

**Traffic Improvement Plan**  
**University and Hospital Institutional Area**  
**Danbury, CT**

**Prepared for:**

**Housatonic Valley Council of Elected Officials**

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# **1. INTRODUCTION**

## **1.1 Study Goals and Objectives**

The Danbury Hospital and Western Connecticut State University (WCSU) are located near the downtown area of Danbury, approximately 2000 feet apart from each other. See Figure 1 for a Locus Map. To access these facilities requires drivers to negotiate streets and intersections that were not designed to take on the current daily traffic they are now receiving. This creates roadway operational problems, potential safety hazards, and frustrated drivers.

Both the Hospital and WCSU have plans for expansion of their facilities. WCSU plans to both increase enrollment and construct additional on-campus housing. The Hospital plans to increase patient capacity and expand the services it provides as it continues to grow into an important regional hospital. These changes will contribute to the overall increase in traffic volumes in the study area as well as the City in general.

In addition, residential neighborhoods experience high cut through traffic volumes and vehicle speeds making them unsafe. With traffic expected to increase by 1.5% per year over the next 20 years, the traffic within the city is only expected to become worse. The goal of the study is to prepare recommendations for improvements to the roadways so they can handle the current and future traffic they will see.

## **1.2 Study Scope**

This study looked at the problems of traffic volumes and roadway geometry presently occurring in the City of Danbury, especially surrounding WCSU and the Danbury Hospital. The traffic can be improved by identifying roadways that serve as major collector routes within the City that need to be upgraded. Making improvements to the geometry of these collector routes would eliminate many of the existing and future traffic problems the City faces. Some other improvements focused on were the safety of pedestrians and possible changes to streetscape conditions. The feasibility and cost of the improvements would then be evaluated.

## **2. EXISTING CONDITIONS**

### **2.1 Study Area**

Danbury, located in Southwestern Connecticut, has evolved from a small industrial center into an important employment and retail center. From 1990 to 2000, the population in Danbury rose from 65,585 to 74,848, the largest increase of any city in the state. The transportation system in the city is dominated by two major highways, Interstate 84 and U.S. Route 7. In this study, the downtown area surrounding the Danbury Hospital and WCSU were explored further for possible improvements.

### **2.2 Traffic Volumes**

Existing traffic volumes were provided by the City of Danbury Engineering Division. The counts included Automatic Traffic Recorder (ATR) counts at several key locations within the study area and turning movement counts at sixteen intersections. The ATR count locations and volumes are depicted on Figure 2 and the turning movement count data (existing and projected) are included in the Transportation Improvement Alternatives section of this study.

### **2.3 Public Transportation**

There are currently two forms of public transportation present within the city, the Housatonic Area Regional Transit (HART) bus system and the Danbury Branch Line of Metro-North. The train station is about 1 mile from the study area with bus connections available.

HART operates fifteen fixed bus routes in 10 Connecticut towns and three New York towns. The study area is served by several routes, with daily service, night/weekend service, and a commuter trolley with downtown service. These however are not taken advantage of by most residents, with only 3.8% of the population using some form of public transportation in 2000.

There are also 6 commuter lots located throughout the city of Danbury for the purpose of encouraging car pooling and the use of pick up points for the bus services provided. It is unknown how many currently take advantage of this.

### **3. Future Conditions**

#### **3.1 *Danbury Hospital Expansion***

Based on the information provided by the Danbury Hospital it is difficult to determine the amount of traffic that the hospital contributes to the corridors and what amount of traffic increase can be expected as the Hospital continues to grow into a regional hospital. We know that the hospital currently has 2100 parking spaces and plans to add another 600 associated with the Locust Street building project.

The addition of a parking garage and new building may not immediately result in substantial additional traffic if existing uses in the hospital are simply relocated to the new building and if the new parking lot is used by patients and staff that currently park on the streets. However, over time as this new facility becomes increasingly utilized, and as the Hospital offers new services (i.e. cardiac care), traffic volumes destined to the hospital will likely increase. Also, the potential exists to vertically expand the Shock building resulting in more service and patient capacity. At this point quantifying the increases from these potential changes as they relate to the project area corridors is not possible with the information provided.

#### **3.2 *Western Connecticut State University Expansion***

The University currently has about 4000 full time students and about 2000 part time students. Based on information provided by WCSU staff, they anticipate a growth in student population of about 1 % per year to year 2015 when total student population is estimated to be 6537.

WCSU is currently constructing an 800 space parking garage off Osborne Street that, when combined with the White Street garage and other surface parking, brings the total parking count at the mid-town campus to 1900 spaces. The new parking garage is not expected to increase traffic destined to WCSU but will change traffic patterns in the immediate area of the garage.

WCSU also has plans to increase full-time student enrollment by about 12% by 2015 and only minimally increase part-time student numbers. They also plan on adding additional housing units on campus. Garage and housing construction, and changes to enrollment may tend to buffer increases in overall campus-generated traffic. However, the desire for students to have off-site jobs and recreation activities may result in increased traffic for these activities from a larger population base.

Like Danbury Hospital it is difficult to quantify how much traffic on the corridors under study is contributed from WCSU and how the University growth will add to those volumes.

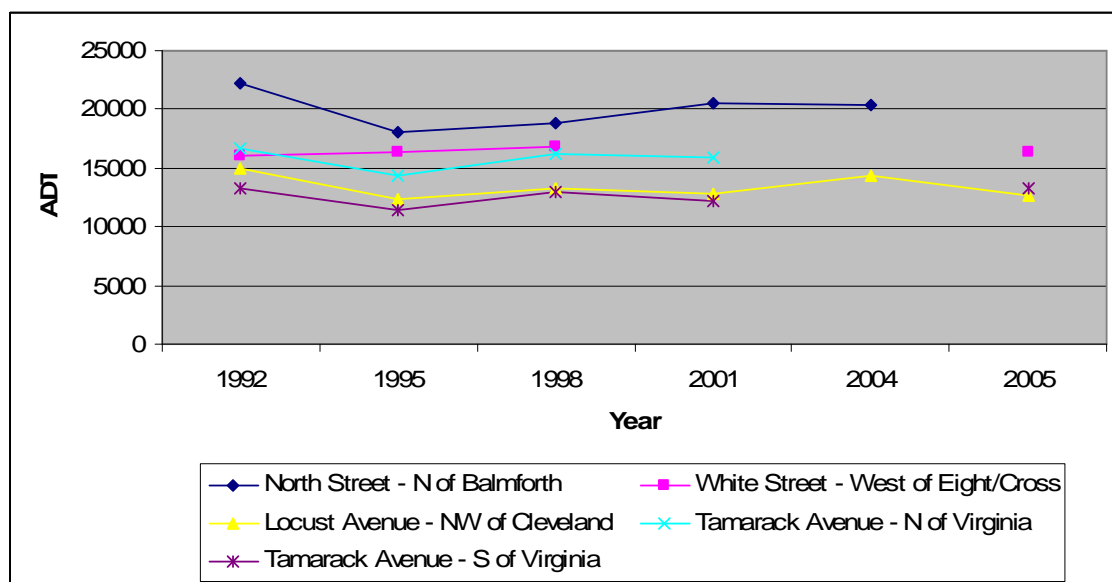
### 3.3 Traffic Growth

#### 3.3.1 Background Growth

Traffic growth rates in the project area need to be estimated to evaluate possible future transportation system needs. Traffic growth is typically estimated by determining background growth in the region and specific trip generation associated with the development area being studied. In this case the Western Connecticut State University (WCSU) and the Danbury Hospital are the major traffic generators within the project area. This plan describes our approach to estimating future traffic volumes to be utilized for the design of recommended intersection and roadway improvements.

Traffic data for key roadway corridors in the study area were obtained to determine historical changes in Average Daily Traffic (ADT) volumes. ADT data associated with a each corridor was obtained from a specific count location to be sure that year to year comparison were representative of actual conditions. White Street, Locust Avenue, and Tamarack Avenue are all within the project area and North Street is located just to the northwest of the project area. North Street was included because it is a major arterial leading to portions of the project area and the Danbury downtown.

<u>Corridor</u>	<u>ADT by Year</u>					
	1992	1995	1998	2001	2004	2005
North Street - N of Balmforth	22,200	18,000	18,900	20,600	20,400	
White Street - West of Eight/Cross	16,100	16,300	16,800			16,340
Locust Avenue - NW of Cleveland	15,000	12,300	13,200	12,800	14,400	12,580
Tamarack Avenue - N of Virginia	16,600	14,400	16,200	15,900		
Tamarack Avenue - S of Virginia	13,300	11,400	12,900	12,200		13,256



Based on the data presented above it is clear that after 1992 traffic volumes in the area decreased significantly. However from 1995 until the present there has been a moderate growth in traffic volumes. The annual growth rates per year (determined graphically from the data sets above) from 1995 to the present for each corridor are listed below.

<u><i>Corridor</i></u>	<u><i>Percent Growth Per Year</i></u>
North Street - N of Balmforth	1.5 %
White Street - West of Cross	1.0 %
Locust Avenue - NW of Cleveland	1.9 %
Tamarack Avenue - N of Virginia	2.1 %
Tamarack Avenue - S of Virginia	0.9 %.

Computing a simple average from this data yields an average annual background growth rate of 1.48 % per year for the project area. Considering that most of the data shows a slight decline traffic volumes in the last several years it may be reasonable to reduce the computed growth rates experienced from 1994 to the present. However, to be conservative for the basis of design it is recommended that a background growth rate of 1.5 % per year be used.

### 3.3.2 Recommended Traffic Growth Rates

There has been moderate background growth since 1994 but the growth currently seems to be on a slight downward trend. The Hospital and WSCU expansions contribution to the study area traffic volumes are impossible to calculate specifically, but with the expansions planned and described in the previous section, it is likely that those facilities will contribute a large portion of the background growth volume projected for study area corridors.

Considering the historical trend of an increase in traffic volumes (1994 - present), the current downward trend of traffic volumes (1998 - present), no information regarding major patient expansions at the hospital, and the moderate growth of student population at the university it is reasonable to assume that the background growth rate is conservative enough to include any Hospital or WCSU expansions that we know of at this time.

Accordingly, we recommend a traffic growth rate for evaluation of proposed design alternatives of 1.5 % per year for a 20 year design life of the project.

## **4. ALTERNATIVES ANALYSIS**

### **4.1 *No-Build Conditions***

All of the study intersections were analyzed for future traffic conditions and no improvements. Under these conditions they will all operate at a LOS D or lower, which represents a decrease in operational efficiency and increased traffic delays.

The exceptions are the Germantown Road/Great Plain Road/Sand Pit Road and the Shepard Road/Great Plain Road intersections which will operate at a LOS B. No improvements are recommended for these intersections.

### **4.2 *Transportation Improvement Alternatives***

Conceptual-level plans of the Improvement Alternates discussed in the following sections can be found in Appendix A as Figures 3 through 24.

#### **4.2.1 *Tamarack Avenue/Hospital Avenue Corridor***

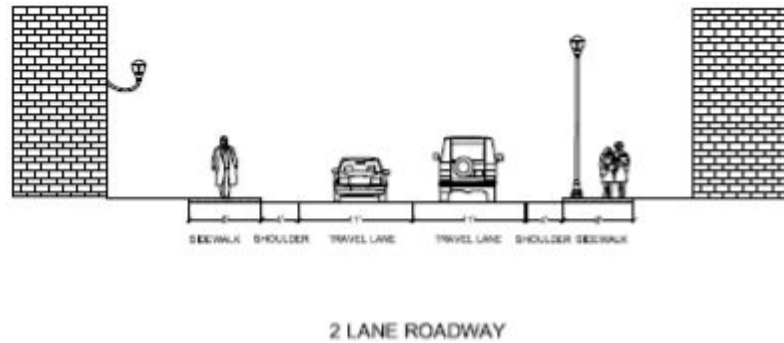
##### **4.2.1.1 *Corridor Discussion***

The Tamarack Avenue/Hospital Avenue corridor is a fairly heavily traveled collector that provides good access to I-84 via Hayestown Road. There is currently an Average Daily Traffic (ADT) volume of about 13,000 vehicles per day using this corridor, and based on projected growth in the area that volume will increase to an ADT volume of 17,000 vehicles per day in 20 years.

The corridor is a two lane roadway with limited shoulders and passes through an area with multifamily dwellings, a cemetery, and institutional uses. The roadway is narrow and well lined with roadside trees in many areas.

Intersection capacity in the corridor is fairly good (LOS B-C) for urban intersections but as traffic volumes increase LOS will continue to decline and delays will increase, eventually becoming unacceptable without geometric improvements including adding additional travel and turning lanes. The capacity restrictions along the corridor are limited to intersection operations. A two lane roadway with adequate shoulders is recommended for much of the corridor except where additional lanes are required to improve intersection capacity; therefore full length widening to a four lane section is not warranted in this corridor.





An important consideration in this corridor is the cut through traffic using Virginia Avenue. It appears that the City is trying to reduce cut through traffic on these roadways by implementing traffic calming measures but heavy traffic is still utilizing this corridor.

Improvements to the Hospital roadway corridor (Tamarack Avenue to Germantown Road) that will increase the capacity, including improved operations at the Hospital Road intersection (particularly the southbound left turn from Tamarack Avenue to Hospital Avenue) must be made before additional traffic calming can be accomplished on Virginia Avenue.

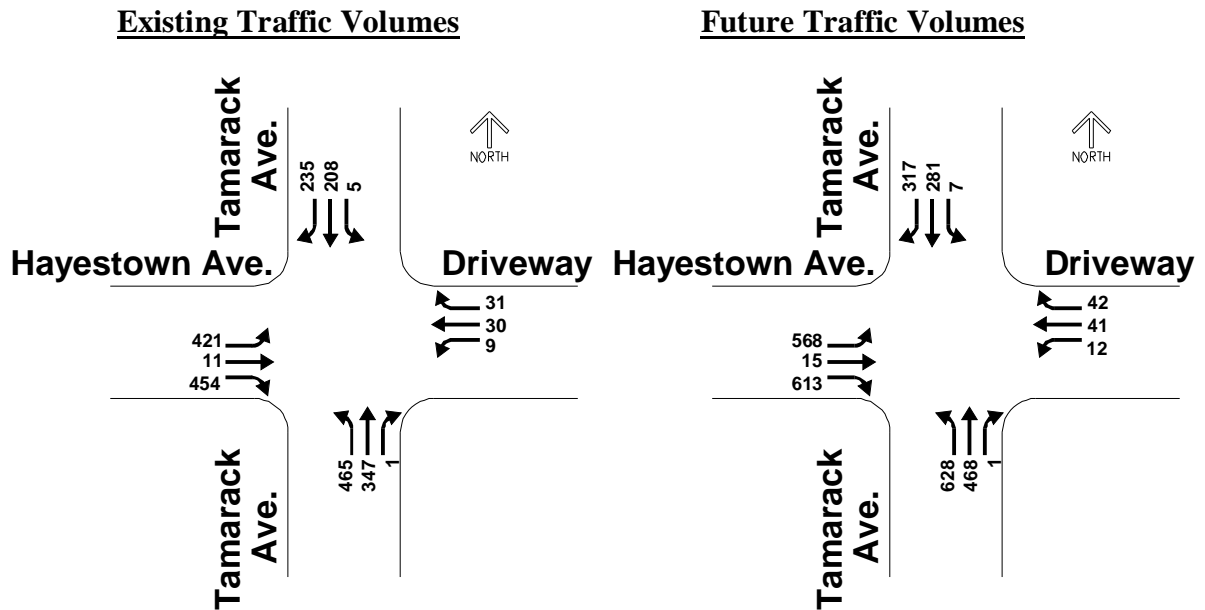
For traffic calming on Virginia Avenue to be successful the City must decide that Hospital Avenue will function as a higher class of roadway than Virginia Avenue and make appropriate improvements to the Hospital Avenue corridor.

Upon draft review by City staff, the proposed improvements at the Tamarack Avenue and Hayestown Avenue were determined to have a greater impact than is desired by the City at this time. Additionally, City staff felt that intersection operations at the intersection of Tamarack Avenue and Hospital Avenue could be further improved with additional widening of intersection approaches. Therefore, alternative improvement plans were also prepared. The following are S E A's recommendations for intersection improvements in this corridor.

#### *4.2.1.2 Tamarack Avenue/Hayestown Avenue*

Tamarack Avenue at Hayestown Avenue is currently a signalized intersection with advance phasing for the Tamarack Avenue northbound approach. There are two-lane approaches in all directions (one thru lane and one left turn lane for the Tamarack Avenue northbound approach, one thru lane and one right turn lane for the Tamarack Avenue southbound approach and one left turn lane and one right turn lane for Hayestown Avenue eastbound approach).

The intersection currently operates at an acceptable LOS but operations will decline as traffic volumes increase and will operate at a LOS F in the future year if no geometric improvements are implemented.



Intersection capacity analysis was completed and is summarized below:

<b><u>Analysis Condition</u></b>	<b><u>LOS – Overall (Lane Group)</u></b>
• Existing Geometry/Current Volumes	C (B-D)
• Existing Geometry/Future Volumes	F (C-F)
• Proposed Geometry/Future Volumes	C (B-C)

Proposed geometric improvements to allow the intersection to operate at an acceptable LOS include:

- Add a second left turn lane for the Tamarack Avenue northbound approach
- Add a second left turn lane for the Hayestown Avenue eastbound approach

Proposed improvements are depicted on Figure 3A.

Alternatively, the following improvements can be made to provide for better traffic operations with less significant impact to the immediate neighborhood.

- Extend the existing left turn lane for the Tamarack Avenue northbound approach

Proposed improvements for the alternate design are depicted on Figure 3B.

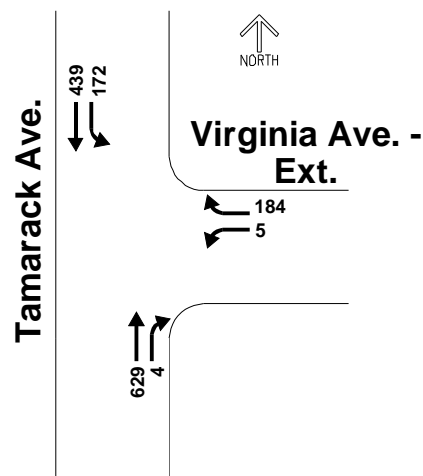
No analysis of intersection operations for the alternate design was performed. Therefore, future LOS for this geometry has not been determined.

#### 4.2.1.3 Tamarack Avenue/Virginia Avenue Ext.

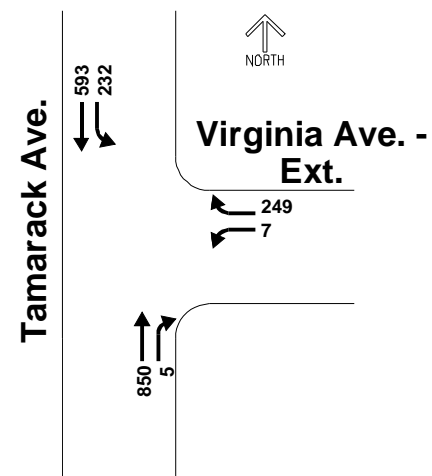
Tamarack Avenue at Virginia Avenue Extension is currently a stop controlled intersection (Virginia Avenue Extension) with single lanes for all approaches. Due to the heavy traffic volumes on Tamarack Avenue, the Virginia Avenue Extension approach currently operates at a LOS D in the PM peak hour. When future traffic volumes are applied to this intersection the operations are at LOS F for the Virginia Avenue Extension approach.

Traffic signal warrants were completed (based on the PM peak hour data only) and the Peak Hour Warrant was satisfied. Considering that geometric improvements will not correct the capacity problems and the left turning vehicles from Tamarack Avenue to Virginia Avenue Extension are relatively high, a traffic signal may be warranted at this location.

##### Existing Traffic Volumes



##### Future Traffic Volumes



Assuming a traffic signal will be installed at this location a capacity analysis was completed and is summarized below:

<u>Analysis Condition</u>	<u>LOS – Overall (Lane Group)</u>
• Existing Geometry/Current Volumes	C (B-D)
• Existing Geometry/Future Volumes	F (E-F)
• Proposed Geometry/Future Volumes	C (A-D)

Proposed geometric improvements include:

- Add a left turn lane on Tamarack Avenue southbound.

If the City desires to reduce traffic volumes on Virginia Avenue Extension a traffic signal may not be consistent with this goal. The traffic signal will improve operations at the intersection and make turning movement easier and may actually increase volumes as a result. Additional traffic calming restriction on Virginia Avenue along with capacity

improvements at The Hospital Road intersection may redirect traffic enough where a signal is not required at this location.

Crosswalks and pedestrian phasing is required at this location. Proposed improvements are depicted on Figure 4.

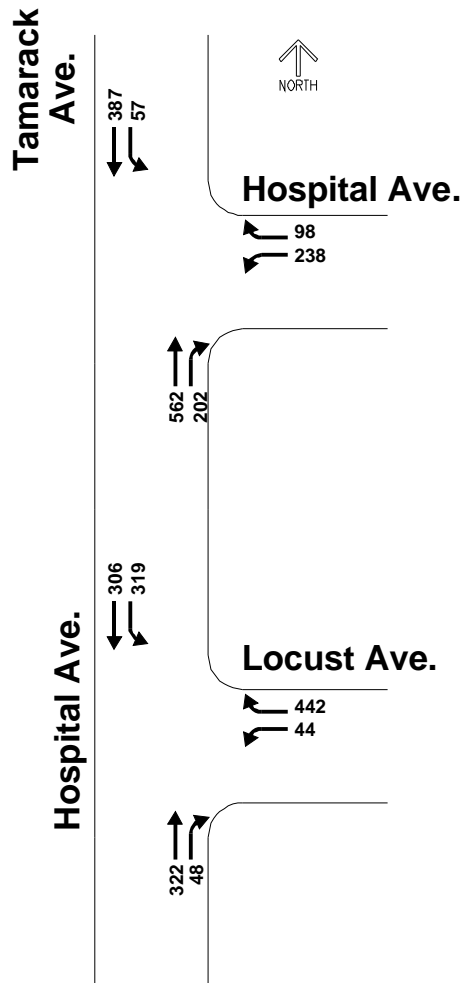
Due to the limited impact of the proposed improvements, no alternate geometric improvement plan has been prepared for this intersection.

#### *4.2.1.4 Tamarack Avenue/Hospital Avenue and Hospital Avenue/Locust Avenue*

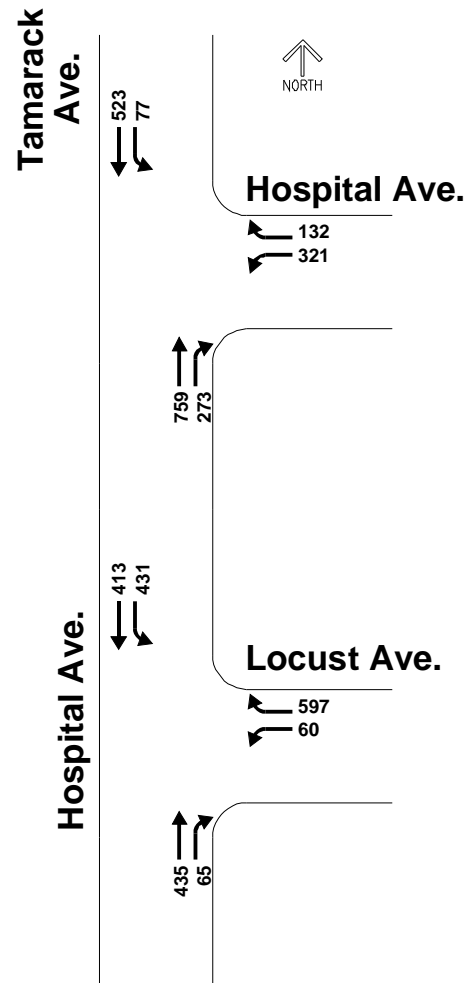
Tamarack Avenue at Hospital Avenue and Hospital Avenue/Locust Avenue are two signalized intersections operating off one traffic signal controller. There are two lane approaches on Hospital Avenue at the Locust Street intersection (one thru lane and one right turn lane northbound and one thru lane and one left turn lane southbound) and all other approaches have a single lane approach.

The intersections currently operate at an acceptable LOS but operations will decline as traffic volumes increase and will operate at a LOS D to LOS F in the design year if no geometric improvements are implemented.

