

Backlit Chevron Pilot Update - Lake Shore Boulevard East and Woodbine Avenue

Date: April 14, 2026

To: Toronto and East York Community Council

From: Director, Enforcement and Street Management, Transportation Services

Wards: Ward 19, Beaches-East York

SUMMARY

This staff report is about a matter that Community Council has delegated authority from City Council to make a final decision.

Toronto and East York Community Council directed Transportation Services to install backlit chevron signs on the south side of Lake Shore Boulevard East at Woodbine Avenue within the curve in the road, on a pilot basis for up to 24 months. A backlit chevron sign uses LED illumination to enhance the visibility of a standard sign. As part of the pilot project, vehicle speeds and collisions would be monitored before and after the installation, and staff would report back to the Toronto and East York Community Council on the outcome of the installation. This report provides an overview of the assessments and outcomes of the pilot conducted by Transportation Services.

RECOMMENDATIONS

The Director, Enforcement and Street Management, Transportation Services, recommends that:

1. Toronto and East York Community Council receive this report for information.

FINANCIAL IMPACT

There is no financial impact resulting from the adoption of the recommendation in this report.

DECISION HISTORY

On December 4, 2024, Toronto and East York Community Council adopted Item TE18.64 (Installation of Backlit Chevrons Signs in Order to Increase Safety at Woodbine Avenue and Lake Shore Boulevard East Curve), directing Transportation Services to install backlit chevron signs on the south side of the Lake Shore Boulevard/Woodbine avenue curve on a pilot basis for up to 24 months and to report back to the Toronto and East York Community Council by the fourth quarter of 2026 with the outcome of the pilot. The Community Council decision can be found at:

[Agenda Item History - 2024.TE18.64](#)

On May 22 and 23, 2024, City Council adopted item TE13.48 (Creating a Community Safety Zone on Lake Shore Boulevard East), designating a Community Safety Zone in effect at all times on both sides of Lake Shore Boulevard East, between Woodbine Avenue and a point 200 metres west of Lower Coxwell Avenue, and requesting that Transportation Services include this Community Safety Zone for consideration when determining an appropriate location for a permanent Automated Speed Enforcement camera. The City Council decision can be found at:

[Agenda Item History - 2024.TE13.48](#)

On October 29 and 30, 2019, City Council adopted Item MM11.15 (Implementing Road Safety Measures at Lake Shore Boulevard East and Woodbine Avenue), directing Transportation Services to report back in the first quarter of 2020 to the Toronto and East York Community Council with recommended options for measures to improve road safety at Lake Shore Boulevard East and Woodbine Avenue such as: automated speed enforcement equipment; installation of speed humps or rumble strips; additional signage identifying the curve in the road; narrowing traffic lanes to reduce speed; reducing speed limits; roadway reconfiguration; barriers or other measures to protect pedestrians and homes in the event of an accident; and any other options to calm traffic and reduce accidents. The City Council decision can be found at:

[Agenda Item History - 2019.MM11.15](#)

COMMENTS

In response to the direction from Toronto and East York Community Council's adoption of Item TE18.64, Transportation Services installed and activated seven backlit chevron signs on the south side of the Woodbine Avenue and Lake Shore Boulevard East curve on July 29, 2025. A backlit chevron sign is a road safety device that is more visible to motorists than a standard chevron sign, particularly during the nighttime or in inclement weather, as they are enhanced with LED illumination. The installation is intended to address ongoing concerns with excessive vehicle speeds through the curve, which may contribute to loss of control collisions.

Transportation Services conducted speed and volume studies along the curve before and after installation and monitored collision reporting for six months prior to and six months after installation to assess the impact of the backlit chevron signs on safety at this location.

Existing Conditions

Lake Shore Boulevard East, east of Northern Dancer Boulevard, is characterized by the following conditions:

- It is a four-lane, east/west, major arterial roadway
- It operates two-way traffic on an average pavement width of 15.2 metres
- The daily two-way traffic volume is approximately 15,700 vehicles
- The speed limit is 50 km/h
- Heavy trucks are prohibited at all times
- There is Toronto Transit Commission (TTC) service provided by the 92 Woodbine South bus
- There are sidewalks located on both sides of the street

The parking regulations on Lake Shore Boulevard East, east of Northern Dancer Boulevard, are as follows:

North side

- No stopping anytime

South side

- No stopping anytime

Woodbine Avenue is characterized by the following conditions:

