Project Definition

PULSE DEMPSTER LINE

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Prepared for:

Prepared by:

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Executive Summary

THE PROJECT

In 2001, Pace published Vision 2020, which identified the Dempster Corridor Arterial Rapid Transit (ART) project as one of 24 ART corridors that would enhance the regional transit network and intersuburban travel. In 2009, Pace's Arterial Rapid Transit Study evaluated and prioritized these corridors for phased implementation. The Dempster Corridor (see Figure ES.1) was identified as the second ART project to be implemented, after the Milwaukee Corridor. In 2010, Pace completed a Dempster Station Location Study identifying preliminary station locations along the corridor. ART service has since been branded as Pulse, with the Milwaukee and Dempster ART projects now referred to as the Pulse Milwaukee Line and the Pulse Dempster Line.

FIGURE ES.1: PULSE DEMPSTER LINE STATIONS AND MAJOR TRANSIT CONNECTIONS

Note: Figure ES-1 reflects the current proposed stations, which vary from the original station set suggested in the 2010 Station Location Study. A Potter Road station is also under consideration as an alternate for the Dee station.

The Pulse Dempster Line is defined by the following characteristics:

- Approximately 15 miles in length.
- 17 station locations, including two terminals and 15 intermediate station pairs.
- Runs north from the new O'Hare Airport Consolidated Rental Car and Joint Use Facility (CRCF) and the O'Hare Kiss 'N' Fly/O'Hare Metra Transfer station to the Des Plaines Metra station in the City of Des Plaines, and then east to the Chicago Transit Authority's (CTA) Purple Line Davis Street station in the City of Evanston.
- Connects to the Airport Transit System (ATS) at O'Hare, the Metra North Central Service (NCS) Line, the Metra UP-Northwest (UP-NW) Line, the Pulse Milwaukee Line, the CTA Yellow Line, the Metra UP-North (UP-N) Line, the CTA Purple Line, and numerous local Pace and CTA bus routes at stations along the route.

As Pace's second Pulse line, it will improve connectivity and increase transit service levels through higher frequencies, travel time savings, and station and rider amenities. The Pulse Dempster Line will connect to the Pulse Milwaukee Line and eventually to three additional planned routes serving Mannheim – LaGrange Road, Touhy Avenue and Harlem Avenue.

PROJECT FEATURES AND CHARACTERISTICS

Capital Improvements

The Pulse Dempster Line service will operate in mixed traffic, with two off-street terminal stations at the Davis CTA/Metra station in the City of Evanston and the new O'Hare Kiss 'N' Fly/O'Hare Metra Transfer station and CRCF facility at O'Hare International Airport; and 15 additional intermediate station pairs, for a total of 32 stations. It is expected that the Dempster Line stations will use the typical station design and configuration developed for the Milwaukee Line with some modifications to reflect design development of the Milwaukee Line stations. Figure ES.2 illustrates the typical station which has a 12.5 foot by 60 foot footprint, featuring a 12-inch near-level boarding platform with accessible ramps, based on Americans with Disabilities Act (ADA) standards, at both ends connecting the station to the surrounding sidewalk network. Smaller, more compact stations with a modified feature set will be used where necessary to accommodate constrained right-of-way conditions.

Planned station amenities include the following features (see Figure ES.3):

- Raised platform for near-level boarding, enabling passengers to board the bus without requiring the bus to kneel;
- Semi-custom branded shelters;
- Benches, trash receptacles, and bicycle racks;
- A vertical marker conveying the Pulse brand and featuring real-time information signage, Pulse route information, and local/regional transit maps;
- Infrared overhead heating within the shelter;
- Electric pavement snow-melt system;
- Railings along the back of the platform and along the access ramps;
- Landscaping.

From east to west, the Pulse Dempster Line will traverse the communities of Evanston, Skokie, Morton Grove, Niles, Park Ridge, Des Plaines, Rosemont and Chicago.

FIGURE ES.2: TYPICAL STATION LAYOUT

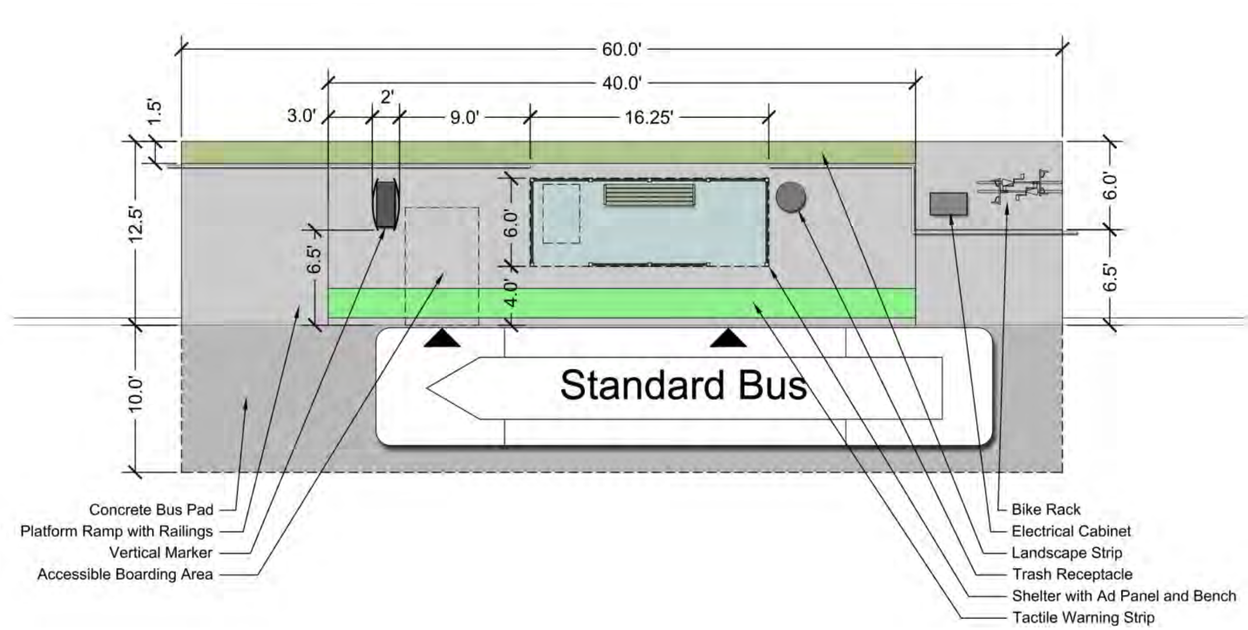


FIGURE ES.3: RENDERING OF THE TYPICAL STATION LAYOUT

Operating Plan

The preliminary operating plan, based on running time and ridership analysis, reflects implementation of the new Pulse service and corresponding changes to local Route 250 service. Reducing the number of intermediate stops will enable time savings compared to the existing Route 250 while providing improved service to nearly all existing riders.

The operating plan consists of the following weekday service characteristics:

Pulse Dempster Line

- Ten (10) minute peak headways (three morning and three afternoon hours)
- 15-minute off-peak headways (most of the day)
- 30-minute off-peak headways (three late night hours)
- Service span of 20 hours per day

Route 250

- Reduced to 35-minute peak headways
- Reduced to 70-minute off-peak headways
- Reduced service span to 16 hours per day

Operations and maintenance (O&M) costs are estimated based on revenue-hours of service. For the combined Pulse and future local service, the estimated annual revenue hours are 67,100. This represents a 95% increase over the 34,400 annual revenue hours estimated for the approved service improvements for Route 250 being implemented in August 2016. Pulse Dempster Line and Route 250 O&M costs are estimated at approximately $7.5 million (in 2019 dollars).

Technology Requirements

Chapter 8 documents the requirements for the real-time arrival information system, audio system, cellular communications equipment, and the requirements for content management software (CMS) and media players. For the Milwaukee Line, Pace is issuing an Invitation for Bid (IFB) for system integration of real-time arrival information signage. The systems integrator will purchase and install a real-time information system for displaying bus arrival times at Pulse stations, standard fixed route bus stops, and transit centers including integration of the necessary CMS and media players. This system is anticipated to be functional before Dempster Line construction begins. Pace anticipates that the technology features will be delivered as part of station construction for the Dempster Line.

Implemented through a separate project, transit signal priority (TSP) is anticipated to improve schedule reliability for the Dempster Line. TSP is anticipated to be implemented along the Dempster Line corridor prior to the commencement of Pulse service.

Financial Plan

A capital cost estimate was developed to a level of detail appropriate for the Project Definition phase. Capital costs consist primarily of those related to station construction and vehicle procurement. The estimated total station capital cost is approximately 12.6 million (in 2016$). The Dempster Line preliminary operating plan would require 18 Pulse vehicles (15 regular service plus three spares) and five (5) vehicles for Route 250. Pulse vehicles will cost approximately $9.6 million (in 2016$). The total project capital costs are estimated at approximately $22.2 million (in 2016$).

Pace intends to fund the Pulse Dempster Line with local, regional, and federal sources, potentially including a federal Congestion Mitigation and Air Quality (CMAQ) grant, a Regional Transportation Authority (RTA) Innovation, Coordination, and Enhancement (ICE) grant, and Federal Transit Administration Section 5307 formula funds. Federal discretionary capital funding has not yet been secured for the project.

Ridership

The ridership forecast for the Pulse Dempster Line project was developed using the Federal Transit Administration's Simplified Trips-on-Project Software (STOPS) model. The model incorporates the proposed baseline operating plan, including any proposed service changes on Route 250, as well as demographic and trip data. STOPS model inputs include Census Transportation Planning Products (CTPP) journey to work data, Metropolitan Planning Organization (MPO) travel time skims (i.e. highway travel times), MPO demographic data, ridership data, and General Transit Feed Specification (GTFS) transit data. The model is calibrated using existing ridership and produces ridership estimates for no-build and build scenarios. The STOPS model forecasts 7,125 daily trips on the Pulse Dempster Line compared to the 3,002 existing daily trips on Route 250. This increase is largely attributed to an increase in revenue hours.

Stakeholder Involvement

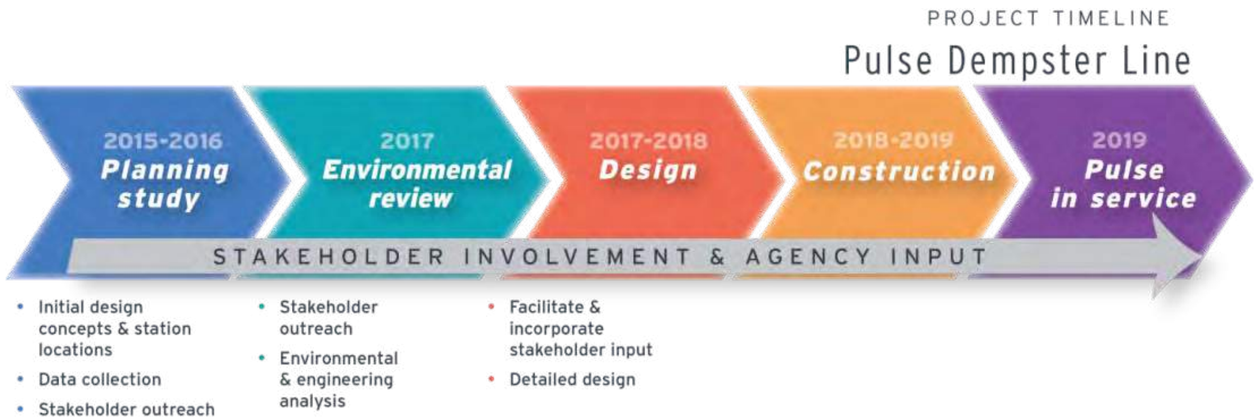
Throughout the Project Definition phase, stakeholder involvement activities for the Pulse Dempster Line focused on coordination with government agencies at the local, state, and federal level. Two Corridor Advisory Group (CAG) meetings, held on March 23rd, 2016 and June 29th, 2016, engaged local agency representatives to solicit feedback and provide project updates. The 37 attendees at the first meeting, and 27 attendees at the second meeting, included representatives from local agencies, private and public properties, municipalities, state agencies and offices, and a federal agency.

As the Project Definition phase concludes and the project advances into the environmental phase, stakeholder involvement and outreach efforts will be a priority as the National Environmental Policy Act (NEPA) documentation is prepared. Coordination with communities, government officials, public agencies, and individual interest groups will continue and emphasis will be placed on public involvement and broad community outreach. Guided by the Stakeholder Involvement Plan established for the Dempster Line, Pace will connect with its customers, the general public, affected property owners, and business groups through outreach activities including a project website, project newsletters, public meetings, and one-on-one stakeholder meetings.

NEXT STEPS

The planning effort to define the features and characteristics of the Pulse Dempster Line concludes in August 2016, when the Project Definition Report is finalized. At the conclusion of this planning phase, the Pulse Dempster Line project is expected to enter the federally mandated National Environmental Policy Act review process. The NEPA documentation is expected to be complete around the third quarter of-2017, followed by engineering, permitting and property acquisition which will continue until mid-2018. Utilizing a design-bid-build delivery method, construction is slated to begin in late 2018 and continue into 2019 with service beginning in the third quarter of 2019 (see Figure ES.4).

FIGURE ES.4: PULSE DEMPSTER LINE PROJECT TIMELINE



1 Introduction

The Pulse Dempster Line Project Definition defines Pace's second Arterial Rapid Transit (ART) project including capital improvements, a preliminary operating plan, technology requirements, financial estimates and plans, and a ridership forecast. The ART service has been branded as Pulse, with the first ART project on Milwaukee Avenue and the Dempster corridor ART project now referred to as the Pulse Milwaukee Line and the Pulse Dempster Line, respectively. This report summarizes the various technical memoranda, environmental documentation, stakeholder involvement activities, and other related Pulse Program activities that have occurred during the Project Definition phase.

In 2001, Pace published Vision 2020, which identified the Dempster Corridor ART project as one of 24 corridors that would enhance the regional transit network and inter-suburban travel. In 2009, Pace's Arterial Rapid Transit Study evaluated and prioritized these corridors for phased implementation. Project Definition for the first Pulse project, the Pulse Milwaukee Line, was completed in December of 2014. Stakeholder involvement activities continued throughout the environmental review phase in 2015. Project design occurred in 2015 and 2016 with construction scheduled for late 2016 and service anticipated to begin in 2017.

The Dempster Line was identified as the second Pulse project to be implemented. In 2010, Pace completed a Dempster Station Location Study identifying preliminary station locations along the corridor. Project Definition and stakeholder involvement activities examined these station locations further and identified changes, opportunities, and challenges. Figure 1.1 shows the current station locations under consideration.

FIGURE 1.1: PULSE DEMPSTER LINE PROPOSED STATIONS WITH MAJOR TRANSIT CONNECTIONS

Note: Figure 1.1 reflects the current proposed stations, which vary from the original station set suggested in the 2010 Station Location Study. A Potter Road station is also under consideration as an alternate for the Dee station.

The Pulse Dempster Line is defined by the following characteristics:

- Approximately 15 miles in length.
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- Connects to the Airport Transit System (ATS) at O'Hare, the Metra North Central Service (NCS) Line, the Metra UP-Northwest (UP-NW) Line, the Pulse Milwaukee Line, the CTA Yellow Line, the Metra UP-North (UP-N) Line, the CTA Purple Line, and numerous local Pace and CTA bus routes at stations along the route.
- Other significant destinations along the route include Maine East High School and Lutheran General Hospital.

Pulse: *Pulse is a new rapid transit network, which will provide fast, frequent and reliable bus service using the latest technology and streamlined route design.*

As Pace's second Pulse line, the Dempster Line will improve connectivity and increase transit service levels through higher frequencies, travel time savings, and station and rider amenities. The Pulse Dempster Line will connect to the Pulse Milwaukee Line and eventually to three additional planned routes serving Mannheim – LaGrange Road, Touhy Avenue and Harlem Avenue.

1.1 DEFINING THE PROJECT

Pace is undertaking a planning effort to define the features and characteristics of the Pulse Dempster Line. This report describes preliminary assumptions regarding station locations and station amenities; the development of station designs, vehicle specifications, and technology requirements; the application of brand elements; the operating plan; and cost estimates. At the conclusion of this planning effort, the Project Definition Report will serve as a reference and resource for Pace, project stakeholders, and the general public.

1.2 DEMPSTER CORRIDOR PROJECT GOALS

Building on the overall Pace ART goals articulated in previous studies, the following project goals for the Dempster Line have been developed:

1. Encourage suburban transit usage through the establishment of a network of higher-quality line-haul routes;
2. Improve the visibility and perception of suburban bus transit service; and
3. Support transportation, land use and growth objectives identified in the study corridor.

1.3 ORGANIZATION OF THIS PLAN DOCUMENT

The following sections of this Project Definition Report are generally organized around the seven elements of bus rapid transit (BRT) that distinguish premium bus service: stations, running way, vehicles, technology, branding, and the operating plan.[1] The remaining sections address the stakeholder involvement process, National Environmental Policy Act (NEPA) documentation, project delivery, and the next steps needed to advance the project. Technical memoranda available under separate cover, as noted throughout the report, document technical analyses and findings in more detail. This Project Definition Report serves to summarize the relevant conclusions that will inform design and engineering in the next phase of the project.

The following sections present initial assumptions based on past analyses, summarize additional analysis, and document confirmed and pending decisions. The general content of the sections that follow is described briefly below:

- **Corridor Context**: Existing conditions in the corridor are presented, including physical infrastructure, land uses, existing and planned transit service, local plans and studies, historical resources, and a detailed conditions inventory by subsection.
- **Existing Ridership Analysis:** Route 250 ridership from 2000 to 2015 was analyzed to examine local route operation in the corridor and inform station location development.

[1] Transportation Research Board. Transit Cooperative Research Program. *Bus Rapid Transit Practitioner's Guide* (*TCRP Report 118).* Transportation Research Board, 2007.

- **Stations:** General station locations and specific station sites were refined through technical analysis, stakeholder involvement, and conceptual design. Functional requirements and conceptual layouts for both terminal stations and intermediate stations are defined. Station designs are based on design standards for the Pulse Milwaukee Line with refinements as needed for the operation of the Pulse Dempster Line. The functional requirements inform the cost estimates and serve as the basis of design for the engineering phase.

- **Running Way:** After conducting physical conditions and travel time inventories, a strategy for station area roadway treatments is identified, including right-of-way requirements, curb reconstruction needs and crosswalk and sidewalk improvements. Information on the RTA's Regional TSP Implementation Program (RTSPIP) and its application in the Dempster Corridor are also discussed for reference.

- **Running Time Analysis:** More detailed analysis of Route 250 operations, including on-time performance and on-board travel time data, was conducted to inform the Preliminary Operating Plan development.

- **Vehicles:** Preliminary requirements for Pulse vehicles are documented, reflecting recently developed specifications used in recent Pulse vehicle purchases that ensure a unique identity.

- **Technology:** A technology strategy developed for the Pulse Milwaukee Line service has been further developed with specifications for real-time arrival information signs and systems.

- **Preliminary Operating Plan:** The Preliminary Operating Plan includes running time estimates for Pulse Dempster Line service and Route 250, an initial baseline service plan, and alternative operating plans. The Preliminary Operating Plan informed the development of the Operating and Maintenance Cost Estimate included in the Financial Plan. The operating plan provides a preliminary schedule that reflects Pulse frequency and service span, station locations and fleet requirements, and also includes service reallocation recommendations for the overlapping local Route 250 and other connecting services.

- **Branding:** Based on a branding strategy developed concurrently with the Pulse Milwaukee Line, the Pulse Dempster Line Project Definition report documents the advancement of the Pulse brand and its application to Pulse features.

- **NEPA Documentation:** The Purpose and Need Statement and Categorical Exclusion checklist documentation required to meet NEPA requirements are summarized.

- **Stakeholder Involvement:** Outreach and coordination with federal, state, and local agencies; municipalities; interest groups; and the general public, are summarized.

- **Financial Plan:** Preliminary capital cost estimates are provided for project implementation, documenting provisions for stations, technology equipment, roadway improvements, property acquisition, vehicles, other station elements, and estimated costs of engineering and other professional services. An operations and maintenance (O&M) cost estimate for the initial phase of implementation includes provisions for vehicle operations, fuel, vehicle maintenance, station maintenance, technology elements, fare collection, and allocated general administration costs.

- **Ridership Forecast:** A ridership forecast for the initial year of operation was developed by applying a forecasting method that pivots from Route 250 ridership, reflecting service enhancements planned for the corridor and BRT experience in similar corridors elsewhere.

- **Project Delivery:** A project schedule provides key elements of the various project delivery phases and discusses relevant considerations and recommendations regarding intergovernmental agreements.
- **Next Steps:** An overview of the next steps required to implement the Pulse Dempster Line and a summary of upcoming project activities are provided.

2 Corridor Context

2.1 CORRIDOR ROUTE DESCRIPTION

The route for the Pulse Dempster Line begins at the O'Hare CRCF at Zemke Boulevard and Mannheim Road. The section of Mannheim Road from Zemke Boulevard to just north of Higgins Road is currently under construction by the Illinois Department of Transportation. The corridor has a six lane cross-section with a station at the intersection of Mannheim Road and Higgins Road. North of Higgins, Mannheim Road reduces down to four lanes under the Jane Addams Tollway (I-90) in Rosemont. The Dempster Line turns west on Touhy Avenue, a four lane arterial road.

The Dempster Line continues north through Des Plaines at Lee Street, a two lane collector road through a residential area. The eastbound route continues on Lee Street-Mannheim Road into downtown Des Plaines. Mannheim Road, north of Algonquin Road, is a one-way northbound street with three through lanes. Westbound Dempster Line buses will travel one block west on Graceland Avenue.

When the Dempster Line reaches Miner Street, it turns east to serve the Des Plaines Metra station and downtown Des Plaines before proceeding east on Dempster Street. Dempster Street, from downtown Des Plaines through Skokie, is a major arterial road with two to three through lanes in each direction and many curb cuts serving various auto-oriented developments.

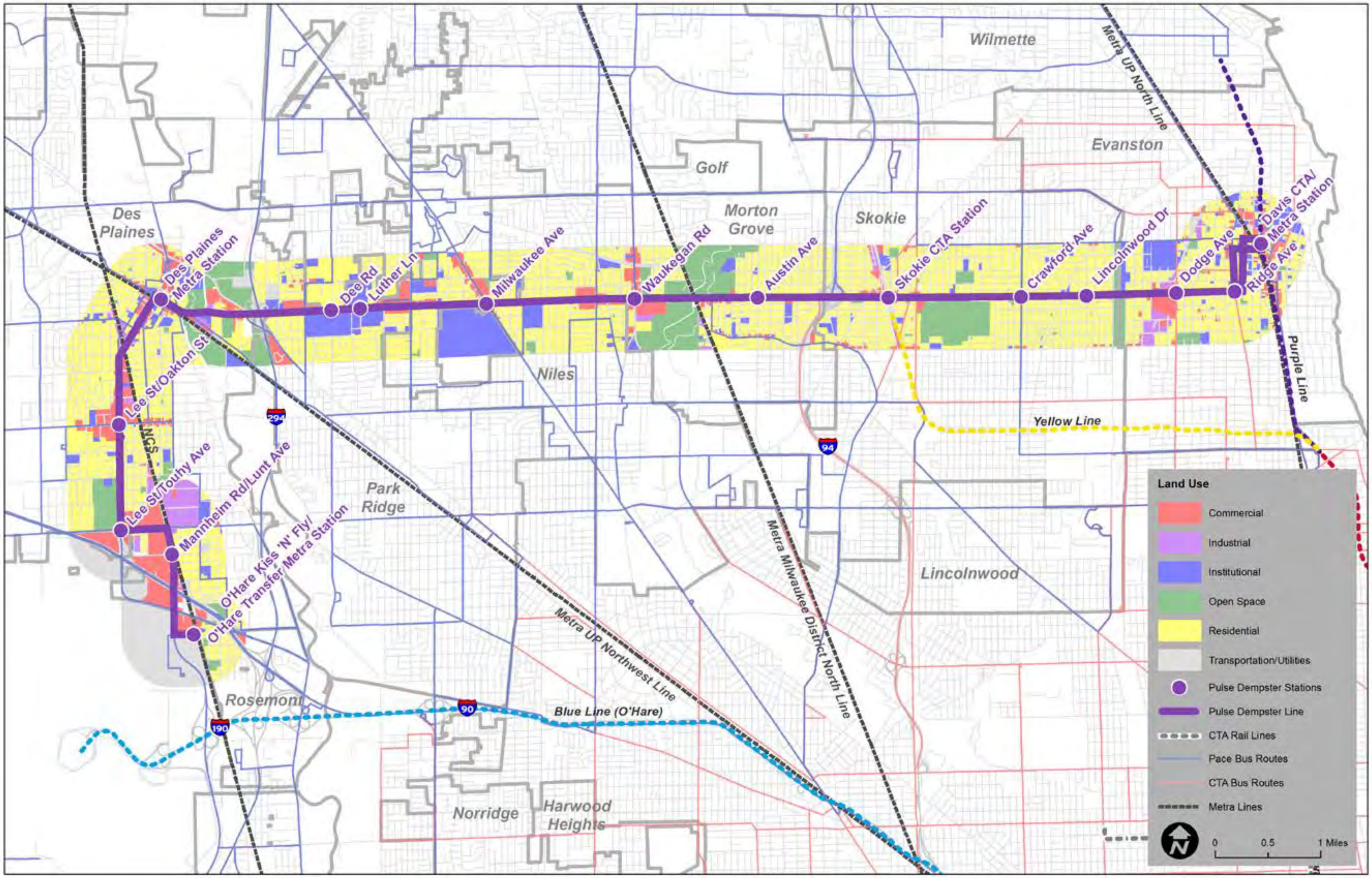
At Milwaukee Avenue in Niles, in each direction two through lanes of Dempster Street are grade separated, traveling under Milwaukee Avenue. Milwaukee Avenue is the location of a major transfer site between the Pulse Dempster Line and Pulse Milwaukee Line, which will be constructed in the spring of 2017.

As the Dempster Line route travels through Niles and into Morton Grove, it crosses over the Edens Expressway (I-94) and enters Skokie. In Skokie, the Dempster Line will provide an opportunity to transfer to or from the CTA Yellow Line at Dempster. When the Dempster Line enters Evanston, just east of Dodge Street, Dempster narrows to one through lane in each direction as land uses transition from suburban strip mall retail to residential neighborhoods and historic districts. The Dempster Line leaves Dempster Street to travel north on Oak Street (westbound Dempster Line buses will utilize Ridge Avenue, one block west) and then east on Church Street (westbound Dempster Line buses will utilize Davis Street).

2.2 LAND USE CHARACTER

Existing land use data was obtained from a 2010 geographic information system (GIS) dataset compiled by Chicago Metropolitan Agency for Planning (CMAP). The western portion of the route that runs north and south through Rosemont and Des Plaines, begins at the O'Hare Kiss 'N' Fly and CRCF, which consists of commercial and transportation land uses, and travels through residential and open space areas to a predominantly commercial area with some institutional and industrial land. The central portion, through Park Ridge, Niles, and Morton Grove, is primarily commercial or institutional with some residential and open space land uses. The eastern portion of the Pulse Dempster Line corridor transitions from a residential, commercial, and open space area at the western boundary of Skokie to a predominantly commercial and mixed-use area in downtown Evanston. Figure 2.1 shows the corridor, station locations, and land use within a half-mile.

FIGURE 2.1: PULSE DEMPSTER LINE LAND USE WITHIN ONE-HALF MILE



2.3 EXISTING & PLANNED TRANSIT SERVICE

2.3.1 Pace Suburban Bus

Pace Route 250 operates within the Dempster corridor with weekday service every 20 minutes during the peak period, 30 minutes during the midday, and roughly 40-60 minutes in the evening. In August 2016, service on Route 250 will be enhanced with increases to weekday off-peak service. Route 250 will operate approximately every 20 minutes during the peak and midday and approximately every 30 minutes during the evening. No changes are being made to weekend service. As the new Pulse Dempster Line service comes on-line in the Dempster corridor, the Pulse service will offer 10-minute headways during peak hours and 15 minute headways during off-peak hours and on weekends, following a span of service that is equal to or better than the corridor's existing local service as well as the expanded service implemented in August 2016. Thirty-minute Pulse headways will be offered during late night hours. Service reductions on Route 250 are being considered, including a reduction in the span of service, particularly during evenings, during which time Pulse would be the only available service on the corridor. Preliminary operating plans call for Route 250 to operate at headways of 30 minutes or greater during daytime hours, and 60 minutes during evenings and weekends. However, service reductions on Route 250 will be subject to further evaluation by Pace and will be subject to a public hearing.

The Dempster Line will operate from 5:00 am to 1:00 am on weekdays. During a three hour morning and afternoon peak period, the Pulse Dempster Line will feature 10 minute headways, with 15 minute headways throughout the rest of the day and 30 minute headways during late evening hours.

Many local Pace routes make connections along Dempster Street, including Routes 208, 210, 211, 213, 215, 221, 223, 226, 240, 241, 270, 330, 410, 423, and 626. In 2017, Pace will begin construction on the Pulse Milwaukee Line, which will provide a transfer opportunity between Pulse services at Milwaukee Avenue. Another planned Pulse service that will connect to the Dempster Line is the future Pulse Touhy Line, with a connection at Lee Street and Touhy Avenue.

The Village of Niles operates three community circulator routes, collectively referred to as the Niles Free Bus and designated as Pace Routes 410, 411, and 412. Recently, Pace and the Village of Niles completed a Niles Circulator Modernization Study, aimed at identifying changes to improve the efficiency of the Niles Free Bus service, boost ridership, and better complement the planned Pulse service. As a result of the study, Route 410 was added and service on Route 413 was discontinued. These service changes began in May of 2016.

2.3.2 Chicago Transit Authority

In addition to Pace connections, the Dempster Line will also make connections to the CTA "L" heavy rail system at the CTA Yellow Line Dempster-Skokie station in Skokie and at the CTA Purple Line Davis station in Evanston. CTA bus connections will include Route 54A and 97 at the CTA Yellow Line, Routes 93 and 206 at Dodge Avenue, and Routes 93, 201 and 205 at Davis CTA/Metra.

2.3.3 Metra

The Dempster Line will make connections to Metra at O'Hare with the Metra North Central Service (NCS), which travels between downtown Chicago to Antioch; at Des Plaines Metra with the Union Pacific Northwest Line (UP-NW), which travels between downtown Chicago and Harvard and McHenry; and at Davis CTA/Metra with the Union Pacific North Line (UP-N), which travels between downtown Chicago and Kenosha, Wisconsin.

At O'Hare, the Dempster Line will connect to Pace Route 330 and other regional bus services at the O'Hare CRCF and with Metra's NCS, which is located in an existing station facility behind the CRCF. The CRCF is a multimodal facility that will provide connections to Metra and Pace as well as an extension of the ATS, which will connect CRCF to all of the terminals at O'Hare International Airport and the CTA Blue Line O'Hare station.

2.4 LOCAL AND REGIONAL PLANS

As Pace began outreach activities with local communities and transportation agencies, local and regional plans along the Dempster Line corridor were researched and documented in a the Local and Regional Plan Review technical memorandum. Most communities have comprehensive plans that address housing, transportation, land use, economic development, public facilities, recreation, and other issues of local concern and these are summarized in the Tech Memo. Many communities include multi-modal, transit-oriented development, and urban design plans in the comprehensive plan or have separate plans that address these topics.

As the Dempster Line project advances towards implementation, Pace will continue to coordinate with local communities on planning activities along the Dempster Line corridor. In addition to coordinating with ongoing development included in community plans, Pace will pay close attention to the following projects:

- Redevelopment at Mannheim Road and Higgins Road in Des Plaines and Rosemont. Des Plaines has approved a project which includes a hotel; a stand-alone restaurant; and a gas-station/convenience facility that includes a convenience store, two quick-service restaurants, a car wash, and a CNG refueling station. The proposed schedule indicates that bridge, road and utility improvements and the construction of the gas station/convenience facility and the stand alone restaurant will be complete in 2016. Hotel construction would be complete in 2017.[2]

- The Preliminary Engineering for Farmers Creek Flood Control Improvements project within Maine Township including the construction of new sewer pipe under Dempster Street from Vernon Lane on the east to the Interstate 294 Dempster Street Exit Ramp on the west. The project is currently in the engineering phase with permit and easement work underway. It is anticipated that the project construction will be put out for bid in third quarter 2016 (see Appendix A).[3]

- Infrastructure and pedestrian facility improvements.

- Redevelopment activity near the Dempster Street and Milwaukee Avenue and Dempster Street and Harlem Avenue intersections.

- Implementation of the Niles Free Bus Modernization Project (effective May 2, 2016).[4]

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[2] City of Des Plaines Community and Economic Development Department. (2016, January 13). *Memorandum*. Retrieved January 22, 2016, from http://www.desplaines.org/ArchiveCenter/ViewFile/Item/1457

[3] Metropolitan Water Reclamation District of Greater Chicago. (2012). *Scope of Work Preliminary Engineering for Farmers-Prairie Flood Control Improvements.*

[4] Nelson\Nygaard Consulting Associates, Inc. (October 2014). *Niles Free Bus Modernization Project.* Pace Suburban Bus.

- Redevelopment near the Dempster-Skokie CTA station in Skokie.[5]

2.4.1 Regional Transit Plans

As the Pulse Dempster Line project progresses, Pace will need to coordinate with regional transportation agencies including the CTA, the Chicago Department of Aviation (CDA), and Metra. Pace initiated the Pace/CTA North Shore Transit Service Coordination Plan & Market Analysis on January 27, 2016.[6] The plan will review and coordinate Pace and CTA services in Evanston, Skokie, Chicago, and other North Shore communities. The project is underway and the plan will be developed over the next two years. As the study progresses, it will be important to coordinate efforts with planning for the Dempster Line and evaluate the potential changes in transit service that could impact the Pulse Dempster Line project.

The O'Hare Modernization Program includes the construction of a new Consolidated Rental Car and Joint Use Facility (CRCF) located at the southeast corner of Mannheim Road and Zemke Boulevard.[7] The CRCF facility will establish an integrated facility for rental car operations that is served by an extension of the ATS. The facility will also provide direct access to Metra North Central Service via the existing Metra O'Hare Transfer Station. Facility plans include a bus plaza – including bays slated for Pulse Dempster Line and Route 250 – public parking, and a transit oriented development (TOD) area. Route 250 currently serves the existing Kiss 'N' Fly and in the 2010 Station Location Study, it was anticipated that the Pulse Dempster Line would also serve the existing Kiss 'N' Fly. However, both services will shift to the CRCF and new Kiss 'N' Fly once it is completed.

2.5 HISTORICAL RESOURCES

The 2010 study did not include a review of the Illinois Historic Preservation Agency's (IHPA) Historic and Architectural Resources Geographic Information System (HARGIS) database nor note potential historic resources in the vicinity of preliminary station locations. The Historic Resources Review Technical Memorandum developed during this Project Definition phase documented these historic resources relative to the Pulse Dempster Line. The resources identified using HARGIS and additional resources observed during field visits were used as screening criteria for station locations during this Project Definition phase of. The Historical Resources Review should also inform Pace's approach to the environmental review phase with particular regards to the resources and historic districts to be evaluated further as part of the Section 106 process and the coordination that may be required with the Illinois State Historic Preservation Office (SHPO).

For the Technical Memorandum, historic resources—such as historic districts and properties—were identified in HARGIS and the raw data was downloaded and screened to identify resources within a quarter mile of the Pulse Dempster Line. These resources were compiled into the table in Appendix B and displayed on the maps in Appendix C using geocoding tools. The sections below summarize the historic resources data collection process.

[5] HNTB. (December 2015). *Program Management Oversight Dempster Corridor Site Visit.*

[6] Pace Suburban Bus. (2015). *Request for Proposal No. 414143.* Pace/CTA North Shore Transit Service Coordination Plan & Market Analysis.

[7] U.S. Department of Transportation. (n.d.). *Chicago O'Hare International Airport Consolidated Joint Use Facility*. Retrieved January 8, 2016, from https://www.transportation.gov/tifia/financed-projects/chicago-ohare-international-airport-consolidated-joint-use-facility

2.5.1 HARGIS Data

To identify historic resources located along the Pulse Dempster Line, the HARGIS database was accessed on January 7, 2016.[8] The HARGIS database identifies historic districts and properties that may consist of a site, building, structure, landscape, or object of historic significance. The HARGIS database contains properties that are either listed in the National Register of Historic Places[9] or have been determined eligible for listing in the Register. In addition, it includes properties that have been documented as part of a historic property survey, but for which no determination of eligibility has been made.

Definition: *The National Register of Historic Places is the official list of the Nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.*

Historic districts and properties listed in HARGIS were identified and downloaded for the area generally between Golf Road/Emerson Street/Sheridan Road, Lake Michigan, South Boulevard/Oakton Street and Wolf Road and between Golf Road, River Road, I-190 and O'Hare Airport/Wolf Road.

2.5.2 Historic Districts and Properties

According to the HARGIS database, there are three historic districts and 359 properties listed within one-quarter (1/4) mile of the Pulse Dempster Line. Table 2.1 identifies the number of properties identified by property type and the total number identified.

TABLE 2.1: HARGIS RESOURCES IDENTIFIED WITHIN ONE-QUARTER MILE OF THE PULSE DEMPSTER LINE

HARGIS Property Type	Number Identified
Entered in the National Register	17
Part of a National Register Historic District	21
Part of a Historic District – Contributing	174
Part of National Register Historic District – Non-contributing	102
Determined eligible for the National Register	1
Undetermined	44
Total Properties Identified	359

[8] Illinois Historic Preservation Agency. *Historic Architectural Resources Geographic Information System*. Retrieved on January 7, 2016 from http://gis.hpa.state.il.us/hargis/.

[9] National Register of Historic Places. Retrieved from http://www.nps.gov/nr/

Based on the data collected from HARGIS, three historic districts were identified proximate to the Pulse Dempster Line:

- Evanston Ridge Historic District;
- George B. Dryden House Historic District; and
- Evanston Lakeshore Historic District.

Of the 359 listed properties within one-quarter (1/4) mile of the Dempster Line corridor approximately 241 HARGIS properties are within one-quarter mile of the individual station locations identified in the *Station Location Selection for the Dempster ART* study. Table 2.2 lists the number of HARGIS resources (properties and districts combined) identified within one-quarter (1/4) mile of potential station locations. Detailed area maps of these stations are included in the maps in Appendix D.

TABLE 2.2: HARGIS RESOURCES IDENTIFIED WITHIN ONE-QUARTER MILE OF POTENTIAL STATION LOCATIONS

Potential Station Location	Number Identified
Davis CTA/Metra Station	27 Properties 2 Historic Districts
Ridge Avenue	177 Properties 2 Historic Districts
Dodge Avenue	2 Properties
Dempster-Skokie CTA Station	1 Property
Milwaukee Avenue	1 Property
Des Plaines Metra Station	6 Properties

Note: Only potential station locations with HARGIS properties or districts within a one-quarter mile radius are listed in Table 2.2.

Two memorials were identified during a December 18, 2015 field visit, but are not HARGIS identified resources. However, they are community cultural resources and siting a station(s) near them may warrant an evaluation of the station's impact on the resource.

2.6 DETAILED CONDITIONS INVENTORY

This section contains detailed descriptions of existing conditions along the Dempster corridor that may affect the design and/or operation of Pulse service. The conditions inventory is organized by corridor segment in the sections that follow and are summarized in Table 2.3.

TABLE 2.3: DEMPSTER CORRIDOR CONDITIONS INVENTORY SUMMARY

Dempster Street Segment	Lane Configuration[10]	Average Daily Traffic[11]	On-Street Parking	Sidewalks
Mannheim Road: Zemke Boulevard to I-90	Six through lanes, two center turn lanes	41,900	None	Both sides, north of Higgins only
Mannheim Road: I-90 to Touhy Avenue	Four through lanes, one center turn lane	23,200	None	Both sides from I-90 to Lunt, then just the west side
Touhy Avenue: Mannheim Road to Lee Street	Four through lanes, one center turn lane	24,800	None	Both sides
Lee Street: Touhy Avenue to Lee Street-Mannheim Road	Two through lanes, no turn lanes	N/A	On west side only from Touhy to Howard, then both sides	Both sides
Lee Street-Mannheim Road: Lee Street to Walnut Avenue	Four through lanes, one center turn lane	17,100	None	Both sides
Lee Street-Mannheim Road: Walnut Avenue to Miner Street (NB)	One-way, two to three through lanes	6,900	Partial on both sides	Both sides
Graceland Avenue: Walnut Avenue to Miner Street (SB)	One-way, two through lanes	21,100	On east side	Both sides
Dempster/Miner Street: Lee Street-Mannheim Road to I-294	Four through lanes, no center turn lanes between River Road and Rand/NW Hwy	18,200	None	Partial. Both sides
Dempster Street: I-294 to Potter Road	Four through lanes, no center turn lane	35,100	None	Both sides
Dempster Street: Potter Road to Milwaukee Avenue	Four through lanes, center turn lane. Grade separation of Dempster through lanes at Milwaukee	35900	None	Both side
Dempster Street: Milwaukee Avenue to Waukegan Road	Six through lanes, center turn lane	49,600	None	Both sides
Dempster Street: Waukegan Road to I-94	Four through lanes, center turn lane	39,000	None	Both sides

[10] Lane Configuration, On-Street Parking, and Sidewalk information was retrieved from Google satellite imagery and Street View in July 2016.

