MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

PRINCIPALS
Robert J. Michaud, P.E.
Daniel J. Mills, P.E., PTOE

March 7, 2025

Dracut Planning Board
62 Arlington Street
Dracut, MA 01826

Attn: Ms. Alison Manugian, Community Development Director

Subject: Transportation Peer Review Comments
Bridge Street Landing Redevelopment (Twin Coast)
Dracut, MA

Dear Alison:

MDM Transportation Consultants, Inc. (MDM) is pleased to provide you with the following transportation review comments for the above-referenced project. These comments have been prepared based on review of the documents identified below. To facilitate response by Applicant, review items requiring response are noted in ***Bold Italic***.

In summary, MDM finds that the Transportation Impact Study (TIS) has been prepared in general conformance with industry standards; however, certain updates to safety analysis, trip distribution and supporting data/validation of parking supply are requested. Recommended modifications to the site plan include site access curb modifications to avoid potential swept path impact to parking; request for swept path analyses for fire apparatus and service/delivery vehicles to ensure adequate circulation is provided for these vehicle types.

Documents Reviewed

MDM has reviewed the following documents to gain an understanding of the project and determine if industry standards have been applied in determining the potential impacts of the project. The following relevant documents were reviewed:

- *Transportation Impact Study, Wendy's Fast-Food Restaurant & Starbucks Coffee Shop, Dracut, Massachusetts*, prepared by Solli Engineering, dated December 5, 2024.
- *Site Layout Plan, Bridge Street Landing Proposed Commercial Redevelopment, Dracut MA* prepared by Solli Engineering dated December 18, 2024.

Proposed Development

The proposed site development, as presented on the December 18, 2024 Site Layout Plan, consists of a 2,245 sf Wendy's restaurant with drive-through and a 2,410 sf Starbucks Coffee Shop with drive-through. Site access will include modification of the existing exit-only driveway along Arlington Street to a full-access driveway approximately 80 feet east of the Bridge Street signal; the existing enter-only driveway along Arlington Street at the signal will be closed. A total of 42 on-site parking spaces are noted on the submitted Site Plans, representing an increase of 8 spaces from the existing 34 space supply at the site that today exclusively serve the existing Wendy's restaurant. Four (4) parking spaces are designated for mobile order delivery/pickup orders. Parking for eight (8) bicycles is also proposed along sidewalk leading to the main parking field.

Traffic Impact Study Comments

Existing Conditions

1. *Study Area*: The study area includes the Site driveways, signalized intersection at Arlington Street/Pleasant Street and Bridge Street and Bridge Street at Aiken Avenue. MDM concurs that these study locations are appropriate and in context with the likely traffic impacts for the Project.

2. *Traffic Volumes*: Traffic volumes for study locations were conducted in October and November 2024 under traffic conditions with schools in session during mid-week AM and PM peak hours and Saturday midday peak hours.

Seasonal factors published by MassDOT confirm that these months represent above-average conditions. Review and comparison of prior (2022) count data for study locations also indicates 2024 data are 5 to 6 percent higher than 2022 (weekday) and approximately equal during Saturdays with patterns that are generally consistent with those presented in the submitted TIS.

MDM concludes that traffic volumes presented in the 2024 TIS present a reasonable basis for analysis and are consistent with Town of Dracut Guidelines for Preparation of Transportation Impact Assessment.

3. *Accidents/Crash Data*: The TIS presents relevant crash data for the study intersections for the period 2018-2021, indicating a total of 20 reported crashes during this period. Calculation of

crash rates per MassDOT Crash Rate Worksheets indicates rates that fall below MassDOT district average.

(a) Inclusion of crash data for at least the latest available 3-year period is standard practice for TIS filings in Massachusetts and per Dracut TIA Guidelines; Applicant should clarify why crash data was not updated to reflect the period through 2024 which is available in the current MassDOT crash database portal. We note that the prior filings for the Site redevelopment included crash data through 2023. Updated crash data and analysis (crash worksheets) should be provided and submitted for the record.

4. *Driveway Sight Distances*: The TIS cites Intersection Sight Distance (ISD) and Stopping Sight Distance (SSD) criteria are met based on measured 85th percentile travel speeds (35 MPH) and measured sight lines for the site driveway location. Sight line exhibits ISD-1 and SSD-1 dated November 27, 2024 present sight line triangles confirming that applicable criteria are met and include a note that no plantings, snow storage or other features exceed a height of 2 feet above grade within these sight line areas.

MDM concurs that applicable sight line criteria for the Site driveway along Arlington Street are met as currently designed and assuming no plantings, snow storage or other features exceed a height of 2 feet above grade within the driveway sight line areas.

