ADDENDUM No. 1

RFP No. 22-38

Pavement Marking Maintenance &
A2 Vision Zero Quick Build Project – FY 2023

Due Date: June 29, 2022 at 2:00 P.M. (Local Time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum includes fifty-three (53) pages.**

The Proposer is to acknowledge receipt of this Addendum No. 1, including all attachments in its Proposal by so indicating in the proposal that the addendum has been received. Proposals submitted without acknowledgment of receipt of this addendum may be considered nonconforming.

The following forms provided within the RFP Document should be included in submitted proposal:

- **Attachment D - Prevailing Wage Declaration of Compliance**
- **Attachment E - Living Wage Declaration of Compliance**
- **Attachment G - Vendor Conflict of Interest Disclosure Form**
- **Attachment H - Non-Discrimination Declaration of Compliance**

Proposals that fail to provide these completed forms listed above upon proposal opening may be rejected as non-responsive and may not be considered for award.

I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the RFP document which are outlined below are referenced to a page or Section in which they appear conspicuously. Offerors are to take note in their review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

Section/Page(s)	**Change**
Title Page Page 1	Title page; replace with page Addendum-1-4. Revised proposal title from Pavement Marking Maintenance – FY 2023 to Pavement Marking Maintenance & A2 Vision Zero Quick Build Project – FY 2023;
Section III.E Pages 14-16 .	Schedule of Pricing/Cost Base Bid Forms; replace with pages Addendum-1-5 to 7. Added pay items _Pavt Mrkg, Polymer Cement Surface, Tan; _Pavt Mrkg, Polyurea, Bike, Small Sym; __Pavt Mrkg, Polyurea, Direction Arrow Sym, Bike; and _Pavt Mrkg, Polyurea, Sharrow Symbol. Replaced pay item _Pavt Mrkg, Thermopl, 6 inch with _Pavt Mrkg, Thermopl, 6 inch, Crosswalk.

Section III.E (continued) Pages 14-16 .	Revised estimated quantities to pay items with correlating (new) line numbers 15, 25, 30, 35, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 115, 120, 125, 135, 140, 155, 180, 200, 225, 235, 245, 250, 255, 260, 265, 270, 285 and 290 due to scope of work revisions related to the addition of A2 Vision Zero Quick Build Project and budget amounts.
Section IV - Attachments Page 21	Attachment A – Sample Standard Contract (page C-2); replace with page Addendum-1-8. Revised Article III – Time of Completion to include Section (D) related to the term of the contract and the option to extend it for one one-year term.
Detailed Specifications Pages 51-54	Replace Detailed Specification for Pavement Marking, Polymer Cement Surface, Bike Lane Green; pages Addendum-1-9 to 12. Revised title to Polymer Cement Surface Pavement Markings, and added specification requirements for pay item _Pavt Mrkg, Polymer Cement Surface, Tan.
Detailed Specifications Pages 55-67	Replace Detailed Specification for Permanent Pavement Markings; pages Addendum-1-13 to 24. Revised pay items listed under the Measurement and Payment section to reflect only those included in the proposed for as part of the contract work.
Appendix Page 68	Replace Appendix title page (APDX-1); page Addendum-1-25. Revised to reference inclusion of Log of Quantities and A2 Vision Zero Quick Build Project Plans.
Appendix	Insert Log of Quantities; pages Addendum-1-26 to 27. Revised to reference inclusion of Log of Quantities and A2 Vision Zero Quick Build Project Plans.
A2 Vision Zero Quick Build Project Plans	Insert the plans sheets listed below; pages Addendum-1-28 to 53
Sheets 1-2	Ann Street Demolition and Proposed Work Plans.
Sheets 3-4	Fuller Street - Glen Avenue Demolition and Proposed Work Plans.
Sheets 5-6	West Liberty Street - West Stadium Boulevard Demolition and Proposed Work Plans.
Sheets 7-12	North Maple Road Demolition and Proposed Work Plans.
Sheets 13-18	Packard Street Demolition and Proposed Work Plans.
Sheets 19-20	South University Avenue – South State Street Demolition and Proposed Work Plans.
Sheets 21-26	Washington Street Demolition and Proposed Work Plans.

II. QUESTIONS AND ANSWERS

No Questions were received by the City.

Offerors are responsible for any conclusions that they may draw from the information contained in the Addendum.

CONSTRUCTION REQUEST FOR PROPOSAL

RFP No. 22-38

PAVEMENT MARKING MAINTENANCE & A2 VISION ZERO QUICK BUILD PROJECT – FY 2023

City of Ann Arbor
ENGINEERING/PUBLIC SERVICES

Due Date: June 29, 2022 by 2:00 p.m. (local time)

Issued By:

City of Ann Arbor
Procurement Unit
301 E. Huron Street
Ann Arbor, MI 48104

E. Schedule of Pricing/Cost – 20 Points

Company: _____

Unit Price Bid

No.	No.	Item Description	Unit	Quantity	Unit Price	Total Price
5	1047051	_Certified Payroll Compliance and Reporting	LSUM	1.000	$ _____	$ _____
10	1507051	_Mobilization, Max. $7,500.00	LSUM	1.000	$ _____	$ _____
15	8117001	_Pavt Mrkg, Longit, 6 inch or Less Width, Rem	Ft	2,105.000	$ _____	$ _____
20	8117001	_Pavt Mrkg, Longit, Greater than 6 inch Width, Rem	Ft	150.000	$ _____	$ _____
25	8117001	_Pavt Mrkg, Polyurea, 12 inch, Cross Hatching, White	Ft	150.000	$ _____	$ _____
30	8117001	_Pavt Mrkg, Polyurea, 12 inch, Cross Hatching, Yellow	Ft	150.000	$ _____	$ _____
35	8117001	_Pavt Mrkg, Polyurea, 12 inch, Crosswalk	Ft	1,245.000	$ _____	$ _____
40	8117001	_Pavt Mrkg, Polyurea, 24 inch, Crosswalk	Ft	50.000	$ _____	$ _____
45	8117001	_Pavt Mrkg, Polyurea, 24 inch, Stop Bar	Ft	425.000	$ _____	$ _____
50	8117001	_Pavt Mrkg, Polyurea, 4 inch, White	Ft	12,500.000	$ _____	$ _____
55	8117001	_Pavt Mrkg, Polyurea, 4 inch, Yellow	Ft	41,508.000	$ _____	$ _____
60	8117001	_Pavt Mrkg, Polyurea, 6 inch, Crosswalk	Ft	150.000	$ _____	$ _____
65	8117001	_Pavt Mrkg, Polyurea, 6 inch, White	Ft	33,123.000	$ _____	$ _____
70	8117001	_Pavt Mrkg, Sprayable Thermopl, 4 inch, White	Ft	17,500.000	$ _____	$ _____
75	8117001	_Pavt Mrkg, Sprayable Thermopl, 4 inch, Yellow	Ft	87,500.000	$ _____	$ _____
80	8117001	_Pavt Mrkg, Sprayable Thermopl, 6 inch, White	Ft	35,000.000	$ _____	$ _____
85	8117001	_Pavt Mrkg, Thermopl, 12 inch, Cross Hatching, White	Ft	150.000	$ _____	$ _____
90	8117001	_Pavt Mrkg, Thermopl, 12 inch, Cross Hatching, Yellow	Ft	250.000	$ _____	$ _____
95	8117001	_Pavt Mrkg, Thermopl, 12 inch, Crosswalk	Ft	17,500.000	$ _____	$ _____
100	8117001	_Pavt Mrkg, Thermopl, 24 inch, Crosswalk	Ft	4,000.000	$ _____	$ _____

TOTAL THIS PAGE $ _____

Unit Price Bid

No.	No.	Item Description	Unit	Quantity	Unit Price	Total Price
105	8117001	_Pavt Mrkg, Thermopl, 24 inch, Stop Bar	Ft	5,000.000	$	$
110	8117001	_Pavt Mrkg, Thermopl, 6 inch, Crosswalk	Ft	12,500.000	$	$
115	8117001	_Pavt Mrkg, , For On-Street Parking, 4 inch, White	Ft	150.000	$	$
120	8117001	_Recessing Pavement Markings, Longit	Ft	8,500.000	$	$
125	8117010	_Pavt Mrkg, Polymer Cement Surface, Bike Lane Green	Sft	15,300.000	$	$
130	8117010	_Pavt Mrkg, Polymer Cement Surface, Tan	Sft	10,574.000	$	$
135	8117010	_Recessing Pavement Markings, Transv	Sft	1,500.000	$	$
140	8117010	_Rem Spec Mrkg	Sft	7,744.000	$	$
145	8117050	_Pavt Mrkg, Ovly Cold Plastic, Bike, Small Sym	Ea	10.000	$	$
150	8117050	_Pavt Mrkg, Ovly Cold Plastic, Direction Arrow Sym, Bike	Ea	10.000	$	$
155	8117050	_Pavt Mrkg, Ovly Cold Plastic, Sharrow Symbol	Ea	10.000	$	$
160	8117050	_Pavt Mrkg, Ovly Cold Plastic, Speed Hump Chevron, White	Ea	10.000	$	$
165	8117050	_Pavt Mrkg, Polyurea, Bike, Small Sym	Ea	40.000	$	$
170	8117050	_Pavt Mrkg, Polyurea, Direction Arrow Sym, Bike	Ea	40.000	$	$
175	8117050	_Pavt Mrkg, Polyurea, Lt Turn Arrow Sym	Ea	10.000	$	$
180	8117050	_Pavt Mrkg, Polyurea, Only	Ea	10.000	$	$
185	8117050	_Pavt Mrkg, Polyurea, Railroad Sym	Ea	1.000	$	$
190	8117050	_Pavt Mrkg, Polyurea, Rt and Lt Turn Arrow Sym	Ea	1.000	$	$
195	8117050	_Pavt Mrkg, Polyurea, Rt Turn Arrow Sym	Ea	10.000	$	$
200	8117050	_Pavt Mrkg, Polyurea, School	Ea	2.000	$	$
205	8117050	_Pavt Mrkg, Polyurea, Sharrow Symbol	Ea	22.000	$	$

TOTAL THIS PAGE $ _____

Unit Price Bid

No.	No.	Item Description	Unit	Quantity	Unit Price	Total Price
210	8117050	_Pavt Mrkg, Polyurea, Thru and Lt Turn Arrow Sym	Ea	2.000	$	$
215	8117050	_Pavt Mrkg, Polyurea, Thru and Rt Turn Arrow Sym	Ea	2.000	$	$
220	8117050	_Pavt Mrkg, Polyurea, Thru Arrow Sym	Ea	1.000	$	$
225	8117050	_Pavt Mrkg, Preformed Thermoplastic, Accessible Sym	Ea	2.000	$	$
230	8117050	_Pavt Mrkg, Thermopl, Lt Turn Arrow Sym	Ea	100.000	$	$
235	8117050	_Pavt Mrkg, Thermopl, Merge	Ea	1.000	$	$
240	8117050	_Pavt Mrkg, Thermopl, Merge Arrow Sym	Ea	2.000	$	$
245	8117050	_Pavt Mrkg, Thermopl, Only	Ea	80.000	$	$
250	8117050	_Pavt Mrkg, Thermopl, Railroad Sym	Ea	1.000	$	$
255	8117050	_Pavt Mrkg, Thermopl, Rt and Lt Turn Arrow Sym	Ea	1.000	$	$
260	8117050	_Pavt Mrkg, Thermopl, Rt Turn Arrow Sym	Ea	20.000	$	$
265	8117050	_Pavt Mrkg, Thermopl, School	Ea	10.000	$	$
270	8117050	_Pavt Mrkg, Thermopl, Speed Hump Chevron, White	Ea	10.000	$	$
275	8117050	_Pavt Mrkg, Thermopl, Thru and Lt Turn Arrow Sym	Ea	10.000	$	$
280	8117050	_Pavt Mrkg, Thermopl, Thru and Rt Turn Arrow Sym	Ea	5.000	$	$
285	8117050	_Pavt Mrkg, Thermopl, Thru Arrow Sym	Ea	5.000	$	$
290	8117050	_Pavt Mrkg, Thermopl, Yield	Ea	2.000	$	$

TOTAL THIS PAGE $ _____

TOTAL FROM PAGE ADDENDUM -1-5 $ _____

TOTAL FROM PAGE ADDENDUM -1-6 $ _____

TOTAL BASE BID **$** _____

concerning who the Supervising Professional is, Contractor shall confirm with the manager of the Administering Service Area/Unit.

Contractor's Representative means _____ [**Insert name**] whose job title is [**Insert job title**].

ARTICLE III - Time of Completion

(A) The work to be completed under this Contract shall begin immediately on the date specified in the Notice to Proceed issued by the City.

(B) The entire work for this Contract shall be completed in accordance with the scheduling requirements outlined in the "Detailed Specification for Project Schedule" found in the Contract Documents.

(C) Failure to complete all the work within the time specified above, including any extension granted in writing by the Supervising Professional, shall obligate the Contractor to pay the City, as liquidated damages and not as a penalty, the amount(s) specified in the "Detailed Specification for Project Schedule" found in the Contract Documents for each calendar day of delay in the completion of all the work. If any liquidated damages are unpaid by the Contractor, the City shall be entitled to deduct these unpaid liquidated damages from the monies due the Contractor.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

(D) The term of this Contract shall extend until June 30, 2023, or until satisfactory performance of all services have been performed, whichever occurs first. Subject to the availability of funding, the Contact may be extended for one one-year term, subject to the same terms and conditions, including unit prices, in the original Contract and subject to agreement by the City and the Contractor. Between January 1 and March 31, 2023, the City may provide a written request for the one-year extension to the Contractor, after which the Contractor shall have 30 days to respond in writing that it agrees to the one-year extension. Failure to respond may result in the Contract being reissued for bid.

ARTICLE IV - The Contract Sum

(A) The City shall pay to the Contractor for the performance of the Contract, the unit prices as given in the Bid Form for the estimated bid total of:

_____Dollars ($_____)

(B) The amount paid shall be equitably adjusted to cover changes in the work ordered by the Supervising Professional but not required by the Contract Documents. Increases or decreases shall be determined only by written agreement between the City and Contractor.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
POLYMER CEMENT SURFACE PAVEMENT MARKINGS

a. Description. This work consists of installing a polymer cement surface system (PCSS) on a prepared substrate in accordance with these specifications, the plans, and/or as directed by the Engineer for the purposes of delineating dedicated or shared bicycle lanes. The resulting surface may be patterned or monolithic as required by the design plans or directed by the Engineer. Perform the work utilizing the products, processes, equipment, and certifications of Endurablend™ Systems, or an approved equal. Approved equal materials must have proven in-place history over asphalt and/or concrete and meet all the material properties and be installed in accordance with this specification. Complete all work in accordance with section 811 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, as applicable, the manufacture's requirements, and this special provision.

b. Materials. Use Endurablend™ System PCSS material manufactured by Pavement Surface Coatings, LLC, 81 Ball Road, Mountain Lakes, NJ 07046. (Telephone: 866-215-6120) or approved equal. Pre-approval of an equivalent product must meet the material property requirements shown below. The color will be green and must comply with FHWA standards for daytime and nighttime chromaticity values.

1. The daytime chromaticity coordinates for the color used for green colored pavement shall be as follows:

1		2		3		4	
x	y	x	y	x	y	x	y
0.230	0.754	0.266	0.500	0.367	0.500	0.444	0.555

2. The daytime luminance factor (Y) shall be at least 7, but no more than 35.

3. The nighttime chromaticity coordinates for the color used for green colored pavement shall be as follows:

1		2		3		4	
x	y	x	y	x	y	x	y
0.230	0.754	0.366	0.540	0.450	0.500	0.479	0.520

4. PCSS Material Properties: The polymer cement surface or approved equal shall provide a skid and abrasion resistant surface and meet or exceed the requirements in Table 2.1.

Table 2.1 - Polymer Cement Material Properties

Description	Test Method	Value
Compressive Strength, (at 28 days) 2" Cube[1]	ASTM C-109	>3,200 PSI
Tensile Strength[1]	ASTM C-190	>350 PSI
Bond Strength with Asphalt[1,2]	ASTM C-1583	>250 PSI

Table 2.1 - Polymer Cement Material Properties (continued)		
Description	**Test Method**	**Value**
Skid Resistance (at 60km/hr)	ASTM E-1911 ASTM E-274	>40 >40
Length Change[1]	ASTM C-157	<0.024%
Solar Reflectivity Index[3,4]	ASTM C-1549 ASTM E-1980	>0.29
Wet Mix Flowability[7]	ASTM C-939	20-45 sec
Wet Mix Air Voids[7]	Chase Meter	<6%
Total Air Content[5]	Microscope Analysis of Section	<5%
Flexibility[6]	½" Thick Beam under Static Load – Max. Deflection	≥½"

1) The data shown is representative of laboratory test 28 day cured samples at 50% humidity.
2) Prepare a test sample by overlaying ¼" (6mm) of product on 12.5mm HMA sample.
3) Obtain an SRI of greater than 29 by using pigments or changing the color index of the aggregate. It is not applicable for requested color pigments.
4) Only applicable for projects where a LEED certification credit is a requirement of the surfacing or where specifications require a reflective surfacing.
5) Required to provide balance between flexibility, minimal permeability and therefore maximum durability.
6) Use the same loading rate as for the ASTM C-109 test above.
7) Quality assurance tests for site.

5. Chemical Admixtures/Pigments: The manufacturer shall approve the dosage rates and the conditions for use in the PCSS of any chemical admixtures and/or color pigments. Use color Warm Gray 6 for tan pavement as shown on the Endurablend Pantone® Matching System Color Chart.

