

# Report for Madison Water Utility, Wisconsin

---

## Booster Station No. 118 Site Selection



Prepared by:

STRAND ASSOCIATES, INC.®  
910 West Wingra Drive  
Madison, WI 53715  
[www.strand.com](http://www.strand.com)

September 2010



## PROJECT SUMMARY

The project was established in January 2009 by the Madison Water Utility Board to improve available fire flow capabilities and system reliability in the area surrounding and including Arbor Hills. The alternative evaluation was presented to the Water Utility Board at the September 2009 meeting. The recommended alternative was to construct a booster station in the Arbor Hill area. The board approved the recommended alternative at the same meeting.

This report summarizes the site selection, which is the next step in the City's project development process. Two citizen advisory panel (CAP) meetings and two public meetings were held to develop site selection criteria and aid in the evaluation of sites.

The first CAP and public meetings were intended to reintroduce the CAP and public to the proposed project, develop criteria for site selection, and develop additional sites for evaluation. From these meetings, six sites were selected for more detailed evaluation. These sites were reviewed by the CAP and discussed further at a public meeting.

## POTENTIAL SITES

Figure 1 shows the general project area and the six potential sites for the booster station. The dark blue dashed line that travels from the lower left-hand corner to the upper right-hand corner represents the 16-inch water main that is to be installed beneath the Cannonball Bike Path. The following paragraphs discuss each site.

### A. Site A–Bicycle Overpass at Beltline

The location and the configuration of the bicycle and pedestrian overpass are still in the evaluation phase. The possibility of locating a booster pumping facility in conjunction with the overpass was discussed with the City Traffic Engineering staff. Based upon these discussions, it is anticipated that the structures for the overpass will require use of most of the right-of-way (R/W). The siting of a booster station on the bike path R/W is further complicated in that the R/W was purchased using stewardship funds from the Wisconsin Department of Natural Resources (WDNR). This limits the use of the property without approval of the WDNR.

### B. Site B–2609 Greenway View

This property is reported by neighborhood residents as being vacant. The property could be purchased, the home could be demolished, and the new booster station could be erected in its place. As shown in Figure 2, the water main would need to be extended from the new water main located beneath the bike path along Greenway View. The property acquisition and water main extension costs are high. Installation of the water main would also be more disruptive to the community than some of the other locations.

### C. Site C–2234 Luann Lane

The western portion of the lot is unused green space. An outlot would have to be created and purchased, and the existing Planned Urban Development (PUD) zoning would have to be updated. As shown in Figure 3, the booster station driveway would need to be coordinated with the connector bike

path between the end of Greenway View and Luann Lane. This site is a low spot and approximately 3 feet of fill would need to be added to the site. The removal of some of the trees on the site may be an issue with the surrounding neighborhood. Existing trees surrounding the site would be maintained to screen the site from the neighboring apartment building and the residences west of the bike path. Negotiations with the current property owner would be required.

D. Site D–Aldo Leopold Park

As shown in Figure 4, the northwest portion of the park is unused green space. The area is not mowed. Soccer fields and a softball backstop are located east of the proposed site. An outlot would have to be created. The lot is currently owned by the City's parks department. This site is very similar to Site C, except it is already owned by the City and it has a slightly shorter access drive.

E. Site E–Churchill Drive

This potential site is currently conceptual; no specific lot was identified. There are a series of duplexes located along Churchill Drive just north of the bike path. One duplex could potentially be purchased and demolished, and a booster station could be constructed. The property acquisition cost, however, is anticipated to be very high. At this time, no lots were identified as vacant, for sale, or readily available for purchase. Figure 5 shows the booster station located on a typical duplex lot.

F. Site F–Leopold School

On the southwest corner of Leopold School, there is an area near the bike path that would be a suitable size for a booster station. The proposed area where a lot would be created is currently owned by the Madison Metropolitan School District. The City would need to negotiate with the school district on property acquisition and obtain a permanent access easement from the school district through its existing parking lot. The site would also require rezoning as the current area is Zone A.

## **SITE RANKING**

A. Site Ranking Criteria

While each site has a few intangibles that are taken into account, the following list depicts the main site selection criteria used to compare the sites described above.

1. Distance to the water main beneath Cannonball Trail bike path (cost).
2. Sewer availability.
3. Site access.
4. Availability of 3 phase, 480 V power.
5. Property acquisition cost.
6. Impact on green space and parks.
7. Removal of property from the City's tax base.
8. Other site specific impacts/costs.

