

Final Report



Town of Branford, Connecticut

Town-wide Transportation Study and Town Green Parking & Circulation Study

November 20, 2006



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- 2006 & 2025 Average Daily Bi-Directional Traffic Volumes
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- Accident Analysis
- Evacuation Routes

I. INTRODUCTION

Earth Tech, Inc. was retained to conduct Town-wide Transportation Study and Town Green Parking and Circulation Study by the Town of Branford.

Town-wide Transportation Study covered the road network for the Town of Branford. The intent of the Town-wide Transportation Study was to form a backdrop for a portion of the ongoing update of the Plan of Conservation and Development currently underway in Branford. This segment of the report will deal with issues on a Town-wide basis and discuss specific finding and how they relate to overall planning issues in Branford

Town Green Parking and Circulation Study is a more site specific effort for the area bounded by Main Street, South Main Street and Montowese Ave. This area is the historic Town Green for Branford and contains Town Hall and several churches. The intent of this effort is to analyze options available to the Town in considering enhancements to the Green. Earth Tech's role in this effort was to evaluate traffic and parking conditions and to provide guidance and comment to the Yale Urban Design Center which has been retained by the Town to make specific recommendations for the Green area.

This report summarizes the findings of our efforts. Sections following this report will deal separately with the Town-Wide Study and Town Green Parking and Circulation Study efforts. They are combined in one document to facilitate review and recognize that data gathered for the Town-wide Study supported the latter effort.



Figure 1 – Town of Branford

II. SCOPE OF THE STUDIES

The Town of Branford requested two separate scopes for the development of this effort. Following are summaries of the final project scopes for the Town-Wide Study and Town Green Analysis.

- **Town-wide Transportation Study**

The scope developed for this portion of our work involved the following main task areas:

Task 1 – Prepare baseline traffic-related data and displays for public meetings to include major roadway volumes, Volume/capacity ratios, evacuation routes, high accident locations and location of programmed improvements.

Traffic Safety data was collected from police Records and ConnDOT statistics.

Town Road Classifications were reviewed and developed. Analysis was preformed on Collectors and Arterials

Available Daily Traffic volumes were shown on the base roadway map. LOS (Level of Service) ratings were developed for the Town Road System based on available Traffic Data and Projected Volumes obtained through the South Central Council of Governments. For each instance probable LOS ratings will be developed for differing levels of Daily Traffic.

Information on evacuation routes and programmed improvements were obtained.

Task 2 – Conduct Public Meetings to solicit input on priorities and plan content.

Several Public Meetings were conducted to discuss the Town wide study and solicit input for the effort. These included a general informational meeting and group meetings with interested stakeholders.

Task 3 & 4 – Final Work Plan and Analysis.

Given the input received from the public a final scope was developed and analysis of the identified issues undertaken. This involved a macro approach first of all. The LOS, Safety and Congestion patterns were reviewed for both the 2006 year and 2025 Planning horizon. This effort looked at patterns and changes in patterns which were apparent given the development patterns in Branford and Planned improvements

Secondly, individual safety related and congestion corridors were reviewed and specific comments provided for improvements. This process involved review of the location by senior level staff and observation of conditions. Given the available time for this activity this was a scanning effort.

Task 5 – Draft Report, Task 6 – Review Meeting, Task 7 – Final Report

These tasks involve the development of a formal report of findings and the public outreach presenting these findings.

The following figure provides the envisioned schedule for this effort.

ID	Task Name	Start	Finish	Duration	2006										
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov		
1	Data Collection	3/15/2006	5/1/2006	34d	[Gantt bar from Mar to May]										
2	Public Meetings	4/3/2006	6/1/2006	44d	[Gantt bar from Apr to Jun]										
3	Work Plan	4/20/2006	5/31/2006	30d	[Gantt bar from Apr to May]										
4	Analysis	5/1/2006	9/29/2006	110d	[Gantt bar from May to Sep]										
5	Draft Report	7/3/2006	8/31/2006	44d	[Gantt bar from Jul to Aug]										
6	Review Meetings	9/1/2006	9/29/2006	21d	[Gantt bar in Sep]										
7	Final Report	10/2/2006	11/2/2006	24d	[Gantt bar in Oct/Nov]										

Figure 2 -Town-wide Study Schedule

• **Town Green Parking and Circulation Study**

This effort was a joint undertaking lead by The Yale Urban Design Group.

The scope used for this portion of the project was as follows:

Task 1 – Data Collection

- Traffic Data will be collected from available data at ConnDOT, Regional Agencies and the Town.
- Available Aerial Photos will be provided by the Town from their current survey or recent Homeland Security Photos available from ConnDOT whichever is more recent and accurate.
- Assessors mapping for the defined project area (see below).
- Assessors lot and block data including building size and use for each lot in the project area. Information to be provided digitally in Excel spreadsheet format.
- Build-out uses or re-uses for the project area by lot with areas provided.
- Accident histories for at least three years for the streets and public areas in the project area.
- For purposes of this study we recommend the project area be defined as including public and private areas within 600 ft walking distance of the Town Green. It is known that this limit is the maximum practical distance that pedestrians will walk when using a downtown area.
- Previous plans and concept studies to be provided by the Town. (Parking Demand and Town Center Revitalization Review Board Reports)

Task 2 – Analysis

- Using the aerial photos, inventory the project area and determine parking supply by Assessors Block in the project area.
- Inventory on and off-street parking supply for parking durational limits.
- Compute Parking supply of long-term, short-term, on-street, off-street public and off-street private spaces.
- Using the spreadsheet provided by the Assessor and areas of building in each lot we will develop Parking Demand for each Lot based on Parking Generation information from ITE and the Eno Foundation.
- Develop a parking Surplus/Deficit analysis by Block.
- Develop projected traffic volumes for project area from available data.
- Assess accident histories for project area.
- Identify potential areas of improvement.
 - Traffic Related
 - Parking Operations
 - Parking Management
 - Pedestrian amenities

Task 3 – Coordination, Task 4 – Preliminary Plans and Recommendations

- Using aerial photos for the project area as provided by the Town Earth recommended alternatives were developed
- Develop recommendations for parking management plans to efficiently use available supply.

Task 5 & 6 – Public Comment, Review Period, and Concept Refinement

- Earth Tech will attend review meetings as requested to receive comments on the study findings and recommendations
- Following the public comment period we will meet with Town Staff and Planning consultant to determine if conceptual plans require revision or refinement.
- Develop Engineers estimate of probable cost for traffic and Parking elements of the revised plan.
- Review final plan with Town Staff.

Task 7 – Prepare Final Plan Report

- Prepare and submit 10 copies of the final report
- Furnish report in word format.
- Furnish Schematic Plans in either AutoCAD, or Bentley MicroStation format.
- Furnish Parking analysis spreadsheets in Excel Format.

The envisioned schedule for this effort is presented below:

ID	Task Name	Start	Finish	Duration	2006										
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov		
1	Data Collection	3/15/2006	5/1/2006	34d	[Blue bar spanning Mar 15 to May 1]										
2	Analysis	4/3/2006	6/1/2006	44d	[Blue bar spanning Apr 3 to Jun 1]										
3	Coordination	6/1/2006	6/30/2006	22d	[Blue bar spanning Jun 1 to Jun 30]										
4	Preliminary Plans	6/1/2006	9/29/2006	87d	[Blue bar spanning Jun 1 to Sep 29]										
5	Public Comment	9/1/2006	9/29/2006	21d	[Blue bar spanning Sep 1 to Sep 29]										
6	Refinement	10/2/2006	11/1/2006	23d	[Blue bar spanning Oct 2 to Nov 1]										
7	Final Plan	11/1/2006	12/1/2006	23d	[Blue bar spanning Nov 1 to Dec 1]										

Figure 3 - Town Green Parking and Circulation Study

III. DATA COLLECTION

Average Daily Traffic

Average daily traffic (ADT) volumes were collected from the Traffic Count Locator Program (TCLP) provided by the Connecticut Department of Transportation. All stations located in Branford, CT were identified and the corresponding volumes were placed on the figures in the appropriate location.

Several Traffic Impact Studies were provided to Earth Tech, Inc. by the town of Branford. These studies were reviewed and additional volumes were identified that were not available as part of the TCLP. In most instances, peak hour turning movements were available within the studies. It was assumed that 10% of the ADT occurred during the highest peak hour, so ADT volumes could be extrapolated from the peak hour turning movement counts.

In addition to available State and Town Counts the Branford Police Department was provided with additional locations and conducted Automatic Traffic Counter Studies which supplemented available data.

The South Central Council of Governments provided projected volumes for the year 2025 for the Branford Highway System. This data was co-located on the Traffic volume base map. Where 2025 projections were not available Earth Tech developed potential growth and estimated planning year volumes.

Included with this report is a separate large scale map that provides count locations and volumes.

Accident Data

Accident data was provided from the Traffic Accident Viewing System (TAVS) provided by CT DOT and from data provided by the town of Branford.

The TAVS summarizes accident data by state route and mile marker. The most recent three year data was used for this project. Accident data for each state route within the town of Branford was printed out and summarized by intersections and by links.

The most recent three year town accident data was sorted and all data along any state route was removed to prevent double counting between the state and town data. State data was used to calculate average annual crash rates along links and at intersections.

IV. ANALYSIS

- **Methodology**

Town-wide Transportation Study

Utilizing aerial photogrammetry and ConnDOT TRU maps, a base roadway plan was prepared. Next, latest daily traffic estimates as published by the traffic statistics section of the department were plotted on this base map. Available traffic data provided by the Town was also collected and incorporated in the study.

Level of Service

Level of service was calculated for town roadways based on these traffic volumes. The Highway Capacity Software (HCS+) was used to determine roadway levels of service. The two lane highway capacity analysis was used for all town roadways. Each roadway was assigned a level of service based on the peak hour traffic volumes.

The following general assumptions were used in the capacity analysis:

- Shoulder width = 6',
- Lane width = 12',
- Class II Highway,
- Rolling terrain,
- Directional Split = 55%,
- Peak hour factor = 0.88,
- 2% trucks and buses,
- 0% recreational vehicles,
- 100% no passing zones,
- 8 access points per mile,
- Base free flow speed = 45.0 MPH.

Based on these assumptions, a volume range was determined for each level of service. Each roadway was then categorized by the appropriate level of service.

Based on these inputs, the following is a range of volumes for each level of service:

<u>LOS</u>	<u>Average Daily Volume</u>
A	< 1,430
B	1,431-2,940
C	2,941-7,850
D	7,851-15,850
E	15,851-26,650
F	>26,650

Earth Tech coded the traffic volume base map by color to detect patterns in congestion

Each level of service is color coded on the figures for 2006 and 2025 included in the rear of this report.

Accident Rate Analysis

As stated earlier, accident records from ConnDOT and the Town were obtained and collated based on accident rates. Accident locations were categorized into “low”, “medium”, and “high” for both intersections and roadway links. The following criteria were used to display any problem areas on the figure:

<u>Links</u>	<u>Annual Accidents per Mile</u>	<u>Intersections</u>	<u>Accidents/Year</u>
Low	10-33	Low	5-10
Medium	34-66	Medium	10-15
High	>66	High	>15

The summary figure for the safety analysis is provided in the rear of this report. All locations below the “low” range are not shown on the accident figure.