- North of Lake Shore Boulevard East, it is a five-lane, north-south, major arterial roadway and operates two-way traffic on an average pavement width of 15.2 metres
- South of Lake Shore Boulevard East, it is a one-lane, north-south, local roadway and operates one-way northbound traffic on an average pavement width of 7.4 metres
- The daily two-way traffic volume between Lake Shore Boulevard East and Queen Street East is approximately 16,400 vehicles
- The daily one-way traffic volume south of Lake Shore Boulevard East is approximately 750 vehicles
- The speed limit is 40 km/h north of Lake Shore Boulevard East
- The speed limit is 30 km/h south of Lake Shore Boulevard East
- Heavy trucks are prohibited at all times
- There is TTC service provided by the 92 Woodbine South bus
- There are sidewalks located on both sides of the street

The parking regulations on Woodbine Avenue in the vicinity of Lake Shore Boulevard East are as follows:

West side

- No parking anytime, between Lake Shore Boulevard East and a point 255 metres south of Queen Street East
- No stopping, from 7:30 a.m. to 9:30 a.m., Monday to Friday, except public holidays, between Lake Shore Boulevard East and Queen Street East
- Maximum three-hour paid parking, from 9:30 a.m. to 9:00 p.m., Monday to Friday; 8:00 a.m. to 9:00 p.m., Saturday; and from 1:00 p.m. to 9:00 p.m., Sunday; between Queen Street East and a point 255 metres south
- Maximum three-hour statutory parking at all other times between Queen Street East and a point 255 metres south

East side

- No stopping, from 3:30 p.m. to 6:30 p.m., Monday to Friday, except public holidays, between Lake Shore Boulevard East and Queen Street East
- No parking anytime, between Lake Shore Boulevard East and a point 222.5 metres south of Queen Street East
- Permit parking from 12:01 a.m. to 7:00 a.m., daily, between Danforth Avenue and Kew Beach Avenue
- Maximum three-hour statutory parking at all other times between Queen Street East and a point 222.5 metres south

The eastern segment of Lake Shore Boulevard East follows a gradual 90-degree curve and terminates into Woodbine Avenue. There is a skewed four-leg intersection at the northern extent of the curve between Lake Shore Boulevard East, Woodbine Avenue, and a private driveway for the residences at 57-61 Woodbine Avenue. Woodbine Avenue is stop controlled for northbound traffic at Lake Shore Boulevard East. Southbound traffic from Woodbine Avenue operates as free flow. Northbound traffic from Lake Shore Boulevard East operates as free flow. The private driveway for 57-61 Woodbine Avenue is uncontrolled.

The adjacent land use in the vicinity of the Lake Shore Avenue East and Woodbine Avenue curve is primarily single-family residential properties. South of the curve is the Donald D. Summerville Olympic Pool, Woodbine Beach Park, Woodbine Beach, and the Martin Goodman Trail, all of which serve as major attractors of vulnerable road users.

The closest adjacent traffic controls are located approximately 530 metres to the west of the intersection of Woodbine Avenue and Lake Shore Boulevard East at Northern Dancer Boulevard, and approximately 310 metres to the north of the intersection of Woodbine Avenue and Lake Shore Boulevard East at Queen Street East in the form of traffic control signals. There is also a midblock pedestrian signal approximately 230 metres to the west of the intersection of Woodbine Avenue and Lake Shore Boulevard East at the foot of Joseph Duggan Road.

A map of the area is included in Attachment 1.

Pre-Existing Treatments

Prior to the installation of the backlit chevron signs along the outside of the Lake Shore Boulevard East and Woodbine Avenue curve, there were a number of measures put in place to increase safety. These measures include:

- Twelve standard chevron signs facing eastbound/northbound traffic, seven of which were replaced by the backlit chevron signs and four of which remained as standard chevron signs after installation
- A guardrail installed along the south side of Lake Shore Boulevard East from a point approximately 350 metres east of Northern Dancer Boulevard to the intersection with Woodbine Avenue, with an approximately 20-metre gap in the guardrail in front of the TTC stop
- A guardrail installed along the east side of Woodbine Avenue from the private driveway serving 57-61 Woodbine Avenue to a point approximately 40 metres further north, with an approximately six-metre gap in the guardrail across a private driveway
- A raised median separating the directional travel lanes throughout the entire curve
- Solid white lines between traffic lanes to indicate no passing is allowed
- Stopping prohibitions throughout the entire curve
- "Sharp Curve" pictographic warning signs for both traffic directions along with a flashing beacon for eastbound traffic
- A 40 km/h advisory speed sign for eastbound traffic

In addition to the above measures, both sides of Lake Shore Boulevard East, between Woodbine Avenue and a point 200 metres west of Lower Coxwell Avenue, are designated as a Community Safety Zone. Prior to the elimination of the program, this road section was a location for the Automated Speed Enforcement program.