[11] Illinois Department of Transportation. *Average Daily Traffic Counts GIS Application.* Retrieved in July 2016 from http://www.idot.illinois.gov/transportation-system/Network-Overview/highway-system/illinois-travel-statistics

Dempster Street Segment	Lane Configuration[10]	Average Daily Traffic[11]	On-Street Parking	Sidewalks
Dempster Street: I-94 to Crawford Avenue	Four through lanes, center turn lane	31,100	None	Both sides
Dempster Street: Crawford Avenue to Dodge Avenue	Four through lanes, center turn lane	28,300	None	Both sides
Dempster Street: Dodge Avenue to Oak Avenue	Two through lanes	22,600	Both sides	Both sides
Oak Avenue: Dempster Street to Church Street	Two through lanes	1,700	Both sides	Both sides
Church Street: Oak Avenue to Benson Avenue	One way, two through lanes, bike lane, buffered bike lane	10,650	Both sides	Both sides
Benson Avenue: Church Street to Davis Street	Two through lanes, bus lane	N/A	None	Both sides
Davis Street: Benson Avenue to Ridge Avenue	One way, two through lanes, bike lane, buffered bike lane	N/A	Both sides	Both sides
Ridge Avenue: Davis Street to Dempster Street	Four through lanes	20,500	None	Both sides

2.6.1 Mannheim Road: Zemke Boulevard to I-90

This segment of the Dempster corridor encompasses the western terminus of the Pulse Dempster Line. O'Hare Airport is a major destination and multimodal transportation hub. The Dempster Line will utilize the O'Hare CRCF as its station, which is currently under construction, and will be assigned two sawtooth bus bays. The CRCF will serve Pace and other regional bus services. The CRCF will also incorporate an ATS station and will provide a connection to the adjacent Metra O'Hare Transfer station on the NCS Line. The ATS will transfer passengers between the CRCF and each of O'Hare's terminals as well as to the CTA Blue Line, with frequent service to downtown Chicago. In addition to Pace's existing Route 250 services and the Pulse Dempster Line, Pace's Route 330 – Mannheim Road will also serve the facility.

Land uses in this segment include major hotel chains, rental car facilities, airport operations offices and facilities, and other commercial offices comprise the majority of the land uses in this section of the corridor. South of Higgins Road, Rosemont has jurisdiction on the east side of Mannheim Road between Zemke Boulevard and Higgins Road. The City of Chicago has jurisdiction south of Zemke Boulevard, where the CRCF will be located, and on the west side of Mannheim Road south of Higgins Road. North of Higgins Road, Rosemont has jurisdiction on the west side of Mannheim Road and Des Plaines has jurisdiction on the east side of Mannheim Road.

Both the City of Des Plaines and Village of Rosemont have active development projects underway north of Higgins Road, with the City of Des Plaines' project further along in the development process. A hotel, restaurants, a gas station, and smaller national retailers are programmed for the City of Des Plaines project site located north of Higgins Road. Rosemont has not released details of the project proposal for the site north of Higgins Road at this time.

Mannheim Road is currently undergoing reconstruction by the Illinois Department of Transportation (IDOT) and will have three through lanes with two center left turn lanes at Higgins Road. There is no on-street parking available on Mannheim Road and sidewalks are not present south of Higgins Road. The reconstructed Mannheim Road and Higgins Road intersection will have crosswalks on each segment. Sidewalks are present on both sides of Mannheim Road north of Higgins Road. According to IDOT, average daily traffic (ADT) on Mannheim Road was 41,900 as of 2011.

A Pulse Dempster Line station is proposed for the intersection of Mannheim Road and Higgins Road and the station site options are described in Chapter 4. Pace has several existing bus stops in this segment as shown in Table 2.4.

TABLE 2.4: BUS STOPS BETWEEN ZEMKE BOULEVARD AND I-90

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Mannheim/Zemke	EB/WB	1	0	--	--
Mannheim/Higgins	EB/WB	5	1	--	--
Mannheim/Holiday Inn Express	WB	--	0	--	Sign

2.6.2 Mannheim Road: I-90 to Touhy Avenue

Mannheim Road, north of I-90, narrows from three through lanes in each direction to two through lanes without a median turn lane. There are dedicated turn lanes at Lunt Avenue and Touhy Avenue. Sidewalks are present throughout most of this segment although there are no sidewalks between I-90 to just north of the Hyatt Hotel on the west side of Mannheim and from Lunt Avenue to Touhy Avenue on the east side of Mannheim Road. ADT for Mannheim Road in this section was 23,200 vehicles, as of 2015.

Land uses are predominantly commercial in this segment, with a large hotel adjacent to I-90 and the Allstate Arena at the southwest corner of Mannheim Road and Lunt Avenue. North of Lunt Avenue, across from Allstate Arena, is a large shopping center with a big box retailer as well as outlots with chain restaurants and smaller national brands. This shopping center extends from Lunt Avenue to Touhy Avenue on the west side of Mannheim Road.

There are no Pulse Dempster Line stations proposed in this section of the corridor. Pace has several bus stops in this segment as shown in Table 2.5.

TABLE 2.5: BUS STOPS BETWEEN I-90 AND TOUHY AVENUE

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Mannheim/Pratt	EB/WB	8	0	Sign	Sign
Mannheim/Lunt	EB/WB	6	3	Shelter	Sign

2.6.3 Touhy Avenue: Mannheim Road to Lee Street

The section beginning at Mannheim Road to Lee Street has two through lanes in each direction with a center turn lane. Sidewalks are present on both sides of Touhy Avenue. Touhy Avenue is a large arterial with an ADT of 24,800 vehicles as of 2015.

Land uses include a mix of multifamily residential, retail and office uses. The north side of Touhy is predominantly office parks and is located in Des Plaines. The area south of Touhy is within the Village of Rosemont and is made up of predominantly three-story apartment buildings.

Pace Route 221 traverses Touhy Avenue in this section. A Pulse Dempster Line station location is proposed at Lee Street and Touhy Avenue and is detailed in Chapter 4. A future Pulse line is planned for the Touhy corridor, which provides additional opportunities for transferring between Pulse services and local Pace routes. Pace has several existing bus stops in this segment as shown in Table 2.6.

TABLE 2.6: BUS STOPS BETWEEN MANNHEIM ROAD AND LEE STREET

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Touhy/Chestnut	EB/WB	15	1	Sign	Sign
Touhy/Lyndon	EB/WB	6	3	Shelter	Sign
Lee/Touhy	WB	--	2	--	Sign

2.6.4 Lee Street: Touhy Avenue to Lee Street-Mannheim Road

Lee Street runs north-south through Des Plaines and along this segment is a two lane collector street that traverses a residential neighborhood. Lake Park is a large park on the west side of Lee Street that extends from Touhy Avenue to Howard Avenue. Sidewalks are available on both sides of Lee Street and on-street parking exists on the west side of Lee Street from Touhy Avenue to Howard Street and on both sides of the street between Howard Street and Lee Street-Mannheim Road. This segment of Lee Street is a municipally controlled street and traffic counts are not available.

Pace has several existing bus stops in this segment as shown in Table 2.7.

TABLE 2.7: BUS STOPS BETWEEN TOUHY AVENUE AND LEE STREET-MANNHEIM ROAD

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Touhy/Lee	EB	26	--	Sign	--
Lee/Fargo	EB/WB	6	2	None	Sign
Lee/Howard	EB/WB	18	6	Sign	Sign
Lee/Prospect	EB/WB	4	2	Sign	Sign
Lee/Everett	EB	6	--		--

2.6.5 Lee Street-Mannheim Road: Lee Street to Walnut Avenue

Lee Street merges into Mannheim Road in this section and becomes an arterial road with two through lanes in each direction with a center turn lane. There are sidewalks on both sides of Lee Street-Mannheim Road. ADT on this section of the corridor was 17,100 vehicles as of 2015.

Land uses along this section of the corridor are predominantly commercial with three large retail strip centers at the Lee Street-Mannheim Road and Oakton Street intersection that support several big box stores. North of Oakton Street, there are smaller retail strips along with numerous standalone fast food restaurants and other small businesses that are predominantly auto-oriented.

A Dempster Line station location is proposed at Lee Street-Mannheim Road and Oakton Street. Pace Route 226 serves this corridor. Existing Pace bus stops for Route 250 are shown in Table 2.8.

TABLE 2.8: BUS STOPS BETWEEN LEE STREET AND WALNUT AVENUE

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Lee Street-Mannheim/K-Mart	WB	--	6	--	Sign
Lee/Oakton	EB/WB	37	6	Shelter	Sign
Lee/The Oaks/Oak Leaf Commons	EB/WB	1	11	Sign	Sign
Lee/Forest	EB/WB	9	3	None	Sign
Lee/Algonquin	EB	8	6	Sign	Sign

2.6.6 Lee Street-Mannheim Road: Walnut Avenue to Miner Street (NB)

Lee Street-Mannheim Road splits and runs one-way northbound with Graceland carrying southbound traffic one block west within the City of Des Plaines.

Lee Street-Mannheim Road has two to three through lanes with no dedicated turn lanes and on-street parking on both sides of the street. Similarly, Graceland Avenue has two through lanes with no dedicated turn lanes and on-street parking on both sides of the street. ADT on Lee Street-Mannheim Road is 6,900 vehicles. On Graceland Avenue ADT was 21,100 as of 2015. Sidewalks are present on both sides of the street on Lee Street-Mannheim Road and Graceland Avenue. There is upgraded streetscaping on Lee Street-Mannheim Road from Prairie Avenue to Miner Street.

Land uses in this section are mixed use and fairly dense as this section is in the core of downtown Des Plaines. Buildings in this section range from one-story strip centers and auto-oriented uses to multi-story office and residential buildings closer to Miner Street.

No Dempster Line station locations are proposed in this section of the corridor. Pace Routes 226 and 230 operate in the corridor. Existing Route 250 bus stops are shown in Table 2.9.

TABLE 2.9: BUS STOPS BETWEEN WALNUT AVENUE AND MINER STREET

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Lee/Walnut	EB	2	--	Sign	--
Graceland/Walnut	WB	--	1	--	Sign
Lee/Thacker/Dempster	EB	4	--	None	--
Graceland/Thacker/Dempster	WB	--	4	--	Sign
Lee/Prairie	EB	3	--	Sign	--
Lee/Ellinwood	EB	5	--	Sign	--
Graceland/Webford	WB	--	22	--	Sign

2.6.7 Miner Street: Lee Street-Mannheim Road to I-294

Miner Street is the local name for Dempster Street in downtown Des Plaines. Miner Street is a four lane arterial road through this segment. In downtown Des Plaines, Miner Street has two through lanes in each direction and no dedicated turn lanes. Miner Street runs adjacent to the Metra UP-NW Line and the Des Plaines Metra station is just east of Lee Street-Mannheim Road. The Des Plaines Metra station has a turnout that can accommodate three to four buses. ADT on Miner Street between Lee Street-Mannheim Road and Des Plaines River Road is only 3,600 vehicles. West of Lee Street-Mannheim Road, ADT is 16,700 vehicles. East of Des Plaines River Road ADT is 18,200 vehicles. In downtown Des Plaines, Miner Street is very urban, with a new streetscape and on-street parking on the north side of the street.

Land uses in this section are very dense in downtown Des Plaines with mixed-use retail buildings between Graceland Avenue and Pearson Street and a large condo complex at Miner Street and Pearson Street. East of Des Plaines River Road, Miner Street turns into Dempster Street and land uses vary between single family residential, a park, a school, and some commercial uses.

Dempster Line station sites are proposed at the Metra station in the eastbound direction, and at Metropolitan Way and Pearson Street in the westbound direction. Seven Pace routes serve the Des Plaines Metra station and most routes have layovers at the station. Pace routes operating on this section of the corridor include Routes 208, 209, 226, 230, 234, 250 and 619. Pace bus stops within this section of the corridor are shown in Table 2.10.

TABLE 2.10: BUS STOPS BETWEEN LEE STREET-MANNHEIM ROAD AND I-294

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Des Plaines Metra Station	EB/WB	193	83	Turnout	Shelter
Miner/River	EB/WB	7	2	Shelter	Sign
Miner/Busse	EB	1	--	Sign	--
Miner/Mason	EB/WB	2	1	Sign	Sign
Miner/2025 Miner/Garland	EB/WB	4	2	Sign	Sign
Miner/Acres/Rand	EB/WB	6	1	Sign	Sign

2.6.8 Dempster Street: I-294 to Potter Road

Dempster Street, from east of I-294 to Potter Road, has two through lanes in each direction with a narrow median that does not support a turn lane. At Potter, Dempster Street widens slightly to accommodate a dedicated left turn lane. The south side of Dempster Street is within the City of Park Ridge and the north side of Dempster Street is within the City of Des Plaines. ADT on this section of Dempster Street is 35,100 vehicles, based on a 2015 count.

The south side of Dempster is residential and has a privacy fence which does not have any pedestrian or vehicle openings onto Dempster Street. The north side of Dempster Street has commercial and light office land uses. The largest property on this section is Lurvey's Landscape Supply and Garden Center, which has a well maintained streetscape in front of its property along Dempster Street. Sidewalks are present along both sides of the street, with the exception of the north side of Dempster Street underneath I-294.

Dempster Line station locations are proposed at Potter Road, which is an alternate to the Dee Road station location. Route 250 bus stops within this section of the corridor are shown in Table 2.11.

TABLE 2.11: BUS STOPS BETWEEN I-294 AND POTTER ROAD

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Dempster/Lyman	EB/WB	2	3	Sign	Shelter
Dempster/Potter	EB/WB	14	27	Sign	Sign

2.6.9 Dempster Street: Potter Road to Milwaukee Avenue

Dempster Street from Potter Road to Milwaukee Avenue has two through lanes in each direction with a median turn lane. On the north side of Dempster Street, between Potter Road and Robin Drive, the area is in unincorporated Cook County, under the jurisdiction of Maine Township. Between Robin Drive and just east of Parkside Drive, the north side of Dempster Street is within the City of Park Ridge. From Parkside Drive to Milwaukee Avenue, Dempster Street is within the Village of Niles. The south side of Dempster Street, from Potter Road to Greenwood Avenue, is within the City of Park Ridge. East of Greenwood Avenue to Milwaukee Avenue, the south side of Dempster Street is within the Village of Niles. ADT from Potter to Greenwood is 33,800 vehicles and from Greenwood to Milwaukee Avenue it is 35,900 vehicles. At Milwaukee Avenue, Dempster Street widens as two through lanes in each direction travel under Milwaukee Avenue in a grade separated intersection. Access to Milwaukee Avenue is via two through lanes in the eastbound direction and one through lane in the westbound direction. Sidewalks are present on both sides of the street with an exception along Maryhill Cemetery, where no sidewalk is present on the south side of Dempster Street between Cumberland Avenue and Milwaukee Avenue. On-street parking is present on the access street on the north side of Dempster Street between Dempster Street and Milwaukee Avenue.

Land uses in the corridor include a wide mix of commercial big box retailers and chain stores, multi-family and single-family homes, as well as major institutions and trip generators including Maine East High School and Advocate Lutheran General Hospital, both of which are located on the south side of Dempster Street within the segment.

Proposed Dempster Line station locations are at Dee Road (with a Potter Road alternate), Western Avenue, Cumberland Avenue, and Milwaukee Avenue. Existing route 250 bus stops within this section of the corridor are shown in Table 2.12.

TABLE 2.12: BUS STOPS BETWEEN POTTER ROAD AND MILWAUKEE AVENUE

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Dempster/Potter	EB/WB	14	27	Sign	Sign
Dempster/Dee	EB/WB	19	15	Sign	Shelter
Dempster/Lutheran General Hospital	EB/WB	24	24	Shelter	Shelter
Dempster/Western	EB/WB	60	23	Shelter	Sign
Dempster/Greenwood	EB/WB	11	14	Sign	Sign
Dempster/Grace	EB/WB	9	9	Sign	Sign
Dempster/Cumberland	EB/WB	10	26	Sign	Sign
Dempster/Grand	EB/WB	11	22	Sign	Sign
Dempster/Milwaukee (SW/NW)	EB/WB	55	2	Shelter	Sign

2.6.10 Dempster Street: Milwaukee Avenue to Waukegan Road

Dempster Street, from Milwaukee Avenue to Waukegan Road, has three through lanes in each direction with a median turn lane. East of Milwaukee Avenue, a one lane access road connecting Milwaukee joins Dempster Street in its own lane. Westbound, on approach to Milwaukee, the third outermost lane is dedicated to accessing Milwaukee Avenue and has a dedicated right turn lane and shared left turn and through lane. On the north side of Dempster Street, the area is within the Village of Niles between Milwaukee Avenue and Ozanam Avenue. East of Ozanam Avenue, the north side of Dempster Street is within the Village of Morton Grove. On the south side of Dempster Street, from Milwaukee Avenue to approximately 500 feet west of Waukegan Road, Dempster Street is within the Village of Niles. From 500 feet west of Waukegan Road to Waukegan Road, it is within the Village of Morton Grove. Sidewalks are present on both sides of Dempster Street. ADT within this section of the corridor is 49,600 vehicles.

Land uses in this section are predominantly single-family residential, with a small cluster of multi-family residential housing near Milwaukee Avenue on the north side of Dempster. A large cluster of strip retail and large big box chain stores are clustered at the Harlem Avenue and Waukegan Road intersections. The private Notre Dame High School is located on the south side of Dempster Street approximately one-quarter mile east of Milwaukee Avenue. Pace Route 270 has special trips that serve the high school. Pace routes 210, 410, and 423 also operate within the corridor and the Pulse Milwaukee Line will intersect the Dempster Line at Milwaukee Avenue. The Milwaukee Line station sites are at the northeast and southwest corners of the Dempster Street and Milwaukee Avenue intersection. Pulse Dempster Line station locations are proposed for Milwaukee Avenue, Harlem Avenue and Waukegan Avenue. Existing Pace bus stops within the corridor are shown in Table 2.13.

TABLE 2.13: BUS STOPS BETWEEN MILWAUKEE AVENUE AND WAUKEGAN ROAD

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Dempster/Milwaukee (SE/NE)	EB/WB	2	82	Sign	Sign
Dempster/Merrill	EB/WB	5	2	Sign	Sign
Dempster/Ozark	EB/WB	5	11	None	Sign
Dempster/Oriole	EB/WB	22	1	Shelter	Sign
Dempster/Olcott	EB/WB	1	3	Sign	Sign
Dempster/Oketo	EB/WB	6	13	Sign	Sign
Dempster/Harlem	EB/WB	20	25	Sign	Shelter
Dempster/Shermer	EB	12	--	Sign	--
Dempster/National	EB/WB	5	3	Sign	Sign
Dempster/Waukegan	EB/WB	35	9	Shelter	Sign

2.6.11 Dempster Street: Waukegan Road to I-94

This section of Dempster Street narrows from three through lanes in each direction at Waukegan Road to two through lanes in each direction with a median turn lane. ADT in this section of the corridor is 39,000 vehicles. Sidewalks are present on both sides of Dempster Street. The entire corridor is within the Village of Morton Grove.

Land uses in the corridor are mostly commercial, with larger big box chain retailers clustered at Waukegan Road and smaller strip malls, standalone retailers, and other chains along Dempster Street from Lehigh Avenue to I-94. The Forest Preserve District of Cook County has land in the area between Waukegan Road to Lehigh Avenue and Metra's Milwaukee District North Line. The North Branch bike trail crosses Dempster Street at Lehigh Avenue. The Morton Grove Park District has two parks within the corridor as well.

Pace Routes 210 and 250 operate within the corridor. Pulse Dempster Line station locations are proposed at Waukegan Road and at Austin Avenue. Existing Pace bus stops within the corridor are shown in Table 2.14.

TABLE 2.14: BUS STOPS BETWEEN WAUKEGAN ROAD AND I-94

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Dempster/Waukegan	EB/WB	35	9	Shelter	Sign
Dempster/New England	WB	--	8	--	Sign
Dempster/Birch	EB	11	--	Sign	--
Dempster/Lincoln	EB	1	--	Sign	--
Dempster/Lehigh	WB	--	0	--	Sign
Dempster/Ferris	EB/WB	12	10	Sign	Sign
Dempster/Fernald	EB/WB	5	2	Sign	Sign
Dempster/Moody/School	EB/WB	4	1	Sign	Sign
Dempster/Austin	EB/WB	17	10	Sign	Sign
Dempster/Marmora	EB/WB	3	4	Sign	Sign
Dempster/Menard	EB/WB	10	5	Sign	Sign
Dempster/Central/Parkside	EB/WB	7	4	Sign	None

2.6.12 Dempster Street: I-94 to Crawford Avenue

This section of Dempster Street has two through lanes in each direction and a center turn lane. It is located entirely within the Village of Skokie and has an ADT of 31,000 vehicles from I-94 to Skokie Boulevard and 23,900 vehicles from Skokie Boulevard to Crawford Avenue. Sidewalks are present on both sides of Dempster Street.

Land uses within the corridor consist of small retail strip centers and fast food chains. East of Skokie Boulevard, the land use changes to mostly single-family residential until the intersection with Crawford, which has another cluster of small retail strip centers. The Evanston Golf Club is located south of Dempster Street between Skokie Boulevard and Crawford Avenue.

Pace and CTA both operate several transit services in this section of the corridor. Besides Route 250, Pace operates Routes 620 and 626, which are two express services from the CTA Yellow Line Dempster-Skokie station, and Pace Route 215. The CTA operates bus routes 54A, 97 out of the CTA Yellow Line Dempster-Skokie station. The CTA Yellow Line Dempster-Skokie station is the terminal station for the CTA Yellow Line, a rapid transit line serving the Village of Skokie and connecting to the CTA Red and Purple Lines at Howard. The CTA Yellow Line Dempster-Skokie station is a major transfer point for Route 250 and is located approximately 1,000 feet west of Niles Center Road. All buses currently serving the Yellow Line pull off of Dempster Street into the park and ride facility. A bus lane adjacent to the rail platform facilitates transfers. Pulse Dempster Line station locations are proposed on-street at the CTA Yellow Line Dempster-Skokie station and at Crawford Avenue. Existing Pace bus stops in this section of the corridor are shown in Table 2.15.

TABLE 2.15: BUS STOPS BETWEEN I-94 AND CRAWFORD AVENUE

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Dempster/Lockwood	EB	2	--	Sign	--
Dempster/Gross Point	WB	--	13	--	Sign
Dempster/LeClaire	EB/WB	2	3	Sign	Sign
Skokie Swift CTA Station	EB/WB	64	266	Bus depot	Bus depot
Dempster/Niles Center	EB/WB	27	22	Sign	Sign
Dempster/Knox	EB	2	--	Sign	--
Dempster/Kilpatrick	WB	--	1	--	Sign
Dempster/Kolmar	EB/WB	1	1	Sign	Sign
Dempster/Kostner	EB/WB	1	1	Sign	Sign
Dempster/Kildare	EB/WB	1	2	Sign	Sign
Dempster/Keeler	EB/WB	3	5	Sign	Sign
Dempster/Karlov	EB/WB	2	5	Sign	Sign
Dempster/Crawford	EB/WB	14	22	Sign	Sign

2.6.13 Dempster Street: Crawford Avenue to Dodge Avenue

Dempster Street, from Crawford Avenue to McCormick Boulevard has two through lanes in each direction and a center turn lane. From McCormick Boulevard to Dodge Avenue, Dempster Street narrows and only has two through lanes in each direction. Sidewalks are present on both sides. The section of the corridor west of the North Shore Channel is located within the Village of Skokie. East of the North Shore Channel, the corridor is within the City of Evanston. ADT varies between 28,300 vehicles between Crawford Avenue and McCormick Boulevard and 22,600 vehicles between McCormick Boulevard and Dodge Avenue, based on counts taken in 2014. The North Shore Channel Trail runs parallel to the North Shore Channel, just east of McCormick Boulevard.

Land uses in the corridor between Crawford Avenue and McCormick Boulevard are small scale strip retail and restaurants with very limited single family residential. The commercial uses are auto-oriented, with parking in front of the stores and large signage visible to passing vehicles. Between McCormick Boulevard and Dodge Avenue the land uses include a mix of single family homes and townhomes as well as some small commercial businesses and a large shopping center at the southwest corner of Dempster Street and Dodge Avenue.

In addition to Route 250, Pace also operates Route 215 along Crawford Avenue. CTA operates Routes 97 and 206 within the City of Evanston. Pulse Dempster Line station locations proposed within this section of the corridor are at Crawford Avenue, Lincolnwood Drive, and Dodge Avenue. Existing Pace bus stops in this section of the corridor are shown in Table 2.16.

TABLE 2.16: BUS STOPS BETWEEN CRAWFORD AVENUE AND DODGE AVENUE

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Dempster/Crawford	EB/WB	14	22	Sign	Sign
Dempster/Springfield	EB/WB	2	6	Sign	Sign
Dempster/Ridgeway	EB	2	--	Sign	--
Dempster/East Prairie	EB/WB	9	8	Sign	Sign
Dempster/Central Park	WB	--	4	--	Sign
Dempster/Lincolnwood/St. Louis	EB	12	--	Sign	--
Dempster/Forestview	WB	--	17	--	Sign
Dempster/Kimball	EB	13	--	Shelter	--
Dempster/McCormick	EB/WB	5	5	Sign	Sign
Dempster/Fowler	EB/WB	12	9	Sign	Sign
Dempster/Hartrey	EB/WB	11	11	Sign	Sign
Dempster/Dodge	EB/WB	23	70	Sign	Sign

2.6.14 Dempster Street: Dodge Avenue to Oak Avenue

In this section of the corridor, Dempster Street narrows from two through lanes in each direction to one through lane in each direction with a dedicated left turn lane only at Ridge Avenue and Oak Avenue. Sidewalks are present on both sides of the street and the corridor feels more urban, with a narrow street and buildings much closer to the right-of-way edge. This entire section of the corridor is within the City of Evanston. ADT on Dempster Street is 22,600 vehicles. East of Dempster Street, traffic volume decreases dramatically down to 2,650 vehicles, based on counts taken by IDOT in 2014. On-street parking is allowed in the corridor on both sides of Dempster Street from Dodge Avenue to Florence Avenue.

East of Dodge Avenue, the corridor is almost entirely residential with mostly single-family homes and small apartments. A large residential historic district is present around Ridge Avenue.

A Pulse Dempster Line station location is proposed at Dodge Avenue. Pace operates Route 250 and CTA operates Routes 201 and 206 in this segment. Existing Pace bus stops in this section of the corridor are shown in Table 2.17.

TABLE 2.17: BUS STOPS BETWEEN DODGE AVENUE AND OAK AVENUE

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Dempster/Dodge	EB/WB	23	70	Sign	Sign
Dempster/Dewey	EB/WB	9	8	Sign	Sign
Dempster/Wesley	EB/WB	2	3	Sign	Sign
Ridge/Dempster	WB	--	13	--	None
Dempster/Oak	EB	1	--	Sign	--

2.6.15 Oak Street: Dempster Street to Church Street; Ridge Avenue: Davis Street to Dempster Street

In this section of the corridor, Route 250 travels one-way north on Oak Avenue between Dempster Street and Church Street and one-way south on Ridge Avenue between Davis Street and Dempster Street. Ridge Avenue is one block west of Oak Avenue. Oak Avenue is a two lane street with sidewalks and on-street parking on both sides of the street. Ridge Avenue has two through lanes in each direction. Sidewalks are present on both sides of Ridge Avenue. ADT on Oak Avenue is 1,700 vehicles. On Ridge Avenue, ADT is 20,500 vehicles, based on counts conducted by IDOT in 2014.

Land uses on Oak Avenue and Ridge Avenue are predominantly multi-family residential, made up of large, dense apartment blocks with some large, historic single-family homes on large city lots. Oak Avenue and Ridge Avenue are located within the Ridge Historic District. Oak Avenue between Davis Street and Church Street consists of a mix of government, retail and residential uses as this block is part of downtown Evanston.

No Pulse Dempster Line stations are proposed within this section of the corridor. In addition to Pace Route 250, CTA operates Routes 201 and 205 in this section of the corridor. Existing Pace bus stops in this section of the corridor are shown in Table 2.18.

TABLE 2.18: BUS STOPS BETWEEN DEMPSTER STREET AND CHURCH STREET AND DAVIS STREET AND DEMPSTER STREET

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Dempster/Oak	EB	1	--	Sign	--
Oak/Lake	EB	0	--	Sign	--
Oak/Davis	EB	1	--	Sign	--
Oak/Church	EB	0	--	Sign	--
Davis/Ridge	WB	--	9	--	Sign
Ridge/Lake	WB	--	2	--	Sign

2.6.16 Church Street, Davis Street, and Benson Avenue

Church Street and Davis Street are one-way streets running eastbound and westbound respectively into and out of downtown Evanston. Benson Avenue has one through lane in each direction and has a bus only lane between Church Street and Davis Street. The terminus of Route 250 and the Pulse Dempster Line is on Benson Avenue, which is adjacent to the CTA Purple Line at Davis Street. Just west of the CTA Purple Line is the Metra UP-N Line at Davis, with connections to Kenosha, Wisconsin and downtown Chicago. Church Street has two through lanes in the eastbound direction, as well as an on-street bike lane east of Oak Avenue. East of Oak Avenue, on-street, metered parking is available on both sides of Church Street. Davis Street has two through lanes in the westbound direction as well as a protected, striped green bike lane that runs between the curb and gutter and a row of on-street parking spaces along the north side of the street. On the south side of Davis Street, angled parking is provided for vehicles. All parking is metered. Benson Avenue has no on-street parking but has a large public parking garage entrance located halfway between Church Street and Davis Street. Sidewalks are provided on both sides of the street on all downtown streets.

Land uses include dense multi-family condos and apartment buildings, as well as multi-story mixed use buildings of various sizes. The environment is very urban, with several five-story or buildings, or taller, built to the property line.

The eastern terminal of the Pulse Dempster Line is proposed to be located along Benson Avenue, adjacent to the CTA Purple Line station, in a bus boarding location to be determined. In addition to Pace Route 250, CTA operates Routes 93, 201, and 205 which all serve the CTA and Metra Davis Street stations. Existing Pace bus stops in this section of the corridor are shown in Table 2.19.

TABLE 2.19: BUS STOPS ALONG CHURCH STREET, DAVIS STREET, AND BENSON AVENUE

Posted Stop	Direction	Average Weekday Boardings (2014)		Treatment	
		EB	WB	EB	WB
Church/Maple	EB	0	--	None	--
Davis CTA Station	WB	--	354	--	Sign
Davis/Maple	WB	--	22	--	CTA/Pace
Davis/Oak	WB	--	6	--	CTA/Pace

3 Existing Ridership Analysis

3.1 OVERVIEW OF ROUTE 250

Pace Route 250 provides daily service from the O'Hare Kiss 'N' Fly ATS station, via Mannheim Road, Touhy Avenue, and Lee Street, to the Des Plaines Metra and then travels east to downtown Evanston station via Dempster Street. Along the route, Route 250 connects to the ATS and Metra North Central Service at O'Hare, the Metra Union Pacific Northwest Line in Des Plaines, the CTA Yellow Line at the Dempster-Skokie CTA station, and the CTA Purple Line and Metra Union Pacific North Line in downtown Evanston at the Davis Street CTA/Metra station. The route also intersects more than two dozen Pace and CTA bus routes.

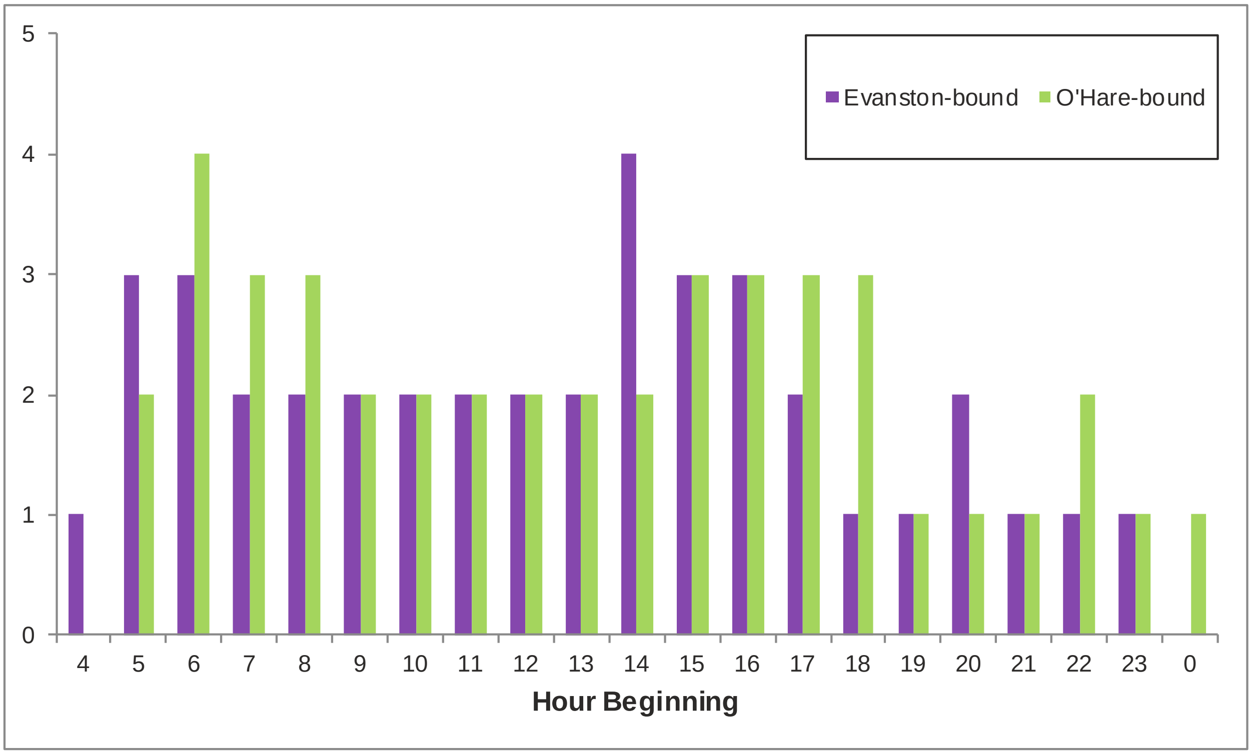
In the O'Hare-bound direction, all regular trips begin at the Davis CTA/Metra station with all but four continuing to the terminus at the O'Hare Kiss 'N' Fly. The remaining four trips terminate at Des Plaines Metra, primarily in the early morning and late evening hours. Similarly, most Evanston-bound trips begin at O'Hare and end at Davis CTA/Metra station. Three trips begin at Des Plaines Metra and end at Davis, and one trip begins at O'Hare and ends at Des Plaines Metra.

In addition to these regular trips, special limited trips provide direct service to Maine West and Maine East high schools. The Maine West High School service operates between downtown Des Plaines and the school, deviating from the Route 250 corridor at Oakton Street. One trip operates to the school in the morning with a return trip in the afternoon. The Maine East High School service operates between the high school and two termini: Oakton Street and Greenwood Avenue to the south, and Harlem Avenue and Golf Road to the north. Both services deviate from the corridor at Dempster Street and Harlem Avenue. One round trip operates between Oakton/Greenwood and Maine East High School, and one inbound trip operates from Golf/Harlem in the morning (there is no return trip on this route in the afternoon). School trips operate only when school is in session.

Figure 3.1 shows the number of weekday departures by hour for existing Evanston- and O'Hare-bound Route 250 trips. School trips are not included in the figure because they operate over very limited portions of the Route 250 corridor and only on school days.

As shown, a base level of service of at least two trips per hour in each direction is provided from early morning through early evening. During peak hours, three or sometimes four trips depart in each direction. There are more O'Hare-bound trips during the AM rush and Evanston-bound trips in the PM rush, which roughly corresponds with the overall ridership pattern on the route (discussed in the following sections).

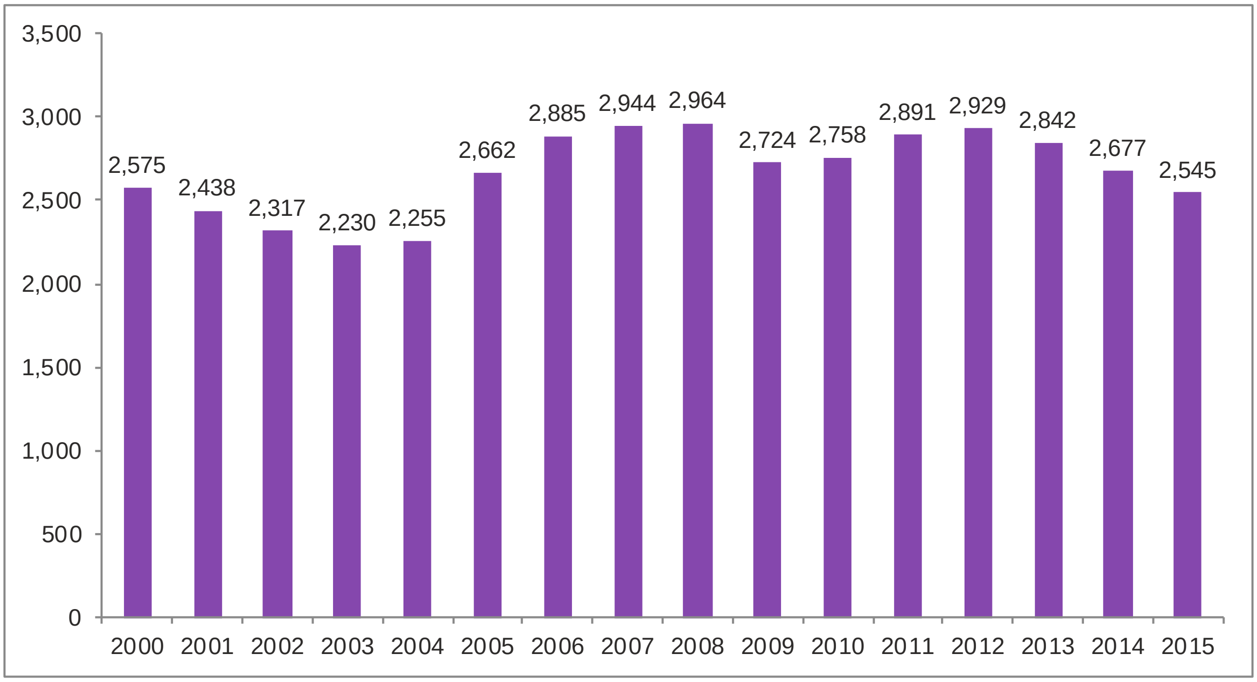
FIGURE 3.1: DEPARTURES PER HOUR, AVERAGE WEEKDAY (EXCLUDES SCHOOL TRIPS)



3.2 OVERALL ROUTE 250 RIDERSHIP

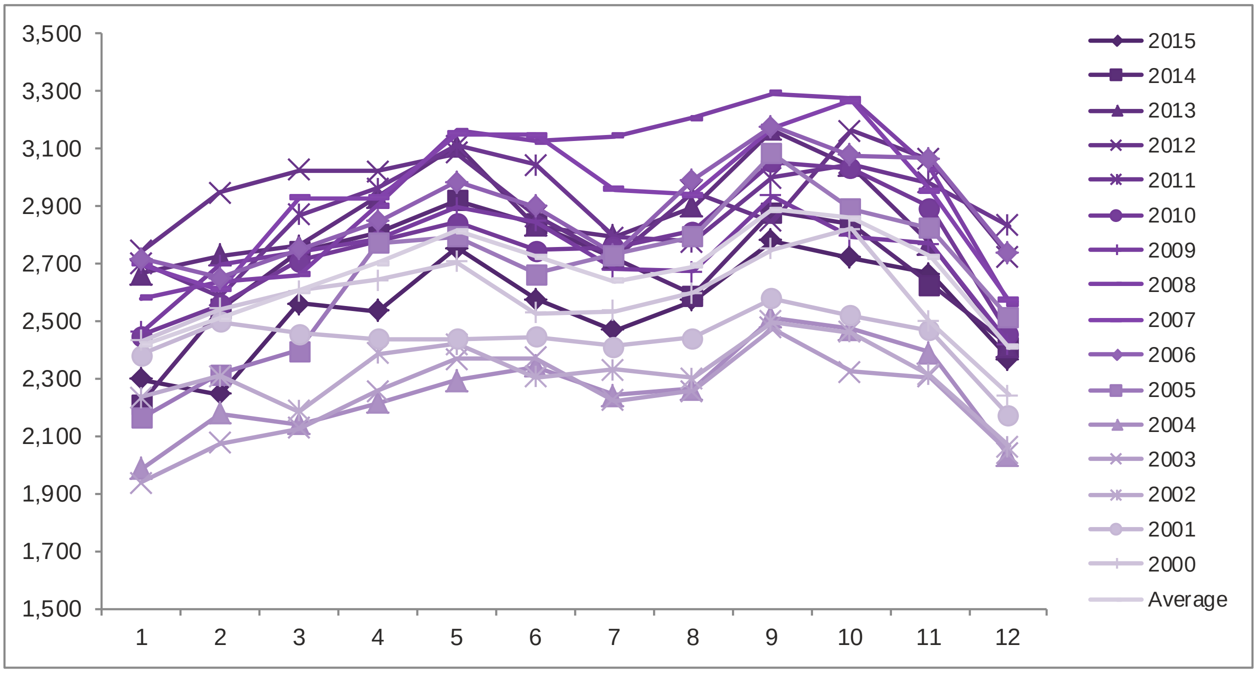
According to Pace's monthly ridership reports, Route 250 had an average weekday ridership of 2,545 in 2015. Among all routes in Pace's network, Route 250 had the sixth highest average weekday ridership in 2015. Overall, ridership on Route 250 has been relatively consistent over the period between 2000 and 2015 (in 2000, average weekday ridership was 2,575). Over the last 15 years, there have been two periods in which average weekday ridership peaked about 10% above average ridership during those years, 2007-2008 and 2011-2012 (see Figure 3.2), following a period of decreased ridership during 2002-2004. Potential external or service-related influences on these ridership figures have not been analyzed.