The length of any necessary extension of the water main between the water main located beneath the bike path and a proposed site is an obvious cost for developing a site. There is also a small operational cost associated with the additional water main lengths, but this cost is relatively negligible. Another,

noncost to consider is the extension of the water main down a residential street will significantly impact the neighborhood during construction.

The booster station will have a restroom and floor drains in the facility. As a result, sewer availability is required.

Water utility staff will typically stop at the site once a day, typically for approximately 15 minutes. The site needs to be accessed by a service van so paved access to the site is required.

The pumping equipment requires 480 volt 3 phase power. Access to power and cost to extend power to a site must be considered when evaluating a site.

One of the items discussed at previous public meetings was to minimize the impact on green space and parks.

Removal of a property from the City tax base was also considered in the evaluation. The water utility makes payments to the City in lieu of taxes. These payments are included in the utility’s rate structure. The calculation of these payments includes the City tax rate as well as the local school tax rates and is paid to the City. This revenue is not shared with the school district, so the City benefits when a property transfers to the water utility.

**B. Site Ranking**

Based on information from Table 1, rankings were established as shown in Table 2.

Criteria	Site A	Site B	Site C	Site D	Site E	Site F
Distance to WM	Good (~\$20,000)	Very Poor (~\$250,000)	Good (~\$20,000)	Good (~\$20,000)	Good (~\$30,000)	Good (~\$20,000)
Sewer Availability	Average	Good	Average to Good	Average to Good	Good	Average to Good
Site Access	Unknown	Good	Average	Average	Good	Average
Power Availability	Poor	Poor	Good	Average	Good	Good
Property Acquisition Cost	Unknown	Poor (~\$250,000)	Good (~\$75,000)	Good (~\$75,000)	Poor (~\$250,000)	Good (~\$75,000)
Impact on Green Space	Medium	Low	High	High	Low	High
Removal from Tax Base	No	Yes	Yes	No	Yes	No
Site Specific Impacts	NA	\$20,000 (Building Demo)	\$10,000 (Fill)	NA	\$20,000 (Building Demo)	NA

**Table 1 Building and Site Selection Criteria Matrix**

Ranking	Site
1	D
2	C
3	F
4	A, B, E

**Table 2 Site Ranking**

Sites A, B, and E were ranked last and were eliminated from further review.

Site A was eliminated because there is too much uncertainty to move forward at this time. The actual location of the overpass is still in the process of being determined. In addition, the value of the Beltline frontage property is very high, and there does not appear to be adequate space to site a station in the R/W with the proposed overpass. Other concerns included the possibility of difficulties in obtaining WDNR approval.

Sites B and E were eliminated for economic concerns. Both properties have high acquisition costs and building demolition costs. Site E would also have a substantially higher water main extension cost.

Site F was ranked third because negotiations with the school district would be required. In addition, a permanent access easement through the school parking lot is not ideal.