### Existing Traffic Volumes



### Future Traffic Volumes



Intersection capacity analysis was completed and is summarized below:

#### Analysis Condition

#### LOS – Overall (Lane Group)

##### ***Tamarack Avenue/Hospital Avenue***

- |                                     |         |
|-------------------------------------|---------|
| • Existing Geometry/Current Volumes | B (A-C) |
| • Existing Geometry/Future Volumes  | D (C-D) |
| • Proposed Geometry/Future Volumes  | B (B-C) |

##### ***Hospital Avenue/Locust Avenue***

- |                                     |         |
|-------------------------------------|---------|
| • Existing Geometry/Current Volumes | C (A-C) |
| • Existing Geometry/Future Volumes  | F (B-F) |
| • Proposed Geometry/Future Volumes  | B (B-C) |

Proposed geometric improvements to allow the intersections to operate at an acceptable LOS include:

- Adding a left turn lane to Tamarack Avenue southbound
- Making the Hospital Avenue at Locust Avenue northbound approach right turn lane a right/thru lane
- Providing two thru lanes between Locust Avenue and Tamarack Avenue
- Providing appropriate departure lanes on Tamarack northbound of Hospital Avenue

Lengths of vehicle queues on the lanes between the signals must be carefully evaluated to ensure that lane queues will not block operations at the intersections. Crosswalks and pedestrian phasing is required at this location. Proposed improvements are depicted on Figure 5A.

Alternatively, the following improvements can be made to provide for better traffic operations.

- Adding a left turn lane to Tamarack Avenue southbound
- Making the Hospital Avenue at Locust Avenue northbound approach right turn lane a right/thru lane
- Widening the section of Hospital Avenue between Tamarack Avenue and Locust Avenue to four lanes, two northbound and two southbound.

Proposed improvements for the alternate design are depicted on Figure 5B.

No analysis of intersection operations for the alternate design was performed. Therefore, future LOS for this geometry has not been determined.

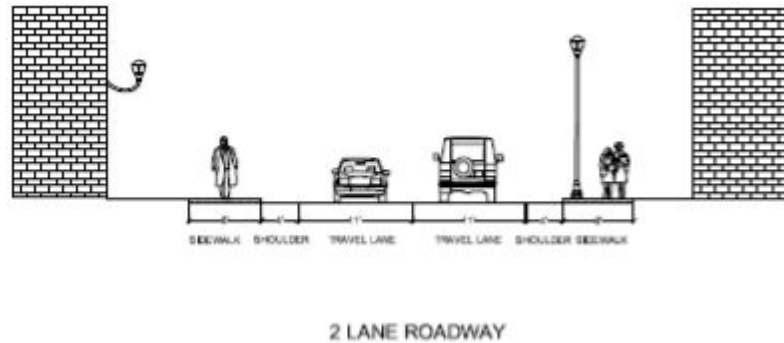
## **4.2.2 Garamella Boulevard/Osborne Corridor**

### **4.2.2.1 Corridor Discussion**

The Garamella Boulevard/Osborne Street corridor bisects the study area and provides a key east-west connection to downtown, I-84 and other major arterials. There is currently an ADT volume of about 11,000 vehicles per day using this corridor (at Osborne Street east of Locust Avenue) and based on projected growth in the area that volume will increase to an ADT volume of 15,000 vehicles per day in 20 years. The corridor is primarily a two lane roadway with limited shoulders and passes through an area with multifamily dwellings and institutional uses.

Intersection capacity in the corridor is moderate (LOS B-D) for urban intersections but as traffic volumes increase Levels of Service (LOS) will continue to decline and delays will increase eventually becoming unacceptable (LOS F) without geometric improvements including adding additional travel and turning lanes. The capacity restrictions along the corridor are limited to intersection operations. A two lane roadway with adequate shoulders is recommended for much of the corridor except where additional lanes are required to

improve intersection capacity; therefore full length widening to a four lane section along this corridor is not warranted.



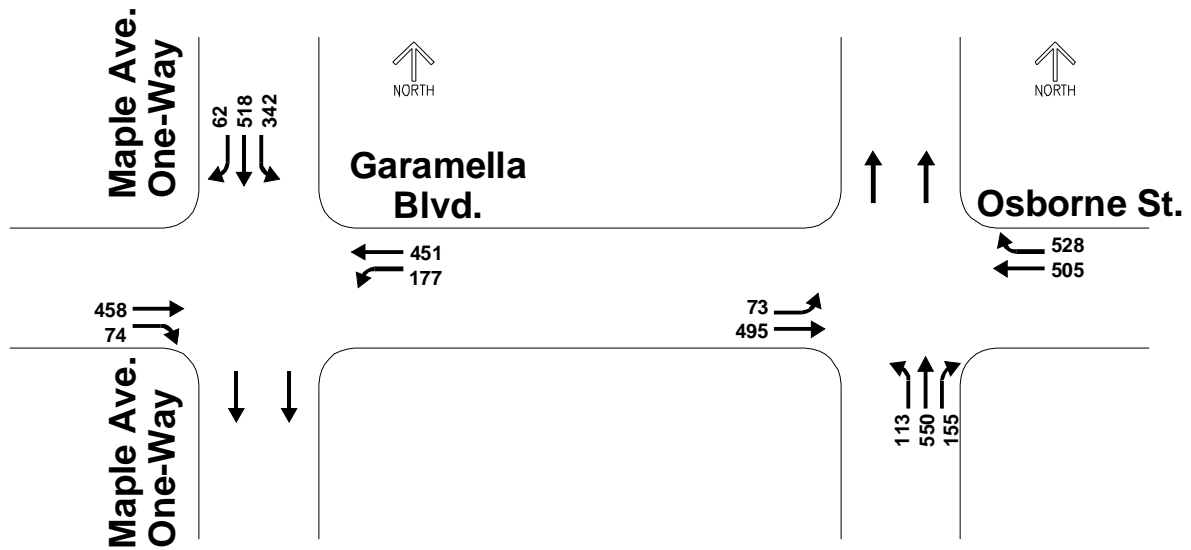
Upon draft review by City staff, the proposed improvements were determined to have a greater impact than is desired by the City at this time. Therefore, alternate improvement plans were also prepared. The following are S E A's recommendations for intersection improvements in this corridor.

#### *4.2.2.2 Garamella Boulevard/Maple Avenue and Garamella Boulevard/Balmforth Avenue/Osborne Street*

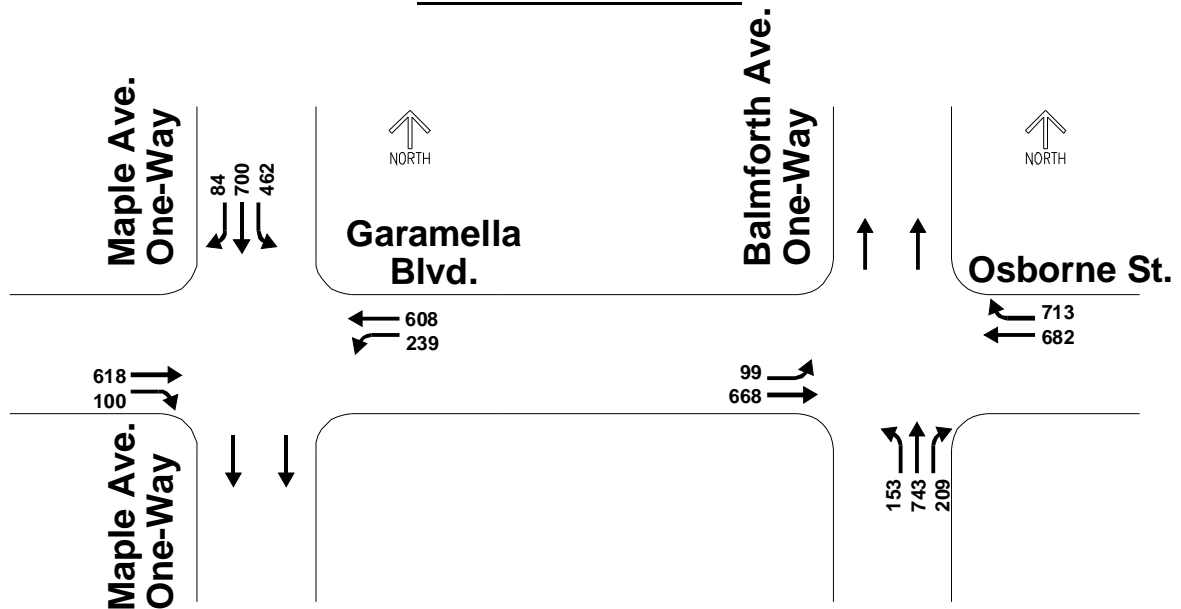
Garamella Boulevard/Maple Avenue and Garamella Boulevard/Balmforth Avenue/Osborne Street are two signalized intersections (coordinated) associated with the Maple Avenue/Balmforth Avenue one way circulator. Maple Avenue is a two lane, one way roadway southbound and Balmforth Avenue is a two lane, one way road northbound. The Garamella Boulevard approaches to Maple Avenue are two lanes (eastbound is one thru lane and one thru/right turn lane and westbound is one thru lane and one left turn lane). The Garamella Boulevard to Balmforth Avenue is two lanes (one thru lane and one left turn lane) and the Osborne Street approach is two lanes (one thru lane and one right turn lane).

The intersections currently operate at an acceptable LOS, but operations will decline as traffic volumes increase and they will operate at a LOS D to LOS E in the design year, with some lane groups at LOS F, if no geometric improvements are implemented.

### Existing Traffic Volumes



### Future Traffic Volumes



Intersection capacity analysis was completed and is summarized below:

<u>Analysis Condition</u>	<u>LOS – Overall (Lane Group)</u>
<b><i>Garamella Boulevard/Maple Avenue</i></b>	
• Existing Geometry/Current Volumes	C (B-D)
• Existing Geometry/Future Volumes	E (B-F)
• Proposed Geometry/Future Volumes	C (B-D)



***Garamella Boulevard/Balmforth Street***

- |                                     |                |
|-------------------------------------|----------------|
| • Existing Geometry/Current Volumes | <i>C (B-D)</i> |
| • Existing Geometry/Future Volumes  | <i>D (B-F)</i> |
| • Proposed Geometry/Future Volumes  | <i>C (C-D)</i> |

Proposed geometric improvements to allow the intersections to operate at an acceptable LOS include:

- Adding a second through lane for the Garamella Boulevard westbound approach to Maple Avenue
- Modifying the right turn lane on the Osborne westbound approach to Balmforth Avenue to be a shared through/right lane
- Adding a second right turn lane for the Osborne Street westbound approach to Balmforth Avenue.

Lengths of vehicle queues on the lanes between the signals must be carefully evaluated to ensure that lane queues will not block operations at the intersections. Crosswalks and pedestrian phasing is required at this location. Proposed improvements are depicted on Figure 6A.

Alternatively, the following improvements can be made to provide for better traffic operations with less significant impact to the immediate neighborhood.

- Widening the section of Garamella Boulevard between Maple Avenue and Balmforth Avenue to four lanes
  - On the westbound section, the left lane shall be an exclusive left turn lane; the right lane shall be a thru lane
  - On the eastbound section, the left lane shall be an exclusive left turn lane; the right lane shall be a thru lane
- Modifying the right turn lane on the Osborne westbound approach to Balmforth Avenue to be a shared through/right lane
- Adding a left turn lane for the Osborne Street eastbound approach to Ellsworth Avenue

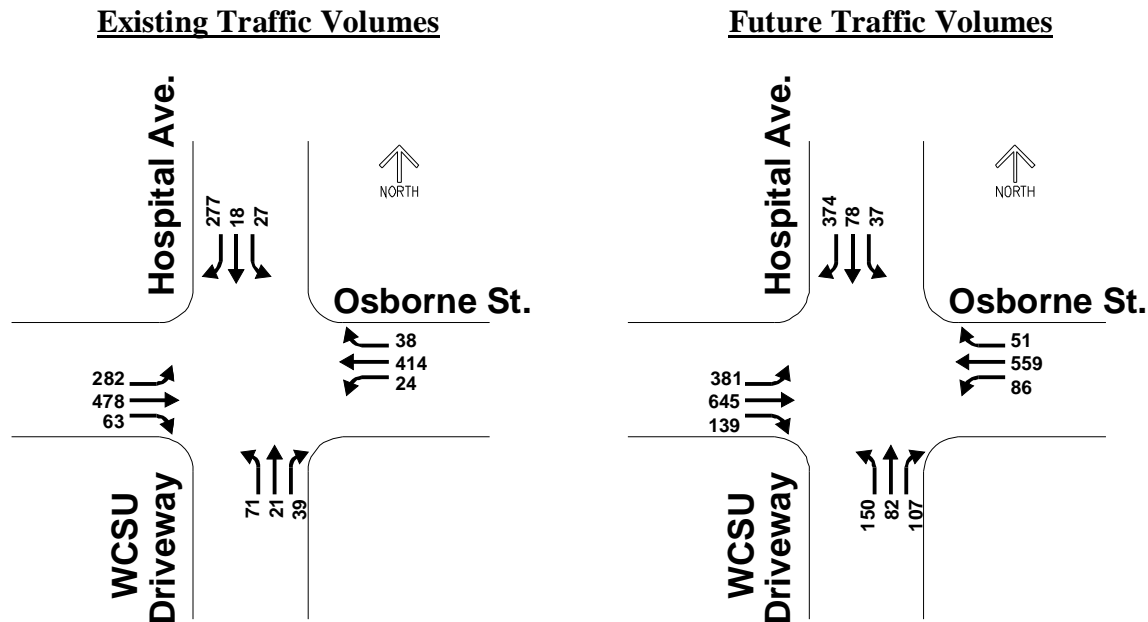
Proposed improvements for the alternate design are depicted on Figure 6B.

No analysis of intersection operations for the alternate design was performed. Therefore, future LOS for this geometry has not been determined.

***4.2.2.3 Osborne Street/Hospital Avenue/Driveway***

The Osborne Street/Hospital Avenue/Parking Structure Driveway is currently a signalized intersection with advance phasing for the Osborne Street westbound approach. There are single lane approaches in all directions except for the eastbound approach on Osborne Street where there is a two lane approach (one left turn lane and one thru/right lane). The intersection currently operates at an adequate LOS even when additional traffic from the new

parking structure (estimated) is added but operations will decline as traffic volumes increase and will operate at a LOS E in the design year if no geometric improvements are implemented.



The future traffic volumes shown above include an estimated additional 40 vehicles for each approach/departure associated with the new parking garage.

Intersection capacity analysis was completed and is summarized below:

<u>Analysis Condition</u>	<u>LOS – Overall (Lane Group)</u>
• Existing Geometry/Current Volumes	C (B-D)
• Existing Geometry/Future Volumes	F (C-F)
• Proposed Geometry/Future Volumes	B (B-C)

When applying future traffic volumes to the intersection, including volume from the WCSU garage, the westbound and northbound approaches operate at LOS F with significant delays due to the overall lack of lane capacity. Proposed geometric improvements to allow the intersection to operate at an acceptable LOS include:

- Adding an exclusive left turn lane on the Osborne Street westbound approach
- Adding an exclusive right turn lane on the Hospital Avenue southbound approach.

Crosswalks and pedestrian phasing is required at this location. Proposed improvements are depicted on Figure 7A.

Alternatively, the following improvements can be made to provide for better traffic operations with less significant impact to the immediate neighborhood.

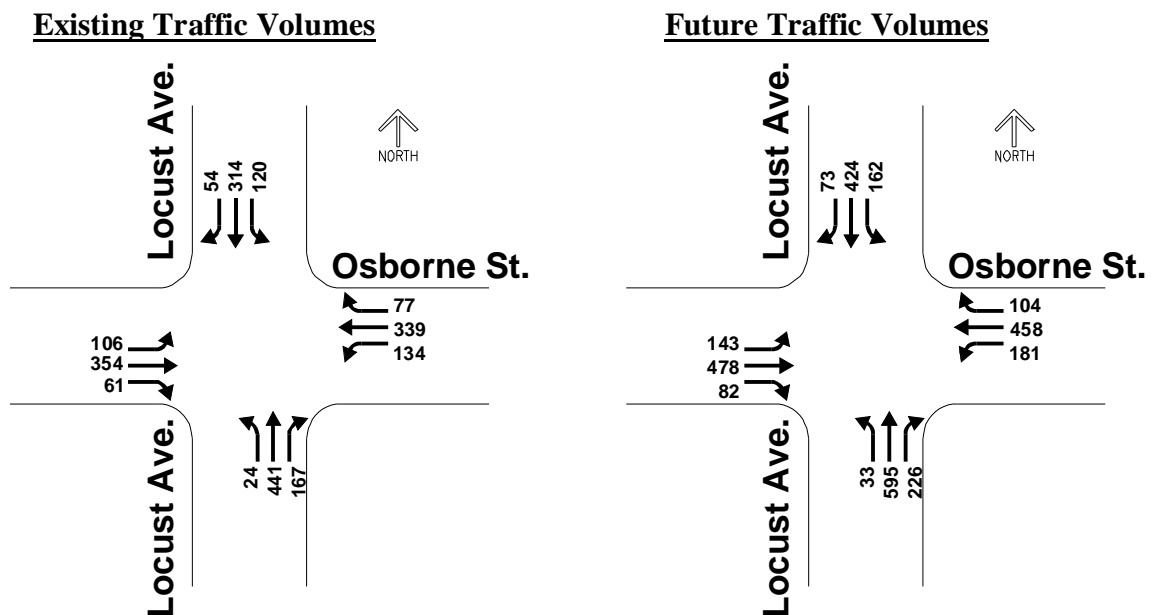
- Adding an exclusive right turn lane on the Hospital Avenue southbound approach

Proposed improvements for the alternate design are depicted on Figure 7B.

No analysis of intersection operations for the alternate design was performed. Therefore, future LOS for this geometry has not been determined.

#### 4.2.2.4 Osborne Street/Locust Avenue

Osborne Street at Locust Avenue is currently a signalized intersection with advance phasing for the Osborne Street westbound approach. There are two lane approaches in the southbound, eastbound and westbound approaches (one thru/right turn lane and one left turn lane southbound and westbound and a thru/left turn lane and a right turn lane eastbound). The intersection currently operates at a LOS D and operations will decline as traffic volumes increase to a LOS F in the design year if no geometric improvements are implemented.



Intersection capacity analysis was completed and is summarized below:

<u>Analysis Condition</u>	<u>LOS – Overall (Lane Group)</u>
• Existing Geometry/Current Volumes	D (B-E)
• Existing Geometry/Future Volumes	F (C-F)
• Proposed Geometry/Future Volumes	D (C-D)

When applying future traffic volumes to the intersection the westbound and southbound approaches operate at LOS F with significant delays due to the overall lack of lane capacity. Proposed geometric improvements to allow the intersection to operate at an acceptable LOS include:

- Adding an exclusive left turn lane to the Osborne Street approach southbound
- Widening the locust street approach westbound to provide two lanes (one thru left lane and one thru right lane)
- Widening the Osborne Street approach northbound to provide five total lanes (one thru right lane, one thru lane, one exclusive left turn lane, and two ingress lanes)
- Widening the Locust Street approach eastbound to provide an additional ingress lane.

Crosswalks and pedestrian phasing is required at this location. Proposed improvements are depicted on Figure 8A.

Alternatively, the following improvements can be made to provide for better traffic operations with less significant impact to the immediate neighborhood.

- Adding an exclusive right turn lane to the Osborne Street Approach southbound, resulting in a three-lane approach (one thru lane, one exclusive left turn lane, and one exclusive right turn lane)

Proposed improvements for the alternate design are depicted on Figure 8B.

No analysis of intersection operations for the alternate design was performed. Therefore, future LOS for this geometry has not been determined.

### **4.2.3 White Street**

#### **4.2.3.1 Corridor Discussion**

The White Street corridor is a heavily traveled arterial with significant pedestrian activity associated with WCSU. Considering the large number of pedestrian/vehicle conflicts, accidents and “near misses” that have plagued this corridor for many years, safety of pedestrians in the corridor is a major design consideration. There is currently an ADT volume of about 26,000 using this corridor and based on projected growth in the area that ADT volume will increase to 35,000 in 20 years.

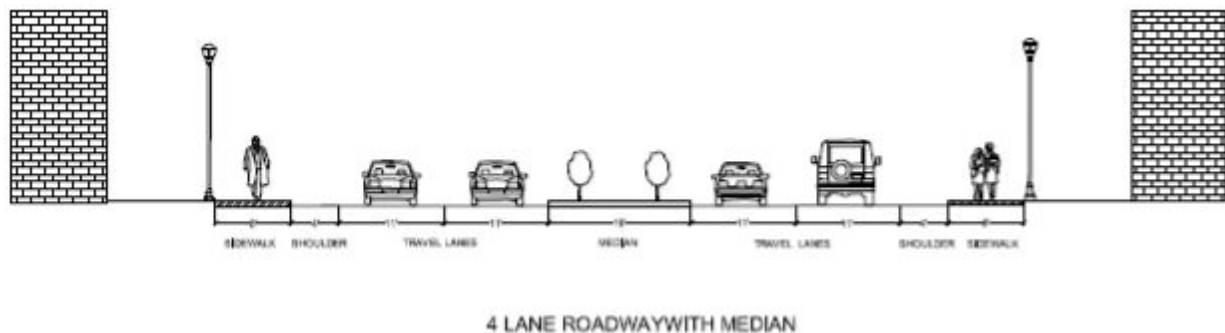
Intersection capacity in the area is average for urban intersections but as traffic volumes increase Levels of Service (LOS) will continue to decline and traffic delays will increase, eventually becoming unacceptable without geometric improvements such as adding additional travel and turning lanes.

Due to the heavy traffic volumes currently using White Street, and considering the increase in traffic volumes anticipated in the future design year, two lanes in each direction, from Balmforth Avenue to Federal Road, is recommended. Dedicated turning lanes will be

required at many high volume side streets and at all signalized intersections as described in the following sections. These improvements will accommodate the heavy traffic flow at an adequate LOS.

There are several options for providing four travel lanes. All the options should include a center median. This will provide a center refuge island which allows pedestrians to cross only one direction of traffic at a time. Openings in the raised median should be provided at critical locations to allow left turns into driveways and possibly U turn movements to access key destinations along the segment of roadway where the median is proposed. The median openings should be fully developed left turn bays and be placed only where required to allow access to heavily traveled driveways.

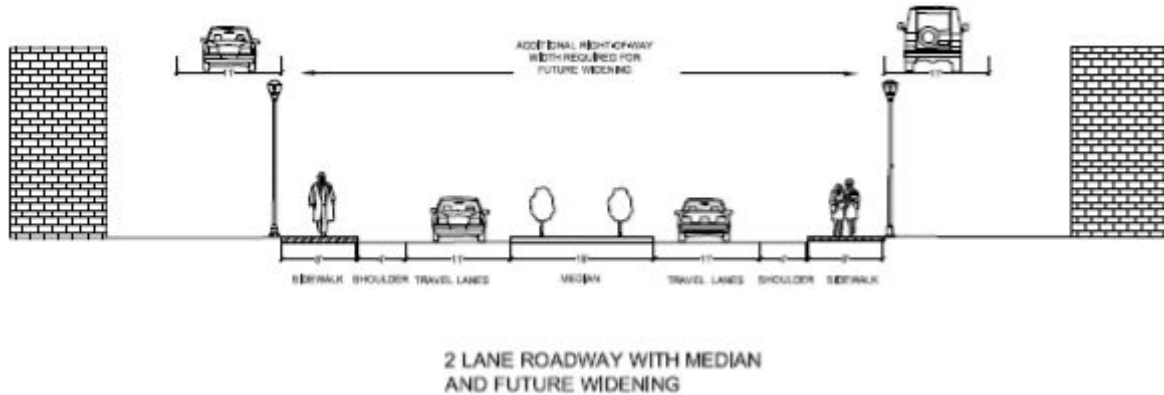
A raised median will allow for landscaping in the center of the roadway, emphasizing the institutional character of the area and providing motorists with a clear visual cue that the road is not just a major arterial but passes through an area with high pedestrian activity as well.



The median island should be wide enough (16 feet) to allow development of a turning lane completely within the median area (12 foot turning lane 4 foot island). This will provide for two through lanes in each direction that are not impeded by left turning movements. This improvement will allow the signalized intersections to operate effectively as traffic volumes increase.

Options to implement these improvements in a phased approach should be considered. Since construction of the median island is an essential part of all alternatives and roadway volumes have not increased to a point where two lanes in each direction is absolutely essential construction of a roadway with one lane in each direction and a raised median island may be a good interim step. This will improve operations by providing dedicated left turning lanes and controlling turning movements to controlled location. This will also enhance pedestrian safety by providing a safe refuge area in the middle of the corridor.

However, in the event that future widening to four lanes becomes necessary, the median would require that widening occur on both sides of the road. Therefore, careful consideration should be given to future capacity requirements as well as potential property impacts when considering the installation of a landscaped center median.



Upon draft review by City staff, the proposed improvements were determined to have a greater impact than is desired by the City at this time. Therefore, alternate improvement plans were also prepared. The alternative intersection designs include a provision to widen White Street to two lanes in each direction from Balmforth Avenue to Meadow Street. The following are S E A's recommendations for intersection improvements in this corridor.