6. Chemical Admixtures/Pigments: The manufacturer shall approve the dosage rates and the conditions for use in the PCSS of any chemical admixtures and/or color pigments.

7. Delivery, Storage, and Handling: Deliver material to site in weatherproof containers and store in a covered and ventilated location.

c. Construction. Construct green bike lane pavement markings in accordance with manufacturer application and installation procedures, section 811 of MDOT 2012 Standard Specifications for Construction, as applicable, and as directed by the Engineer.

1. Equipment: Use equipment approved by the manufacturer or an approved installer. The installer shall demonstrate that the equipment is capable of handling materials, performing the work, maintaining proper material temperature, maintaining the minimum level of required productivity, and producing a product of the specified quality and be maintained in good mechanical condition. Provide sufficient equipment to enable the prosecution of the work in accordance with the project schedule and completion of the work in the specified time. Use equipment capable of handling and transferring the dry materials

and liquids to the approved mixer without causing spillage, segregation, or contamination.

2. Mixing: The measuring and mixing operation shall be capable of producing a consistent homogeneous mix sufficient to maintain the production levels required for the work. Charge the water and dry blend into the mixer and blend to the desired consistency while maintaining effective temperatures to prevent flashing of the mix. Hand mixing in pails is not permissible.

3. Weather Limitations:

Follow manufacturer recommended pavement and air temperatures. Place PCSS only when all the following conditions are met:

- The pavement surface is dry.
- Ambient and substrate temperatures are 50° F (10° C) and rising and expected to remain above 50° F (10° C) for 6 hours
- There is no forecast of temperatures below 35° F (2° C) within 24 hours from the time of placement.
- The weather is not foggy or rainy. When rain appears imminent, all placement operations shall cease, and the work shall not resume until the threat of rain has passed.

When the ambient temperature is below 50° F (10° C), but will remain above 40° F (5° C) during paving and the substrate temperatures are 50° F (10° C) and rising, place the PCSS with the approval of Engineer and add manufacturer approved accelerators to the mix.

Take care when placing the PCSS if the substrate temperature exceeds 130° F (50° C). Closely monitor application temperatures of the substrate above 130° F (50° C) for performance during the course of application. Any observable defects occurring as a result of extreme temperature should be cause for immediate halting of placement operations.

Where the ambient paving air temperature is going to exceed 90° F (32° C) consider use of cold water and ice for the blending operation. Where the provision of cold water or replacing the part of the water requirement with ice is not possible, then use a retarder with the mix.

4. Surface Preparation and Condition: The substrate that is to receive the PCSS system shall be cleaned of sand, dirt, dust, rock, or any other debris that could prevent proper adhesion. Clean and prepare the surface by power broom, scraping, compressed air or sand-blasting, high pressure water, or other approved methods in conformance with ASTM D4263 as necessary to assure bonding between the PCSS surface course and the substrate. Do not start PCSS operations until the surface is in a condition as recommended by the manufacturer and approved by the Engineer. The Contractor at the its expense shall correct any/all surface damage resulting from cleaning/preparation work, as directed by the Engineer.

All substrate receiving PCSS shall be free of potholes, spalling, or other areas of structural deterioration. If identified in the plans, or directed by the Engineer, excavate all such areas to a depth where the substrate is structurally sound and repair with an approved method. Report structurally deficient areas not identified for repair in the plans to the Engineer.

5. Placement: The Contractor shall lay out all pavement marking areas and then for review by the Engineer. The Engineer shall approve the marking layout prior to placement of material.

Deposit PCSS uniformly on the substrate by roto-stator spray equipment. Use a spray apparatus device approved by the manufacturer and having the capability of mixing the materials at a rate to insure continuous spray operations.

Stenciled Pavement: This design requires a base coat of the material to be applied by squeegee or spray on top of asphalt or concrete pavement. Concrete pavement may require shot blasting to roughen the surface to ensure proper bonding. The base coat provides a grout line color plus seals the surface. Once the base coat has cured, apply the specified stencil pattern and spray the top coat. Remove stencil when the top coat has reached the proper consistency and allow coating to cure. Cure to traffic time is approximately 2 hours at 70 degrees. The total cured thickness should be between 1/8” and 3/16”.

The stencils should be a plastic or paper pattern consistent with the design of the crosswalks.

Non-Patterned Application: This design uses a colored or base color coating without a decorative pattern. Apply the material to the asphalt or concrete pavement using roto-stator spray apparatus. Concrete pavement may require shot blasting to roughen the surface to ensure proper bonding. A smooth or textured surface can be created. A textured surface is achieved by adding aggregate to the mix or distributing a fine aggregate to the surface after application as specified in the plans. Cure to traffic time is approximately 2 hours at 70 degrees. The total cured thickness should be between 1/8” and 3/16”.

6. Curing and Opening to Traffic: The Contractor shall take care to protect the PCSS surface course from traffic until the area is sufficiently cured. Curing time will vary depending on ambient and surface temperatures. Do not open the PCSS to traffic until it has reached sufficient compressive strength and vehicular traffic will not damage the surface. Obtain approval for opening from a representative of the manufacturer, the installer, or the Engineer. The Contractor at its expense shall correct any damage to the PCSS surface resulting from failure to protect it or open it to traffic without approval or proper cure.

d. Measurement and Payment. Measure and pay for the completed work, as described, at the respective contract unit price using the following respective pay item:

Pay Item	**Pay Unit**
Pavt Mrkg, Polymer Cement Surface, Bike Lane Green	Square Foot
Pavt Mrkg, Polymer Cement Surface, Tan	Square Foot

Pavt Mrkg, Polymer Cement Surface, Bike Lane Green and **Pavt Mrkg, Polymer Cement Surface, Warm Gray** will be measured in place by the square foot and will be paid for at the contract unit price per square foot, which price shall be payment in full for all labor, equipment, and materials as specified in this provision, and as directed by the Engineer to accomplish this work.

a. Description. This work consists of providing and applying retroreflective permanent pavement markings in accordance with the Michigan Manual on Uniform Traffic Control Devices (MMUTCD). Provide markings, shapes, spacing, and dimensions that conform to the Michigan Department of Transportation (MDOT) Pavement Marking Standard Plans, and any special details included with this detailed specification unless directed otherwise by the Engineer.

b. Materials. Provide materials in accordance with the following requirements.

1. **Marking Materials.** Select pavement marking materials from the MDOT Qualified Product List.

Pavement marking materials must meet the general packaging and labeling requirements and applicable specific material requirements described below.

A. **General Packaging and Labeling.** Material containers or packages must be marked on the tops and sides, using a durable, weather-resistant marking. Include the following information:

(1) Manufacturer's name and address,
(2) Description of the material,
(3) Product identification number,
(4) Lot or Batch number,
(5) Date of manufacture,
(6) Volume and
(7) Weight.

B. **Packaging and Labeling for Cold Plastic and Thermoplastic Markings.**

(1) **Cold Plastic.** Containers or packages of cold plastic material, and the core of each role must be marked with the information specified above.

(2) **Thermoplastic.** In addition to the above requirements, thermoplastic material must be packaged in non-stick containers, and labeled with "heat to manufacturer-recommended temperature range," or a City of Ann Arbor approved equal.

2. **Glass Beads.**

A. **Glass Bead Packaging and Labeling.** Glass beads must be packaged in moisture resistant bags and labeled to include the following information:

(1) Manufacturer's name and address,
(2) Shipping point,
(3) Trademark or name,
(4) The wording "Glass Beads,"
(5) Specification number,
(6) Weight,

(7) Lot or Batch number, and
(8) Date of manufacture.

Glass beads must meet the general requirements of subsection B below, and the applicable requirements for specific applications of subsection A above.

B. **General Glass Bead Requirements.** Glass beads must meet the physical characteristics and gradation requirements specified in Table B-1, unless otherwise specified in subsection C below for specific applications.

Table B-1
General Glass Bead Requirements

Physical characteristics (MTM 711)	
General Appearance	Transparent, clean, smooth, free from milkiness, pits, or excessive air bubbles
Shape	Spherical with ≥75% true spheres
Color	Colorless, very light gray, very light gray tinge, or bright white
Index of Refraction	≥1.50
Alkalinity	≤2.0
Gradation Requirements (MTM 711)	
Sieve Size (No.)	**Total Percent Passing**
20	100
30	75-95
50	15-35
100	0-5

C. **Glass Bead Requirements for Specific Applications.** For specific applications, glass beads must be as follows:

(1) **Waterborne and Low Temperature Waterborne.** Standard glass beads for use with waterborne marking material and low temperature waterborne marking material require a moisture resistant coating and a silane coating.

(2) **Regular Dry.** Standard glass beads for use with regular dry marking material may have a moisture resistant coating, a silane coating, or both.

(3) **Thermoplastic.** Glass beads for thermoplastic marking material must have a moisture resistant coating.

(4) **Sprayable thermoplastic.** The type, gradation, and application rates for glass beads used with sprayable thermoplastic marking material must meet the thermoplastic manufacturer's recommendation.

(5) **Polyurea.** The type, gradation, and application rates for glass beads used with polyurea marking material must meet the thermoplastic manufacturer's recommendation.

Use a double drop system of large and standard glass beads, a double drop system of ceramic elements and standard glass beads, or an Engineer-approved alternate for recessed longitudinal markings. Ensure large glass beads meet federal specification TTB-1325 for a Type 4 glass bead.

Provide the Material Safety Data Sheets to the Engineer for required materials and supplies. Dispose of unused material and containers in accordance with the Federal Resource

Conservation Recovery Act (RCRA) of 1976 as amended, and 1994 PA 451, Part 111 Hazardous Waste Management.

Provide samples of permanent pavement marking materials on City of Ann Arbor request.

c. Construction.

1. **Equipment.** Apply longitudinal lines with certified self-propelled pavement marking equipment. The Engineer may approve other equipment for special markings or areas inaccessible to self-propelled pavement marking equipment.

Provide self-propelled equipment certified by the MDOT in accordance with the Equipment Certification Guidelines for Pavement Markings. Certification is effective for 2 years. Operate marking equipment at no greater than the certified speed. The Engineer will assume a striper, operating above the certified working speed, has operated at that speed for the entire day.

The City of Ann Arbor may inspect the equipment at any time.

Use equipment capable of uniformly applying material to the required length and width.

Provide equipment for placing centerlines, capable of applying three, 4-inch minimum width lines on a two-lane road in one pass. If applying multiple centerlines, use three spray guns positioned 6 inches on center. For two lane freeways, apply the lane line from the left lane. For freeways with at least three lanes, apply the right lane line with the right edgeline.

Use an easily adjusted, dashing mechanism to retrace existing lane or centerline markings.

Use a self-propelled pavement marker capable of marking pavement in either direction on a roadway. Use a continuous skip cycle. Do not zero or return the cycle control unit to the beginning or start of a new cycle.

Provide a distance meter to measure the length of each line.

The Engineer may check the calibration of metering devices at any time. If the Engineer determines the equipment is unsatisfactory, use other methods approved by the Engineer.

Use equipment for placing hot-applied thermoplastic and sprayable thermoplastic material that can maintain the temperature recommended by the material manufacturer.

Allow time for the Engineer to inspect traffic control devices as shown in the pavement marking convoy typicals. Correct traffic control devices not approved by the Engineer before continuing. If applying markings on a roadway closed to traffic, the traffic control devices specified in the pavement marking convoy typicals are not required, unless otherwise directed by the Engineer.

2. **General.** The City of Ann Arbor will not provide storage buildings or space for permanent pavement marking equipment or materials.

If specified on the plans, layout the permanent pavement markings. Otherwise, witness, log and lay out permanent pavement markings to replace in kind. When layout is complete, contact the Engineer to review the layout work before applying permanent pavement

markings.

Before applying pavement markings, ensure the pavement surface is clean and dry. Air blast to remove material that prevents pavement markings from adhering to the pavement surface. Remove debris or dead animals from the line track.

For solid lines, apply 4 inch and 6 inch lines, no greater than ¼ inch wider than the required width. Apply solid lines with no gaps or spaces. Apply a double line as either two solid lines or one solid line and one broken line.

For new broken lines, apply 12½-foot long lines, no greater than 4 inches longer than the required length. Leave a 37½-foot gap between new broken lines. Continue this 50-foot cycle of broken line and gap, as shown on the plans. Apply new lines at the required location within a lateral tolerance of 1 inch.

When applying centerline and lane lines on new construction, retrace at least five existing adjacent skips to match the existing pavement marking cycle.

Retrace existing pavement markings using lines equal to the width and length of the original markings. For existing 4-inch, 6-inch, 8-inch, or 12-inch wide lines, retrace no greater than ¼ inch wider than the existing line. If existing lines exceed the nominal widths, ensure the total line widths, existing and retraced, do not exceed 5 inches, 7 inches, 9 inches, and 13 inches.

For existing 12½-foot broken lines, place the retraced line to a longitudinal tolerance of no greater than 4 inches longer than the existing line. If existing lines exceed 12½ feet long, ensure broken line lengths for existing and retraced lines do not exceed 13 feet.

Mix liquid materials during application. Do not thin materials. Uniformly apply pavement marking material at the rates shown in Table C-1.

The protection of wet markings shall be the responsibility of the Contractor, until such markings are sufficiently dry to permit traffic to travel upon them.

Prior to the start of each day's work, the Contractor **must** notify the Project Engineer, or authorized representative, of the general location where the pavement marking crew(s) will be working. No work is to begin without the Project Engineer or authorized representative on site or prior authorization to begin such work from the Project Engineer. If work has begun without notice to the Project Engineer, payment may not be made to the Contractor on items that where completed without authorization. Pavement Markings shall not be placed on Saturday, Sunday, or legal holidays unless the Project Engineer grants prior approval in writing.

The Contractor shall keep accurate daily records indicating streets marked, quantity marked, types of materials used, equipment used, and employees that worked. A copy of these records shall be provided to the City of Ann Arbor Project Engineer or authorized representative on site at the end of each work day.

3. **Traffic Control & Safety.** Proper traffic control is a mandatory requirement for working on the streets under the jurisdiction of the City of Ann Arbor. The design, placement and requirement for traffic control devices shall be those found in the current edition of the Michigan Manual of Uniform Traffic Control. The Contractor is solely responsible for maintaining traffic at all times for its operations. No work shall begin until the proper traffic

control devices are in place.

All vehicles used in the marking operations shall be equipped with fully functioning rotating or oscillating flashers, which are visible from both the front and rear of the vehicle. The pavement marking vehicle shall be equipped with an illuminated Target Arrow, Type B, capable of being visible from either the front or rear of the vehicle.

The trailing vehicle shall also be equipped with an appropriate sign visible from the rear indicating the following or equivalent legend “Wet Paint Do Not Cross Lines”. The trailing vehicle shall also be equipped with an illuminated Target Arrow, Type B, which shall be visible from the rear of the vehicle.

Proper MIOSHA class safety vests shall be worn at all times according to task being performed.

The Engineer will determine the application rates by dividing the quantity of material used by the length of the line placed. The Engineer may check application rates at start up, and during work, without prior notice to the Contractor.

Load pavement marking materials on the pavement marking machine without interfering with, or delaying traffic. Operate striping equipment to prevent traffic from crossing the uncured markings. Prevent vehicles from being sprayed.

Position bead guns to direct beads into the line material and provide a uniform application of beads.

If applying markings in off-road areas open to traffic, maintain traffic to prevent vehicles from crossing the uncured markings.

Apply sharp, well-defined markings, free of uneven edges, overspray, or other visible defects, as determined by the Engineer. Ensure pavement marking lines are straight, or of uniform curvature. Pavement markings are subject to inspection by the Engineer in accordance with the Pavement Marking Inspection Guidelines. Remove pavement markings outside the required tolerances and re-apply in the correct locations. Re-apply unprotected pavement markings damaged by traffic and remove tracked lines at no additional cost to the City of Ann Arbor.

4. **Removal.** If required, remove existing longitudinal pavement markings on old pavement or curing compound on new concrete as described below.

Use a vacuum attachment operating concurrently with the blast cleaning operation to remove residue and dust when removing markings by blast cleaning within 10 feet of an open lane. Properly dispose of collected residue and dust.

A. **Removal of Less than 5,000 Feet of Pavement Markings.** Obtain the Engineer’s approval for one of the following removal methods and minimize damage to the surface texture of the pavement during removal.

Use one or more of the following removal methods:

(1) Sandblasting using air or water;
(2) Shot blasting;
(3) High-pressure water;
(4) Steam or superheated water; or
(5) Mechanical devices such as grinders, sanders, scrapers, scarifiers, and wire brushes.

Immediately clean up any debris generated. The City of Ann Arbor will not require continuous vacuuming equipment for pavement marking removal of less than 5,000 feet.

B. **Removal of Greater than 5,000 Feet of Pavement Markings.** Remove pavement markings using self-propelled truck mounted removal equipment. The equipment must be capable of continuously vacuuming up the removal debris. If the removal equipment cannot collect all removal debris, operate a self-propelled sweeper capable of continuously vacuuming up the removal debris immediately behind the removal equipment.

Obtain the Engineer's approval for one of the following removal methods and minimize damage to the surface texture of the pavement during removal:

(1) Use self-propelled truck mounted removal equipment, except do not use water blasting for marking removal on asphalt pavement;
(2) Use self-propelled truck mounted removal equipment for marking removal on concrete surfaces to be removed during construction; or
(3) Use a self-propelled truck mounted water blaster for marking removal on concrete surfaces to remain in place.

If removing special markings, including legends, symbols, arrows, crosswalks, and stop bars, install the new markings within 5 working days.

If removing cold plastic markings, collect and dispose of removed material.

5. **Application, Temperature and Seasonal Restrictions.** Ensure the material application rates in Table C-1, the temperature and seasonal application restrictions in Table C-2, and the additional requirements detailed in this subsection for specific materials are met when applying any material, unless directed by the Engineer. Document moisture testing and provide results to the Engineer.