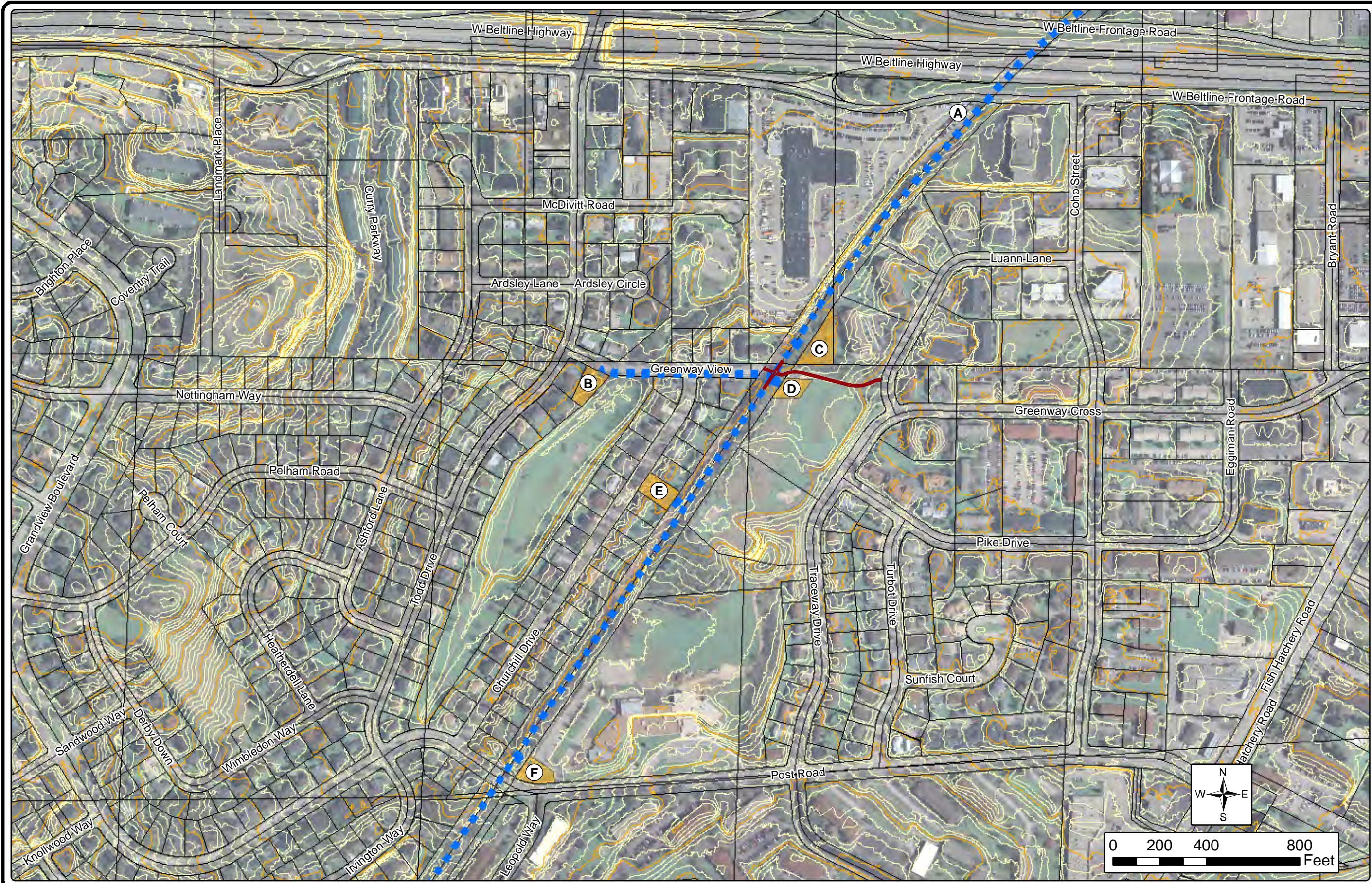
Sites C and D are very similar in nature and both would be acceptable site locations from a technical point of view. Site C was ranked second for a few reasons:

1. Property acquisition would be from a private party.
2. The access drive would be longer and slightly more expensive than at Site D.
3. The removal of some of the mature trees on the site may be a concern to the neighborhood.
4. The site would need to be raised between 2 and 4 feet to accommodate the booster station.

#### C. Recommended Site

Aldo Leopold Park, Site D, is the recommended site. Seven of the eight site ranking criteria are acceptable. The impact on green space is the only criteria that had a negative ranking. However, as the project is located in a developed part of the City, the only options are to use green space for the project or to acquire a property with an existing structure and demolish it. The impact on the local neighborhood can be minimized by maintaining the tree lines along the bike path and on the north end of the park. The impact on the park would also be minimized as it would be located in an area that is currently not maintained and is located outside of areas currently used. The facility would generally only be visible from Luann Lane to the east. No objections to use of this portion of the park were voiced during the CAP and public meetings.