Town Green Parking and Circulation Study

For the Town Green Study more detailed information was needed specifically relevant to this site. A major goal of this study was to assess parking availability in the area of the Town Green. Earth Tech requested data on land use from the Town Assessor within a project area 600 feet surrounding the Town Hall area. This was chosen as it is know that parking decisions are largely made to bring the motorist within 600 feet of her destination. This resulted in a project area being determined which included those parcels noted in the figure below:

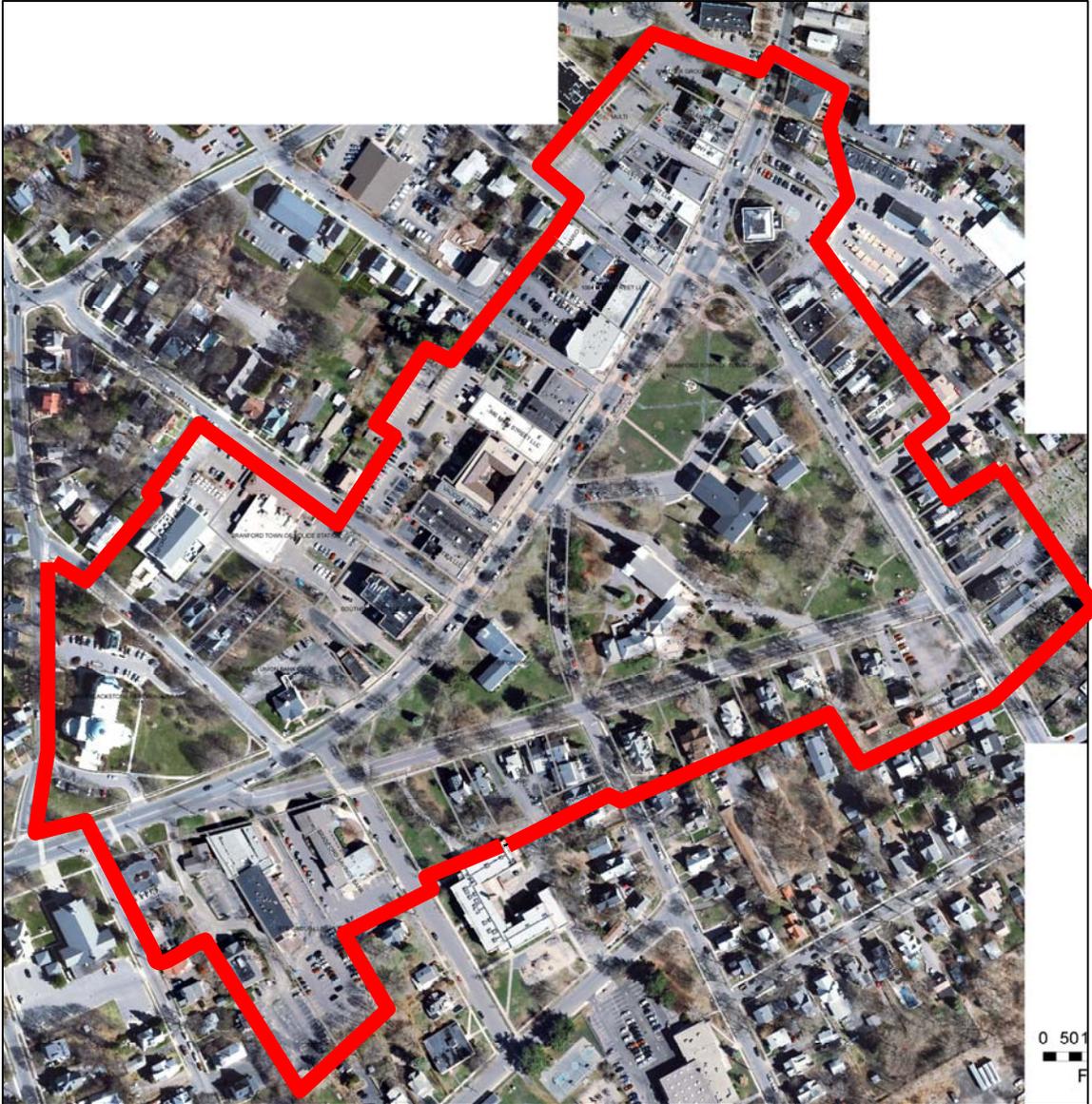


Figure 4 - Town Green Project Area

Our data collection program divided the project area into lots based on town tax records and information was developed for each parcel

A detailed spreadsheet was prepared for the project area to facilitate data analysis

The project parcels included are depicted in the following figure:

Traffic Data was updated by means of Turning Movement Counts performed by the South Central Council of Governments at the Town's request. Data was collected at the corners of the Green Triangle for the AM and PM peak periods on a typical weekday.

For Safety data the information collected and summarized for the Town-wide study was excerpted for this area in more detail.

- **Analysis Results**

Town-wide Transportation Study

Branford is a community which is significantly impacted in a traffic perspective by its proximity to I-95. Commuting patterns and volume projections show that increasingly levels of congestion in Branford will impact more areas. Our analysis albeit very basic in nature revealed this issue. The figures below present the summary Level of Service analysis for 2006 and the 2025 planning year.

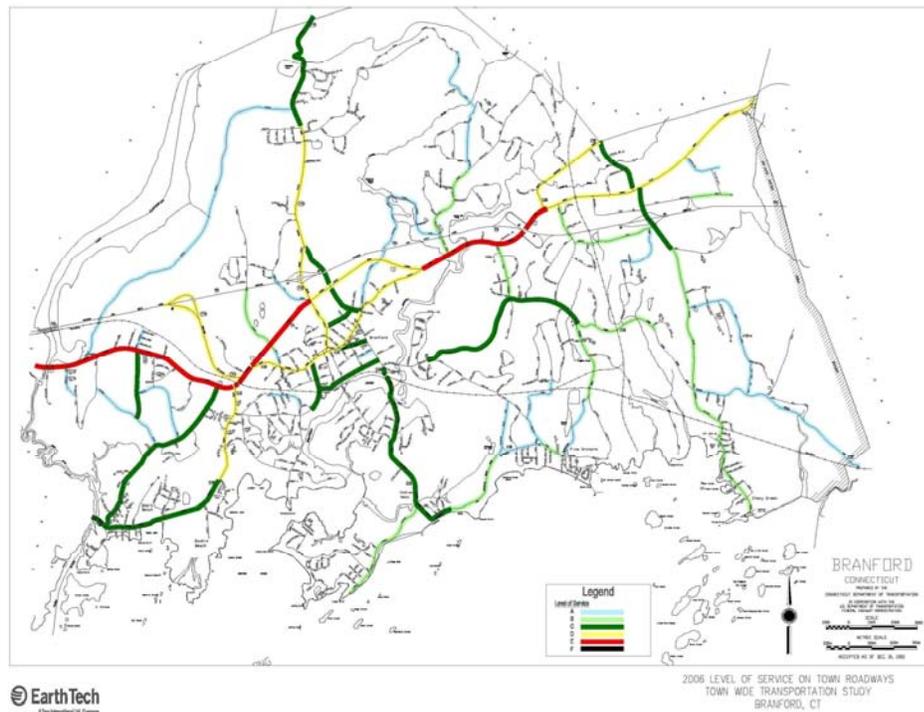


Figure 6 - Congestion Levels 2006

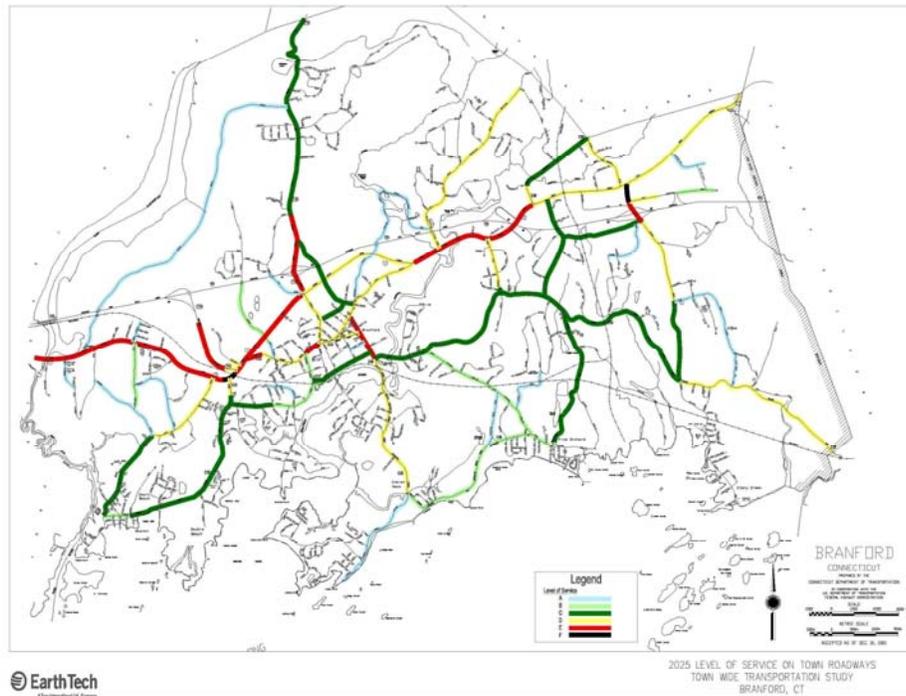


Figure 7 - Congestion Levels 2025

Figures 5 and 6 when compared reveal that over time State Highways and routes close to these roads will exhibit lower Levels of Service ratings and thus more congestion. Branford is a fairly well developed community and it is not anticipated that this effect could not be caused by changes in development in the community. It must be remembered that land use and development causes traffic not roadways. It is therefore our observation that this increase in congestion is caused more by external traffic avoiding congestion on I-95. Transportation models such as that used by SCCOG assign traffic to corridors based on capacity and as congestion on I-95 is anticipated by the model volumes are moved to the adjacent routes. Recommendations to address this issue will be presented in the following section.

Safety –

Accident issues in Branford have been documented at locations which we anticipated. Higher volumes and congestion are often reflected by increased accident history. The analysis which was performed in this study did not address specific situations but rather rated locations by accident rates and numbers. Accident levels and spot locations are shown on Figure 7.

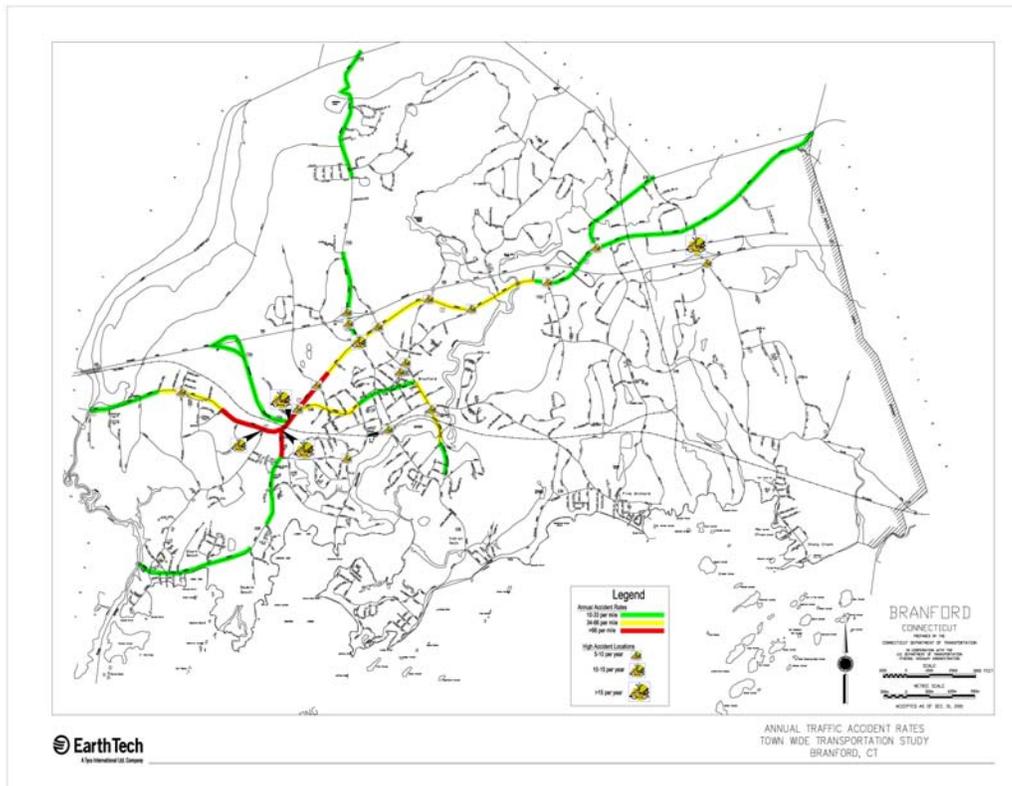


Figure 8 - Accident Analysis

Red and Yellow rated roadway segments warrant additional investigation. Intersections with high accident numbers are also largely confined to high volume area. Location analysis results

Earth Tech undertook to review specific locations which fit one of several criteria. These criteria were:

1. The location was a documented high accident location
2. The intersection was discussed at Public Outreach meetings, or
3. The location was on the Police Department “Top 10” list provided to us.

Earth Tech visited each intersection or location and observed conditions and traffic operations. The following discussions provide initial observations for these locations. In many cases we have recommended additional study and evaluation be performed as the scope of this study did not provide sufficient resources to address specifics.

- East Main Street at Leetes Island Road

This intersection was on the Police Top 10. Comments involved questions relating to signal timing which when observed appeared to have been accomplished. This is a heavily trafficked area. The slight skew of the intersection leads to vehicles traveling over centerlines when turning. This intersection should be reviewed for collision history and traffic counts obtained.

Better tracking movements could be obtained by tracking pavement markings within the intersections.

- Business Park Drive at East Industrial Road and Leetes Island Road

Access Management needs to be implemented at this location. Immediate improvements which should be considered are the restriction of the Driveway to the Dunkin Donuts on Leetes Island Road to right turning traffic entering and exiting. This would require northbound traffic on Leetes Island Road to turn onto Business Park Drive to access this facility. The Dunkin Donuts attracts pedestrians from the shopping center on the northeast corner of this intersection yet there is no crosswalk provided at this location. In fact the pedestrian actuation of the signal is located on the southern half of the intersection. Other measures to be considered would include analysis of collision history, better lane use signing and traffic volume studies to retime traffic signals.

- Leetes Island Road at I-95 Ramps and Gould Lane

This area involves some complex lane use and signalization. In general the location could be benefited by enhanced lane use signing and perhaps physical changes. A more detailed study is warranted here. As one of the high accident locations a safety issue exists. Traditional traffic engineering evaluation of collision history, volumes and congestion is recommended.

- Gould Lane and Featherbed Lane

This intersection was noted in Police Department files as problematic. When reviewed by the Police commission the location was not deemed serious the benefit cost to improve the location was questioned. This location is not exhibiting a high accident history but does have sight distance issues for traffic approaching from the south. Conversion to a simple T intersection would reduce conflicts and reduce speed of traffic entering Gould Lane.