A. **Waterborne.** The Engineer will not decide the suitability of specific days for the application of waterborne paint. Re-apply lines washed away or otherwise damaged by rain at no additional cost to the City of Ann Arbor.

The Contractor may place waterborne pavement markings immediately on new Hot Mix Asphalt (HMA) pavement.

B. **Low Temperature Waterborne.** If seasonal limitations prevent placement of waterborne paint, the Engineer may approve low temperature waterborne paint.

Wait at least 30 days after placing the pavement surface before applying low temperature waterborne pavement markings to new HMA wearing surface. The Engineer may waive the 30-day waiting period.

Table C-1
Pavement Marking Material Application Rates per Mile (a, b)

Binder Type	Thickness (mil)	Binder volume & Bead weight	Line Type							
			Broken				Solid			
			4 in	6 in	8 in	12 in	4 in	6 in	8 in	12 in
Waterborne	15	Binder (gal)	4	6	8	12	16	24	32	48
		Beads (lb)	32	48	64	96	128	192	256	384
Low Temperature Waterborne	15	Binder (gal)	4	6	8	12	16	24	32	48
		Beads (lb)	32	48	64	96	128	192	256	384
Regular Dry	15	Binder (gal)	4	6	8	12	16	24	32	48
		Beads (lb)	24	36	48	72	96	144	192	288
Thermoplastic	90	Binder (gal)	435	653	870	1,305	1,740	2,610	3,480	5,220
		Beads (lb)	50	75	100	150	200	300	400	600
Sprayable Thermoplastic	30 (c)	Binder (gal)	140	210	280	420	560	840	1,120	1,680
		Beads (lb)	50	75	100	150	200	300	400	600
Polyurea	20	Binder (gal)	6	8	11	17	22	33	44	66
		Beads (lb)	As directed by the manufacturer							

a. Binder yield indicates the amount to produce the required mil thickness without drop on beads.
b. Bead yield indicates the amount of drop on beads required for the given binder.
c. Apply drop on beads for a final thickness of 40 mil.

C. **Regular Dry Paint.** If seasonal limitations prevent the placement of waterborne paint, the Engineer may approve regular dry paint.

Wait at least 14 days after placing the pavement surface before applying regular dry pavement markings to new HMA wearing surface. The Engineer may waive the 14-day waiting period.

D. **Cold Plastic.** Prepare the pavement surface and apply the cold plastic tape in accordance with the manufacturer's specifications.

Remove curing compound from new concrete surfaces before applying cold plastic tape. For pavements with two or more layers of existing overlay cold plastic marking material or any other non-compatible materials, remove the existing marking material before installing the new cold plastic markings.

Install cold plastic tape legends, crosswalks, and stop bars, as shown on the standard plans, unless otherwise required in the plans.

(1) **With Contact Cement.** Apply contact cement recommended by the cold plastic marking manufacturer and approved by the City of Ann Arbor. Mix contact cement during application. Do not thin the contact cement. Allow time for solvents to evaporate from the adhesive before applying the cold plastic marking. Apply the contact cement by a method recommended by the manufacturer and ensure it is beneath the entire marking.

Provide non-adhesive backed cold plastic for stop bars and crosswalks. Provide adhesive backed cold plastic for all other special markings.

Immediately after placement, roll transverse and special markings at least four times with a roller weighing at least 200 pounds. The Engineer will not require additional rolling for longitudinal applications if the equipment for installing the line is equipped with a roller.

(2) **Primerless – Without Surface Preparation Adhesive.** Ensure dry weather for at least 24 hours, and a dry pavement surface before applying the primerless cold plastic tape marking. Clean the pavement surface using an air compressor with at least 185 cfm air flow and 120 psi. On all pavement surfaces, prevent damage to transverse and longitudinal joint sealers.

Immediately after placement, roll transverse and special markings at least six times with a roller weighing at least 200 pounds. The Engineer will not require additional rolling for longitudinal applications if the equipment installing the line is equipped with a roller.

(3) **Primerless – With Surface Preparation Adhesive.** Use surface preparation adhesive on all primerless cold plastic tape as recommended by the manufacturer or as shown on the plans.

Ensure dry weather for at least 24 hours, and a dry pavement surface before applying the primerless cold plastic tape marking. Clean the pavement surface using an air compressor with at least 185 cfm air flow and 120 psi. On all pavement surfaces,

prevent damage to transverse and longitudinal joint sealers.

Immediately after placement, roll transverse and special markings at least six times with a roller weighing at least 200 pounds. The Engineer will not require additional rolling for longitudinal applications if the equipment installing the line is equipped with a roller.

E. **Thermoplastic.** Ensure the pavement is free of excess surface and subsurface moisture that may affect bonding. The Engineer will not decide the suitability of specific days for the application of thermoplastic.

Heat and apply the thermoplastic material within the temperature range recommended by the manufacturer.

F. **Sprayable Thermoplastic.** Ensure the pavement is free of excess surface and subsurface moisture that may affect bonding. The Engineer will not decide the suitability of specific days for the application of thermoplastic.

Heat and apply the sprayable thermoplastic material within the temperature range recommended by the manufacturer.

G. **Polyurea.** Ensure the pavement is free of excess surface and subsurface moisture that may affect bonding. The Engineer will not decide the suitability of specific days for the application of thermoplastic.

Surface preparation requirements for special, and longitudinal polyurea pavement markings depend on surface conditions.

Prepare new HMA surfaces and HMA surfaces open to traffic for 10 days or less with no oil drips, residue, debris, or temporary or permanent markings, by cleaning the marking area with compressed air.

Prepare new PCC surfaces and PCC surfaces free of oil drips, residue, and debris, temporary, or permanent markings, by removing the curing compound from the area required for pavement markings.

Prepare existing HMA or PCC surfaces that do not have existing markings, but may have oil drip areas, debris, or both, by scarifying the marking area using non-milling grinding teeth or shot blasting. The Engineer will allow the use of water blasting to scarify the marking area on PCC surfaces.

Prepare existing HMA or PCC surfaces with existing non-polyurea markings by completely removing non-polyurea markings.

Prepare existing HMA or PCC surfaces with existing polyurea marking and that may have oil drip areas, debris, or both, by using the following methods:

(1) Clean the marking area with compressed air if markings are replaced every 2 years and no visible oil drip areas or visible chipping or spalling of the existing marking exist;

(2) Scarify the marking area using non-milling grinding teeth or shot blast if markings are replaced every 2 years and visible oil drip areas, chipping or spalling of the existing markings exist; or

(3) Completely remove existing pavement markings if markings are replaced every 4 years.

Table C-2
Minimum Material Placement Temperature and Seasonal Restrictions (a)

Material	Minimum Air Temperature (°F) (b)	Minimum Pavement Temperature (°F) (c)	Start Date	End Date
Waterborne	50	50	May 1	Oct 15
Low Temperature Waterborne	35	35	Oct 1	May 1
Regular Dry	25	25	Oct 1	May 1
Cold Plastic Tape – with Contact Cement	60	60	May 1	Oct 15
Cold Plastic Tape – Primerless – without Surface Preparation Adhesive	60	60	Jun 1	Sep 1
Cold Plastic Tape – Primerless – with Surface Preparation Adhesive	40	40	Apr 15	Nov 15
Thermoplastic	50	50	May 1	Oct 15
Sprayable Thermoplastic	50	50	Apr 15	Nov 15
Polyurea	40	40	Apr 15	Nov 15

a. See text for more detailed information.
b. Temperature must meet minimum and be rising.
c. Pavement must be dry.

6. **Second Application.** If the contract requires a second application of permanent pavement markings, complete two applications regardless of initial pavement marking conditions. Complete the second application from 14 days to 60 days after initial application in the same calendar year.

The Contractor may apply the second application before the required 14 days if previously approved by the Engineer.

7. **Call Back Painting.** The Engineer will provide a list of locations and limits for call back pavement marking painting, and will direct the order that the Contractor may paint the locations.

Begin call back painting work within seven days of the Engineer's notification.

8. **Raised Pavement Marker (RPM) Removal.** Remove RPM with City of Ann Arbor-approved equipment. During removal, do not disturb pavement more than 3 inches below the surface or more than 3 inches from the perimeter of the marker casting. The Engineer will stop marker removal if damage to the pavement exceeds these limits.

The Engineer will require patching, regardless of milling requirements, unless the Engineer determines damaged areas do not pose a hazard to traffic. Use leveling mix to patch concrete and HMA pavement that require HMA overlay.

Use a prepackaged, hydraulic, fast-set material for patching structural concrete, from the Qualified Products List for patching concrete pavement not requiring overlay. Patch concrete pavement, not requiring overlay in accordance with the patch material manufacturer's specifications.

Patch HMA pavement, not requiring overlay, with the epoxy adhesive used to attach raised pavement markers to the pavement.
Clean and dispose of debris from RPM removal and patching operations.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

Pay Item	**Pay Unit**
Pavt Mrkg, Longit, 6 inch or Less Width, Rem	Foot
Pavt Mrkg, Longit, Greater than 6 inch Width, Rem	Foot
Pavt Mrkg, Polyurea, __ inch, (color)	Foot
Pavt Mrkg, Polyurea, __ inch, Crosswalk	Foot
Pavt Mrkg, Polyurea, __ inch, Stop Bar	Foot
Pavt Mrkg, Polyurea, __ inch, Cross Hatching, (color)	Foot
Pavt Mrkg, Polyurea, (legend)	Each
Pavt Mrkg, Polyurea, (symbol)	Each
Pavt Mrkg, Ovly Cold Plastic, (legend)	Each
Pavt Mrkg, Ovly Cold Plastic, (symbol)	Each
Pavt Mrkg, Ovly Cold Plastic, Speed Hump Chevron, (color)	Each
Pavt Mrkg, Thermopl, __ inch, Crosswalk	Foot
Pavt Mrkg, Thermopl, __ inch, Stop Bar	Foot
Pavt Mrkg, Thermopl, __ inch, Cross Hatching, (color)	Foot
Pavt Mrkg, Thermopl, (legend)	Each
Pavt Mrkg, Thermopl, (symbol)	Each
Pavt Mrkg, Thermopl, Speed Hump Chevron, (color)	Each
Pavt Mrkg, Thermopl, For On-Street Parking, __ inch, (color)	Foot
Pavt Mrkg, Sprayable Thermopl, __ inch, (color)	Foot
Recessing Pavement Markings, Transv	Square Foot
Recessing Pavement Markings, Longit	Foot
Rem Spec Markings	Square Foot

1. **General.** The Engineer will not measure the skips in dashed lines. The cost of traffic control and mobilization is included in the unit prices for other pavement marking placement pay items unless it is specified elsewhere in the Contract to be paid separately.

The cost of collecting and disposing of residue generated by the removal of cold plastic pavement markings and curing compound is included in the unit prices for other removal pay items.

The cost of glass beads is included in the unit prices for other pavement marking material.

The City of Ann Arbor will not pay separately for the contact cement and adhesives for longitudinal lines, legends, symbols, arrows, crosswalks, or stop bars.

The City of Ann Arbor will not pay for markings placed by equipment operated at speeds higher than the certified speed.

The City of Ann Arbor will not assess liquidated damages if the 30-day waiting period for placing low temperature waterborne paint is in effect and the project is complete. The City of Ann Arbor will not assess liquidated damages if the 14-day waiting period for regular dry paint is in effect and the project is complete.

The unit price for **Rem Curing Compound** includes the cost of preparing new PCC for marker application by removing the curing compound.

The Engineer will calculate pay adjustment as required by the contract when regular dry paint or low temperature waterborne paint are substituted for waterborne paint due to seasonal limitations. The adjustment applies only to projects that have completion dates after October 1, or have approved extensions of time without liquidated damages beyond October 1. Contractors who are in liquidated damages after October 1 are not eligible for the price adjustment.

2. **Call Back.** The unit price for **Call Back, Mobilization** includes the cost of traveling to the first call back painting location.

The Engineer will measure **Call Back, Intermediate Transportation** based on the map distances. The unit price for **Call Back, Intermediate Transportation** includes the cost of traveling between intermediate locations.

3. **Pavement Marking Removal.** The Engineer will measure the full removal of special markings based on the MDOT Pavement Marking Standard Plans and any special details. The City of Ann Arbor will pay for partial removal of special markings based on the dimensions of the actual removal area. The City of Ann Arbor will pay for the removal of longitudinal markings as **Pavt Mrkg, Longit, Rem**, of the width required. If full removal of pavement markings is required, the unit prices for **Rem Spec Mrkg** or **Pavt Mrkg, Longit, 6 inch or Less Width**, **Rem,** and **Pavt Mrkg, Longit, Greater than 6 inch Width, Rem** include the cost of removing existing longitudinal permanent markings, including tapers, and transitions.

If the Contractor removes multiple layers of pavement marking materials, the City of Ann Arbor will not pay separately for material removed beyond the first layer.

4. **Material Deficiency.** The Engineer will compute the quantity of pavement marking material and glass beads applied per unit of measurement at the end of each work day. The Engineer may include an applied length of less than 10 miles in the next day's measurement. The Engineer will determine the material usage based on field measurements and the required application rate specified in Table C-1.

The City of Ann Arbor will reduce the unit price for pavement marking material for material shortages in direct proportion to the deficient material quantity, up to 6 percent. If the daily deficiency of pavement marking material, or beads, is greater than 6 percent, the City of Ann Arbor will consider the day's work unsatisfactory and will direct the Contractor to reapply the day's markings to the thickness required by the contract, at no additional cost to the City of Ann Arbor.

APPENDIX

- Michigan Department of Transportation (MDOT) Special Provisions
- MDOT Supplemental Specifications
- Log of Quantities
- A2 Vision Zero Quick Build Project Plans
- General Decision Number: MI20220001 06/03/2022

LOG OF QUANTITIES

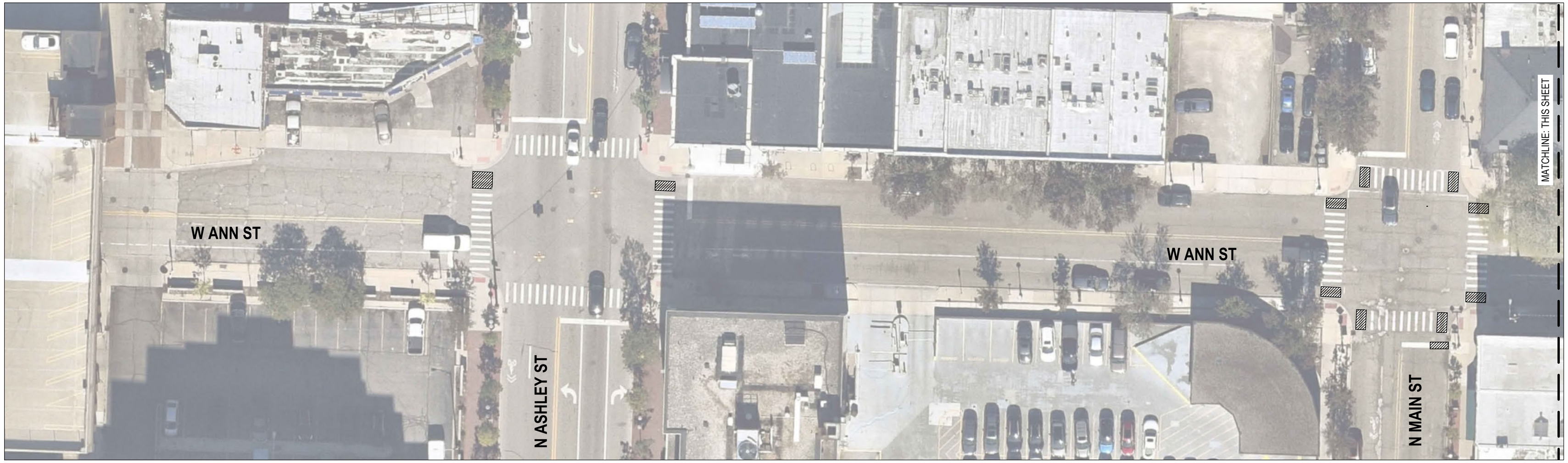
Pavement Marking Maintenance & A2 Vision Zero Quick Build Project – FY 2023
File No. 2023-022
RFP No. 22-38