Proposed improvements are depicted on Figures 9 through 13.

#### 4.2.3.2 White Street/Moss Avenue

White Street at Moss Avenue is currently a stop controlled intersection (Moss Avenue) with single lanes for all approaches. Due to the heavy traffic volumes on White Street, the Moss Avenue approach currently operate at a LOS F in the PM peak hour.

Traffic signal warrants were completed (based on the PM peak hour data only) and the Peak Hour Warrant was satisfied.



One option under consideration is to make Fifth Avenue a one-way street in the northbound direction and reassign all Fifth Avenue southbound and White Street to Fifth Avenue left turning traffic to Moss Avenue. This reconfiguration will allow the use of a wider City street (Moss Avenue) for access to Osborne Street destinations from the White Street corridor.

Accordingly, all southbound traffic on Fifth Avenue and left turning traffic from White Street to Fifth Avenue were reassigned to Moss Avenue.

### Existing Traffic Volumes



### Future Traffic Volumes



Assuming a new traffic signal will be installed at this location a capacity analysis was completed and is summarized below:

<u>Analysis Condition</u>	<u>LOS – Overall (Lane Group)</u>
• Existing Geometry/Current Volumes	D (B-E)
• Existing Geometry/Future Volumes	F (C-F)
• Proposed Geometry/Future Volumes	B (B-C)

Proposed geometric improvements include:

- Widening to two lanes in each direction on White Street
- Adding an exclusive left turn lane on White Street at Moss Avenue

Crosswalks and pedestrian phasing is required at this location. Proposed improvements are depicted on Figure 9A.

Alternatively, the following improvements can be made to provide for better traffic operations with less significant impact to the immediate neighborhood.

- Widening White Street to four lanes
  - The eastbound approach includes a thru/left turn lane and a thru lane
  - The westbound approach includes a thru lane and a thru/right turn lane

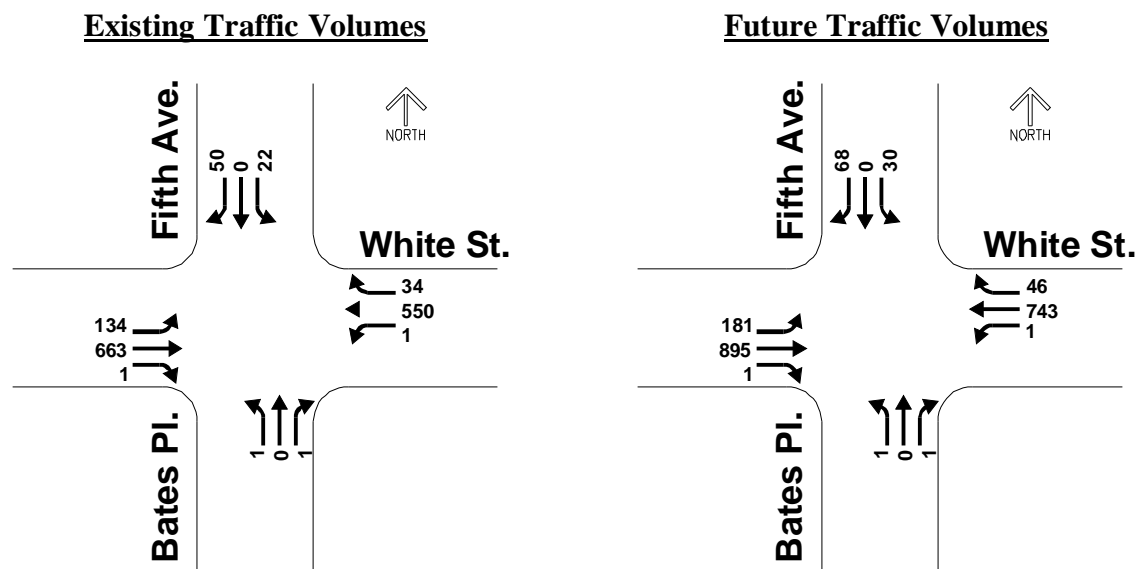
Proposed improvements for the alternate design are depicted on Figure 9B.

No analysis of intersection operations for the alternate design was performed. Therefore, future LOS for this geometry has not been determined.

#### 4.2.3.3 White Street/Fifth Avenue/Bates Place

White Street at Fifth Avenue is currently a stop controlled intersection (Fifth Avenue) with single lanes for all approaches. Due to the heavy traffic volumes on White Street, the Fifth Avenue and Bates Place approaches currently operate at a LOS F in the PM peak hour.

Traffic signal warrants were completed (based on the PM peak hour data only) and the Peak Hour Warrant was satisfied. Considering that the new parking garage will add traffic volume to Fifth Avenue, geometric improvements will not correct the capacity problems, there is a high volume of traffic turning left from White Avenue to Fifth Avenue and that there is heavy pedestrian activity in the area a traffic signal may be warranted at this location.



Assuming a traffic signal will be installed at this location a capacity analysis was completed and is summarized below:

<u>Analysis Condition</u>	<u>LOS – Overall (Lane Group)</u>
• Existing Geometry/Current Volumes	C (B-D)
• Existing Geometry/Future Volumes	F (C-F)
• Proposed Geometry/Future Volumes	B (B-C)

Proposed geometric improvements include: **(These improvements to Fifth Avenue should be implemented only if the proposed Moss Avenue improvements described in the previous section are not implemented.)**

- Widening to two lanes in each direction on White Street
- Adding an exclusive left turn lane on White Street at Fifth Avenue

Crosswalks and pedestrian phasing is required at this location. Proposed improvements are depicted on Figure 9A.



Alternatively, the following improvements can be made to provide for better traffic operations with less significant impact to the immediate neighborhood. **(These improvements to Fifth Avenue should be implemented only if the alternate Moss Avenue improvements described in the previous section are implemented.)**

- Widening White Street to four lanes
  - The eastbound approach includes a thru/left turn lane and a thru/right lane
  - The westbound approach includes a thru/left lane and a thru/right turn lane

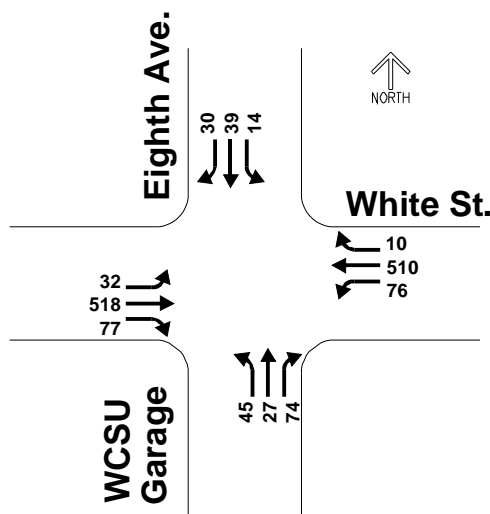
Proposed improvements for the alternate design are depicted on Figure 9B.

No analysis of intersection operations for the alternate design was performed. Therefore, future LOS for this geometry has not been determined.

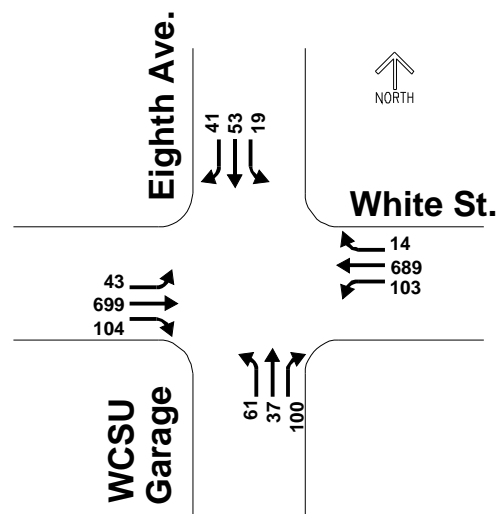
#### 4.2.3.4 White Street/Eighth Avenue/Parking Garage

White Street at Eighth Avenue is currently a signalized intersection with advance phasing for the White Street eastbound approach. There is a two lane approach eastbound (one thru/right turn lane and one left turn lane), a two lane approach on Eighth Avenue (one right turn lane and one thru/left turn lane) and single lanes for all other approaches. The intersection currently operates at an acceptable LOS but operations will decline as traffic volumes increase and will operate at a LOS D in the design year if no geometric improvements are implemented.

##### Existing Traffic Volumes



##### Future Traffic Volumes



Intersection capacity analysis was completed and is summarized below:

<u>Analysis Condition</u>	<u>LOS – Overall (Lane Group)</u>
• <i>Existing Geometry/Current Volumes</i>	<i>B (A-C)</i>
• <i>Existing Geometry/Future Volumes</i>	<i>D (A-E)</i>
• <i>Proposed Geometry/Future Volumes</i>	<i>B (B-C)</i>

The westbound and northbound approaches operate at LOS E with significant delays due to the existing single lane approaches. Required geometric improvements to allow the intersection to operate at an acceptable LOS include the addition of a left turn lane on White Street westbound into the parking garage. However, to be consistent with the overall corridor improvements, the concept developed for this intersection includes:

- Widening to two lanes in each direction on White Street
- Adding an exclusive left turn lane on White Street at Eighth Avenue
- Adding an exclusive right turn lane on Eighth Avenue southbound

Crosswalks and pedestrian phasing is required at this location.

An additional pedestrian signal could be installed in the location of the pedestrian bridge where there is significant pedestrian activity in the corridor. This pedestrian signal would be coordinated with the Eighth Avenue traffic signal and would be called concurrently with the Eighth Avenue side street phase.

The need for two lanes in each direction is further justified by the installation of this pedestrian signal considering the potential delays associated with significant pedestrian crossings. Proposed improvements are depicted on Figure 10A.

Alternatively, the following improvements can be made to provide for better traffic operations with less significant impact to the immediate neighborhood.

- Widening White Street to four lanes
  - The eastbound approach includes a thru/left turn lane and a thru lane
  - The westbound approach includes a thru lane and a thru/right turn lane
- Adding an exclusive right turn lane on Eighth Avenue southbound

Additionally, the pedestrian signal described in the proposed improvements could be installed as part of the alternate design.

Proposed improvements for the alternate design are depicted on Figure 10B.

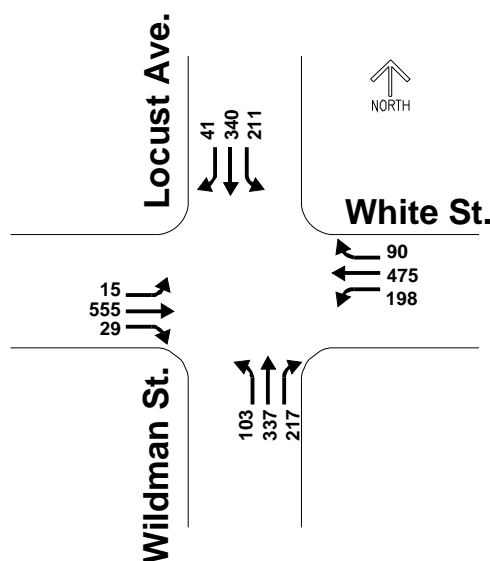
No analysis of intersection operations for the alternate design was performed. Therefore, future LOS for this geometry has not been determined.

#### 4.2.3.5 White Street/Locust Avenue/Wildman Street

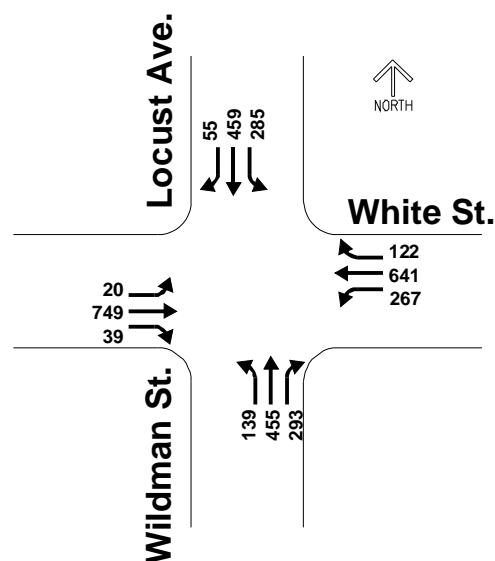
White Street at Locust Avenue/Wildman Street is currently a signalized intersection with advance phasing for the White Street westbound approach and northbound/southbound left turn approaches. There are two lane approaches in all directions (one thru/right turn lane and one left turn lane for Locust Avenue, Wildman Street and White Street westbound and a thru/left turn lane and a thru/right turn lane for White Street eastbound).

The intersection currently operates at an adequate LOS but operations will decline as traffic volumes increase and will operate at a LOS E in the design year if no geometric improvements are implemented.

##### Existing Traffic Volumes



##### Future Traffic Volumes



Intersection capacity analysis was completed and is summarized below:

<u>Analysis Condition</u>	<u>LOS – Overall (Lane Group)</u>
• Existing Geometry/Current Volumes	C (B-D)
• Existing Geometry/Future Volumes	E (B-F)
• Proposed Geometry/Future Volumes	C (B-C)

When applying future traffic volumes to the intersection the westbound and southbound approaches operate at LOS E with significant delays due to the overall lack of lane capacity. Proposed geometric improvements to allow the intersection to operate at an acceptable LOS include:

- Widening to two lanes in each direction on White Street west of Meadow Street
- Adding an exclusive left turn lane on Locust Avenue southbound
- Adding an exclusive right turn lane on Wildman Street northbound to provide a three lane approach (one left turn lane, one thru lane, and one right turn lane)

Crosswalks and pedestrian phasing is required at this location. Proposed improvements are depicted on Figure 11A.

Alternatively, the following improvements can be made to provide for better traffic operations with less significant impact to the immediate neighborhood.

- Widening White Street to four lanes with three lane approaches in both directions at Locust Street

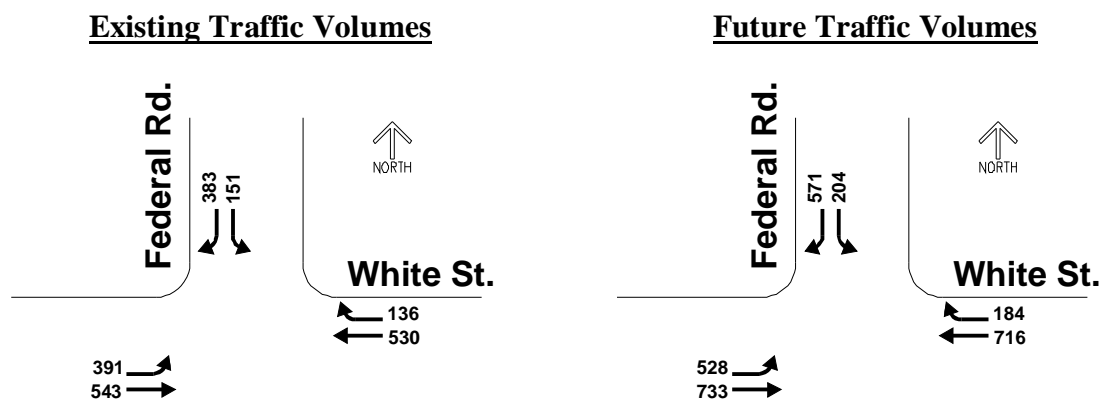
Proposed improvements for the alternate design are depicted on Figure 11B.

No analysis of intersection operations for the alternate design was performed. Therefore, future LOS for this geometry has not been determined.

#### 4.2.3.6 White Street/Federal Road

White Street at Federal Road is currently a signalized intersection with advance phasing for the Federal Road eastbound approach. There are two lane approaches in all directions (one thru lane and one left turn lane for the White Street eastbound approach, one thru lane and one right turn lane for the Federal Road approach and one thru lane and one right turn lane for the White Street westbound approach).

The intersection currently operates at an acceptable LOS but operations will decline as traffic volumes increase and will operate at a LOS D (approaches LOS F) in the design year if no geometric improvements are implemented.



Intersection capacity analysis was completed and is summarized below:

<u>Analysis Condition</u>	<u>LOS – Overall (Lane Group)</u>
• <i>Existing Geometry/Current Volumes</i>	<i>C (B-D)</i>
• <i>Existing Geometry/Future Volumes</i>	<i>E (B-F)</i>
• <i>Proposed Geometry/Future Volumes</i>	<i>C (B-C)</i>

When future traffic volumes are applied to the intersection the eastbound and southbound left turn approaches operate at LOS F and E, respectively. Proposed geometric improvements to allow the intersection to operate at an acceptable LOS include:

- Widening White Street to four lanes west of Federal Road with a three lane approach eastbound (two exclusive left turn lanes and one thru lane)
- Widening the northeastern leg of the intersection to provide two ingress lanes
- Modifying the Federal Road approach southbound to provide a left/right turn lane and an exclusive right turn lane

Proposed improvements are depicted on Figure 12A.

Alternatively, the following improvements can be made to provide for better traffic operations with less significant impact to the immediate neighborhood.

- Modifying the left turn lane on White Street eastbound to provide a thru/left turn lane
- Widening the eastern leg of the intersection to provide two ingress lanes, including the widening of the existing bridge crossing the railroad

Proposed improvements for the alternate design are depicted on Figure 12B.

No analysis of intersection operations for the alternate design was performed. Therefore, future LOS for this geometry has not been determined.

#### **4.2.4 Germantown Road/Sand Pit Road/Starr Road**

##### **4.2.4.1 Corridor Discussion**

The Germantown Road/Sand Pit Road corridor provides a key east-west connection from the Danbury Hospital/WCSU area to I-84 and Federal Road to and from the east. There is currently an ADT volume of about 11,000 vehicles per day using this corridor and based on projected growth in the area the ADT volume will increase to 15,000 vehicles per day in 20 years.

The corridor is primarily a two lane roadway with limited shoulders and passes through an area that is primarily commercial and industrial. Sand Pit Road and Starr Roads are winding two lane roadways with two all way stop controlled intersections, inconsistent roadway width and a lack of access control for driveways. A new signal is planned for the Sand Pit Road/Starr Road/Beaverbrook Road intersection. Germantown Road and the first section of

Sand Pit Road (near Germantown Road) have a well defined roadway cross section and no stop controlled intersections.

Intersection capacity at the signalized intersections in the corridor is good (LOS B-D) and as traffic volumes increase Levels of Service (LOS) will decline but not significantly enough to require geometric improvements. A two lane roadway with a consistent width, a well defined edge of pavement or curb line and improved access, and adequate shoulders is recommended for much of the corridor except where additional lanes are required to improve intersection capacity as noted below.

Plans are in place for improvements by ConnDOT to the Starr Road/Federal Road intersection.

Upon draft review by City staff, the proposed improvements were determined to have a greater impact than is desired by the City at this time. Therefore, alternate improvement plans were also prepared. The following are S E A's recommendations for intersection improvements in this corridor.

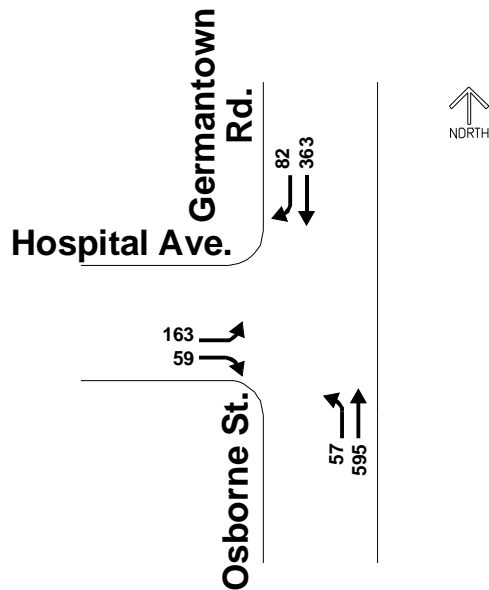
#### *4.2.4.2 Germantown Road/Osborne Street/Hospital Avenue*

Germantown Road/Osborne Street/Hospital Avenue is currently a stop controlled intersection (Hospital Road approach) with single lanes for all approaches. The Hospital Avenue approach splits into two intersections around a large island area with two way traffic on both sides of the island. Traffic turning right onto Hospital Avenue uses the south side of the island and traffic turning left from Hospital Avenue uses the north side of the island.

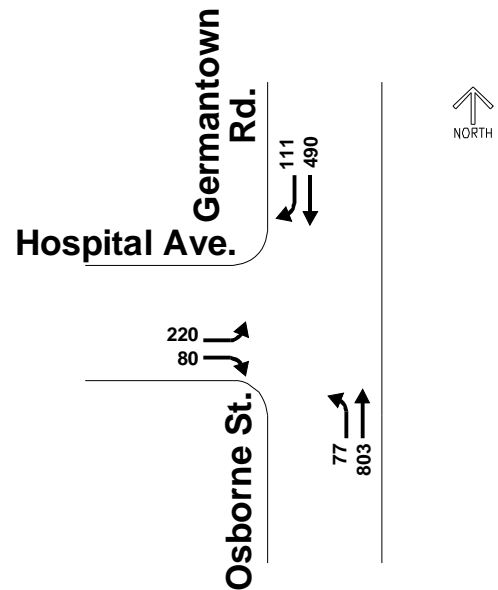
The angle of the southern leg of the intersection allows a fairly straight through left turn lane which could be a potential conflict with southbound traffic on Germantown Road/Osborne Street. Left turns from Hospital Avenue to Germantown Road use the north side of the intersection. The left turns currently from Hospital Road to Germantown Road operate at a LOS D in the PM peak hour but when future traffic volumes are applied to this intersection the left turn operations drop to a LOS F.

Traffic signal warrants were completed (based on the PM peak hour data only) and Peak Hour Warrant was satisfied. Considering that geometric improvements will not correct the capacity problems, the left turning vehicles from Hospital Avenue to Germantown Road are relatively high, that improvements to Hospital Road and associated traffic calming on Virginia Avenue may direct additional traffic to this intersection a traffic signal may be warranted at this location.

### Existing Traffic Volumes



### Future Traffic Volumes



Assuming a traffic signal will be installed at the north side of the island a capacity analysis was completed and is summarized below:

<u>Analysis Condition</u>	<u>LOS – Overall (Lane Group)</u>
• Existing Geometry/Current Volumes	C (C-C)
• Existing Geometry/Future Volumes	E (D-F)
• Proposed Geometry/Future Volumes	C (A-C)

Proposed geometric improvements include:

- Restricting all Hospital Avenue right turns to the south side of the intersection and narrow that approach width consistent with a one way right turn ramp
- Constructing a “T” type intersection on the north side of the island
- Adding a left turn lane on the Osborne Street northbound approach

Crosswalks and pedestrian phasing is required at this location. Proposed improvements are depicted on Figure 13A.

Alternatively, the following improvements can be made to provide for better traffic operations with less significant impact to the immediate neighborhood.