- East Main Street at North Branford Road

North Branford Road serves as a connection between Route 80 and Route 1. Thus it subject to high volume turning traffic. This intersection could be improved by consideration of an advance left turn lane and phase in the traffic signal. More Access Management of abutting driveways is warranted. While an informal bypass lane is provided now a dedicated lane should be considered.

- East Main Street at North Main Street

This intersection is the gateway to Downtown Branford from the east. The intersection is skewed and would benefit from a more direct alignment. Further the adjacent gas stations and commercial drives create additional conflicts

This intersection could be relocated to the west and access management principals employed to provide appropriate access to existing development. This change would require right of way acquisition.

- East Main Street at Sylvia Street

This intersection was noted for accident history and appears to be a situation complicated by adjacent development, distance to the adjacent signalized intersection, probable vehicle queuing on East Main Street. More detailed review of the traffic conditions at this location should be undertaken. Left turns from Sylvia Street during peak traffic periods are probably very difficult.

- North Main Street at Chestnut Street

This location presents a significant sight distance restriction to the west on North Main Street for traffic entering from the north. This should be improved by clearing of vegetation. Should the issues continue at this location, a more detailed evaluation by taking traffic counts and collision histories would be warranted.

- North Main Street at Ivy Street

Observation of this intersection did not reveal obvious issues. The aerial photo showed some extended queuing on Ivy Street. This location could benefit from further study of collision history and volumes to see if changes in lane use or operations on North Main Street would be warranted.

- Cedar Street at North Ivy Street

This location is a skewed intersection with North Ivy Street intersecting Cedar at about a 30 degree angle. Traffic speeds on Cedar Street at this intersection appear elevated. The intersection angle makes observing traffic northbound on Cedar from North Ivy difficult. Geometric changes at this location are not easily implemented due to grades and development. Improved signing should be considered and the location monitored for accident history.

- Cedar Street at Interstate 95 Ramps

These intersections were recently reconstructed and as such the accident history which placed them on the list for review may have been dated. However, observations of the location noted that improved lane use signing may be warranted. Southbound traffic on Cedar Street could benefit from additional (possibly overhead) that advises of appropriate lanes to use to access I-95 NB and Downtown Branford.

- Todds Hill Road at Parish Farm Road

This intersection is a Y type intersection with approaches that connect to arteries. The intersection would benefit from channelization. Detailed counts should be developed for this location in order to determine the proper island placement. The intersection is expansive and conducive to high speed turns which could be one of the issues that placed it on the accident list.

- Cherry Hill Road at North Main Street

This location did not exhibit obvious issues when observed. Detailed counts should be obtained and a collision history reviewed. There may be the potential for changed lane use and some signalization changes.

- West Main Street, Short Beach Road, North Main Street, Branford Connector, and Main Street

This area of Route 1 is proposed for significant change should the overall changes involving development of a full access Interchange 53 with I-95. We have reviewed the proposed changes and concur that they will resolve significant congestion issues here.

- Alps Road at West Main Street

This signalized intersection is complicated by commercial driveways too close to the intersection. Access points to businesses to the north and east create additional conflicts. For the fast food restaurant on the south east corner the drive on West Main Street should be modified to a right turn only operation. Traffic from this restaurant could easily use Alps road to access Route 1 westbound or enter the Restaurant from Route 1 Eastbound. Resolving issues to the north will be more complex but could involve sharing access to adjacent businesses.

- West Main Street at Jefferson Road and Mona Ave

This signalized intersection presents an offset intersection situation which always reduces overall capacity. Mona Ave serves a residential community. Jefferson Road has commercial development. The traffic signal at this location is older and probably approaching the end of its useful life. The intersection should be studied for improved signal operations. The crosswalk in the middle of the intersection presents issues as it does not terminate at sidewalks or pedestrian landings. This could complicate the ability to pedestrian to use this crossing particularly in winter conditions.

- Burban Drive at Alps Road

This location was on the Police concern list. Alps Road curves to the east as it passes Burban Drive and in the report of the Police Commission it was recommended that curve signs be installed on Alps Road. We concur with that recommendation. A stop bar should be installed on Burban Road.

- Alps Road

In the public outreach meetings held for this project there were a number of residents that indicated the need for sidewalks on Alps Road. We observed a number of pedestrians on the road during our review of the area. Alps Road is a collector and as such carries higher volumes. Due to grades and adjacent residences the construction of sidewalks will be a significant engineering and construction effort. Further studies are warranted establish need more definitively and assess impacts.

- Clark Ave area at Court Street

This location was placed on our review list due to recommendations for development of a one way operation or parking restrictions on Clark Ave. Our review confirmed that Clark Ave is narrow and not sufficient width for two-way traffic and parking. While our time in this neighborhood was limited we did not observe a significant problem. This appeared to be a close knit community and the drivers mostly very familiar with the roads. We would be hesitant to recommend significant changes without future study.

- Short Beach Road at Double Beach Road

This intersection has been identified as a potential traffic signal installation. The intersection has limited sight distance to the east from Double Beach Road. This was not identified as a high accident location. This location should have further studies including accident history, Warrant Studies and review for potential to improve intersection sight distances.

- Main Street at Lincoln Ave and Bradley Street

This location appeared on the high accident list. The intersection is an offset skewed intersection of Bradley and Lincoln with Main Street. Geometric revisions to improve alignment of Lincoln and Bradley would be beneficial. This concept would also allow the location to be condensed simplifying pedestrian crossings.

These locations were reviewed in an isolated context. That is they appeared in our work program for a specific reason. Public comment, Accident History or Police Concerns were the reasons which brought them to the attention of the study.

Town Green Parking and Circulation Study

This section of the report presents the analysis and findings of the Town Green area.

For this effort Earth Tech worked with The Yale School of Urban Design and the community to determine options and opportunities for improving and upgrading the Historic Town Green Area.

This area is bordered by Main Street, South Main Street and Montowese Ave. Infact we believe for traffic purposes the area extends along Main Street from Kirkham to Ivy Street and along Montowese Ave south to Pine Orchard Road. The reason for this concept is that conditions along these routes contribute to and set the stage for the community orientation in the Town Green Area. Along these routes we want encourage motorists to control speed and adjust to the retail and pedestrian intense area of the Town Green.

A review of the data collected for the Town Green area revealed several facts about traffic conditions that were central to development of planning for this area.

Main Street from Kirkham to the Town Green Area transitions from Retail strip centers to an older historic area with a mix of residential and commercial uses. Main Street is a wider facility west of the Town Green and considerations for a Road Diet are in order. This is a means of Traffic Calming and access Management which would involve the introduction of a Center Median at least 8 feet in width.

Adjustment of parking and pedestrian crossings would allow this segment of the approach to the Town Green area to set a context and slow down approaching traffic. This would also reduce the opportunity for u-turns now occasionally made in this area due to its width.



Figure 9 - U-Turn in Progress

The remainder of Main Street to Ivy Street was the recipient of significant streetscape improvements which enhance pedestrian use and provide wide sidewalks and a comfortable walking environment. We have noted several situations which could improve these conditions and presented later in this section.

South Main Street is the southern border to the Town Green and terminates at Montowese Ave. which is the easterly border of the Town Green. Development on South Main Street is Residential and commercial in nature. Buildings bordering the Green are historic in nature and consistent with the context. This is a designated scenic highway.

Montowese Ave. is the eastern border of the Town Green and the development on this road is more commercial in nature. Most of this development is in older smaller structures or converted residences. We are recommending the extension of the area of concern to Pine Acres Road since we wish to, as with Main Street, introduce traffic calming and speed control for vehicles entering the Town Green Area.

Parking –

The central focus of the Town Green Transportation Analysis (other than traffic volumes and safety) was to assess and deal with the question of parking. As noted earlier the project study area was established to encompass the maximum walking distance that retail downtown customers are comfortable using. This was selected as we recognized the Town Green functions with the downtown retail area and they are integral. The parking inventory of the area indicated some 1460 parking spaces were available within the area. A parking needs analysis in which the parking required to address the land use was performed. This analysis resulted in a determination that the number of required parking needed to serve the level of development was almost the same. The parking needs analysis was further broken down to determine the surplus or deficit of parking in each study parcel.

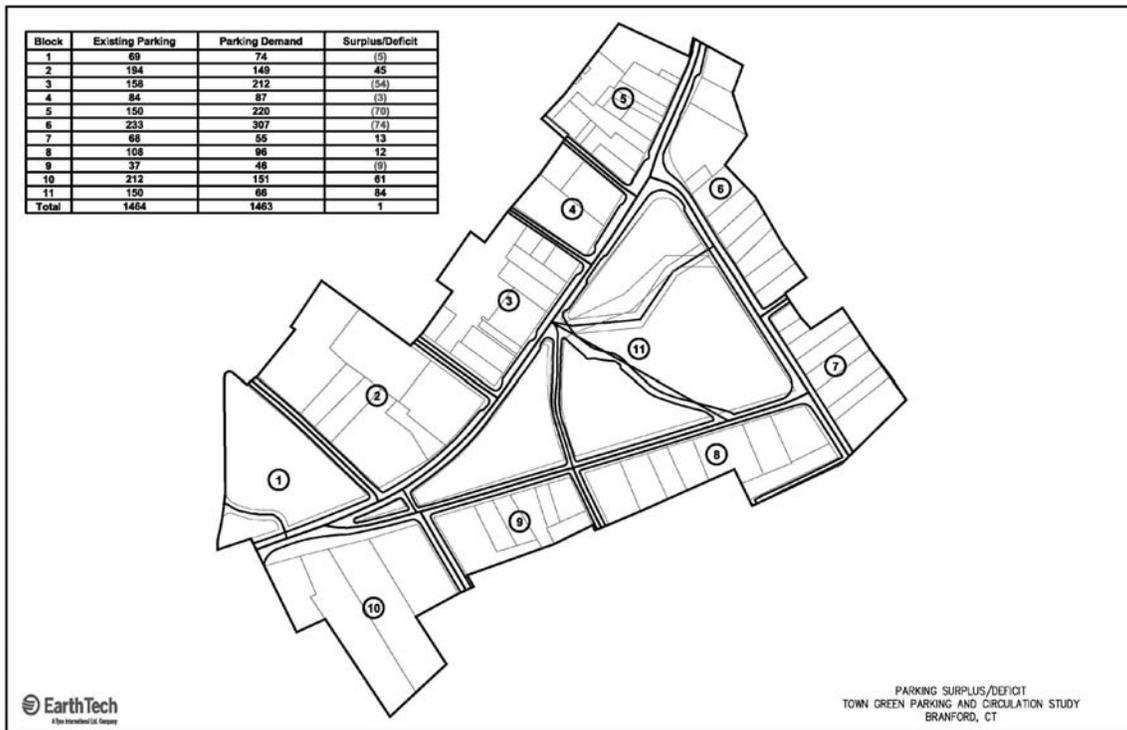


Figure 10 - Parking Surplus/Deficit

The need to maintain and hopefully improve parking in the Town Green Area became a central focus of the project analysis. The intersection of Main Street and South Main Street presented some difficult geometry and as such alternatives were sought to improve this area. The concept of possibly converting South Main Street to one way traffic

toward Montowese Ave was developed. If this concept is used the ability to develop angle on-street parking without impacting the Town Green area was developed.

Traffic Data was examined for the needed diversion of traffic which would occur if this one way area was implemented on South Main Street. Analysis indicated that acceptable Levels of service would be maintained. With this knowledge we advised Yale that the one way concept was not ruled out by traffic projections.

The Town Green Area Concept entered here by Yale.

V. RECOMMENDATIONS

• Town-wide Transportation Study

Branford is a community which experiences typical traffic and Transportation issues. Its proximity to New Haven and the I-95 corridor presents commutation pressures. The coming Q-Bridge construction sequence is seen as having potential to further introduce congestion within town roads.

Traffic congestion issues in Branford are fairly well concentrated in the 95 – Route 1 corridor. Predicted congestion levels in the year 2025 grow more than would be expected by local develop alone. That is because Branford is relatively fully developed and most new construction is redevelopment of existing structures. Limited additional commercial development is foreseen in the eastern section of Town near existing industrial development.

It is therefore important for Branford to adopt measures to maximize capacity on its arterials roads. This is called Access Management. The concept of Access Management is not new and is designed to reduce conflicts which are inherent on streets with many driveways and development. Access Management uses curb cut plans, signal spacing criteria and driveway spacing criteria.

Commercial development, strip malls and isolated commercial developments have imposed “sprawl” on some sections of East, North and West Main Streets, Leetes Island Road and some other sections.

Branford should adopt Access Management Regulations in its zoning code which would, among other things, facilitate:

1. Cross property driveway sharing,
2. Minimum driveway spacing criteria
3. Curb Cut Plans
4. Desirable Roadway Cross Sections

Funding should be sought to implement such programs.

Branford would benefit from periodic traffic engineering reviews of development on a more consistent basis as part of the Access Management Program. It is recommended that an on-call consultant be identified who would be routinely available to Town Staff or Boards. Smaller developments which are not routinely examined by traffic engineering studies can complicate traffic operations. Communities have in some areas required that all development traffic studies be performed by the Town’s on-call consultant with fees applied as part of the development fee.