Automated Speed Enforcement cameras were installed on Lake Shore Boulevard East, between Winners Circle and Northern Dancer Boulevard, between March 3, 2025 and July 2, 2025, for eastbound traffic and between December 6, 2024 and November 13, 2025, for westbound traffic, although the westbound traffic camera was inoperative from September 9, 2025 onwards, due to vandalism.

Installation Details and Cost

On July 29, 2025, seven backlit chevron signs were installed and activated along the south side of the Lake Shore Boulevard East and Woodbine Avenue curve, replacing seven existing standard chevron signs. A photo of a backlit chevron sign and installation drawings are included in Attachments 2 and 3. These signs are only visible when entering the curve from Lake Shore Boulevard East in the eastbound direction and are not visible when entering the curve from Woodbine Avenue in the southbound direction. These devices have not been used previously in the City of Toronto.

The total cost to install all seven backlit chevron signs at this location was \$55,250.13.

Collision History and Monitoring

On March 5, 2026, a review of the Toronto Police Service collision records, with specific emphasis for pedestrian, cyclist, Killed or Seriously Injured (KSI) collisions, and collisions involving speeding or loss of control as a factor, was conducted for eastbound traffic on the Lake Shore Boulevard East and Woodbine Avenue curve over the 12-month period between January 29, 2025, and January 29, 2026. For the purposes of comparison, this 12-month period was further divided into the six-month periods before and after the installation of the backlit chevron signs on July 29, 2025. The review revealed a total of five collisions, which are summarized below:

- On June 11, 2025, a vehicle with a driver under the influence of alcohol lost control heading eastbound through the Lake Shore Boulevard East and Woodbine Avenue curve and struck a guardrail.
- On June 11, 2025, a vehicle parked on the east side of Woodbine Avenue reversed into a motorcycle parked behind it.
- On June 1, 2025, a vehicle parked on the east side of Woodbine Avenue received damage while parked.
- On April 21, 2025, a vehicle with a driver under the influence of alcohol lost control while heading north on Woodbine Avenue and struck two southbound vehicles after navigating the Lake Shore Boulevard East and Woodbine Avenue curve. The Toronto Police Service collision report estimated their speed at 80 kilometres per hour.
- On February 12, 2025, a vehicle heading north on Woodbine Avenue curve merged into another vehicle also heading north on Woodbine Avenue after navigating the Lake Shore Boulevard East and Woodbine Avenue curve.

There were no collisions involving a cyclist or a pedestrian and no KSI collisions. There were two collisions where speed or loss of control were a factor. In both of those collisions, the motorist driving under the influence of alcohol was identified as an additional factor. There was one additional collision involving damage to a parked vehicle on the east side of Woodbine Avenue, but there was not enough information in the report to determine whether it was caused by speed or loss of control in the curve. All of the reported collisions occurred prior to the installation of the backlit chevron signs on July 29, 2025.

The results of the review are summarized in Table 1.

Table 1: Collision History (January 29, 2025 to January 29, 2026) for Eastbound Vehicle Traffic Along the Lake Shore Boulevard East and Woodbine Avenue Curve

Signage Condition	Regular Chevrons	Backlit Chevrons
Volume of Collisions	5	0
Volume of Collisions Involving Speed or Loss of Control in Curve	2	0

It is important to note that, in some cases, the delay between a collision occurring and Transportation Services receiving the record from that collision can be five months or more. As such, even though Transportation Services did not have any record of a collision occurring after the installation of the backlit chevron signs at the time of writing this report, it is possible that there are collisions that occurred during the study period that have not yet been reported to Transportation Services.

Quantitative Evaluation of Effect of Backlit Chevron Sign Installation on Vehicle Speeds

Transportation Services conducted two vehicle speed and volume studies for eastbound traffic along the Lake Shore Boulevard East and Woodbine Avenue curve, one from June 8-14, 2025, prior to the installation of the backlit chevron signs, and one from September 8-14, 2025, after the backlit chevron signs had been installed and activated.