Future Conditions

5. *Traffic Growth*: Future traffic volumes are projected to a 7-year horizon using 1.0 percent annualized growth based on regional traffic volume report (2021) published by the regional planning agency (NMCOG). MDM has also reviewed Traffic-volume data compiled by MassDOT from permanent count stations located on various roadways in Dracut to validate general traffic growth trends in the area. These data indicate that annual traffic volumes have fluctuated over the past several years, with the average growth rate found to be approximately 0.78 percent per year.

MDM concludes that use of a 1.0 percent per year compounded annual background traffic growth rate is appropriate and will account for future traffic growth and presently unforeseen development within the study area, consistent with other development project filings in Dracut.

6. *Trip Generation*: Trips associated with the Wendy's use are assumed to mirror existing conditions and will not independently generate additional trip activity at the new/reconfigured site. Trip estimates for the Starbucks' use are appropriately based on trip rates published by the

Institute of Transportation Engineers (ITE) in *Trip Generation* 11h Edition for Land Use Code (LUC) 937 – Coffee Shop with Drive-Through Window. The TIS applies a "pass-by" trip rate of 75 percent which is slightly conservative for the proposed use, recognizing that ITE Trip Generation Handbook suggests pass-by trips may account for 90 percent or more of trips for the subject land use category. Resulting "new" trips for the Site are estimated in the TIS to range from 24 to 52 vehicle-trips during peak hours.

Review of empirical trip data for a similar Starbucks facility located along Route 20 in Marlborough, Massachusetts exhibits similar trip characteristics to those estimated using ITE LUC 937 trip rates. MDM concurs that use of a 75 percent pass-by adjustment represents a slightly conservative basis for analysis. MDM therefore finds that the projected trip generation including pass-by adjustments as presented in the TIS represents a reasonable estimate of traffic activity for the development.

7. *Trip Distribution:* Trip patterns for Site traffic presented in the TIS are estimated based on existing patterns and area population which in tabular form are estimated to account for 45 percent of trips oriented to/from the Bridge Street corridor and 55 percent to/from Arlington Street. Resulting "new" trip increases therefore represent a relatively modest change over existing traffic. MDM generally concurs with the distribution of "new" trips on this basis.

TIS projections for "Pass-By" trip distribution are estimated in the TIS to follow the same trip patterns as "new" trips, resulting in a high percentage orientation (more than half) of trips "diverted" from Bridge Street. MDM does not concur with this distribution; a significantly higher proportion of "pass-by" trips are likely to be drawn directly from Arlington Street rather than being diverted from the proportionally lower "through traffic" on Bridge Street. Adjustment of pass-by trips to reflect this would result in a higher proportion of site trips exiting the Site as a right-turn (likely between 60 and 65 percent). In turn, this would likely benefit the analysis as right-turn movements from the Site have higher capacity. Applicant should re-evaluate capacity and queue analyses at the driveway to reflect adjusted pass-by trip distribution.

8. *Operations Analysis:* Operational analyses are presented in the TIS follow generally accepted traffic engineering practices and protocols and use the latest available capacity analysis software. Analysis results, presented in tabular form in more detail in the TIS technical attachments and capacity analysis table, indicate generally acceptable operating levels of Level-of-service (LOS) D or better for the signalized intersection approaches with only modest changes resulting from additional Site trips. Operational analysis of Site driveway indicates queue impacts from the nearby signal extend to and beyond the existing driveway on Arlington

Street; hence longer delays and queues will occur for vehicles exiting the Site that may influence drive-through operations for the Starbucks facility.

Per Comment 7, MDM anticipates that the TIS has conservatively estimated a higher proportion of trips turning left (westbound), under which vehicle queues may extend to the Starbucks drive-through window location. Applicant should update analysis to reflect a higher proportion of right-turns which may reduce driveway queue extents. In cases where queues do extend to the Starbucks, MDM anticipates the queue "blockage" may create inefficiencies in window transaction processing times (and hence drive-through lane queuing); however, ample queue area is provided on-site to accommodate this scenario without undue impact to on-site circulation.

9. Parking: Applicant in prior Site Plan application has documented peak parking demand characteristics of the existing Site operations indicating that the maximum number of parking spaces utilized on-site is sixteen (16) total spaces on weekdays between the times of 12:00 PM and 12:30 PM (lunchtime). No information is available for parking demands at the Site for a Saturday, which MDM advises Applicant should provide (refer to MDM letter correspondence of February 2, 2024 to Planning Board). Additional peaking demand under the proposed development program will be related to the Starbucks facility; however, no parking analysis was provided in the TIS to support the 42-space supply. Assuming a weekday demand of 16 spaces per Applicant observations, approximately 26 spaces would be available to support the Starbucks facility.