The development of a full access interchange at Exit 53 of I-95 should be pursued. Development of the retail facilities envisioned as part of this proposal cannot be readily accommodated by the local road system (North Main Street).

It is recommended that the Town work with the South Central Council of Governments to refine modeling projections for the Town. Current 2025 projections show significant congestion build up. This analysis should be a constrained capacity analysis to clearly show the issues.

As regional congestion increases the Town should continue to work the ConnDOT to improve the Branford Station on Shoreline East. This facility will over time be come more important in serving the commuting needs of Branford residents and others.

Corridor Recommendations:

1. Main Street Corridor – It is recommended that Main Street from Kirkham to South Main Street be subjected to a “Road Diet” wherein a median is installed on Main Street to assist in reducing speeds facilitates pedestrian connections.
2. North Main Street Corridor – It is recommended that an access management study be undertake in this corridor. The goal will be to address signal spacing, curb cut plans and the desirable typical section for this highway. Development on this road is approaching congestion levels and action to preserve capacity while allowing development growth. The probable desirable cross section for this road is a three (3) lane section with 4 foot shoulders, 12 foot through lanes and a center dual turn lane of 14 feet.
3. Montowese Ave. Corridor – It is recommended that the following actions be implemented to facilitate traffic calming and development of a gateway to the Town Green. Starting at Pine Acres Road and proceeding northbound improvements are warranted. These could include:
 - a. Signalization and geometry changes at Pine Acres Road
 - b. Signalization and coordination with Pine Acres Road
 - c. Development of bulbouts and consideration of signalization of South Main Street.
 - d. Development of slow point and enhanced pedestrian crossing at Bradley and South Main Street connecting to Town Green.
4. Route 146 Main Street from North Main to Kirkham –The proposed gateway concept should be pursued. Development of the concept of access to Downtown Branford and transition to less intense retail and commercial use will benefit the Town Green area.



Figure 11 - Route 146 Corridor

Specific Intersection issues

Following are specific sketches of recommended actions developed during the course of this study. These are in addition to the special recommendations on the Town Green Area. For each location a concept sketch is provided of the location and actions are proposed. An approximate cost is provided. It should be noted that these recommendations are based on very limited study and need to be verified by more detailed traffic engineering analysis than was able to be undertaken in this limited study.

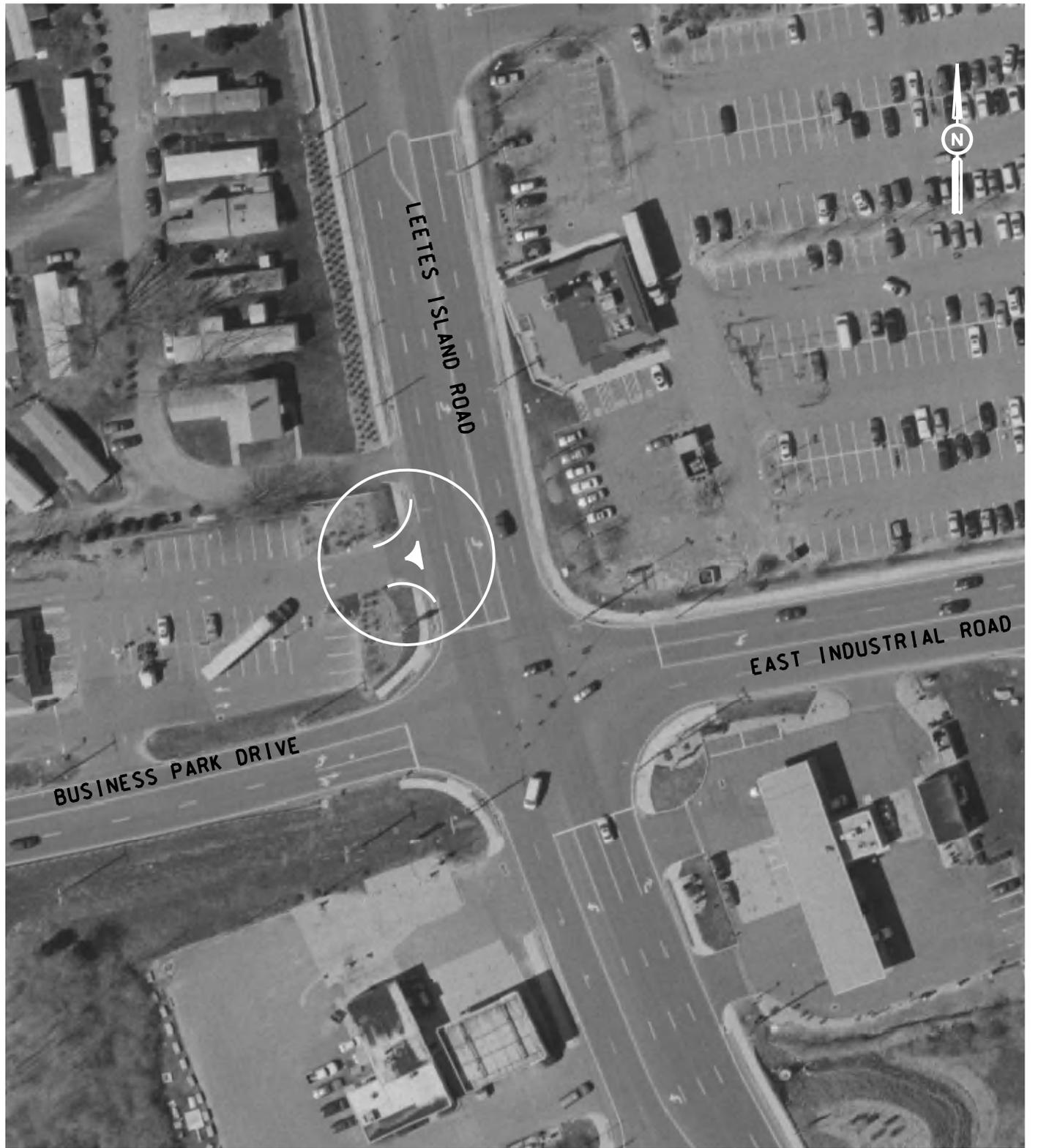
APPENDIX

A. SPECIFIC INTERSECTION RECOMMENDATIONS



SCALE = 1" = 80'

<p style="text-align: center;">RECOMMENDATIONS</p> <p>- INTERSECTION SHOULD BE REVIEWED FOR COLLISION HISTORY.</p>	<p style="text-align: center;">COST</p> <p style="text-align: center;">NEGLIGIBLE</p>	<p style="text-align: center;">TOWN OF BRANFORD TOWN WIDE TRAFFIC STUDY</p> <p style="text-align: center;">EAST MAIN STREET AT LEETES ISLAND ROAD</p>
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SCALE = 1" = 80'

RECOMMENDATIONS

- REVISE SIGNAL FOR PEDESTRIAN CROSSING
- RIGHT TURN IN AND OUT FROM DUNKIN DONUTS
- ANALYZE COLLISION HISTORY
- BETTER LANE USE SIGNING

COST

NEGLIGIBLE

TOWN OF BRANFORD

TOWN WIDE TRAFFIC STUDY

BUSINESS PARK DRIVE
AT EAST INDUSTRIAL ROAD
AND LEETES ISLAND ROAD



SCALE = 1" = 80'

<p style="text-align: center;">RECOMMENDATIONS</p> <ul style="list-style-type: none"> - COLLISION DIAGRAM - PEAK HOUR COUNTS - SIGNAL TIMING - ADDITIONAL LANE USE SIGNING 	<p style="text-align: center;">COST</p> <p style="text-align: center;">\$ 5.000</p>	<p style="text-align: center;">TOWN OF BRANFORD TOWN WIDE TRAFFIC STUDY</p> <p style="text-align: center;">INTERSTATE 95 N.B. RAMP AT LEETES ISLAND ROAD</p>
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SCALE = 1" = 80'

RECOMMENDATIONS

- LEFT TURN RESTRICTION SIGNING
- LANE USE SIGNING
- TRAILBLAZERS FOR PROPER ROUTE ACCESS DIRECTIONS

COST
NEGLIGIBLE

TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY

INTERSTATE 95 S.B. RAMP
AT LEETES ISLAND ROAD



SCALE = 1" = 80'

RECOMMENDATIONS

- POSSIBLE CONVERSION TO A SIMPLE 'T' INTERSECTION

COST

\$20,000

**TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY**

**GOULD LANE AT
FEATHERBED LANE**



SCALE = 1" = 80'

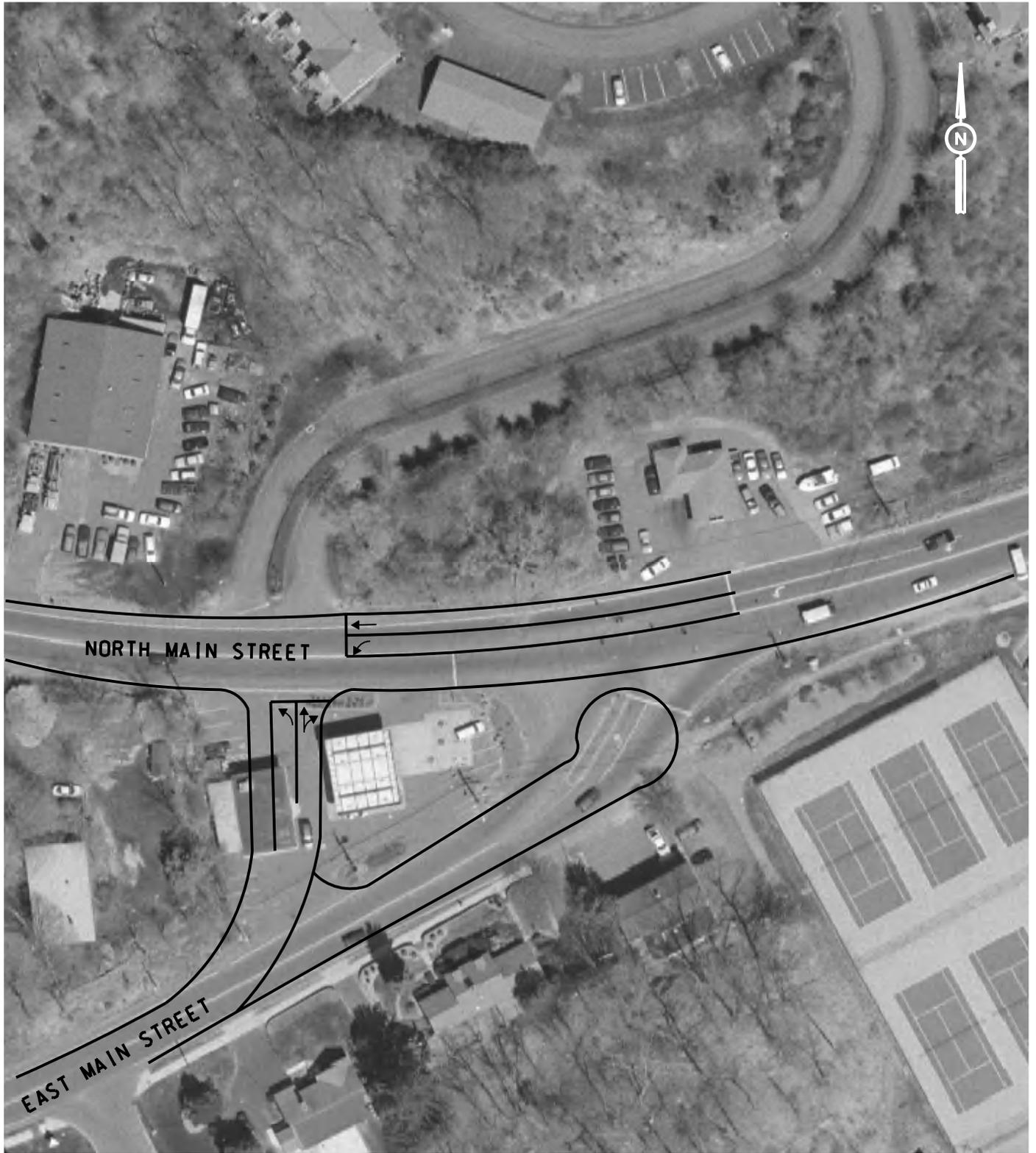
RECOMMENDATIONS

- ADD LEFT TURN LANE EASTBOUND
- ADD FORMAL BY-PASS AREA
- COLLISION DIAGRAM
- DETAILED COUNTS TO DETERMINE PROTECTED PERMISSIVE PHASING