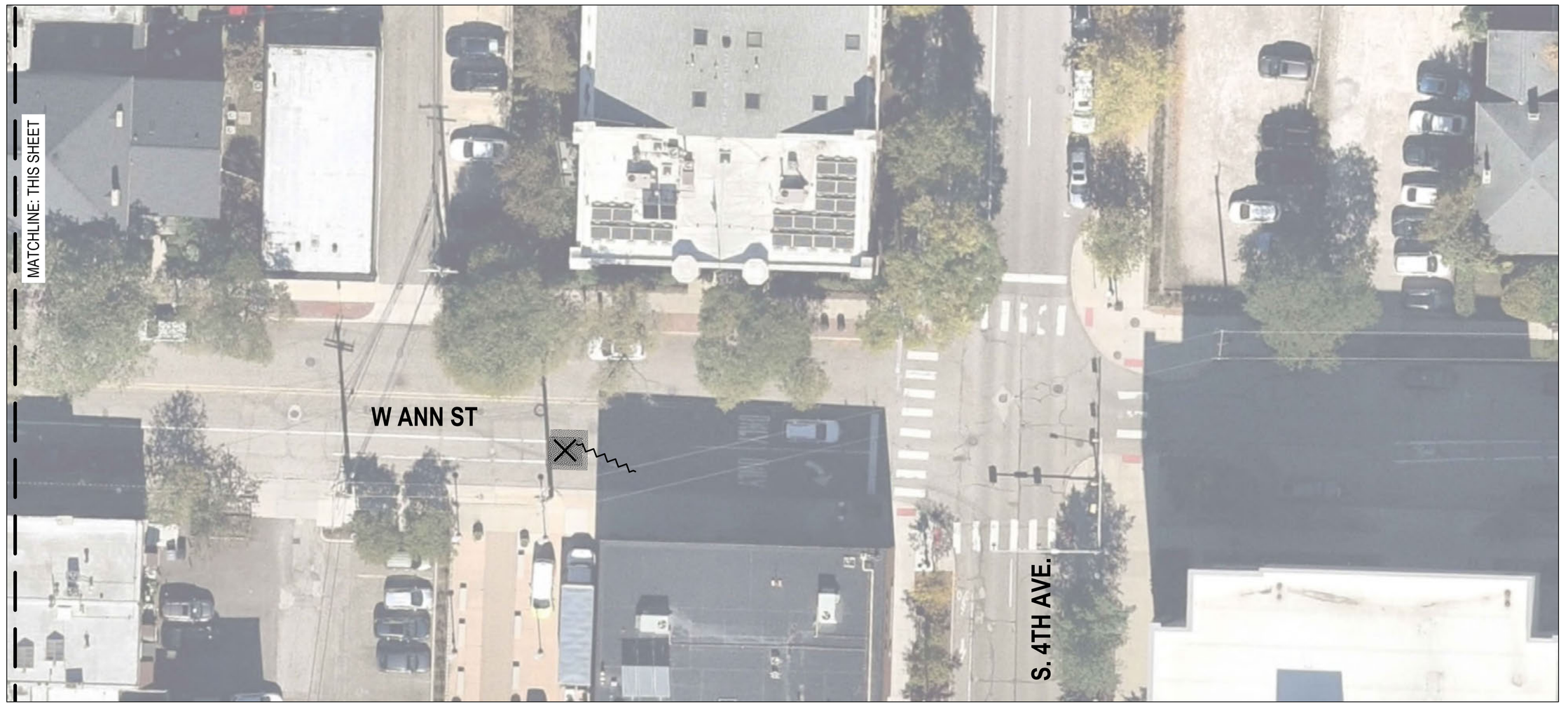
Prop. Line	Item No.	Item Description	Unit	Total Quantity	Pavement Marking Maintenance	A2 Vision Zero Quick Build Project						
					City Wide	Ann Street	Fuller Street - Glen Avenue	W Liberty Street - W Stadium Boulevard	N Maple Road	Packard Street	S University Avenue – S State Street	Washington Street
5	1047051	_Certified Payroll Compliance and Reporting	LSUM	1.000	1.000							
10	1507051	_Mobilization, Max. $7,500.00	LSUM	1.000	1.000							
15	8117001	_Pavt Mrkg, Longit, 6 inch or Less Width, Rem	Ft	2,105.000	1,500.000	25.000				419.000	161.000	
20	8117001	_Pavt Mrkg, Longit, Greater than 6 inch Width, Rem	Ft	150.000	150.000							
25	8117001	_Pavt Mrkg, Polyurea, 12 inch, Cross Hatching, White	Ft	150.000	150.000							
30	8117001	_Pavt Mrkg, Polyurea, 12 inch, Cross Hatching, Yellow	Ft	150.000	150.000							
35	8117001	_Pavt Mrkg, Polyurea, 12 inch, Crosswalk	Ft	1,245.000	750.000						495.000	
40	8117001	_Pavt Mrkg, Polyurea, 24 inch, Crosswalk	Ft	50.000	50.000							
45	8117001	_Pavt Mrkg, Polyurea, 24 inch, Stop Bar	Ft	425.000	300.000			15.000		110.000		
50	8117001	_Pavt Mrkg, Polyurea, 4 inch, White	Ft	12,500.000	12,500.000							
55	8117001	_Pavt Mrkg, Polyurea, 4 inch, Yellow	Ft	41,508.000	40,000.000		121.000		758.000	332.000	115.000	182.000
60	8117001	_Pavt Mrkg, Polyurea, 6 inch, Crosswalk	Ft	150.000	150.000							
65	8117001	_Pavt Mrkg, Polyurea, 6 inch, White	Ft	33,123.000	12,500.000	1,888.000	515.000	1,492.000	4,191.000	7,901.000	1,144.000	3,492.000
70	8117001	_Pavt Mrkg, Sprayable Thermopl, 4 inch, White	Ft	17,500.000	17,500.000							
75	8117001	_Pavt Mrkg, Sprayable Thermopl, 4 inch, Yellow	Ft	87,500.000	87,500.000							
80	8117001	_Pavt Mrkg, Sprayable Thermopl, 6 inch, White	Ft	35,000.000	35,000.000							
85	8117001	_Pavt Mrkg, Thermopl, 12 inch, Cross Hatching, White	Ft	150.000	150.000							
90	8117001	_Pavt Mrkg, Thermopl, 12 inch, Cross Hatching, Yellow	Ft	250.000	250.000							
95	8117001	_Pavt Mrkg, Thermopl, 12 inch, Crosswalk	Ft	17,500.000	17,500.000							
100	8117001	_Pavt Mrkg, Thermopl, 24 inch, Crosswalk	Ft	4,000.000	4,000.000							
105	8117001	_Pavt Mrkg, Thermopl, 24 inch, Stop Bar	Ft	5,000.000	5,000.000							
110	8117001	_Pavt Mrkg, Thermopl, 6 inch, Crosswalk	Ft	12,500.000	12,500.000							
115	8117001	_Pavt Mrkg, Thermopl, For On-Street Parking, 4 inch, White	Ft	150.000	150.000							
120	8117001	_Recessing Pavement Markings, Longit	Ft	8,500.000	8,500.000							
125	8117010	_Pavt Mrkg, Polymer Cement Surface, Bike Lane Green	Sft	15,300.000	5,000.000	509.000	436.000	963.000	4,234.000	2,854.000		1,304.000
130	8117010	_Pavt Mrkg, Polymer Cement Surface, Tan	Sft	10,574.000		1,890.000	413.000				2,392.000	5,879.000
135	8117010	_Recessing Pavement Markings, Transv	Sft	1,500.000	1,500.000							
140	8117010	_Rem Spec Mrkg	Sft	7,744.000	550.000	80.000				220.000	4,460.000	2,434.000
145	8117050	_Pavt Mrkg, Ovly Cold Plastic, Bike, Small Sym	Ea	10.000	10.000							
150	8117050	_Pavt Mrkg, Ovly Cold Plastic, Direction Arrow Sym, Bike	Ea	10.000	10.000							
155	8117050	_Pavt Mrkg, Ovly Cold Plastic, Sharrow Symbol	Ea	10.000	10.000							
160	8117050	_Pavt Mrkg, Ovly Cold Plastic, Speed Hump Chevron, White	Ea	10.000	10.000							
165	8117050	_Pavt Mrkg, Polyurea, Bike, Small Sym	Ea	40.000				6.000	8.000	24.000		2.000
170	8117050	_Pavt Mrkg, Polyurea, Direction Arrow Sym, Bike	Ea	40.000				6.000	8.000	24.000		2.000
175	8117050	_Pavt Mrkg, Polyurea, Lt Turn Arrow Sym	Ea	10.000	10.000							

LOG OF QUANTITIES

Pavement Marking Maintenance & A2 Vision Zero Quick Build Project – FY 2023
File No. 2023-022
RFP No. 22-38

Prop. Line	Item No.	Item Description	Unit	Total Quantity	Pavement Marking Maintenance	A2 Vision Zero Quick Build Project						
					City Wide	Ann Street	Fuller Street - Glen Avenue	W Liberty Street - W Stadium Boulevard	N Maple Road	Packard Street	S University Avenue – S State Street	Washington Street
180	8117050	_Pavt Mrkg, Polyurea, Only	Ea	10.000	10.000							
185	8117050	_Pavt Mrkg, Polyurea, Railroad Sym	Ea	1.000	1.000							
190	8117050	_Pavt Mrkg, Polyurea, Rt and Lt Turn Arrow Sym	Ea	1.000	1.000							
195	8117050	_Pavt Mrkg, Polyurea, Rt Turn Arrow Sym	Ea	10.000	10.000							
200	8117050	_Pavt Mrkg, Polyurea, School	Ea	2.000	2.000							
205	8117050	_Pavt Mrkg, Polyurea, Sharrow Symbol	Ea	22.000		2.000	2.000		8.000	2.000	8.000	
210	8117050	_Pavt Mrkg, Polyurea, Thru and Lt Turn Arrow Sym	Ea	2.000	1.000							1.000
215	8117050	_Pavt Mrkg, Polyurea, Thru and Rt Turn Arrow Sym	Ea	2.000	1.000							1.000
220	8117050	_Pavt Mrkg, Polyurea, Thru Arrow Sym	Ea	1.000	1.000							
225	8117050	_Pavt Mrkg, Preformed Thermoplastic, Accessible Sym	Ea	2.000	2.000							
230	8117050	_Pavt Mrkg, Thermopl, Lt Turn Arrow Sym	Ea	100.000	100.000							
235	8117050	_Pavt Mrkg, Thermopl, Merge	Ea	1.000	1.000							
240	8117050	_Pavt Mrkg, Thermopl, Merge Arrow Sym	Ea	2.000	2.000							
245	8117050	_Pavt Mrkg, Thermopl, Only	Ea	80.000	80.000							
250	8117050	_Pavt Mrkg, Thermopl, Railroad Sym	Ea	1.000	1.000							
255	8117050	_Pavt Mrkg, Thermopl, Rt and Lt Turn Arrow Sym	Ea	1.000	1.000							
260	8117050	_Pavt Mrkg, Thermopl, Rt Turn Arrow Sym	Ea	20.000	20.000							
265	8117050	_Pavt Mrkg, Thermopl, School	Ea	10.000	10.000							
270	8117050	_Pavt Mrkg, Thermopl, Speed Hump Chevron, White	Ea	10.000	10.000							
275	8117050	_Pavt Mrkg, Thermopl, Thru and Lt Turn Arrow Sym	Ea	10.000	10.000							
280	8117050	_Pavt Mrkg, Thermopl, Thru and Rt Turn Arrow Sym	Ea	5.000	5.000							
285	8117050	_Pavt Mrkg, Thermopl, Thru Arrow Sym	Ea	5.000	5.000							
290	8117050	_Pavt Mrkg, Thermopl, Yield	Ea	2.000	2.000							





REMOVAL LEGEND

1. REMOVE PAVEMENT MARKING SYMBOL
2. REMOVE LONGITUDINAL MARKING
3. REMOVE STOP / CROSSWALK BARS
4. REMOVE SIGNAGE

SEE ABOVE						
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
			REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

ANN STREET DEMOLITION

APPROVED BY _____

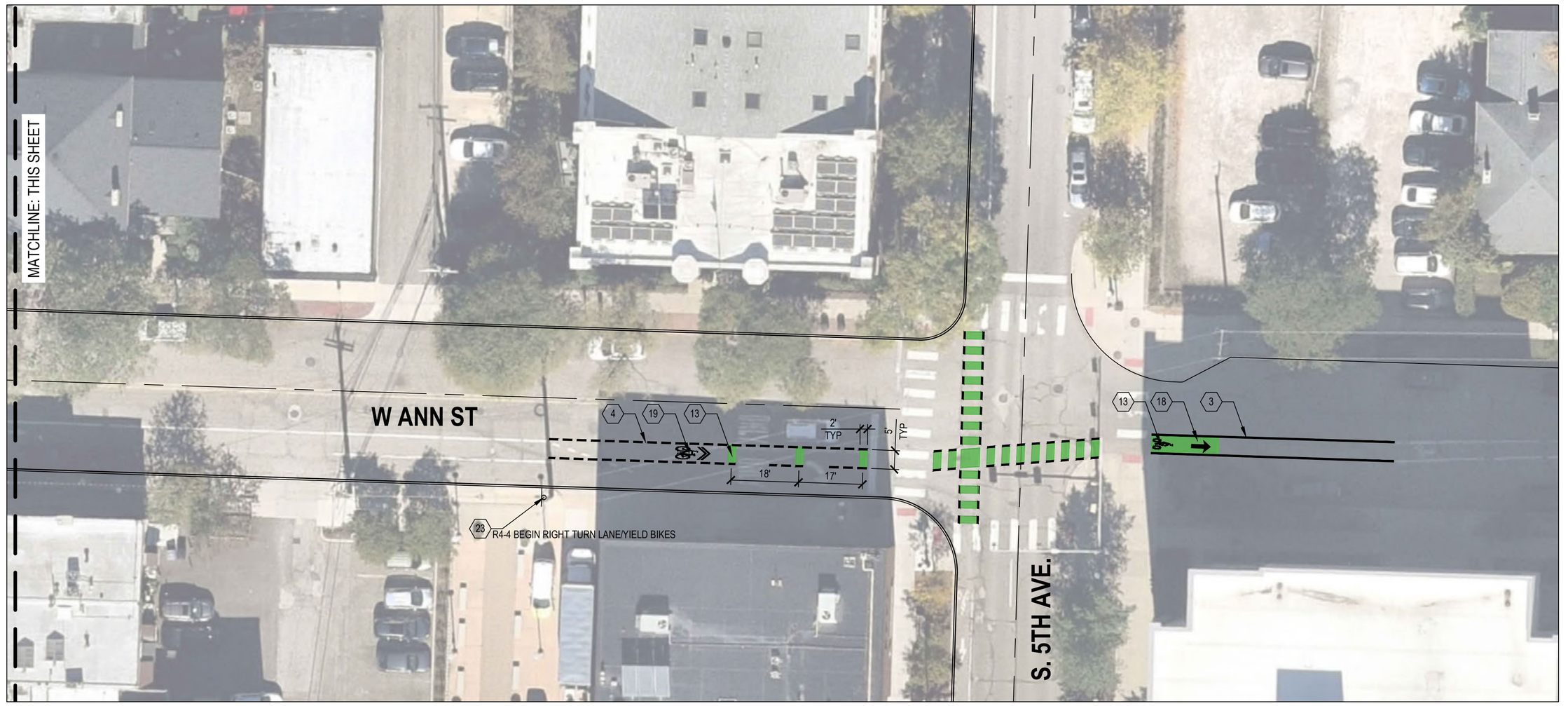
SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CD101

SHEET NO. 01 OF 26

Addendum-1-28



LEGEND

1 EXISTING CURB	6 CITY-POST DELINEATOR, WHITE, 36"	11 PAVT MRKG, POLYUREA, 4", DOUBLE YELLOW (SOLID)	15 PAVT MARKG, POLYUREA BIKE SYMBOL AND TURN ARROW	20 PAVT MRKG, POLYUREA, 12", CROSSWALK BAR
2 EXISTING CURB AND GUTTER	7 CITY-POST DELINEATOR, YELLOW, 36"	12 PAVT MRKG, POLYUREA, 4", YELLOW (SOLID)	16 PAVT MRKG, POLYUREA, DIRECTIONAL ARROW	21 TREETOP SPEED BUMP
3 PAVT MRKG, POLYUREA, 6", WHITE (SOLID)	8 QWIK CURB SECTION, 40" SEGMENTS	13 ENDURABLEND, GREEN	17 PAVT MRKG, POLYUREA, LEGEND MARKING	22 COVERED SIGNS
4 PAVT MRKG, POLYUREA, 6", WHITE (DASHED)	9 QWIK BIG BOLLARD LS4 BASE UNIT	14 ENDURABLEND, TAN	18 PAVT MRKG, POLYUREA, BIKE SYMBOL AND ARROW	23 PROPOSED SIGN
5 PAVT MRKG, POLYUREA, 24", STOP BAR	10 R1-6 PEDESTRIAN CROSSING MARKER		19 PAVT MRKG, POLYUREA, SHARROW SYMBOL	

SEE ABOVE

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
			REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PROPOSED ANN STREET

A VENUE

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CS101

SHEET NO. 02 OF 26

Addendum-1-29

REMOVAL LEGEND

1. REMOVE PAVEMENT MARKING SYMBOL
2. REMOVE LONGITUDINAL MARKING
3. REMOVE STOP / CROSSWALK BARS
4. REMOVE SIGNAGE

SEE ABOVE						
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
			REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

