUDY

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PRELIMINARY

Phase II calls for the design and construction on several of the existing roadways within the North End Industrial Area. These improvements include minor widenings on Rome Avenue, corner radii improvements at Rome Avenue and Stack, and Stack Street and North Main Street, along with access improvements to the development parcels.

Using adjusted unit prices for similar type construction projects it was estimated that the improvements for Alternate "E", could cost a total of $595,000, including engineering and design fees and a 15% contingency on construction. Approximately $151,000 of these costs would be expended in Phase I, with the remaining $80,000 to be expended in Phase II. These figures do not include property acquisition cost (if any).

Using the same adjusted unit prices, estimates of probable construction costs were also developed for Alternates A, B, C & D. Alternate "A" was estimated at approximately $1,912,000, "B" was $463,000, "C" was $304,000 and "D" was $536,000. Each alternate also had various levels of property acquisition impacts and costs, generally proportional to the total project cost.

In addition to providing improved vehicular access and egress, to the North End Industrial Area, to enhance the visual characteristics effort was made to improve the landscaping and signage to the area. A "Concept Sketch Landscaping Improvements" plan of the suggested landscape treatment and gateway signing was developed for Alternate "E" and is included herewith.