POTENTIAL SITE LOCATIONS

BOOSTER STATION 118  
 MADISON WATER UTILITY  
 DANE COUNTY, WISCONSIN



FIGURE 1  
 1020.056





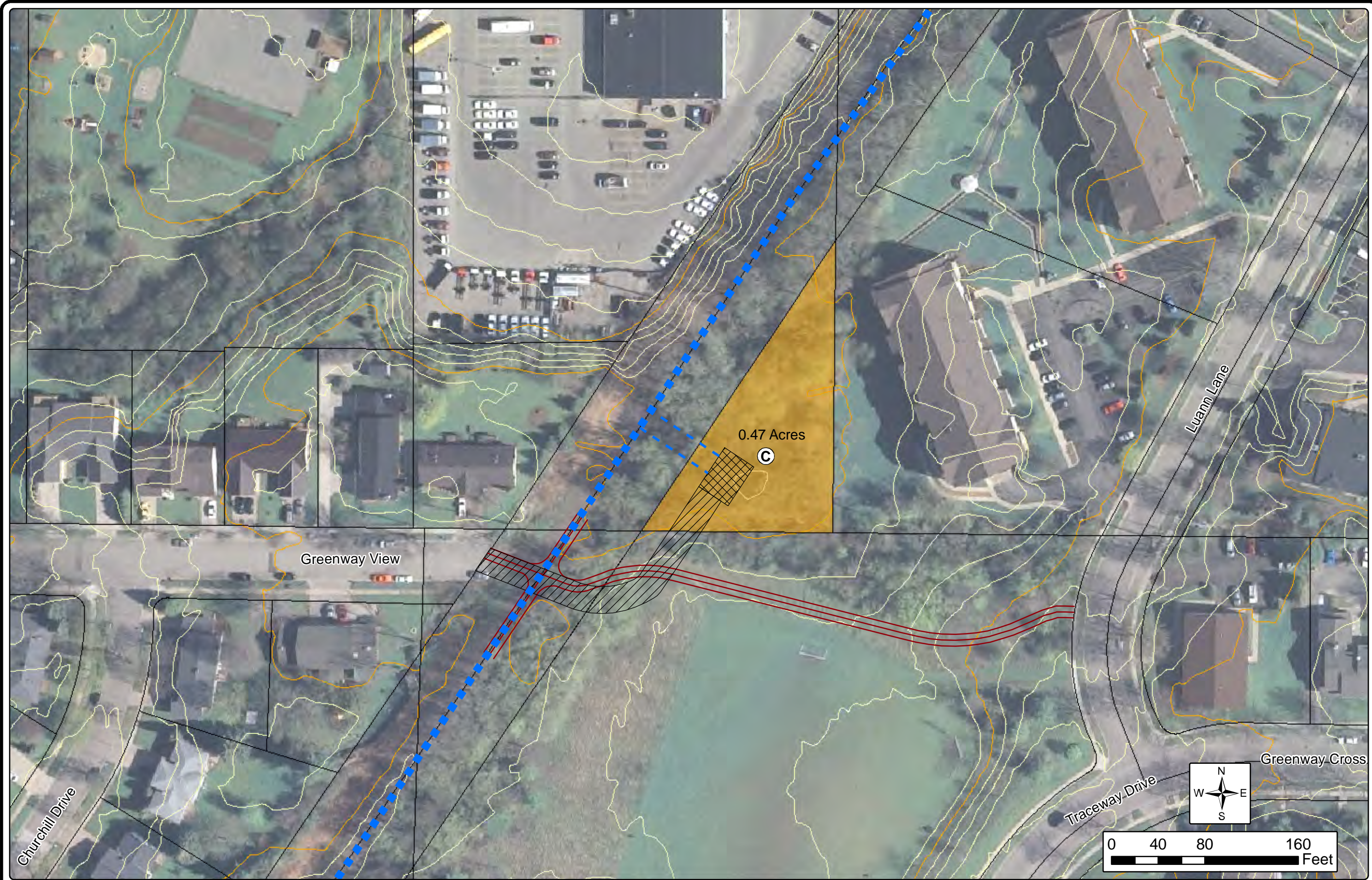
POTENTIAL SITE LOCATION  
OPTION B

BOOSTER STATION 118  
MADISON WATER UTILITY  
DANE COUNTY, WISCONSIN



FIGURE 2  
1020.056





S:\MAD\1000-1099\1020\056\Data\GIS\Figures\SiteOptions\Site\_C.mxd

POTENTIAL SITE LOCATION  
OPTION C

BOOSTER STATION 118  
MADISON WATER UTILITY  
DANE COUNTY, WISCONSIN



FIGURE 3  
1020.056