FULLER - GLEN AVE DEMOLITION

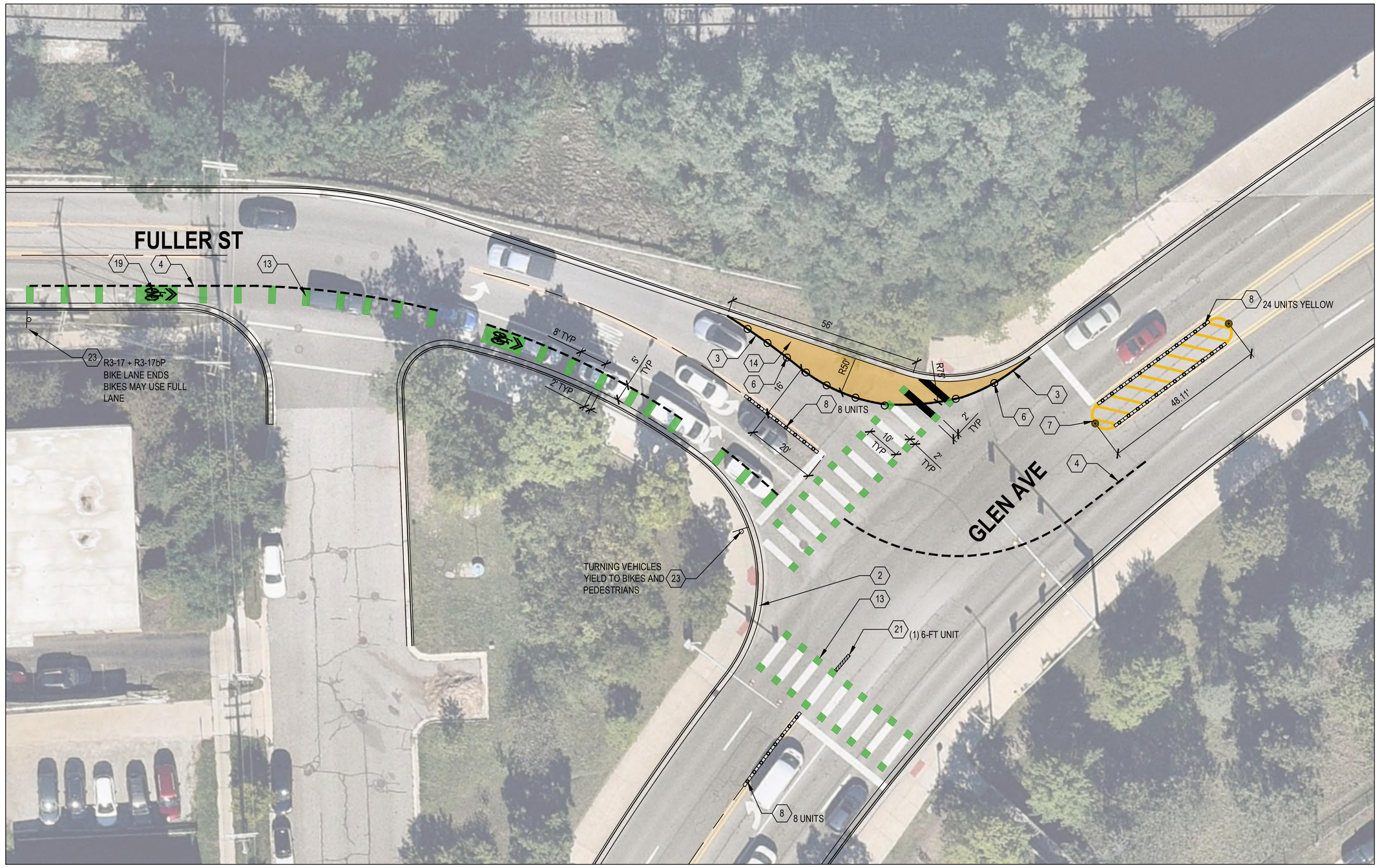
APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CD102

SHEET NO. 03 OF 26



LEGEND

1 EXISTING CURB	6 CITY-POST DELINEATOR, WHITE, 36"	11 PAVT MRKG, POLYUREA, 4", DOUBLE YELLOW (SOLID)	15 PAVT MARKG, POLYUREA BIKE SYMBOL AND TURN ARROW	20 PAVT MRKG, POLYUREA, 12", CROSSWALK BAR	
2 EXISTING CURB AND GUTTER	7 CITY-POST DELINEATOR, YELLOW, 36"	12 PAVT MRKG, POLYUREA, 4", YELLOW (SOLID)	16 PAVT MRKG, POLYUREA, DIRECTIONAL ARROW	21 TREETOP SPEED BUMP	
3 PAVT MRKG, POLYUREA, 6", WHITE (SOLID)	8 QWIK CURB SECTION, 40" SEGMENTS	13 ENDURABLEND, GREEN	ONLY 17 PAVT MRKG, POLYUREA, LEGEND MARKING	22 COVERED SIGNS	
4 PAVT MRKG, POLYUREA, 6", WHITE (DASHED)	9 QWIK BIG BOLLARD L54 BASE UNIT	14 ENDURABLEND, TAN	18 PAVT MRKG, POLYUREA, BIKE SYMBOL AND ARROW	23 PROPOSED SIGN	
5 PAVT MRKG, POLYUREA, 24", STOP BAR	10 R1-6 PEDESTRIAN CROSSING MARKER		19 PAVT MRKG, POLYUREA, SHARROW SYMBOL		

SEE ABOVE		REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
BENCH MARK	SURVEY BOOK		REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PROPOSED FULLER - GLEN AVE

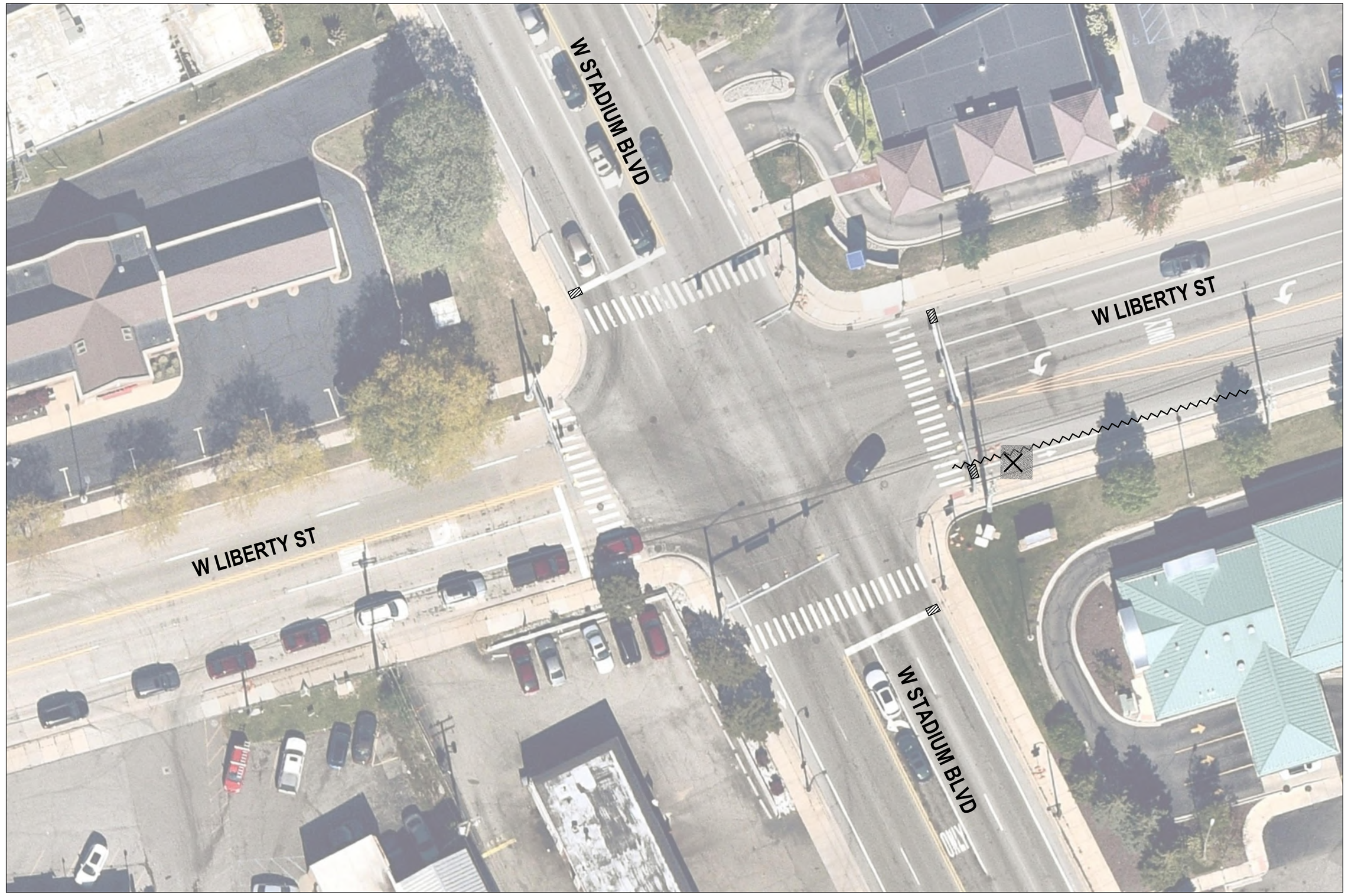
APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CS102

SHEET NO. 04 OF 26



REMOVAL LEGEND

1. REMOVE PAVEMENT MARKING SYMBOL
2. REMOVE LONGITUDINAL MARKING
3. REMOVE STOP / CROSSWALK BARS
4. REMOVE SIGNAGE

SEE ABOVE						
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
			REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

LIBERTY -STADIUM DEMOLITION

APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CD103

SHEET NO. 05 OF 26

Addendum-1-32

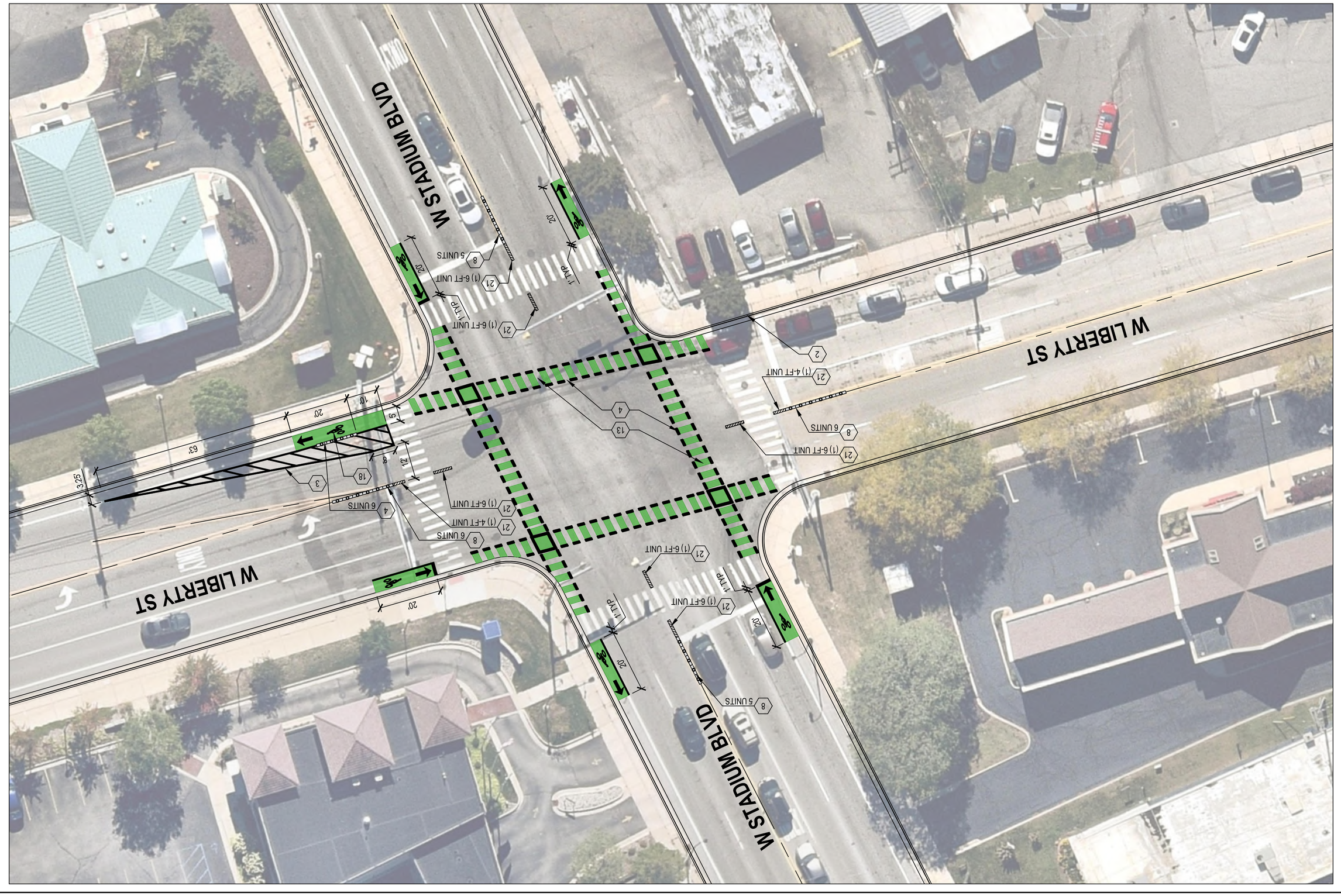
LEGEND

1 EXISTING CURB	6 CITY-POST DELINEATOR, WHITE, 36"
2 EXISTING CURB AND GUTTER	7 CITY-POST DELINEATOR, YELLOW, 36"
3 PAVT MRKG, POLYUREA, 6", WHITE (SOLID)	8 QWIK CURB SECTION, 40' SEGMENTS
4 PAVT MRKG, POLYUREA, 6", WHITE (DASHED)	9 QWIK BIG BOLLARD LS4 BASE UNIT
5 PAVT MRKG, POLYUREA, 24", STOP BAR	10 R1-6 PEDESTRIAN CROSSING MARKER

11 PAVT MRKG, POLYUREA, 4", DOUBLE YELLOW (SOLID)	14 ENDURABLEND, TAN
12 PAVT MRKG, POLYUREA, 4", YELLOW (SOLID)	13 ENDURABLEND, GREEN

15 PAVT MRKG, POLYUREA BIKE SYMBOL AND TURN ARROW	19 PAVT MRKG, POLYUREA, SHARROW SYMBOL
16 PAVT MRKG, POLYUREA, DIRECTIONAL ARROW	18 PAVT MRKG, POLYUREA, BIKE SYMBOL AND ARROW
ONLY 17 PAVT MRKG, POLYUREA, LEGEND MARKING	

20 PAVT MRKG, POLYUREA, 12', CROSSWALK BAR	23 PROPOSED SIGN
21 TREETOP SPEED BUMP	
22 COVERED SIGNS	



ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PROPOSED LIBERTY - STADIUM

APPROVED BY

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
SEE ABOVE			REVIEW SET	04-14-2022		

SCALE 1" = 20' — 0 10 20 INCH

DRAWING NO. CS103

SHEET NO. 06 OF 26

REMOVAL LEGEND

1. REMOVE PAVEMENT MARKING SYMBOL
2. REMOVE LONGITUDINAL MARKING
3. REMOVE STOP / CROSSWALK BARS
4. REMOVE SIGNAGE

SEE ABOVE						
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
			REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

N MAPLE RD DEMOLITION A

APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CD104

SHEET NO. 7 OF 26

Addendum-1-34

REMOVAL LEGEND

1. REMOVE PAVEMENT MARKING SYMBOL
2. REMOVE LONGITUDINAL MARKING
3. REMOVE STOP / CROSSWALK BARS
4. REMOVE SIGNAGE

SEE ABOVE						
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
			REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

N MAPLE RD DEMOLITION B

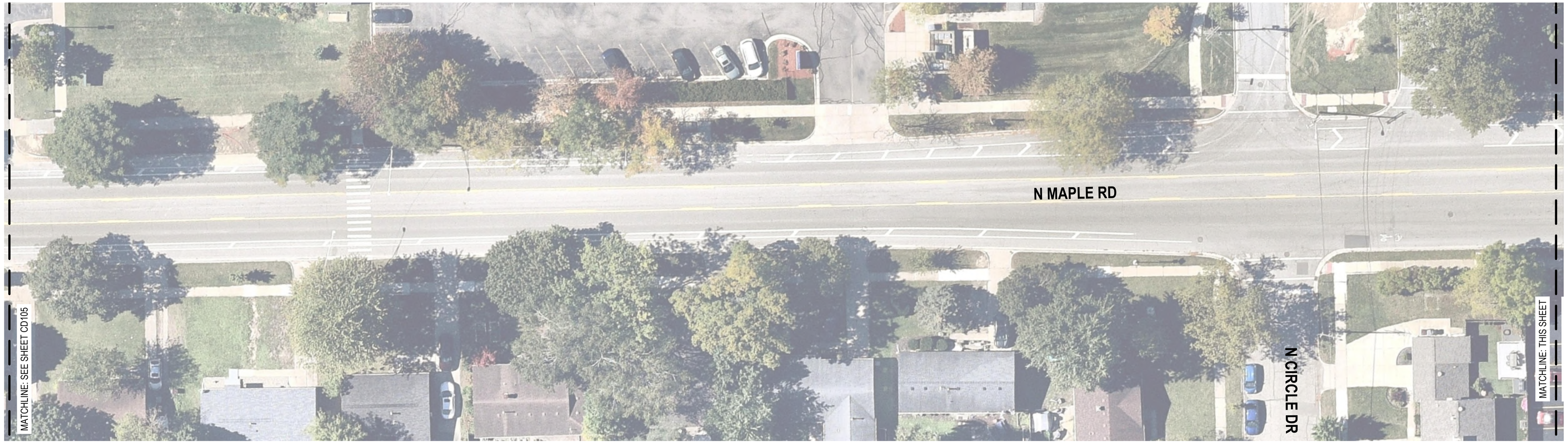
APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CD105