FIGURE 3.2: AVERAGE WEEKDAY RIDERSHIP, 2000-2015



As shown in Figure 3.3, Route 250 ridership fluctuates throughout the year, with two distinct peaks and valleys. Average monthly peak ridership occurs in May and in September, with deviations of 6% and 8% respectively over the annual average. Valleys occur in July and in December and January, with deviations of -1% and -10% respectively. School schedules have some influence on ridership patterns as Route 250 serves both Maine East and Maine West high schools directly and runs two blocks south of Evanston Township High School and a number of other middle and high schools. In the case of the Maine Township high schools, Route 250 has one trip that operates as a feeder service from the Oak Leaf Commons to Maine West High School, and another diversion of service from Maine East High School to Oakton/Greenwood in Park Ridge.

FIGURE 3.3: AVERAGE WEEKDAY RIDERSHIP BY MONTH, 2000-2015



3.3 AVERAGE WEEKDAY BOARDINGS BY STOP

Average weekday boardings by stop were derived from Pace's automatic passenger counter (APC) data for the period from May 1, 2014 through April 30, 2015, which coincides with the most recent 12-month period prior to the temporary closure of the CTA Yellow Line, which affected Route 250 ridership. This APC data yielded a somewhat higher total estimated average weekday ridership than the aforementioned monthly ridership reports. Based on the analysis of APC data, there were 2,874 average weekday boardings during the May 2014 – April 2015 period.

Boardings are highest at the terminal stations and at transfer points to CTA and Metra rail service. Other major boarding and alighting points include: Milwaukee Avenue, where transfers to Pace Route 270 occur and a future transfer to the Pulse Milwaukee Line will be available; Dempster/Dodge, which is two blocks south of Evanston Township High School; and Dempster/Western and Dempster/Luther, which serve Lutheran General Hospital. Retail nodes around the Dempster/Harlem, Dempster/Niles Center, and Dempster/Potter intersections drive ridership at these locations. Table 3.1 summarizes the top Route 250 stops for passenger boardings and alightings.

TABLE 3.1: TOP 10 STOPS FOR ROUTE 250 BOARDINGS AND ALIGHTINGS

Stop	Boardings	Stop	Alightings
Davis CTA/Metra	355	Dempster-Skokie CTA	337
Dempster-Skokie CTA	330	Des Plaines Metra	259
Des Plaines Metra	275	Davis CTA/Metra	250
O'Hare Kiss 'N' Fly	199	O'Hare Kiss 'N' Fly	224
Dempster/Milwaukee (all stops)	141	Dempster/Milwaukee (all stops)	131
Dempster/Dodge	93	Dempster/Western	85
Dempster/Western	84	Dempster/Dodge	81
Dempster/Carleah/Maine East H.S.	63	Maine East H.S.	63
Dempster/Niles Center	49	Dempster/Potter	57
Lutheran General Hospital	55	Dempster/Harlem	56

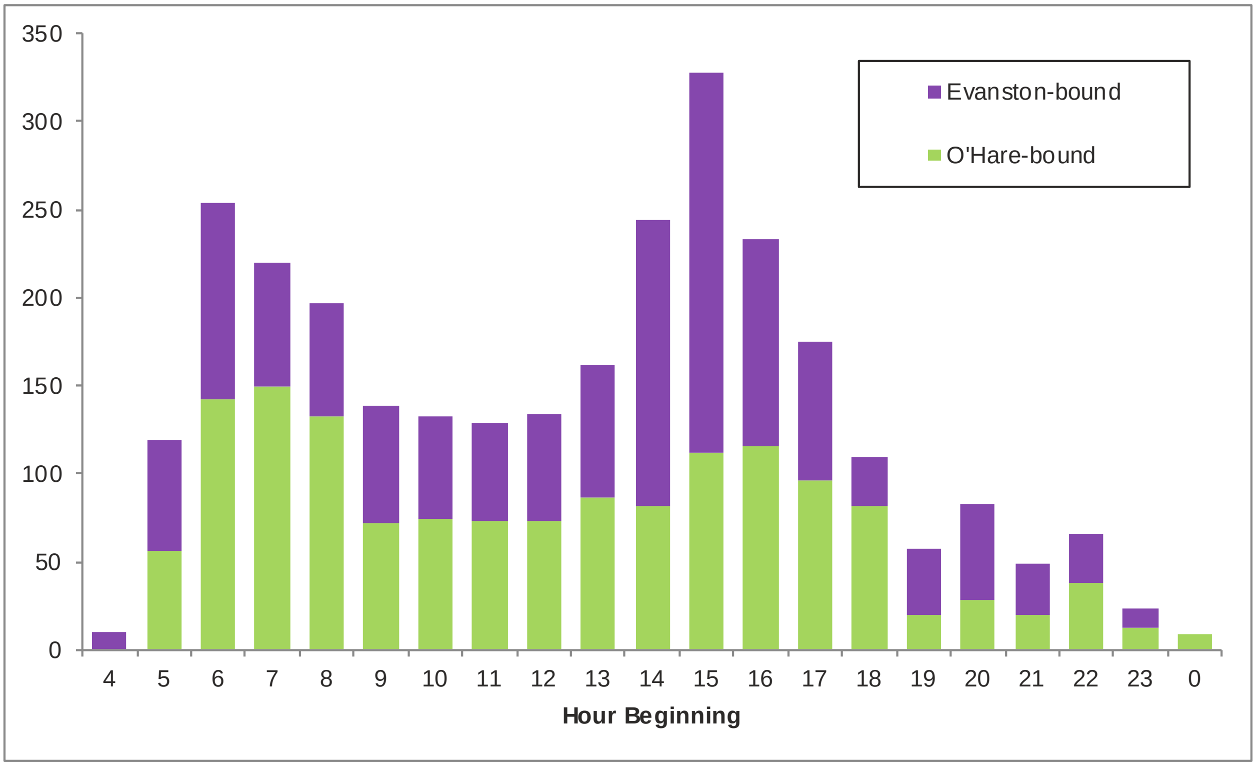
3.4 RIDERSHIP BY HOUR AND DIRECTION

Ridership by hour for O'Hare-bound and Evanston-bound Route 250 trips is shown in Figure 3.4. Ridership on Route 250 has two distinct peaks, during the AM and PM peak periods. Ridership rises to 271 during the 6:00-7:00 hour in the morning and falls to a low of 135 to 140 during the 10:00 AM to 12:00 PM hours. The PM peak hours account for the highest hourly ridership totals. After noon, ridership rises rapidly, peaking at 337 boardings in the 3:00 PM hour, then falling between 3:00 PM and 7:00 PM. Ridership falls below 100 boardings per hour beginning at 7:00 PM.

The breakdown of ridership by direction also varies by time of day, but is relatively balanced compared with many Chicago Loop-oriented transit services. There is no distinct "inbound" or "outbound" direction on Route 250, which is attributable to the many intermediate destinations and transfer points served on the route. During the AM rush period, approximately two thirds of boardings are in the O'Hare-bound direction, driven in part by trips to Maine East and Maine West high schools. The majority of travel to these schools is from origins to the north and east. During the midday period ridership is fairly balanced by direction, with Evanston-bound trips peaking as a share of overall travel during the 2:00 PM and 3:00 PM hours, again due to school-related travel.

Approximately one-quarter (23%) of the average weekday ridership occurs during the morning rush, between 6:00 AM and 9:00 AM. 26% of the daily ridership occurs in the afternoon rush, between 3:00 PM and 6:00PM. Midday ridership accounts for 33% of total riders, with 18% of riders using the service in the evening or early morning.

FIGURE 3.4: ROUTE 250 AVERAGE WEEKDAY RIDERSHIP BY HOUR



3.5 MAJOR TRANSFER CONNECTIONS

A substantial share of Route 250 passengers use other Pace and CTA services to complete their journeys. It is important to identify where transfers to and from Route 250 occur, and what other services passengers are using to complete their journeys, in order to fully understand overall travel patterns, identify major destinations, and prioritize investments in station locations and facilities at those locations.

Estimated transfers to Route 250 were provided by Pace from Ventra farebox data for the month of November 2015. The data indicates the bus route or rail station from which a passenger transferred, but not the precise location at which the transfer occurred (with the exception of rail stations). A second dataset provided by Pace estimates the transfer location based on latitude and longitude captured by the farebox, but not the route or rail station from which the passenger transferred. This second dataset was considered less reliable, and was used only to allocate the route-level transfers to the most likely station at which the transfer occurred.

Figure 3.5 summarizes estimated transfers between Route 250 and other CTA and Pace services. This includes transfers both to and from Route 250. It should be noted that the transfer data comes from the farebox, whereas other data cited in this report comes from onboard passenger counters. Therefore, the results should be considered a rough estimate. For example, whereas the farebox data indicates average weekday Route 250 boardings of 2,449 in

November 2015, the Pace monthly ridership report indicates 2,663 average weekday boardings during the same time period.

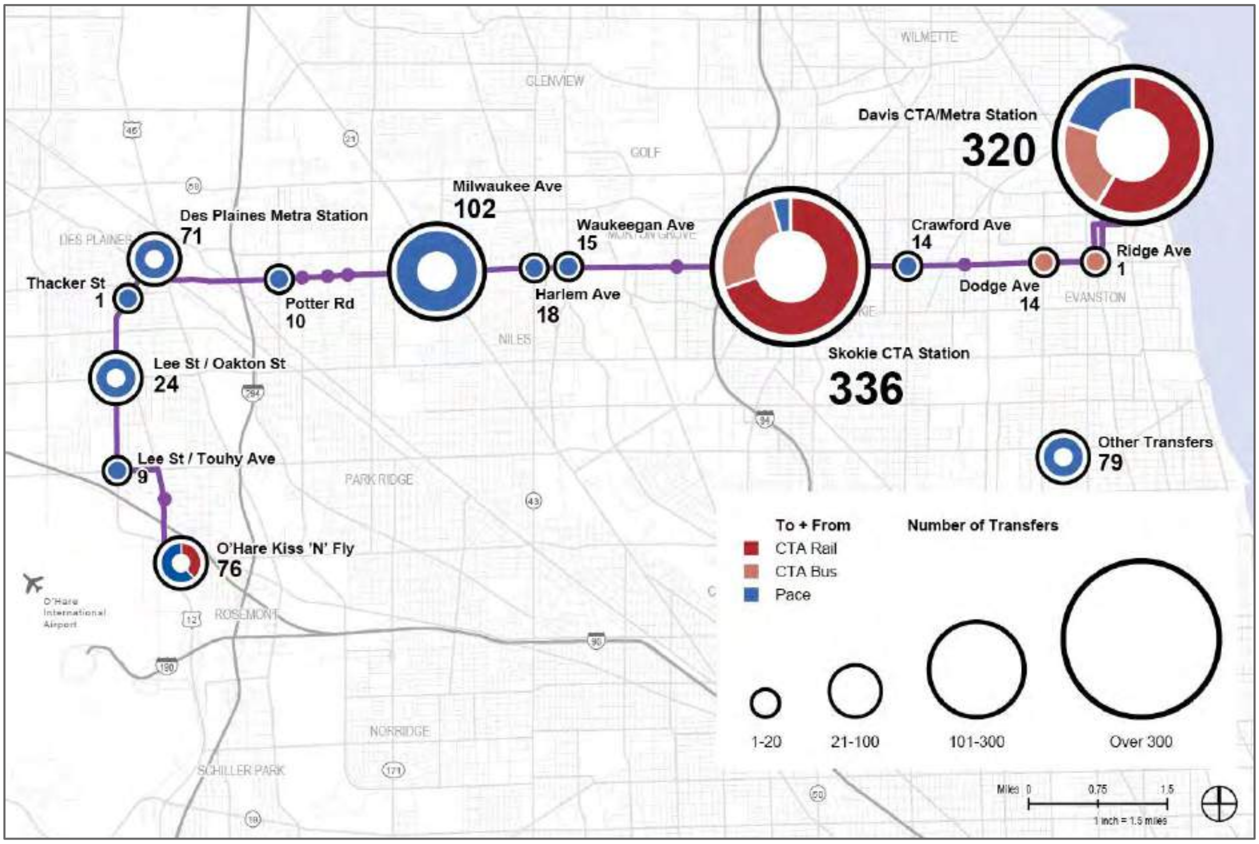
In November 2015, an estimated 562 passengers boarded Route 250 from other routes on an average weekday, and 526 passengers transferred from Route 250 to other routes. Combined, this suggests that nearly half of all Route 250 passengers use at least one other connecting service to complete their trips.

The Dempster-Skokie CTA station has the largest number of transfers to and from Route 250, primarily connecting with the CTA Yellow Line. Dempster-Skokie is the terminus for the Yellow Line and has an off-street bus layover facility. The station also serves two CTA bus routes and four Pace bus routes. Of 336 passengers transferring to and from Route 250 in November 2015, 70% connected with the Yellow Line, while most of the remainder connected with CTA bus routes 54A and 97. More than half of all Route 250 boardings at this location are transfers.

Nearly as many transfers occur at Davis CTA/Metra, with more than 300 daily transfers to and from Route 250 occurring here, representing nearly 30% of all transfers to and from Route 250. Nearly half of all Route 250 boardings at this station are transfers. Davis Street is one of three hubs in the Regional Transportation Authority system where all RTA services (CTA bus, CTA rail, Metra and Pace) meet at the same station. It is served by the CTA Purple Line, three CTA bus routes, four Pace bus routes, and Metra's Union Pacific North Line. At Davis Street, transfer activity with Route 250 is 54% from CTA Rail, 23% from CTA Bus and 23% from other Pace routes.

Transfer activity directly to Route 250 from Metra is undetermined and is not included in the 320 transfers recorded at that location. According to Metra's 2014 Origin-Destination Survey, 6% of Metra boardings at Davis Street, or 63 daily riders, transferred from bus routes.

FIGURE 3.5: AVERAGE WEEKDAY TRANSFERS TO/FROM ROUTE 250, NOVEMBER 2015



The Des Plaines Metra station serves Metra's Union Pacific Northwest Line and is located in downtown Des Plaines. It is a hub for six Pace bus routes. Total transfers to and from Route 250 from other Pace bus routes at Des Plaines Metra are 71 on an average weekday. Routes 234 and 208 transfer the highest share of riders, accounting for over two-thirds of transfer activity to Route 250. Transfer data between Route 250 and Metra is not available, although according to Metra's 2014 Origin-Destination report, transfers to Metra amounted to 2% of the 909 AM boardings at Des Plaines station (18 average weekday riders); these same passengers would be expected to transfer from Metra to Pace on their return trip. In total, 13% of Route 250 riders at Des Plaines Metra transfer from another Pace bus route, along with a handful of probable riders from Metra.

Outside of the rail stations with which Route 250 intersects, the busiest location for transfers is at Milwaukee Avenue, where Route 250 intersects Route 270. This is also the site of the future Pulse Milwaukee Line. 102 passengers transfer to and from Route 250 at this intersection on the average weekday, approximately one third of all boardings and alightings here. This is the most significant bus-to-bus transfer volume on the Route 250 corridor by a substantial margin. Many passengers transferring here are likely traveling from the southern terminus of Route 270 at the Jefferson Park transit center; or from the northern terminus at Golf Mill Shopping Center, a transfer hub for several Pace routes. The majority of Route 270 boardings occur at these termini.

Transfer activity also occurs between Pace Route 250 and other transit services at O'Hare, Lee/Touhy, Lee/Oakton, Thacker, Potter, Harlem, Waukegan, Crawford, Dodge, and Ridge.

3.6 BOARDINGS NEAR PACE-PROPOSED PULSE STATIONS

Stop-level boarding data obtained from Pace for the period from May 1, 2014 through April 30, 2015 was used to evaluate the share of overall Route 250 ridership that would be served by the stations identified in the Pace 2010 Report. Based on 2015 ridership data, these stations would capture 80% of total ridership within one-quarter (1/4) mile of a Pulse station and 65% of total ridership within one-eighth (1/8) mile of a Pulse station (see Table 3.2).

TABLE 3.2: RIDERSHIP NEAR PACE-PROPOSED PULSE STATIONS

Route 250 Ridership Within 1/4 Mile of Original Pace-Recommended Locations:	2,312 (80% of Total)
Route 250 Ridership Within 1/8 Mile of Original Pace-Recommended Locations:	1,868 (65% of Total)

3.6.1 Key Locations Not Served by Pace-Proposed Pulse Stations

The majority of Route 250 ridership is captured by the stations recommended in the Pace 2010 report, but there are significant gaps along Lee Street/Mannheim Road and along Dempster Street where ridership would not be effectively served. These segments were further scrutinized and, in some cases, additional or alternative station locations are proposed, as discussed in Chapter 4.

Ridership that is not within ¼ mile of a Pace-proposed Pulse exists in the following segments of the corridor:

- **Lee-Mannheim/Touhy to Lee-Mannheim/Oakton** (Des Plaines): 38 average weekday boardings occur along this segment, with the largest share at Howard Avenue.
- **Lee-Mannheim/Oakton to Des Plaines Metra** (Des Plaines): 53 average weekday boardings occur along this segment, distributed among more than 10 bus stop locations.
- **Des Plaines Metra to Dee Road** (Des Plaines): This ridership is within Des Plaines between Busse Road and Rand Road/Northwest Highway. Approximately 21 boardings occur here on an average weekday.
- **Luther Lane to Milwaukee Avenue** (Niles): Approximately 112 average weekday boardings are beyond one-quarter (1/4) mile of the nearest Pace-proposed station. The Cumberland Avenue and Grand Avenue stops each have more than 30 weekday boardings.
- **Milwaukee Avenue to Waukegan Road** (Morton Grove and Niles): Approximately 119 average weekday boardings occur beyond one-quarter (1/4) mile from Milwaukee or Waukegan within this gap. The highest ridership along this segment occurs at Notre Dame High School, where boardings occur primarily in the hours following school dismissal, and at Harlem Avenue, with 84 weekday boardings.
- **Waukegan Road to Austin Avenue** (Morton Grove): Ridership not served in this area is east of the Metra Milwaukee District North Line tracks and includes about 31 average weekday riders, distributed among multiple stops.
- **Austin Avenue to Dempster-Skokie CTA** (Morton Grove and Skokie): 28 riders are not served within one-quarter (1/4) mile of a Pulse station, distributed among multiple stops.

- **Dempster-Skokie CTA to Crawford Avenue** (Skokie): Much of the south side of Dempster in this gap is occupied by the Evanston Golf Club. Single family homes are north of Dempster. Only 9 weekday boardings are unserved by Pace-proposed stations along this segment.

Another source of ridership to be considered is the special trips to and from Maine East and Maine West high schools that operate over portions of the Route 250 corridor and are signed as Route 250. Among trips serving Maine East High School, ridership along the route deviation between Oakton/Greenwood and Dempster/Harlem accounts for 25 boardings and alightings, while a northern trip from Golf Road and Harlem serves only two total boardings and alightings per day.

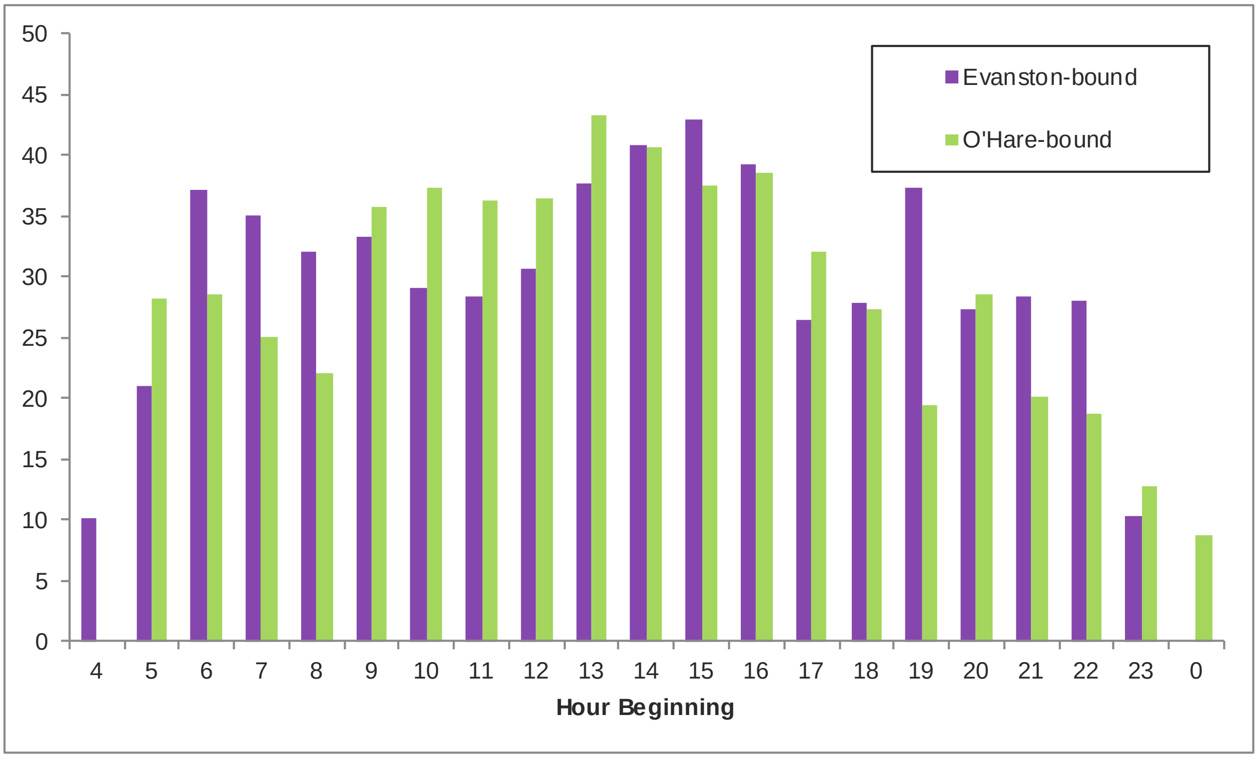
To serve Maine West High School in Des Plaines, a single trip in the morning begins in downtown Des Plaines and deviates from the Route 250 corridor to serve the high school, located about six-tenths (6/10) of a mile west of Mannheim Road on Oakton Street, with a return trip operating in the afternoon. 22 passengers arrive at Maine West High School on the morning trip, and 43 passengers board there in the afternoon.

3.7 AVERAGE BOARDINGS PER TRIP

Figure 3.6 shows average weekday boardings per trip, by hour and direction. This is defined as total hourly ridership divided by the number of Route 250 departures in that hour.

Averaged throughout the typical weekday, Route 250 sees over 32 boardings per trip, including school trips. Service levels are generally responsive to changes in demand at different times of the day, resulting in relatively consistent vehicle loads throughout the morning, midday, and afternoon. Boardings per trip are highest in the early afternoon, when Evanston-bound and O'Hare-bound vehicles carry up to 43 passengers per trip. Throughout the remainder of daytime hours demand ranges between 30 and 40 boardings per trip, declining to between 20 and 30 boardings per trip in the early evening and 10 boardings per trip in the late evening.

FIGURE 3.6: AVERAGE BOARDINGS PER TRIP



In the morning peak period, per-trip boardings are noticeably higher in the Evanston-bound direction. There are fewer Evanston-bound trips than O'Hare-bound trips during these hours. This may be indicative of the need to provide additional Evanston-bound service during peak AM commuting hours.

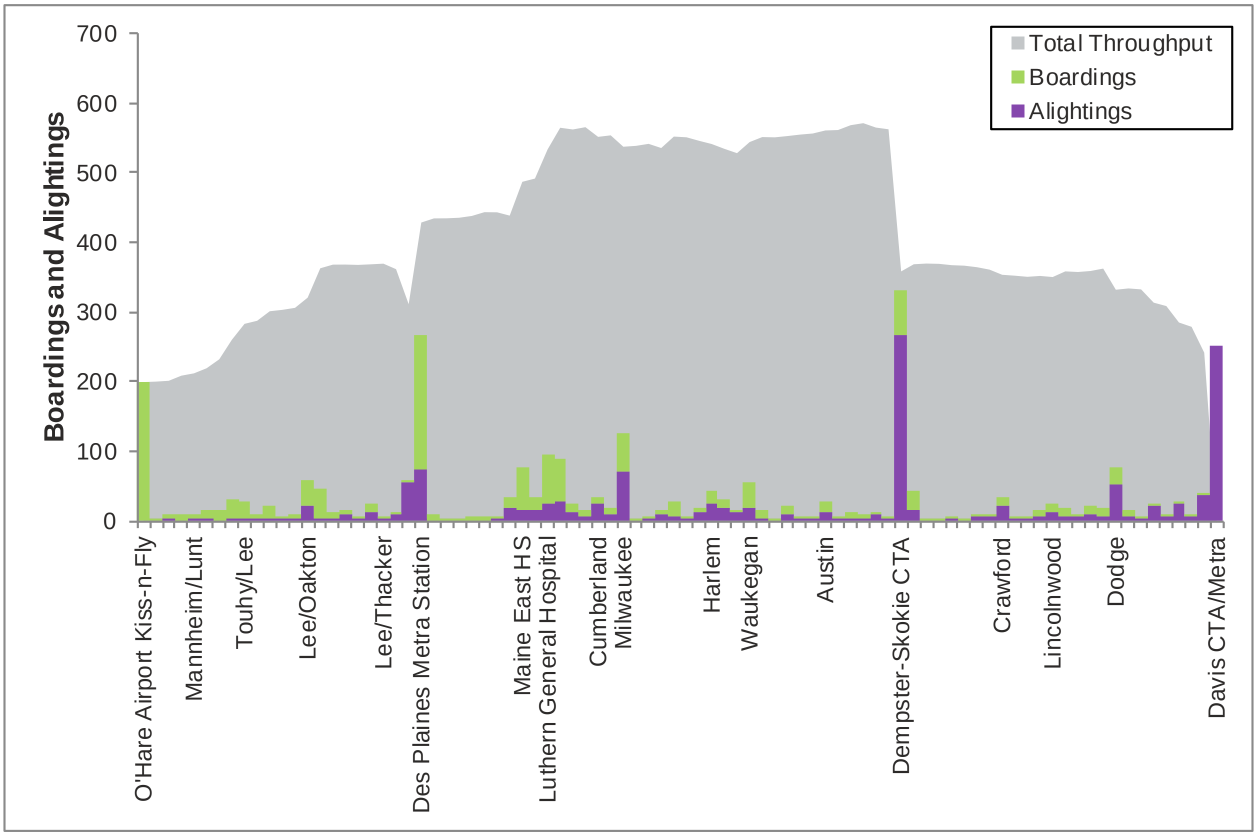
Because ridership on Route 250 is dispersed throughout the corridor, there is still ample capacity on most Route 250 vehicles even during periods of peak per-trip boardings. This is discussed further in the next section.

3.8 THROUGHPUT ANALYSIS AND ACTIVITY BY SEGMENT

Throughput measures the total number of passengers traveling through each segment of the corridor, and is defined as the difference between cumulative boardings and alightings in each segment as the bus travels from the start of its run toward its terminus.

Figure 3.7 shows the overall activity along the Evanston-bound route 250 by stop, including boardings and alightings by stop as well as overall throughput. Throughput increases steadily as Route 250 heads north into Des Plaines and east along Dempster Street. Throughput hits a plateau between Lutheran General Hospital and Dempster-Skokie CTA, dropping considerably as Evanston-bound riders alight to transfer to the CTA Yellow Line. Throughput remains flat between CTA Skokie and Dempster/Dodge where it then steadily declines towards Davis Street as riders alight in downtown Evanston.

FIGURE 3.7: ROUTE 250 EVANSTON-BOUND BOARDINGS, ALIGHTINGS, AND THROUGHPUT



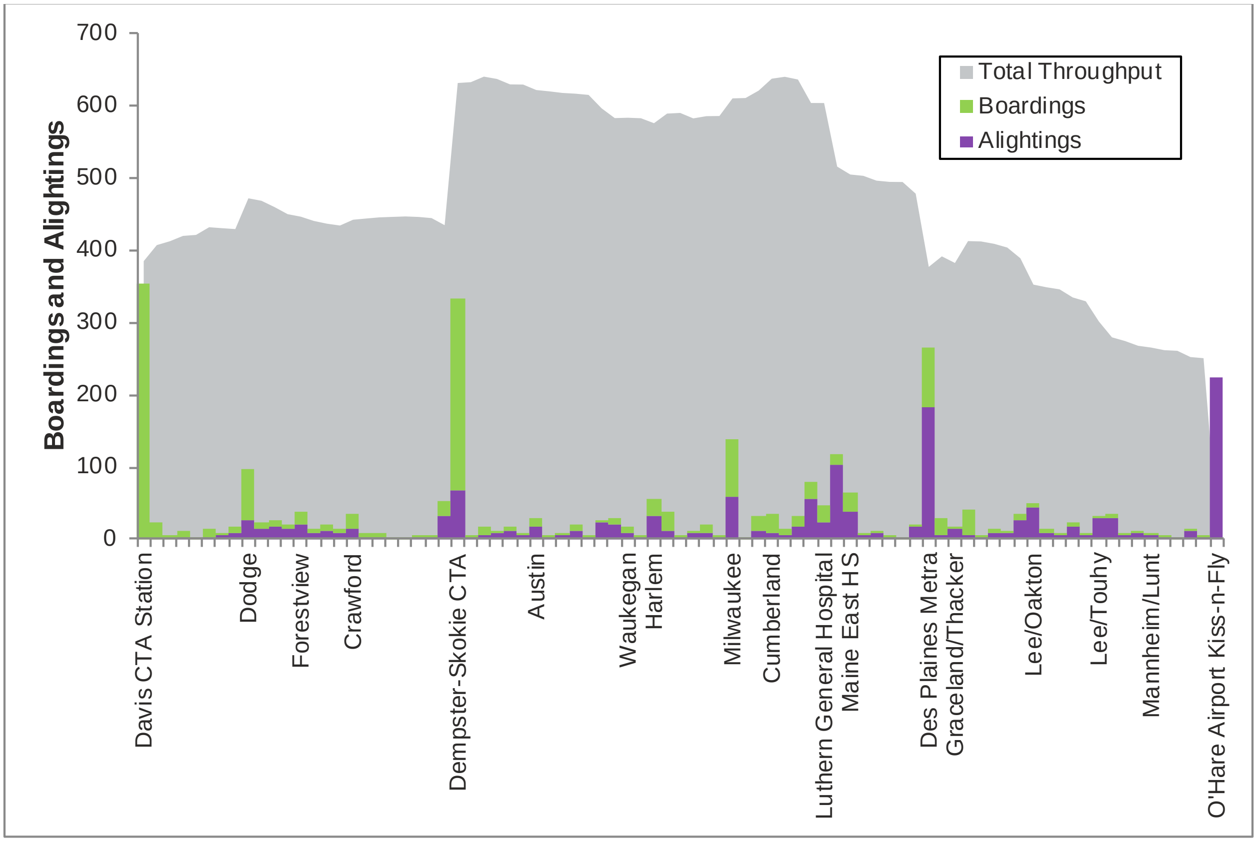
Along the plateau between Lutheran General Hospital and Dempster-Skokie CTA, activity at intermediate stations remains high, with significant boardings and alightings at Milwaukee, Harlem, and Waukegan in particular. Even where throughput drops significantly at Dempster-Skokie CTA, there are still substantial numbers of boardings at this location. Similarly, there are large numbers of alightings at Des Plaines Metra even as overall boardings outweigh alightings, leading to an increase in overall throughput. These patterns suggest that ridership and overall trip patterns on Route 250 are highly dispersed, with large numbers of shorter trips between intermediate points along the corridor. Particular submarkets exist in the Des Plaines-Rosemont-O'Hare corridor; between Lutheran General Hospital and Skokie; and in the Skokie-Evanston corridor.

In the O'Hare-bound direction the pattern is very similar. As shown in Figure 3.8, throughput gradually builds as the bus leaves downtown Evanston with a slight peak at Dempster/Dodge, followed by a plateau until reaching the Dempster-Skokie CTA station, where O'Hare-bound boardings spike by 266. Throughput then is relatively flat until Dee Road where a sharp drop occurs, followed by Des Plaines Metra where throughput drops again. Throughput then rises briefly through downtown Des Plaines before gradually declining towards O'Hare.

Similar to the Evanston-bound pattern, ridership in the O'Hare-bound direction suggests a large number of smaller trip patterns and submarkets. For example, even as Des Plaines Metra is primarily an alighting location for westbound passengers, there are also a significant number of boardings at this location as other passengers travel from downtown Des Plaines (or Metra) to destinations along Lee Street/Mannheim Road or to O'Hare International

Airport. Similarly, there are significant numbers of alightings between Dodge and Crawford, indicating a substantial market for short-distance trips from downtown Evanston to other parts of Evanston and Skokie. Finally, there is significant overall boarding and alighting activity at intermediate stops along the highest-throughput segment of Route 250 between Dempster-Skokie CTA and Lutheran General Hospital.

FIGURE 3.8: ROUTE 250 O'HARE-BOUND BOARDINGS, ALIGHTINGS, AND THROUGHPUT

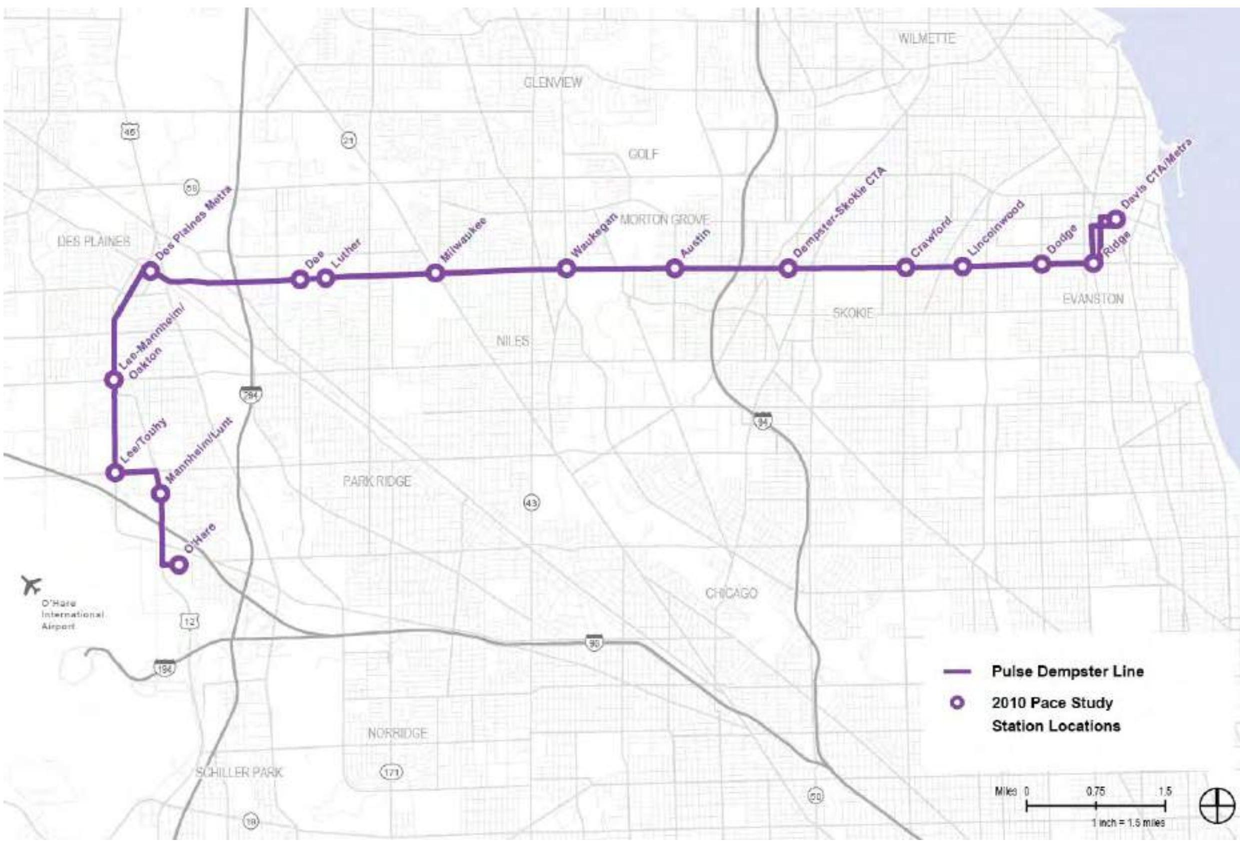


4 Stations

4.1 OVERVIEW

In April 2010, Pace completed the 2010 Pace Dempster ART Station Selection Report (Pace 2010 Report) which identified one or more preferred Evanston-bound and O'Hare-bound station sites at each of the recommended station locations, as shown in Figure 4.1 and Table 4.1.

FIGURE 4.1: PULSE DEMPSTER LINE STATION LOCATIONS FROM PACE 2010 REPORT



The suitability of each of the proposed stations in the Pace 2010 Report was reassessed in the context of other transit services and recent developments. A number of additional station locations, were also evaluated either in addition to or as potential alternates to those identified in the Pace 2010 Report, all of which were summarized in a May 2016 Preliminary Station Location and Site Selection Options Technical Memorandum.

A Conceptual Station Design Technical Memorandum issued in June 2016 furthered the station evaluation in the Pace 2010 Report and the Preliminary Station Location and Site Selection Options Technical Memorandum by undertaking an examination of existing Route 250 ridership, local land use patterns, street cross-sections, field observations, and input from community stakeholders.[12] The analysis documented in the Conceptual Station Design Technical Memorandum is included here with some additional minor refinements, including updates to the typical station sand station layouts to reflect an increase in the typical platform width to 12.5 feet, which includes a 1.5' wide landscape bed. This change was made to ensure a four foot wide pedestrian access route between the shelter and the back of the platform curb. During the next environmental review and design phases, it is expected that the station sites and layouts will be further refined.

FIGURE 4.2: PULSE DEMPSTER LINE STATION LOCATION CHANGES SINCE MAY 2016 PRELIMINARY STATION LOCATION AND SITE SELECTION OPTIONS TECHNICAL MEMORANDUM

4.1.1 Station Location Evaluations

Figure 4.2 documents changes made to the proposed Dempster Line station set since the May 2016 Preliminary Station Location and Site Selection Options Technical Memorandum was issued. Since that time, 23 station locations

[12] The previous tech memo documented the prior elimination of Ridge as a station location due to low ridership, anticipated community opposition, and the presence of surrounding historic districts. As it was eliminated at that time, it is not documented within the individual station sites in Section 4.4 of this memo but is included in our summary table of evaluated station locations.

were evaluated including the 16 original station locations from the Pace 2010 Report. These changes were made as a result of additional feedback received from stakeholder communities and technical analysis. Of the 23 evaluated stations, 18 have been detailed with station layouts and are recommended for evaluation during the NEPA phase. These 18 stations includes two terminal station locations, 15 intermediate station locations and one alternate station at Potter Road that may be considered as alternate to locating a station at Dee Road. The following points summarize the significant changes made to the station set since the May 2016 Preliminary Station Location and Site Selection Options Technical Memorandum was issued, many of which are illustrated in Figure 4.2 and Table 4.1.