COST
\$25,000

TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY

EAST MAIN STREET AT
NORTH BRANFORD ROAD



NORTH MAIN STREET

EAST MAIN STREET

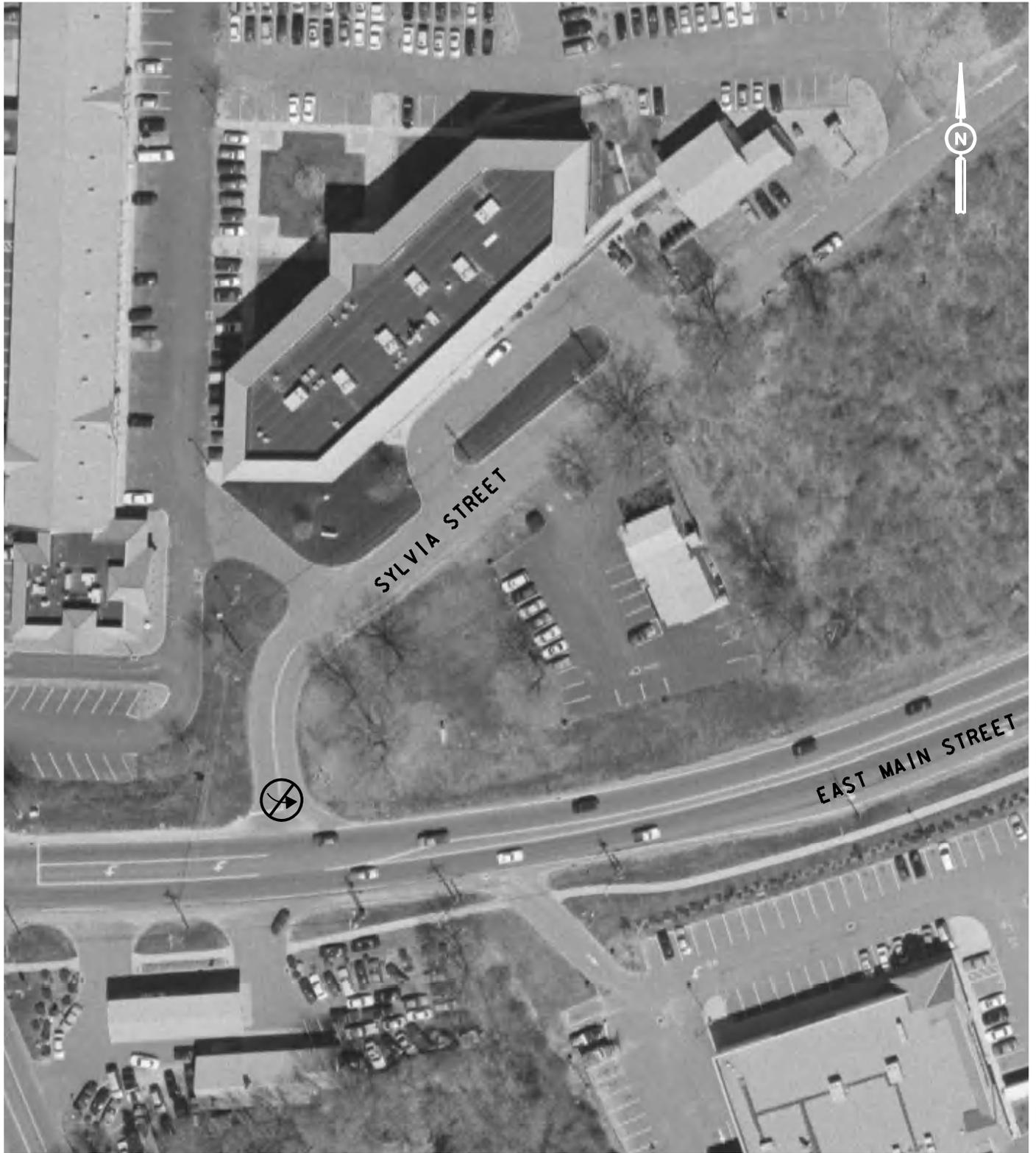
SCALE = 1" = 80'

RECOMMENDATIONS

- CREATE PERPENDICULAR INTERSECTION
- NEW SIGNALS

COST
\$250,000
+ ROW

TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY
EAST MAIN STREET AT
NORTH MAIN STREET



SCALE = 1" = 80'

RECOMMENDATIONS

- ACCESS MANAGEMENT
- CONNECTIONS TO ADJACENT MOTEL
- RESTRICT LEFT TURNS FROM SYLVIA

COST
NEGLIGIBLE

TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY

EAST MAIN STREET AT
SYLVIA STREET



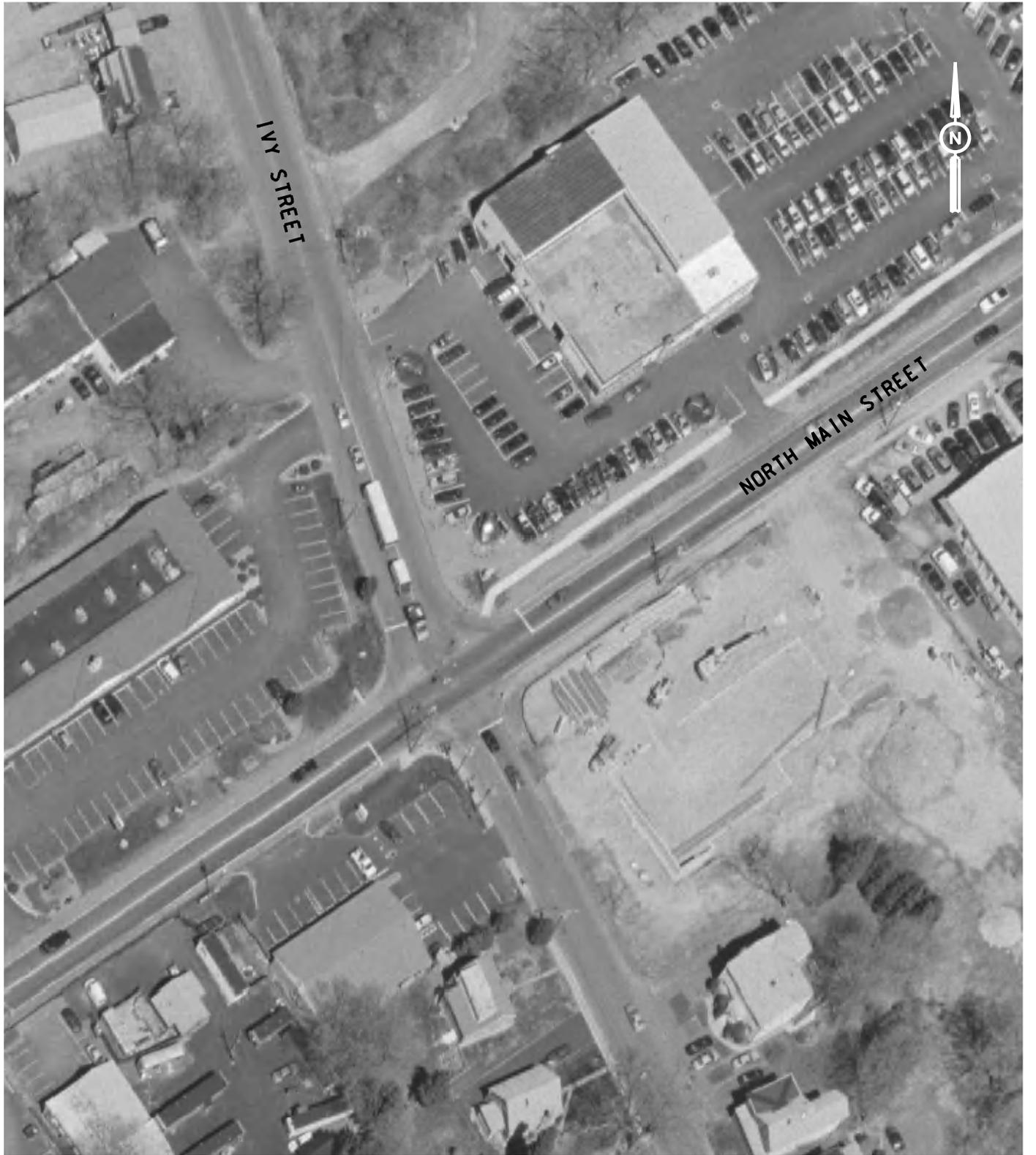
SCALE = 1" = 80'

RECOMMENDATIONS

- CHECK SIGHT DISTANCE IN THE NORTH-EAST QUADRANT OF THE INTERSECTION
- CLEAR BRUSH
- CHECK FOR SIGNAL WARRANT

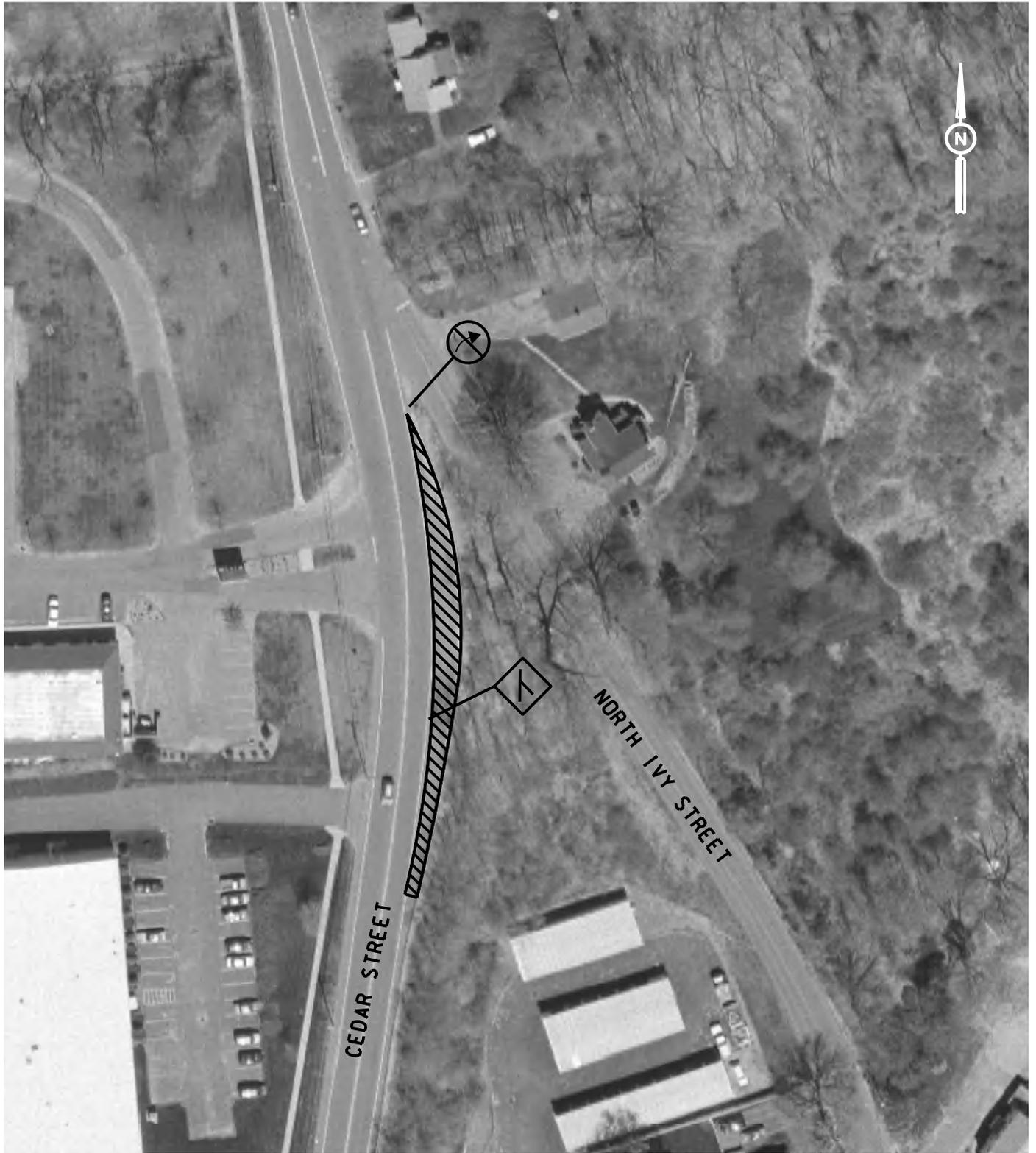
COST
 NEGLIGIBLE •
 \$150,000
 IF
 SIGNALIZED

TOWN OF BRANFORD
 TOWN WIDE TRAFFIC STUDY
 CHESTNUT STREET AT
 NORTH MAIN STREET



SCALE = 1" = 80'

<p>RECOMMENDATIONS - FURTHER STUDY OF COLLISION HISTORY AND LANE USE</p>	<p>COST NEGLIGIBLE</p>	<p>TOWN OF BRANFORD TOWN WIDE TRAFFIC STUDY IVY STREET AT NORTH MAIN STREET</p>
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SCALE = 1" = 80'