S:\MAD\1000--1099\1020\056\Data\GIS\Figures\SiteOptions\Site\_D.mxd

POTENTIAL SITE LOCATION  
OPTION D

BOOSTER STATION 118  
MADISON WATER UTILITY  
DANE COUNTY, WISCONSIN



FIGURE 4  
1020.056





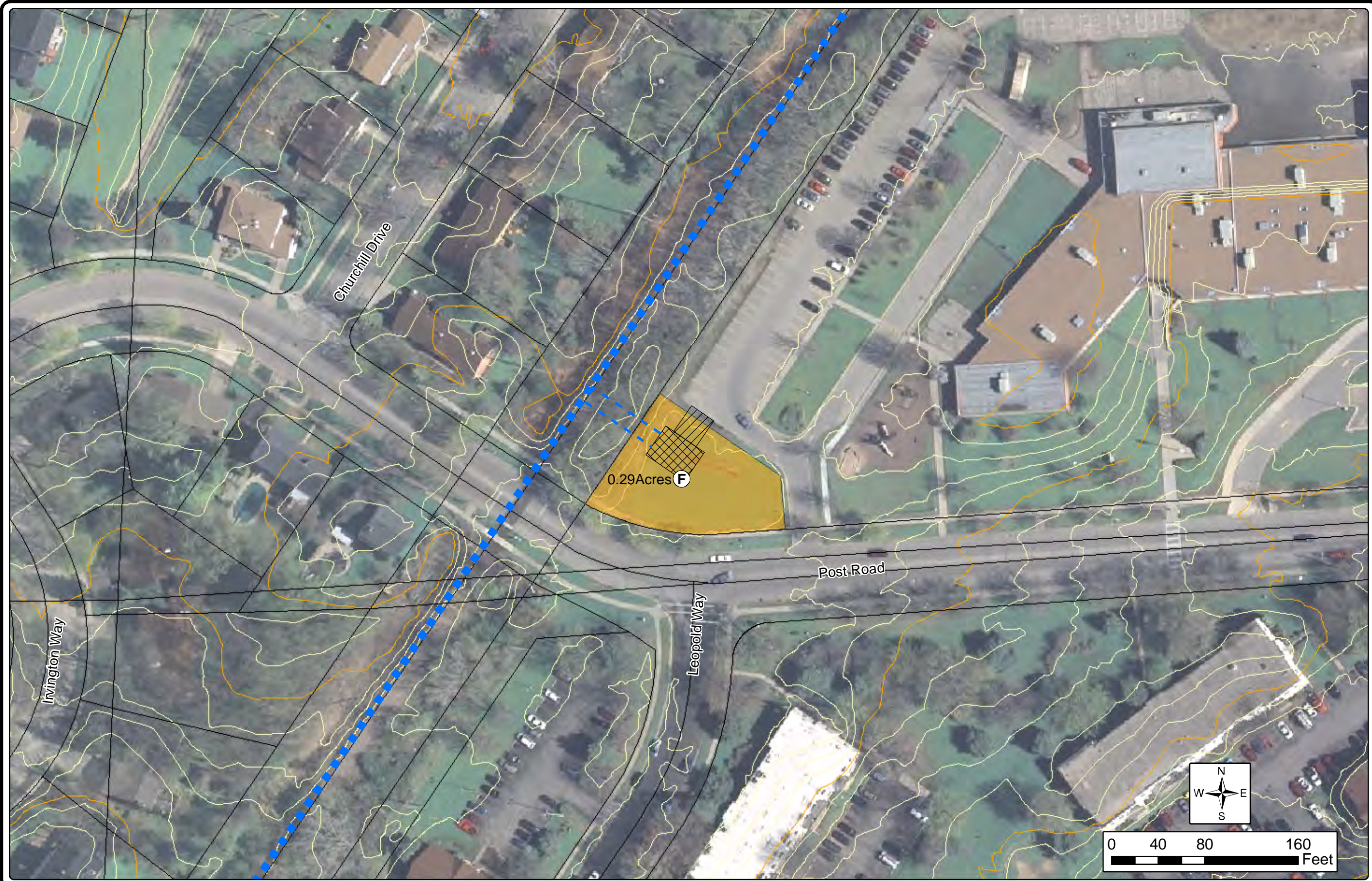
POTENTIAL SITE LOCATION  
OPTION E

BOOSTER STATION 118  
MADISON WATER UTILITY  
DANE COUNTY, WISCONSIN



FIGURE 5  
1020.056





POTENTIAL SITE LOCATION  
OPTION F

BOOSTER STATION 118  
MADISON WATER UTILITY  
DANE COUNTY, WISCONSIN



FIGURE 6  
1020.056