Station Location *– The station location refers to the general location of the station along the Pulse Dempster Line corridor. Station locations often refer to the intersection adjacent to the station.*

Station Site *– A station site refers to the geographic location of an individual station platform. There are often multiple station site options at each station location. These are referred to as station alternates.*

- 23 station locations and 79 station site options were evaluated
- 18 station locations and 47 station sites are advancing for further consideration
- Relocation of one station location from Mannheim/Lunt to Mannheim/Higgins
- Relocation of one station location from Luther to Western
- Addition of new station locations at Cumberland and Harlem

TABLE 4.1: PULSE DEMPSTER LINE STATION LOCATION STATUS SUMMARY

STATION LOCATION	2010 PACE STUDY STATION LOCATIONS	PRELIMINARY STATION LOCATION MEMO RECOMMENDATION	STATIONS CURRENTLY UNDER CONSIDERATION
Rosemont CTA	X	✓	X
O'Hare	✓	✓	✓
Mannheim/Higgins	X	X	✓
Mannheim/Lunt	✓	X	X
Lee/Touhy	✓	✓	✓
Lee-Mannheim/Oakton	✓	✓	✓
Lee-Mannheim/Graceland/Thacker	X	✓	X
Des Plaines Metra	✓	✓	✓
Potter (Dee Alternate)	X	✓	✓
Dee	✓	X	✓
Luther	✓	✓	X
Western (Luther Alternate)	X	✓	✓
Cumberland	X	✓	✓
Milwaukee	✓	✓	✓
Harlem	X	✓	✓
Waukegan	✓	✓	✓
Austin	✓	✓	✓
Dempster-Skokie CTA	✓	✓	✓
Crawford	✓	✓	✓
Lincolnwood	✓	✓	✓
Dodge	✓	✓	✓
Ridge	✓	X	X
Davis CTA/Metra	✓	✓	✓
Total Number of Stations (23)	**16**	**19**	**18**

4.1.1.1 RELOCATED STATIONS

The station at Mannheim/Lunt was relocated to Mannheim/Higgins at the suggestion of the City of Des Plaines and Village of Rosemont, each of whom have new developments and/or proposals being considered for the area. The Mannheim/Lunt station is less desirable as a station location due to its low ridership (six (6) average daily boardings eastbound and three (3) westbound in 2014). Although Allstate Arena is located at Mannheim/Lunt, existing Route 250 has not typically served the arena as riders attending events typically use Route 222, the Allstate Arena Express, which operates directly from Allstate Arena to Rosemont CTA.

A station was relocated from Luther Lane to Western Avenue to better serve Lutheran General Hospital as well as retail land uses near the intersection of Western Avenue and Dempster Street. There are higher boardings on Route 250 at Western than at Luther. Representatives from the City of Park Ridge also noted that the Luther intersection has the highest incidence of crashes of any section of Dempster within Park Ridge. The Western location also provides a better connection to Niles Free Bus Route 411.

4.1.1.2 ADDED STATIONS

Cumberland was added as a new station to establish half-mile station spacing between Western Avenue and Milwaukee Avenue. Adding a station at this location also allows Pulse to potentially capture the 85 daily boardings for Route 250 and serve the multifamily developments in the area.

Harlem was added as a new station to fill in a service gap between Milwaukee and Waukegan and to serve commercial retail land uses. Adding a station at this location allows Pulse to potentially serve 74 daily boardings that are currently being served by Route 250 and to establish half-mile station spacing between Milwaukee and Waukegan.

4.1.1.3 DISCARDED STATIONS

The extension of the Pulse Dempster Line service to the Rosemont CTA Blue Line station and adding a station at Lee-Mannheim/Graceland/Thacker was also evaluated. The addition of the Lee-Mannheim/Graceland/Thacker station location was contingent upon the Rosemont extension in order to provide frequent service between the high-density residential and commercial development near the Lee-Mannheim/Graceland/Thacker intersection and the CTA Blue Line and 15 other Pace bus routes. Both of these station locations were determined to be infeasible at this time due to limited bus bay availability at the Rosemont CTA station.

4.1.2 Station Site Evaluations

Station sites were qualitatively evaluated on a number of factors, including: operations; constructability; available right-of-way; traffic movements; ridership and passenger markets including proximity to high ridership stops, ridership generators, and transfer connections; impacts on adjacent properties; pedestrian movements and access; Americans with Disabilities Act (ADA) implications; current and future land use; local context; community and agency input; potential impacts on project schedule and cost. These factors are described in more detail below and were taken into consideration when evaluating each station site for potential further development with a station layout and advancement to the NEPA screening phase. The qualitative evaluation of individual station sites is documented in Section 4.4.

4.1.2.1 PASSENGER COMFORT AND ACCESSIBILITY

- Proximity to a signalized intersection or safe protected pedestrian crossing;
- Sidewalk connections;
- ADA implications including available space for constructing accessible ramps;
- Proximity to major trip generators;
- Proximity to the corresponding station platform in the opposite direction of travel;
- Proximity to other local bus routes, including the potential for a shared station to serve connecting local buses;
- Connections to proposed Pulse Lines on Touhy Avenue and Milwaukee Avenue; and
- Aesthetic considerations and place-making potential.

4.1.2.2 RIGHT-OF-WAY AND PROPERTY IMPACTS

- Sufficient curb length and sufficient right-of-way width for development of a station (it was assumed that a typical Pulse station would require a contiguous space of approximately 60 feet in length and 12.5 feet in width (see Figure 4.9), although a smaller footprint can be accommodated for constrained sites (see Figure 4.11));
- Cost and schedule impacts associated with modifications, additional features, and/or remediation associated with construction at specific sites;
- Potential impacts on adjacent property owners, particularly the potential need to acquire land, or to relocate or close driveways (these impacts should be minimized unless substantially outweighed by other positive attributes of a particular location); and
- Future development plans along the corridor.

4.1.2.3 OPERATIONS AND MAINTENANCE

- Transit signal priority (TSP) opportunities, particularly for locations where TSP is recommended[13] (far side stations are preferred for these intersections in order to maximize TSP benefits, and also at locations where preliminary analysis did not result in a recommendation of TSP in order to facilitate future signal priority or other intersection treatments); and
- Traffic movements such as right turn lanes.

4.1.2.4 STAKEHOLDER FEEDBACK

- Input received from local communities, agencies and project partners.

[13] Transit Signal Priority is being implemented as a regional program. An evaluation was done by Pace in 2013 to determine which intersections along the Dempster corridor would be eligible for TSP. The results of that evaluation are referenced here in terms of whether there is the potential for TSP at each of the station locations.

4.2 STATION DESIGN

In 2013 and 2014, the Pulse station functional requirements, features, and layouts were established during the project definition phase of the first Pulse corridor, the Milwaukee Line. The station functional requirements guided the selection of station features and the development of station layout concepts. These requirements were refined through the advanced conceptual design and design phases for the Milwaukee Line. This station design work provides a foundation for the Pulse Dempster Line. The following sections describe the Pulse station functional requirements as defined and refined through the development of the Milwaukee Line, including key passenger, operational, branding, and naming considerations; the primary station feature characteristics; and examples of two typical station layout concepts.

4.2.1 Station Functional Requirements

Station facilities will be the most visible physical elements associated with Pulse service throughout the Pace system. Stations along the Dempster corridor should balance the need to express permanence and consistency throughout the Pulse system with a desire to accommodate local community context and preferences.

Station design priorities include providing passenger amenities for comfort and safety, operational considerations, and aesthetic and branding considerations that make the service attractive, legible and recognizable. These design priorities informed the development of the station functional requirements and the station feature set, and also influenced the development of appropriate site-specific station solutions. The following lists outline the key design considerations that helped establish the functional requirements.

4.2.1.1 PASSENGER COMFORT AND SAFETY CONSIDERATIONS

- The Chicago region's climate requires that adequate station shelter be provided for waiting passengers.
- Stations shall be fully compliant with the ADA.
- Safety shall be a primary consideration in all shelter designs.
- Nearby driveways may present challenges at some station locations and may require modified design solutions to ensure that pedestrian-vehicle conflicts are minimized.
- Stations shall preserve adequate sight distance and visibility for pedestrians as well as cyclists, bus drivers, and other motorists.
- Stations in the vicinity of bicycle lanes shall be designed to minimize bicycle-pedestrian conflicts as well as bus-bicycle conflicts.
- Stations shall be designed to function as part of the surrounding sidewalk network when space or local preferences preclude routing the sidewalk behind the station.

4.2.1.2 OPERATIONAL CONSIDERATIONS

- Local bus routes operating within the corridor shall be accommodated at Pulse stations where appropriate. This may include buses operated by both Pace and CTA. Where Pulse stations are located near, but not concurrent with, existing stops, the existing stops may be considered for closure. Stations served by CTA buses may require modifications to platform height in order that they may serve both Pace and CTA fleet vehicles.
- Stations shall provide appropriate drainage for rain and snow within the public right-of-way and shall not direct drainage toward buildings or onto private property.
- The use of heated pavement for de-icing and the additional power requirements for all station heating elements shall be incorporated into preliminary station planning and design documents.
- Station platforms shall be designed for clear, intuitive operational usage.
- Stations shall be located to preserve bus driver sight distance requirements for nearby streets and access drives.
- Stations and the adjacent roadway shall be laid out to ensure safe operation of the bus as it approaches, dwells, and departs the station.
- Stations shall be located and designed to minimize the impact to adjacent properties, sidewalks, and access drives.
- Stations shall be designed to facilitate maintenance. Maintenance may include shelter repairs, snow removal, and vertical marker upkeep.
- Pace and/or its contractors shall maintain Pulse stations. Pace may establish local community partnerships for the maintenance of some elements, including any landscaping.

4.2.1.3 BRANDING CONSIDERATIONS

- Stations shall provide a consistent user experience, even if their physical configuration may vary due to unique site or service conditions.
- Vertical markers that are separate from the shelter structure shall serve as the primary visual expression of the Pulse brand, with near-level boarding platforms as another key distinguishing feature.
- Branding elements shall be applied to the vertical marker, detectable warning strip, shelter finish, and shelter front panels. Figure 4.3 illustrates the vertical marker with Pulse branding.
- Opportunities have been identified to customize selected station features to express local community character while preserving the distinct Pulse brand. More details regarding community expression and cost sharing are provided in the Station Feature Set subsection.

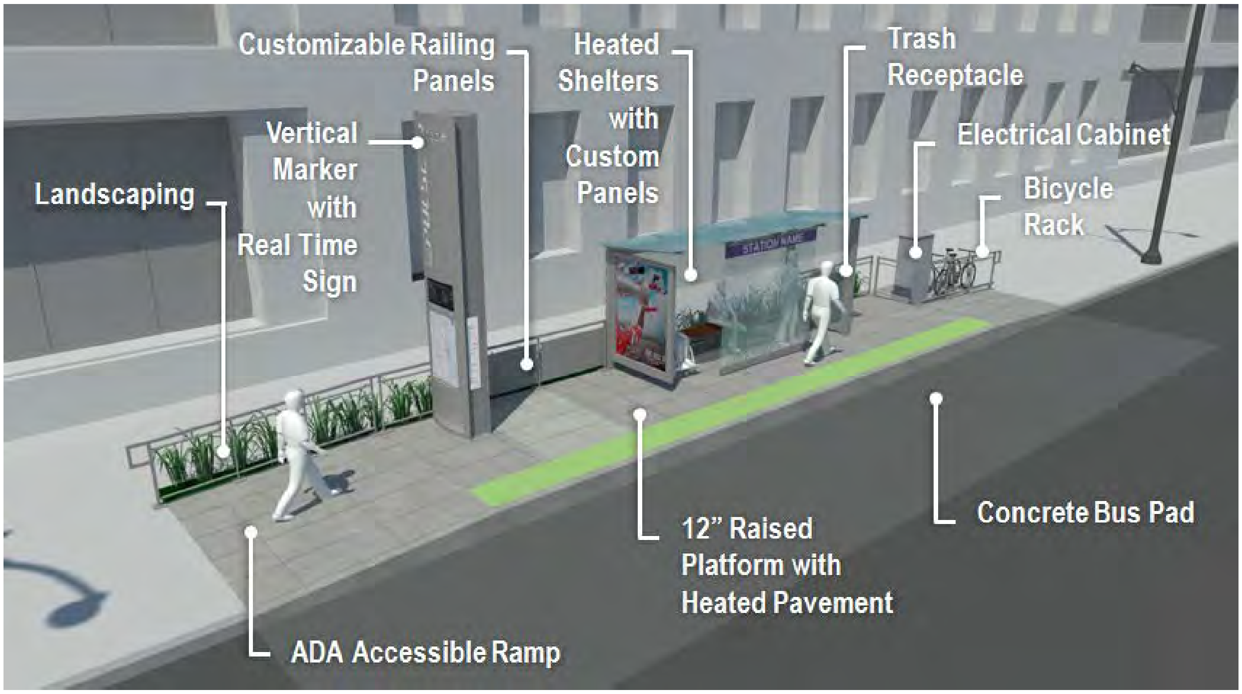
FIGURE 4.3: VERTICAL MARKER WITH BRANDING

- Pulse Station Naming Guidelines were developed in November 2015 to establish consistency throughout the Pulse program and finalize the Pulse Milwaukee Line station names. The Dempster Line station names used in this document were established according to these guidelines. Station names for each Dempster Line station shall be incorporated into the shelter design to enhance each station's identity as part of the transit line.

4.2.2 Station Feature Set

The station feature set was established during the Milwaukee Line Project Definition based on Pace's design priorities and typical station functional requirements. The features depicted in Figure 4.4 and described below were refined during the design of the Milwaukee Line. They have been incorporated into the Dempster Line station layout concepts. Portions of these station features can be customized by local communities to reflect local community character and context. [14]

FIGURE 4.4: TYPICAL PULSE STATION AND FEATURE SET



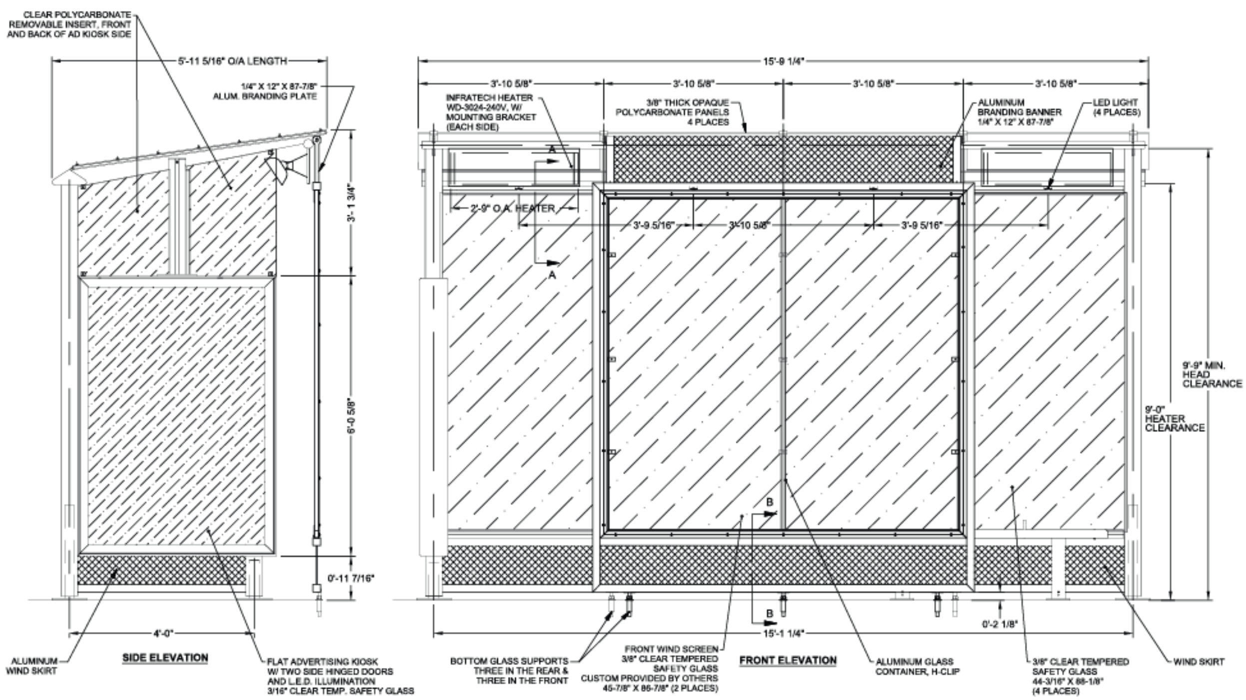
[14] In early 2016, Pace developed guidelines as part of the Milwaukee Line design to establish standards for the customization of some station elements as well as maintenance and cost sharing responsibilities associated with customization. These standards are detailed in the guidance document entitled *Community Expression Features: Cost Sharing Strategy and Coordination Guidelines (*Appendix M*)*.

The following features shall be incorporated into the Dempster Line stations:

4.2.2.1 SHELTERS

- Each station shall include a partially enclosed, four-sided, fully accessible shelter structure to include rear, side, and front panels for weather protection. The shelter will be approximately 16 feet long and six feet deep and is based on the Tolar 16' Ad 'Orion' shelter, although similar prefabricated shelters from other vendors may be acceptable. The shelter is to be furnished and installed by the construction contractor hired by Pace, based on approved design and palette options. Some stations may require a modified station shelter, which shall be based upon the selected typical Pulse shelter. Figure 4.5 shows the side and front standard shelter elevations for the shelter designed for use on the Milwaukee Line and throughout the Pulse Program, provided that some modifications to the shelter may be warranted in the future.

FIGURE 4.5: STANDARD SHELTER ELEVATIONS (SIDE AND FRONT)



- The front shelter panel shall be etched with the Pulse frit pattern and shall include the station name. Rear and approach-side shelter panels will be transparent glass. Communities may opt to include a customized rear etched glass panel. The side panel toward the departing end of the platform will be a two-sided advertising/information panel.

- All glass shelter panels shall be vandal-resistant and have an anti-graffiti film or coating.

- For cleanliness and comfort, there shall be a gap of approximately two to four inches between the shelter walls and the platform surface. A wind skirt may be incorporated into the shelter walls to further protect waiting passengers from the elements.

- Shelters shall have an angular roof that is sloped toward the back, and made of metal and glass or other approved materials. Shelters shall not have flat or curved roofs.

- A wheelchair waiting area, bench, and additional standing waiting area shall be accommodated within the shelter. Shelter bench seats shall be flat, have seat dividers, and be made of recycled plastic or wood and steel.

- Shelter interiors shall be wheelchair accessible and ADA-compliant.

- Shelters shall be illuminated via interior lighting integrated within the structure. The lighting shall be sufficient for passenger comfort as well as to illuminate the station name on the front panel.

- Advertising panels on the shelter and the real-time arrival sign on the vertical marker shall be positioned to maximize visibility and sight lines at the stations.

- Shelters shall provide overhead infrared heating for passenger comfort in cold weather. Durable, tamper-proof activation mechanisms, such as motion sensors or piezoelectric buttons, shall be utilized along with theft deterring hardware.

- Pace shall coordinate with communities to determine if cameras/call boxes are desired at the shelters. If desired, Pace can provide pre-wired accommodations but shall not pay for installation, nor monitor or maintain any such systems.

- A speaker and audio activation button connected to the real-time information sign on the vertical marker shall be installed in the interior of the shelter with cabling routed within the raceways of the shelter's structural members.

4.2.2.2 STATION PLATFORMS AND LOADING AREAS

- Each station shall include a vertical marker or signage element placed at each station so as to indicate to riders and the bus driver the general front-door boarding location (see Figure 4.4).

- Flag signs for local Pace routes do not need to be provided at Pulse stations. Transfer connections to local routes stopping at a Pulse station shall be indicated on the vertical marker if applicable. CTA may continue to require flag signs at stations where CTA buses will stop; this shall be coordinated with CTA.

- The typical station platform shall provide near-level boarding at a height of 12 inches above the roadway surface, which is six inches above a typical adjacent sidewalk, and shall be accessed via ADA-compliant pedestrian ramps at a 1:20 slope at either end. Alternative pedestrian access options shall be considered on a case-by-case basis to accommodate site constraints. The 12-inch high boarding platform shall be constructed of concrete over a minimum of four inches of compacted granular sub-base.

- Standard concrete is assumed for platforms. The station pavement can be customized by a community through the use of colored concrete or by stamping the municipal logo at the base of the ramp. The customization of the platform pavement and/or stamped municipal logo shall be subject to standards established in the *Community Expression Features: Cost Sharing Strategy and Coordination Guidelines* document (see Appendix M).

- An electric pavement heating system sufficient for prevention of snow and ice buildup shall be embedded in the concrete platform and ramps, thus mitigating slip hazards. Snow melt systems elements can be detected prior to any future concrete penetrations, and can be repaired if inadvertently damaged. The snow melt system has been designed into the station platforms for the Milwaukee Line. As the Milwaukee Line is constructed and goes into service, the snow melt system shall be monitored and evaluated for any modifications that may need to be made prior to installation on the Dempster Line.
    - The pavement heating systems, as well as the shelter heaters, will be significant power draws when in operation (between 200A and 250A). Therefore, the local energy utility, ComEd, will need to evaluate the impact on the power distribution system along the corridor; coordination with ComEd will also be needed to locate a 120/240V power source and determine how it will route to the utility meters. This shall be an early coordination item during advanced conceptual design.
- The rear of the platform shall be separated from the surrounding area by pipe railing. This standard design will allow for community expression in the form of two panels mounted to the railing along the back of the platform. A community may customize these infill panels subject to standards established in the *Community Expression Features: Cost Sharing Strategy and Coordination Guidelines* document.
- Per individual station site plans, concrete curb and gutter shall be removed and reconstructed with gutter widths matching existing conditions (either B6.12 or B6.24) unless otherwise specified. The height of the barrier curb will slope from the existing curb height to the 12-inch high curb.
- A green detectable warning strip shall be installed at the back of curb along the open boarding edge of the raised platform. A segment of warning strip having a contrasting color shall be installed in a location that indicates the front door boarding area. Color selections for the detectable warning strip and the contrasting segment should match or approximate approved colors of the Pulse brand.
- A bus curb shall be installed along the face of the curb to facilitate near level boarding and to limit damage to the curb as well as to the vehicle and tire.
- A concrete bus loading pad 60 feet long and at least 10 feet wide shall be installed adjacent to each station platform to provide for a consistent platform-to-roadway height tolerance at the loading edge of the platform and a durable pavement solution for bus operations. Consistent with the design for the Milwaukee Line, the design specifications for the bus pad shall be based on CDOT standards, which call for 10 inches of concrete pavement over a minimum of 8 inches of granular sub-base. The concrete pad shall be tied to the existing pavement and curb and gutter with dowel bars, and joint sealer shall be poured along the full perimeter of the pad. The bus pad shall extend 10 feet from the gutter, or to the existing pavement joint, whichever distance is greater. Figure 4.6 depicts a typical concrete bus loading pad in relation to the platform.

FIGURE 4.6: PULSE STATION RENDERING WITH TYPICAL CONCRETE BUS PAD EXTENTS

- Station electrical cabinets shall be located adjacent to each station platform in an area that is accessible for maintenance purposes. Where possible, the electrical cabinet shall be installed at the end of the platform, near the bicycle rack, or behind the shelter, facing away from the road. This will avoid obstructing movement on the platform and minimize its visual appearance. To the extent possible, the electrical cabinets shall be sited to minimize impacts to adjacent properties. The cabinet shall be a NEMA 4X enclosure and shall be made of a brushed stainless steel designed for exterior installation with extra corrosion resistance to road salt. The cabinets shall be rectangular in shape and shall not exceed 60 inches wide by 18 inches deep by 74 inches in height. However, the actual size of cabinet may vary and should be minimized to the greatest extent possible to reduce potential property impacts. The enclosure shall be mounted on a solid concrete foundation.

  The power and control cabinet shall be equipped with two doors: one side of the cabinet shall contain power distribution equipment, while the other side shall be designated for various control and communication equipment. The site's utility meter shall be installed on the side of the cabinet adjacent to the 120/240V distribution panel. The dimensions indicated assume that all planned electrical components will be included in the station. If certain components, particularly the shelter heaters and/or pavement snow melt system, are excluded, the required size of the electrical cabinet may be reduced and/or eliminated provided that the vertical marker is able to serve as an electrical cabinet.

4.2.2.3 STATION FURNISHINGS AND AMENITIES

- Each station shall include a vertical marker, incorporating the Pulse brand and informational signage. The vertical marker is being designed as part of the Milwaukee Line design contract. The final design and fabrication of the vertical marker for the Milwaukee Line should be monitored, and the design refined as necessary during the advanced conceptual design and design phases for the Dempster Line. The vertical marker shall be designed and bid as a comprehensive system with all necessary hardware and software detailed in the Dempster Line construction plans, specifications, and estimate.

- Sign height ordinances may limit the height of the vertical marker in some communities along the Dempster Line. For this reason, design options may be needed and the placement of reduced height markers shall be considered on an as-needed basis while maximizing visibility of the Pulse station.
- Real-time information signs shall be located within the vertical marker and visible from the platform and the street. The signs shall be visible from both sides of the marker. The real time information sign system shall be designed, detailed, and bid as part of the Dempster Line construction.
- In addition to the real-time arrival display, additional signage incorporated into the vertical marker shall include a static route map, wayfinding signage, and information on connecting CTA and Pace routes, if appropriate. All static information shall be easily updated and modified, while also being vandal-resistant.
- To the extent possible, the vertical marker shall be designed so that it can accommodate electrical power and control equipment sufficient to supply all electrical components at the station, except for those needed for the pavement snow melt and shelter heater systems. This allows for the separate electrical cabinet to have a more modest size to accommodate the pavement snow melt and shelter heating systems.

- Bicycle storage shall be provided at every station where feasible. Racks shall allow for both front and rear wheel attachment, rather than being narrow in configuration. Where space allows, at least one rack, capable of accommodating two bicycles, shall be provided at each typical Pulse station. Although Pace has selected a preferred bicycle rack for the typical Pulse station, Pace will install a substitution of the community's choice that meets the design requirements subject to the *Community Expression Features: Cost Sharing Strategy and Coordination Guidelines*. Pace's preferred bicycle rack is the Landscape Forms Bola model (see Figure 4.7).
- A metal-body trash receptacle shall be provided at every station. Trash receptacles should be of a 30 to 40 gallon capacity and fire resistant. Receptacles shall be bolted to the station platform and have a removable liner. Similar to the bicycle rack, Pace will install a substitution trash receptacle at the preference of a local community subject to the *Community Expression Features: Cost Sharing Strategy and Coordination Guidelines*. Pace has selected the Landscape Forms Steely Can model as the preferred trash receptacle for Pulse stations (see Figure 4.8).

FIGURE 4.7: BOLA BICYCLE RACK

FIGURE 4.8: STEELY CAN TRASH RECEPTACLE

- The typical station shall include an 18-inch wide landscaping strip located along the back edge of the ramps and the boarding platform where space allows and where appropriate based on the surrounding context. The landscaping will be provided only if a local partner (e.g. community, ward office, Special Service Area (SSA), chamber of commerce, or local business) is willing to maintain it. The landscaping shall be irrigated in part via runoff from the shelter roof and shall feature drought-tolerant plants requiring minimal upkeep. The landscaping shall also serve as a community expression option (subject to local commitments for ongoing maintenance noted above). The station layouts indicate whether or not landscaping has been included in each station. Landscaping may be widened as appropriate to fill the available space. Pace shall coordinate with local communities to select the planting palette provided that a local partner has agreed to maintain it.
- If local communities desire to provide cameras/call boxes at Pulse stations, they shall notify Pace during project development so that pre-wired accommodations can be provided.
- Ventra™ fare vending machines are installed, or will be installed by others, at each of the intermodal stations at O'Hare, Des Plaines Metra, Dempster-Skokie CTA, and Davis CTA/Metra as part of other regional coordination efforts. Pace is not procuring or installing any fare vending machines for the Pulse Dempster Line.

4.2.3 Station Layout Concepts

Station layout concepts were developed and refined through the planning and design of the Pulse Milwaukee Line. Two station layouts, a "typical" layout and a "compact" layout, were established and used as the basis for the development of site-specific station layouts for the Pulse Dempster Line. Since the June issuance of the Conceptual Station Design Technical Memorandum, the station layouts have been updated to ensure a four foot wide pedestrian access route between the shelter and the back of the platform curb. This resulted in an increase in the typical platform width from 12 feet to 12.5 feet, which includes the 18-inch landscape bed. The layouts reflecting this update are dated July 15, 2016 and are included as Appendix F.

4.2.3.1 TYPICAL STATION LAYOUT

The typical layout reflects an ideal, preferred station configuration and feature set and shall be used in locations where the available right-of-way is not constrained. The typical station layout has a footprint of 60 feet in length by 12.5 feet in width. Figure 4.9 shows the typical station layout in plan view, Figure 4.10 provides a section of the typical station, and Figure 4.4 above shows a rendering of a typical station.

FIGURE 4.9: TYPICAL STATION LAYOUT

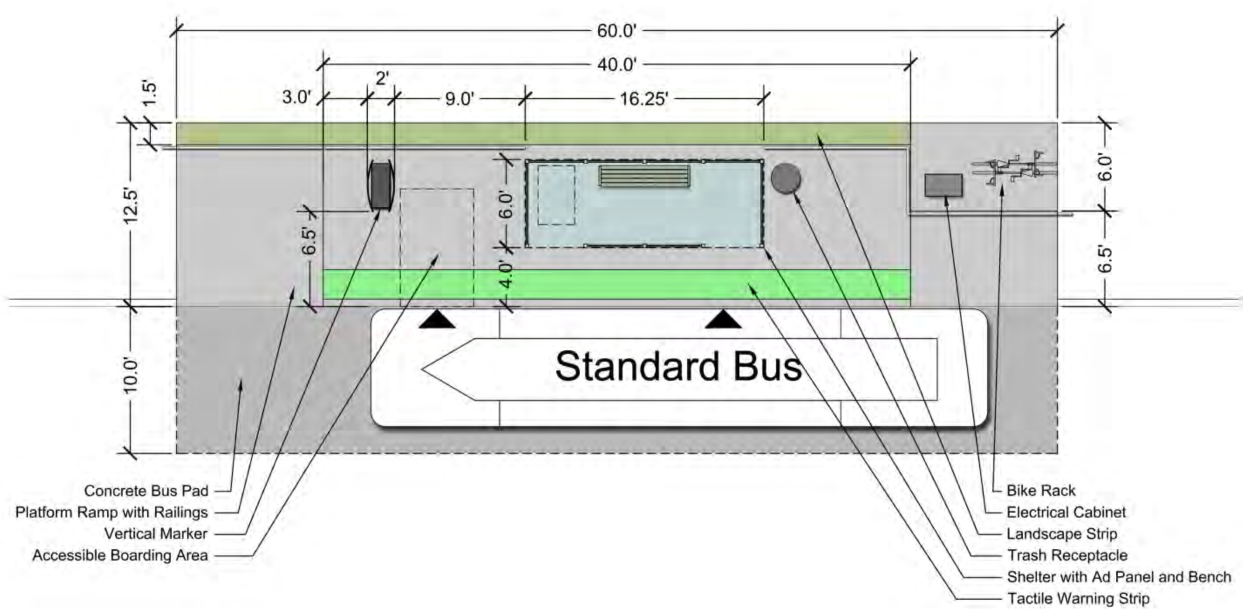
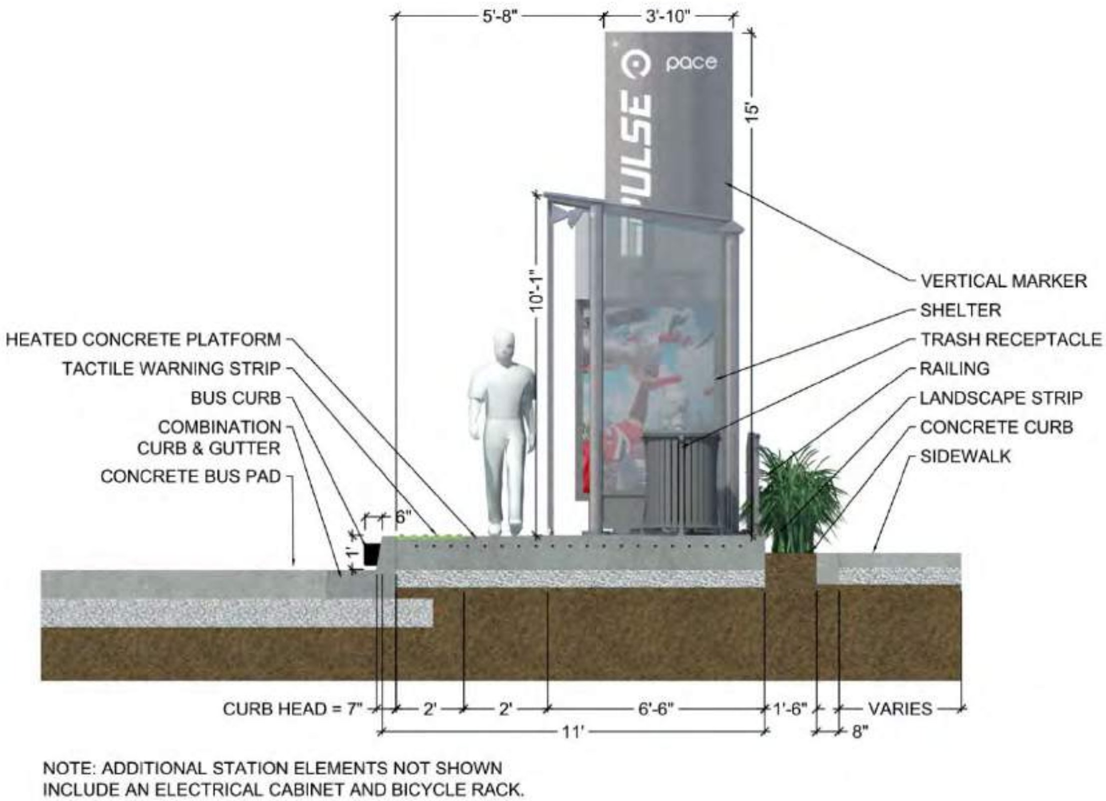


FIGURE 4.10: SECTION OF A TYPICAL STATION



4.2.3.2 COMPACT STATION LAYOUT

The compact layout reflects a station configuration to be used in locations where available right-of-way width and/or length are limited at the selected site. The compact station layout, with a footprint of 45 feet by 11 feet, differs from the typical station layout in the following ways:

- The shelter structure is anticipated to be shorter (12 feet in length instead of 16 feet), with the same depth as the typical station shelter and providing adequate space for a bench and wheelchair waiting area.
- The raised platform is reduced in length to 33 feet, with access ramps at a 1:12 slope at both ends.
- The bicycle rack is eliminated.
- The landscape bed is eliminated.

Figure 4.11 shows the compact station layout and Figure 4.12 shows a rendering of a compact station.

FIGURE 4.11: COMPACT STATION LAYOUT

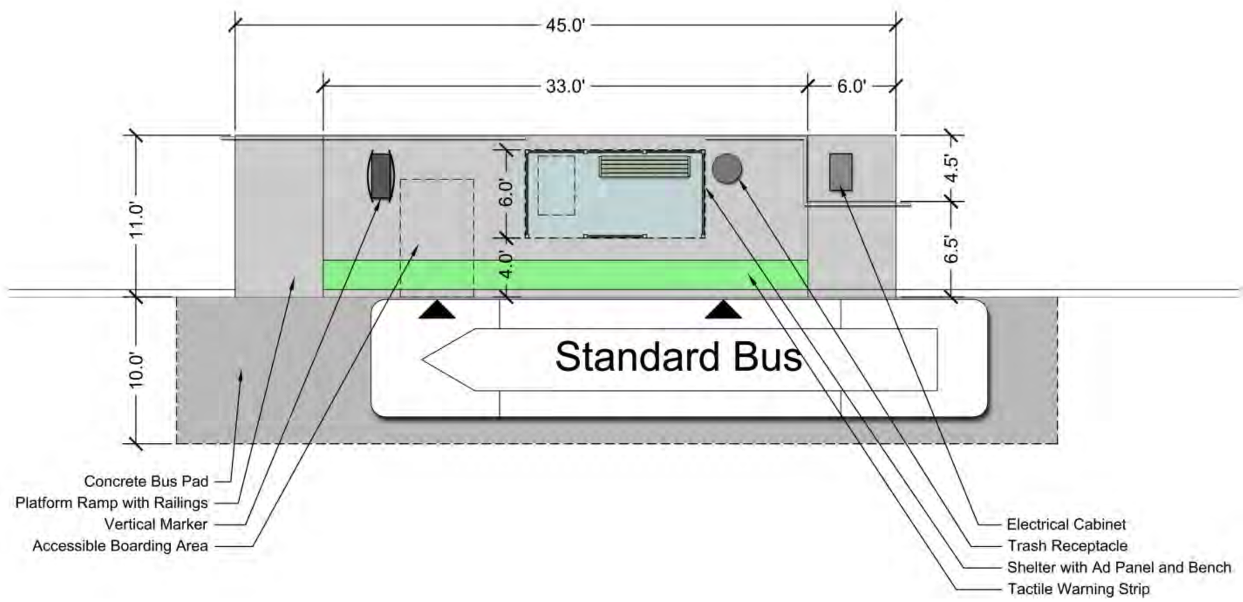
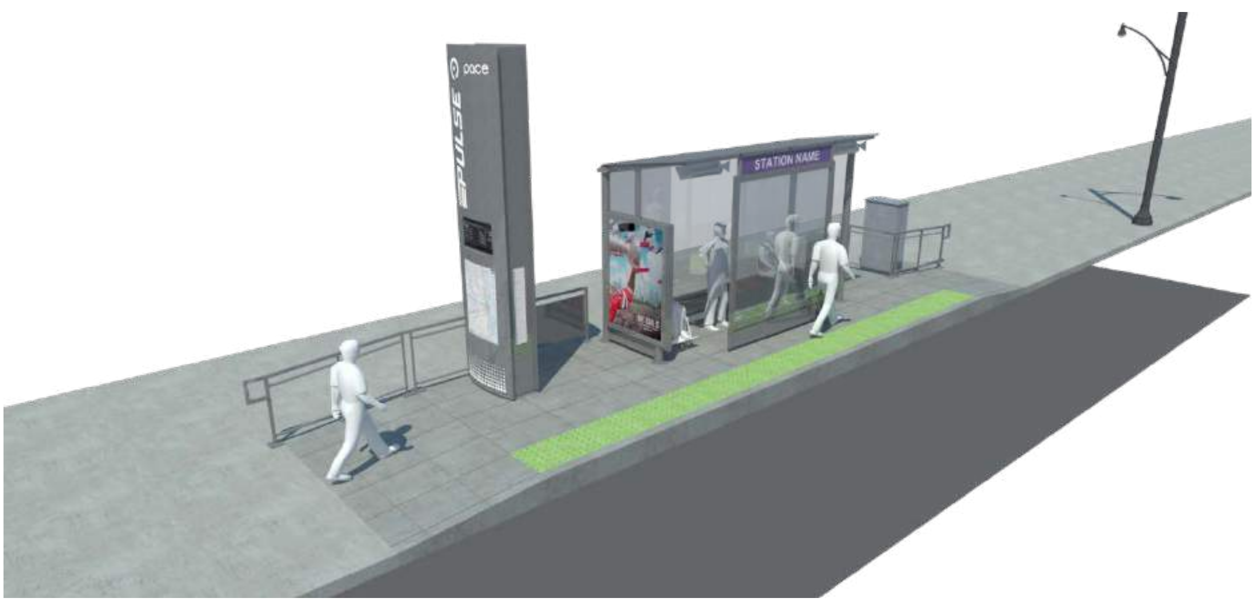


FIGURE 4.12: COMPACT STATION LAYOUT RENDERING

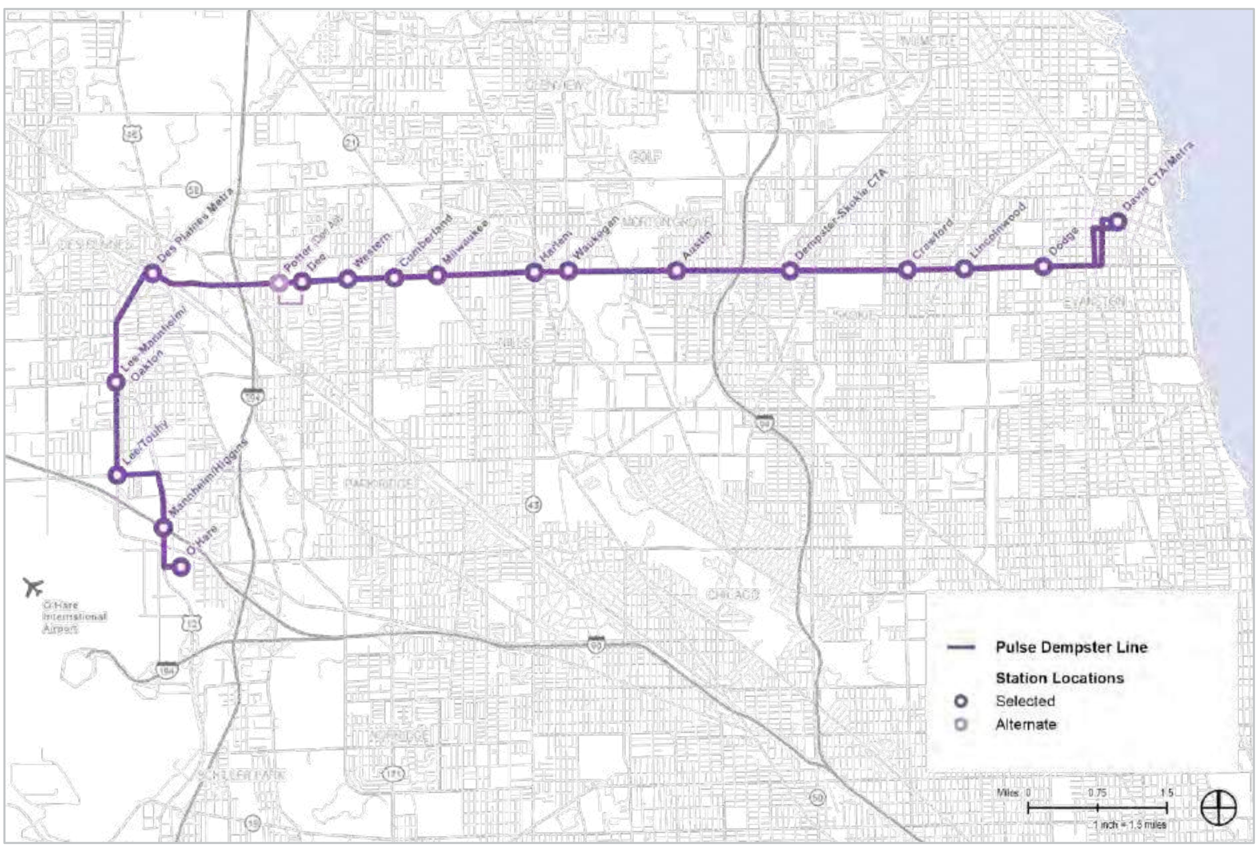


Along the Dempster corridor, each of the station sites has varied conditions and constraints. Station layouts will be adapted to accommodate unique site characteristics and right-of-way constraints while still adhering to the functional requirements documented herein. In some cases where multiple local bus routes are expected to share a Pulse station, a larger station may be proposed to accommodate the additional vehicular and passenger traffic.