- Restricting all egress from Hospital Avenue to the south side of the island
- Restricting all ingress to Hospital Avenue to the north side of the island
- Modifying the southern leg of the intersection to provide one thru lane

- Modifying the Hospital Avenue approach to the south of the island to provide for two lanes of one-way traffic with a two lane approach at the intersection with Osborne Street (one left turn lane and one right turn lane)
- Modifying the Hospital Avenue approach to the north of the island to provide for one lane of northbound traffic
- Modifying the middle leg of the intersection between Osborne Street and Germantown Avenue to provide one southbound lane and two lanes on the northbound approach (one left turn lane and one thru lane)
- Modifying the Germantown Avenue approach southbound to provide a one lane southbound approach with a thru/right turn lane

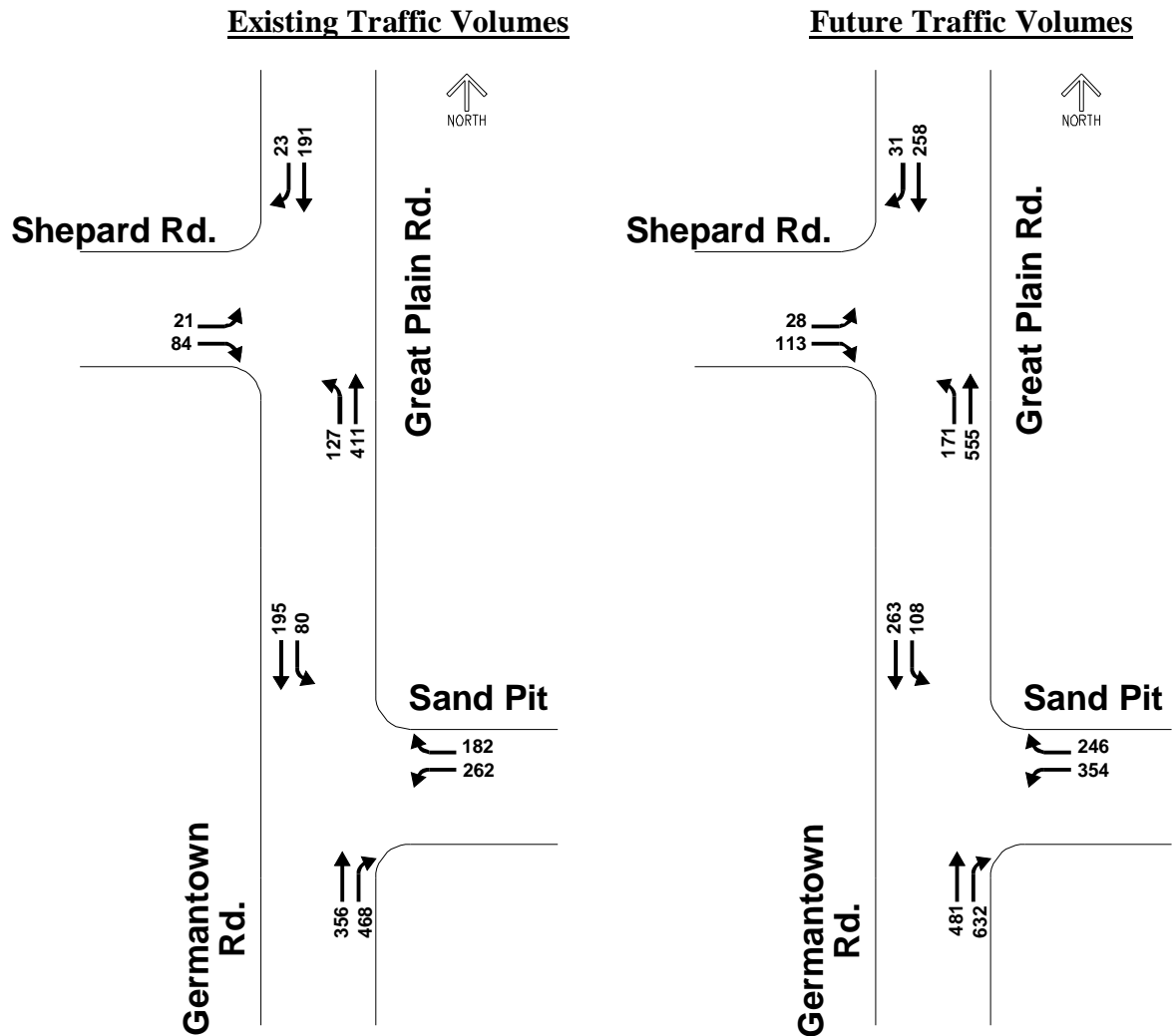
Proposed improvements for the alternate design are depicted on Figure 13B.

No analysis of intersection operations for the alternate design was performed. Therefore, future LOS for this geometry has not been determined.

#### 4.2.4.3 *Germantown Road/Great Plain Road/Sand Pit Road and Shepard Road/Great Plain Road*

Germantown Road/Great Plain Road/Sand Pit Road and Shepard Road/Great Plain Road are two signalized intersections operating off one traffic signal controller or are coordinated. Except Shepard Road where there is a single lane approach, there are a two lane approaches on all intersection legs (Sand Pit Road has a right turn lane and a left turn lane, Germantown Road has one thru lane and one right turn lane, Great Plain Road northbound has one thru lane and one left turn lane, Great Plain southbound has one left turn lane (for Sand Pit Road) and one thru/right turn lane). The intersections currently operates at an acceptable LOS and operations will decline as traffic volumes increase but will not decrease to a point where an unacceptable LOS is realized in the design year..





Intersection capacity analysis was completed and is summarized below:

<b><u>Analysis Condition</u></b>	<b><u>LOS – Overall (Lane Group)</u></b>
<b><i>Germantown Road/Great Plain Road/Sand Pit Road</i></b>	
• Existing Geometry/Current Volumes	A (A-B)
• Existing Geometry/Future Volumes	B (A-B)
• Proposed Geometry/Future Volumes	N/A
<b><i>Great Plain Road/Shepard Road</i></b>	
• Existing Geometry/Current Volumes	B (A-B)
• Existing Geometry/Future Volumes	B (A-C)
• Proposed Geometry/Future Volumes	N/A

No lane additions are recommended for this intersection.

## 5. OPINION OF PROBABLE CONSTRUCTION COSTS

Budgetary level opinions of probable construction costs have been developed for the improvements depicted on Figures 3 through 13 (Appendix A). These opinions were prepared based 2006 dollar values. Several sources were used to develop the costs, including the ConnDOT Weighted Unit Price Report, 2005.

A summary of probable costs is presented below. Detailed cost tables are included in Appendix B. The costs include construction related costs and contingencies only. Design and permitting costs are not included. Right-of-way acquisition costs are also not included.

### Probable Construction Costs for Proposed Improvements

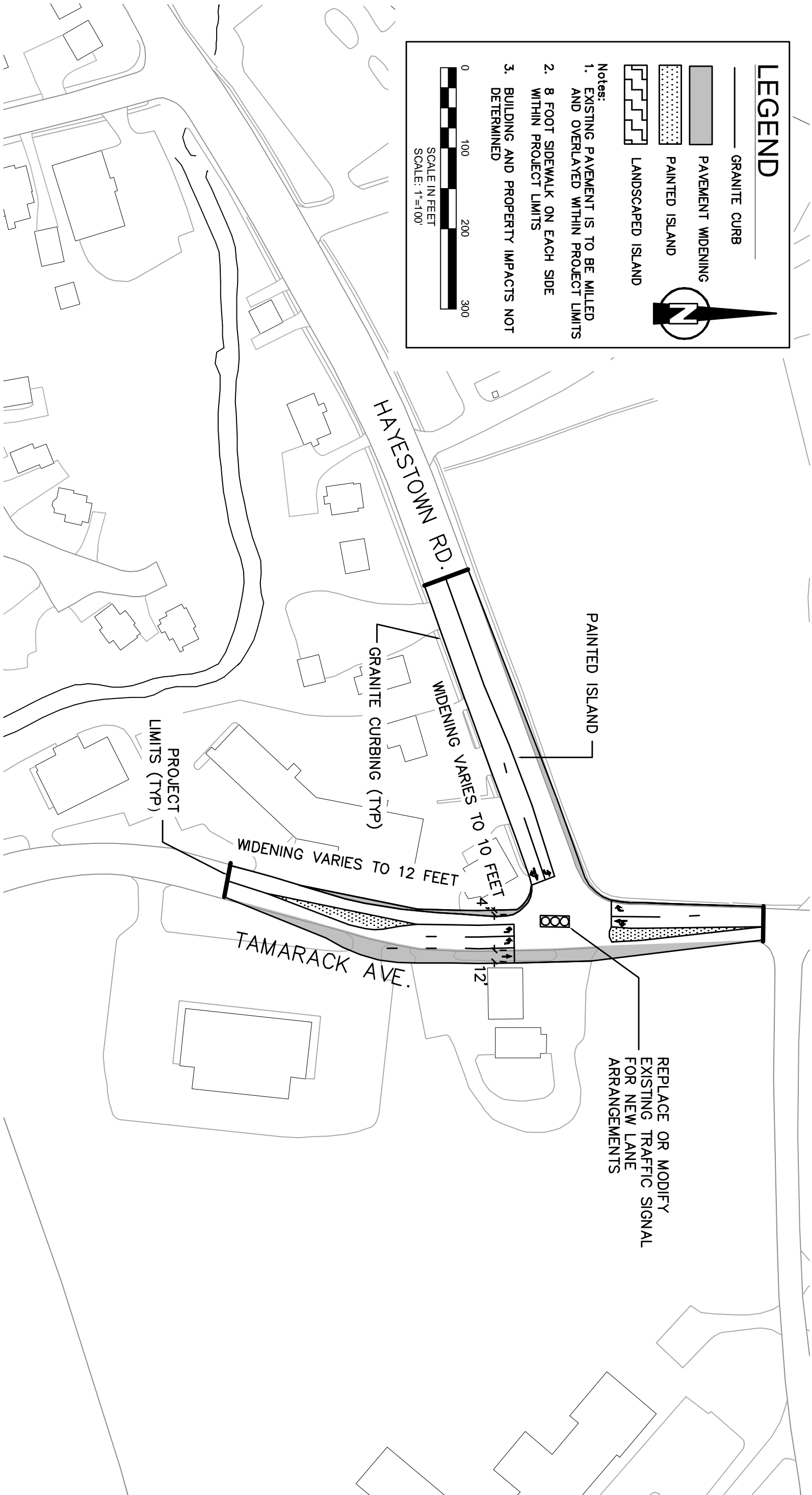
<u>Intersection</u>	<u>Probable Cost (2006 dollars)</u>
Tamarack Avenue & Haystown Avenue	932,000
Tamarack Ave & Virginia Avenue Extension	653,000
Tamarack Avenue & Hospital Avenue & Locust Avenue	1,701,000
Garamella & Maple and Garamella & Balmforth & Osborne	1,443,000
Osborne Street & Hospital Avenue	1,103,000
Osborne Street & Locust Avenue	1,663,000
White Street & Moss Avenue	1,091,000
White Street & Fifth Avenue & Bates Place	1,692,000
White Street & Eight Avenue & parking garage	1,508,000
White Street & Locust Street & Wildman Street	1,358,000
White Street & Federal Road	1,374,000
Germantown Road & Osborne Street & Hospital Avenue	1,327,000

### Probable Construction Costs for Alternate Improvements

<u>Intersection</u>	<u>Probable Cost (2006 dollars)</u>
Tamarack Avenue & Haystown Avenue	785,000
Tamarack Ave & Virginia Avenue Extension	653,000
Tamarack Avenue & Hospital Avenue & Locust Avenue	1,500,000
Garamella & Maple and Garamella & Balmforth & Osborne	1,530,000
Osborne Street & Hospital Avenue	850,000
Osborne Street & Locust Avenue	530,000
White Street & Moss Avenue	1,645,000
White Street & Fifth Avenue & Bates Place*	N/A
White Street & Eight Avenue & parking garage	1,640,000
White Street & Locust Street & Wildman Street	1,310,000
White Street & Federal Road	1,327,000
Germantown Road & Osborne Street & Hospital Avenue	1,855,000

\*Included in cost estimate for White Street & Moss Avenue

## Appendix A

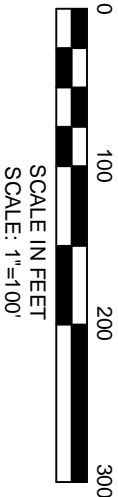


LEGEND

- GRANITE CURB
- PAVEMENT WIDENING
- PAINTED ISLAND
- LANDSCAPED ISLAND

Notes:

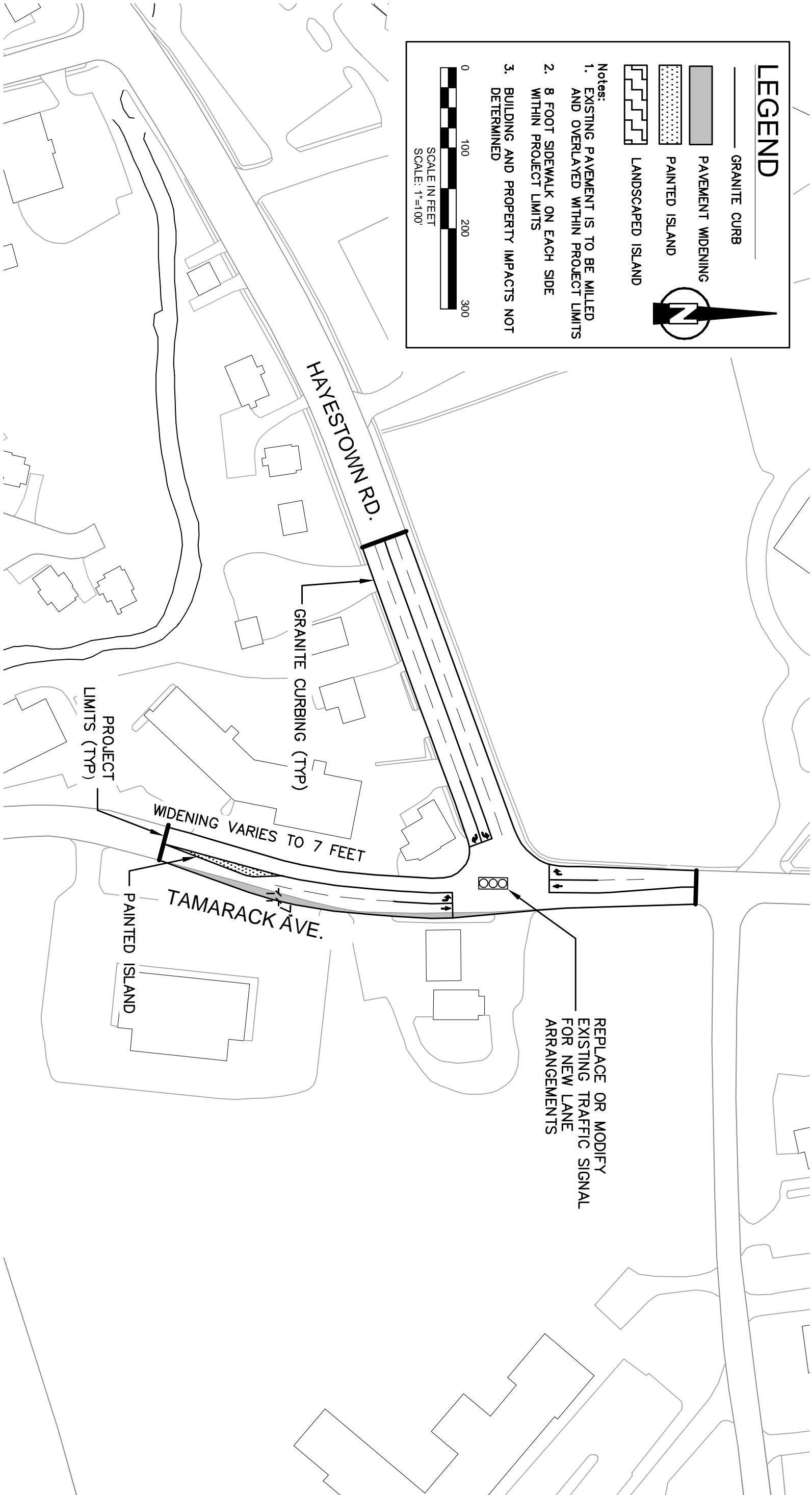
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- 2. 8 FOOT SIDEWALK ON EACH SIDE WITHIN PROJECT LIMITS
- 3. BUILDING AND PROPERTY IMPACTS NOT DETERMINED



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ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN  TAMARACK AVENUE & HAYESTOWN ROAD  FIGURE 3A
Date	AUGUST 2006	
Job No.	2006277	
Designed by	MSV	
Drawn by	BAS	
Checked by	MSV	
Approved by	AGB	



### LEGEND

GRANITE CURB

PAVEMENT WIDENING

PAINTED ISLAND

LANDSCAPED ISLAND

Notes:

- EXISTING PAVEMENT IS TO BE MILLED AND OVERLAYED WITHIN PROJECT LIMITS
- 8 FOOT SIDEWALK ON EACH SIDE WITHIN PROJECT LIMITS
- BUILDING AND PROPERTY IMPACTS NOT DETERMINED

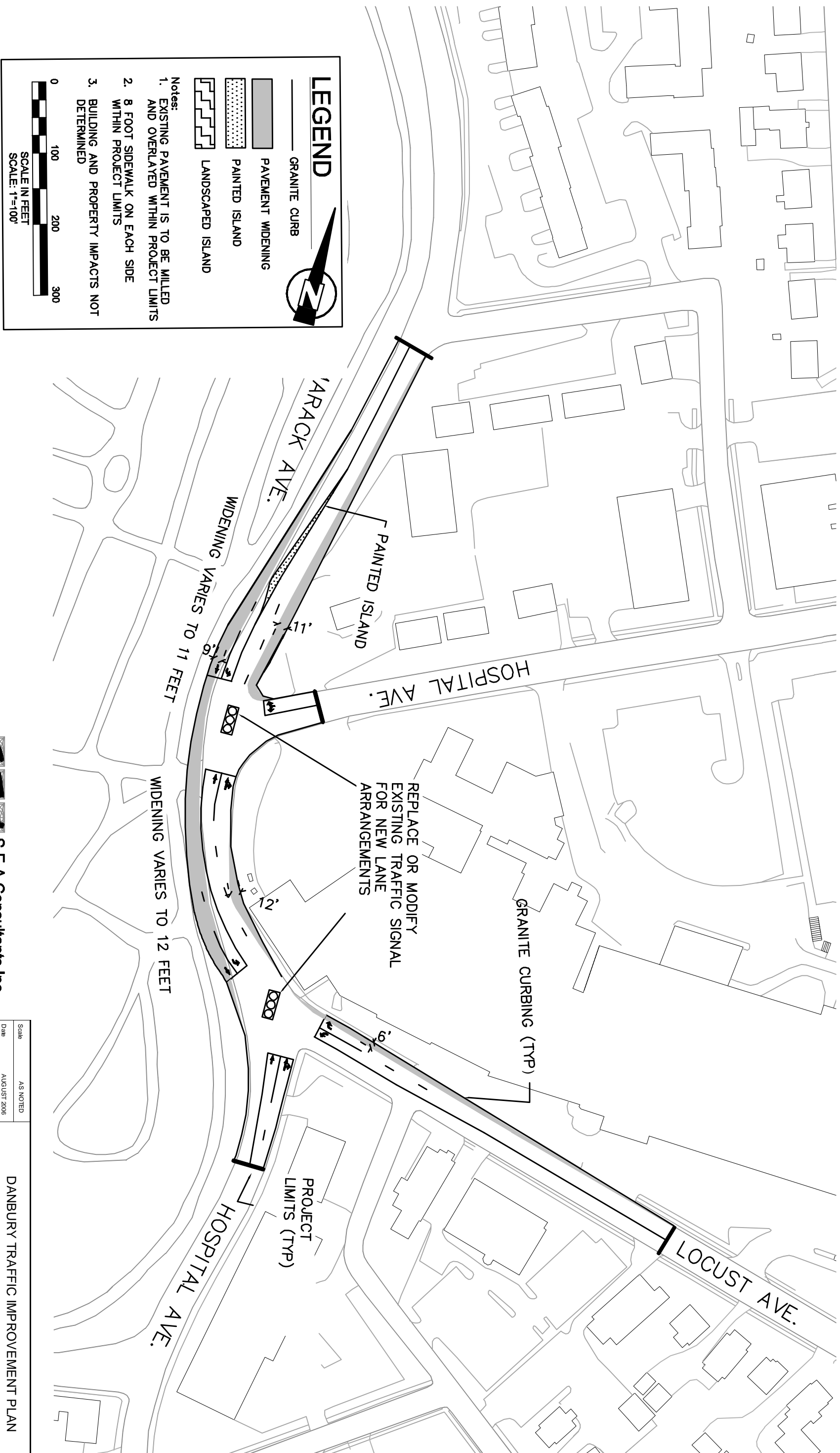
SCALE IN FEET  
SCALE: 1"=100'

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ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN  TAMARACK AVENUE & HAYESTOWN ROAD (CITY-PREFERRED DESIGN)
Date	APRIL 2007	
Job No.	2006277	
Designed by	CMC	
Drawn by	CMC	
Checked by	AGB	FIGURE 3B
Approved by	AGB	



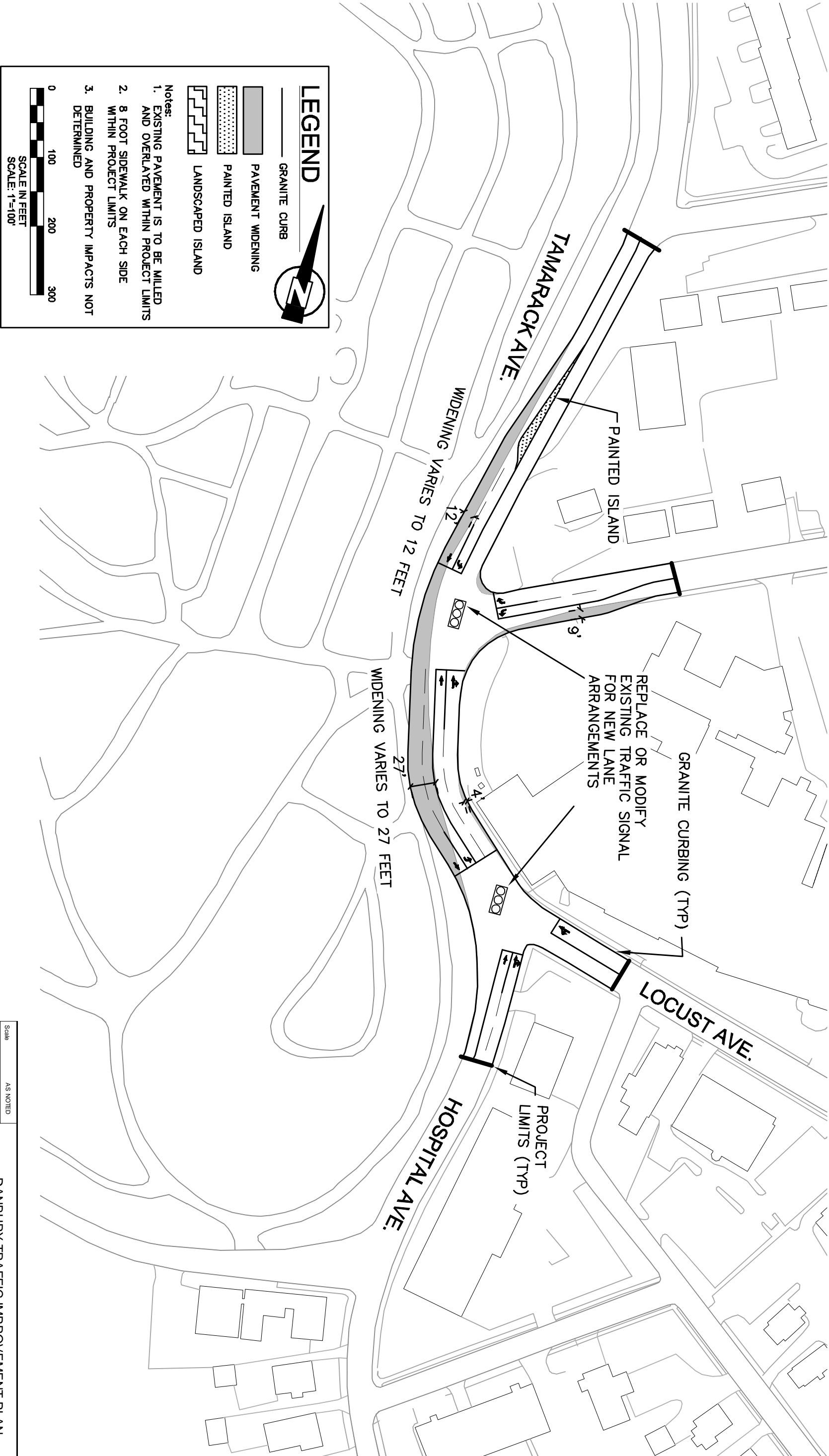


Scale	AS NOTED
Date	AUGUST 2006
Job No.	2006277
Designed by	MSV
Drawn by	BAS
Checked by	MSV
Approved by	AGB