SHEET NO. 8 OF 26



REMOVAL LEGEND

1. REMOVE PAVEMENT MARKING SYMBOL
2. REMOVE LONGITUDINAL MARKING
3. REMOVE STOP / CROSSWALK BARS
4. REMOVE SIGNAGE

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
	REVIEW SET	04-14-2022		

SEE ABOVE

BENCH MARK | SURVEY BOOK

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

N MAPLE RDDEMOLITION C

APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CD106

SHEET NO. 9 OF 26

Addendum-1-36

LEGEND

1 EXISTING CURB	6 CITY-POST DELINEATOR, WHITE, 36"	11 PAVT MRKG, POLYUREA, 4", DOUBLE YELLOW (SOLID)	14 ENDURABLEND, TAN	19 PAVT MRKG, POLYUREA BIKE SYMBOL AND TURN ARROW	23 PROPOSED SIGN
2 EXISTING CURB AND GUTTER	7 CITY-POST DELINEATOR, YELLOW, 36"	12 PAVT MRKG, POLYUREA, 4", YELLOW (SOLID)	15 PAVT MRKG, POLYUREA, DIRECTIONAL ARROW	20 PAVT MRKG, POLYUREA, 12", CROSSWALK BAR	
3 PAVT MRKG, POLYUREA, 6", WHITE (SOLID)	8 QWIK CURB SECTION, 40' SEGMENTS	13 ENDURABLEND, GREEN	16 PAVT MRKG, POLYUREA, LEGEND MARKING ONLY	21 TREETOP SPEED BUMP	
4 PAVT MRKG, POLYUREA, 6", WHITE (DASHED)	9 QWIK BIG BOLLARD LS4 BASE UNIT	14 ENDURABLEND, TAN	17 PAVT MRKG, POLYUREA, BIKE SYMBOL AND ARROW	22 COVERED SIGNS	
5 PAVT MRKG, POLYUREA, 24", STOP BAR	10 R1-6 PEDESTRIAN CROSSING MARKER		18 PAVT MRKG, POLYUREA, SHARROW SYMBOL		

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
SEE ABOVE			REVIEW SET	04-14-2022		

APPROVED BY _____

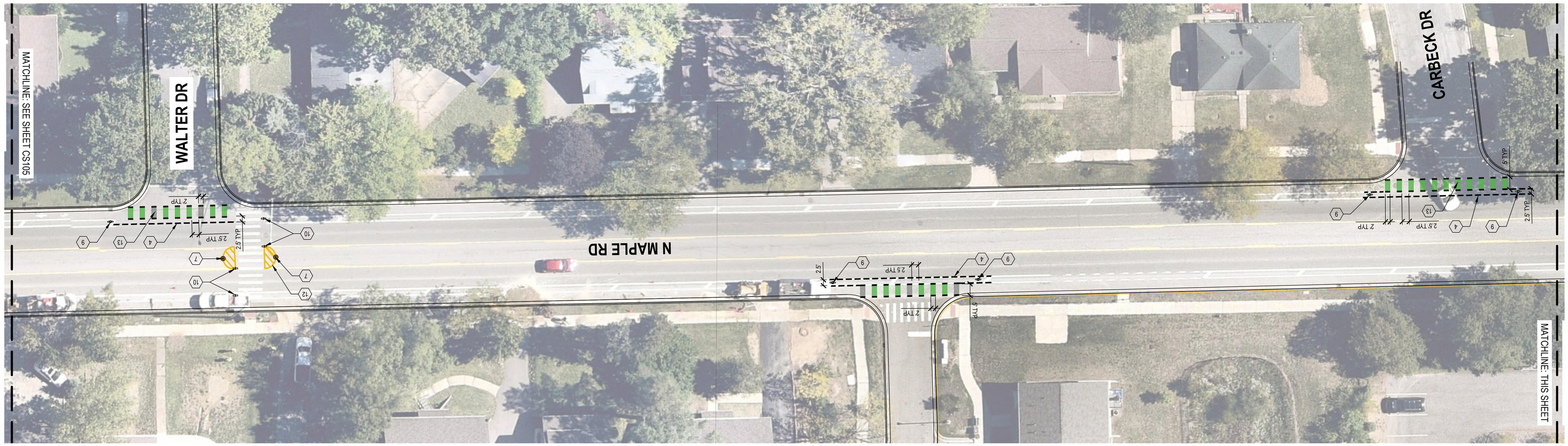
PROPOSED N MAPLE RD A

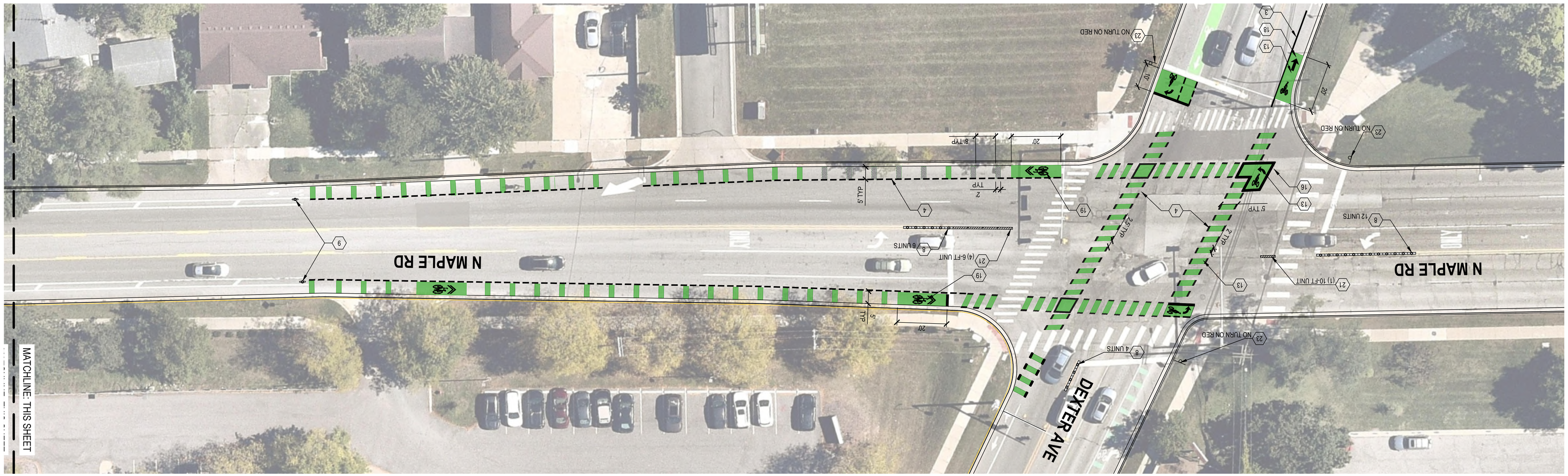
SCALE 1" = 20' — 0 10 20 INCH

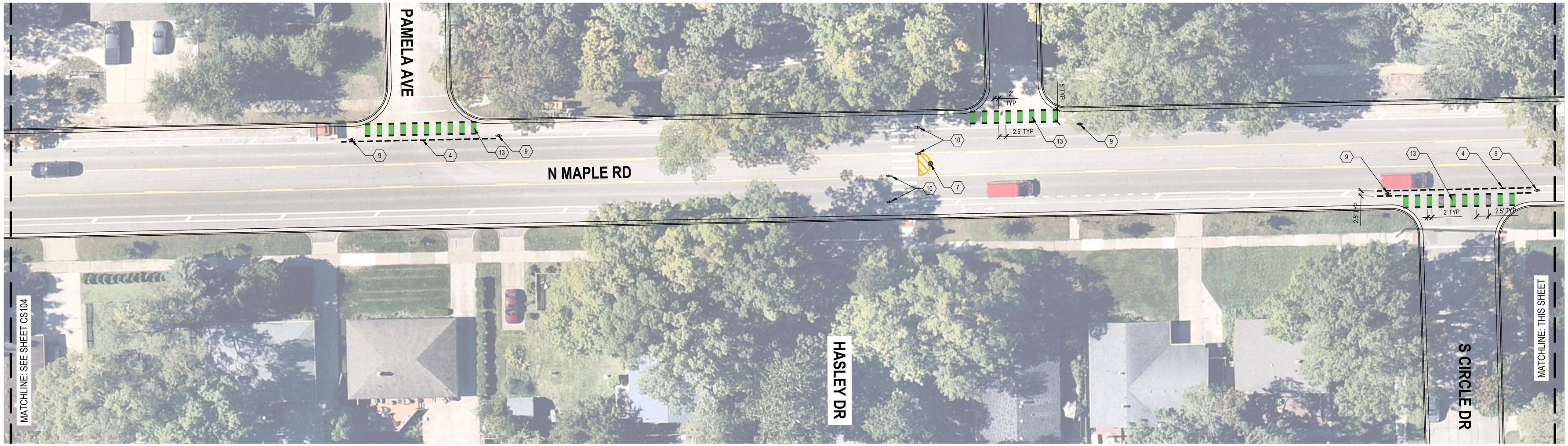
DRAWING NO. CS104

SHEET NO. 10 OF 26

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR







LEGEND

1 EXISTING CURB	6 CITY-POST DELINEATOR, WHITE, 36"	11 PAVT MRKG, POLYUREA, 4", DOUBLE YELLOW (SOLID)	15 PAVT MARKG, POLYUREA BIKE SYMBOL AND TURN ARROW	20 PAVT MRKG, POLYUREA, 12", CROSSWALK BAR
2 EXISTING CURB AND GUTTER	7 CITY-POST DELINEATOR, YELLOW, 36"	12 PAVT MRKG, POLYUREA, 4", YELLOW (SOLID)	16 PAVT MRKG, POLYUREA, DIRECTIONAL ARROW	21 TREETOP SPEED BUMP
3 PAVT MRKG, POLYUREA, 6", WHITE (SOLID)	8 QWIK CURB SECTION, 40" SEGMENTS	13 ENDURABLEND, GREEN	ONLY 17 PAVT MRKG, POLYUREA, LEGEND MARKING	22 COVERED SIGNS
4 PAVT MRKG, POLYUREA, 6", WHITE (DASHED)	9 QWIK BIG BOLLARD L54 BASE UNIT	14 ENDURABLEND, TAN	18 PAVT MRKG, POLYUREA, BIKE SYMBOL AND ARROW	23 PROPOSED SIGN
5 PAVT MRKG, POLYUREA, 24", STOP BAR	10 R1-6 PEDESTRIAN CROSSING MARKER		19 PAVT MRKG, POLYUREA, SHARROW SYMBOL	

SEE ABOVE		REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
BENCH MARK	SURVEY BOOK		REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PROPOSED N MAPLE RD B

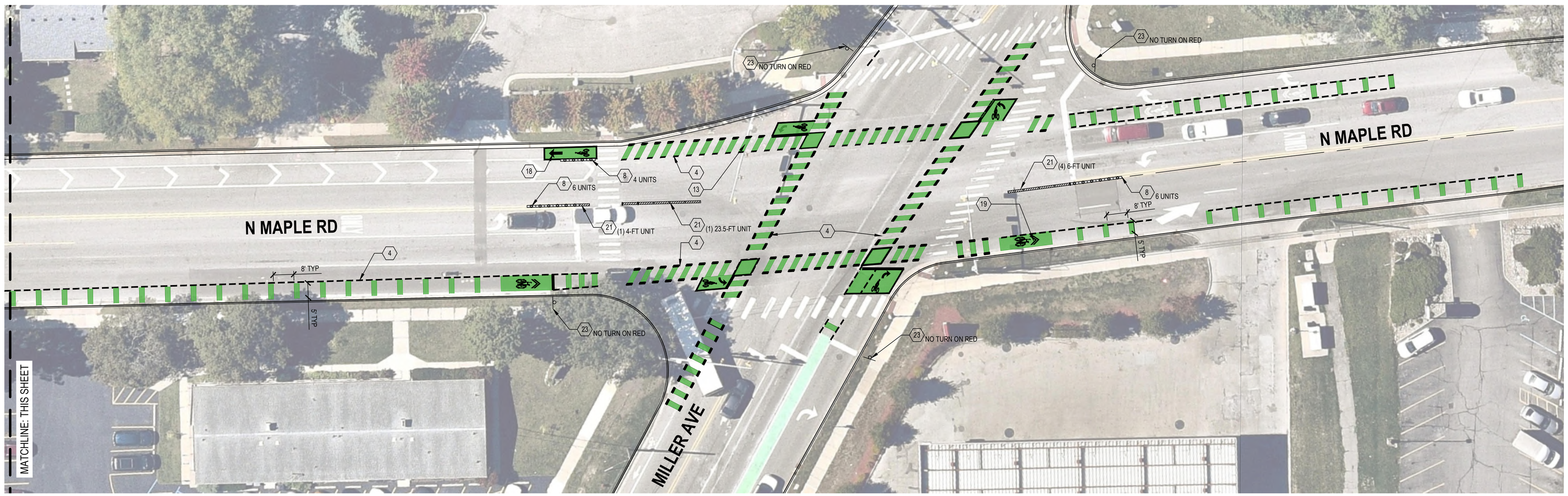
APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CS105

SHEET NO. 11 OF 26



LEGEND

1	EXISTING CURB	6	CITY-POST DELINEATOR, WHITE, 36"	11	PAVT MRKG, POLYUREA, 4", DOUBLE YELLOW (SOLID)	15	PAVT MARKG, POLYUREA BIKE SYMBOL AND TURN ARROW
2	EXISTING CURB AND GUTTER	7	CITY-POST DELINEATOR, YELLOW, 36"	12	PAVT MRKG, POLYUREA, 4", YELLOW (SOLID)	16	PAVT MRKG, POLYUREA, DIRECTIONAL ARROW
3	PAVT MRKG, POLYUREA, 6", WHITE (SOLID)	8	QWIK CURB SECTION, 40" SEGMENTS	13	ENDURABLEND, GREEN	17	PAVT MRKG, POLYUREA, LEGEND MARKING
4	PAVT MRKG, POLYUREA, 6", WHITE (DASHED)	9	QWIK BIG BOLLARD LS4 BASE UNIT	14	ENDURABLEND, TAN	18	PAVT MRKG, POLYUREA, BIKE SYMBOL AND ARROW
5	PAVT MRKG, POLYUREA, 24", STOP BAR	10	R1-6 PEDESTRIAN CROSSING MARKER			19	PAVT MRKG, POLYUREA, SHARROW SYMBOL

20	PAVT MRKG, POLYUREA, 12", CROSSWALK BAR						
21	TREETOP SPEED BUMP						
22	COVERED SIGNS						
23	PROPOSED SIGN						

SEE ABOVE						
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
			REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PROPOSED N MAPLE RD C

APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CS106

SHEET NO. 12 OF 26

REMOVAL LEGEND

1. REMOVE PAVEMENT MARKING SYMBOL
2. REMOVE LONGITUDINAL MARKING
3. REMOVE STOP / CROSSWALK BARS
4. REMOVE SIGNAGE

SEE ABOVE						
			REVIEW SET	04-14-2022		
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PACKARD ST DEMOLITION A

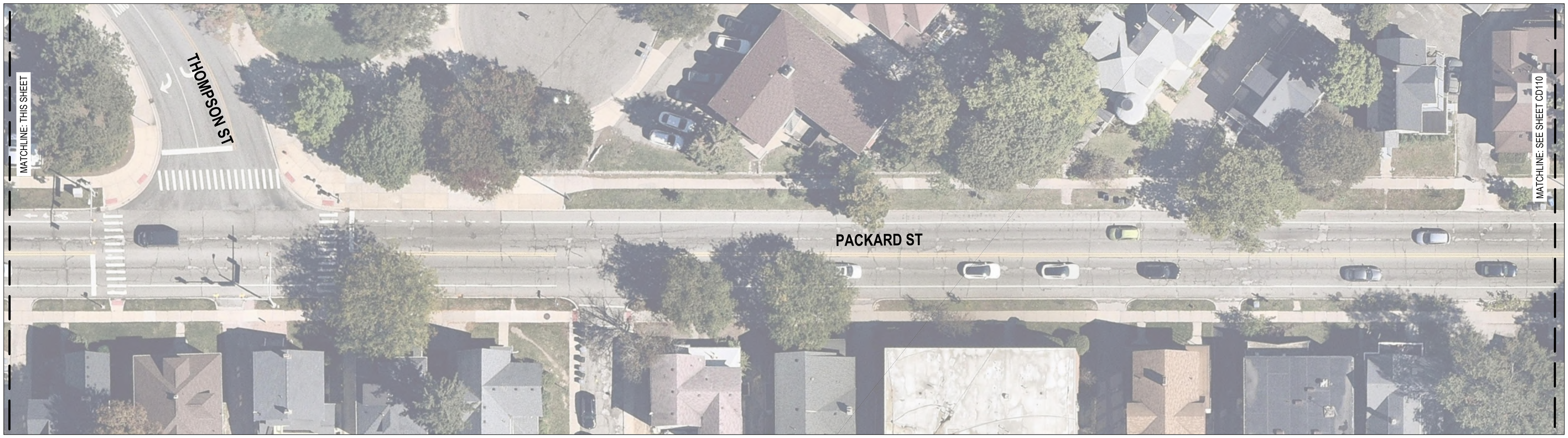
APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CD108

SHEET NO. 13 OF 26



REMOVAL LEGEND

1. REMOVE PAVEMENT MARKING SYMBOL
2. REMOVE LONGITUDINAL MARKING
3. REMOVE STOP / CROSSWALK BARS
4. REMOVE SIGNAGE

SEE ABOVE						
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
			REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PACKARD ST DEMOLITION B

APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CD109

SHEET NO. 14 OF 26

REMOVAL LEGEND

1. REMOVE PAVEMENT MARKING SYMBOL
2. REMOVE LONGITUDINAL MARKING
3. REMOVE STOP / CROSSWALK BARS
4. REMOVE SIGNAGE

SEE ABOVE						
			REVIEW SET	04-14-2022		
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PACKARD ST DEMOLITION C

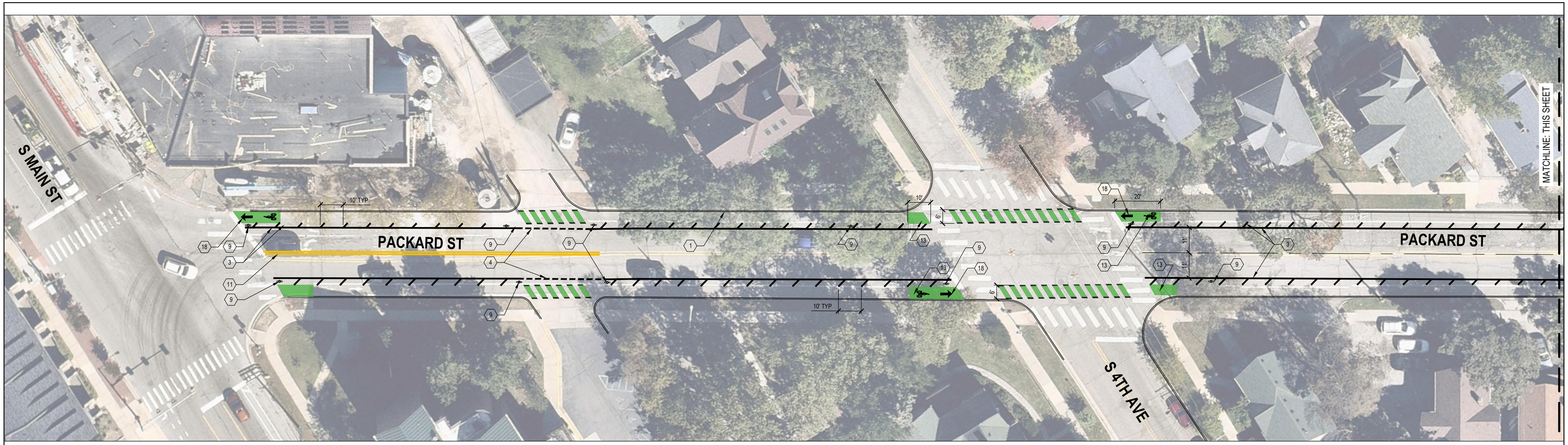
APPROVED BY _____

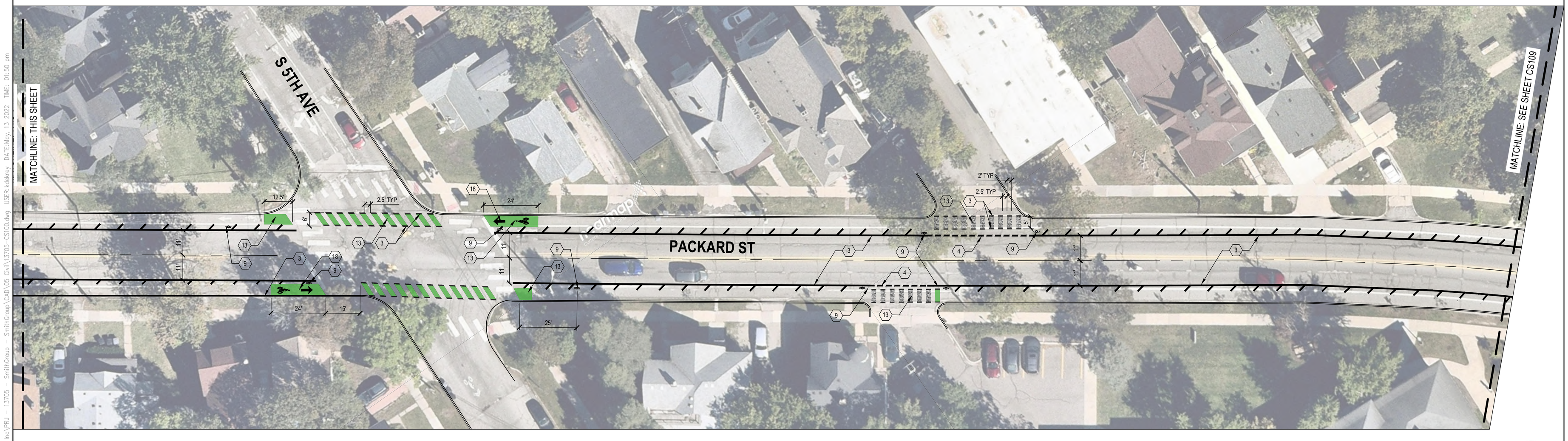
SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CD110

SHEET NO. 15 OF 26





LEGEND

- 1 EXISTING CURB
- 2 EXISTING CURB AND GUTTER
- 3 PAVT MRKG, POLYUREA, 6", WHITE (SOLID)
- 4 PAVT MRKG, POLYUREA, 6", WHITE (DASHED)
- 5 PAVT MRKG, POLYUREA, 24", STOP BAR
- 6 CITY-POST DELINEATOR, WHITE, 36"
- 7 CITY-POST DELINEATOR, YELLOW, 36"
- 8 QWIK CURB SECTION, 40' SEGMENTS
- 9 QWIK BIG BOLLARD L54 BASE UNIT
- 10 R1-6 PEDESTRIAN CROSSING MARKER
- 11 PAVT MRKG, POLYUREA, 4", DOUBLE YELLOW (SOLID)
- 12 PAVT MRKG, POLYUREA, 4", YELLOW (SOLID)
- 13 ENDURABLEND, GREEN
- 14 ENDURABLEND, TAN
- 15 PAVT MARKG, POLYUREA BIKE SYMBOL AND TURN ARROW
- 16 PAVT MRKG, POLYUREA, DIRECTIONAL ARROW
- 17 PAVT MRKG, POLYUREA, LEGEND MARKING
- 18 PAVT MRKG, POLYUREA, BIKE SYMBOL AND ARROW
- 19 PAVT MRKG, POLYUREA, SHARROW SYMBOL
- 20 PAVT MRKG, POLYUREA, 12", CROSSWALK BAR
- 21 TREETOP SPEED BUMP
- 22 COVERED SIGNS
- 23 PROPOSED SIGN

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
	REVIEW SET	04-14-2022		

SEE ABOVE
BENCH MARK
SURVEY BOOK

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PROPOSED PACKARD ST A

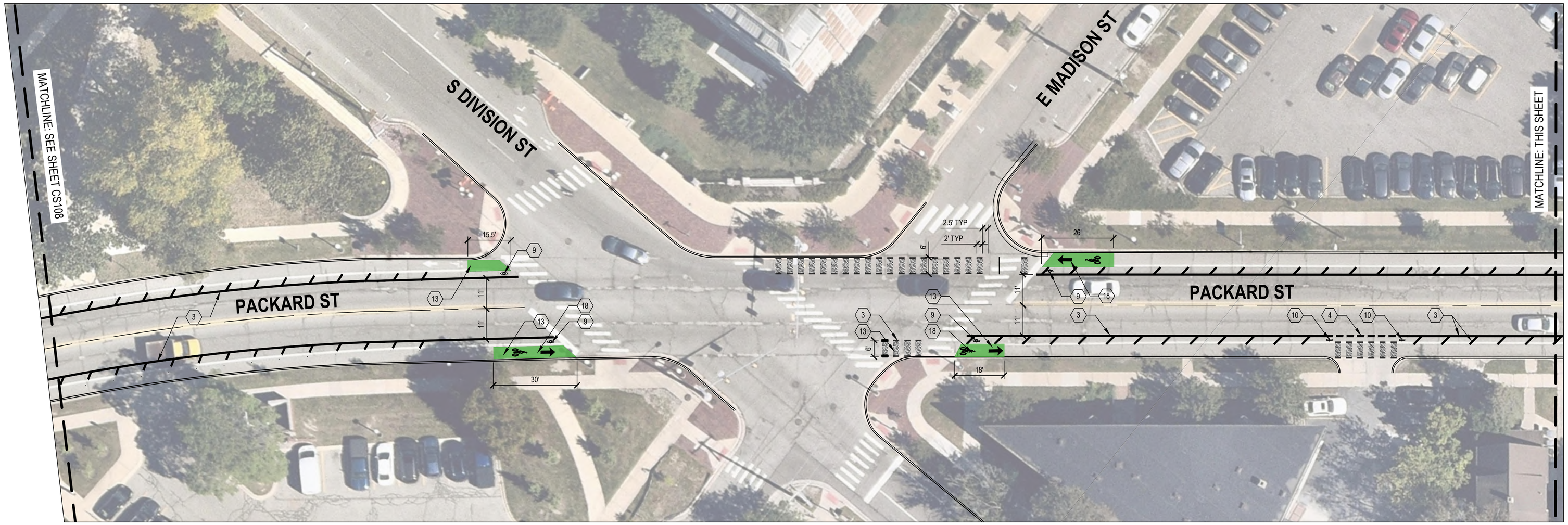
APPROVED BY _____

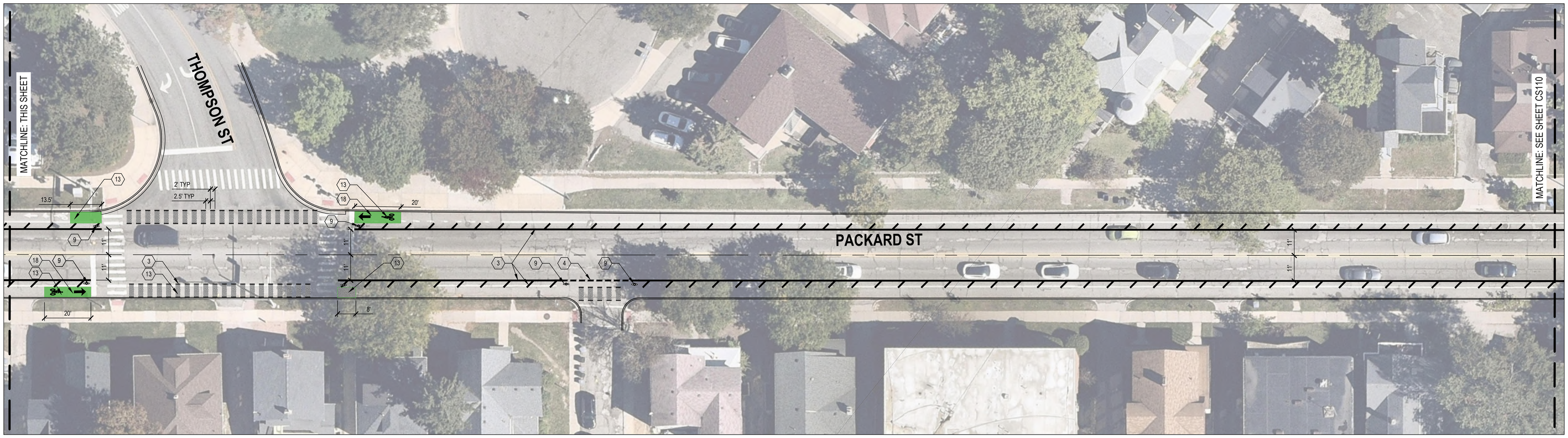
SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CS108

SHEET NO. 16 OF 26





LEGEND

1	EXISTING CURB	6	CITY-POST DELINEATOR, WHITE, 36"	11	PAVT MRKG, POLYUREA, 4", DOUBLE YELLOW (SOLID)	15	PAVT MARKG, POLYUREA BIKE SYMBOL AND TURN ARROW
2	EXISTING CURB AND GUTTER	7	CITY-POST DELINEATOR, YELLOW, 36"	12	PAVT MRKG, POLYUREA, 4", YELLOW (SOLID)	16	PAVT MRKG, POLYUREA, DIRECTIONAL ARROW
3	PAVT MRKG, POLYUREA, 6", WHITE (SOLID)	8	QWIK CURB SECTION, 40" SEGMENTS	13	ENDURABLEND, GREEN	17	PAVT MRKG, POLYUREA, LEGEND MARKING
4	PAVT MRKG, POLYUREA, 6", WHITE (DASHED)	9	QWIK BIG BOLLARD L54 BASE UNIT	14	ENDURABLEND, TAN	18	PAVT MRKG, POLYUREA, BIKE SYMBOL AND ARROW
5	PAVT MRKG, POLYUREA, 24", STOP BAR	10	R1-6 PEDESTRIAN CROSSING MARKER			19	PAVT MRKG, POLYUREA, SHARROW SYMBOL
						20	PAVT MRKG, POLYUREA, 12", CROSSWALK BAR
						21	TREETOP SPEED BUMP
						22	COVERED SIGNS
						23	PROPOSED SIGN

SEE ABOVE						
			REVIEW SET	04-14-2022		
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PROPOSED PACKARD ST B

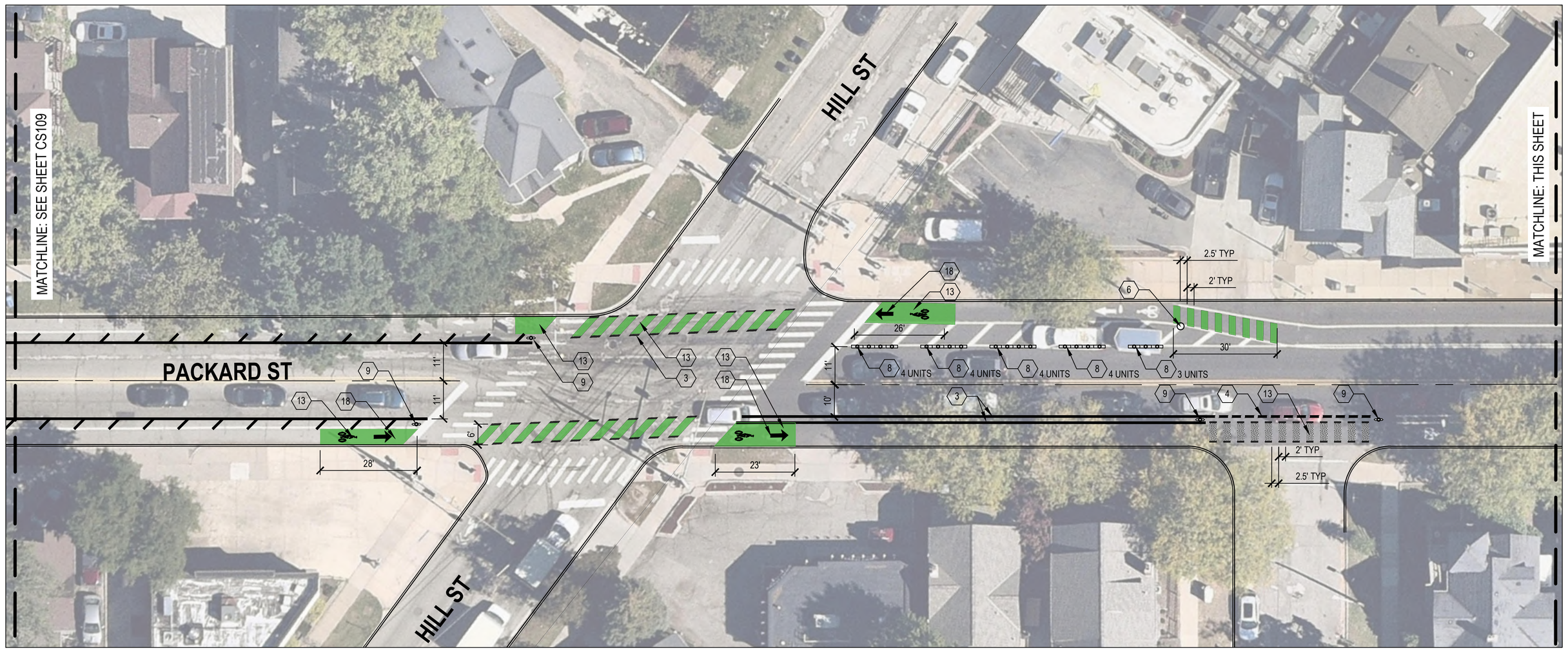
APPROVED BY _____

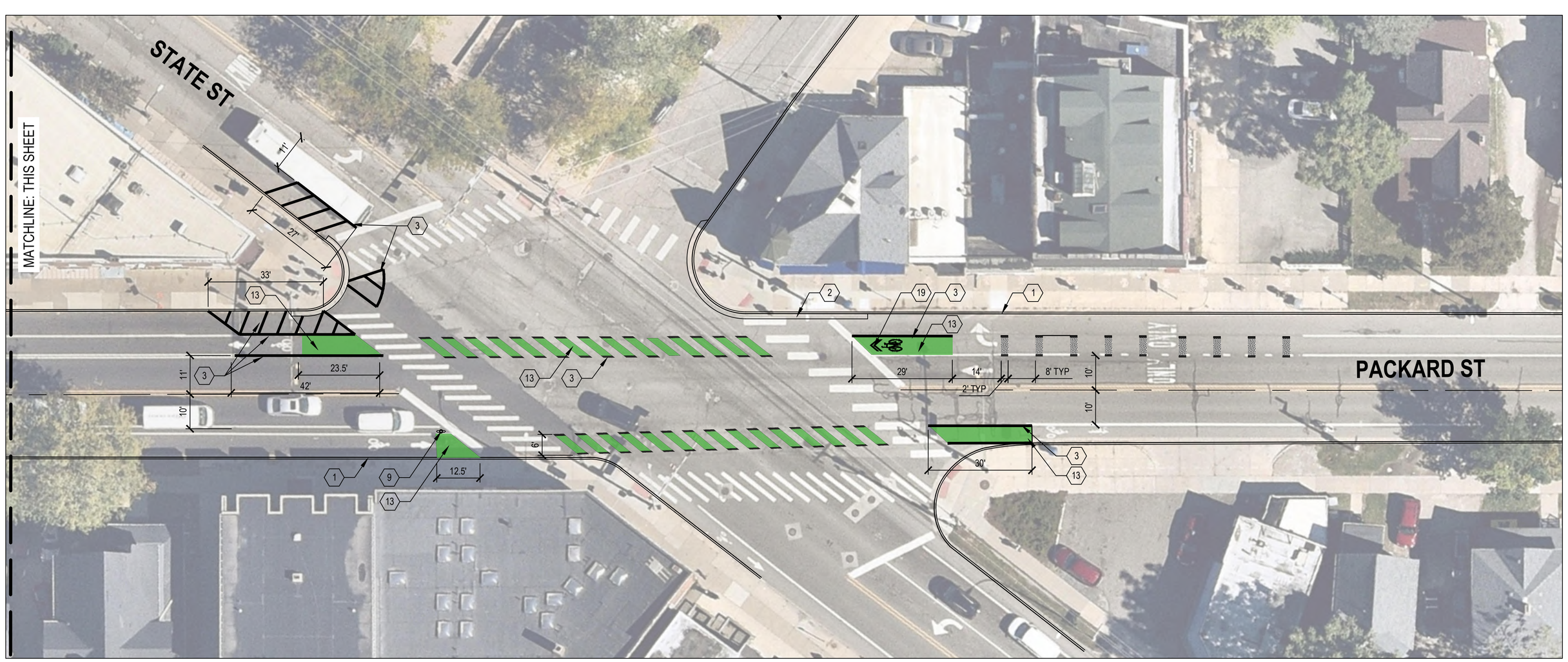
SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CS109