4.3 STATION LOCATIONS

Overall, 23 potential station locations and 79 specific station sites were evaluated. For ease of reference, each station site is identified as an alternate and is generally numbered according to location and direction of travel (e.g. Cumberland Eastbound Alternate 1). During the evaluation process, outreach activities were conducted with local communities and agencies to inform the evaluation of station locations and sites. Table 4.2 shows each evaluated station location, the origin or source of the station, and the status as of June 2016, which indicates whether the station is included in the packet of conceptual station layouts in Appendix F and recommended for advancement to the conceptual design phase.[15] Figure 4.13 shows the current proposed Pulse Dempster Line station locations.

FIGURE 4.13: PULSE DEMPSTER LINE PROPOSED STATIONS



[15] The reasons that the Rosemont CTA, Mannheim/Lunt, Lee-Mannheim/Thacker/Graceland, Luther, and Ridge station locations were excluded are discussed in Section 4.1. These stations locations are not evaluated in Section 4.4.

TABLE 4.2: PULSE DEMPSTER LINE STATION LOCATION SUMMARY

Station Location	Source	Status (June 2016)
Rosemont CTA	2016 Analysis	Excluded
O'Hare	2010 Study	Included
Mannheim/Higgins	Community Outreach	Included
Mannheim/Lunt	2010 Study	Excluded
Lee/Touhy	2010 Study	Included
Lee-Mannheim/Oakton	2010 Study	Included
Lee-Mannheim/Thacker/Graceland	2016 Analysis	Excluded
Des Plaines Metra	2010 Study	Included
Potter (Dee Alternate)	2016 Analysis	Included
Dee	2010 Study	Included
Luther	2010 Study	Excluded
Western	2016 Analysis	Included
Cumberland	2016 Analysis	Included
Milwaukee	2010 Study	Included
Harlem	2016 Analysis	Included
Waukegan	2010 Study	Included
Austin	2010 Study	Included
Dempster-Skokie CTA	2010 Study	Included
Crawford	2010 Study	Included
Lincolnwood	2010 Study	Included
Dodge	2010 Study	Included
Ridge	2010 Study	Excluded
Davis CTA/Metra	2010 Study	Included

4.4 STATION SITES

The Pulse Dempster Line includes fifteen (15) pairs of intermediate stations and two terminal stations at O'Hare and at Davis CTA/Metra. The terminal stations will be built at intermodal facilities where minimal capital investments will be needed to support Pulse service. Intermediate stations serving the Pulse Dempster Line will typically consist of curbside stations serving buses in a mixed traffic lane.

As stated in the Section 4.1, a total of 79 individual station sites were evaluated on a number of factors, including: operations, constructability, available right-of-way, traffic movements, passenger markets, transfer connections, impacts on adjacent properties, passenger convenience, pedestrian movements and access, ADA implications, current and future land use, local context, community and agency input, potential impacts on project schedule, and the potential cost to remediate site issues. For each site evaluated, a determination was made as to whether it would be developed with a Conceptual Station Improvement Plan, or Station Layout, which are provided as Appendix F and will be advanced to the environmental review phase. An overview of the number of alternates evaluated and their status is summarized in Table 4.3 and the evaluations are documented in the sections that follow.

TABLE 4.3: STATUS OF STATION SITES EVALUATED

	Eastbound Alternates				Westbound Alternates			
Station	1	2	3	4	1	2	3	4
O'Hare	-	-	-	-	✓	-	-	-
Mannheim/Higgins	✓	✓	-	-	✓	✓	-	-
Lee/Touhy	E	✓	-	-	E	✓	-	-
Lee-Mannheim/Oakton	E	✓	-	-	E	✓	-	-
Des Plaines Metra	✓	E	-	-	✓	✓	✓	-
Potter (Dee Alternate)	E	✓	-	-	✓	✓	-	-
Dee (Potter Alternate)	✓	E	-	-	✓	✓	-	-
Luther	E	E	-	-	E	E	-	-
Western	✓	-	-	-	✓	-	-	-
Cumberland	✓	✓	-	-	✓	-	-	-
Milwaukee	✓	E	-	-	✓	✓	✓	-
Harlem	✓	-	-	-	✓	-	-	-
Waukegan	✓	-	-	-	E	✓	E	-
Austin	✓	-	-	-	✓	-	-	-
Dempster-Skokie CTA	E	✓	E	-	E	✓	-	-
Crawford	✓	-	-	-	E	E	✓	✓
Lincolnwood	✓	✓	E	-	✓	✓	E	-
Dodge	✓	E	E	-	✓	E	✓	E
Davis CTA/Metra	✓	-	-	-	-	-	-	-

✓	Included in Conceptual Station Improvement Plans
E	Eliminated from consideration; NOT included in Conceptual Station Improvement Plans

4.4.1 O'Hare

- Municipality: City of Chicago
- Jurisdiction: CDA
- Cross Section: Off-street multimodal station. Bus bays will have saw tooth design
- TSP Possible: NA

Pace has been coordinating with CDA on the design of the CRCF and the allocation of space to Pace services, including the Pulse Dempster Line. It is anticipated that Pace will have two assigned layover stalls and two curbside bus bays at the CRCF per the most recent facility designs. The bus bays will have a saw tooth curb design with dimensions of 66 feet wide by six foot deep within the saw tooth. The location of Pace's curbside stalls and layover areas are shown in Figure 4.14 and Figure 4.15. The two curbside bus bays allocated for Pace will be adjacent to each other and located in the middle of a group of six saw tooth bays towards the southern end of the CRCF, which will have a climate controlled lobby and station canopy for passengers. Figure 4.16 shows a rendering of the CRCF from the road. Pulse specific improvements at the CRCF will be limited to static signage identifying the bays for Pulse service. Real time information signs may be provided inside the facility or curbside and will need to be coordinated between the CDA, Pace and the Regional Transportation Authority (RTA).

CDA notes that the Airport Transit System (ATS) will not be extended until sometime after the completion of the CRCF, but anticipates the ATS will be extended to the CRCF by the end of 2018, which should precede the start of service of the Pulse Dempster Line. Until then, all bus bays and layover facilities will be used for rental cars and bus economy parking. .

FIGURE 4.14: O'HARE CRCF SITE PLAN

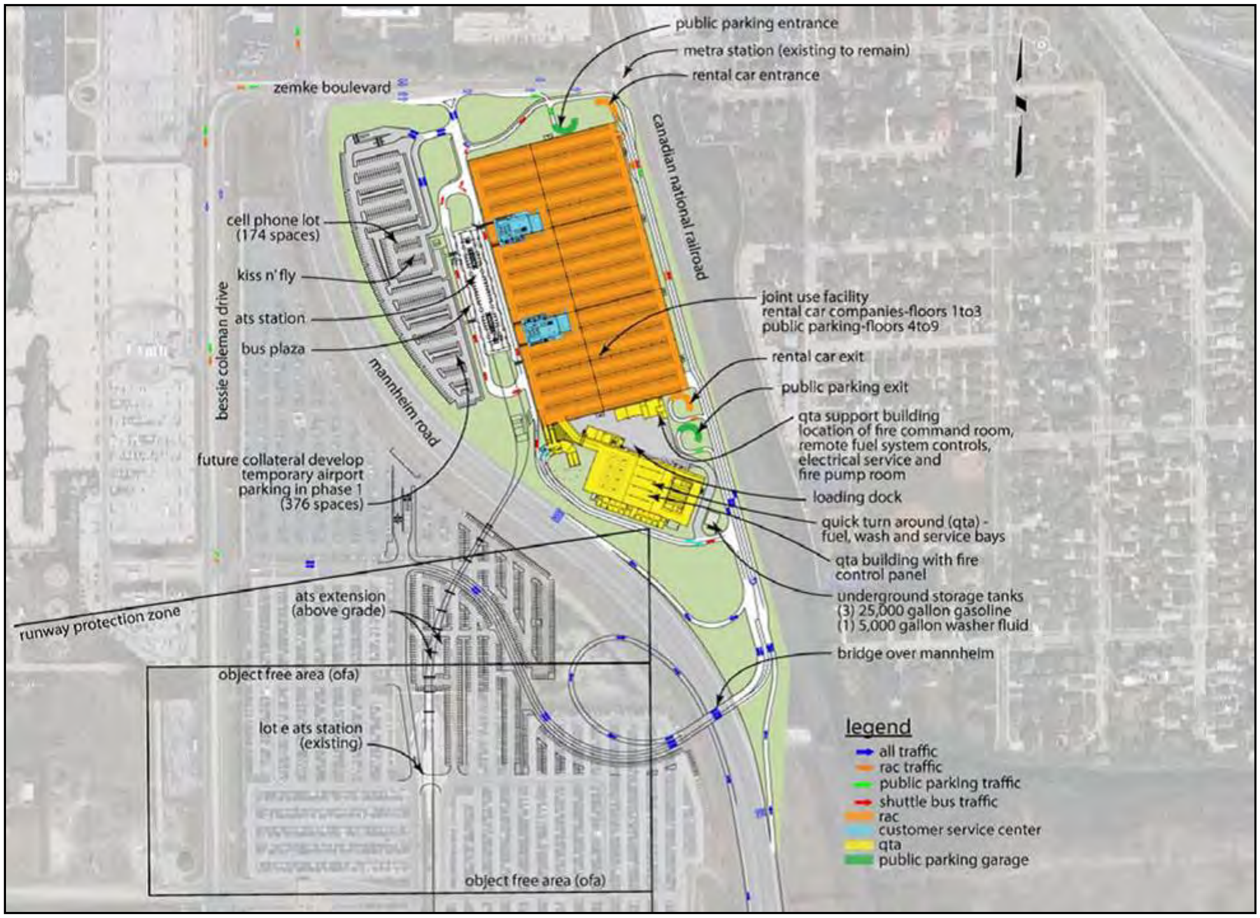


FIGURE 4.15: PACE BUS CONFIGURATION AT O'HARE CRCF AT FULL BUILDOUT

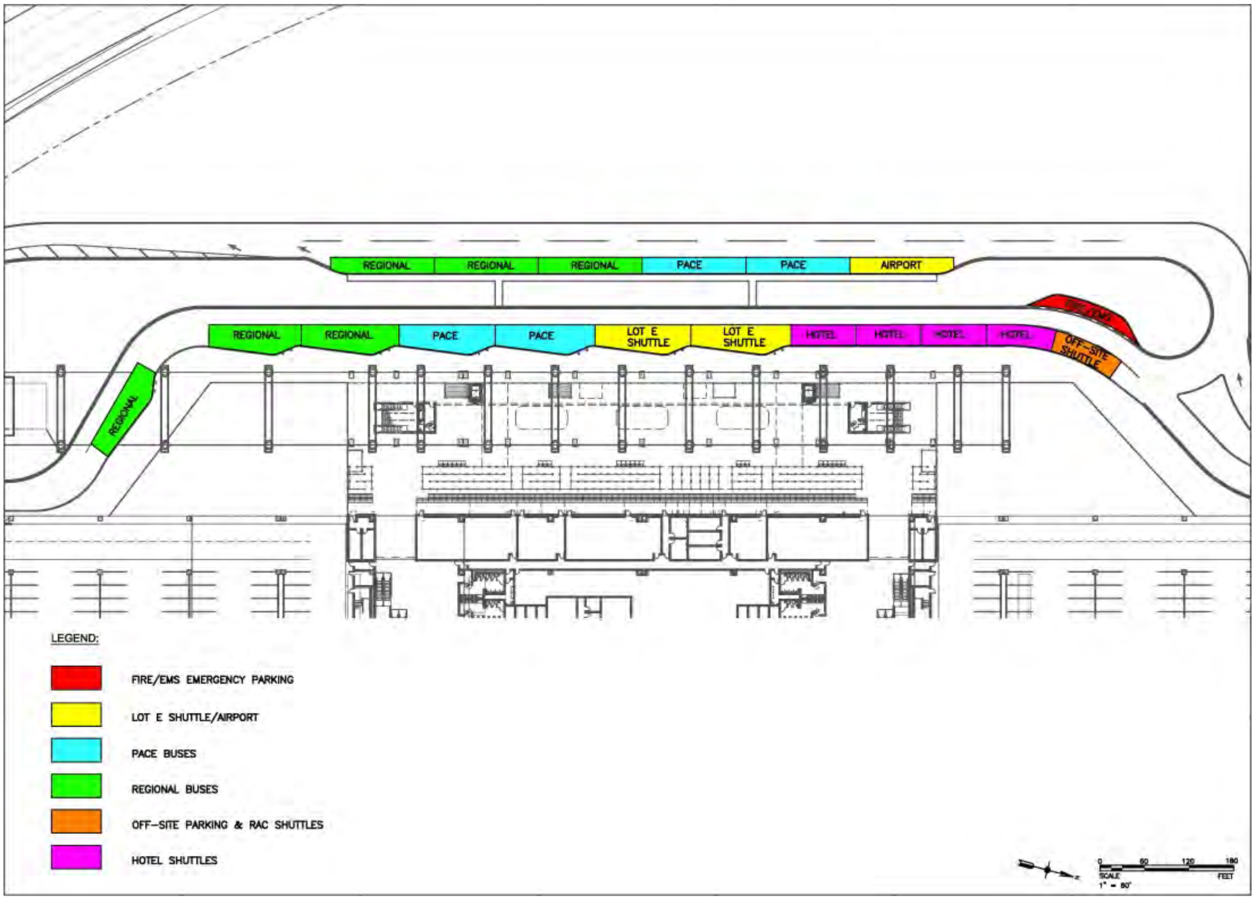


FIGURE 4.16: O'HARE CRCF RENDERING

Source: TranSystems / Ross Barney Architects

4.4.2 Mannheim/Higgins

- Municipality: City of Des Plaines (Eastbound Alternate 1), Village of Rosemont (Eastbound Alternate 2 and Westbound Alternate 1), City of Chicago, 41st Ward, (Westbound Alternate 2)
- Jurisdiction: Illinois Department of Transportation (IDOT)
- Cross Section: Three through lanes, two center turn lanes, and one right turn lane in each direction
- 2 eastbound alternates, 2 westbound alternates
- TSP Possible: No

FIGURE 4.17: MANNHEIM/HIGGINS STATION SITES

TABLE 4.4: MANNHEIM/HIGGINS EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Midblock)	• Available right-of-way • Transfers to Pace Route 223, which serves the Rosemont CTA station and Elk Grove Village industrial areas • Directly serve new Des Plaines development	• Distance from signalized intersection • Challenging pedestrian environment • Midblock crossing needed • Low existing Route 250 ridership (5 average daily boardings)
Alt 2 (Near Side)	• Transfers to Pace Route 223, which serves the CTA Blue Line Rosemont station and Elk Grove Village industrial areas	• Blocks right turn lane • Farther from development sites • Challenging pedestrian environment • Requires bus to merge from turn lane through intersection and then merge back into travel lane

TABLE 4.5: MANNHEIM/HIGGINS WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Midblock)	• Transfers to Pace Route 223, which serves the Rosemont CTA station and Elk Grove Village industrial areas • Potential to directly serve new development	• Distance to the intersection • Challenging pedestrian environment • Midblock crossing needed • Low existing Route 250 ridership (less than 1 daily boarding on average) • Potential for property impacts due to need to meet sight distance requirements
Alt 2 (Far Side)	• Transfers to Pace Route 223, which serves the Rosemont CTA station and Elk Grove Village industrial areas • Close to signalized intersection • Will be located on permanent easement	• Far from development site • Challenging pedestrian environment • Very little existing ridership • 90" water main adjacent to station site requires coordination with Northwest Suburban Municipal Joint Action Water Agency

The City of Chicago, City of Des Plaines, and the Village of Rosemont share a border running down Mannheim Road, with Rosemont on the west and Des Plaines on the east, north of Higgins Road. South of Higgins Road, Chicago is on the west and Rosemont is on the east side of Mannheim Road. Rosemont has a current development proposal north of Higgins Road and Des Plaines has a development currently under construction on the east side of Mannheim Road north of Higgins Road. The Village of Rosemont and the City of Des Plaines suggested relocating the Mannheim/Lunt station to the intersection of Mannheim Road and Higgins Road.

Reconstruction of Mannheim Road and the Mannheim Road/Higgins Road intersection is expected to be complete summer of 2016. The new Mannheim Road cross section at this intersection consists of three through lanes in each direction with two left turn lanes in the northbound and southbound direction and a northbound right turn lane. The corner islands shown in the aerials in Figure 4.17 above and in the Station Layouts in Appendix F were removed as part of the reconstruction. As a result of the construction, in the eastbound direction approaching Mannheim Road, Higgins Road has two through lanes with two left turn lanes and one right turn lane. In the westbound direction upon approach with Mannheim Road, Higgins Road now has two through lanes with two left turn lanes and one right turn lane. In the westbound direction west of Mannheim Road, Higgins has two through lanes with a third right lane that tapers off. Crosswalks now connect all corners of the intersection.

4.4.2.1 EASTBOUND

4.4.2.1.1 Alternate 1

Alternate 1 is located north of the McDonald's restaurant and adjacent to a new development that is currently under construction and consists of a gas station, retail strip center, hotel and restaurant outlot. An exact station site is dependent on coordination with the City of Des Plaines. In order for this location to be viable, a safe pedestrian crossing will be required. This may be a signalized intersection or a pedestrian signal. These improvements require coordination with the City of Des Plaines, the Village of Rosemont, and IDOT.

4.4.2.1.2 Alternate 2

The Alternate 2 station site in the eastbound direction will be a near side station sited in the right turn lane upon the approach to Higgins Road. A far side option is not feasible due to the drive access for McDonald's and the presence of a culvert for Willow Creek which would possibly require construction on a bridge deck.

4.4.2.2 WESTBOUND

4.4.2.2.1 Alternate 1

The Alternate 1 station site is located near the entrance to the Holiday Inn hotel and adjacent to a 22-acre planned development site. An exact station site at this location is dependent on coordination with the Village of Rosemont and possibly the site developer. Due to sight distance requirements, the station may need to be set farther back from the road edge, which will likely result in property impacts. In order for this location to be viable, a safe pedestrian crossing will be required. This may be a signalized intersection or a pedestrian signal. These improvements require coordination with the City of Des Plaines, the Village of Rosemont, and IDOT.

4.4.2.2.2 Alternate 2

The Alternate 2 station site is located at the far side of the intersection, south of Higgins Road. This site is within the City of Chicago's 41st Ward and is adjacent to O'Hare Airport property. Nearby airport uses include an Enterprise rental car facility, which is accessible from Zemke Boulevard to the south. IDOT is currently reconstructing this intersection and is procuring a permanent easement for roadway purposes. The Alternate 2 station site will be located within this permanent easement and would need to be negotiated with the property owner. A 90" high pressure water main owned by the Northwest Suburban Municipal Joint Action Water Agency (NSMJAWA) runs just west the station site. NSMJAWA has an easement for the main. In addition, IDOT is procuring a permanent easement for roadway purposes that would be within NSMJAWA's existing easement.

4.4.2.3 SUMMARY STATUS OF ALTERNATES

All station sites at Mannheim/Higgins are recommended for further consideration and conceptual station layouts are included in Appendix F. Figure 4.17 shows the Mannheim/Higgins station locations. Table 4.4 and Table 4.5 provide further analysis of challenges and opportunities for each station alternative**.**

4.4.3 Lee/Touhy

- Municipality: City of Des Plaines
- Jurisdiction: IDOT
- Cross Section: Two through lanes in eastbound and westbound direction, one center left turn lane on Touhy Avenue, one through lane in each direction and one right turn lane in southbound direction on Lee Street and right turn corner island in the northbound direction.
- 2 eastbound alternates, 2 westbound alternates
- TSP Possible: Yes

FIGURE 4.18: LEE/TOUHY STATION SITES

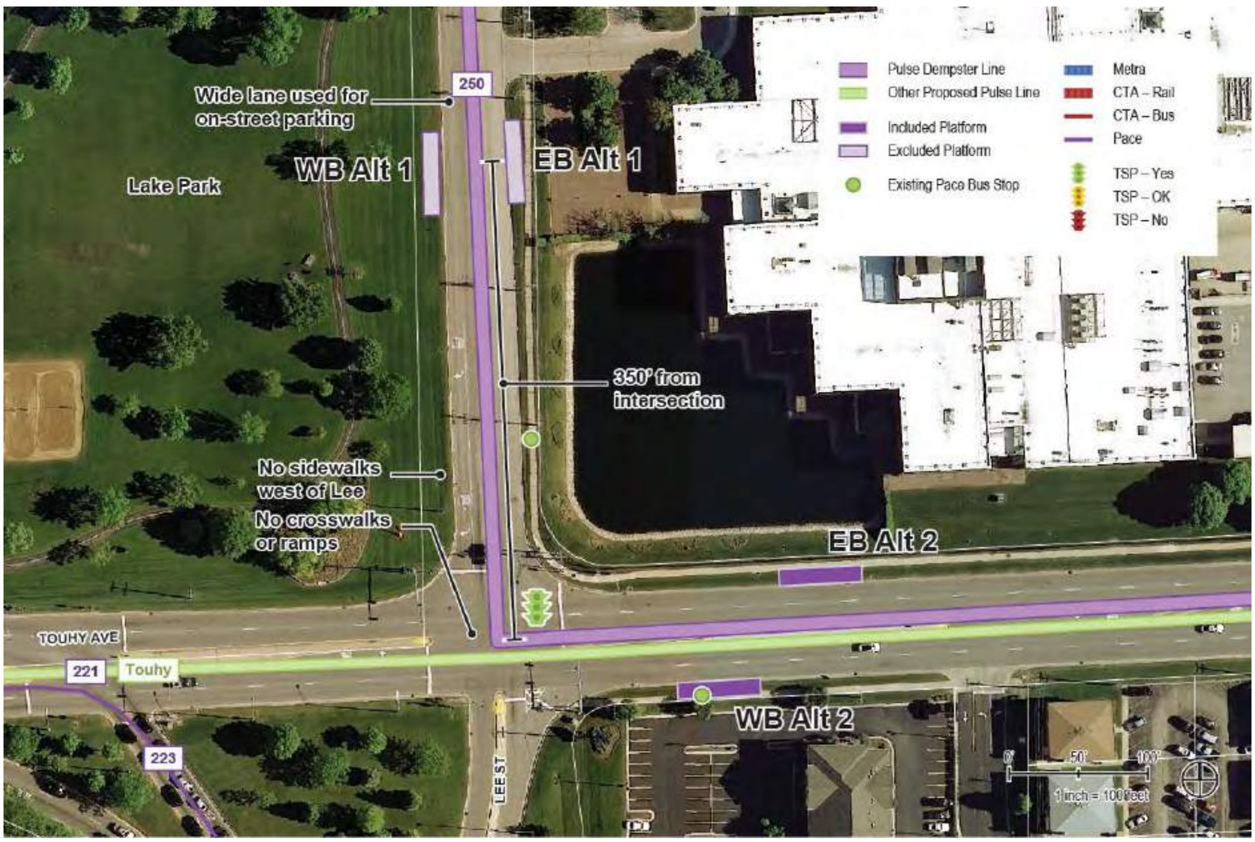


TABLE 4.6: LEE/TOUHY EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• Available right-of-way • TSP benefits	• 350 feet north of signalized crossing • Existing fire hydrant and overhead power lines • Higher ridership on Touhy
Alt 2 (Near Side)	• Connection to other Pace routes • Connection to future Pulse Touhy Line • Available right-of-way	• Westbound approach needs to be reconfigured to accommodate pedestrian elements • TSP more challenging to implement and make effective

TABLE 4.7: LEE/TOUHY WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Near Side)	• Available right-of-way	• Adjacent to Lake Park and memorial site (Potential Section 4(f) issues) • No pedestrian facilities • Operational issues in merging into left lane for turn onto Touhy
Alt 2 (Far Side)	• Connection to other Pace routes • Connection to future Pulse Touhy Line • TSP benefits • Available right-of-way	• NA

This station location was identified by Pace in its 2010 Report based on modest ridership levels (62 average weekday boardings to Evanston, 9 to O'Hare), supportive land uses (e.g. commercial/office and nearby multi-family residential), and potentially suitable station sites. There are transfer opportunities with Pace Route 221 and with a future Pulse Touhy Line. Pace has identified two alternate station sites in each direction.

There are sidewalks on only two legs of the intersection; further, there are no crosswalks and there is a raised median on Touhy Avenue. This would need to be addressed in coordination with City of Des Plaines and IDOT as part of the station planning and design.

There are broader operational issues at Lee Street and Touhy Avenue that the City of Des Plaines would like to address, including a long-term major reconfiguration of the intersection. If this were to proceed, pedestrian improvements would be implemented as part of the reconfiguration. Des Plaines and Rosemont report that they have both received complaints about pedestrian safety along Touhy Avenue.

4.4.3.1 EASTBOUND

4.4.3.1.1 Alternate 1

The Alternate 1 station site is located on the far side of the intersection on Lee Street as the route turns north from Touhy Avenue. While transit signal priority (TSP) benefits can be realized at this site, Pace identified several challenges, including the distance to the signalized intersection, existing utilities that would need to be relocated, and a loss of connectivity with Pace Route 221 and the future Pulse Touhy Line. For these reasons, this alternative is not recommended for further consideration.

4.4.3.1.2 Alternate 2

The Alternate 2 station site is on Touhy Avenue at the near side of the intersection with Lee Street. There appears to be sufficient right-of-way to construct a station at this site; however siting the station here will make implementation of TSP more challenging. Given the availability of right-of-way and the connectivity to Pace Route 221 and the future Pulse Touhy Line, this station alternative is recommended for further consideration.

4.4.3.2 WESTBOUND

4.4.3.2.1 Alternate 1

The Alternate 1 station site is located on Lee Street at the near side of the intersection with Touhy Avenue. There appears to be ample room for a standard station at this location. However, a park and a memorial are located adjacent to the site and may trigger Section 4(f) impacts during the NEPA phase. Additionally, siting a station here would create an operational issue as the bus would need to merge from the station across two lanes of traffic to get into the left turn lane to turn at Touhy. It has been noted by Des Plaines that southbound traffic frequently queues up, making this movement more difficult. Additionally, this station site is not located on Touhy Avenue and thus loses direct connectivity to Pace Route 221 and a future Pulse Touhy Line station. For these reasons, this station alternative is not recommended for further consideration.

4.4.3.2.2 Alternate 2

The Alternate 2 station site is located on the far side of the intersection on Touhy Avenue. This station site is adjacent to a hotel and multi-family housing and has connectivity to Pace Route 221 and the future Pulse Touhy Line. There appears to be sufficient room to build a station within the existing right-of-way. This alternative station site is recommended for further consideration.

4.4.3.3 SUMMARY STATUS OF ALTERNATES

Only Eastbound Alternate 2 and Westbound Alternate 2 are recommended for further consideration. Conceptual station layouts for each of these are included in Appendix F. Figure 4.18 shows the Lee/Touhy station locations. Table 4.6 and Table 4.7 provide further analysis of challenges and opportunities for each station alternative**.**

4.4.4 Lee-Mannheim/Oakton

- Municipality: City of Des Plaines
- Jurisdiction: IDOT
- Cross Section: Two through lanes in each direction, center turn lane
- 2 eastbound alternates, 2 westbound alternates
- TSP Possible: No

FIGURE 4.19: LEE-MANNHEIM/OAKTON STATION SITES

TABLE 4.8: LEE-MANNHEIM/OAKTON EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Midblock)	• Better service to The Oaks shopping center	• 350 feet north of the intersection and a safe signalized pedestrian crossing is needed • Uncertain whether the Illinois Department of Transportation (IDOT) would grant a midblock crossing to improve safety
Alt 2 (Far Side)	• Highest ridership among existing eastbound stops in the area • Better access to Oakton Street and a desired future Metra station • Existing bus stop and shelter • Better transfer opportunities to Routes 226 and 230	• Potential conflicts between idling bus at station and right turns from the westbound direction

TABLE 4.9: LEE-MANNHEIM/OAKTON WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Midblock)	• Highest ridership among existing westbound stops in the area • Available right-of-way • Near a retail center including a grocery store	• Approximately 500 feet from Oakton Street and a safe signalized pedestrian crossing • Uncertain whether IDOT would grant a midblock crossing
Alt 2 (Far Side)	• Available right-of-way • Close to a signalized crossing • Better access to Oakton Street and a desired future Metra station • Better transfer opportunities to Routes 226 and 230	• NA

This station location was selected by Pace and features similar current ridership to the Lee/Touhy station location. Land uses are less transit friendly and the roadway itself is wider and features higher volume and higher speed traffic.

The intersection is 1,000 feet west of a proposed new station along the Metra North Central Service line. The rail station has been proposed by the City of Des Plaines, but is not currently funded. Two alternate station sites were analyzed for each direction of Pulse service. Figure 4.19 shows the Lee-Mannheim/Oakton station site locations. Table 4.8 and Table 4.9 provide a summary of the opportunities and challenges at each station site location.

4.4.4.1 EASTBOUND

4.4.4.1.1 Alternate 1

The Alternate 1 station site is approximately 500 feet north of Oakton Street near the entrance to The Oaks shopping center. This site is near an un-signalized shopping center entrance. Due to the distance from a safe signalized crossing, a midblock pedestrian crossing may be needed although it is unlikely that IDOT would support this. Due to these safety challenges, this station site is not recommended for further consideration.

4.4.4.1.2 Alternate 2

The Alternate 2 station site is located on the far side of the intersection but close to the signaled intersection. This site also provides access to a potential future Oakton Street station on Metra's North Central Service line and Pace Routes 226 and 230 on Oakton Avenue. The Metra station would be located about 1,000 feet to the east of the Lee Street-Mannheim Road and Oakton Street intersection. The current bus stop at this location has the highest ridership of the existing eastbound bus stops in the area. This station site is recommended for further consideration.

4.4.4.2 WESTBOUND

In the westbound direction of travel two alternate station sites were examined.

4.4.4.2.1 Alternate 1

The Alternate 1 station site is located approximately 500 feet north of Oakton Street. A midblock crossing would most likely be needed at this location. Despite its distance from the intersection, this station site has the highest ridership among existing westbound Route 250 stops in the area and provides good access to the shopping center on the west side of the street. There is also sufficient room for the station platform within the right-of-way, between curb and gutter back to the existing sidewalk. However, due to the distance from the intersection and the challenges associated with accommodating a midblock pedestrian crossing, this station site is not recommended for further consideration.

4.4.4.2.2 Alternate 2

The Alternate 2 station site is located on the far side of the intersection. While TSP is not currently recommended for the intersection, the far side site would provide benefits in the future if TSP were feasible. There is ample room for a typical station platform within the right-of-way between the curb and the sidewalk. The station would be adjacent to a KFC restaurant on the southwest corner of the intersection and is close to a signalized crossing. This station site is recommended due to its far side location, proximity to the planned Metra station and access to a safe pedestrian crossing at Lee and Oakton Streets.

4.4.4.3 SUMMARY STATUS OF ALTERNATES

Only Eastbound Alternate 2 and Westbound Alternate 2 are recommended for further consideration. Conceptual station layouts for each of these are included in Appendix F. Eastbound Alternate 1 and Westbound Alternate 1 have been excluded from consideration due to distance from the intersection and the possible need for a midblock crossing. Eastbound Alternate 2 and Westbound Alternate 2 are currently under consideration.

4.4.5 Des Plaines Metra

- Municipality: City of Des Plaines
- Jurisdiction: Ownership for bus turnaround site to be determined; Likely IDOT/Metra/UP ; Westbound Miner Street - IDOT
- Cross Section: Bus turnaround/layover facility (eastbound), two through lanes in each direction on Miner Street.
- 2 eastbound alternates, 3 westbound site alternates
- TSP Possible: Potentially at Miner/Pearson

FIGURE 4.20: DES PLAINES METRA STATION SITES

TABLE 4.10: DES PLAINES METRA EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Midblock)	• Existing bus layover facility in front of the Des Plaines Metra station • Limited capital improvements required to be functional for Pulse (e.g. signage only)	• Capacity constraints may exist here as 7 Pace routes and more than 40 buses utilize turnaround during the peak periods
Alt 2 (Near Side)	• Lessens demand on capacity constrained layover facility	• City of Des Plaines and Pace consider this site unsuitable

TABLE 4.11: DES PLAINES METRA WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Near Side)	• Close to the existing midblock crosswalk to the Des Plaines Metra station • Existing Pace stop sets precedent for continued use for Pace services	• Limited right-of-way with buildings built to property lines • Constructing necessary station platform adjacent to building facades would be difficult Station would likely limit visibility and access to businesses • Buses must pull out of traffic and then merge back in • Passengers would use the midblock crossing or jaywalk to get to Metra; this has been raised as a safety concern by Des Plaines and IDOT
Alt 2 (Near Side)	• Near the midblock crossing • On-street parking could be relocated to the west with the elimination of the existing stop at Lee Street and Miner Street	• Limited right-of-way with buildings built to property lines • Passengers would alight and cross in front of bus and use the midblock crosswalk or jaywalk to get to Metra; this has been raised as a safety concern by Des Plaines and IDOT • Station construction would require removal of majority of on-street parking • Station would likely limit visibility and access to businesses
Alt 3A (Near Side, On-Street)	• Site places passengers at a signalized intersection that is safer than the midblock crossing • Significantly more right-of-way available than other options • Minimizes impact on local businesses	• Previously proposed site for bus stop that was not supported by area residents; gaining support for this site may be challenging • On-street station would likely result in buses blocking traffic; for this reason, the station could only be sized to accommodate one vehicle, which does not take full advantage of available right-of-way • Existing stop at near side of Miner and Lee would likely still be needed to serve local routes
Alt 3B (Near Side, Turn Out)	• Site places passengers at a signalized intersection that is safer than the midblock crossing • Significantly more right-of-way available than other options • Minimizes impact on local businesses • Pull out configuration accommodates multiple buses, reduces potential of buses blocking traffic, and maximizes use of available right-of-way • Configuration proposed by Des Plaines and would generally be supported by City	• Previously proposed site for bus stop that was not supported by area residents; gaining support for this site may be challenging • Bus pull out does not meet BDE requirements for a bus bay. Will require additional coordination with IDOT and City, including potential design exception

The Des Plaines Metra station is a major transfer location for Pace and Metra customers, with over 1,000 weekday commuter rail boardings and nearly as many Pace boardings. The station is among the highest ridership locations along Route 250. Many Route 250 trips start or end at this location. Two station sites were evaluated in the eastbound direction and three in the westbound direction. Figure 4.20 shows the potential Des Plaines station site locations.

4.4.5.1 EASTBOUND

4.4.5.1.1 Alternate 1

The Alternate 1 station site utilizes the existing bus pull out in front of the Des Plaines Metra station and would only require minimal improvements such as Pulse and real time arrival information signage. Seven Pace routes stop here and more than 40 buses utilize the layover area during the AM and PM peak periods. Capacity constraints may exist here. As this facility is currently serving Pace, is located directly adjacent to the Des Plaines Metra station, and would require minimal capital improvements, this alternate is recommended for further consideration.

4.4.5.1.2 Alternate 2

The Alternate 2 station site is located at the existing taxi stand. Due to operational issues raised by the City of Des Plaines and Pace, this station site is not recommended for further consideration.

4.4.5.2 WESTBOUND

4.4.5.2.1 Alternate 1

The Alternate 1 station site is located on Miner Street across from the Des Plaines Metra station and sited at the location of an existing bus stop. The bus stop is served by an existing midblock crossing. However, the City of Des Plaines is concerned that a station here may block storefronts and further reduce existing on-street parking. While the sidewalks are relatively wide here, constructing a station platform adjacent to the storefronts would potentially be difficult and would likely limit visibility and access to businesses. Operationally, this station site requires buses to pull out of traffic and then merge back in and cross a travel lane to get positioned to make a left turn onto Graceland.

An additional concern with this station site is that bus passengers would alight and use the midblock crossing or jaywalk to get to Metra; this has been raised as a safety concern by Des Plaines and IDOT. Despite these challenges, this station site is recommended for further consideration.

4.4.5.2.2 Alternate 2

The Alternate 2 station site is located between Metropolitan Way and Pearson Street. This station site may limit visibility and access to businesses behind it. It would require the removal of the majority of parking as the station platform would be built within the parking lane. However, parking could be relocated to the west if the existing stop were relocated here. Similar to Alternate 1, passengers would alight and cross in front of the bus and use the midblock crosswalk or jaywalk to get to Metra, which has been raised as a safety concern by Des Plaines and IDOT. Despite these challenges, this station site is recommended for further consideration.

4.4.5.2.3 Alternate 3A-B

The Alternate 3 station site is located on the near side of Miner Street and Pearson Street. This stop was previously proposed for a local bus stop and there was opposition from local residents in the adjacent condominium building. However, recent feedback from IDOT indicates that a recently completed safety study found that this site would improve safety on Miner Street as it would place alighting passengers at the near side of a signalized intersection that provides a safer pedestrian crossing. In addition, this site is proposed because it has significantly more right-of-way available than either Alternates 1 or 2, and would not impact local businesses.

It was noted in Des Plaines and IDOT coordination meetings that River Road will be reconstructed in summer 2016, which will include reconstruction of the Miner/Pearson intersection. This would be an opportune time to modify the layout of this intersection to support a future Pulse station location.

There are two station configurations provided for consideration for station site Alternate 3. Alternate 3A is an on-street station and Alternative 3B is a bus turnout station. Because an on-street station would block through traffic, it is sized to serve only one transit vehicle at a time. In this scenario, the existing stop at the near side of Miner and Lee would likely still be needed. The pull out station configuration would remove buses from the travel lane and would likely be able to accommodate multiple buses. However, it is noted that the turnout does not meet requirements set forth in the IDOT Bureau of Design and Environment (BDE) Manual or in Pace's Transit Supportive Guidelines. This station site, in either configuration is recommended for further consideration. During advanced conceptual design, partner agencies should be consulted on acceptable station geometrics.

4.4.5.3 SUMMARY STATUS OF ALTERNATES

Eastbound Alternate 1 and Westbound Alternates 1, 2 and 3A-B are recommended for further evaluation. Conceptual station layouts for each of these are included in Appendix F. Figure 4.20 shows the Des Plaines Metra station site locations. Table 4.10 and Table 4.11 provide a summary of the opportunities and challenges at each station site location. Eastbound Alternate 2 is not recommended for further consideration due to operational issues raised by the City of Des Plaines and Pace.