**DANBURY TRAFFIC IMPROVEMENT PLAN**

**TAMARACK AVE. & HOSPITAL AVE. & LOCUST AVE.**

**FIGURE 5A**

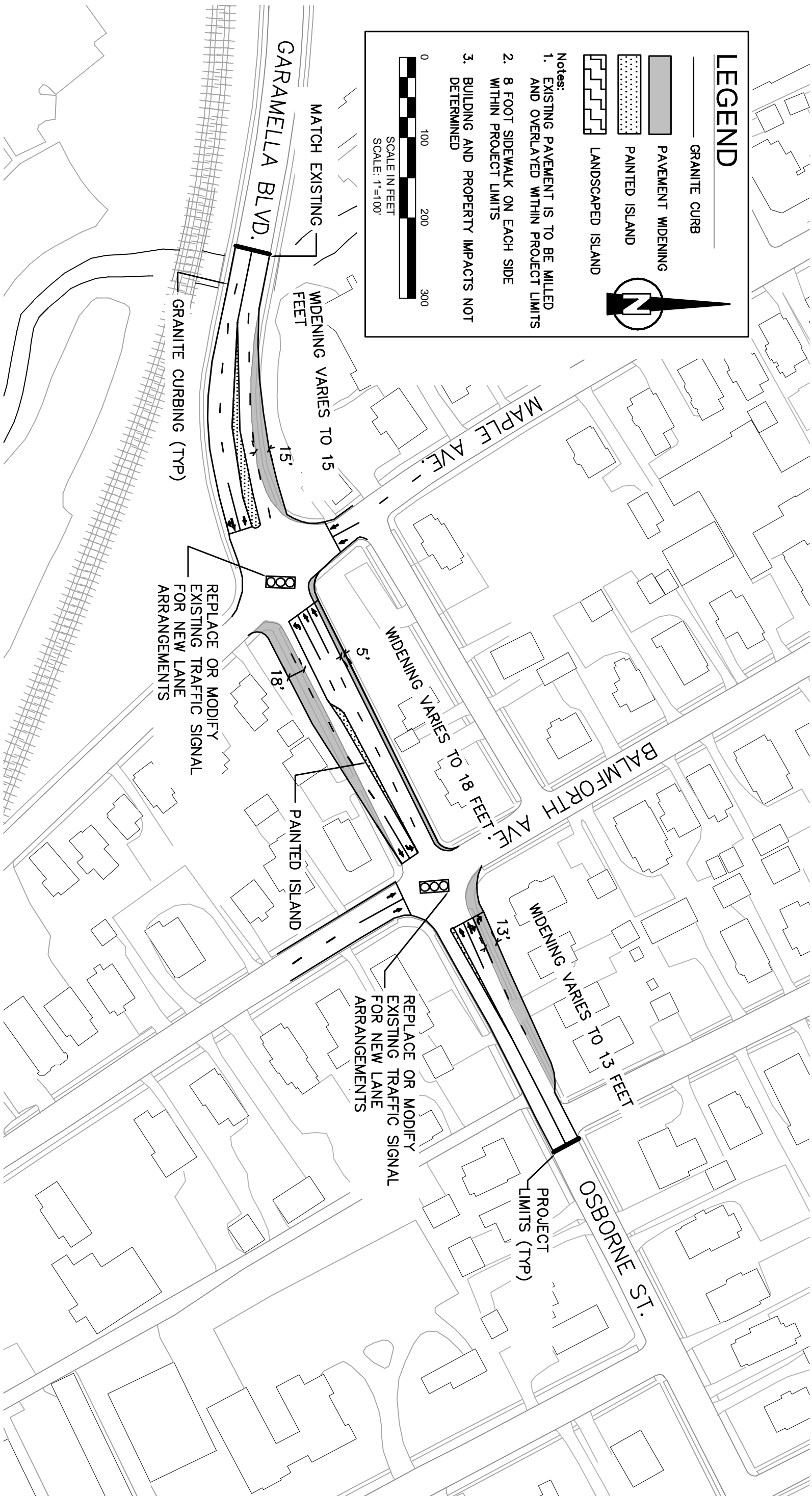


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ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN  TAMARACK AVE. & HOSPITAL AVE. & LOCUST AVE. (CITY-PREFERRED DESIGN)
Date	APRIL 2007	
Job No.	2006277	
Designed by	CMC	
Drawn by	CMC	
Checked by	AGB	
Approved by	AGB	FIGURE 5B





### LEGEND

GRANITE CURB

PAVEMENT WIDENING

PAINTED ISLAND

LANDSCAPED ISLAND

Notes:

1. EXISTING PAVEMENT IS TO BE MILLED AND OVERLAYED WITHIN PROJECT LIMITS
2. 8 FOOT SIDEWALK ON EACH SIDE WITHIN PROJECT LIMITS
3. BUILDING AND PROPERTY IMPACTS NOT DETERMINED

N

0 100 200 300

SCALE IN FEET

SCALE: 1"=100'

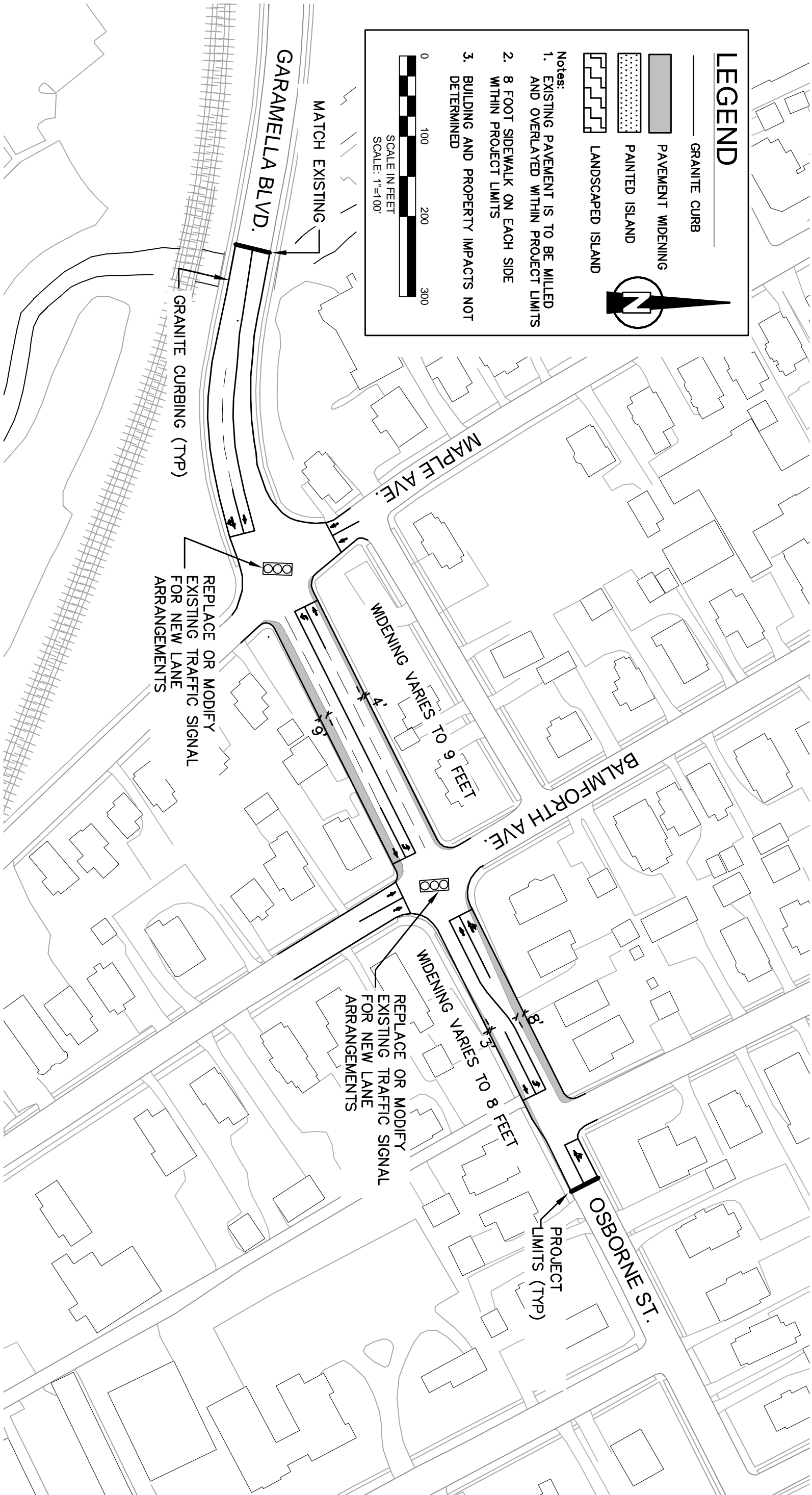


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CAMBRIDGE, MASSACHUSETTS    CONCORD, NEW HAMPSHIRE  
ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN
Date	AUGUST 2006	
Job No.	2006277	
Designed by	MSV	
Drawn by	BAS	
Checked by	MSV	GARAMELLA BLVD. & MAPLE AVE. & BALMFORTH AVE.
Approved by	AGB	

FIGURE 6A



# LEGEND

GRANITE CURB

PAVEMENT WIDENING

PAINTED ISLAND

LANDSCAPED ISLAND

N

Notes:

1. EXISTING PAVEMENT IS TO BE MILLED AND OVERLAYED WITHIN PROJECT LIMITS

2. 8 FOOT SIDEWALK ON EACH SIDE WITHIN PROJECT LIMITS

3. BUILDING AND PROPERTY IMPACTS NOT DETERMINED

0

100

200

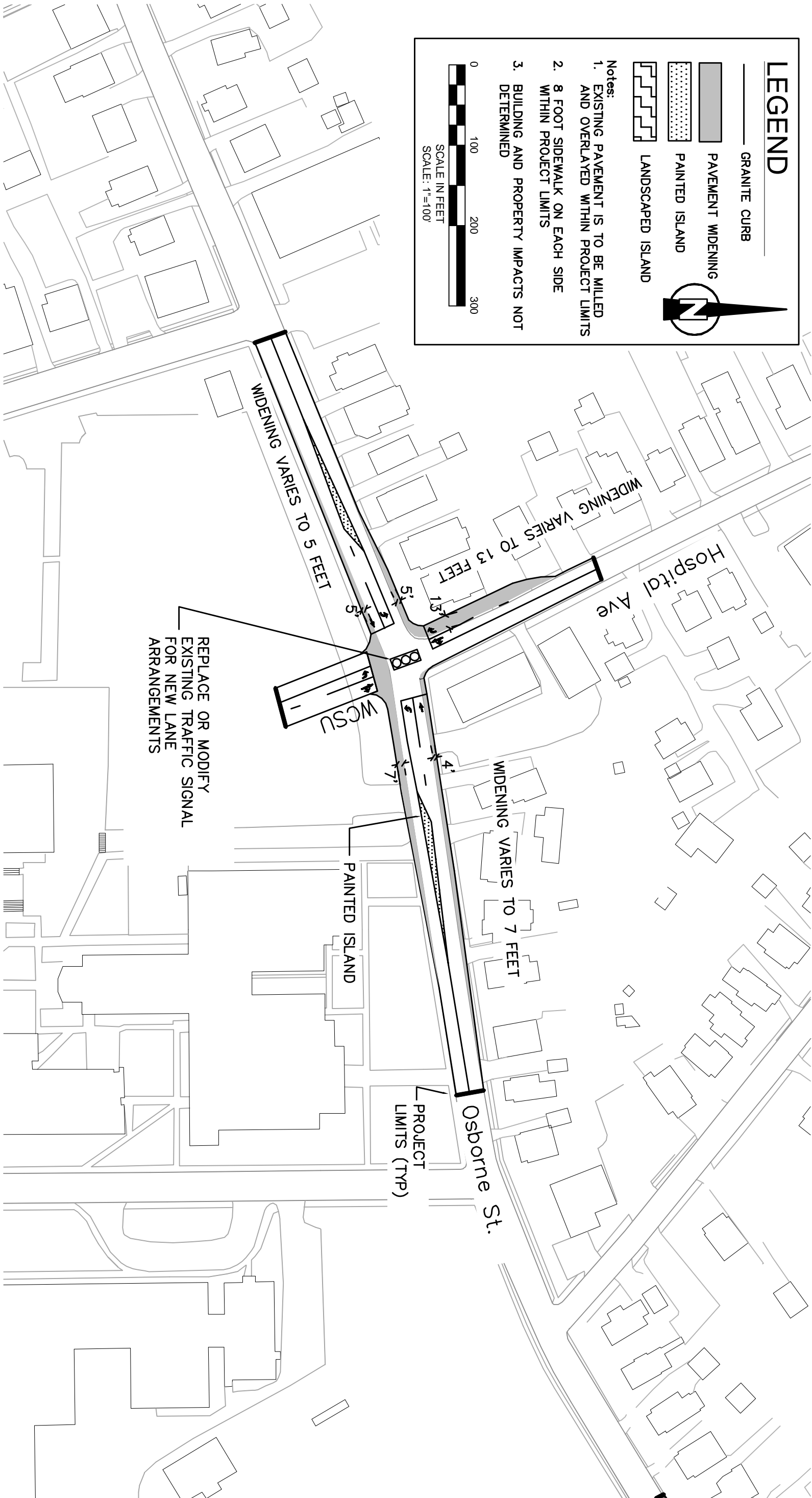
300

SCALE IN FEET

SCALE: 1"=100'

CAMBRIDGE, MASSACHUSETTS    CONCORD, NEW HAMPSHIRE  
ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED	<div>DANBURY TRAFFIC IMPROVEMENT PLAN</div> <div>GARAMELLA BLVD. &amp; MAPLE AVE. &amp; BALMFORTH AVE.</div> <div>(CITY-PREFERRED DESIGN)</div>
Date	APRIL 2007	
Job No.	2005277	
Designed by	CMC	
Drawn by	CMC	
Checked by	AGB	FIGURE 6B
Approved by	AGB	



### LEGEND

GRANITE CURB

PAVEMENT WIDENING

PAINTED ISLAND

LANDSCAPED ISLAND

Notes:

- EXISTING PAVEMENT IS TO BE MILLED AND OVERLAYED WITHIN PROJECT LIMITS
- 8 FOOT SIDEWALK ON EACH SIDE WITHIN PROJECT LIMITS
- BUILDING AND PROPERTY IMPACTS NOT DETERMINED

0

100

200

300

SCALE IN FEET

SCALE: 1"=100'

Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN  HOSPITAL AVENUE & OSBORNE STREET  FIGURE 7A
Date	AUGUST 2006	
Job No.	2005277	
Designed by	MSV	
Drawn by	BAS	
Checked by	MSV	
Approved by	AGB	

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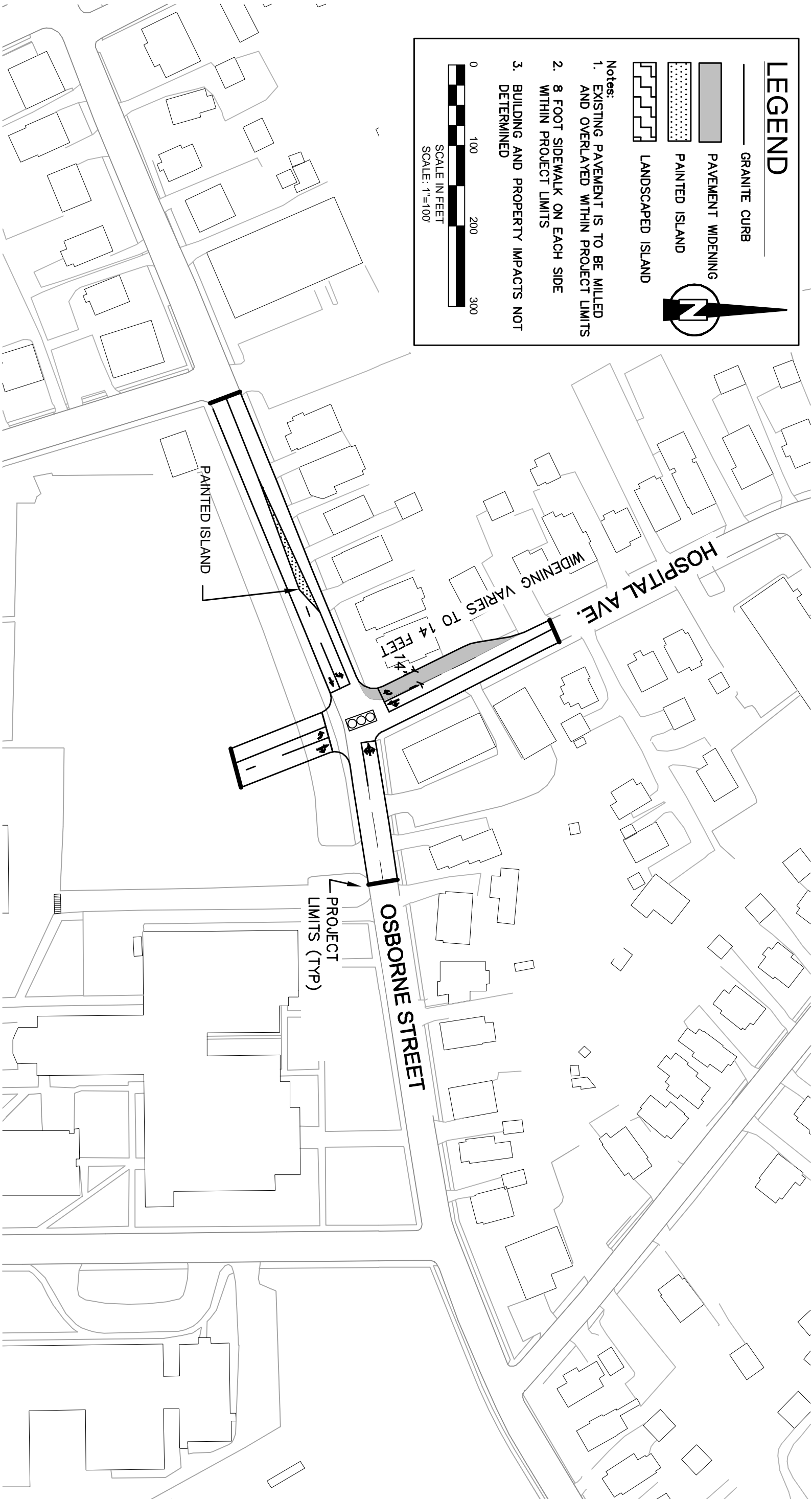
CAMBRIDGE, MASSACHUSETTS

CONCORD, NEW HAMPSHIRE

ROCKY HILL, CONNECTICUT

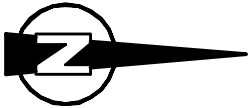
STONEHAM, MASSACHUSETTS

AUGUSTA, MAINE



LEGEND

- GRANITE CURB
- PAVEMENT WIDENING
- PAINTED ISLAND
- LANDSCAPED ISLAND



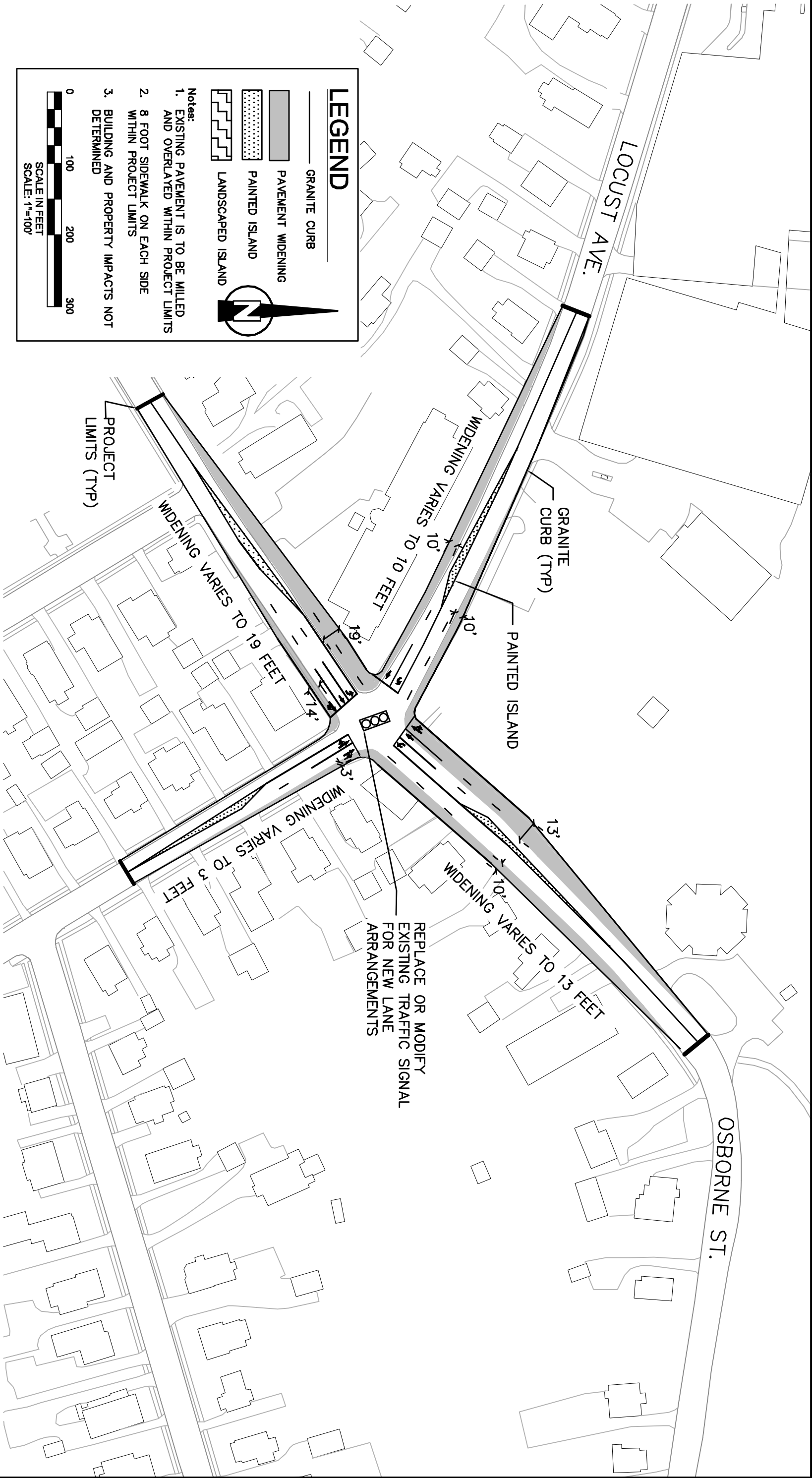
- Notes:
- EXISTING PAVEMENT IS TO BE MILLED AND OVERLAYED WITHIN PROJECT LIMITS
  - 8 FOOT SIDEWALK ON EACH SIDE WITHIN PROJECT LIMITS
  - BUILDING AND PROPERTY IMPACTS NOT DETERMINED



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ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

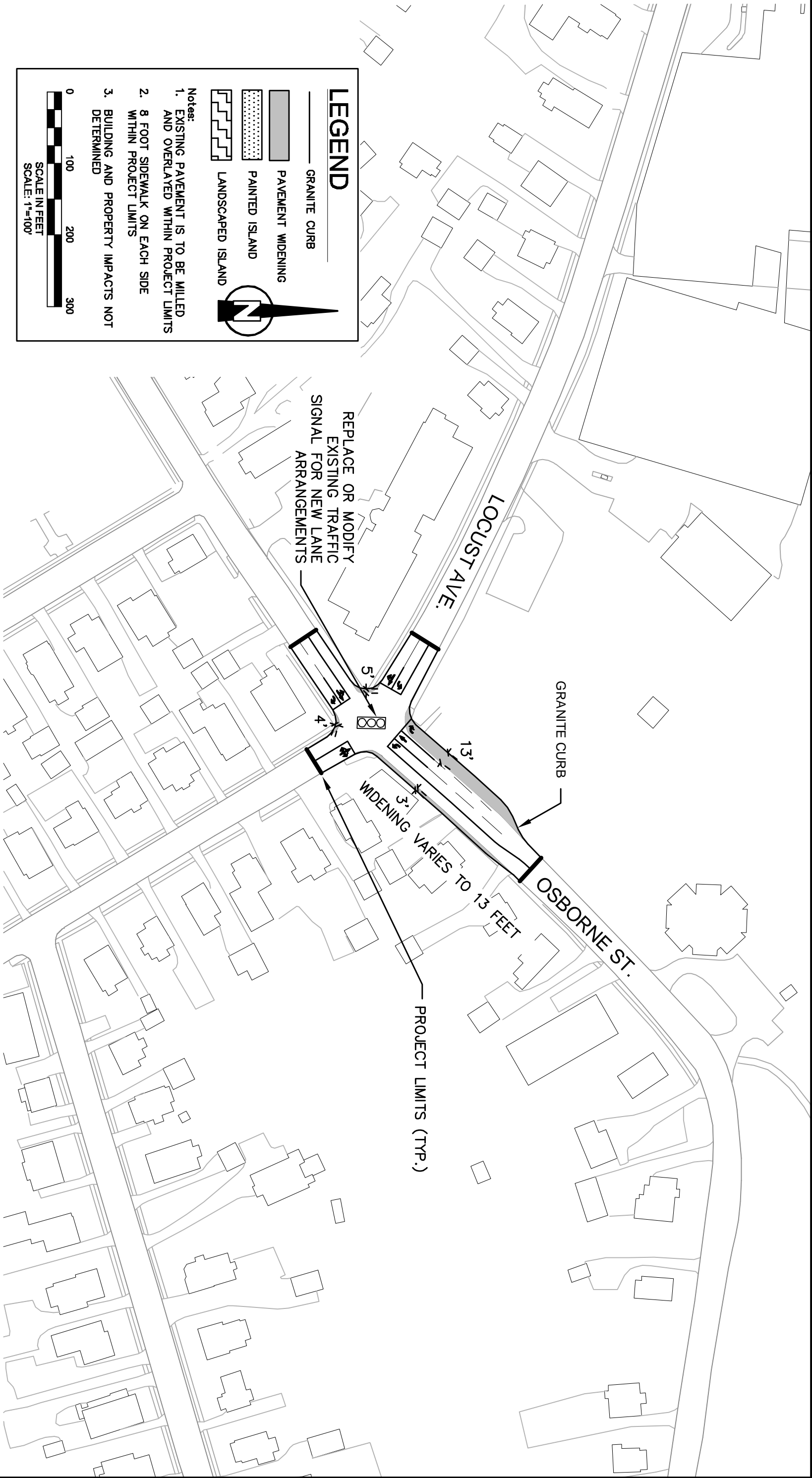
Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN  HOSPITAL AVENUE & OSBORNE STREET (CITY-PREFERRED DESIGN)
Date	APRIL 2007	
Job No.	2006277	
Designed by	CMC	
Drawn by	CMC	
Checked by	AGB	FIGURE 7B
Approved by	AGB	