<p style="text-align: center;">RECOMMENDATIONS</p> <ul style="list-style-type: none"> - BETTER INTERSECTION WARNING SIGNING - REDUCE CEDAR STREET LANE WIDTH NEAR THE INTERSECTION - BETTER TURN RESTRICTION SIGNING 	<p style="text-align: center;">COST NEGLIGIBLE</p>	<p style="text-align: center;">TOWN OF BRANFORD TOWN WIDE TRAFFIC STUDY NORTH IVY STREET AT CEDAR STREET</p>
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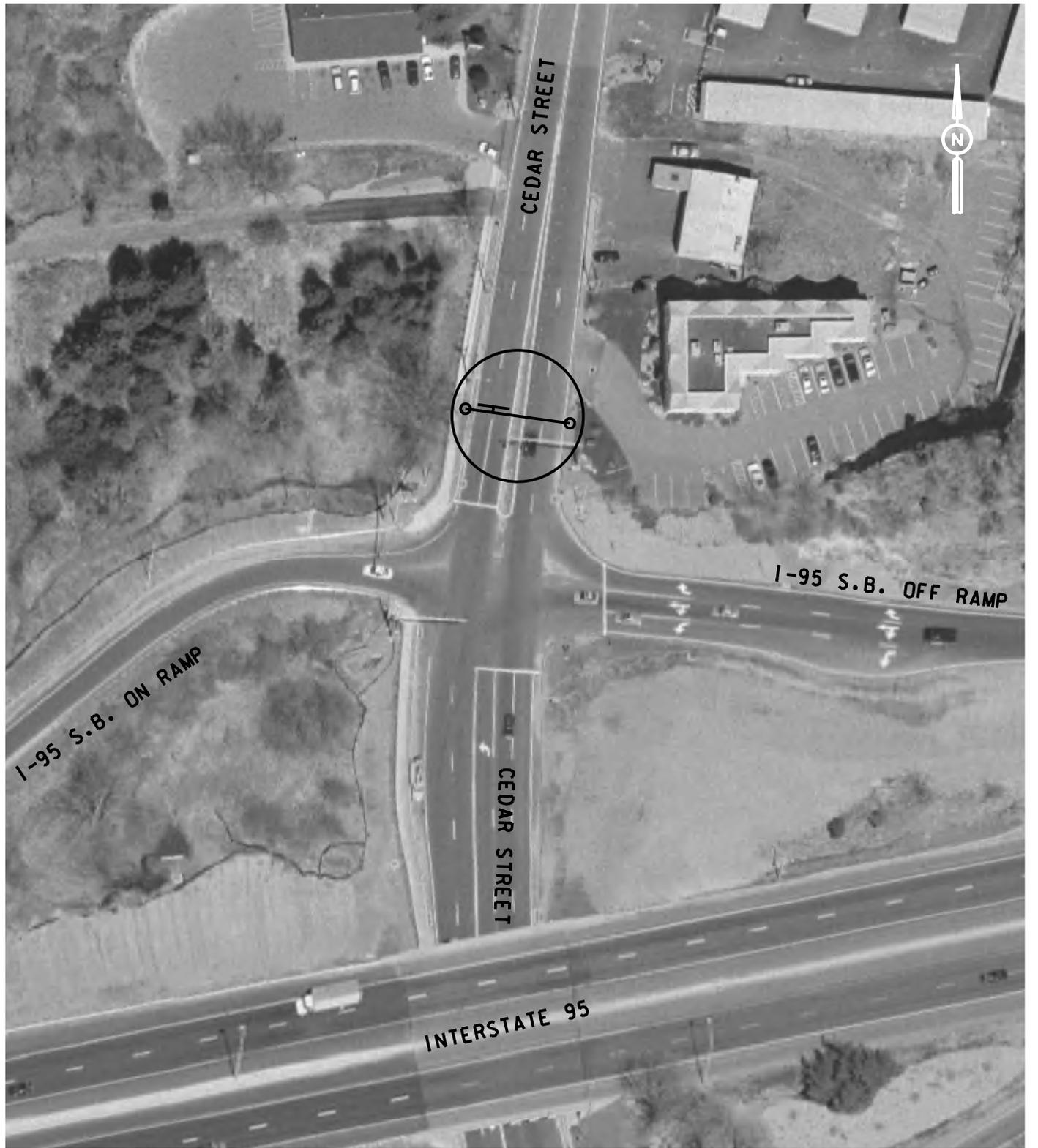
SCALE = 1" = 80'

RECOMMENDATIONS

- ADDITIONAL LANE USE SIGNING MAY BE WARRANTED
- ACCIDENT STUDY
- MORE COUNTS

**COST
NEGLIGIBLE**

**TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY
INTERSTATE 95 N.B RAMP
AT CEDAR STREET**



SCALE = 1" = 80'

RECOMMENDATIONS

- OVERHEAD LANE USE NORTH OF INTERSECTION. DIFFICULT TO RECOVER IF NOT IN RIGHT LANE, NORTH OF RAMPS INTERSECTION
- COLLISION DIAGRAM
- COUNTS FOR SIGNAL TIMING

COST
\$100,000

TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY
INTERSTATE 95 S.B RAMPS
AT CEDAR STREET



SCALE = 1" = 80'

RECOMMENDATIONS

- DEVELOPING DETAILED COUNTS TO DETERMINE PROPER ISLAND PLACEMENT
- INSTALL ISLAND TO REDUCE SPEED IN INTERSECTION
- DEFINE CURBS

COST
\$10,000

TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY
TODDS HILL ROAD AT
PARISH FARM ROAD



SCALE = 1" = 80'

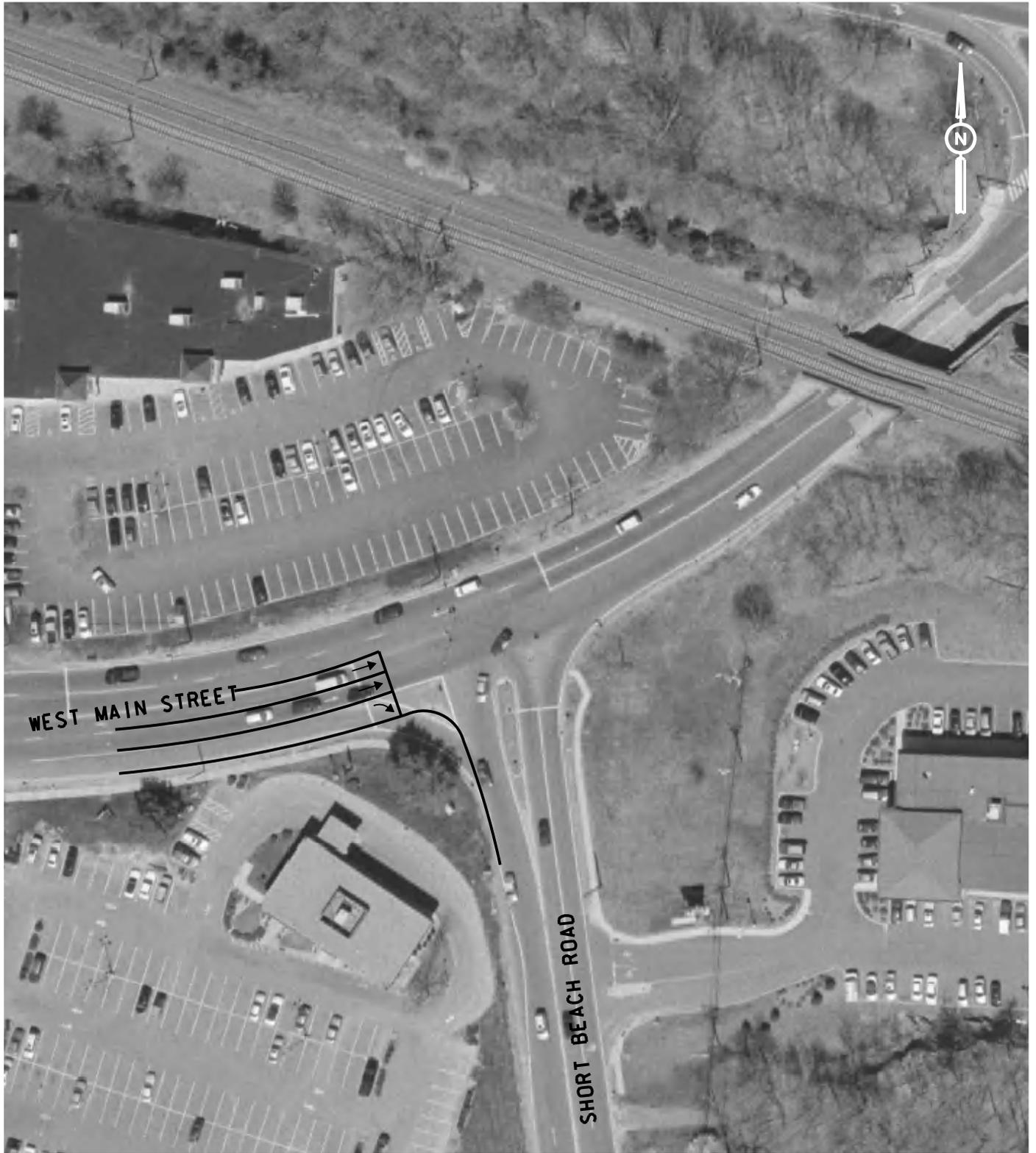
RECOMMENDATIONS

- COLLISION DIAGRAM
- PEAK HOUR COUNTS
- POTENTIAL FOR INTRODUCTION OF LEFT TURN LANES ON N. MAIN STREET

COST
\$30,000

TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY

CHERRY HILL ROAD AT
NORTH MAIN STREET



WEST MAIN STREET

SHORT BEACH ROAD

SCALE = 1" = 80'

RECOMMENDATIONS

- EVALUATE FOR GEOMETRIC REVISION (RIGHT TURN LANE)
- MAY BE ABLE TO SIMPLIFY INTERSECTION
- MOVE WEST STOP BAR FORWARD
- REVISE SIGNAL FOR FAR SIDE DISPLAYS

COST
\$50,000

TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY

SHORT BEACH ROAD AT
WEST MAIN STREET



SCALE = 1" = 80'

RECOMMENDATIONS

- ACCESS MANAGEMENT
- WENDY'S DRIVE SHOULD BE RIGHT TURN IN/RIGHT TURN OUT ONLY
- ACCESS TO ALPS THROUGH SIGNAL FOR LEFT TURNS FROM WEST MAIN STREET

COST
NEGLIGIBLE

TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY

ALPS ROAD AT
WEST MAIN STREET



SCALE = 1" = 80'

RECOMMENDATIONS

- OFFSET INTERSECTION
- CROSSWALK LANDINGS
- SIGNAL TIMING

COST
\$10,000

TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY

JEFFERSON ROAD AT
WEST MAIN STREET



SCALE = 1" = 80'

RECOMMENDATIONS

- RENEW CURVE SIGN ON ALPS
- MARKINGS AND STOP BAR

**COST
NEGLIGIBLE**

**TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY**

**ALPS ROAD AT
BURBAN DRIVE**



SCALE = 1" = 80'

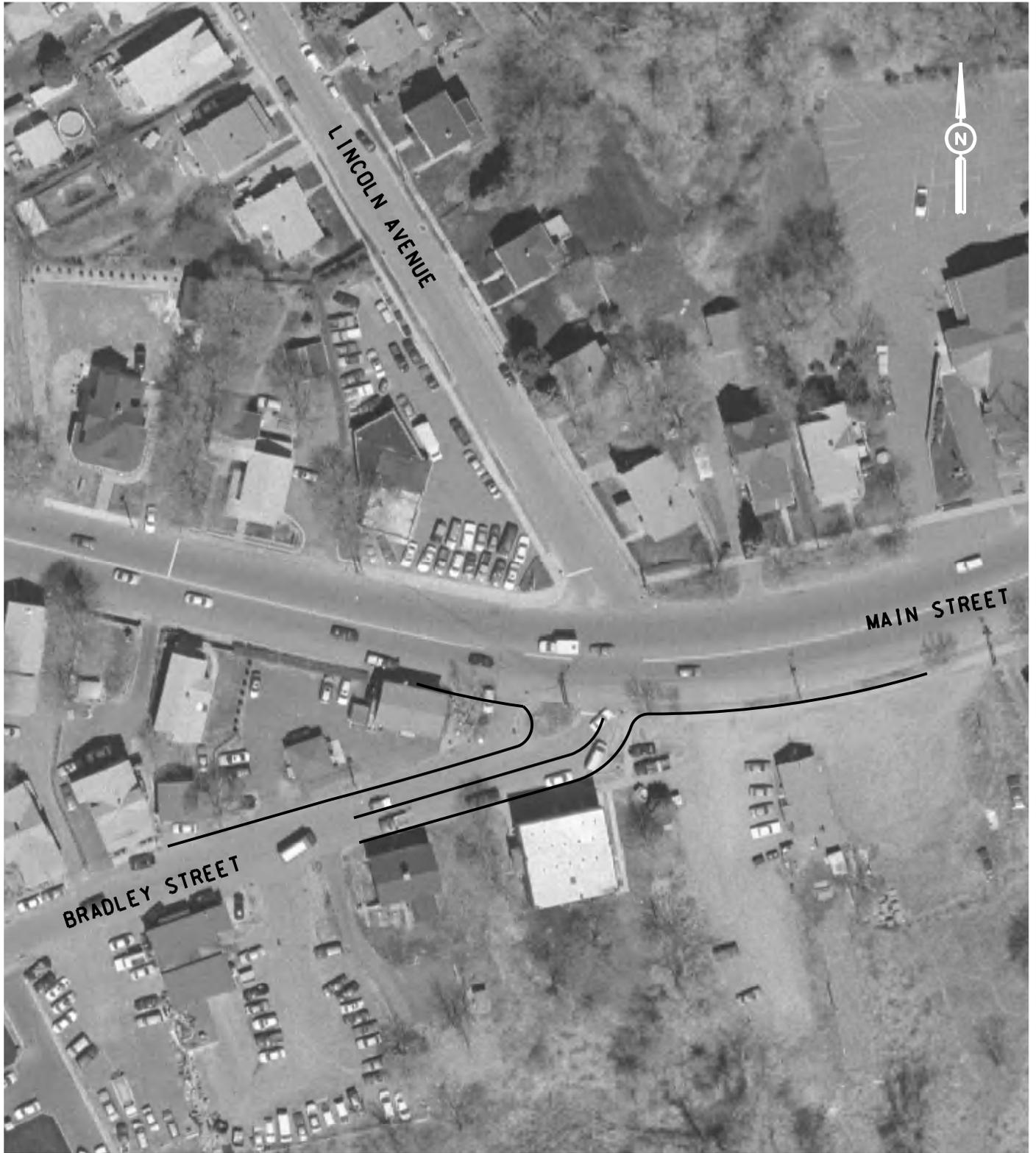
RECOMMENDATIONS

- WARRANT STUDY NEEDED
- SIGHT DISTANCE LIMITED
- SEASONAL ISSUE

COST
\$5,000

TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY

SHORT BEACH ROAD AT
DOUBLE BEACH ROAD



SCALE = 1" = 80'