4.4.6 Potter

- Municipality: City of Park Ridge (eastbound), Maine Township (westbound),
- Jurisdiction: IDOT
- Cross Section: Two through lanes in each direction, center turn lane
- 2 eastbound alternates, 2 westbound alternates
- TSP Possible: Potentially

FIGURE 4.21: POTTER STATION SITES

TABLE 4.12: POTTER EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Near Side)	• NA	• Ridership is predominantly east of Potter Road • Significant underground utilities, including a 36-inch storm sewer, electrical, and gas utilities underneath • Limited right-of-way • Adjacent single-family residential properties could be impacted
Alt 2 (Far Side)	• Potential to better serve Maine East High School, the source of the majority of the ridership in this area • TSP benefits can be realized • Available right-of-way for a station between curb and gutter and sidewalk • Water main and storm sewer are likely deep enough to avoid conflicts	• There are potential utility conflicts, including a gas vault, 15-inch storm sewer, water main, street lighting, and mature street trees • Sight lines and visual impacts to the school

TABLE 4.13: POTTER WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• TSP benefits can be realized at this location • Sufficient right-of-way	• Furthest from source of existing ridership (Maine East High School) • Site constrained by power lines and underground utilities including telephone, electrical, and gas, all of which may need to be relocated depending on the existing depth • Potential conflicts with traffic exiting adjacent fast food restaurant and traffic turning from southbound Potter onto westbound Dempster in order to access I-294 • Impacts to new decorative landscaping at Lurvey Landscape Supply and Garden Center
Alt 2 (Near Side)	• High ridership stop and closer to source of existing ridership than far side station	• Temporary impacts to parking lot • Grade change between parking lot and street would require curb construction • Tree removal would be necessary • Overhead power lines and utility poles are present, though may not need to be removed

This location was identified as an alternate to Dee Road due to significant site constraints and utility conflicts at that location. The largest passenger traffic generator at both Dee Road and Potter Road is Maine East High School, which is equally accessible from either intersection. The highest ridership stops on the segment from Potter to Dee are at the high school, and these stops are equidistant from both intersections. A station at Potter would serve the high school as well as Dee and would require a walk of less than five minutes for residents of the Dee Road multi-family housing to reach Potter Road. A station at Potter Road would also facilitate transfers to and from Pace Route 240, which crosses Dempster Street at Potter Road. Figure 4.21shows the Potter station sites.

It is noted that the Metropolitan Water Reclamation District (MWRD) is undertaking a storm water improvement project from I-294 to west of Luther Lane. Currently the project is in the design phase and is expected to be under construction in 2017. Coordination with MWRD will be needed to align plans at either location.

4.4.6.1 EASTBOUND

4.4.6.1.1 Alternate 1

The Alternate 1 station site is located on the near side of the intersection with Potter Road and is located adjacent to a subdivision of single-family homes that is edged by a solid fence along Dempster Street and Potter Road. Construction of a station at this site would impact these single-family homes.

Utility conflicts in this area include a 36-inch storm sewer as well as electric and gas lines, which would possibly have to be relocated to accommodate a station. Because of this, and because existing Route 250 ridership is predominantly east of Potter serving Maine East High School, the Alternate 1 station site is not recommended for further consideration.

4.4.6.1.2 Alternate 2

The Alternate 2 station site is located at the far side of the intersection with Potter Road and is adjacent to Maine East High School, where the majority of the ridership is based and where TSP benefits can be realized. There is ample room for a station between the curb and gutter and sidewalk, although the right-of-way limits need to be confirmed as Cook County parcel data indicates that the property line extends to the centerline of Dempster Street. Further, caution must be exercised to avoid impacts to the mature street trees. This site does bring potential utility conflicts including a gas vault, 15-inch storm sewer, water main, street lighting, and large trees. The water main and storm sewer is likely deep enough to avoid conflicts. Maine East High School representatives also raised concerns regarding sight lines and potential visual impacts to the school's architecture. This station site is recommended for further consideration.

4.4.6.2 WESTBOUND

4.4.6.2.1 Alternate 1

Alternate 1 is proposed for the far side of the intersection with Potter Road. Space is somewhat constrained for this site as overhead power lines and utility poles are present, though likely do not need to be removed. This far side station may also create conflicts with traffic exiting the adjacent fast food restaurant as well as with traffic turning from southbound Potter onto westbound Dempster to access I-294. Siting a station at this site requires the majority of riders to cross one additional street to access the station or Maine East High School. Though TSP benefits can be realized at this location, it is not recommended for further consideration due to the distance from existing ridership generators as well as the potential for traffic conflicts.

4.4.6.2.2 Alternate 2

The Alternate 2 station site is located at the near side of the intersection at Potter Road, across Dempster Street from Maine East High School. The parking lot for the adjacent retail center will sit at a slightly higher elevation after constructing the sidewalk and station to meet ADA requirements. Therefore a curb may be needed at the back of the station platform which would likely result in temporary property impacts. In addition, street trees would need to be removed to construct the station. However, as ridership is predominantly generated by the high school east of Potter Road, this site is a greater convenience to riders. For this reason and because the property impacts are anticipated to be relatively minor, the Alternate 2 station site is recommended for further consideration.

4.4.6.3 SUMMARY STATUS OF ALTERNATES

Eastbound Alternate 2 and westbound Alternate 2 are recommended for further evaluation. Conceptual station layouts for each of these are included in Appendix F. Table 4.12 and Table 4.13provide a summary of the opportunities and challenges at each station site location. Eastbound Alternate 1 is not recommended for further consideration due to limited right-of-way, utility conflicts and nearby homes that may have property impacts. Westbound Alternate 1 is not recommended for further consideration due to distance from existing ridership generators and potential traffic conflicts.

4.4.7 Dee

- Municipality: City of Park Ridge (eastbound), Maine Township (westbound)
- Jurisdiction: IDOT
- Cross Section: Two through lanes in each direction, center turn lane in westbound direction
- 2 eastbound alternates, 2 westbound alternates
- TSP Possible: Yes

FIGURE 4.22: DEE STATION SITES

TABLE 4.14: DEE EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Near Side)	• Closer to Maine East High School than far side Dee site	• TSP benefits would not be realized here • Existing underground utilities may present challenges • Ponding issues at sidewalk discovered during site visit • Sensitive natural area on the southwest corner of the intersection
Alt 2 (Far Side)	• NA	• Significant grading issues as the sidewalk is below the street and flooding is an issue, including ponding issues at sidewalk discovered during site visit • Exposed storm sewer at ground level that would need to be relocated • Other utilities may need to be relocated depending on their existing depths

TABLE 4.15: DEE WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• Preferred for TSP functionality	• Limited right-of-way • Site utilities include telephone, storm, 6-inch gas and sanitary sewer • Sanitary and water appear to be deep enough to avoid conflict • Telephone and gas may need to be relocated or deepened depending on their existing depths • Curb is higher than sidewalk which would require the existing sidewalk to be reconstructed with the station to meet ADA requirements. Grading may be required at back of sidewalk after constructed and may potentially impact residential fences
Alt 2 (Near Side)	• Existing bus stop and shelter	• Limited right-of-way • Utilities are present on site, though sanitary and water utilities are likely deep enough to not conflict with a station here

This station location was identified by Pace to serve Maine East High School and a multi-family apartment complex immediately north of the Dee Road intersection. As previously noted, the Potter station is being offered as an alternate to a Dee station and the two should be compared for their respective impacts and benefits during the environmental review phase. Figure 4.22 shows the Dee station site locations. Table 4.14 and Table 4.15 provide a summary of the opportunities and challenges at each station site location.

Like the Potter station site, this area will be impacted by the MWRD storm water improvement project planned for 2017. Coordination with MWRD will be needed to align plans for either location.

4.4.7.1 EASTBOUND

4.4.7.1.1 Alternate 1

The Alternate 1 station site is located at the existing Route 250 bus stop at the near side of the intersection with Dee Road, and is directly adjacent to Maine East High School. The existing curb is higher than the sidewalk in this area resulting in the parkway being pitched towards a terraced area near the catch basin. The storm inlet along the curb may need to be adjusted as part of any station improvements. Cook County parcel data indicates that the parcel lines along the south side of Dempster extend to the centerline of the street. This will need to be confirmed during the environmental review phase in order to ascertain the extent of any property impacts. An historic stand of oak trees is located to the south of the station site. Potential impacts to this natural area will be further assessed during the environmental review phase and may warrant shifting this station site slightly west, placing it adjacent to the tennis courts. With this in mind, this station site is recommended for further consideration because it is closest to Maine East High School, which generates the majority of ridership in the area.

4.4.7.1.2 Alternate 2

The Alternate 2 station site is located at the far side of the intersection at Dee Road. This station site has significant grading issues as the sidewalk elevation is below the street elevation and flooding occurs at this site.

FIGURE 4.23: DEE EASTBOUND ALTERNATE 2 STATION SITE

During a field visit, it was observed that ponding occurs in the parkway, as shown in Figure 4.23. In addition, there is a partially exposed drainage pipe and catch basins in the station area. These issues could create significant challenges to constructing a far side station in this direction. Because of the grading and infrastructure required to support a station at this site, Alternate 2 is not recommended for further consideration.

4.4.7.2 WESTBOUND

4.4.7.2.1 Alternate 1

The Alternate 1 station site is located at the far side of the intersection at Dee Road. The right-of-way appears to be limited on the north side of Dempster Street as the parcel lines run through the middle of the parkway with the sidewalk located on private property. In addition, there are numerous utilities and a private driveway in the parkway. The driveway would require that the far side station be positioned some distance away from the signalized intersection in order to avoid traffic conflicts and maintain sight distance requirements. The Alternate 1 station site is recommended for further consideration.

4.4.7.2.2 Alternate 2

The Alternate 2 station site is located at an existing Route 250 bus stop and shelter at the near side of the intersection at Dee Road. The right-of-way at this location is constrained. The sidewalk would have to be routed through the station as the shelter and vertical marker would need to be set back to accommodate sight distance requirements. The limits of the right-of-way will need to be confirmed during the environmental review phase to better determine the extent of any property impacts. Utilities are present on site, though sanitary and water utilities are likely deep enough to not conflict with a station here. Other utilities may need to be relocated depending on their existing depths. The Alternate 2 station site is recommended for further consideration.

4.4.7.3 SUMMARY STATUS OF ALTERNATES

Eastbound Alternate 1 and westbound Alternates 1 and 2 are recommended for further evaluation. Conceptual station layouts for each of these are included in Appendix F. Due to grade and utility issues, the Eastbound Alternate 2 station site is not recommended for further consideration. Because of challenges associated with the eastbound Potter and Dee alternates that were evaluated and feedback received from Maine East High School, an additional eastbound alternate, located just east of the one-way egress near the high school tennis courts, may be considered during the environmental review phase.

4.4.8 Western

- Municipality: City of Park Ridge (eastbound), Village of Niles (westbound)
- Jurisdiction: IDOT
- Cross Section: Two through lanes in each direction, center turn lane
- 1 eastbound alternate, 1 westbound alternate
- TSP Possible: Yes

FIGURE 4.24: WESTERN STATION SITES

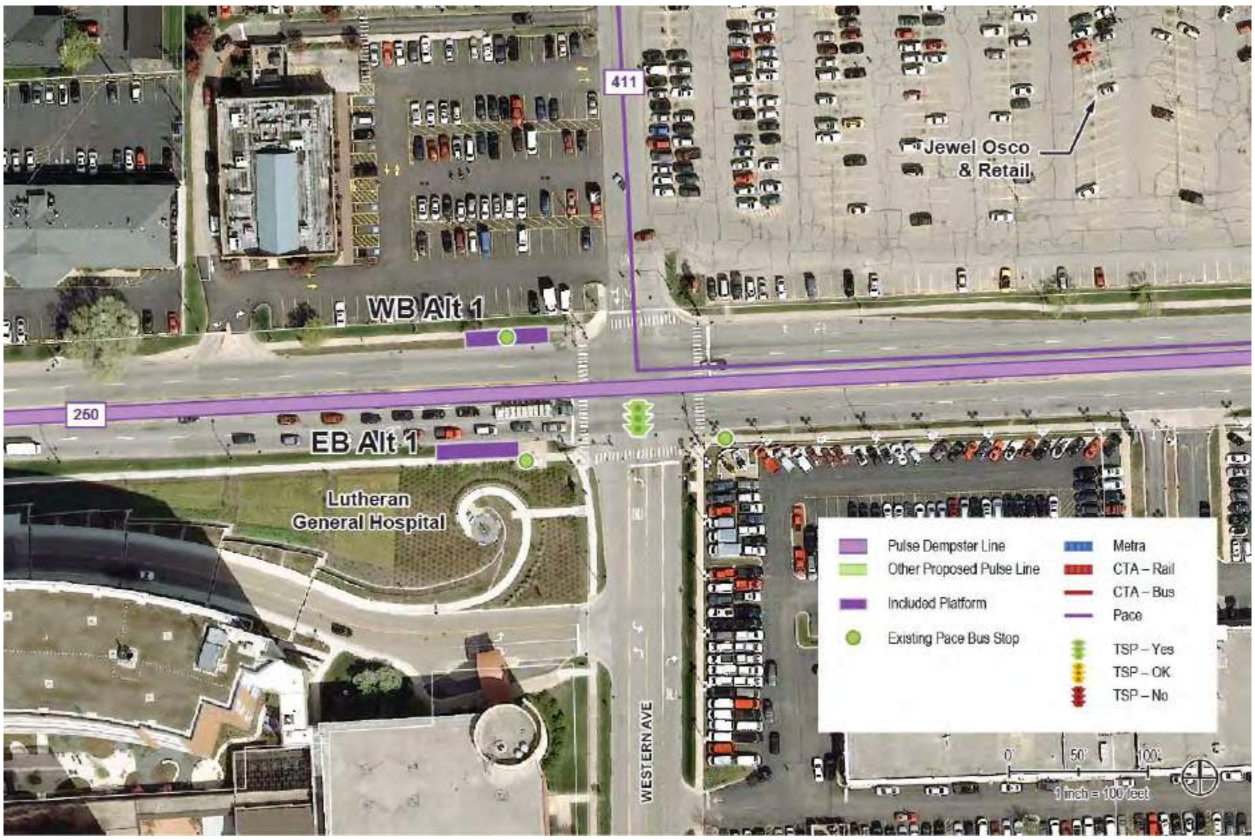


TABLE 4.16: WESTERN EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Near Side)	• Good access to Lutheran General Hospital entrance • Site is currently used for transit stop with bus shelter • Hospitable pedestrian environment	• Limited right-of-way • Shelter and sidewalk may be on private property • TSP benefits not fully realized

TABLE 4.17: WESTERN WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• Good access to Lutheran General Hospital entrance • Transfer opportunity with Niles Free Bus Route 411 • Available right-of-way • TSP benefits can be realized	• NA

This location would be a superior location to Luther Lane for a station to serve Lutheran General Hospital, nearby retail and other land uses, and to provide transfer opportunities to the Niles Free Bus, Route 411. For this reason, the Luther Lane station location was removed from consideration and replaced with the Western station location. The majority of Route 250 ridership is to and from the east at this location, which may be an indication of why more hospital-related passenger activity is occurring at this location east of the hospital, rather than at Luther Lane west of the hospital.

4.4.8.1 EASTBOUND

4.4.8.1.1 Alternate 1

In the eastbound direction, the site is on the near side of the intersection, where there is an existing Route 250 bus shelter and a landscaped plaza belonging to Lutheran General Hospital. Cook County parcel lines appear to indicate that the shelter and sidewalk are located on private property. This will need to be confirmed during the environmental review phase in order to determine the extent of any property impacts. However, it is noted that there appears to be ample room to construct the station platform between the curb and gutter and the back of the existing sidewalk. A far side station at this location was considered as it would provide TSP benefits. However, it was dismissed due to the limited right-of-way, the adjacent land use (an automotive dealer), as well as feedback from the City of Park Ridge.

4.4.8.2 WESTBOUND

4.4.8.2.1 Alternate 1

In the westbound direction, a station site was examined on the far side of the intersection, close to the hospital and local businesses, and at an existing Route 250. There appears to be ample room within the right-of-way for the station platform, which could be built between the curb and gutter and existing sidewalk. This far side station would provide TSP benefits and would also help provide an easy transfer to the Niles Free Bus, Route 411.

4.4.8.3 SUMMARY STATUS OF ALTERNATES

Eastbound Alternate 1 and Westbound Alternate 1 are both recommended for further consideration. Figure 4.24 shows the Western station sites. Table 4.16 and Table 4.17 provide a summary of the opportunities and challenges at each station site location.

4.4.9 Cumberland

- Municipality: Village of Niles
- Jurisdiction: IDOT
- Cross Section: Two through lanes in each direction, center turn lane
- 2 eastbound alternates, 1 westbound alternate
- TSP Possible: Yes

FIGURE 4.25: CUMBERLAND STATION SITES

TABLE 4.18: CUMBERLAND EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Near Side)	• Closer to adjacent multi-family housing • Sufficient right-of-way for a station	• Two manholes located in the parkway should be investigated for utility conflicts and will likely need to be adjusted • Increases complexity of achieving TSP benefits
Alt 2 (Far Side)	• Provides opportunity to achieve TSP benefits • Far side location helps to more fully distribute station spacing	• No pedestrian infrastructure • Located across the street from a fire station • Station would likely encroach on Maryhill Cemetery property

TABLE 4.19: CUMBERLAND WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• Serves nearby multi-family housing • Capitalize on existing ridership • Sufficient right-of-way • TSP benefits can be realized	• Storm inlet may need to be adjusted as part of station construction

Cumberland Avenue is located exactly one-half (1/2) mile east of Western Avenue and one-half (1/2) mile west of Milwaukee Avenue. Constructing an additional station here would provide service to 69 existing daily Route 250 trip origins that would not otherwise be located within one-quarter (1/4) mile of a Pulse station.

The intersection is surrounded on three sides by a mix of commercial and public land uses as well as dense residential development. Maryhill Cemetery is located at the southeast corner. The intersection is ADA compliant with full sidewalks on three sides; however there are no sidewalks on the southeast corner adjacent to cemetery. Gemini Junior High School is located one block north. The Niles Fire Department has a station at the northeast corner of the intersection. The majority of the ridership is west of the intersection. The Cumberland station site locations are shown in Figure 4.25.

4.4.9.1 EASTBOUND

4.4.9.1.1 Alternate 1

In the eastbound direction, the Alternate 1 station site is proposed near side at the site of an existing Route 250 bus stop, adjacent to an apartment complex. There is approximately 18 feet of right-of-way from the curb to the sidewalk, providing ample room for a station. Two manholes located in the parkway should be investigated for utility conflicts. The near side location would increase TSP complexity. This station site is recommended for further consideration.

4.4.9.1.2 Alternate 2

The Alternate 2 station site is located adjacent to Maryhill Cemetery at the far side of the intersection. The far side location presents an opportunity for TSP benefits; however, the use of TSP and development of the site is challenged by the presence of the fire station on the opposite side of the street, at the northeast corner of the intersection. It is further noted that there is no curb and gutter or sidewalk on Dempster Street in the area of the proposed station site. Because of this, the site grading will be needed and a storm structure will need to be relocated to accommodate drainage. Additionally, the Cook County parcel lines indicate that the Maryhill Cemetery parcel lines extend to the center line of the street, which would result in the station encroaching on the Cemetery property. If this site were selected, it would be the Pulse third station to encroach on the Maryhill Cemetery and continued coordination with the Cemetery would be needed. Despite these challenges, this station is recommended for further consideration.

4.4.9.2 WESTBOUND

4.4.9.2.1 Alternate 1

In the westbound direction, a station site is located at the far side of the intersection with Cumberland Avenue in between two driveways for an existing bank. There appears to be sufficient right-of-way available to construct at station at this site. This site would also be able to take advantage of TSP and is recommended for further consideration.

4.4.9.3 SUMMARY STATUS OF ALTERNATES

Eastbound Alternate 1 and 2 and Westbound Alternate 1 are all recommended for further consideration. Figure 4.25 shows the Cumberland station site locations. Table 4.18 and Table 4.19 provide a summary of the opportunities and challenges at each station site location.

4.4.10 Milwaukee

- Municipality: Village of Niles
- Jurisdiction: IDOT
- Cross Section: Grade separated intersection, with Dempster Street traveling under Milwaukee Avenue. At-grade access to Milwaukee has one through lane and one right turn lane
- 2 eastbound alternates, 3 westbound alternates
- TSP Possible: Yes

FIGURE 4.26: MILWAUKEE STATION SITES

TABLE 4.20: MILWAUKEE EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Near Side)	• Adjacent to the southbound Pulse Milwaukee Line station • Location is where the majority of boardings and alightings occur for Route 250 eastbound	• There are no sidewalks along the south side of Dempster Street and there is limited right-of-way which will likely require property acquisition or an easement • Buses required to stop in the right turn lane and merge into the traffic lane once through the intersection • Pedestrian refuge islands (from channelized right turns) on SE and NW corners do not allow buses to continue straight through the intersection • Increases complexity of achieving TSP benefits
Alt 2 (Far Side)	• Far side location would provide TSP benefits	• Limited right-of-way to construct a platform • To avoid property impacts, the station would need to be constructed within the striped area and would result in buses stopping in the travel lane • One or more driveway closures would likely be needed • A fire hydrant and telephone pole may require relocation • Transfers to the Milwaukee Line would require crossing Dempster Street for northbound transfers or Milwaukee Avenue for southbound transfers • There may be environmental issues associated with the adjacent automotive use

TABLE 4.21: MILWAUKEE WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• Avoid potential traffic conflicts • Far side location would provide TSP benefits	• Limited right-of-way • Site is farthest from Pulse Milwaukee Line stations • Property impacts here would include closure of one parking lot entrance and parking lot reconfiguration
Alt 2 (Far Side)	• Far side location would provide TSP benefits • Striped area could allow the bus to pull out of traffic when pulling into the station and avoid traffic conflicts	• Limited right-of-way • Site is farthest from Pulse Milwaukee Line stations and may promote jaywalking across Milwaukee and through private property parking lot to access station • The station may interfere with the business entrance • Transfers to the Milwaukee Line would require crossing street • If a platform were constructed in the striped zone of the current Route 250 stop, it would likely impact the single travel lane and the turn lane from Milwaukee Avenue
Alt 3 (Near Side)	• Station site is where the majority of Route 250 westbound boardings occur • Station would provide direct transfer to the northbound Milwaukee Line without requiring street crossing	• Significant property impacts including driveway closure and potential reconfiguration of parking lot • Station would be located in a right turn lane • Requires that buses stop in the right turn lane and merge into the traffic lane through the intersection • Pedestrian refuge islands (from channelized right turns) on SE and NW corners do not allow buses to continue straight through intersection. • Increases complexity of achieving TSP benefits

The intersection of Milwaukee Avenue and Dempster Street has already been designated as a station on the Pulse Milwaukee Line, and is therefore an essential station location on the Dempster Line. The Milwaukee Line is scheduled to open in 2017.

Over 100 passengers transfer between Routes 250 and 270 on an average weekday, making Milwaukee Avenue one of the busiest transfer points along Route 250. Because of the challenging pedestrian environment, Route 250 stops at each corner of the Dempster/Milwaukee intersection. Although this location poses significant site constraints and challenges to pedestrian safety and comfort, its importance as a station location necessitates overcoming these challenges. Some improvements to pedestrian infrastructure are planned as part of the Milwaukee Line project.

4.4.10.1 EASTBOUND

In the eastbound direction, two station sites were evaluated on the near side and one on the far side of the intersection, both of which currently serve as stops for Route 250.

4.4.10.1.1 Alternate 1

Alternate 1 is a near side station adjacent to the southbound Pulse Milwaukee Line station and is where the majority of boardings and alightings occur. A station at this location would facilitate easy transfers to the southbound Pulse Milwaukee Line station. There are no sidewalks along the south side of Dempster Street and there is limited right-of-way which will likely result in property impacts. The near side location will require buses to stop in the right turn lane and merge into the traffic lane once through the intersection. Pedestrian refuge islands (from channelized right turns) on the southeast and northwest corners do not allow buses to continue straight through the intersection. The feasibility for a queue jump at this location should be evaluated in future phases of design development. This site is recommended for further consideration.

4.4.10.1.2 Alternate 2

Alternate 2 is on the far side of the intersection, where TSP benefits could be realized. Dempster Street has one through lane here with a striped pavement marking to indicate a lane transition. There is also an existing Route 250 stop here, though ridership is lower than the stop at Alternate 1. The tapered lane appears to be wide enough to allow a bus to pull out of traffic when pulling into the station. However, there is limited right-of-way in which to construct a curb-side station. The station could be constructed in the striped area; however, this would impact the single travel lane. There are also possible driveway impacts to the adjacent automotive use (M&A Auto Service), though this business has five existing driveways between its Milwaukee and Dempster frontages. The adjacent automotive use also suggests that there may be environmental issues (e.g. hazardous materials) associated with this site.

Utility conflicts here appear to be minimal; however, a fire hydrant and telephone pole may require relocation. Transfers to the Pulse Milwaukee Line would require crossing Dempster Street for northbound transfers or Milwaukee Avenue for southbound transfers.

This site is not recommended for further consideration due to limited right-of-way, the potential for environmental issues and challenges in transferring to the Pulse Milwaukee Line.

4.4.10.2 WESTBOUND

In the westbound direction, Pace evaluated three station sites including the two existing bus stops at the northwest and northeast sides of the intersection as well as a third site farther to the west.

4.4.10.2.1 Alternate 1

Alternate 1 is a far side station located furthest from the Milwaukee Avenue intersection. It is adjacent to the parking lot serving Merle Furniture and a pump station. A station here would require a property easement and would impact the layout of the parking lot with a resultant loss of one or two parking spaces and the closure of a driveway. There are TSP benefits available from building a station at this site. Transfers to the Pulse Milwaukee Line would require crossing Milwaukee Avenue (northbound Milwaukee Line) or Dempster Street (southbound Milwaukee Line). Alternate 1 is recommended for further consideration.

4.4.10.2.2 Alternate 2

Alternate 2 is located on the far side of the intersection. Due to the limited right-of-way, construction of a station would impact the adjacent building, as shown in Figure 4.27, which has a higher finish floor elevation that is accessed by terraced steps along the sidewalk. Construction of a station at this location would require removal of some of the steps and integration of the remaining steps into the station platform, potentially interfering with the business entrance. The station site is located within the striped taper lane on Dempster Street, which has one through lane at this location. There are TSP benefits available here, but also potential conflicts with vehicles turning right onto westbound Dempster Street from Milwaukee Avenue. Transfers to the Pulse Milwaukee Line would require crossing Milwaukee Avenue (northbound Milwaukee Line) or Dempster Street (southbound Milwaukee Line). Alternate 2 is recommended for further consideration.

FIGURE 4.27: MILWAUKEE WESTBOUND ALTERNATE 2 STATION SITE

4.4.10.2.3 Alternate 3

Alternate 3 is located on the near side of the intersection at the location of the intersection's highest boarding location for Route 250 westbound. A majority of westbound boardings occur here, and opportunities for transferring to the Pulse Milwaukee Line northbound do not require crossing any streets. However, this site will result in impacts to the driveway of the adjacent restaurant and may require reconfiguration of the parking lot. Additionally, the station would be located in a right turn lane, which would require that buses stop in the right turn lane and merge into traffic lane through the intersection. TSP benefits would not be maximized here as the site is located near side. Because of the direct connection to northbound Milwaukee Line, Alternate 3 is recommended for further consideration.

4.4.10.3 SUMMARY STATUS OF ALTERNATES

Eastbound Alternate 1 and Westbound Alternates 1, 2, and 3 are recommended for further consideration. Eastbound Alternate 2 is not recommended for consideration due to property impacts. Figure 4.26 shows the Milwaukee station sites. Table 4.20 and Table 4.21 provide a summary of the opportunities and challenges at each station site location.

4.4.11 Harlem

- Municipality: Village of Niles (eastbound), Village of Morton Grove (westbound)
- Jurisdiction: IDOT
- Cross Section: Three through lanes in each direction, one center turn lane
- 1 eastbound alternate, 1 westbound alternate
- TSP Possible: Potentially

FIGURE 4.28: HARLEM STATION SITES

TABLE 4.22: HARLEM EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Near Side)	• Inclusion of station at this location helps to serve riders and achieve station spacing goals	• Right-of-way is limited and an easement may be needed • Potential impact to adjacent parking lot • TSP benefits more difficult to realize

TABLE 4.23: HARLEM WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• Provides opportunity to achieve TSP benefits	• Right turn movement from southbound Harlem may be impacted which may require siting the station farther west • Station construction may result in impacts to the adjacent parking lot and may require restriping and reconfiguration of parking lot to mitigate impacts

Harlem Avenue is the highest ridership Route 250 stop location that was not recommended by Pace for a proposed station. Combined with modest ridership east of the intersection at Shermer Road and west of the intersection at Oketo Avenue, this location, if included, would be among the top ten on the Dempster Line corridor in terms of existing ridership within one-quarter (1/4) mile. Although it is fairly close to the Waukegan station location, it is likely that that Waukegan station will be shifted slightly to the east due to site constraints at the Waukegan intersection, resulting in a spacing of almost exactly one-half (1/2) mile.

This intersection would also serve Pace Route 423. Approximately 20 passengers transfer between Route 250 and Route 423 on an average weekday. Following changes that took effect on May 2, 2016, the Niles Free Bus Route 410 also serves this intersection.

IDOT is beginning a storm water improvement project that would affect both this station and the Waukegan station. The Phase I design for the storm water project is expected to begin in 2017 with construction planned for 2021 or 2022. IDOT has indicated that they anticipate acquiring right-of-way at this intersection to support the project.

4.4.11.1 EASTBOUND

4.4.11.1.1 Alternate 1

In the eastbound direction, the station location proposed is at the site of the existing near side Route 250 bus stop. The right-of-way is narrow and an easement may be needed in order to construct a station here. There is also a potential impact to a nearby parking lot. The station design and any property impacts or acquisition needs should be coordinated with IDOT's storm water improvement project.

4.4.11.2 WESTBOUND

4.4.11.2.1 Alternate 1

In the westbound direction, the proposed station is located on the far side of the intersection, which is preferred for achieving TSP benefits. The right turn movement from southbound Harlem to westbound Dempster may create traffic conflicts, which may also require siting the station farther west. Property impacts may result from the station construction. It may be possible to restripe and reconfigure the parking lot to mitigate impacts. As with the eastbound station site, the station design and any property impacts or acquisition needs should be coordinated with IDOT's storm water improvement project.

4.4.11.3 SUMMARY STATUS OF ALTERNATES

Eastbound Alternate 1 and Westbound Alternate 1 are recommended for further consideration due to transfer opportunities between Route 423. Figure 4.28 shows the Harlem station site locations. Table 4.22 and Table 4.23 provide a summary of the opportunities and challenges at each station site location.

4.4.12 Waukegan

- Municipality: Village of Morton Grove
- Jurisdiction: IDOT
- Cross Section: Three through lanes in each direction, one center turn lane
- 1 eastbound alternate, 3 w estbound alternates
- TSP Possible: No

FIGURE 4.29: WAUKEGAN STATION SITES

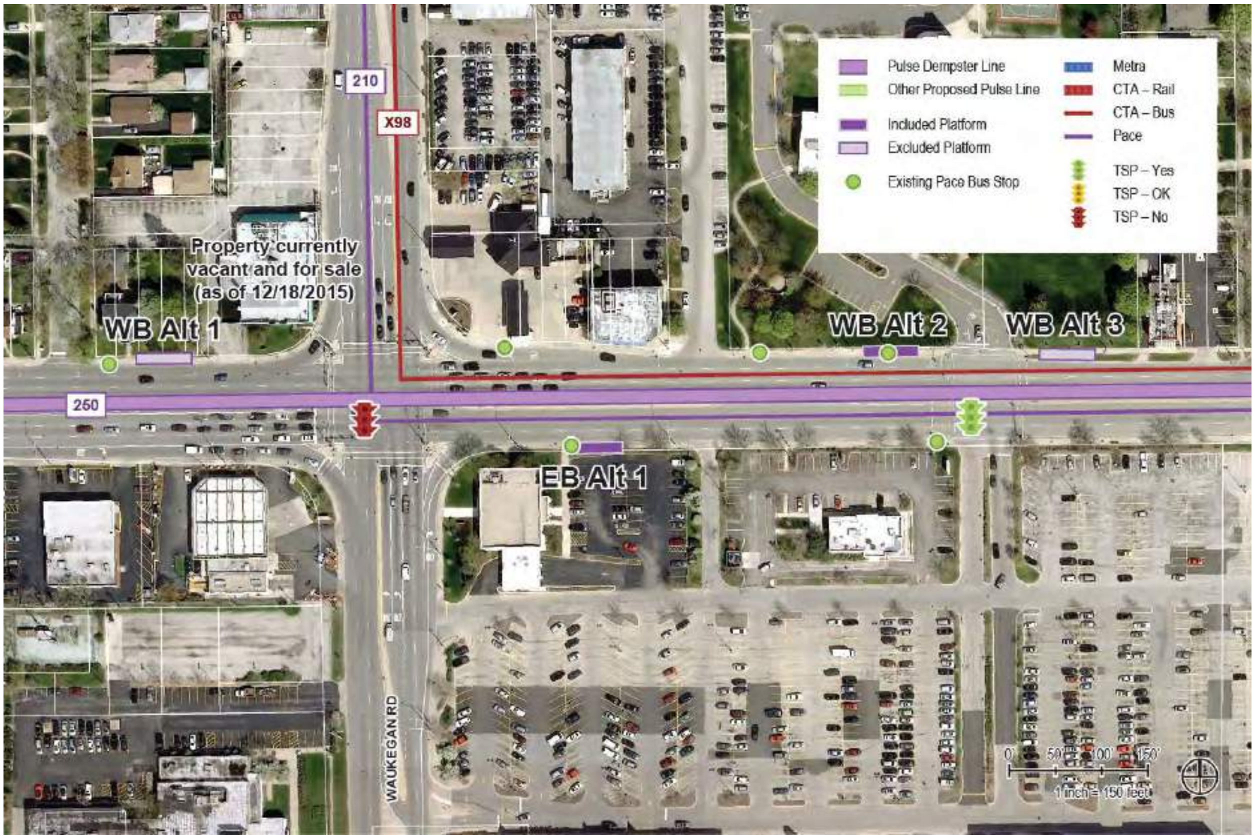


TABLE 4.24: WAUKEGAN EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• Far side station is operationally beneficial • Potential for future TSP if the intersection conditions change	• Limited right-of-way

TABLE 4.25: WAUKEGAN WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• Far side station is operationally beneficial • Potential for future TSP if the intersection conditions change	• Site is constrained with property impacts likely • Channelized right turn from southbound Waukegan Road to westbound Dempster Street may require the station to be moved farther west • Site would be located in front of a single family home that appears to be used for a commercial use
Alt 2 (Far Side)	• Far side location would provide TSP benefits at Athletic Drive • Located proximate to two existing Pace bus stops to capture the majority of westbound boardings • Available right-of-way	• 550 feet east of Waukegan Road • Adjacent to Park District property; there may be potential Section 4(f) issues if Park District property is impacted
Alt 3 (Near Side)	• Near side of the Morton Grove Park District entrance • Available right-of-way	• 750 feet east of Waukegan Road • Would complicate TSP implementation • Adjacent to Park District property; there may be potential Section 4(f) concerns

The Dempster/Waukegan intersection is among the busier posted stop locations along Route 250. Route 250 intersects Route 210 at this location, with approximately 15 passengers transferring between the routes on an average weekday.

The immediate vicinity of the intersection presents significant challenges to station siting, with a wide intersection with channelized right turn lanes. However, most boardings and alightings for this station area occur east of this intersection. Placing the station east of the intersection would help to capture this ridership and would also provide a more appropriate one-half (1/2) mile spacing to the proposed Harlem station to the west.

4.4.12.1 EASTBOUND

4.4.12.1.1 Alternate 1

In the eastbound direction, only one station site was analyzed on the far side of the intersection. This is the site of an existing Route 250 bus stop and shelter. This location has a moderately constrained right-of-way and the station construction would result in property impacts. The sidewalk would need to pass through the station to minimize these impacts. Given that most Route 250 ridership is east of Waukegan Road, this station site is recommended for further consideration.

4.4.12.2 WESTBOUND

In the westbound direction, one station site is examined on the far side of the Waukegan intersection and two station sites are examined approximately one quarter mile east of the intersection between New England Avenue and Athletic Drive.

4.4.12.2.1 Alternate 1

Alternate 1 is proposed at the far side of the Waukegan Road intersection. This right-of-way is limited, with significant property impacts likely. Additionally, the channelized right turn from southbound Waukegan Road to westbound Dempster Street would create traffic conflicts or require the station to be moved farther west. For these reason, this station alternative is not recommended for further consideration.

4.4.12.2.2 Alternate 2

Alternate 2 is located at the far side of Athletic Drive, the entrance to the Morton Grove Park District facilities, which is 550 feet east of Waukegan Road. A turn lane begins at this location and three through lanes continue through the intersection at Waukegan. The impact of a station at this location would be minimized by the additional through lane. This site would also take advantage of TSP benefits from the signalized Park District entrance. The station is located near two existing Pace Route 250 bus stops to capture the majority of westbound boardings. There appears to be sufficient space within the right-of-way for a station at this location. Given its location adjacent to Park District property, there may be potential Section 4(f) issues if the Park District property were impacted. This station is recommended for further consideration.

4.4.12.2.3 Alternate 3

Alternate 3 is located at the near side of the Morton Grove Park District Athletic Drive entrance and is 750 feet west of Waukegan Road. The near side location would complicate TSP implementation. The roadway begins to widen at this location to establish a third through lane. Due to the location of the station site adjacent to Park District property, there may be potential Section 4(f) issues if the property is directly impacted. For all of these reasons, this station site is not recommended for further consideration.

4.4.12.3 SUMMARY STATUS OF ALTERNATES

Eastbound Alternate 1 and Westbound Alternate 2 are recommended for further consideration. Westbound Alternate 1 is not recommended for further consideration due to property impacts and traffic impacts due to being located close to a channelized right turn lane. Westbound Alternate 3 is not recommended for further consideration due to its distance from Waukegan Road. Figure 4.29 shows the Waukegan station site locations. Table 4.24 and Table 4.25 provide a summary of the opportunities and challenges at each station site location.

4.4.13 Austin

- Municipality: Village of Morton Grove
- Jurisdiction: IDOT
- Cross Section: Two through lanes in each direction, one center turn lane
- 1 eastbound alternate, 1 westbound alternate
- TSP Possible: Yes

FIGURE 4.30: AUSTIN STATION SITES

TABLE 4.26: AUSTIN EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• Far side location would provide TSP benefits	• Limited right-of-way would result in property impacts • Potential impacts to streetscaping

TABLE 4.27: AUSTIN WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• Far side location would provide TSP benefits	• Streetscape improvements will have to be modified

This station was selected by Pace based on modest ridership levels, supportive land use, and a suitable site. Although this is one of the lower ridership station locations on the corridor, it helps establish the desired one-quarter (1/4) mile station spacing along a stretch of Dempster Street with no other proposed stations, and is the most appropriate location along the corridor between Waukegan Road and I-94 in eastern Morton Grove.

This pedestrian friendly section of Dempster Street includes streetscaping, crosswalks, shorter crossing distances, medium density land uses with buildings close to the street, and bicycle parking. Because of the streetscaping, station platforms would require streetscape modifications including street lamp relocations. The Austin station site locations are shown in Figure 4.30.

4.4.13.1 EASTBOUND

4.4.13.1.1 Alternate 1

The eastbound station site is located on the far side of the intersection to take advantage of TSP benefits. At this location, streetscape improvements have been made by the Village. Cook County parcel data indicates the available right-of-way is very limited. This will need to be investigated during the environmental review and advanced conceptual design phase to determine if there are any property impacts and to what extent they might occur. This station site is recommended for further consideration.

4.4.13.2 WESTBOUND

4.4.13.2.1 Alternate 1

The westbound station is located on the far side of the intersection to take advantage of TSP benefits. At this location, street trees have been planted and other streetscape improvements have been made. A station at this site would impact the street trees and streetscape. Cook County parcel data indicates that the parcel lines extend to the center of Dempster Street. Further surveying will be needed to confirm the right-of-way limits and determine the extent of any property impacts. This station site is recommended for further consideration.

4.4.13.3 SUMMARY STATUS OF ALTERNATES

Eastbound Alternate 1 and Westbound Alternate 1 are recommended for further consideration. Figure 4.30 shows the Austin station site locations. Table 4.26 and Table 4.27 provide a summary of the opportunities and challenges at each station site location.