These studies were conducted at three locations along the curve, consistent across both studies. The three locations are summarized below:

- The first location was west of the curve, approximately 40 metres east of Winners Circle. The backlit chevron signs would not have been visible to motorists at this location.
- The second location was mid-curve, approximately 65 metres east of the midblock pedestrian signal at the foot of Joseph Duggan Road. This location falls within the footprint of the backlit chevron sign installation area, and the signs would have been in full view to motorists.
- The third location was north of the curve, approximately 55 metres north of the intersection between Lake Shore Boulevard East and Woodbine Avenue.

These three locations are also shown in the map included in Attachment 1.

Due to damage to the measurement equipment and data quality issues, there was not enough data to compare speeds before and after the installation of the backlit chevron signs at the measurement location north of the curve. This location was therefore excluded from the analysis. There were also days within the study periods where the measurements from the remaining locations were impacted by equipment damage and data quality issues.

The measurements from the impacted days were excluded from the analysis and evaluation ranges were adjusted accordingly to ensure a fair comparison across locations and signage conditions.

Tables 2 and 3 show the results of the analysis.

Table 2: Average Eastbound Vehicle Speed Comparison between Backlit and Regular Chevron Signage along the Lake Shore Boulevard East and Woodbine Avenue Curve

Signage Condition	Regular Chevrons	Backlit Chevrons
Average Speed - West of Curve (km/h)	44.6	45.7
Average Speed - Mid-Curve (km/h)	47.4	47.0

Table 3: Eastbound Vehicle Speed Distribution Comparison between Backlit and Regular Chevron Signage along the Lake Shore Boulevard East and Woodbine Avenue Curve, Mid-Curve Location

Signage Condition	Regular Chevrons		Backlit Chevrons	
Measured Speed	Number of Vehicles	Percentage of Vehicles Measured	Number of Vehicles	Percentage of Vehicles Measured
40 km/h and below	6,912	11.22%	6,861	12.76%
41-45 km/h	16,445	26.70%	15,508	28.84%
46-50 km/h	21,017	34.13%	17,808	33.11%
51-55 km/h	11,769	19.11%	9,472	17.61%
56-60 km/h	3,861	6.27%	2,979	5.54%
61-65 km/h	1,086	1.76%	811	1.51%
66-70 km/h	319	0.52%	222	0.41%
71-75 km/h	96	0.16%	71	0.13%
76-80 km/h	37	0.06%	25	0.05%
81 km/h and above	39	0.06%	23	0.04%
Grand Total	61,581	100.00%	53,780	100.00%

Average speeds were measured to be approximately 0.9 km/h higher west of the curve and approximately 0.4 km/h lower mid-curve in the study conducted after the installation of the backlit chevron signs. There was also an approximately 3% shift in the mid-curve speed distribution from speeds above the 50 km/h speed limit to speeds at or below 50 km/h after installation of the backlit chevron signs.

While these initial results appear to be positive, there are a variety of uncontrolled factors that may have affected the results including measurement error, equipment damage, environmental factors, natural variability in vehicle speeds and traffic patterns, changes elsewhere in the transportation network, and the deactivation of the eastbound automated speed enforcement camera.

Ultimately, if the installation of the backlit chevrons at this location has resulted in a speed reduction effect, it appears to have been marginal.

Conclusion

Based on staff findings, the backlit chevron signs installed along the south side of the Lake Shore Boulevard East and Woodbine Avenue curve may have resulted in a marginal reduction of vehicle speeds. The backlit chevron signs may have also had a positive effect on reducing collisions, including those involving speed or loss of control as a factor, but due to the potential of collision reporting delay and the inherent variability of collision statistics, this would require a multi-year evaluation period to confirm.

At this time, Transportation Services would not recommend the installation of backlit chevron signs as a first-resort treatment due to their high cost and limited evidence of their increased effectiveness compared to standard chevron signs. However, Transportation Services would investigate the feasibility of the installation of backlit chevron signs at locations with similar physical characteristics and collision history where treatments such as guardrails and standard chevron signs have already been applied and an elevated collision risk remains on a case-by-case basis. If backlit chevron signs were to be installed at other locations, Transportation Services would recommend tracking collision data and conducting speed and volume studies before and after installation to obtain more information on their effectiveness.