RECOMMENDATIONS

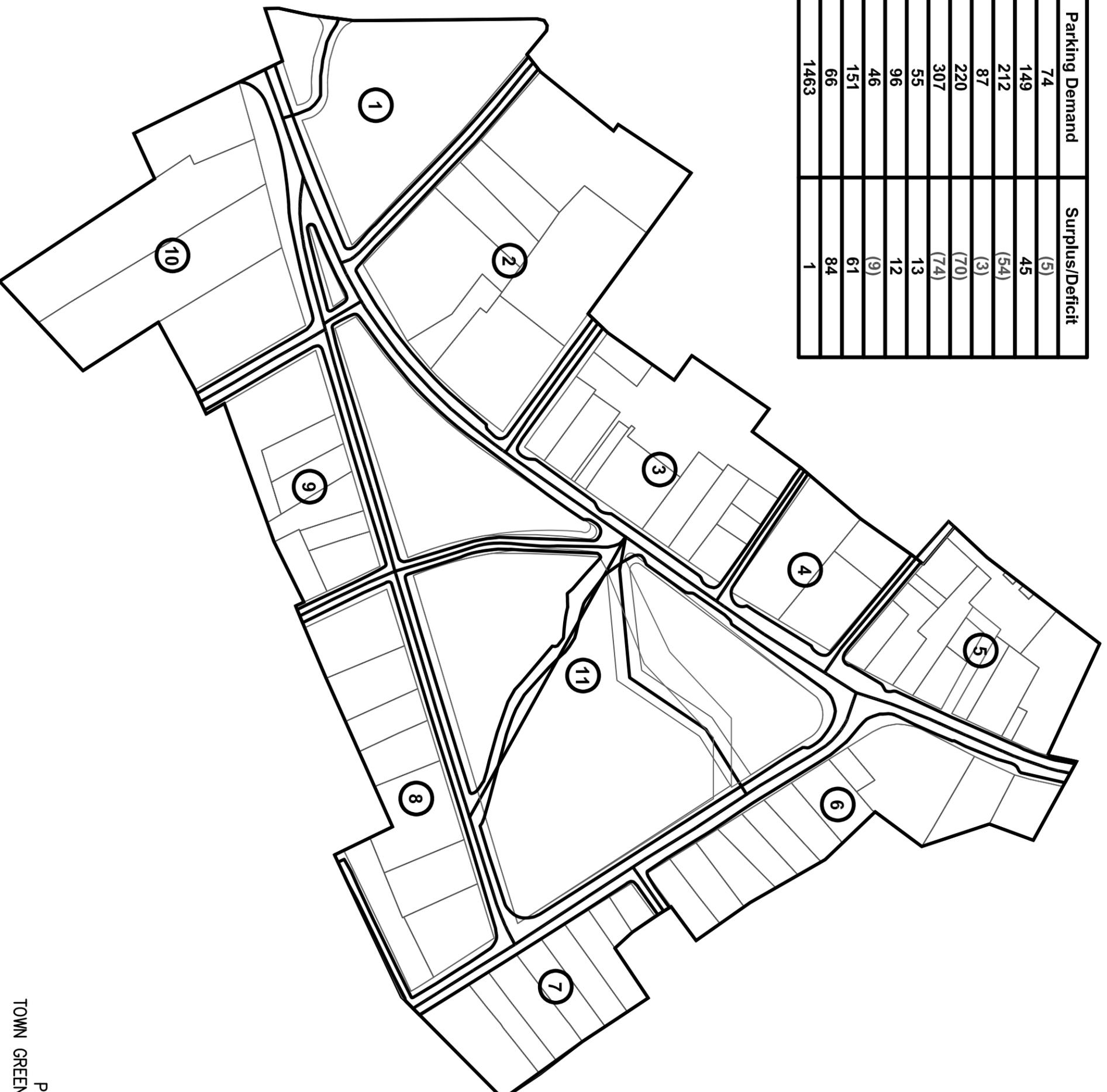
COST
\$20,000

TOWN OF BRANFORD
TOWN WIDE TRAFFIC STUDY

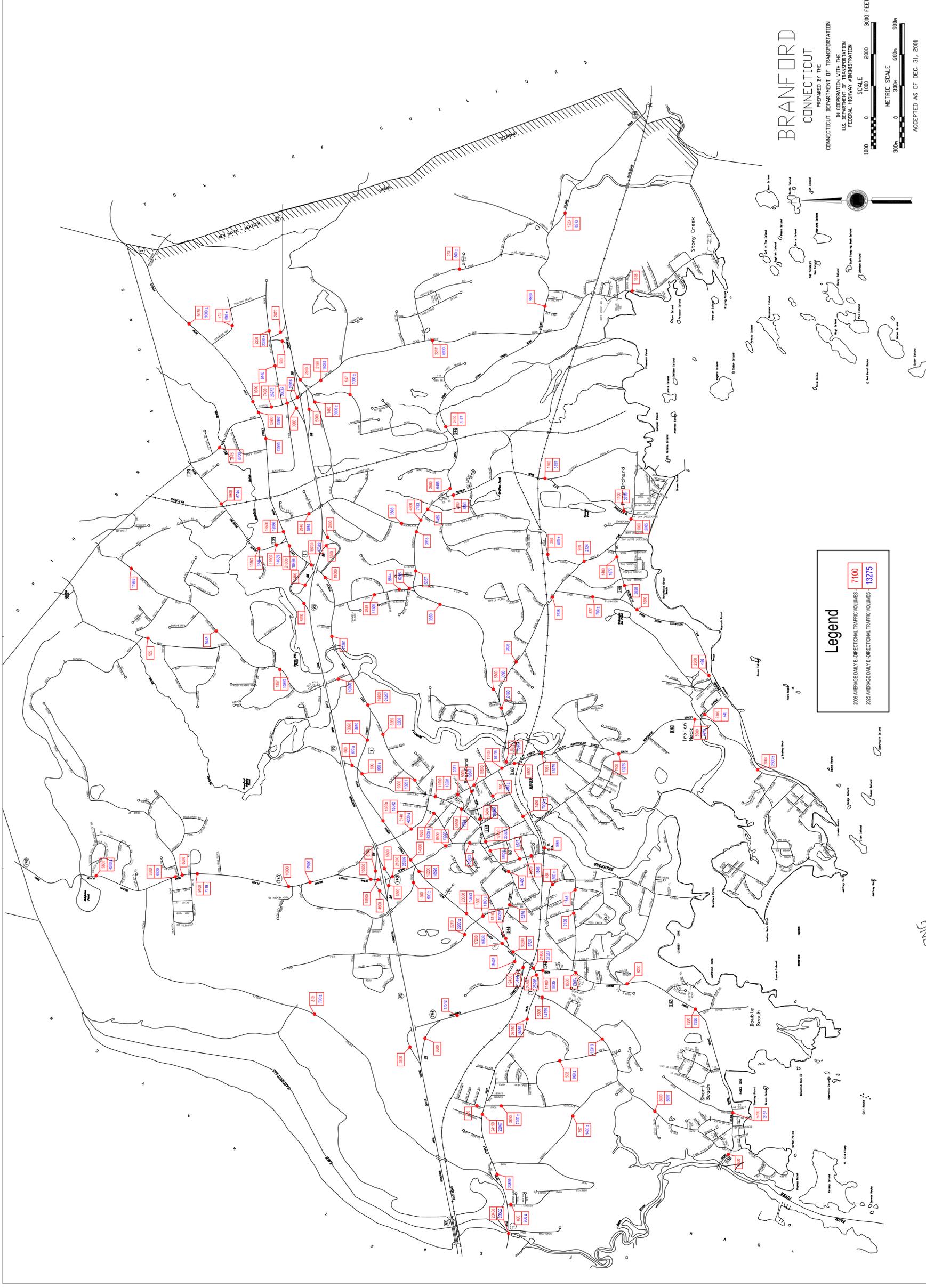
MAIN STREET AT
LINCOLN AVENUE AND
BRADLEY STREET

B. TOWN GREEN DATA

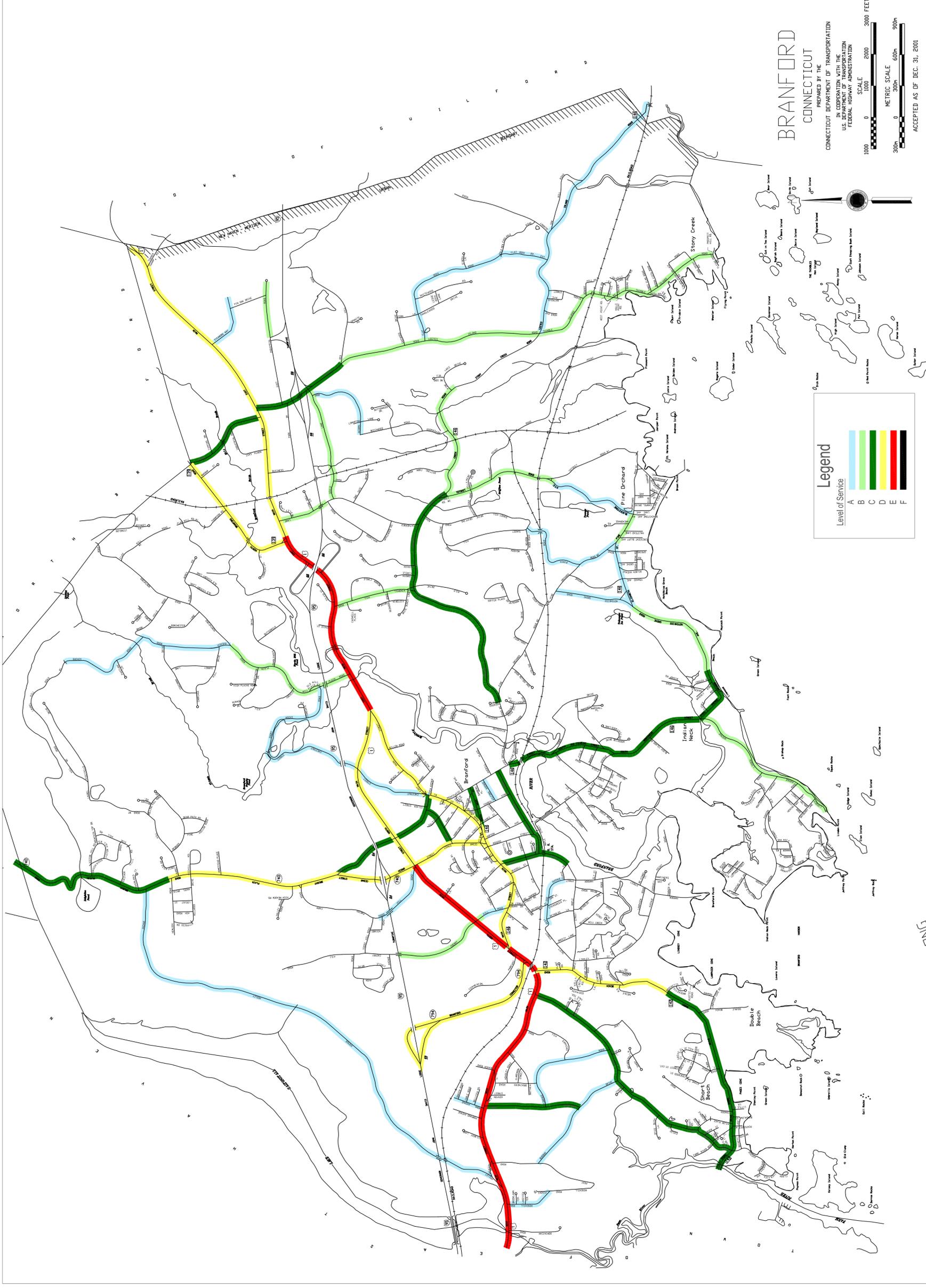
Block	Existing Parking	Parking Demand	Surplus/Deficit
1	69	74	(5)
2	194	149	45
3	158	212	(54)
4	84	87	(3)
5	150	220	(70)
6	233	307	(74)
7	68	55	13
8	108	96	12
9	37	46	(9)
10	212	151	61
11	150	66	84
Total	1464	1463	1