4.4.14 Dempster-Skokie CTA

- Municipality: Village of Skokie
- Jurisdiction: Layover facility – CTA; Dempster Street – IDOT and ComEd
- Cross Section: Two through lanes in each direction with a left turn lane in the westbound direction
- 3 eastbound alternates, 2 westbound alternates
- TSP Possible: Yes

FIGURE 4.31: DEMPSTER-SKOKIE CTA STATION SITES

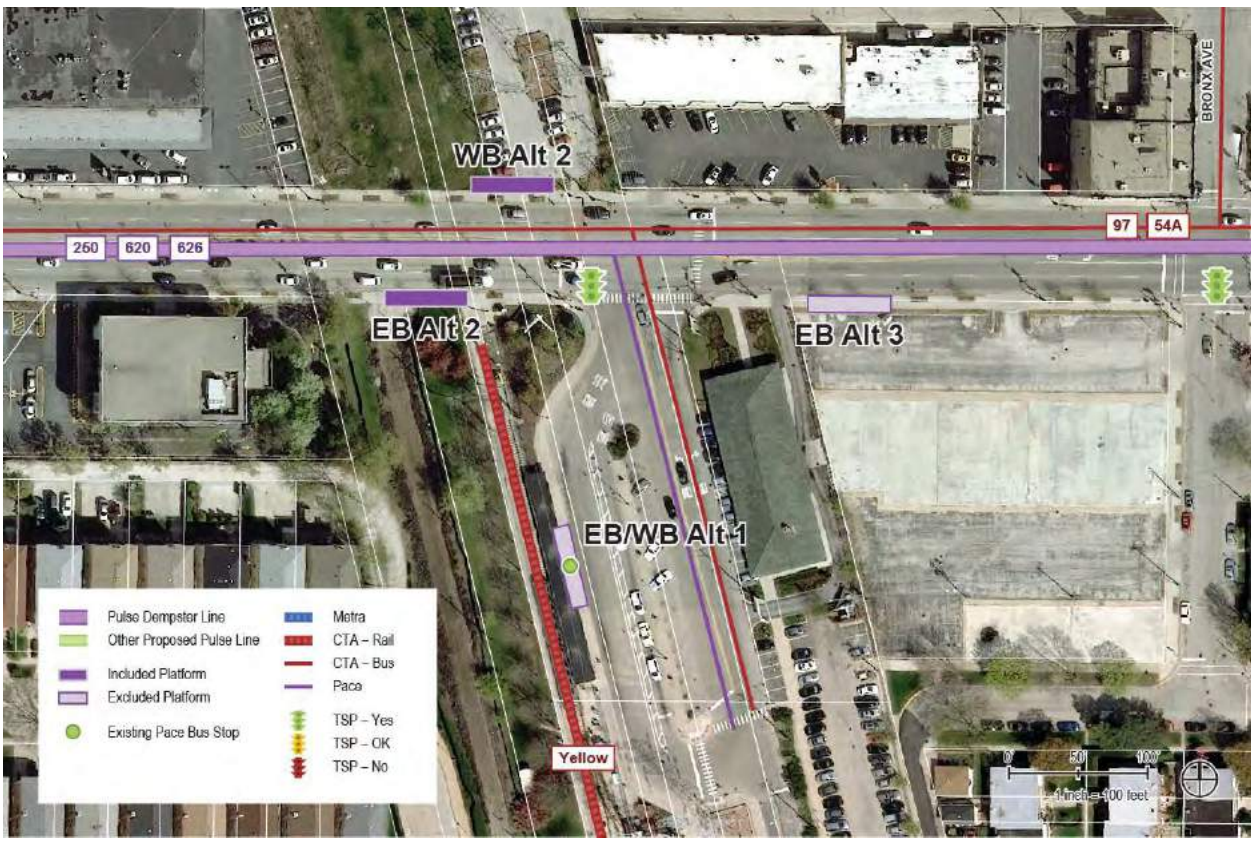


TABLE 4.28: DEMPSTER-SKOKIE CTA EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Off-Street)	• Limited capital improvements required for Pulse	• Delay in running time due to need to pull into off-street facility • Queues for Starbucks drive-through add further delay at the signal and in the off-street facility
Alt 2 (Near Side)	• Running time benefits may be realized by not pulling into off-street transit center • Efficient transfer to CTA Yellow Line • Local community support for station site • Connection to the Skokie Valley Trail	• Near side location adds to TSP complexity • Skokie Valley Trail may present a Section 4(f) issue • Would require coordination with ComEd and Skokie
Alt 3 (Far Side)	• Available right-of-way for station platform • Far side location would provide TSP benefits	• Limited community support for station site • Farther distance from CTA Yellow Line • Planned development adjacent to the site could conflict with station plans; the development will likely have a zero lot line setback • Due to the nearby historic train station, this site may trigger greater scrutiny during Section 106 review

TABLE 4.29: DEMPSTER-SKOKIE CTA WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Off-Street)	• Limited capital improvements required for Pulse	• Delay in running time due to need to pull into off-street facility • Queues for Starbucks drive-through add further delay at the signal and in the off-street facility
Alt 2 (Far Side)	• Far side location would provide TSP benefits	• Would require coordination with ComEd and Skokie • Station would impact streetscaping and require tree removal

The Dempster-Skokie CTA station is the highest ridership stop on Route 250. The bus currently stops at an off-street bus terminal in both directions, where transfers are available to the CTA Yellow Line as well as four other CTA and Pace bus routes. Over 330 passengers transfer to and from Route 250 at this location, primarily interchanging with the Yellow Line and CTA bus routes, representing half of all Route 250 boardings and alightings at this location.

4.4.14.1 EASTBOUND

4.4.14.1.1 Alternate 1

Three station alternates are being considered in the eastbound direction. Alternate 1 is at the site of the existing bus drop off area located off-street at the CTA Yellow Dempster-Skokie station. Based on conversations with Pace and the Village of Skokie, as well as potential running time savings resulting from locating a station on-street, this alternative is not recommended for further consideration.

4.4.14.1.2 Alternate 2

Alternate 2 is located on Dempster Street immediately north of the CTA Yellow Line off-street facility, to the near side of the signalized entrance to the CTA station. TSP benefits are not available at this location, though the location provides ease of transfer to CTA. There is room for a standard station, however the exact limits of the public right-of-way need to be determined. A ComEd right-of-way appears to run through Dempster Street, suggesting that significant coordination will be needed with ComEd and the Village of Skokie. The Skokie Valley Bike Trail has been recently constructed along this railroad corridor and the Village of Skokie has indicated a willingness to reconfigure the trailhead. It is unknown whether the trail is on park land or what funding was used to construct the trail. This will need to be evaluated during the environmental review phase to determine if there are any potential Section 4(f) issues with modifying the trailhead. This station alternative is recommended for further consideration.

4.4.14.1.3 Alternate 3

Alternate 3 is located on Dempster Street on the far side of the signalized entrance to the CTA Yellow Line station and is adjacent to a Starbucks coffee shop housed in a historic train depot. TSP benefits may be realized here, but would create a longer walking distance for passengers to transfer between CTA and Pace. It is anticipated that the parcel adjacent to this station site will be developed in the near future, possibly with a zero lot line set back, which could pose challenges for constructing the Pulse station. Given the Village of Skokie's preference for Alternate 2, this station alternate is not recommended for further consideration.

4.4.14.2 WESTBOUND

4.4.14.2.1 Alternate 1

In the westbound direction, two station alternates have been examined. Alternate 1 is at the site of the existing bus drop off area located off-street at the CTA Yellow Line station. Accessing this off-site station requires buses to turn left which adds travel time to the service. In addition, queues for Starbucks further congest the intersection and the off-street facility. Based on conversations with Pace and the Village of Skokie, as well as potential running time savings resulting from locating a station on-street, this alternative is not recommended for further consideration.

4.4.14.2.2 Alternate 2

Alternate 2 is located on Dempster Street on the far side of the signalized entrance to the CTA station. TSP benefits are available at this location and the location provides a relatively easy and safe transfer to CTA via the signalized intersection. There is room for a standard station here; however the exact limits of the public right-of-way need to be determined. A ComEd right-of-way appears to run through Dempster Street, suggesting that significant coordination will be needed with ComEd and the Village of Skokie. The Village prefers this station location over Alternative 1. This alternative is recommended for further consideration.

4.4.14.3 SUMMARY STATUS OF ALTERNATES

Eastbound and Westbound Alternate 1 are not recommended for further consideration because of a desire by the Village of Skokie to have an on-street station, and by Pace to minimize impacts to running time. Eastbound Alternate 2 and Westbound Alternate 2 have been recommended for further consideration. These alternate station sites are on Dempster Street and are strongly supported by the Village of Skokie and Pace. Figure 4.31 shows the Dempster-Skokie CTA station site locations. Table 4.28 and Table 4.29 provide a summary of the opportunities and challenges at each station site location.

4.4.15 Crawford

- Municipality: Village of Skokie
- Jurisdiction: IDOT
- Cross Section: Two through lanes, one center turn lane
- 1 eastbound alternate, 3 westbound alternates
- TSP Possible: No

FIGURE 4.32: CRAWFORD STATION SITES

TABLE 4.30: CRAWFORD EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• Potential for future TSP if the intersection conditions change	• Limited right-of-way • Streetscaping may be impacted and street trees may need to be removed

TABLE 4.31: CRAWFORD WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• NA	• Long distance (500 feet) from signalized intersection • Limited right-of-way • Station construction would impact property, including off-street parking
Alt 2 (Far Side)	• Potential for future TSP benefits if the intersection conditions change	• Limited right-of-way • Constructing station would be difficult between curb and building façade • Farther from most of the ridership and the proposed eastbound station site • Makes transfers more difficult to Pace Route 215 (approximately 15 transfers per day between these two routes)
Alt 3 (Far Side)	• Potential for future TSP benefits if the intersection conditions change • Highest number of boardings in the area	• Located between two gas station driveways and may require modifying one or both driveways • Limited right-of-way would result in property impacts • Further investigation is needed to determine whether a station location here impedes fuel deliveries
Alt 4 (Near Side)	• NA	• 350 feet east of the intersection, farther from the concentration of ridership and a signalized intersection • Shelter may encroach into parking lot on private property • May require the removal of trees and relocation of a fire hydrant and street lamp • Utility conflicts include an electrical vault near this site

This station was selected by Pace based on modest ridership levels, supportive land use, and suitable sites. This station is located 1.3 miles east of the preceding station at the Dempster-Skokie CTA. Low ridership along this segment and the presence of a golf course along much of the south side of Dempster Street make this wide spacing appropriate. The Crawford station site alternates are shown in Figure 4.32.

4.4.15.1 EASTBOUND

4.4.15.1.1 Alternate 1

One station site in the eastbound direction was examined. Located on the far side of the intersection, this site can take advantage of TSP benefits if future conditions indicate that TSP could be implemented at this location. Since the 2010 Station Location Study, a Walgreen's store has been built adjacent to proposed site. The store has been built to the property line and there is limited available right-of-way. Despite these challenges, this station alternative is recommended for further consideration.

4.4.15.2 WESTBOUND

In the westbound direction, four station sites have been examined: three far side stations and one near side.

4.4.15.2.1 Alternate 1

Alternate 1 is located 500 feet west of Crawford Avenue, adjacent to a grocery store parking lot. This location is farther from most of the ridership and the proposed eastbound station site. It also makes transfers more difficult to Pace Route 215 (approximately 15 transfers per day currently occur between these two routes). There is insufficient space within the right-of-way for a station and any station to be constructed would impact the adjacent parking lot. Due to the property impacts, the distance from Crawford, and the difficulty of transferring to Route 215, this alternate station is not recommended for further consideration.

4.4.15.2.2 Alternate 2

Alternate 2 is adjacent to the grocery store, west of the intersection. There is limited right-of-way here for a station and the station will impact the building entrance. Due to the distance from the intersection and property impacts, this alternate station is not recommended for further consideration.

4.4.15.2.3 Alternate 3

Alternate 3 is on the far side of the intersection adjacent to a gas station. Though TSP is not currently planned for this intersection, a far side station would enable TSP benefits if intersection conditions were to change in the future and TSP is deemed viable. The highest number of boardings in this station area occurs at the existing stop in this location between the two gas station driveways. There is generally sufficient length between the driveways to build a station; however, the depth of the right-of-way is limited and a station may impact the private property. Further investigation is needed to determine whether a station location here would impede fuel deliveries and whether the station would require modifying one or both driveways. This station is recommended for further consideration.

4.4.15.2.4 Alternate 4

Alternate 4 is located on the near side of the intersection, approximately 350 feet east of the intersection, and was recommended for inclusion by the Village of Skokie. A station here would impact the adjacent parking lot as the shelter would need to be set back to meet sight distance requirements. The station would also likely require the removal of street trees and relocation of a fire hydrant, street lamp and electrical vault. Because of the Village's support for this location, this station alternate is recommended for further investigation.

4.4.15.3 SUMMARY STATUS OF ALTERNATES

Eastbound Alternate 1 and Westbound Alternates 3 and 4 are recommended for further consideration. Westbound Alternates 1 and 2 are not recommended for further consideration due to property impacts and the distance from Crawford Avenue. Figure 4.32 shows the Crawford station site locations. Table 4.30 and Table 4.31 provide a summary of the opportunities and challenges at each station site location.

4.4.16 Lincolnwood

- Municipality: Village of Skokie
- Jurisdiction: IDOT
- Cross Section: Two through lanes in each direction, one center turn lane
- 3 eastbound alternates, 3 westbound alternates
- TSP Possible: Yes

FIGURE 4.33: LINCOLNWOOD STATION SITES

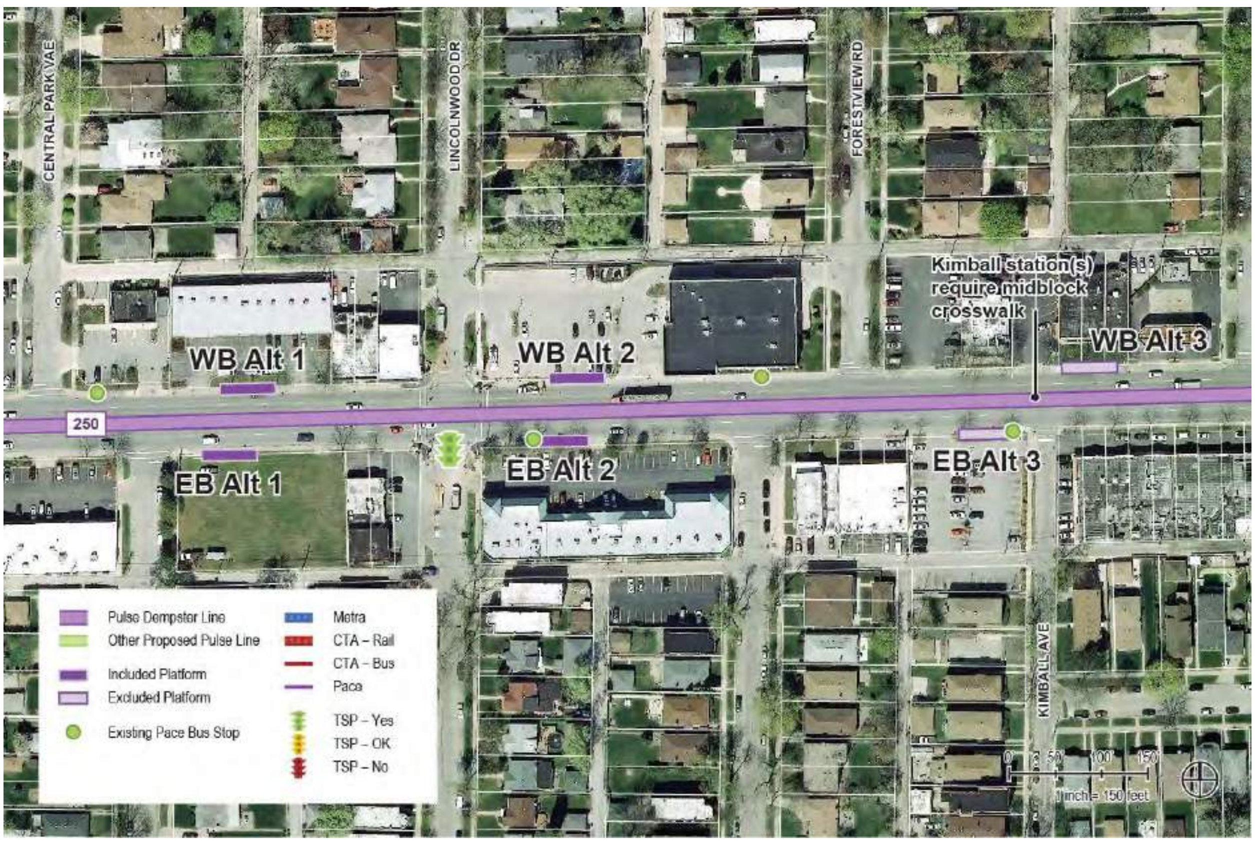


TABLE 4.32: LINCOLNWOOD EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Near Side)	• Adjacent to a vacant parcel • Any new development could incorporate the station into the development plan	• Limited right-of-way to construct a station without impacting the adjacent property (the property line is 10 feet from the curb) • Increases complexity of achieving TSP benefits
Alt 2 (Far Side)	• Far side location would provide TSP benefits • Sufficient right-of-way to construct full size station	• Station construction Station construction would require removal of landscaping, including mature trees
Alt 3 (Near Side - Kimball)	• Location would provide TSP benefits at Lincolnwood •	• Located more than 500 feet from the nearest crosswalk; a midblock crossing may be needed • Space is available for a walk-through station configuration • Limited right-of-way would result in station impacting private property • Close proximity to Kimball Avenue could present sightline/visibility issues and require station to be set farther back on property

TABLE 4.33: LINCOLNWOOD WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• Far side location would provide TSP benefits	• Limited right-of-way depth at this location; station construction would result in property impacts • May require the relocation and/or removal of the shopping center's sign and a streetlight. • Location between two driveways of a retail strip center may create conflicts with parking access
Alt 2 (Near Side)	• Closer to eastbound station site • Closest to highest ridership stop in westbound direction	• Limited right-of-way depth at this location; station construction would result in property and parking impacts • Increases complexity of achieving TSP benefits
Alt 3 (Near Side - Kimball)	• Far enough from signalized intersection to prevent impact on TSP • Closer than Alt 1 to highest ridership stop in westbound direction	• Limited right-of-way would result in station impacting private property; including removal of mature trees • Site is over 500 feet from the nearest crosswalk and signalized intersection; a midblock crossing may be necessary

This station was selected by Pace based on ridership level and supportive land use. While an average daily boardings of 47 is fairly modest at this location, it is the highest ridership intersection along the segment between Crawford Avenue and McCormick Boulevard. Three locations in each direction have been examined. Figure 4.33 shows the Lincolnwood station site location Alternates.

4.4.16.1 EASTBOUND

4.4.16.1.1 Alternate 1

Alternate 1 is located on the near side of the intersection, just west of St. Louis Avenue. This site is adjacent to a vacant parcel. There is an opportunity to incorporate the station into a new development at this location. The depth of the right-of-way is somewhat limited, which would result in the station encroaching slightly onto the adjacent property. Because this is a near side station, it would increase the complexity of implementing TSP and realizing TSP benefits. Alternate 1 is recommended for further consideration because it is adjacent to a vacant parcel, avoiding an immediate impact on a business and providing an opportunity for future coordination on a station.

4.4.16.1.2 Alternate 2

Alternate 2 is located in front of a retail strip center between St. Louis Avenue and Lincolnwood Drive. It is on the far side of the intersection, which would provide TSP benefits. The right-of-way is wide enough to construct a full-depth walk-through station. The station would be located west of the entrance-only driveway and would likely impact the shopping center's landscape buffer, requiring removal of existing landscaping and mature trees. Alternate 2 is recommended for further consideration.

4.4.16.1.3 Alternate 3

Alternate 3 is located on the near side of the intersection with Kimball Avenue, where there is an existing bus stop with shelter. While the site is on the near side of the Kimball Avenue intersection, it is east of the Lincolnwood Avenue intersection, which would allow for TSP benefits at Lincolnwood. However, the site is located more than 500 feet from the nearest crosswalk; a midblock crossing may be needed. Cook County parcel data indicates that the right-of-way is limited in depth, which would likely result in a station impacting private property. In addition, the close proximity to Kimball Avenue could present sightline and visibility issues, which would necessitate setting the station back from the curb. Because of the distance from signalized intersection and the potential for property impacts, Alternate 3 is not recommended for further consideration.

4.4.16.2 WESTBOUND

4.4.16.2.1 Alternate 1

Alternate 1 is located on the far side of the intersection between two driveways of a retail strip center, which would allow for TSP benefits. The right-of-way depth is limited here; the station would encroach onto the private property and require the relocation and/or removal of the shopping center sign and a streetlight. In addition, there may be sightline issues associated with the access drives. Despite these challenges, this station site is recommended for further consideration as it provides TSP benefits, is relatively close to a signalized intersection and safe crossing, and may be less impactful than other westbound station alternates.

4.4.16.2.2 Alternate 2

The site for Alternate 2 was suggested by the Village of Skokie and is located on the near side of the intersection, closest to the highest ridership westbound stop. Construction of a station at this location would make it more difficult to achieve TSP benefits. The limited right-of-way would also result in direct impacts to the adjacent property, with the station encroaching into the parking lot and likely impacting parking spaces. This station alternative should move forward for further consideration given the proximity to existing ridership and the recommendation by the Village of Skokie.

4.4.16.2.3 Alternate 3

Alternate 3 is located midblock between Forestview Road and Ewing Avenue, across from Kimball Avenue and near the eastbound Alternate 3 site. This site is over 500 feet from the nearest signalized intersection and crosswalk; a midblock crossing may be necessary to create a safe pedestrian environment. The right-of-way is limited in depth and a station would likely encroach onto the adjacent property and require the removal of mature trees. For all these reasons, this site is not recommended for further consideration.

4.4.16.3 SUMMARY STATUS OF ALTERNATES

Eastbound Alternates 1 and 2 and Westbound Alternates 1 and 2 are recommended for further consideration. Eastbound and Westbound Alternate 3 are not recommended for further consideration due to potential property impacts and the distance from a crosswalk, which may necessitate adding a midblock crossing. Figure 4.33 shows the Lincolnwood station site locations. Table 4.32 and Table 4.33 provide a summary of the opportunities and challenges at each station site location.

4.4.17 Dodge

- Municipality: City of Evanston
- Jurisdiction: IDOT
- Cross Section: Two through lanes and a center turn lane in each direction west of Dodge; east of Dodge, one through lane in each direction with on-street parking
- 2 eastbound alternates, 3 westbound alternates
- TSP Possible: Potentially

FIGURE 4.34: DODGE STATION SITES

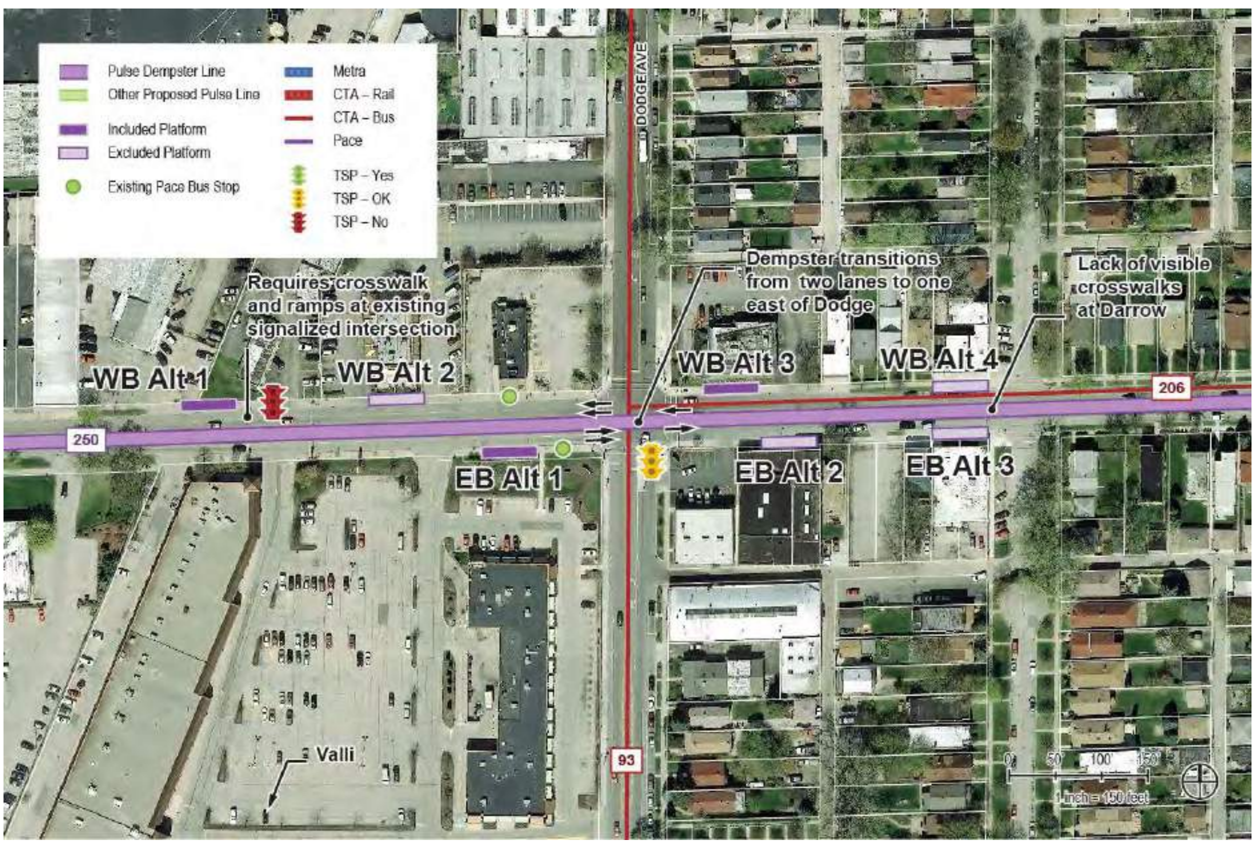


TABLE 4.34: DODGE EASTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Near Side)	• Available right-of-way • Station is located at high ridership Pace stop • A Divvy bike share station is programmed for the adjacent retail center	• An easement would be required to route the sidewalk behind the station • Street trees and a street light would have to be relocated • TSP benefits more difficult to realize
Alt 2 (Far Side)	• Far side location would provide TSP benefits	• Extremely limited right-of-way; the building has a small setback from the sidewalk, leaving approximately 13 feet between the curb and the building • Station would interfere with building entrances • Dempster Street narrows from two lanes in each direction down to one; site is within the taper which could contribute to congestion and traffic conflicts
Alt 3 (Far Side)	• Far side location would provide TSP benefits	• 350 feet from Dodge Avenue • Site is at un-signalized intersection • Site likely to provoke opposition from nearby property owners

TABLE 4.35: DODGE WESTBOUND STATION SITE SUMMARY

	Opportunities	Challenges
Alt 1 (Far Side)	• Opportunity to take advantage of TSP at Dodge • Signalized intersection provides for safe pedestrian crossing	• 300 feet west of high ridership Route 250 stop near Alternate 2 • Sight distance requirements likely will result in station setback and property impacts • May affect traffic movements from the shopping center to westbound Dempster • Station would require new crosswalk and ADA accessible curb ramp
Alt 2 (Far Side)	• Opportunity to take advantage of TSP at Dodge • Site is the closest to existing high ridership Route 250 stop	• Limited curb length with 55 feet between driveway entrances and limited right-of-way depth would result in property impacts • Streetlight would need to be relocated • Operational issues with siting a station between two driveways • Property owner likely to oppose station
Alt 3 (Near Side)	• Site is close to safe signalized pedestrian crossing	• TSP benefits more difficult to realize • Limited right-of-way depth would result in property impacts, including reduction in the width of the Burger King drive-thru lane • Station could impact right turns onto Dodge Avenue • TSP benefits more difficult to realize
Alt 4 (Near Side)	• Sufficient right-of-way to construct a station	• Un-signalized intersection • TSP benefits more difficult to realize

The intersection of Dempster Street and Dodge Avenue is a major shopping and restaurant node in western Evanston, as well as a transfer point for Route 250. CTA Route 93, which intersects Route 250 both at this intersection and at the Davis CTA/Metra station, is the third most significant source of transfers to Route 250, and the most significant non-Pace source of ridership transfers.

There are significant site constraints for placement of stations at this intersection, particularly in the westbound direction. However, with over 200 daily boardings and alightings in the vicinity of this station location and the lack of other superior locations for stations in Evanston, the importance of siting a station at this location necessitates that Pace identify suitable station sites. Seven station sites have been evaluated. The Dodge station site locations are shown in Figure 4.34.

4.4.17.1 EASTBOUND

4.4.17.1.1 Alternate 1

Alternate 1 is located on the near side of the intersection adjacent to a retail shopping center at the location of a high ridership stop (approximately 23 average daily boardings). The right-of-way is sufficiently wide enough to construct a full station although landscaping may be impacted. The near side location of this station would make TSP benefits difficult to realize. Evanston staff indicated this is a highly desirable location for a station and transit facilities have been requested at this location by local stakeholders. Evanston is coordinating with the adjacent property to site a Divvy station within the shopping center parking lot. This station alterative is recommended for further consideration.

4.4.17.1.2 Alternate 2

Alternate 2 is located on the far side of the intersection in front of the Heartwood Center. The right-of-way is extremely limited here as the building is setback only a few feet from the sidewalk, leaving approximately 13 feet between the curb and the building. A proposed platform here would interfere with the building entrances. East of Dodge, Dempster Street narrows from two lanes in each direction down to one with taper and parking lanes. This station site is within the road taper. Pace's Operations Department provided feedback that a station site is not viable at this location. For these reasons, this site is not recommended for further consideration.

4.4.17.1.3 Alternate 3

Alternate 3 is located on the far side of the intersection farthest east, approximately 350 feet from Dodge Avenue, near Darrow Avenue. This is the site of an existing CTA Route 206 bus stop (see Figure 4.35). The site is un-signalized but a crosswalk would be appropriate here. However, in the past IDOT has declined requests to install crosswalks at this location. The City of Evanston believes that a station site here is likely to provoke opposition from adjacent property owners who have previously voiced opposition to a bus shelter at this location. This station site is not recommended for further consideration.

FIGURE 4.35: DODGE EASTBOUND ALTERNATE 3 STATION SITE

4.4.17.2 WESTBOUND

4.4.17.2.1 Alternate 1

Alternate 1 is located the farthest west from Dodge Avenue in front of a Jiffy Lube. It is on the far side of the signalized entrance to the shopping center, and a crosswalk and ADA ramps would have to be installed. Although TSP is not recommended at this signal, TSP is recommended at Dodge and siting the station here would allow Pulse vehicles to take advantage of TSP at Dodge. There is limited right-of-way depth here and sight distance requirements would likely result in property impacts. In addition, the station may affect turning movements from the shopping center onto westbound Dempster. Despite these challenges, this station alternative is recommended for further consideration.

4.4.17.2.2 Alternate 2

Alternate 2 is located in front of McDonald's at a high ridership stop for Route 250. There is limited curb length here with just 55 feet between driveway entrances, and limited right-of-way depth would result in property impacts. A streetlight would also need to be relocated. There are operational concerns with siting a station between two driveways. Conversations with Evanston staff indicate that the property owner would likely oppose this station site. This station alternative is not recommended for further consideration.

4.4.17.2.3 Alternate 3

Alternate 3 is located on the near side of Dodge Avenue, adjacent to a Burger King restaurant. There is limited right-of-way here and platform construction at this location would reduce the width of the Burger King drive-thru lane. The station would also impact right turns onto Dodge Avenue and would make it more difficult to achieve the benefits of TSP. Despite these challenges this station alternative is recommended for further consideration as it could be less impactful than other station sites.

4.4.17.2.4 Alternate 4

Alternate 4 is located one block east of Dodge Avenue and although it is on the far side of Darrow Avenue, it is considered a near side station for the purposes of Dodge Avenue and as such, it would be difficult to take full advantage of TSP benefits. There is sufficient right-of-way to construct a walk-through station at this site. However, Darrow Avenue is an un-signalized intersection and a crosswalk would be needed to provide a safe pedestrian environment. In the past, IDOT has declined requests to install crosswalks at this site. Due to the challenging pedestrian environment and the near side location, a station site at this location is not recommended for further consideration.

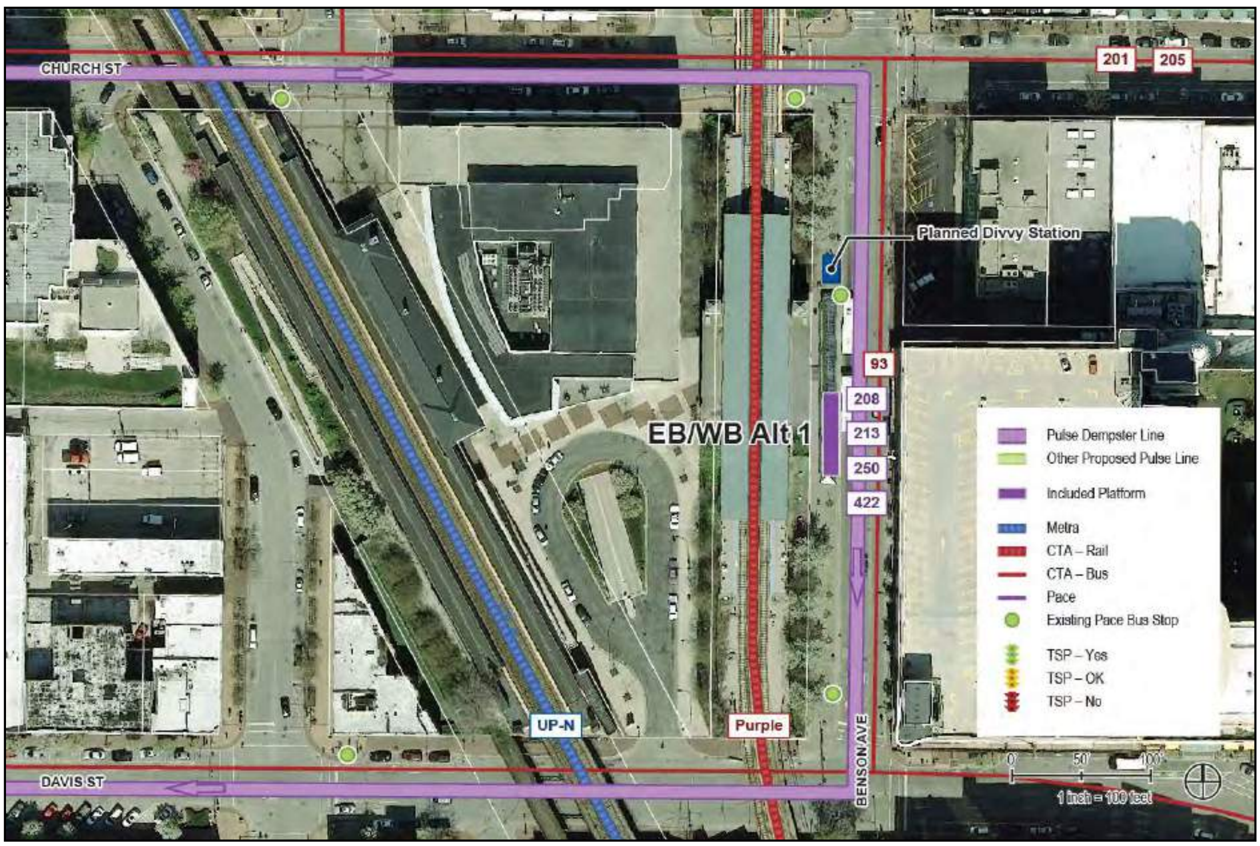
4.4.17.3 SUMMARY STATUS OF ALTERNATES

Eastbound Alternate 1 and Westbound Alternates 1 and 3 are recommended for further consideration. Eastbound Alternates 2 and 3 and Westbound Alternates 2 and 4 are not recommended for further study. Figure 4.34 shows the Dodge station site locations. Table 4.34 and Table 4.35 provide a summary of the opportunities and challenges at each station site location.

4.4.18 Davis CTA/Metra

- Municipality: City of Evanston
- Jurisdiction: City of Evanston/CTA
- Cross Section: One through lane; buses share a layover lane
- 1 terminal station at existing bus terminal
- TSP Possible: N/A

FIGURE 4.36: DAVIS CTA/METRA STATION SITE



The Davis CTA/Metra station is the 13th busiest bus stop in the Pace network and the busiest on Route 250. Of the over 600 daily boardings and alightings for Route 250 that occur in the vicinity of this station, approximately half are transfer passengers from the CTA Purple Line or other CTA and Pace bus routes. Pace Route 208, which also uses this stop, is the second largest source of non-rail transfers to Route 250. Additionally, Metra's Union Pacific North Line runs parallel to the CTA Purple Line and also serves this station at its Davis Street station.

It has been assumed that the Dempster Line station will be located in front of the CTA station entrance on Benson Avenue, where CTA and Pace buses currently lay over. The precise site and extent of the Pulse station at Davis

CTA/Metra will be determined in coordination with the CTA and the City of Evanston. It is anticipated that station improvements will likely only include static signage, although a vertical marker may be possible. Pace will coordinate with the RTA for real-time information signage to support all transit services at this location. Figure 4.36 shows the Davis CTA/Metra station site location.

4.4.19 Summary

In total, 23 station locations and 79 individual station site options were evaluated, including stations that were suggested for elimination in the Preliminary Station Location and Site Selection Options Technical Memorandum (i.e. Rosemont CTA, Mannheim/Lunt, Lee-Mannheim/Thacker/Graceland, Luther, and Ridge). Table 4.2 provides a list of all station locations and sites that have been reviewed and identifies those recommended for advancement to the environmental review phase. At this time, 18 station locations (including Potter as an alternate to Dee) and 47 individual station sites are recommended to advance. During the environmental review phase, a boundary and topographic survey will be conducted to confirm property lines and right-of-way limits and collect topographic data. This data will support the environmental review, the development of advanced conceptual designs, and Pace's selection of a preferred station site for each location that will advance forward to the design phase.

4.5 LOCAL STOP CONSOLIDATION

As the Pulse Dempster Line Project advances through the environmental review, design, construction, and operation phases, Pace may consider local stop consolidation as a strategy for improving the operation of Pulse and Route 250 service. Local stop consolidation was not examined as part of Pulse Dempster Line Project Definition.

5 Running Way

5.1 VEHICLE OPERATIONS

The Pulse Dempster Line will operate in mixed traffic with the vehicle generally occupying the right travel lane. Appendix F provides station layouts that include the following types of station sites: 1) the boarding platform will be constructed to align with the travel lane and the bus will not pull over, 2) the bus will use a bus pull out, 3) the bus will pull off of the roadway to board and alight passengers, and 4) the bus will stop at an existing on-street transit facility with a standard curb height.

5.2 STATION-RELATED AND COLLATERAL IMPROVEMENTS

Without dedicating running ways, the majority of Pulse Dempster Line improvements will be directly related to station construction within the right-of-way. These include construction of new raised station platforms within the right-of-way at several locations and substantial curb, gutter, and sidewalk reconstruction. Pace's preliminary evaluation on the potential for queue jumps around the region indicate that queue jumps are not likely feasible on the Dempster corridor. Other collateral improvements near Pulse station locations are proposed to facilitate safe and hospitable pedestrian access to the stations. These include upgraded, ADA compliant curb ramps; high-visibility crosswalks; and a pedestrian refuge island. Many of these improvements are not required for operation of Pulse service, but are incorporated to create a pedestrian-friendly environment and improve accessibility near the stations. It is expected that local communities will share some of the cost for these improvements when not required for the actual construction of Pulse stations.

Pace has also proposed pedestrian enhancements be included in improvement projects constructed by other agencies. For example, the Illinois Tollway is currently working on intersection improvements at the Lee Street and Touhy Avenue intersection.. Pace's proposed improvements include additional sidewalks to fill in gaps at the intersection. Plans for these improvements are under development and construction is slated for 2017.

5.3 TRANSIT SIGNAL PRIORITY

Pace is actively participating in the Regional Transit Signal Priority (TSP) Implementation Program led by the Regional Transportation Authority (RTA). Figure 5.1 shows intersections along the Dempster corridor and recommendation for implementation of TSP.[16] TSP is planned for Dempster Street, and development of the TSP system will adhere to the Regional TSP Standards and Implementation Guidelines, which were developed under the Regional Transit Signal Priority Implementation Program (RTSPIP). When TSP is implemented on Dempster Street, it

[16] Delcan. (March 11, 2013.) Pace Signal Coordination and Timing Project.

will be utilized by local services in addition to Pulse service. TSP is currently anticipated to be operational on Dempster Street before the Dempster Line's planned start of service.

FIGURE 5.1: PULSE DEMPSTER LINE TSP IMPLEMENTATION RECOMMENDATION

6 Running Time Analysis

6.1 ON-TIME PERFORMANCE

Pace analyzed on-time performance for Pace Route 250 – Dempster Street between the O'Hare Kiss 'N' Fly and the CTA Purple Line Davis Street Station in Evanston. Only weekday trips were analyzed, and special trip deviations connecting to and from the Maine Township high schools were excluded from the analysis. Data was analyzed for the month of October 2015.

The purpose of this analysis was to evaluate the current performance of Route 250, identify operating concerns, and support the development of the running time and schedule for the proposed Pulse Dempster Line, which will follow approximately the same routing as Route 250 with limited stops and transit signal priority.