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ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN  OSBORNE STREET & LOCUST AVENUE  FIGURE 8A
Date	AUGUST 2006	
Job No.	2005277	
Designed by	MSV	
Drawn by	BAS	
Checked by	AGB	
Approved by	AGB	



### LEGEND

GRANITE CURB

PAVEMENT WIDENING

PAINTED ISLAND

LANDSCAPED ISLAND

Notes:

- EXISTING PAVEMENT IS TO BE MILLED AND OVERLAYED WITHIN PROJECT LIMITS
- 8 FOOT SIDEWALK ON EACH SIDE WITHIN PROJECT LIMITS
- BUILDING AND PROPERTY IMPACTS NOT DETERMINED

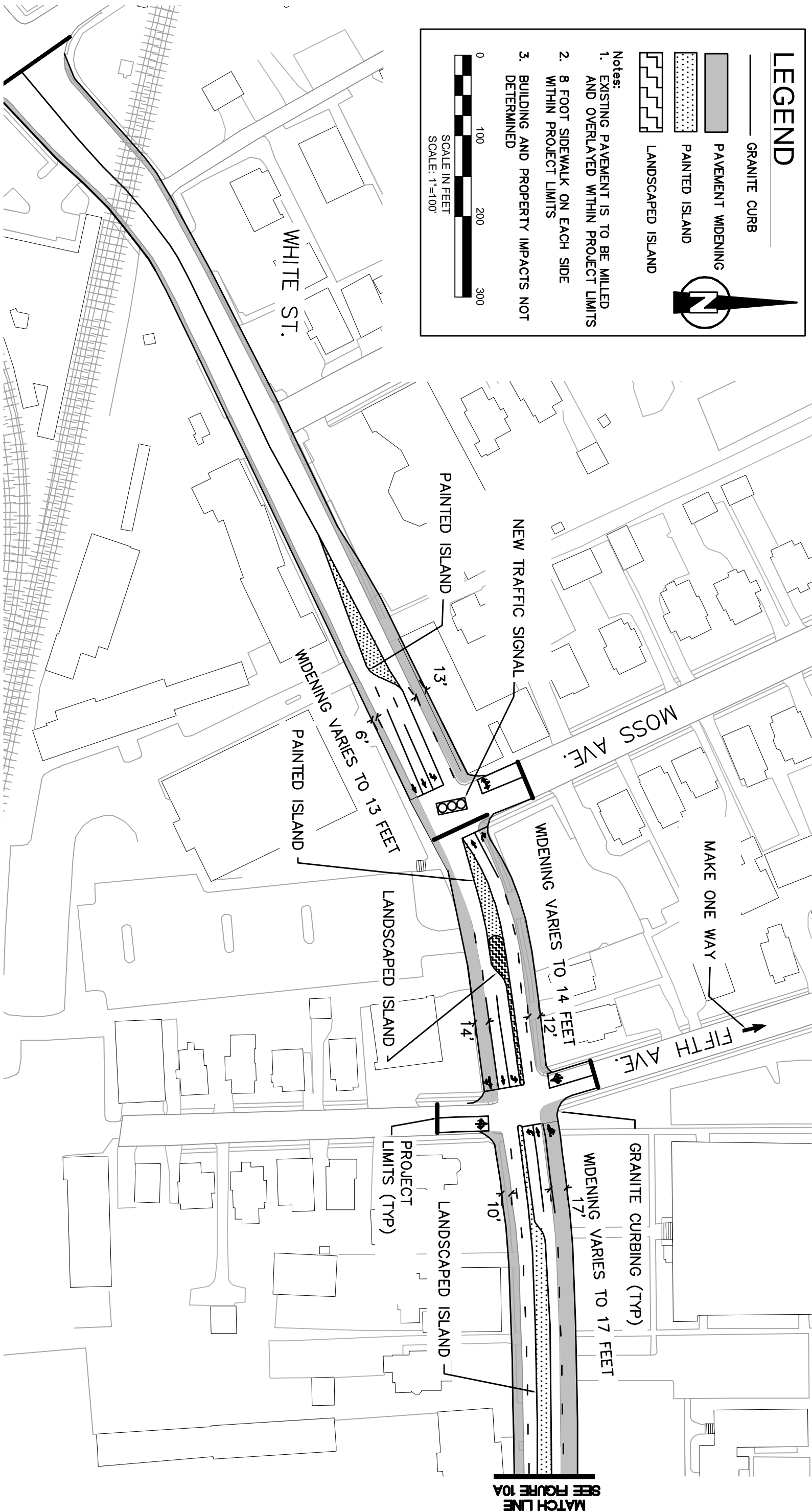
SCALE IN FEET  
SCALE: 1"=100'



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CAMBRIDGE, MASSACHUSETTS    CONCORD, NEW HAMPSHIRE  
ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN  OSBORNE STREET & LOCUST AVENUE (CITY-PREFERRED DESIGN)
Date	APRIL 2007	
Job No.	2005277	
Designed by	CMC	
Drawn by	CMC	
Checked by	AGB	FIGURE 8B
Approved by	AGB	



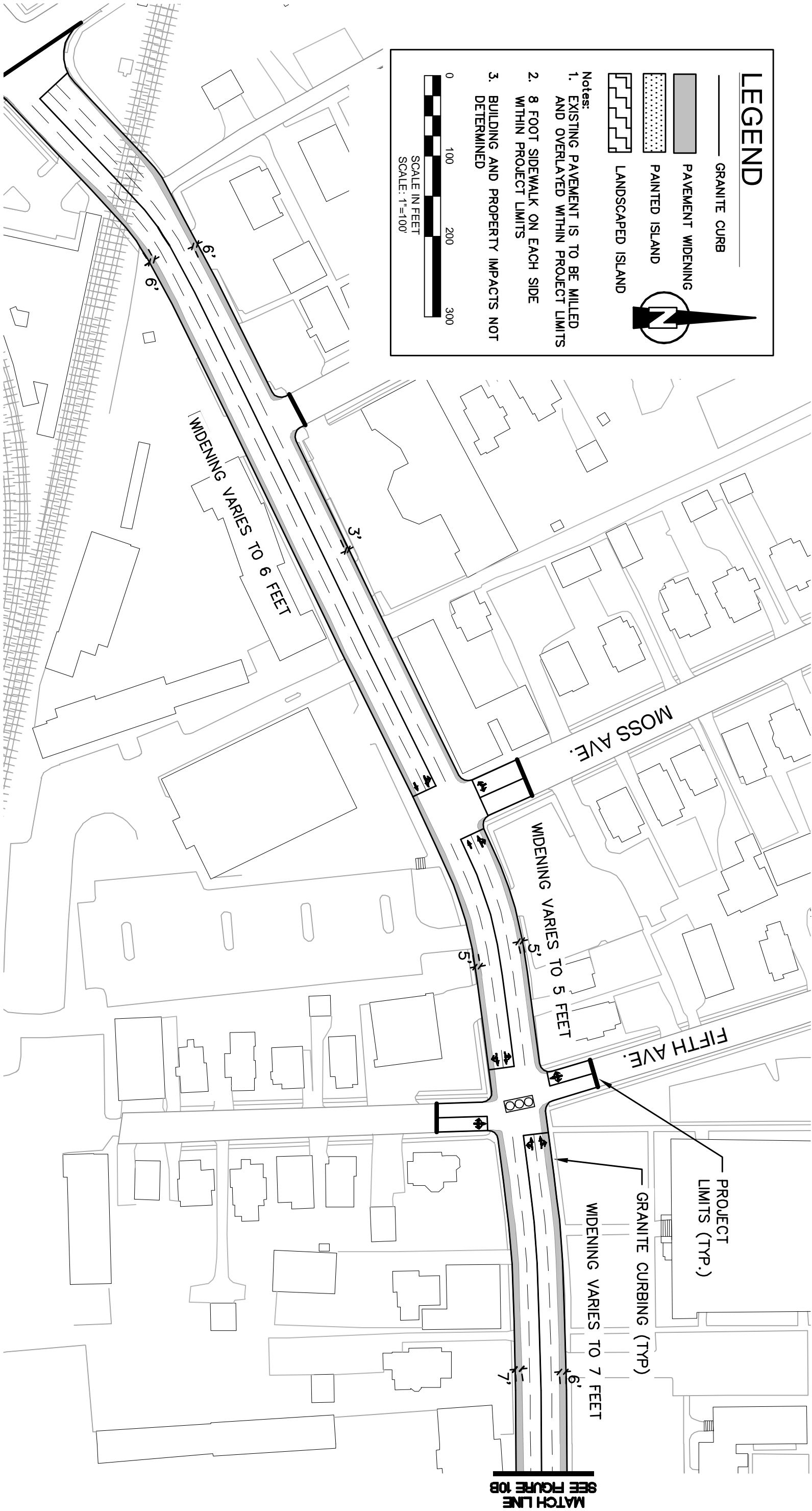
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Scientists/Engineers/Architects

CAMBRIDGE, MASSACHUSETTS    CONCORD, NEW HAMPSHIRE  
ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS


Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN
Date	AUGUST 2006	
Job No.	2006277	
Designed by	MSV	
Drawn by	BAS	
Checked by	MSV	MOSS AVENUE & WHITE STREET
Approved by	AGB	

FIGURE 9A






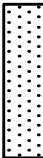
# LEGEND




GRANITE CURB



PAVEMENT WIDENING




PAINTED ISLAND




LANDSCAPED ISLAND

Notes:

- EXISTING PAVEMENT IS TO BE MILLED AND OVERLAYED WITHIN PROJECT LIMITS
- 8 FOOT SIDEWALK ON EACH SIDE WITHIN PROJECT LIMITS
- BUILDING AND PROPERTY IMPACTS NOT DETERMINED



N



0 100 200 300

SCALE IN FEET

SCALE: 1"=100'

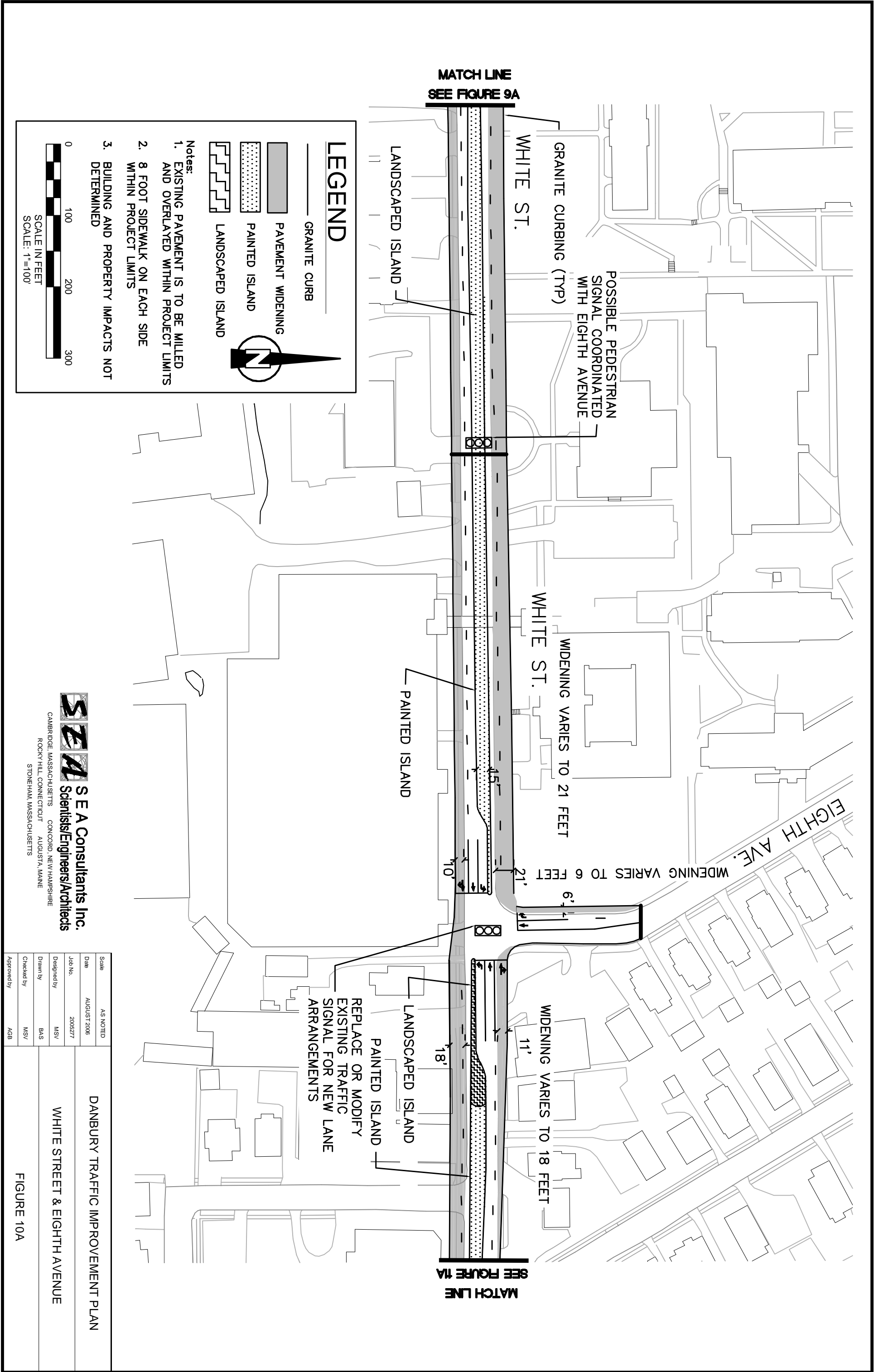


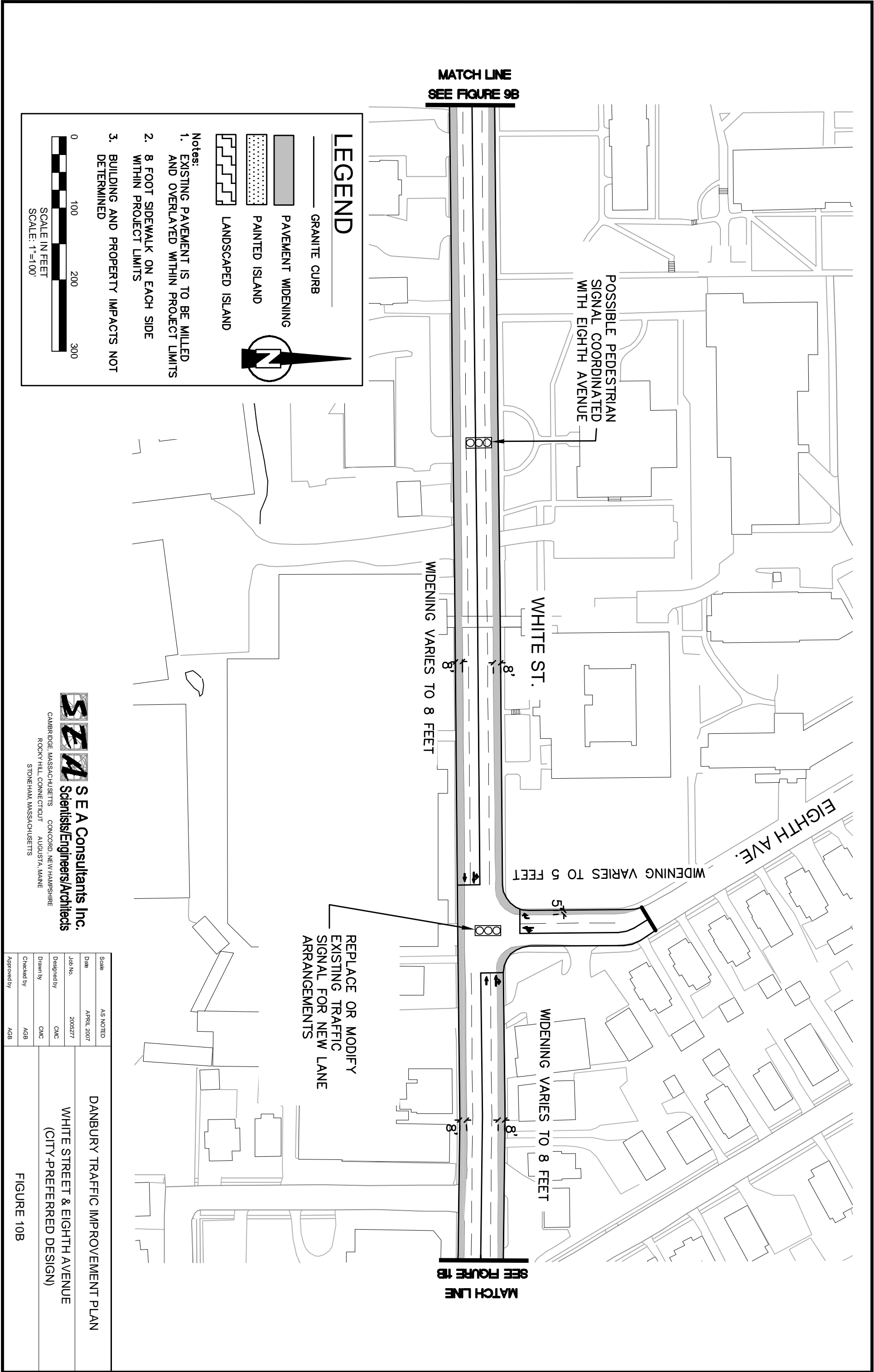
**SEA Consultants Inc.**  
Scientists/Engineers/Architects

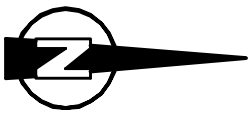
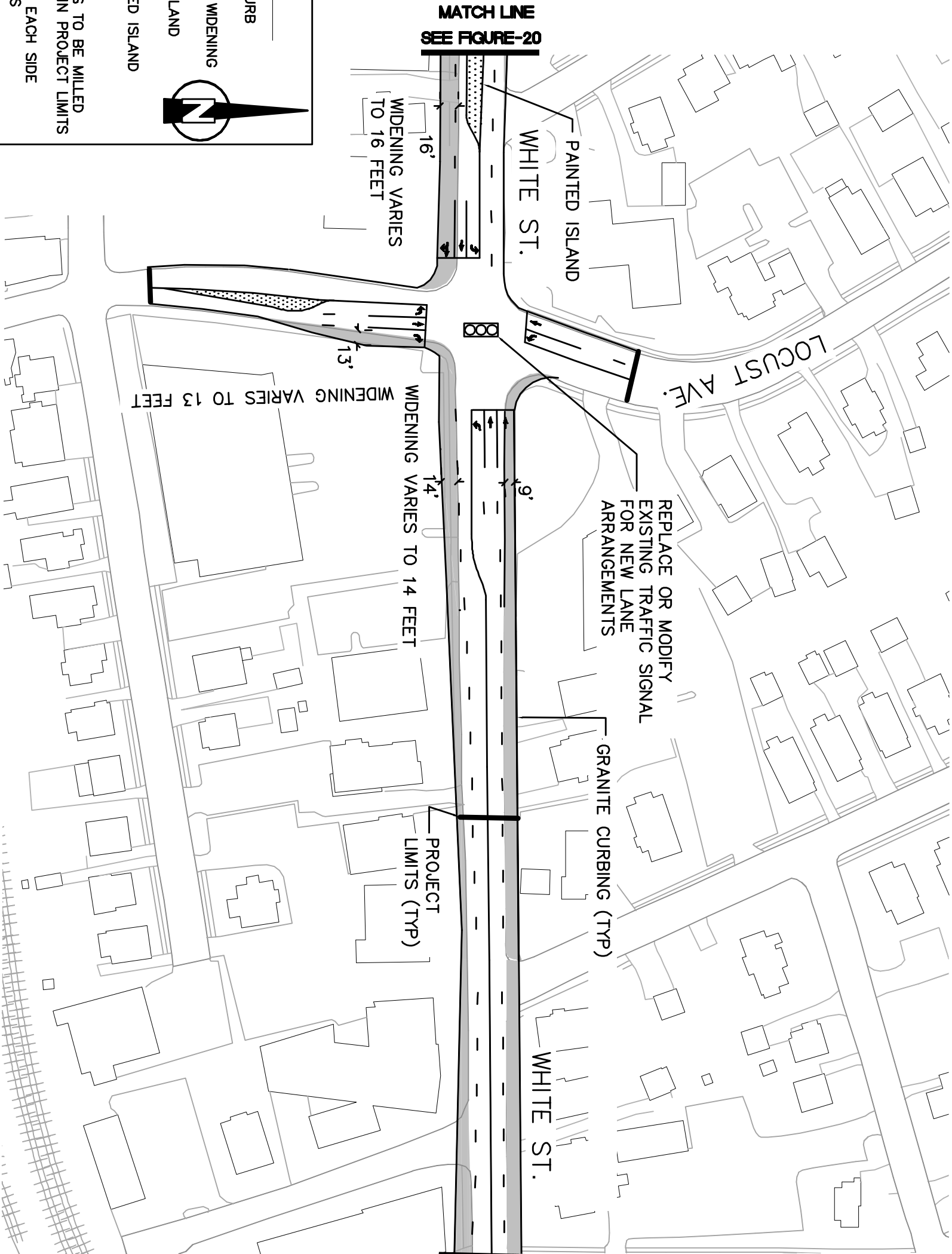
CAMBRIDGE, MASSACHUSETTS    CONCORD, NEW HAMPSHIRE  
ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN
Date	APRIL 2007	
Job No.	2005277	
Designed by	CMC	
Drawn by	CMC	
Checked by	AGB	MOSS AVENUE & WHITE STREET
Approved by	AGB	
FIGURE 9B		







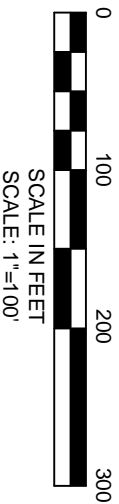


## LEGEND

- GRANITE CURB
- PAVEMENT WIDENING
- PAINTED ISLAND
- LANDSCAPED ISLAND

### Notes:

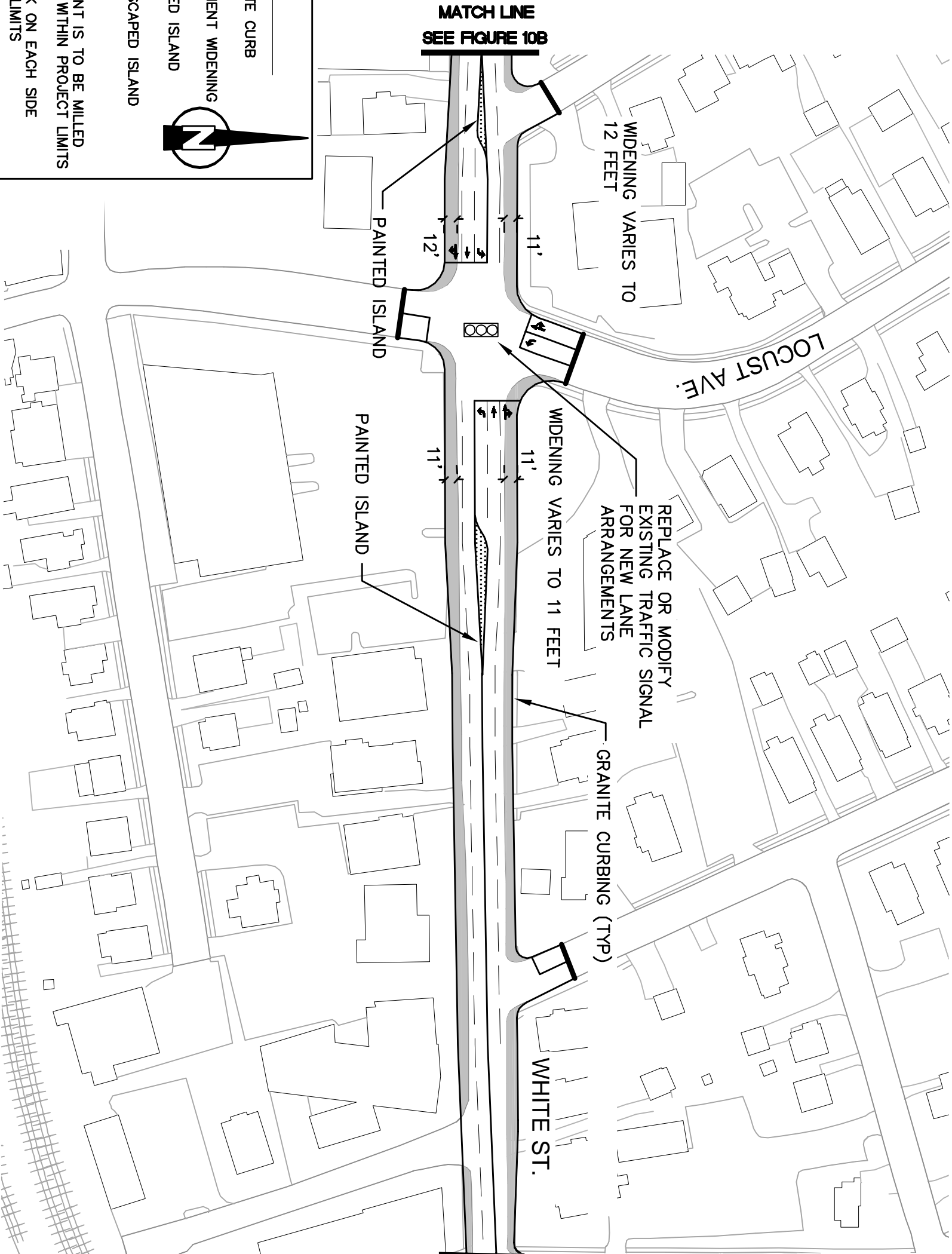
- EXISTING PAVEMENT IS TO BE MILLED AND OVERLAYED WITHIN PROJECT LIMITS
- 8 FOOT SIDEWALK ON EACH SIDE WITHIN PROJECT LIMITS
- BUILDING AND PROPERTY IMPACTS NOT DETERMINED