C. TOWN-WIDE DATA

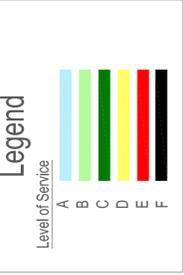
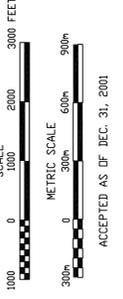


2006 & 2025 AVERAGE DAILY BI-DIRECTIONAL TRAFFIC VOLUMES
TOWN WIDE TRANSPORTATION STUDY
BRANFORD, CT

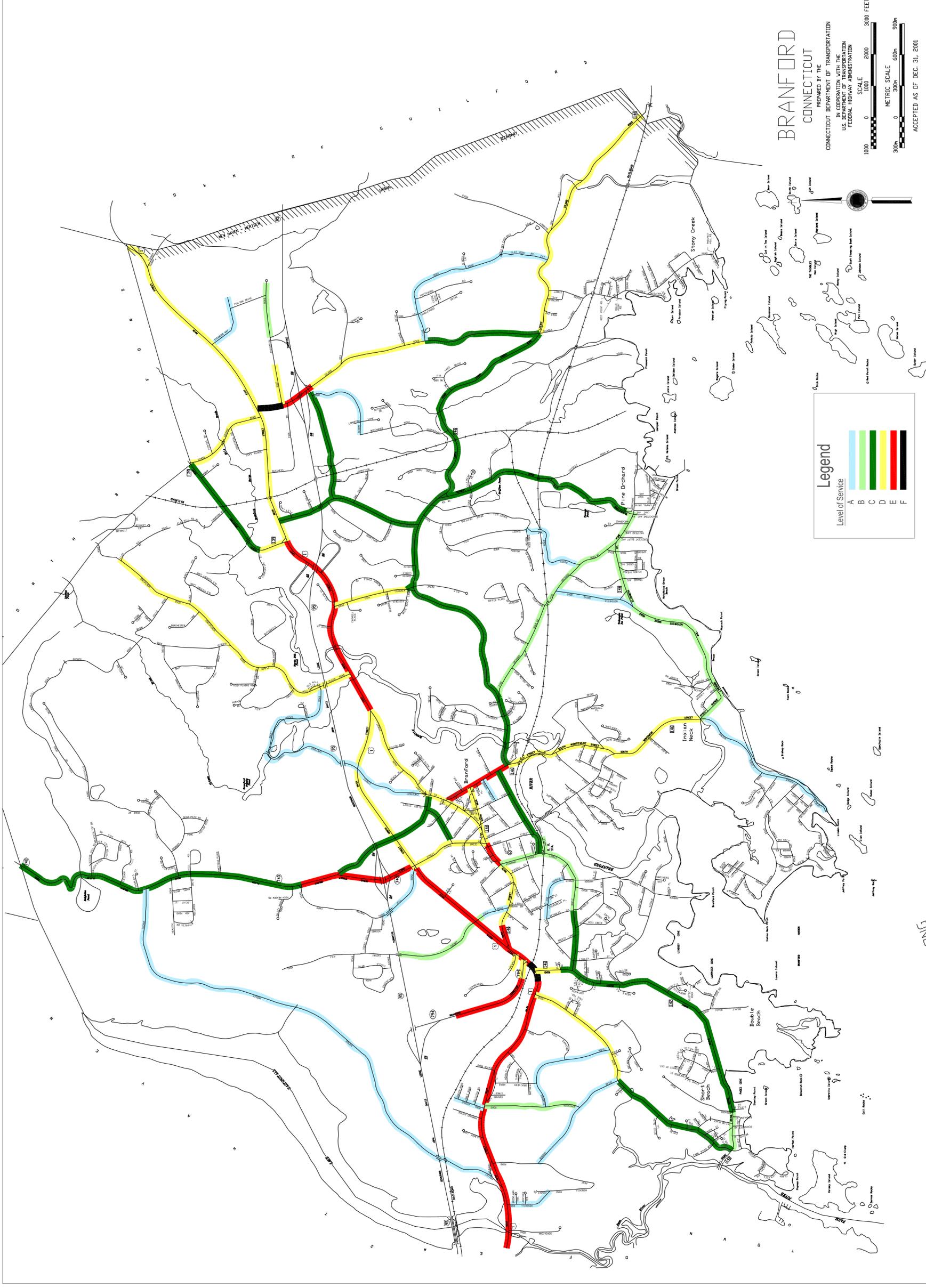


BRANFORD CONNECTICUT

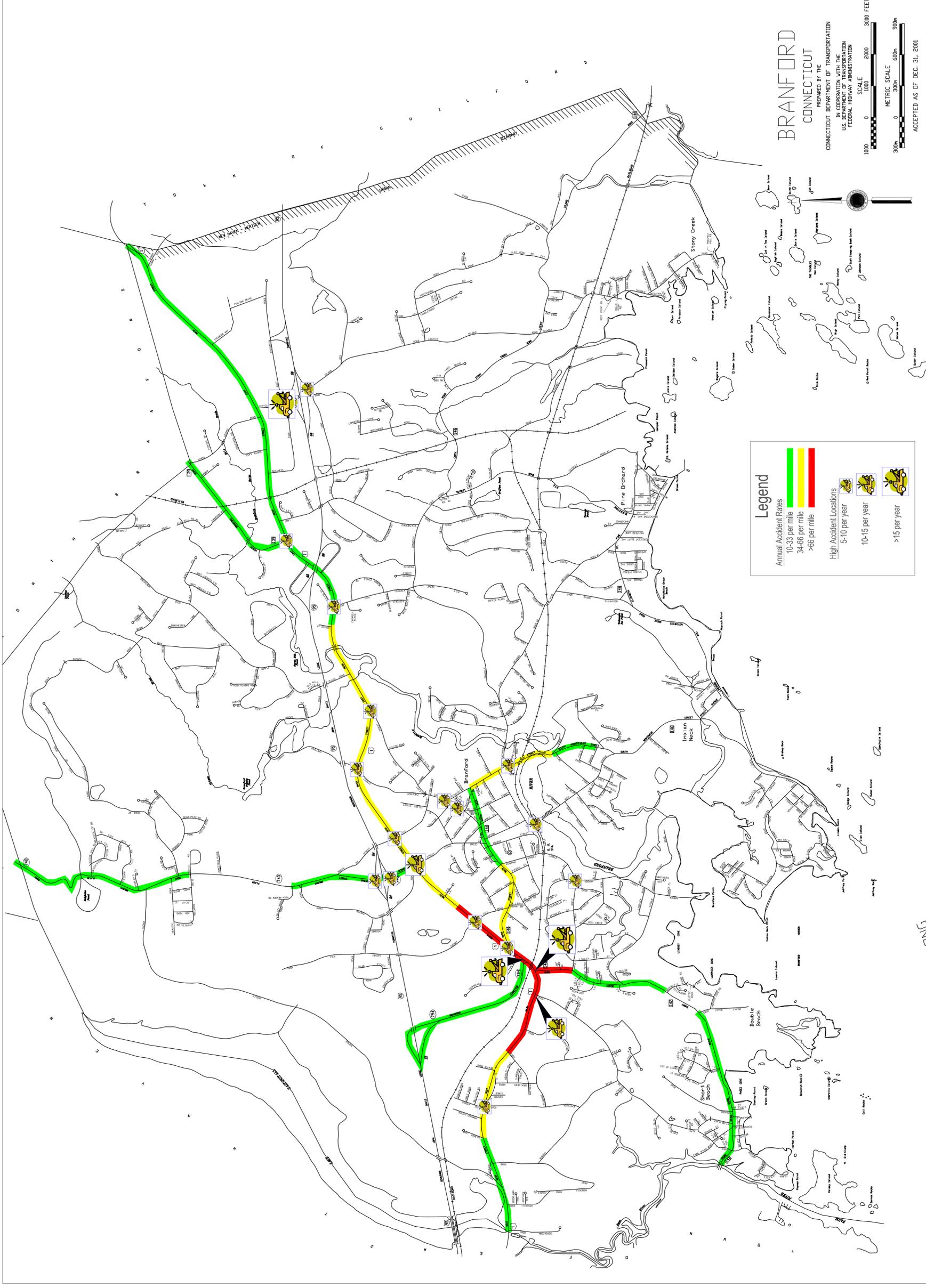
PREPARED BY THE
CONNECTICUT DEPARTMENT OF TRANSPORTATION
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION



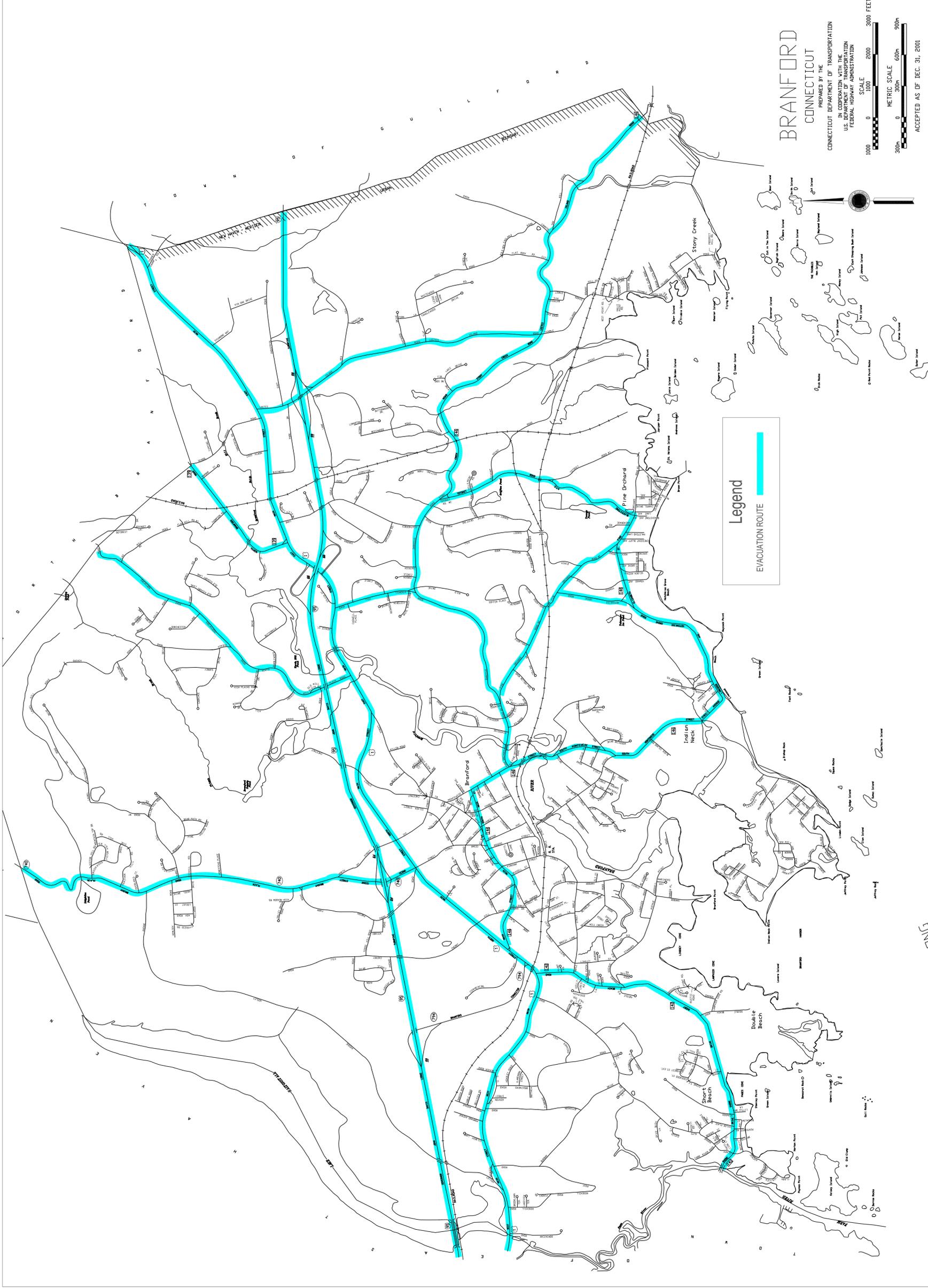
2006 LEVEL OF SERVICE ON TOWN ROADWAYS
TOWN WIDE TRANSPORTATION STUDY
BRANFORD, CT



2025 LEVEL OF SERVICE ON TOWN ROADWAYS
TOWN WIDE TRANSPORTATION STUDY
BRANFORD, CT



ANNUAL TRAFFIC ACCIDENT RATES
 TOWN WIDE TRANSPORTATION STUDY
 BRANFORD, CT



EVACUATION ROUTES
 TOWN WIDE TRANSPORTATION STUDY
 BRANFORD, CT