SHEET NO. 17 OF 26





LEGEND

1	EXISTING CURB	6	CITY-POST DELINEATOR, WHITE, 36"	11	PAVT MRKG, POLYUREA, 4", DOUBLE YELLOW (SOLID)	15	PAVT MARKG, POLYUREA BIKE SYMBOL AND TURN ARROW
2	EXISTING CURB AND GUTTER	7	CITY-POST DELINEATOR, YELLOW, 36"	12	PAVT MRKG, POLYUREA, 4", YELLOW (SOLID)	16	PAVT MRKG, POLYUREA, DIRECTIONAL ARROW
3	PAVT MRKG, POLYUREA, 6", WHITE (SOLID)	8	QWIK CURB SECTION, 40" SEGMENTS	13	ENDURABLEND, GREEN	17	PAVT MRKG, POLYUREA, LEGEND MARKING
4	PAVT MRKG, POLYUREA, 6", WHITE (DASHED)	9	QWIK BIG BOLLARD L54 BASE UNIT	14	ENDURABLEND, TAN	18	PAVT MRKG, POLYUREA, BIKE SYMBOL AND ARROW
5	PAVT MRKG, POLYUREA, 24", STOP BAR	10	R1-6 PEDESTRIAN CROSSING MARKER			19	PAVT MRKG, POLYUREA, SHARROW SYMBOL
						20	PAVT MRKG, POLYUREA, 12", CROSSWALK BAR
						21	TREETOP SPEED BUMP
						22	COVERED SIGNS
						23	PROPOSED SIGN

SEE ABOVE		REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
BENCH MARK	SURVEY BOOK		REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PROPOSED PACKARD ST C

APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CS110

SHEET NO. 18 OF 26

REMOVAL LEGEND

- 1 REMOVE PAVEMENT MARKING SYMBOL
- 2 REMOVE LONGITUDINAL MARKING
- 3 REMOVE STOP / CROSSWALK BARS
- 4 REMOVE SIGNAGE

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
	REVIEW SET	04-14-2022		

SEE ABOVE | BENCH MARK | SURVEY BOOK

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

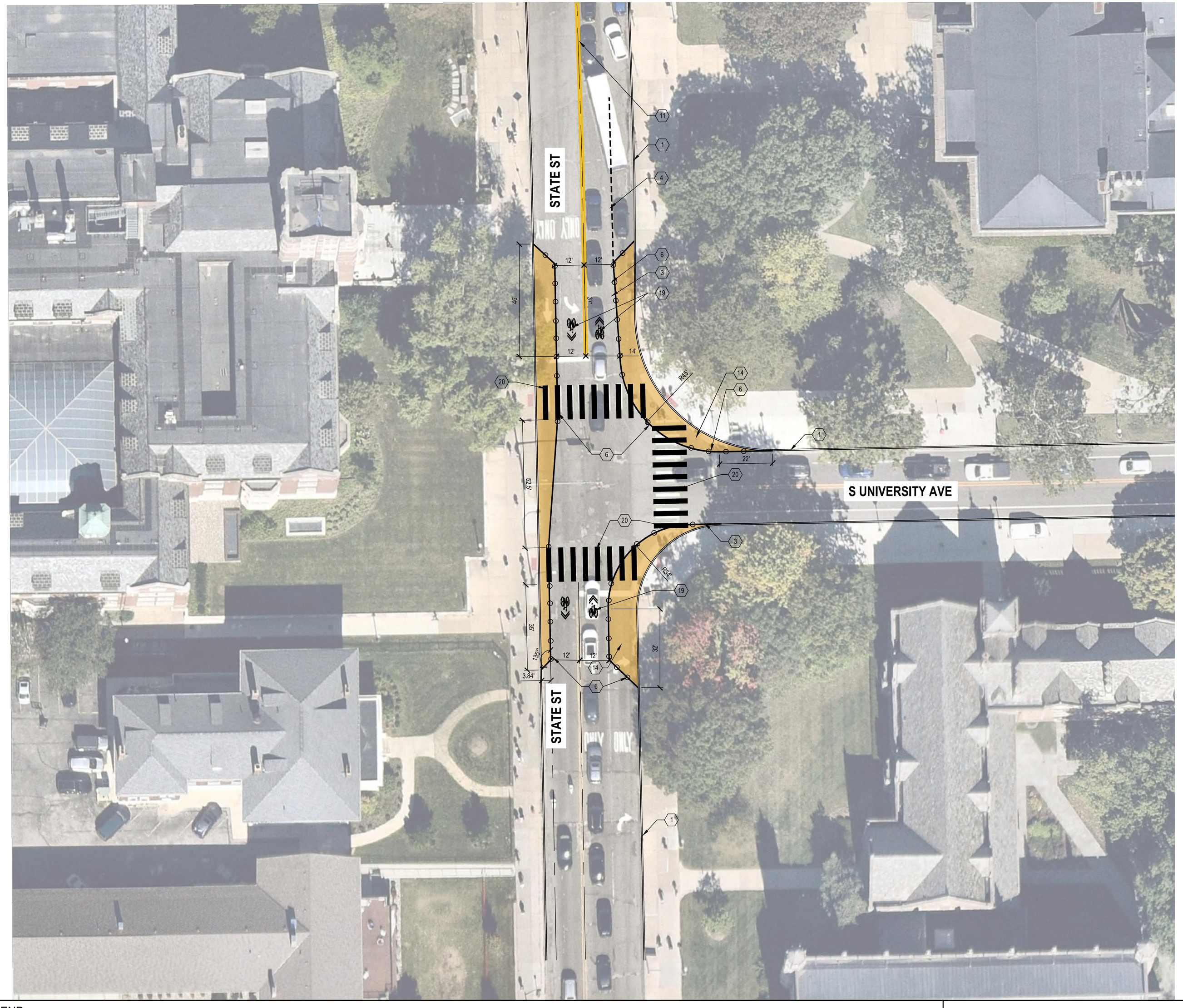
S UNIVERSITY- STATE ST DEMOLITION

APPROVED BY _____

SCALE 1" = 20' | INCH 0 10 20

DRAWING NO. CD107

SHEET NO. 19 OF 26



LEGEND

1 EXISTING CURB	6 CITY-POST DELINEATOR, WHITE, 36"	11 PAVT MRKG, POLYUREA, 4", DOUBLE YELLOW (SOLID)	15 PAVT MARKG, POLYUREA BIKE SYMBOL AND TURN ARROW	20 PAVT MRKG, POLYUREA, 12", CROSSWALK BAR
2 EXISTING CURB AND GUTTER	7 CITY-POST DELINEATOR, YELLOW, 36"	12 PAVT MRKG, POLYUREA, 4", YELLOW (SOLID)	16 PAVT MRKG, POLYUREA, DIRECTIONAL ARROW	21 TREETOP SPEED BUMP
3 PAVT MRKG, POLYUREA, 6", WHITE (SOLID)	8 QWIK CURB SECTION, 40' SEGMENTS	13 ENDURABLEND, GREEN	ONLY 17 PAVT MRKG, POLYUREA, LEGEND MARKING	22 COVERED SIGNS
4 PAVT MRKG, POLYUREA, 6", WHITE (DASHED)	9 QWIK BIG BOLLARD L54 BASE UNIT	14 ENDURABLEND, TAN	18 PAVT MRKG, POLYUREA, BIKE SYMBOL AND ARROW	23 PROPOSED SIGN
5 PAVT MRKG, POLYUREA, 24", STOP BAR	10 R1-6 PEDESTRIAN CROSSING MARKER		19 PAVT MRKG, POLYUREA, SHARROW SYMBOL	

SEE ABOVE		REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
BENCH MARK	SURVEY BOOK		REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

S UNIVERSITY- STATE ST

APPROVED BY _____

SCALE 1" = 20' | INCH 0 10 20

DRAWING NO. CS107

SHEET NO. 20 OF 26

REMOVAL LEGEND

1. REMOVE PAVEMENT MARKING SYMBOL
2. REMOVE LONGITUDINAL MARKING
3. REMOVE STOP / CROSSWALK BARS
4. REMOVE SIGNAGE

SEE ABOVE						
			REVIEW SET	04-14-2022		
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

WASHINGTON ST DEMOLITION A

APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CD111

SHEET NO. 21 OF 26

REMOVAL LEGEND

- (1) REMOVE PAVEMENT MARKING SYMBOL
- (2) REMOVE LONGITUDINAL MARKING
- (3) REMOVE STOP / CROSSWALK BARS
- (4) REMOVE SIGNAGE

SEE ABOVE						
			REVIEW SET	04-14-2022		
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

WASHINGTON ST DEMOLITION B

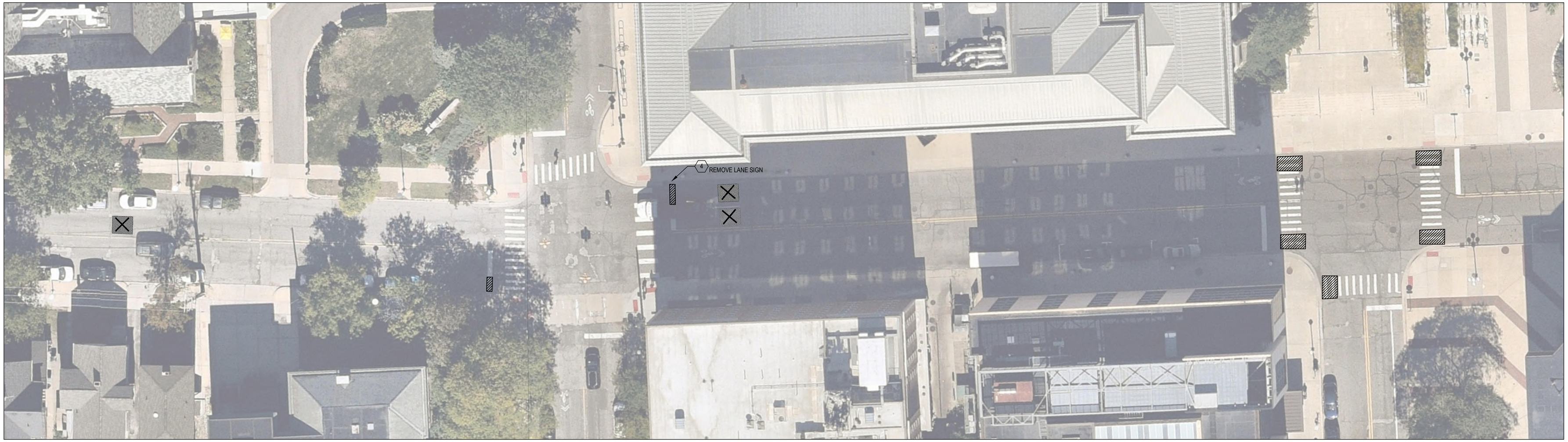
APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CD112

SHEET NO. 22 OF 26



REMOVAL LEGEND

1. REMOVE PAVEMENT MARKING SYMBOL
2. REMOVE LONGITUDINAL MARKING
3. REMOVE STOP / CROSSWALK BARS
4. REMOVE SIGNAGE

SEE ABOVE						
			REVIEW SET	04-14-2022		
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

WASHINGTON ST DEMOLITION C

APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CD113

SHEET NO. 23 OF 26

Addendum-1-50

Addendum-1-51

LEGEND

1	EXISTING CURB	6	CITY-POST DELINEATOR, WHITE, 36"	11	PAVT MRKG, POLYUREA, 4", DOUBLE YELLOW (SOLID)	15	PAVT MARKG, POLYUREA BIKE SYMBOL AND TURN ARROW
2	EXISTING CURB AND GUTTER	7	CITY-POST DELINEATOR, YELLOW, 36"	12	PAVT MRKG, POLYUREA, 4", YELLOW (SOLID)	16	PAVT MRKG, POLYUREA, DIRECTIONAL ARROW
3	PAVT MRKG, POLYUREA, 6", WHITE (SOLID)	8	QWIK CURB SECTION, 40" SEGMENTS	13	ENDURABLEND, GREEN	17	PAVT MRKG, POLYUREA, LEGEND MARKING
4	PAVT MRKG, POLYUREA, 6", WHITE (DASHED)	9	QWIK BIG BOLLARD L54 BASE UNIT	14	ENDURABLEND, TAN	18	PAVT MRKG, POLYUREA, BIKE SYMBOL AND ARROW
5	PAVT MRKG, POLYUREA, 24", STOP BAR	10	R1-6 PEDESTRIAN CROSSING MARKER			19	PAVT MRKG, POLYUREA, SHARROW SYMBOL

20	PAVT MRKG, POLYUREA, 12", CROSSWALK BAR						
21	TREETOP SPEED BUMP						
22	COVERED SIGNS						
23	PROPOSED SIGN						

SEE ABOVE						
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
			REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PROPOSED WASHINGTON ST A

APPROVED BY _____

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CS111

SHEET NO. 24 OF 26

LEGEND

1. EXISTING CURB
2. EXISTING CURB AND GUTTER
3. PAVT MRKG, POLYUREA, 6", WHITE (SOLID)
4. PAVT MRKG, POLYUREA, 6", WHITE (DASHED)
5. PAVT MRKG, POLYUREA, 24", STOP BAR
6. CITY-POST DELINEATOR, WHITE, 36"
7. CITY-POST DELINEATOR, YELLOW, 36"
8. QWIK CURB SECTION, 40" SEGMENTS
9. QWIK BIG BOLLARD L54 BASE UNIT
10. R1-6 PEDESTRIAN CROSSING MARKER
11. PAVT MRKG, POLYUREA, 4", DOUBLE YELLOW (SOLID)
12. PAVT MRKG, POLYUREA, 4", YELLOW (SOLID)
13. ENDURABLEND, GREEN
14. ENDURABLEND, TAN
15. PAVT MARKG, POLYUREA BIKE SYMBOL AND TURN ARROW
16. PAVT MRKG, POLYUREA, DIRECTIONAL ARROW
17. ONLY — PAVT MRKG, POLYUREA, LEGEND MARKING
18. PAVT MRKG, POLYUREA, BIKE SYMBOL AND ARROW
19. PAVT MRKG, POLYUREA, SHARROW SYMBOL
20. PAVT MRKG, POLYUREA, 12", CROSSWALK BAR
21. TREETOP SPEED BUMP
22. COVERED SIGNS
23. PROPOSED SIGN

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
SEE ABOVE			REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PROPOSED WASHINGTON ST B

APPROVED BY ________

SCALE 1" = 20'

INCH 0 10 20

DRAWING NO. CS112

SHEET NO. 25 OF 26

FILE:C:\Users\kdekrey\SmithGroup Companies Inc\PRJ - 13705 - SmithGroup - SmithGroup\CAD\05 Civil\13705-CS100.dwg USER:kdekrey DATE:May, 13 2022 TIME: 04:35 pm

LEGEND

1	EXISTING CURB
2	EXISTING CURB AND GUTTER
3	PAVT MRKG, POLYUREA, 6", WHITE (SOLID)
4	PAVT MRKG, POLYUREA, 6", WHITE (DASHED)
5	PAVT MRKG, POLYUREA, 24", STOP BAR
6	CITY-POST DELINEATOR, WHITE, 36"
7	CITY-POST DELINEATOR, YELLOW, 36"
8	QWIK CURB SECTION, 40" SEGMENTS
9	QWIK BIG BOLLARD L54 BASE UNIT
10	R1-6 PEDESTRIAN CROSSING MARKER
11	PAVT MRKG, POLYUREA, 4", DOUBLE YELLOW (SOLID)
12	PAVT MRKG, POLYUREA, 4", YELLOW (SOLID)
13	ENDURABLEND, GREEN
14	ENDURABLEND, TAN
15	PAVT MARKG, POLYUREA BIKE SYMBOL AND TURN ARROW
16	PAVT MRKG, POLYUREA, DIRECTIONAL ARROW
17	PAVT MRKG, POLYUREA, LEGEND MARKING (ONLY)
18	PAVT MRKG, POLYUREA, BIKE SYMBOL AND ARROW
19	PAVT MRKG, POLYUREA, SHARROW SYMBOL
20	PAVT MRKG, POLYUREA, 12", CROSSWALK BAR
21	TREETOP SPEED BUMP
22	COVERED SIGNS
23	PROPOSED SIGN

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
SEE ABOVE			REVIEW SET	04-14-2022		

ANN ARBOR VISION ZERO PLAN - CITY OF ANN ARBOR

PROPOSED WASHINGTON ST C

APPROVED BY ____

SCALE 1" = 20' (INCH 0 10 20)

DRAWING NO. CS113

SHEET NO. 26 OF 26

FILE:C:\Users\kdekrey\SmithGroup Companies Inc\PRJ - 13705 - SmithGroup - SmithGroup\CAD\05 Civil\13705-CS100.dwg USER:kdekrey DATE:May, 13 2022 TIME: 04:36 pm