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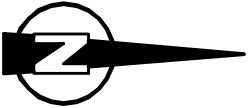
CAMBRIDGE, MASSACHUSETTS    CONCORD, NEW HAMPSHIRE  
ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN  WHITE ST. & LOCUST AVE. & EIGHTH AVE.  FIGURE 11A
Date	AUGUST 2006	
Job No.	2006277	
Designed by	MSV	
Drawn by	BAS	
Checked by	MSV	
Approved by	AGB	

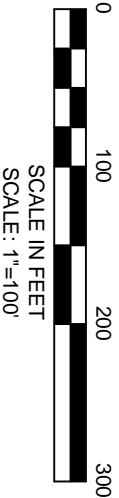


LEGEND

- GRANITE CURB
- PAVEMENT WIDENING
- PAINTED ISLAND
- LANDSCAPED ISLAND

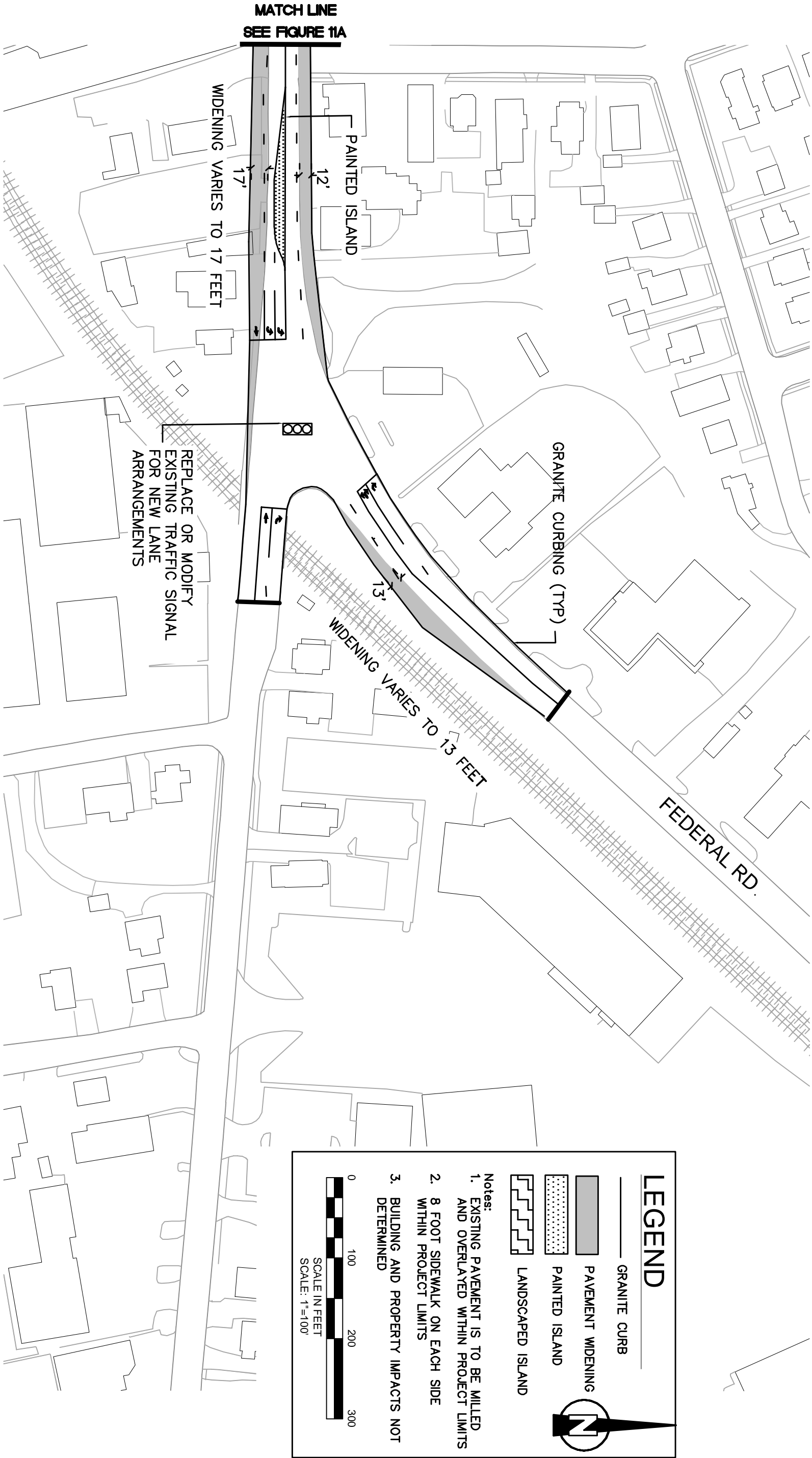


- Notes:
- EXISTING PAVEMENT IS TO BE MILLED AND OVERLAYED WITHIN PROJECT LIMITS
  - 8 FOOT SIDEWALK ON EACH SIDE WITHIN PROJECT LIMITS
  - BUILDING AND PROPERTY IMPACTS NOT DETERMINED



CAMBRIDGE, MASSACHUSETTS    CONCORD, NEW HAMPSHIRE  
ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN  WHITE ST. & LOCUST AVE. & EIGHTH AVE. (CITY-PREFERRED DESIGN)
Date	APRIL 2007	
Job No.	2006277	
Designed by	MSV	
Drawn by	BAS	
Checked by	---	FIGURE 11B
Approved by	AGB	

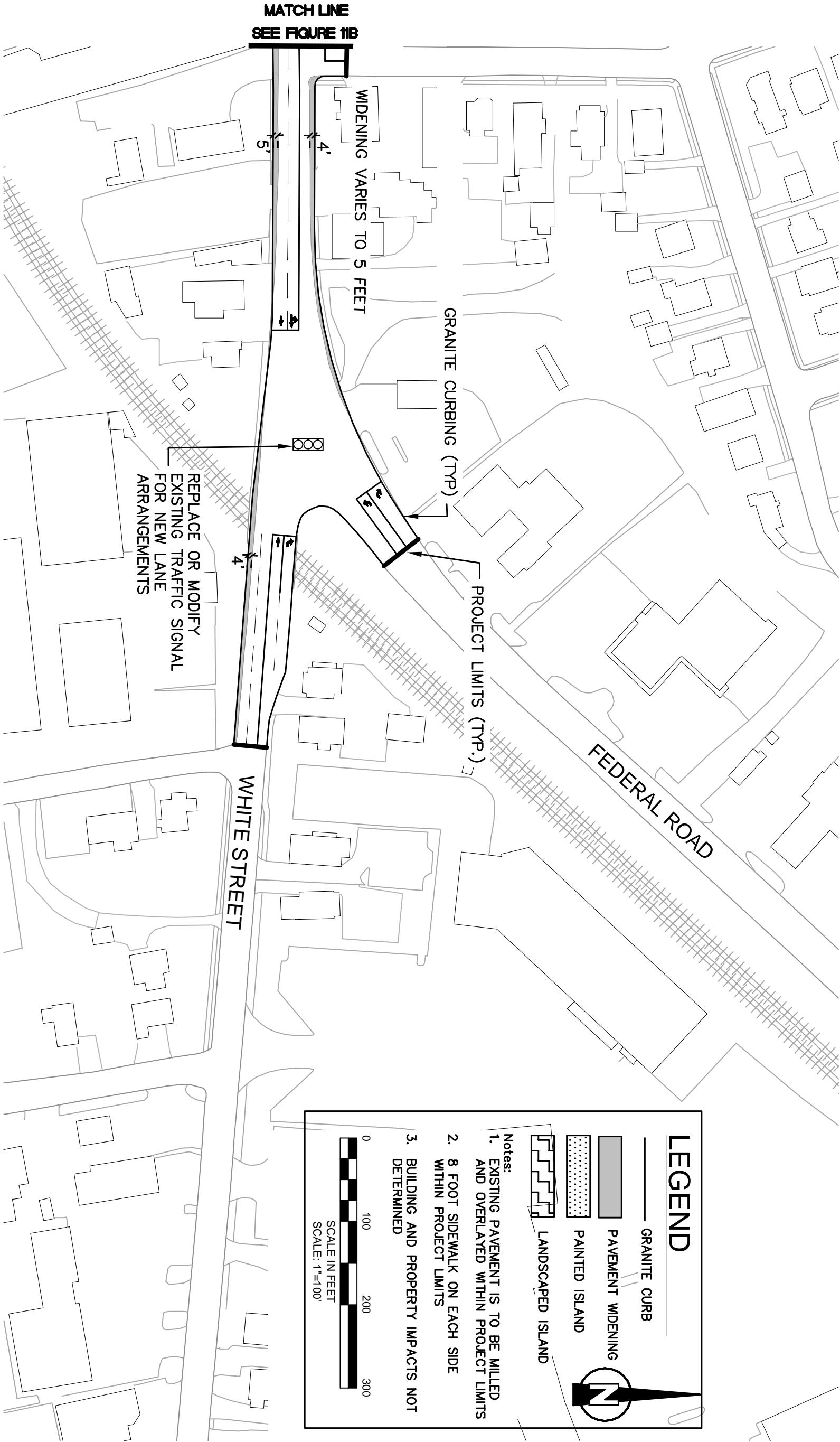


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CAMBRIDGE, MASSACHUSETTS    CONCORD, NEW HAMPSHIRE  
ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN
Date	AUGUST 2006	
Job No.	2006277	
Designed by	MSV	
Drawn by	BAS	
Checked by	MSV	WHITE STREET & FEDERAL ROAD
Approved by	AGB	

FIGURE 12A

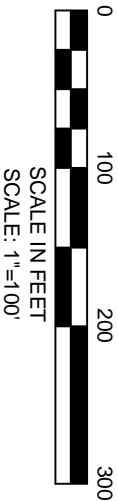


LEGEND

- GRANITE CURB
- PAVEMENT WIDENING
- PAINTED ISLAND
- LANDSCAPED ISLAND

Notes:

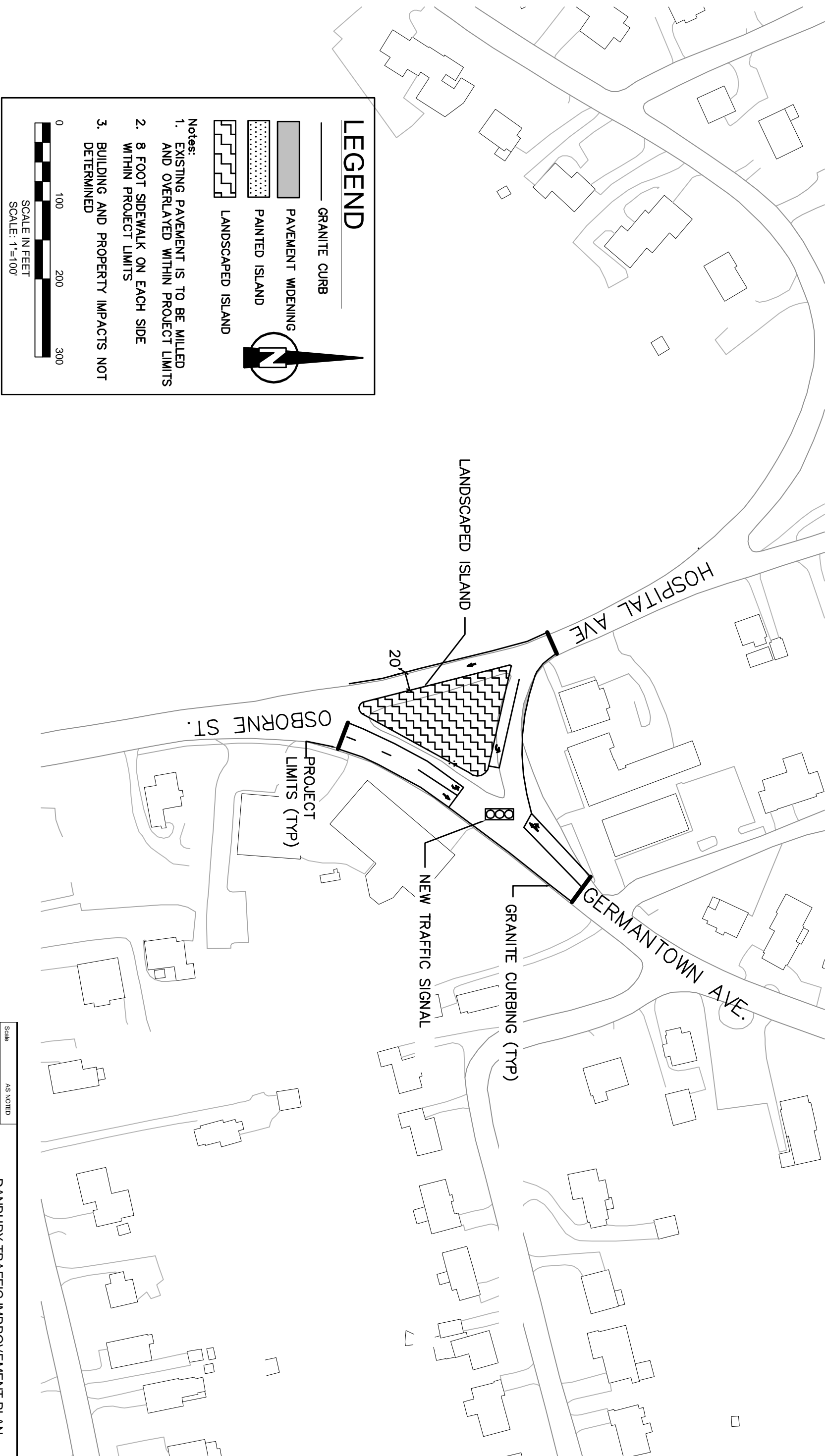
- EXISTING PAVEMENT IS TO BE MILLED AND OVERLAYED WITHIN PROJECT LIMITS
- 8 FOOT SIDEWALK ON EACH SIDE WITHIN PROJECT LIMITS
- BUILDING AND PROPERTY IMPACTS NOT DETERMINED



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ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN  WHITE STREET & FEDERAL ROAD (CITY-PREFERRED DESIGN)
Date	APRIL 2007	
Job No.	2005277	
Designed by	CMC	
Drawn by	CMC	
Checked by	AGB	FIGURE 12B
Approved by	AGB	



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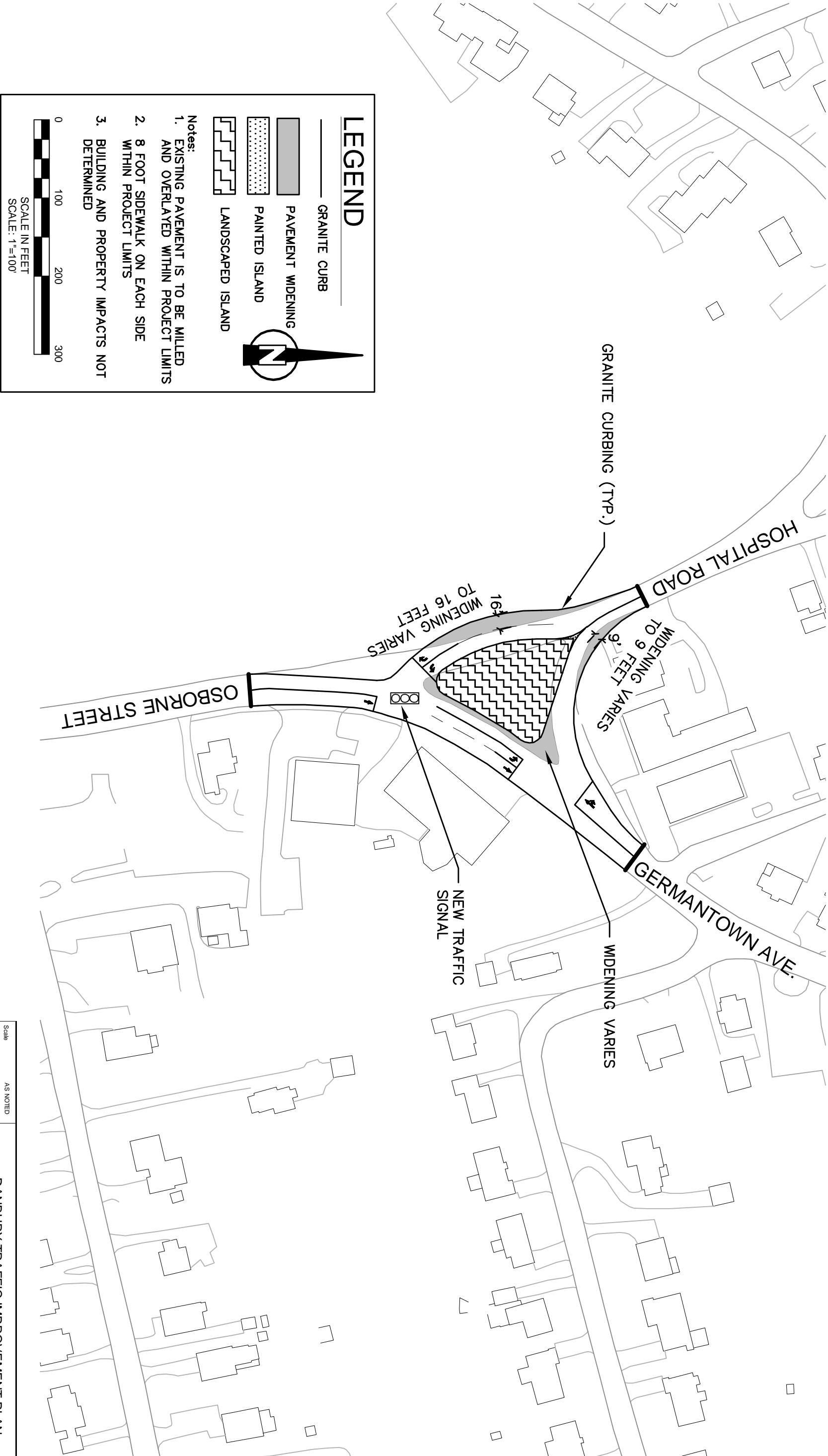
CAMBRIDGE, MASSACHUSETTS      CONCORD, NEW HAMPSHIRE  
ROCKY HILL, CONNECTICUT      AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED
Date	AUGUST 2006
Job No.	2005277
Designed by	MSV
Drawn by	BAS
Checked by	MSV
Approved by	AGB

**DANBURY TRAFFIC IMPROVEMENT PLAN**

**HOSPITAL AVE. & OSBORNE ST. &  
GERMANTOWN AVE.**

**FIGURE 13A**



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**Scientists/Engineers/Architects**

CAMBRIDGE, MASSACHUSETTS    CONCORD, NEW HAMPSHIRE  
ROCKY HILL, CONNECTICUT    AUGUSTA, MAINE  
STONEHAM, MASSACHUSETTS

Scale	AS NOTED	DANBURY TRAFFIC IMPROVEMENT PLAN  HOSPITAL AVE. & OSBORNE ST. & GERMANTOWN AVE. (CITY-PREFERRED DESIGN)
Date	APRIL 2007	
Job No.	2005277	
Designed by	CMC	
Drawn by	CMC	
Checked by	AGB	FIGURE 13B
Approved by	AGB	



## Appendix B

**Opinion of Probable Construction Cost**  
**Intersection of Tamarack Ave. and Hayestown Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	10759	S.F.	\$11.00	\$118,351.20
2	Full Depth Construction**	941	S.Y.	\$41.00	\$66,823.90
3	Mill and Overlay (4-Inches)	4260	S.Y.	\$15.00	\$63,900.00
4	Drainage Upgrade	38319	S.F.	\$1.00	\$38,319.00
5	Drainage New	9280	S.F.	\$3.00	\$27,840.00
6	Curb (Granite)	1345	L.F.	\$45.00	\$60,520.50
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$104,730.92
Subtotal (Roadway Items)					\$590,066.52

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson) Mobilization (7.5%) Construction Staking (1.0%)	\$70,808
11		\$44,255
12		\$5,901
Subtotal (Lump Sum Items)		\$120,964
Subtotal (Roadway and Lump Sum Items)		\$711,030
CONTINGENCY (7%)		\$41,305
INCIDENTALS (21%)		\$123,914
UTILITY RELOCATION (8%)		\$47,205
RIGHT OF WAY (NOT INCLUDED)		N/A
PROJECT TOTAL		\$923,000

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost (City -Preferred Alternative)**  
**Intersection of Tamarack Ave. and Hayestown Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	9744	S.F.	\$11.00	\$107,184.00
2	Full Depth Construction**	175	S.Y.	\$41.00	\$32,753.00
3	Mill and Overlay (4-Inches)	4290	S.Y.	\$15.00	\$64,350.00
4	Drainage Upgrade	38610	S.F.	\$1.00	\$38,610.00
5	Drainage New	1550	S.F.	\$3.00	\$4,650.00
6	Curb (Granite)	1218	L.F.	\$45.00	\$54,810.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$90,051.40
Subtotal (Roadway Items)					\$501,698.40

<b>LUMP SUM ITEMS</b>		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)	\$60,204
11	Mobilization (7.5%)	\$37,627
12	Construction Staking (1.0%)	\$5,017
Subtotal (Lump Sum Items)		\$102,848
Subtotal (Roadway and Lump Sum Items)		\$604,547
CONTINGENCY (7%)		\$35,119
INCIDENTALS (21%)		\$105,357
UTILITY RELOCATION (8%)		\$40,136
RIGHT OF WAY (NOT INCLUDED)		N/A
<b>PROJECT TOTAL</b>		<b>\$785,000</b>

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost**  
**Intersection of Tamarack Ave. and Virginia Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	7930	S.F.	\$11.00	\$87,230.00
2	Full Depth Construction**	250	S.Y.	\$41.00	\$31,063.00
3	Mill and Overlay (4-Inches)	1820	S.Y.	\$15.00	\$27,300.00
4	Drainage Upgrade	16370	S.F.	\$1.00	\$16,370.00
5	Drainage New	2260	S.F.	\$3.00	\$6,780.00
6	Curb (Granite)	990	L.F.	\$45.00	\$44,550.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$72,239.00
Subtotal (Roadway Items)					\$417,062.00

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson) Mobilization (7.5%) Construction Staking (1.0%)	\$50,047
11		\$31,280
12		\$4,171
Subtotal (Lump Sum Items)		\$85,498
Subtotal (Roadway and Lump Sum Items)		\$502,560
CONTINGENCY (7%)		\$29,194
INCIDENTALS (21%)		\$87,583
UTILITY RELOCATION (8%)		\$33,365
RIGHT OF WAY (NOT INCLUDED)		N/A
PROJECT TOTAL		\$653,000

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost (City -Preferred Alternative)**  
**Intersection of Tamarack Ave. and Virginia Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	7930	S.F.	\$11.00	\$87,230.00
2	Full Depth Construction**	250	S.Y.	\$41.00	\$31,063.00
3	Mill and Overlay (4-Inches)	1820	S.Y.	\$15.00	\$27,300.00
4	Drainage Upgrade	16370	S.F.	\$1.00	\$16,370.00
5	Drainage New	2260	S.F.	\$3.00	\$6,780.00
6	Curb (Granite)	990	L.F.	\$45.00	\$44,550.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$72,239.00
Subtotal (Roadway Items)					\$417,062.00