Overall, Transportation Services has not observed any evidence of negative outcomes arising from the installation of the backlit chevron signs along the south side of the Lake Shore Boulevard East and Woodbine Avenue curve and does not recommend their removal at this time.

The Ward Councillor has been advised of the recommendation in this report.

CONTACT

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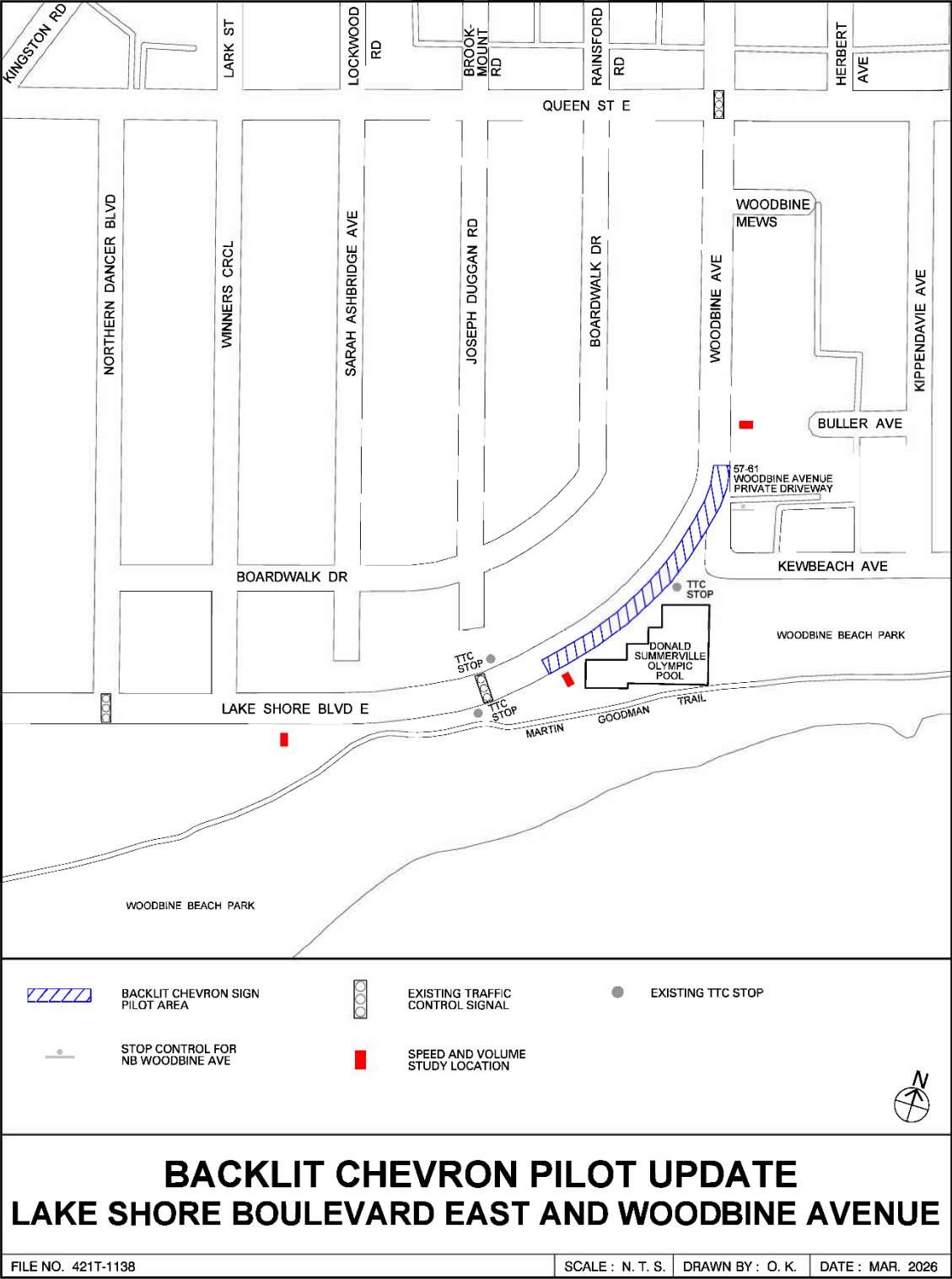
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Mike Barnet, P. Eng.
Director, Enforcement and Street Management, Transportation Services