(a) Parking demands for the Site should be provided by Applicant for a Saturday lunchtime operating period to ensure that the 16-space demand observed on weekdays represents the maximum existing parking demand. Parking demand for the Starbucks facility is approximately estimated by MDM to be up to 26 spaces (85th percentile demand) per ITE Parking Generation, 6th Edition parking rates for Land Use Code 937 (Coffee Shope with Drive-Through Window). This suggests that the 42-space supply may accommodate peak demands, subject to confirmation by Applicant that the Wendy's demand is 16 or fewer spaces. Applicant may provide empirical parking data for a similar Starbucks facility to augment/support ITE-based demand estimates to further support the requested parking waivers.

(b) Applicant should consider assigning spaces furthest from the buildings for employee use to maximize customer/patron convenience.

10. Drive Through Operations. No operational analysis for drive-through operations is provided in the TIS as is customary to similar uses and applications in Dracut. However, MDM notes that proposed queue storage within the drive-through lanes can accommodate at least 10 vehicles each (200 feet± each) and includes a bypass lane to accommodate excess vehicle demands if needed. Although no analysis is provided, existing Site trip generation for the Wendy's restaurant at 65 vehicles hourly during peak periods (which falls well below anticipated levels when applying ITE trip rates for the use) supports the Wendy's drive-through lane will adequately support the restaurant even in conditions where a majority of customer transactions use the drive-through. Likewise, additional queue length if required for the Starbucks facility is available beyond the 10-vehicle supply without impacting on-site circulation or parking.

Site Plan Transportation-Related Comments

MDM offers commentary of access and circulation aspects of the Site Plan.

11. *Access/Site Circulation:*

(a) AutoTurn® vehicle modeling should be provided for the Site Plan that confirms that refuse vehicles, emergency apparatus (Dracut E-One Ladder Truck) and product delivery vehicles (articulated tractor trailers) are accommodated within the Site. Applicant should confirm that maneuvering areas at the driveways and within the Site are adequate for these vehicle types based on the updated layout or should commit to restrict certain vehicles types (for instance, WB-50 vehicle types) from the Site if constraints dictate.

(b) Gore striping at the driveway appears to be necessary to accommodate larger vehicle swept paths; however, the driveway curbline should be adjusted to ensure that vehicle sweeps do not impact adjacent parking spaces (see attached redline plan). AutoTurn vehicle modeling should confirm that ample maneuvering area is provided without impact to onsite parking.

(c) Consideration should be given to installing electric vehicle (EV) charging stations and associated infrastructure within the Project Site at convenient and easily accessible locations to encourage EV use.

(d) Parking calculations: The Site Plan parking summary relies on application of ITE parking rates to determine parking supply requirements; MDM notes that these are based on earlier versions of the ITE Parking Generation Handbook 5th Edition which has been updated to the 6th

Edition. Updated 85th percentile parking rates would result in supply estimates of more than 42 spaces if applied to both proposed land uses (Wendy's and Starbucks). Refer to Comment 9 for a recommended approach to validating Site parking requirements based on (a) measured parking demand for Wendy's including a peak Saturday lunchtime period; and (b) use of applicable ITE demand rates for the Starbucks facility, LUC 937 6th edition 85th percentile rates.

(e) Site Plan indicates a proposed coffee shop building area of 2,425 sf versus Application materials and parking summary basis of 2,410 sf; this minor discrepancy should be corrected.