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson) Mobilization (7.5%) Construction Staking (1.0%)	\$50,047
11		\$31,280
12		\$4,171
Subtotal (Lump Sum Items)		\$85,498
Subtotal (Roadway and Lump Sum Items)		\$502,560
CONTINGENCY (7%)		\$29,194
INCIDENTALS (21%)		\$87,583
UTILITY RELOCATION (8%)		\$33,365
RIGHT OF WAY (NOT INCLUDED)		N/A
PROJECT TOTAL		\$653,000

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost**  
**Intersection of Tamarack Ave., Hospital Ave. and Locust Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	22350	S.F.	\$11.00	\$245,850.00
2	Full Depth Construction**	1480	S.Y.	\$41.00	\$119,337.50
3	Mill and Overlay (4-Inches)	5610	S.Y.	\$15.00	\$84,150.00
4	Drainage Upgrade	50480	S.F.	\$1.00	\$50,480.00
5	Drainage New	8890	S.F.	\$3.00	\$26,670.00
6	Curb (Granite)	2790	L.F.	\$45.00	\$125,550.00
7	New Traffic Signal	2	EA	\$147,900.00	\$295,800.00
8	Minor Items (20% of Roadway Items)				\$189,567.50
Subtotal (Roadway Items)					\$1,086,925.00

<b>LUMP SUM ITEMS</b>					
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)				\$130,431
11	Mobilization (7.5%)				\$81,519
12	Construction Staking (1.0%)				\$10,869
Subtotal (Lump Sum Items)					\$222,820
Subtotal (Roadway and Lump Sum Items)					\$1,309,745
CONTINGENCY (7%)					\$76,085
INCIDENTALS (21%)					\$228,254
UTILITY RELOCATION (8%)					\$86,954
RIGHT OF WAY (NOT INCLUDED)					N/A
<b>PROJECT TOTAL</b>					<b>\$1,701,000</b>

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost (City -Preferred Alternative)**  
**Intersection of Tamarack Ave., Hospital Ave. and Locust Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	19250	S.F.	\$11.00	\$211,750.00
2	Full Depth Construction**	1125	S.Y.	\$41.00	\$96,655.50
3	Mill and Overlay (4-Inches)	4930	S.Y.	\$15.00	\$73,950.00
4	Drainage Upgrade	44350	S.F.	\$1.00	\$44,350.00
5	Drainage New	1090	S.F.	\$3.00	\$3,270.00
6	Curb (Granite)	2406	L.F.	\$45.00	\$108,270.00
7	New Traffic Signal	2	EA	\$147,900.00	\$295,800.00
8	Minor Items (20% of Roadway Items)				\$166,809.10
Subtotal (Roadway Items)					\$956,504.60

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)	\$114,781
11		\$71,738
12		\$9,565
Subtotal (Lump Sum Items)		\$196,083
Subtotal (Roadway and Lump Sum Items)		\$1,152,588
CONTINGENCY (7%)		\$66,955
INCIDENTALS (21%)		\$200,866
UTILITY RELOCATION (8%)		\$76,520
RIGHT OF WAY (NOT INCLUDED)		N/A
PROJECT TOTAL		\$1,497,000

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

## **Opinion of Probable Construction Cost**

### **Intersection of Garamella Blvd. and Maple Ave. and Balmforth Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
ROADWAY ITEMS					
1	Sidewalk	14450	S.F.	\$11.00	\$158,950.00
2	Full Depth Construction**	1101	S.Y.	\$41.00	\$83,084.00
3	Mill and Overlay (4-Inches)	5910	S.Y.	\$15.00	\$88,650.00
4	Drainage Upgrade	53200	S.F.	\$1.00	\$53,200.00
5	Drainage New	9913	S.F.	\$3.00	\$29,739.00
6	Curb (Granite)	1810	L.F.	\$45.00	\$81,450.00
7	New Traffic Signal	2	EA	\$147,900.00	\$295,800.00
8	Minor Items (20% of Roadway Items)				\$158,175.00
Subtotal (Roadway Items)					895,848.00

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)	\$107,502
11	Mobilization (7.5%)	\$67,189
12	Construction Staking (1.0%)	\$8,958
Subtotal (Lump Sum Items)		\$183,649
Subtotal (Roadway and Lump Sum Items)		\$1,079,497
CONTINGENCY (7%)		\$62,709
INCIDENTALS (21%)		\$188,128
UTILITY RELOCATION (8%)		\$71,668
RIGHT OF WAY (NOT INCLUDED)		N/A
<b>PROJECT TOTAL</b>		<b>\$1,402,000</b>

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS



**Opinion of Probable Construction Cost (City -Preferred Alternative)**  
**Intersection of Garamella Blvd. and Maple Ave. and Balmforth Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	19600	S.F.	\$11.00	\$215,600.00
2	Full Depth Construction**	620	S.Y.	\$41.00	\$76,870.00
3	Mill and Overlay (4-Inches)	5930	S.Y.	\$15.00	\$88,950.00
4	Drainage Upgrade	53375	S.F.	\$1.00	\$53,375.00
5	Drainage New	5575	S.F.	\$3.00	\$16,725.00
6	Curb (Granite)	2450	L.F.	\$45.00	\$110,250.00
7	New Traffic Signal	2	EA	\$147,900.00	\$295,800.00
8	Minor Items (20% of Roadway Items)				\$171,514.00
Subtotal (Roadway Items)					975,709.00

<b>LUMP SUM ITEMS</b>					
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)				\$117,085
11	Mobilization (7.5%)				\$73,178
12	Construction Staking (1.0%)				\$9,757
Subtotal (Lump Sum Items)					\$200,020
Subtotal (Roadway and Lump Sum Items)					\$1,175,729
CONTINGENCY (7%)					\$68,300
INCIDENTALS (21%)					\$204,899
UTILITY RELOCATION (8%)					\$78,057
RIGHT OF WAY (NOT INCLUDED)					N/A
<b>PROJECT TOTAL</b>					<b>\$1,527,000</b>

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost**  
**Intersection of Hospital Ave. and Osborne St.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	16900	S.F.	\$11.00	\$185,900.00
2	Full Depth Construction**	800	S.Y.	\$41.00	\$77,155.00
3	Mill and Overlay (4-Inches)	3750	S.Y.	\$15.00	\$56,250.00
4	Drainage Upgrade	33790	S.F.	\$1.00	\$33,790.00
5	Drainage New	6600	S.F.	\$3.00	\$19,800.00
6	Curb (Granite)	2110	L.F.	\$45.00	\$94,950.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$123,149.00
Subtotal (Roadway Items)					\$705,104.00

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson) Mobilization (7.5%) Construction Staking (1.0%)	\$84,612
11		\$52,883
12		\$7,051
Subtotal (Lump Sum Items)		\$144,546
Subtotal (Roadway and Lump Sum Items)		\$849,650
CONTINGENCY (7%)		\$49,357
INCIDENTALS (21%)		\$148,072
UTILITY RELOCATION (8%)		\$56,408
RIGHT OF WAY (NOT INCLUDED)		N/A
PROJECT TOTAL		\$1,103,000

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost (City -Preferred Alternative)**  
**Intersection of Hospital Ave. and Osborne St.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	12480	S.F.	\$11.00	\$137,280.00
2	Full Depth Construction**	225	S.Y.	\$41.00	\$41,985.00
3	Mill and Overlay (4-Inches)	2965	S.Y.	\$15.00	\$44,475.00
4	Drainage Upgrade	26680	S.F.	\$1.00	\$26,680.00
5	Drainage New	2030	S.F.	\$3.00	\$6,090.00
6	Curb (Granite)	1560	L.F.	\$45.00	\$70,200.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$94,922.00
Subtotal (Roadway Items)					\$542,852.00

<b>LUMP SUM ITEMS</b>					
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)				\$65,142
11	Mobilization (7.5%)				\$40,714
12	Construction Staking (1.0%)				\$5,429
Subtotal (Lump Sum Items)					\$111,285
Subtotal (Roadway and Lump Sum Items)					\$654,137
CONTINGENCY (7%)					\$38,000
INCIDENTALS (21%)					\$113,999
UTILITY RELOCATION (8%)					\$43,428
RIGHT OF WAY (NOT INCLUDED)					N/A
<b>PROJECT TOTAL</b>					<b>\$850,000</b>

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost**  
**Intersection of Osborne St. and Locust Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	24850	S.F.	\$11.00	\$273,350.00
2	Full Depth Construction	5620	S.Y.	\$41.00	\$230,420.00
3	Mill and Overlay (4-Inches)	5700	S.Y.	\$15.00	\$85,500.00
4	Drainage Upgrade	51320	S.F.	\$1.00	\$51,320.00
5	Drainage New	23100	S.F.	\$3.00	\$69,300.00
6	Curb (Granite)	3110	L.F.	\$45.00	\$139,950.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$185,688.00
Subtotal (Roadway Items)					\$1,062,808.00

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)	\$127,537
11	Mobilization (7.5%)	\$79,711
12	Construction Staking (1.0%)	\$10,628
Subtotal (Lump Sum Items)		\$217,876
Subtotal (Roadway and Lump Sum Items)		\$1,280,684
CONTINGENCY (7%)		\$74,397
INCIDENTALS (21%)		\$223,190
UTILITY RELOCATION (8%)		\$85,025
RIGHT OF WAY (NOT INCLUDED)		N/A
PROJECT TOTAL		\$1,663,000

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost (City -Preferred Alternative)**  
**Intersection of Osborne St. and Locust Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	5240	S.F.	\$11.00	\$57,640.00
2	Full Depth Construction	305	S.Y.	\$41.00	\$12,505.00
3	Mill and Overlay (4-Inches)	2000	S.Y.	\$15.00	\$30,000.00
4	Drainage Upgrade	17050	S.F.	\$1.00	\$17,050.00
5	Drainage New	2735	S.F.	\$3.00	\$8,205.00
6	Curb (Granite)	655	L.F.	\$45.00	\$29,475.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$58,914.00
Subtotal (Roadway Items)					\$336,434.00

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)	\$40,372
11	Mobilization (7.5%)	\$25,233
12	Construction Staking (1.0%)	\$3,364
Subtotal (Lump Sum Items)		\$68,969
Subtotal (Roadway and Lump Sum Items)		\$405,403
CONTINGENCY (7%)		\$23,550
INCIDENTALS (21%)		\$70,651
UTILITY RELOCATION (8%)		\$26,915
RIGHT OF WAY (NOT INCLUDED)		N/A
PROJECT TOTAL		\$527,000

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost**  
**Intersection of Moss Ave. & White St.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	14480	S.F.	\$11.00	\$159,280.00
2	Full Depth Construction**	1085	S.Y.	\$41.00	\$82,495.00
3	Mill and Overlay (4-Inches)	4886	S.Y.	\$15.00	\$73,290.00
4	Drainage Upgrade	43978	S.F.	\$1.00	\$43,978.00
5	Drainage New	9767	S.F.	\$3.00	\$29,301.00
6	Curb (Granite)	1810	L.F.	\$45.00	\$81,450.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$123,538.80
Subtotal (Roadway Items)					\$697,254.80

<b>LUMP SUM ITEMS</b>					
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)				\$83,671
11	Mobilization (7.5%)				\$52,294
12	Construction Staking (1.0%)				\$6,973
Subtotal (Lump Sum Items)					\$142,937
Subtotal (Roadway and Lump Sum Items)					\$840,192
CONTINGENCY (7%)					\$48,808
INCIDENTALS (21%)					\$146,424
UTILITY RELOCATION (8%)					\$55,780
RIGHT OF WAY (NOT INCLUDED)					N/A
<b>PROJECT TOTAL</b>					<b>\$1,091,000</b>

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost (City -Preferred Alternative)**  
**Intersection of Moss Ave. & White St.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	25864	S.F.	\$11.00	\$284,504.00
2	Full Depth Construction**	1275	S.Y.	\$41.00	\$120,168.00
3	Mill and Overlay (4-Inches)	8600	S.Y.	\$15.00	\$129,000.00
4	Drainage Upgrade	77400	S.F.	\$1.00	\$77,400.00
5	Drainage New	11450	S.F.	\$3.00	\$34,350.00
6	Curb (Granite)	3233	L.F.	\$45.00	\$145,485.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$187,761.40
Subtotal (Roadway Items)					\$1,049,168.40

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)	\$125,900
11	Mobilization (7.5%)	\$78,688
12	Construction Staking (1.0%)	\$10,492
Subtotal (Lump Sum Items)		\$215,080
Subtotal (Roadway and Lump Sum Items)		\$1,264,248
CONTINGENCY (7%)		\$73,442
INCIDENTALS (21%)		\$220,325
UTILITY RELOCATION (8%)		\$83,933
RIGHT OF WAY (NOT INCLUDED)		N/A
PROJECT TOTAL		\$1,642,000

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost**  
**Intersection of White St. and Fifth Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	18580	S.F.	\$11.00	\$204,380.00
2	Landscaped Island*	1020	S.F.	\$15.00	\$15,300.00
2	Full Depth Construction**	3100	S.Y.	\$41.00	\$180,995.00
3	Mill and Overlay (4-Inches)	5450	S.Y.	\$15.00	\$81,750.00
4	Drainage Upgrade	49010	S.F.	\$1.00	\$49,010.00
5	Drainage New	27920	S.F.	\$3.00	\$83,760.00
6	Curb (Granite)	4030	L.F.	\$45.00	\$181,350.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$185,829.00
Subtotal (Roadway Items)					\$1,081,264.00

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson) Mobilization (7.5%) Construction Staking (1.0%)	\$129,752
11		\$81,095
12		\$10,813
Subtotal (Lump Sum Items)		\$221,659
Subtotal (Roadway and Lump Sum Items)		\$1,302,923
CONTINGENCY (7%)		\$75,688
INCIDENTALS (21%)		\$227,065
UTILITY RELOCATION (8%)		\$86,501
RIGHT OF WAY (NOT INCLUDED)		N/A
PROJECT TOTAL		\$1,692,000

\*Landscaped Island includes granite curbing, shrubery at 5 feet off-center, cutting of pavement and topsoil.

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS



**Opinion of Probable Construction Cost**  
**Intersection of White St. and Eighth Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	15600	S.F.	\$11.00	\$171,600.00
2	Landscaped Island*	1390	S.F.	\$15.00	\$20,850.00
2	Full Depth Construction**	2760	S.Y.	\$41.00	\$158,970.00
3	Mill and Overlay (4-Inches)	4140	S.Y.	\$15.00	\$62,100.00
4	Drainage Upgrade	37250	S.F.	\$1.00	\$37,250.00
5	Drainage New	24820	S.F.	\$3.00	\$74,460.00
6	Curb (Granite)	3570	L.F.	\$45.00	\$160,650.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$166,756.00
Subtotal (Roadway Items)					\$963,286.00

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson) Mobilization (7.5%) Construction Staking (1.0%)	\$115,594
11		\$72,246
12		\$9,633
Subtotal (Lump Sum Items)		\$197,474
Subtotal (Roadway and Lump Sum Items)		\$1,160,760
CONTINGENCY (7%)		\$67,430
INCIDENTALS (21%)		\$202,290
UTILITY RELOCATION (8%)		\$77,063
RIGHT OF WAY (NOT INCLUDED)		N/A
PROJECT TOTAL		\$1,508,000

\*Landscaped Island includes granite curbing, shrubery at 5 feet off-center, cutting of pavement and topsoil.

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost (City -Preferred Alternative)**  
**Intersection of White St. and Eighth Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	23800	S.F.	\$11.00	\$261,800.00
2	Full Depth Construction**	2470	S.Y.	\$41.00	\$163,745.00
3	Mill and Overlay (4-Inches)	6055	S.Y.	\$15.00	\$90,825.00
4	Drainage Upgrade	54500	S.F.	\$1.00	\$54,500.00
5	Drainage New	22225	S.F.	\$3.00	\$66,675.00
6	Curb (Granite)	2975	L.F.	\$45.00	\$133,875.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$183,864.00
Subtotal (Roadway Items)					\$1,048,684.00

<b>LUMP SUM ITEMS</b>					
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)				\$125,842
11	Mobilization (7.5%)				\$78,651
12	Construction Staking (1.0%)				\$10,487
Subtotal (Lump Sum Items)					\$214,980
Subtotal (Roadway and Lump Sum Items)					\$1,263,664
CONTINGENCY (7%)					\$73,408
INCIDENTALS (21%)					\$220,224
UTILITY RELOCATION (8%)					\$83,895
RIGHT OF WAY (NOT INCLUDED)					N/A
<b>PROJECT TOTAL</b>					<b>\$1,641,000</b>

\*Landscaped Island includes granite curbing, shrubery at 5 feet off-center, cutting of pavement and topsoil.

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost**  
**Intersection of White St. and Locust Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	18500	S.F.	\$11.00	\$203,500.00
2	Full Depth Construction**	1840	S.Y.	\$41.00	\$123,995.00
3	Mill and Overlay (4-Inches)	5700	S.Y.	\$15.00	\$85,500.00
4	Drainage Upgrade	51320	S.F.	\$1.00	\$51,320.00
5	Drainage New	16530	S.F.	\$3.00	\$49,590.00
6	Curb (Granite)	2310	L.F.	\$45.00	\$103,950.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$153,151.00
Subtotal (Roadway Items)					\$867,586.00

<b>LUMP SUM ITEMS</b>					
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)				\$104,110
11	Mobilization (7.5%)				\$65,069
12	Construction Staking (1.0%)				\$8,676
Subtotal (Lump Sum Items)					\$177,855
Subtotal (Roadway and Lump Sum Items)					\$1,045,441
CONTINGENCY (7%)					\$60,731
INCIDENTALS (21%)					\$182,193
UTILITY RELOCATION (8%)					\$69,407
RIGHT OF WAY (NOT INCLUDED)					N/A
<b>PROJECT TOTAL</b>					<b>\$1,358,000</b>

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost (City -Preferred Alternative)**  
**Intersection of White St. and Locust Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	17120	S.F.	\$11.00	\$188,320.00
2	Full Depth Construction**	1900	S.Y.	\$41.00	\$122,840.00
3	Mill and Overlay (4-Inches)	5500	S.Y.	\$15.00	\$82,500.00
4	Drainage Upgrade	49500	S.F.	\$1.00	\$49,500.00
5	Drainage New	17130	S.F.	\$3.00	\$51,390.00
6	Curb (Granite)	2140	L.F.	\$45.00	\$96,300.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$147,750.00
Subtotal (Roadway Items)					\$837,000.00

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson) Mobilization (7.5%) Construction Staking (1.0%)	\$100,440
11		\$62,775
12		\$8,370
Subtotal (Lump Sum Items)		\$171,585
Subtotal (Roadway and Lump Sum Items)		\$1,008,585
CONTINGENCY (7%)		\$58,590
INCIDENTALS (21%)		\$175,770
UTILITY RELOCATION (8%)		\$66,960
RIGHT OF WAY (NOT INCLUDED)		N/A
PROJECT TOTAL		\$1,310,000

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost**  
**Intersection of White St. and Federal Rd.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	18470	S.F.	\$11.00	\$203,170.00
2	Full Depth Construction**	1990	S.Y.	\$41.00	\$130,078.00
3	Mill and Overlay (4-Inches)	5620	S.Y.	\$15.00	\$84,300.00
4	Drainage Upgrade	50540	S.F.	\$1.00	\$50,540.00
5	Drainage New	17880	S.F.	\$3.00	\$53,640.00
6	Curb (Granite)	2310	L.F.	\$45.00	\$103,950.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$154,716.00
Subtotal (Roadway Items)					\$877,754.00

<b>LUMP SUM ITEMS</b>					
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)				\$105,330
11	Mobilization (7.5%)				\$65,832
12	Construction Staking (1.0%)				\$8,778
Subtotal (Lump Sum Items)					\$179,940
Subtotal (Roadway and Lump Sum Items)					\$1,057,694
CONTINGENCY (7%)					\$61,443
INCIDENTALS (21%)					\$184,328
UTILITY RELOCATION (8%)					\$70,220
RIGHT OF WAY (NOT INCLUDED)					N/A
<b>PROJECT TOTAL</b>					<b>\$1,374,000</b>

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost (City -Preferred Alternative)**  
**Intersection of White St. and Federal Rd.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	12640	S.F.	\$11.00	\$139,040.00
2	Full Depth Construction**	350	S.Y.	\$41.00	\$47,530.00
3	Mill and Overlay (4-Inches)	4300	S.Y.	\$15.00	\$64,500.00
4	Drainage Upgrade	38600	S.F.	\$1.00	\$38,600.00
5	Drainage New	3100	S.F.	\$3.00	\$9,300.00
6	Curb (Granite)	1580	L.F.	\$45.00	\$71,100.00
7	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
8	Minor Items (20% of Roadway Items)				\$103,594.00
Subtotal (Roadway Items)					\$582,964.00

<b>LUMP SUM ITEMS</b>					
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)				\$69,956
11	Mobilization (7.5%)				\$43,722
12	Construction Staking (1.0%)				\$5,830
Subtotal (Lump Sum Items)					\$119,508
Subtotal (Roadway and Lump Sum Items)					\$702,472
CONTINGENCY (7%)					\$40,807
INCIDENTALS (21%)					\$122,422
UTILITY RELOCATION (8%)					\$46,637
RIGHT OF WAY (NOT INCLUDED)					N/A
<b>PROJECT TOTAL</b>					<b>\$912,000</b>

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost**  
**Intersection of Germantown St. & Hospital Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	6240	S.F.	\$11.00	\$68,640.00
2	Landscaped Island*	9830	S.F.	\$41.00	\$403,030.00
3	Full Depth Construction**	20	S.Y.	\$15.00	\$18,000.00
4	Mill and Overlay (4-Inches)	2430	S.Y.	\$13.50	\$32,805.00
5	Drainage Upgrade	21830	S.F.	\$3.00	\$65,490.00
6	Drainage New	840	S.F.	\$45.00	\$37,800.00
7	Curb (Granite)	1220	L.F.	\$45.00	\$54,900.00
8	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
9	Minor Items (20% of Roadway Items)				\$85,107
Subtotal (Roadway Items)					\$848,182.00

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson) Mobilization (7.5%) Construction Staking (1.0%)	\$101,782
11		\$63,614
12		\$8,482
Subtotal (Lump Sum Items)		\$173,877
Subtotal (Roadway and Lump Sum Items)		\$1,022,059
CONTINGENCY (7%)		\$59,373
INCIDENTALS (21%)		\$178,118
UTILITY RELOCATION (8%)		\$67,855
RIGHT OF WAY (NOT INCLUDED)		N/A
PROJECT TOTAL		\$1,327,000

\*Landscaped Island includes granite curbing, shrubery at 5 feet off-center, cutting of pavement and topsoil.

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS

**Opinion of Probable Construction Cost (City -Preferred Alternative)**  
**Intersection of Germantown St. & Hospital Ave.**

Item #	Item Description	Quantity	Unit	Unit Price	Cost
<b>ROADWAY ITEMS</b>					
1	Sidewalk	12400	S.F.	\$11.00	\$136,400.00
2	Landscaped Island*	9765	S.F.	\$41.00	\$400,365.00
3	Full Depth Construction**	460	S.Y.	\$15.00	\$39,450.00
4	Mill and Overlay (4-Inches)	4125	S.Y.	\$13.50	\$55,687.50
5	Drainage Upgrade	37100	S.F.	\$3.00	\$111,300.00
6	Drainage New	4140	S.F.	\$45.00	\$186,300.00
7	Curb (Granite)	1550	L.F.	\$45.00	\$69,750.00
8	New Traffic Signal	1	EA	\$147,900.00	\$147,900.00
9	Minor Items (20% of Roadway Items)				\$149,358
Subtotal (Roadway Items)					\$1,185,210.00

LUMP SUM ITEMS		
10	Maintenance and Protection of Traffic (12%, incl. trafficperson)	\$142,225
11		\$88,891
12		\$11,852
Subtotal (Lump Sum Items)		\$242,968
Subtotal (Roadway and Lump Sum Items)		\$1,428,178
CONTINGENCY (7%)		\$82,965
INCIDENTALS (21%)		\$248,894
UTILITY RELOCATION (8%)		\$94,817
RIGHT OF WAY (NOT INCLUDED)		N/A
PROJECT TOTAL		\$1,855,000

\*Landscaped Island includes granite curbing, shrubery at 5 feet off-center, cutting of pavement and topsoil.

\*\*Full Depth Construction includes earth excavation, 4 inch bituminous concrete, subbase, removal of curbing, removal of concrete

ALL COSTS IN 2006 DOLLARS