ATTACHMENTS

Attachment 1: Map - Backlit Chevron Pilot Update - Lake Shore Boulevard East and Woodbine Avenue
Attachment 2: Drawing - Backlit Chevron Sign Installed on Lake Shore Boulevard East, West of Donald D Summerville Olympic Pool
Attachment 3: Map - Solar Flasher Display System - Woodbine Avenue & Lake Shore Boulevard - Page 1 of 3
Attachment 4: Map - Solar Flasher Display System - Woodbine Avenue & Lake Shore Boulevard - Page 2 of 3
Attachment 5: Map - Solar Flasher Display System - Woodbine Avenue & Lake Shore Boulevard - Page 3 of 3

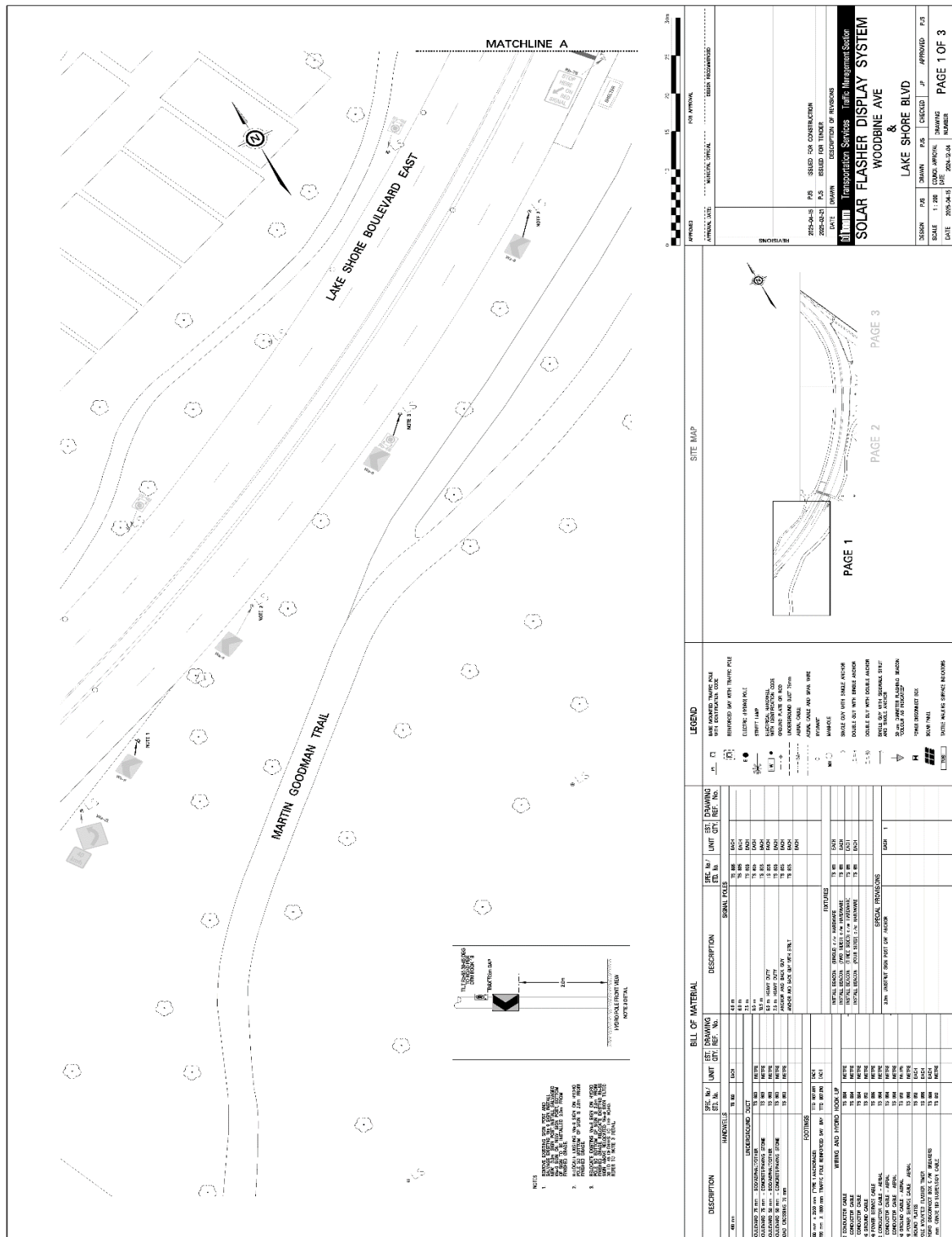
Attachment 1: Map - Backlit Chevron Pilot Update - Lake Shore Boulevard East and Woodbine Avenue