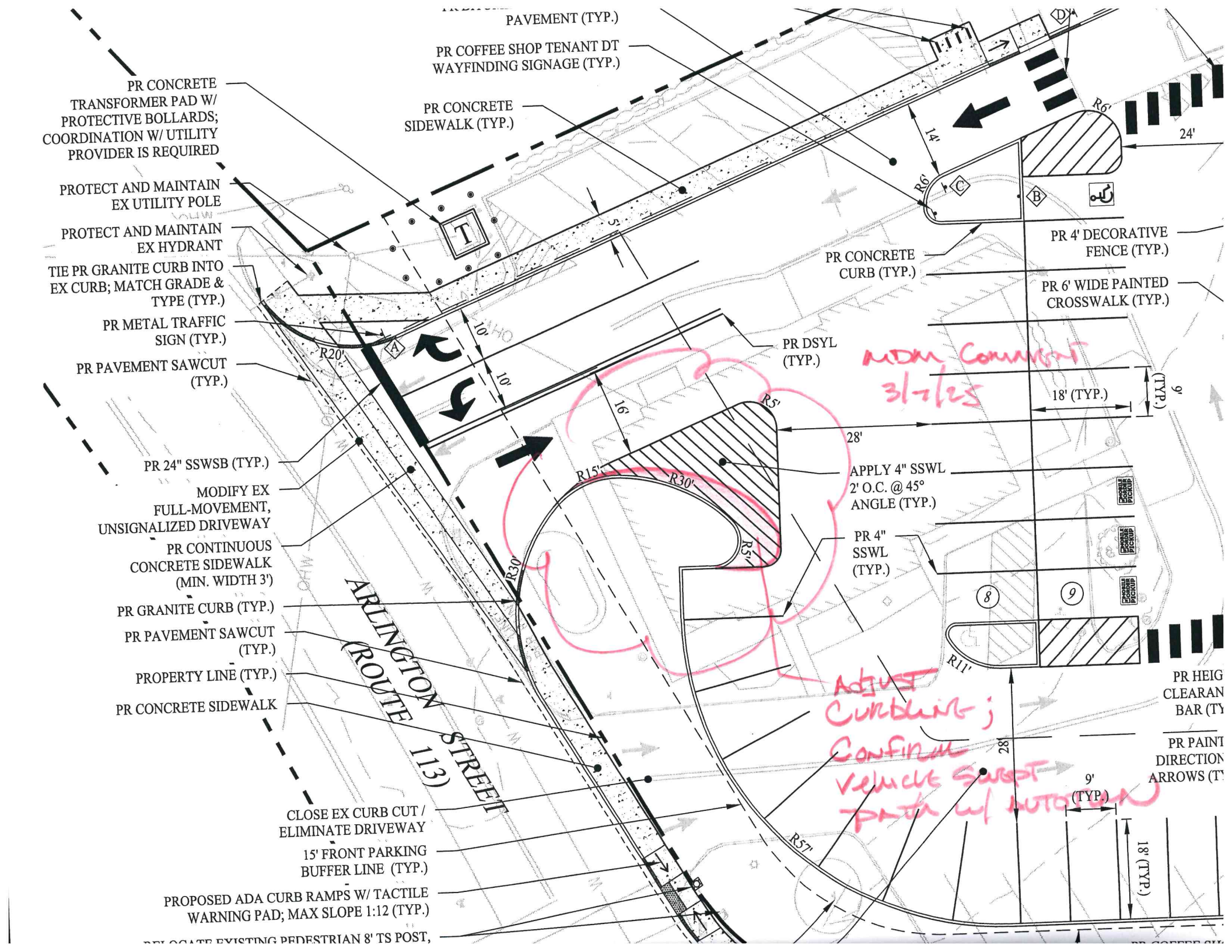
MDM appreciates the opportunity to provide Transportation Planning & Engineering Services to the Town of Dracut and look forward to discussing our findings at the upcoming Planning Board hearing. If you have any questions or concerns, please feel free to contact this office.

Sincerely,

Robert J. Michaud, P.E.
Managing Principal

Attachments

- Redline – Site Plan (driveway curbline)


PAVEMENT (TYP.)
PR COFFEE SHOP TENANT DT WAYFINDING SIGNAGE (TYP.)
PR CONCRETE TRANSFORMER PAD W/ PROTECTIVE BOLLARDS; COORDINATION W/ UTILITY PROVIDER IS REQUIRED
PR CONCRETE SIDEWALK (TYP.)
PROTECT AND MAINTAIN EX UTILITY POLE
PROTECT AND MAINTAIN EX HYDRANT
TIE PR GRANITE CURB INTO EX CURB; MATCH GRADE & TYPE (TYP.)
PR METAL TRAFFIC SIGN (TYP.)
PR PAVEMENT SAWCUT (TYP.)
PR 24" SSWSB (TYP.)
MODIFY EX FULL-MOVEMENT, UNSIGNALIZED DRIVEWAY
PR CONTINUOUS CONCRETE SIDEWALK (MIN. WIDTH 3')
PR GRANITE CURB (TYP.)
PR PAVEMENT SAWCUT (TYP.)
PROPERTY LINE (TYP.)
PR CONCRETE SIDEWALK
CLOSE EX CURB CUT / ELIMINATE DRIVEWAY
15' FRONT PARKING BUFFER LINE (TYP.)
PROPOSED ADA CURB RAMPS W/ TACTILE WARNING PAD; MAX SLOPE 1:12 (TYP.)
RELOCATE EXISTING PEDESTRIAN 8' TS POST,
ARLINGTON STREET (ROUTE 113)
PR CONCRETE CURB (TYP.)
PR 4' DECORATIVE FENCE (TYP.)
PR 6' WIDE PAINTED CROSSWALK (TYP.)
PR DSYL (TYP.)
APPLY 4" SSWL 2' O.C. @ 45° ANGLE (TYP.)
PR 4" SSWL (TYP.)
MDM Comment 3/7/25
Adjust Curbing; Confirm vehicle swept path w/ AutoTurn
PR HEIG CLEARAN BAR (TY
PR PAINT DIRECTION ARROWS (TY
R20'
R30'
R15'
R5'
R11'
R57'
10'
16'
28'
18' (TYP.)
9' (TYP.)
14'
24'
R6'