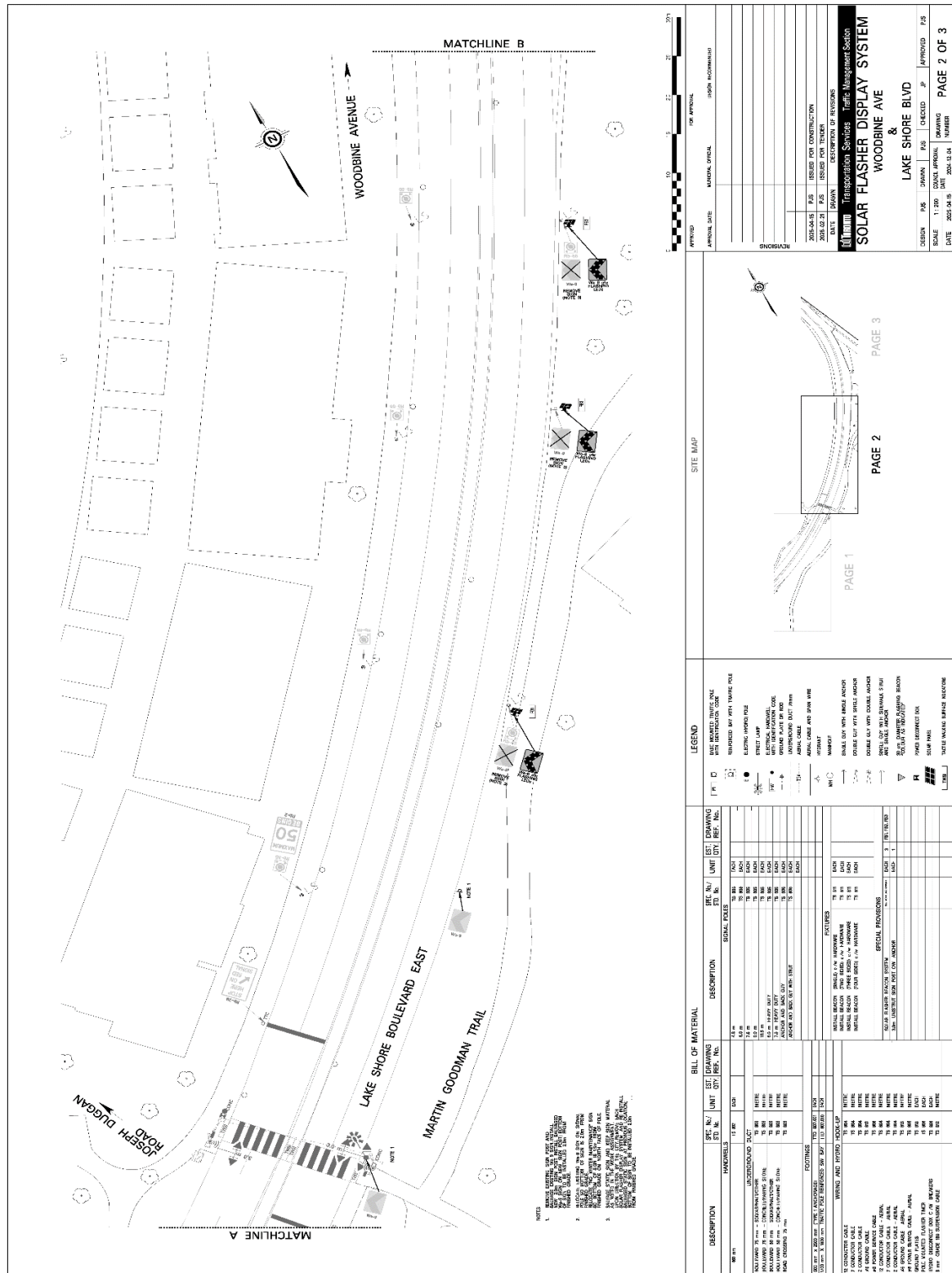
Attachment 2: Drawing - Backlit Chevron Sign Installed on Lake Shore Boulevard East,
West of Donald D Summerville Olympic Pool



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Attachment 5: Map - Solar Flasher Display System - Woodbine Avenue & Lake Shore Boulevard - Page 3 of 3