6.1.1 Average Travel Time by Segment and time of day

Weekday mainline trips were analyzed by segments, defined as the portion of the route between two time points. All mainline trips, including those trips which operate only between one terminus and the Des Plaines Metra station, were included in the analysis. The data includes recorded arrival and departure times for each time point, with the total trip length equaling the sum of travel times between time points, plus the time spent at each time point boarding, alighting, and idling (known as "dwell time"). Using the sample of on-time performance data from the month of October 2015 and summing trip times between time points and dwell times at time points, an average total trip length was calculated for both the eastbound and westbound directions of Route 250, as shown in Table 6.1 and Table 6.2. The dwell time at each time point was added to the running time to arrive at a total travel time to each time point. Dwell time after arrival at the final stop was not included.

To account for unusual trips or data irregularities that should not be used to predict typical operating conditions, outlier records were identified, which are segments of trips more than 1.5 times the interquartile range beyond the first and third quartile ranges running time (not including dwell time at time points). The data presented below represents only those trip segments within that range and which were therefore not identified as outliers.

TABLE 6.1: AVERAGE TRIP LENGTH BY STATION PAIR – WEEKDAY, EASTBOUND

Point A	Point B	Running Time	Dwell Time	Total Travel Time
O'Hare Airport Kiss 'N' Fly	Lee/Touhy	0:07:40	0:00:07	0:07:48
Lee/Touhy	Des Plaines Metra Station	0:12:46	0:00:57	0:13:43
Des Plaines Metra Station	Dempster/Lutheran General Hospital	0:05:54	0:00:50	0:06:45
Dempster/Lutheran General Hospital	Dempster/Milwaukee	0:05:01	0:01:38	0:06:40
Dempster/Milwaukee	Dempster/Waukegan	0:04:33	0:00:27	0:05:01
Dempster/Waukegan	Dempster-Skokie CTA Station	0:07:49	0:02:13	0:10:03
Dempster-Skokie CTA Station	Dempster/Crawford	0:04:07	0:00:20	0:04:28
Dempster/Crawford	Dempster/Dodge	0:05:12	0:00:53	0:06:05
Dempster/Dodge	Davis CTA/Metra Station	0:05:57	n/a	0:05:57
Total		0:58:59	0:07:25	1:06:30

Notes: Dwell time is not included for the final stop. The sum of the column totals varies slightly due to rounding of the segment times.

TABLE 6.2: AVERAGE TRIP LENGTH BY STATION PAIR – WEEKDAY, WESTBOUND

Point A	Point B	Segment Time	Dwell Time	Total Travel Time
Davis CTA/Metra Station	Dempster/Dodge	0:05:24	0:01:09	0:06:34
Dempster/Dodge	Dempster/Crawford	0:05:28	0:00:22	0:05:51
Dempster/Crawford	Dempster-Skokie CTA Station	0:03:26	0:03:16	0:06:42
Dempster-Skokie CTA Station	Dempster/Waukegan	0:09:07	0:00:07	0:09:14
Dempster/Waukegan	Dempster/Milwaukee	0:03:31	0:01:21	0:04:53
Dempster/Milwaukee	Dempster/Lutheran General Hospital	0:05:09	0:00:44	0:05:53
Dempster/Lutheran General Hospital	Des Plaines Metra Station	0:06:13	0:02:12	0:08:26
Des Plaines Metra Station	Lee/Touhy	0:09:45	0:00:44	0:10:30
Lee/Touhy	O'Hare Kiss 'N' Fly	0:07:45	n/a	0:07:45
Total		0:55:48	0:09:55	1:05:48

Notes: Dwell time is not included for the final stop. The sum of the column totals varies slightly due to rounding of the segment times.

Current weekday trip times average approximately one hour, six minutes in both directions of travel. On most segments, the running times and total travel times are similar in both directions of travel, with several notable exceptions:

- Between Lee/Touhy and Des Plaines Metra, travel times are consistently longer in the eastbound direction, likely due to signal delay and the railroad grade crossing in downtown Des Plaines – westbound buses are likely to dwell at the time point if a train is present, adding dwell time to the previous trip segment rather than extending the running time of the next trip segment. The data appears to confirm this, with substantially longer dwell times at Des Plaines Metra in the westbound direction.

- Between Dempster/Waukegan and Dempster-Skokie CTA Station, westbound trips have a substantially longer running time, likely due to the delay associated with exiting the off-street station area and turning left onto Dempster Street. Dwell time is higher in the eastbound direction, due to the extended dwell time at the CTA station.
- Between Crawford and Dempster-Skokie CTA Station, westbound trips have substantially more dwell time, due to the extended dwell time at the CTA station. Eastbound trips have a slightly longer running time, indicating that the westbound left turn into the off-street station area does not significantly impact running time.

Travel times were also analyzed by time of day, looking at trips that occur during the AM peak, PM peak, midday, and evening travel periods. The running time, dwell time, and total travel times by direction and time of day are summarized in Table 6.3. As shown, running times are typically similar in both directions of travel for a given time period, with the exception of the AM peak period, in which westbound trips are substantially faster than eastbound. There is significantly more variation in running time than dwell time by time period, which suggests that the current schedule is accurately reflecting traffic conditions in the corridor and allowing for the necessary increase in running time. Dwell times tend to be highest during times when running times are also higher, due to the increased passenger loads.

TABLE 6.3: SUMMARY RUNNING TIME AND DWELL TIME BY DIRECTION AND TIME PERIOD

Direction / Time Period	Running Time	Dwell Time	Total Travel Time
Eastbound			
AM Peak	1:01:25	0:07:29	1:08:54
Midday	0:59:51	0:08:14	1:08:05
PM Peak	1:09:22	0:08:48	1:18:10
Evening	0:52:50	0:06:05	0:58:55
Westbound			
AM Peak	0:54:58	0:09:46	1:04:44
Midday	0:58:40	0:11:02	1:09:42
PM Peak	1:07:28	0:11:56	1:19:24
Evening	0:48:39	0:08:04	0:56:43

Among non-outlier trip segments, a standard deviation and a 95% confidence level were calculated by time of day for each station pair. The confidence interval is the range of values that are within 1.96 standard deviations of the mean. The standard deviation and confidence intervals are shown in Table 6.4.

TABLE 6.4: 95% CONFIDENCE INTERVAL OF AVERAGE RUNNING TIME (MINUTES), EXCLUDING DWELL TIME AT TIME POINTS

	AM Peak	Midday	PM Peak	Evening
Eastbound				
Mean	61.5	60.2	69.5	57.8
Standard Deviation	11.3	10.7	11.1	12.1
95% Confidence – Low	39.4	39.3	47.8	34.0
95% Confidence – High	83.7	81.2	91.3	81.5
Westbound				
Mean	55.2	59.1	67.2	51.2
Standard Deviation	10.6	10.6	11.3	11.3
95% Confidence – Low	34.4	38.3	45.1	29.1
95% Confidence – High	76.0	79.9	89.4	73.3

Note: The range of times shown in Table 6.4 does not include dwell time at time points.

Looking at the 95% confidence interval for October 2015 trips, eastbound trip times can range from a low of 34 minutes to a high of 91 minutes, depending on time of day. Westbound trip times range from a low of approximately 29 minutes to a high of 89 minutes. This extreme variability in running times is partially, but not fully, reflected in the published schedule for Route 250, which ranges from 51 to 75 minutes.

6.1.2 Overall Schedule Adherence

Schedule adherence was analyzed in terms of the average arrival and departure at each time point. Figure 6.1 and Figure 6.2 show mean arrival and departure delay at scheduled time points, in minutes, by time of day. Schedule delay was defined as any delay beyond the scheduled arrival/departure time. This differs from Pace's operational definition of "late," which is defined as arrivals one minute before or five minutes after the scheduled time. For the originating terminus, only departure delay is shown, while for the final stop only arrival delay is shown. The sloped segments in the graph represent trips gaining or losing time versus the schedule while moving between time points, while the vertical segments represent the average dwell time at each time point.

In the eastbound direction, Route 250 typically departs O'Hare between 1.5 and 4 minutes behind schedule, arriving at Davis CTA / Metra station between 6 and 11 minutes behind schedule. The average trip takes 4.8 minutes longer than its scheduled running time. Schedule adherence is worst during the PM peak period, when buses depart the furthest behind schedule and also fall an additional 6.6 minutes behind schedule en route to Evanston. During the PM peak, trips typically recover some lost time between Dempster-Skokie CTA and the Davis CTA / Metra terminus. During the other three time periods, schedule adherence is much more consistent.

The PM peak period also exhibits the worst schedule adherence in the westbound direction, departing Davis CTA / Metra an average of 5.9 minutes behind schedule and falling an additional 3.3 minutes behind schedule while en route to O'Hare. Overall, westbound schedule adherence is somewhat better than eastbound, with trips taking an average of 2.0 minutes longer than the scheduled running time, and arriving at O'Hare between 2 and 9 minutes behind schedule. The majority of the delay experienced by westbound buses occurs in the initial departure from

Davis CTA / Metra, with buses departing between 1.6 and 5.9 minutes behind schedule on average. This suggests that eastbound delay is having a residual effect on westbound trips. In the evening time period, westbound trips actually operate faster than the schedule, departing Davis 3.8 minutes behind schedule but arriving at O'Hare only 2.1 minutes behind schedule.

FIGURE 6.1: EASTBOUND SCHEDULE ADHERENCE

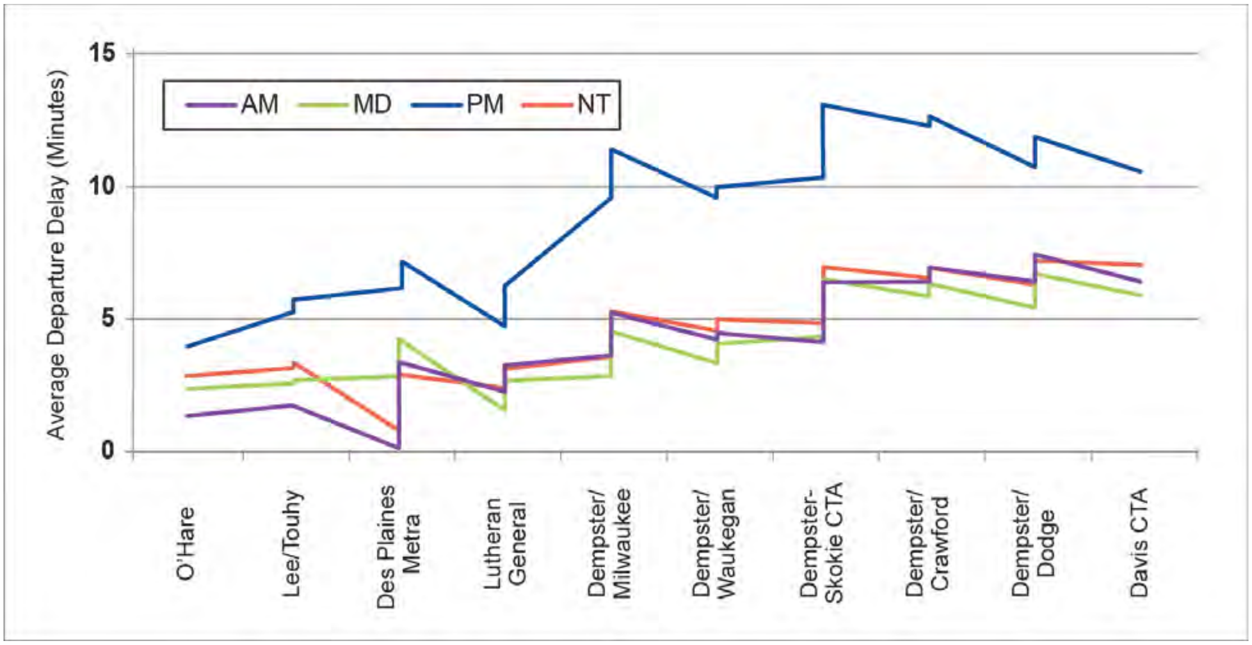
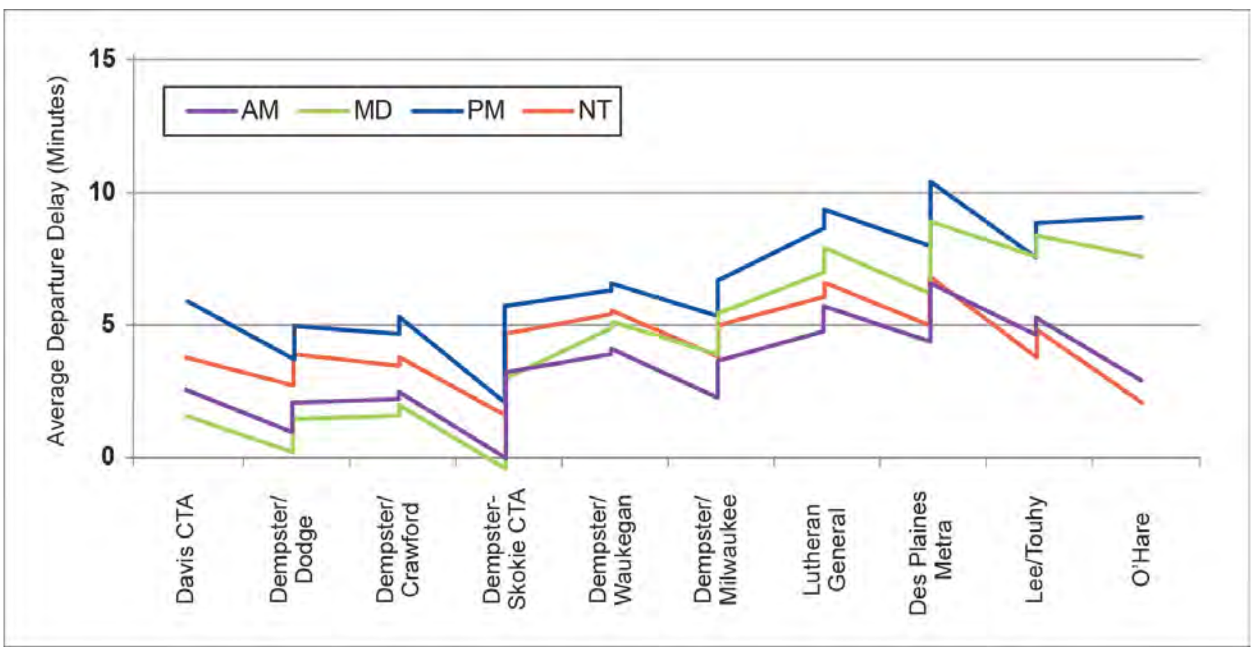


FIGURE 6.2: WESTBOUND SCHEDULE ADHERENCE



6.2 TRAVEL TIME (ON-BOARD SURVEY)

A smartphone application (i.e. app) was developed to collect travel condition data on-board Route 250 buses. The data was collected by riding the bus from one terminal to the other and selecting the appropriate travel condition continuously throughout the run. The app captured ten different travel conditions within the following four categories:

- **Direction:** NB/EB (i.e. Evanston Bound), SW/WB (i.e. O'Hare Bound)
- **Free Flow:** Moving, Stopped at a Traffic Light
- **Bus Stop:** Doors Open, Ramp Deployed, Bike Rack Used, Idling at a Time Point
- **Congestion:** Slowed, Stopped

A sample of selected trips represents various Route 250 conditions over the existing weekday and weekend service hours. Data was collected and analyzed for 47 trips between February 11, 2016 and March 23, 2016, including 28 weekday trips, 19 weekend trips, 28 northbound/eastbound trips, and 19 southbound/westbound trips. Weekday trips were categorized within one of the following defined time periods (based on the time at which the bus departed to begin its trip): AM Peak (6:00am-8:59am), Midday (9:00am-1:59pm), PM Peak (2:00pm-4:59pm), or Night (5:00pm-11:59pm and 12:00am-5:59am). Weekend trips were summarized as a single time period.

6.2.1 Analysis

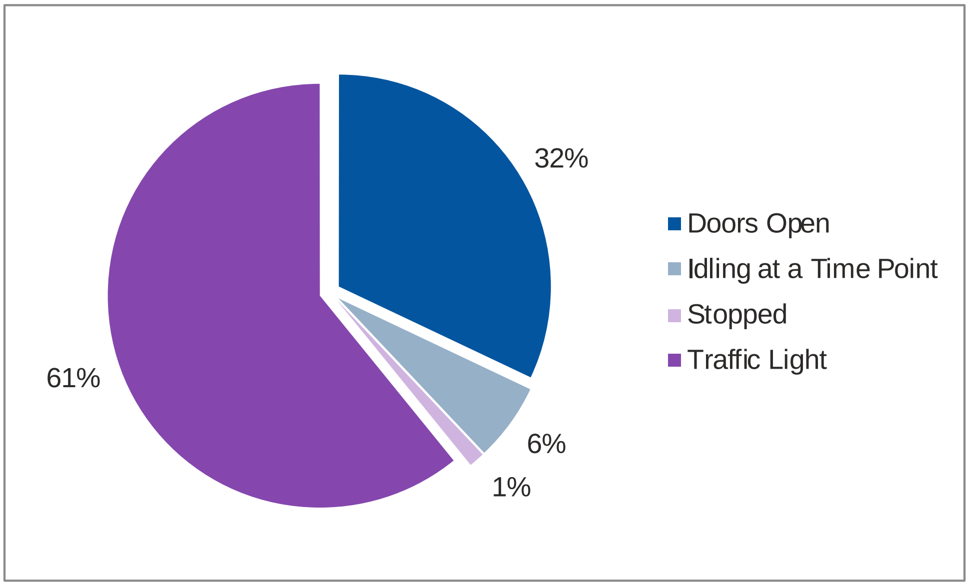
The average trip length was one hour and eight minutes. The Route 250 buses opened the doors at an average of 28 stops per trip. The average dwell time per stop was 16 seconds. The average dwell time was fairly consistent across various times periods. See Table 6.5 for more details regarding the travel time survey data by time period.

TABLE 6.5: TRAVEL TIME SUMMARY

	All Trips	NB/EB	SB/WB	Typical Weekday	AM Peak (Weekday)	PM Peak (Weekday)	Weekend
Avg Trip Length (h:mm:ss)	1:08:21	1:08:39	1:07:55	1:09:29	1:08:10	1:15:08	1:06:42
Avg Stops per Trip	28	29	27	30	33	34	24
Avg Total Dwell Time per Trip (h:mm:ss)	0:07:17	0:07:46	0:06:34	0:07:47	0:07:28	0:08:47	0:06:32
Avg Dwell Time per Stop (h:mm:ss)	0:00:16	0:00:16	0:00:15	0:00:15	0:00:14	0:00:15	0:00:16
Total Stops with Dwell Time >60 sec.	45	15	30	16	3	3	29
Dwell Time (% of Travel Time)	11	11	10	11	11	12	10
Avg Idling Count per Trip	2	3	1	1	1	2	2

Sixty-five percent of the travel time was identified as moving, 34% as stopped, and 1% as slowed in congestion. The majority of non-moving time was stopped at a stop light and "doors open" was identified as the second highest non-moving travel condition. See Figure 6.3 for more information regarding non-moving travel conditions.

FIGURE 6.3: NON-MOVING TRAVEL CONDITION SUMMARY (ALL TRIPS)



Wheelchair ramp deployment and bike rack use appeared to have minimal impact on the overall trip time. The ramp was deployed an average of 0.26 times per trip and accounted for less than one percent of aggregate travel time. The bike racks were used an average of .47 times per trip and also accounted for less than one percent of aggregate travel time.

The data indicates that a combination of several travel conditions result in PM peak trips that are approximately seven minutes longer than AM peak trips. PM peak trips are identified as moving for an additional two minutes and thirty seconds when compared to AM peak trips. PM peak trips also experience one minute of additional of dwell time. An additional 35 seconds of slowed and stopped time was recorded per trip. The additional moving time implies that the bus was moving at a slower average speed even when not identified as slowed in congestion by the data collector due to the difficult nature of defining the slowed travel condition.

Other travel time conditions also contributed to the travel time difference between AM and PM peak trips. The average total duration of time at a traffic light per trip was approximately one minute and 30 seconds higher for PM peak trips than AM peak trips. The data indicated that PM peak trips include an average of one additional instance of idling at a time point than AM peak trips, resulting in approximately one additional minute of travel time. A combination of time attributed to moving, traffic light, dwell time, slowed, stopped, and idling travel conditions account for approximately seven minutes of additional travel time observed for the PM peak trips. See Table 6.6 for more information about AM peak and PM peak travel time conditions.

TABLE 6.6: SUMMARY OF AVERAGE TOTAL DURATION PER TRIP, AM PEAK AND PM PEAK (H:MM:SS)

	All Trips	AM Peak (Weekday)	PM Peak (Weekday)	PM/AM Difference
Moving	0:44:42	0:45:25	0:48:03	0:02:39
Stopped at Traffic Light	0:13:50	0:14:06	0:15:39	0:01:33
Dwell Time	0:07:17	0:07:28	0:08:47	0:01:19
Slowed in Congestion	0:00:36	0:00:27	0:00:52	0:00:25
Stopped in Congestion	0:00:16	0:00:12	0:00:02	(0:00:10)
Idling at a Time Point	0:01:21	0:00:25	0:01:23	0:00:57
Total PM Peak/AM Peak Difference	-	-	-	0:07:09

6.2.2 Findings

The travel time survey data indicates the following findings:

- The Dempster Pulse Line could realize travel time savings through stop consolidation. The Route 250 buses stop an average of 28 stops with an average dwell time of 16 seconds per stop. By consolidating the Dempster Pulse Line stops to approximately 17 stations, an average of four minutes and twenty-six seconds could be saved per trip.

- Time stopped at a traffic light accounted for 61% of non-moving time and some variation in the average total time at a traffic light per trip was observed between time periods. This suggests that TSP may provide travel time savings, particularly during the PM peak period. The exact impact of TSP implementation along the Dempster Corridor and on the Dempster Pulse Line project has not yet been determined. TSP has resulted in up to 20% travel time savings in other parts of the Pace service area.

- PM peak trips are seven minutes longer in travel time, which can be accounted for by a combination of time attributed to moving, traffic light, dwell time, slowed, stopped, and idling travel conditions.

7 Vehicles

Pace is in the process of procuring new Pulse vehicles for the Milwaukee Line and expects to take delivery of the vehicles in late 2016. These vehicles are being purchased as part of Pace's regular vehicle replacement program and will be the same 40 foot low-floor ElDorado vehicles deployed for other fixed route services. However, the Pulse vehicles will vary from the standard Pace fleet vehicle in several important and highly visible ways to provide passengers with an enhanced experience and to clearly differentiate the Pulse service and vehicle fleet from Pace's traditional fixed route bus service. This chapter outlines the interior and exterior components of the vehicle, and in particular how they will differ from the regular Pace fixed route fleet. A general schedule for vehicle procurement is also provided here.

7.1 GENERAL VEHICLE SPECIFICATIONS

Pace is currently in the process of replacing its Northwest Division garage with a new facility that may support alternative fuel vehicles such as compressed natural gas (CNG). However, this facility may not be available at the start of the Pulse Dempster Line service and, therefore, it is anticipated that the Dempster Line Pulse vehicles will be diesel fueled. These ElDorado Axess 40-foot low floor buses will have the following design specifications:

- Minimum expected life of 12 years or 500,000 miles, whichever comes first
- Capacity of up to 43 seated passengers; 61 with standees
- 14 inch step height at both doors
- ADA compliant front and rear passenger doors with passenger lift
- Compatibility with Pace's Intelligent Bus System (IBS)
- Vehicle video surveillance
- Automatic passenger counters (APC)
- Transit Signal Priority compatibility

Several additional features specific to the Pulse fleet will enhance the passenger experience. These include:

- In-vehicle passenger information including digital route maps and automated stop announcements
- In-vehicle WiFi
- USB charging ports for electronic devices

7.2 PULSE VEHICLE EXTERIOR

When procured, the vehicles will be painted with Pace's standard paint scheme to allow for flexibility of use over the course of their useful life. Once received by Pace, a Pulse branded wrap will be applied to the vehicles. A vehicle wrap was chosen as it is easier to remove and/or modify and it also allows for the vehicle's windows and doors to be covered, making for a bolder design that features the service brand graphics and color scheme. A wrapped Pulse vehicle is illustrated in Figure 7.1. Figure 7.2 shows how the vehicle wrap will be applied around all sides of the vehicle.

FIGURE 7.1: BRANDED PULSE VEHICLE

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FIGURE 7.2: FOUR-SIDED DETAIL OF THE PULSE VEHICLE WRAP

In an effort to further distinguish the Pulse vehicles from other Pace buses, particularly the front of the bus as it approaches stations, a modified full-color destination sign will show the Pulse logo along with the Pulse route name (see Figure 7.3). The route name will alternate with the terminal station name, which will vary depending on the direction of the bus. This will make Pulse vehicles easily distinguishable from a distance of several hundred feet.

FIGURE 7.3: PULSE DESTINATION SIGN

7.3 PULSE VEHICLE INTERIOR

The finish options throughout the interior of Pulse vehicles will differ in appearance from standard Pace buses. As shown in Figure 7.4, the Pulse brand colors will be applied to the stanchions and floor accents and the Pulse logo will be added to the interior vehicle walls.

FIGURE 7.4: BRANDED PULSE VEHICLE INTERIOR

7.4 VEHICLE PROCUREMENT SCHEDULE

Eighteen dedicated Pulse vehicles will be needed at the commencement of Dempster Line service in 2019, which will provide for the 15 vehicles required per the operating plan as well as three spares. Pace has an existing contract with ElDorado National to procure new 40 foot low-floor buses in the next several years, and it is anticipated that Pulse vehicles will be obtained through this existing contract. For the Milwaukee Line, the vehicles were procured from this same contract in the spring of 2016 and are expected to be delivered to Pace in late 2016. In order to obtain the 18 Pulse vehicles for the Dempster Line from the same contract and to have those vehicles received in time for the start of the Dempster Line service in 2019, vehicles should be ordered by the fourth quarter of 2018.

7.5 SPECIALIZED TOOLS, EQUIPMENT AND TRAINING NEEDS

It is anticipated that the 12" high platform curb will be faced with a bus curb to help protect the curb face as well as the bus wheels (see Figure 4.10). It will also help the driver guide the bus into the station, allowing them to get as close as possible to the platform edge, thus facilitating boarding and alighting. Operators assigned to a Pulse route will need to be trained on the proper technique needed to approach the platform and bus curb to maximize the near-level boarding opportunities. As the Milwaukee Line stations will be constructed in a similar fashion, it is expected that the Milwaukee Avenue corridor will provide an appropriate training ground for Pulse Dempster Line operators.

Because other local bus routes may also use certain Pulse stations, training on proper use of the bus curb should be integrated into Pace's regular driver training program.

8 Technology

The Pulse Dempster Line will incorporate the following technology features: TSP, in-vehicle passenger information, vehicle video surveillance, vehicle passenger WiFi, and real-time arrival information. Pace is active in the regional implementation of TSP being led by the RTA. Through interfaces among numerous subsystems, TSP allows the bus to communicate with the traffic signal control network to request an extended green light or shortened red light to allow a bus to continue through an intersection without delay when it is running behind schedule. This will improve travel times and on-time arrival. The precise implementation year for TSP along Dempster Street is unknown at this time but is anticipated to occur prior to the Dempster Line's start of revenue service in 2019.

Pulse Dempster Line vehicles will be equipped with in-vehicle passenger information system components that are compatible with the existing AVA (Automatic Voice Annunciation) system on Pace buses. A vehicle video surveillance system will provide continuous, real-time monitoring for the vehicle operator, offline review for security investigations, and remote support from the Pace operations center. The Dempster Line will offer passenger WiFi as an amenity. This will be enabled in WiFi capable Pulse vehicles via the addition of a cellular network card. Real-time arrival information signage will be installed at the Pulse stations. See Section 8.1 for more information about system integration and delivery of real time bus arrival information.

8.1 REAL-TIME ARRIVAL INFORMATION

Under an Invitation for Bid (IFB) for system integration of real-time bus information signage that is separate from the Pulse corridor contracts, Pace is pursuing a solicitation for a vendor to purchase and install a real-time information system for displaying bus arrival times at various Pace facilities systemwide. This IFB includes real-time information signs for standard fixed route bus stops and transit centers as well as the content management software (CMS) and media players required to feed and manage the content displayed on real-time information signs at various locations throughout the Pace service area, including Pulse stations.

The real-time information signs and audio system for the Pulse stations, as well as the required cellular modem, antenna and cabling, will be procured as part of the Pulse corridor contracts and will be integrated into the station vertical markers during construction of the Pulse stations. The CMS and media players needed to display video content on the Pulse real-time information signs and broadcast announcements on the audio system at Pulse stations will be procured through the above referenced IFB.

A Technology Strategy Technical Memorandum was issued for two main purposes: 1) to document the requirements for the real-time information sign, audio system, and cellular communications equipment to be procured and installed as part of the Pulse station construction contracts; and 2) document the requirements for content management software and media player that will be procured through the separate system integration IFB. Table 8.1 summarizes the several main system components and their associated contract. The technical requirements for the real-time information system and the acceptance testing and training requirements for the system that are documented in the Technical Memorandum are included in the sections below for ease of reference.

TABLE 8.1: SYSTEM COMPONENT AND CONTRACT SUMMARY

Component	Pulse Contract	System Integration Contract
Vertical marker at Pulse stations	X	
LCD video monitor at Pulse stations	X	
Cellular modem/antennae at Pulse stations	X	
Audio system at Pulse stations	X	
Media players at Pulse stations		X
CMS for Pulse stations and Pace headquarters		X
System integration at Pulse stations and Pace headquarters		X

8.1.1 Real-Time Arrival Information System Technical Requirements

1) **General**
   a) The Pulse real-time arrival information system is controlled by content management software (CMS) that consists of a video subsystem, an audio subsystem, and a communications subsystem.
      i) The video subsystem consists of a real-time information sign (i.e. LCD display monitor) that is controlled and managed by content management software operating on the media player.
      ii) The audio subsystem consists of outdoor speakers, an ambient noise sensor and microphones, and pushbuttons operating with the media player and CMS to provide actuation input from the pushbuttons and audio playback responses out of the speakers.
      iii) The communications subsystem consists of a cellular modem with an external antenna and cabling. With configuration by the system integrator, this communications will provide the CMS and media player a means of receiving real-time bus location and arrival data from the Pace IBS to update the bus arrival times displayed on the LCD monitor. The bus location and arrival time data will also enable the CMS and media player to play the correct audio file when requested by pushbutton actuation.
   b) The real-time arrival information sign (i.e. the display monitor), audio system, antenna, cabling and modem, shall be integrated into the vertical marker and constructed and installed as part of the construction of the individual Pulse stations.
   c) The installed real-time arrival information system components in item 1b shall appear as an integral part of the Pulse vertical marker as opposed to obvious add-ons.
   d) A submittal (i.e. shop drawing) of all the proposed Pulse station real-time arrival information system components detailed in item 1b that will be integrated into the Pulse vertical marker during construction of the Pulse stations shall be submitted in advance to Pace and shall include the type, make and model of components and their communications capabilities, where appropriate.
   e) All field components shall be manufactured for outdoor use.
   f) The real-time arrival information system shall be compliant with the federal ADA.
   g) All exposed electronic components shall be rugged to be vandal and weather resistant.

h) Field electronics shall be housed in NEMA 4 enclosures within the vertical marker.
i) All components of the real-time arrival information system shall be mounted securely.
j) Cabling for the real-time arrival information system shall be neatly routed within raceways that are concealed from public view inside the housing of the vertical marker.

2) Pulse Real-Time Information Sign Requirements

a) The sign shall be mounted in a landscape orientation.
b) Two signs (mounted back-to-back) shall be installed within each Pulse vertical marker.
c) The sign shall be a light emitting diode (LED) backlit, flat panel, liquid crystal display (LCD).
d) The sign shall be manufactured for outdoor direct sunlight viewing.
e) The sign shall be designed to operate 24 hours, 7 days per week.
f) The sign shall have a nominal display size of 32-inches minimum (diagonal).
g) The size of the sign and the mounting hardware shall fit within the vertical marker width, which shall not exceed 46" including the stainless steel skin.
h) The real-time arrival information sign vendor shall provide the dimensions of the sign's viewable display to the vertical marker fabricator so that the marker opening can be closely matched to the dimensions of the sign's viewable display.
i) The installed real-time arrival information sign shall be installed such that no portion of the viewable display of the sign shall be covered by the vertical marker housing.
j) The installed real-time arrival information sign shall be secured with a water-tight seal.
k) The sign shall include an ambient light sensor that automatically adjusts the display brightness based on the ambient light level.
l) The activation of the auto brightness function shall be user selectable by Pace.
m) The sign shall be installed such that no interference to the ambient light sensor occurs from the Pulse vertical marker housing.
n) The sign display shall have optically bonded protective glass.
o) The sign's protective face shall be replaceable by Pace's maintenance personnel in the event of damage.
p) The real-time information sign shall meet the following:
    i) Brightness shall be a minimum of 900 nits (cd/m2)
    ii) Minimum operating temperature range shall be -22° F to +122° F (-30° C to +50° C)
    iii) Minimum contrast ratio shall be 3000:1
    iv) Response time shall be less than 10 milliseconds (ms)
    v) Viewing angle shall be a minimum of 178° vertical, 178° horizontal
    vi) Resolution shall be greater than 1 million pixels
    vii) Mean time between failures (MTBF) shall be a minimum of 40,000 hours
q) The sign shall have 30° horizontal and 30° vertical viewing angles.
r) The words, "Pace Bus Tracker" shall be clearly printed in contrasting color directly below the sign display.
s) The mounting hardware shall securely hold the display in the designated space within the vertical marker.
t) The sign shall include mounting hardware from the sign manufacturer that is compatible with the Pulse station vertical marker.
u) The sign and its mounting hardware shall accommodate convenient access for maintenance personnel.
v) The design of maintenance access to the sign shall be detailed as part of, and coordinated with, the vertical marker design.
w) The sign shall include a power supply by the manufacturer that is designed for 120 VAC service.

3) Audio System

The audio system shall include equipment and hardware to facilitate audible announcements from the CMS and media player in response to pushbutton actuations. Pushbuttons on the Pulse vertical marker and inside the shelter shall provide a means for awaiting riders at Pulse stations to play an audio message of the estimated arrival time of the next Pace bus. Activation of any pushbutton shall initiate the same audio message simultaneously from all outdoor speakers. The audio system will include outdoor speakers, ambient noise sensor (ANS), and pushbuttons.

a) Outdoor speakers
   i) Outdoor speakers, one on each side of the vertical marker, shall be integrated in the vertical marker into the space designated for them in accordance with the vertical marker specifications.
   ii) An outdoor speaker shall be installed within the interior ceiling corner of the Pulse shelter in accordance with the shelter specifications.

b) The audio system shall include an ANS inside the vertical marker into the space designated for it in accordance with the vertical marker specifications.
   i) The ANS shall receive audio signal input from the media player audio output.
   ii) The ANS shall measure ambient noise level inputs from noise microphones.
   iii) Noise microphones shall be installed within the vertical marker in the space designated for them in accordance with the vertical marker specifications.
   iv) The ANS shall make real-time gain adjustments to the audio signal input based on ambient noise levels.
   v) The ANS shall output adjusted audio signals to the outdoor speakers.
   vi) The thresholds and adjustment levels shall be user-configurable by Pace.

c) Pushbuttons for audio activation
   i) Two pushbuttons, one on each side of the vertical marker, shall be integrated in the vertical marker into the space designated for them in accordance with the vertical marker specifications. The buttons shall be installed in compliance with ADA requirements.
   ii) A pushbutton shall be integrated in interior wall of the Pulse shelter in accordance with the shelter specifications. The button shall be installed in compliance with ADA requirements.
   iii) The button shall be solid-state piezo switch.
   iv) The activation force for the button shall be compliant with MUTCD 2009 – 4E.
   v) The button shall be rugged and shall be compliant with NEMA TS 2 mechanical shock and vibration requirements.
   vi) The button enclosure shall be weather resistant and shall be NEMA 6P rated.
   vii) The button switch operating life shall be rated for a minimum of 300 million activations.

d) The audio system shall include all required hardware, adapters, splitters, wiring, and configuration to provide a complete and functioning audio system as described herein.

e) The outdoor speakers, noise microphones, and wiring shall be in compliance with the requirements of the ANS manufacturer.

4) Content Management System

There are a number of real-time information signs that will be deployed throughout the Pace network, including signs to be installed at Pulse stations within the vertical marker, as well as real-time information signs at transit centers, and within bus shelters at fixed route bus stops. In all situations, the real-time arrival information sign shall provide unique bus arrival information specific to the particular station, transit center, or stop. Pace will acquire a content management system solution to manage the display content on these various real-time information displays, which will initially include only the real-time bus arrival times. The content management system will include content management software (CMS), which will operate on media player hardware that is connected to video monitors on Pulse vertical markers, Pace bus shelters, and Pace transit centers. The CMS will control the information displayed on video monitors and the audio announcements. The CMS must also have the capability to display advertisements in addition to real-time bus arrival times in order to support this potential function for future flexibility on real time information signs at various Pace facilities systemwide. This requires the CMS to manage content from multiple sources.

The real-time bus location data is currently available in an open format from the existing Pace Intelligent Bus System (IBS) via a General Transit Feed Specification (GTFS) real-time feed in addition to a proprietary API. Pace has also developed a real-time XML feed of the predicted bus arrival times at bus stops utilizing the data from its IBS. The CMS shall interface with the existing real-time bus location and arrival time data utilizing Pace's existing real-time data feed. It is anticipated that Pace will provide additional information during the bidding process as needed to the CMS provider, so that the development level of effort of the CMS interface with Pace's existing real-time data feed can be assessed. The CMS requirements will be included in the Pace contract for system integration that is separate from the Pulse corridor contracts. Preliminary requirements for the CMS are provided below.

a) Shall include a software program to interface with the Pace IBS real-time feed and enable the accurate retrieval of real-time vehicle position data.
b) Shall include a software program that converts the Pace IBS real-time feed into a display of bus arrival times on the real-time information displays.
c) Shall be fully compatible with the media player to display real-time bus arrival information on the selected LCD monitors installed in the vertical marker and those other signs procured through the IFB.
d) Shall support up to 3000 media players.
e) Shall communicate with media players via a cellular network using static IP addresses.
f) Shall support 1080p video quality content delivery to the media player.
g) Shall support refreshing real-time bus information every 30 seconds.
h) Shall support a server-based solution with a server located at Pace headquarters. Any server needed to operate the content management system shall be fully scalable to accommodate the media players procured through the IFB
i) The server shall meet the following minimum requirements or CMS system requirements, whichever are greater:
    i) Operating System: Windows Server R2 64-Bit
    ii) Processor: Intel Quad Core Xeon 3 GHz(minimum)
    iii) RAM: 8 GB or greater
    iv) Hard Drive: 4x80GB(minimum)
j) Shall allow the user to define content schedules.
k) Shall include management software on the media players that seamlessly displays content on the real-time information signs from multiple sources.
l) Shall support the following format or sources of display content:
    i) Pace real-time bus arrival time
    ii) Text feed

iii) Graphics
iv) Video
v) Audio files
vi) PowerPoint
vii) Weather
viii) Bus Schedules
ix) News
x) Alerts
xi) RSS feeds
xii) Twitter
xiii) Facebook
xiv) Stock Data
xv) Excel
xvi) XML
xvii) HTML5 Webpages
xviii) SharePoint

m) Shall be capable of displaying the following content:
   i) Unique real-time arrival information specific to the particular station.
   ii) Real-time bus arrival time of the next three buses.
   iii) Minutes remaining before the arrival of each bus.
n) Shall be capable of displaying content in the following manner:
   i) The arrival information for each bus shall be displayed on a single line.
   ii) Scrolling text.
      (1) This function is anticipated for use if arrival information for a given bus route extends beyond a single line.
      (2) The scroll time for messages shall be configurable by the Pace system administrator.
   iii) The size of letters and numbers on the signs shall be ADA compliant.
o) Shall include templates for creating layout content.
p) Shall allow for creating customizable layout content.
q) Shall include an interface with the CTA Bus Tracker API that enables the accurate retrieval of real-time CTA vehicle position data.
r) Shall interface with both Pace and CTA vehicle data to enable Pace and CTA bus information to be displayed on real-time information signs at stations and transit centers at shared locations that serve both agencies.
s) Shall be programmed to receive the actuation input from the pushbuttons and respond by playing the appropriate audio file that indicates the arrival time of the next bus in minutes.
t) Shall be programmed to automatically make an announcement of the bus arrival on all station speakers when the bus arrives at the station.
u) Audio announcements shall be a message library created from prerecorded professional speech for optimal clarity. Text to speech will not be allowed.

5) Media Player

Each Pulse vertical marker shall have a rugged media player to manage the content displayed on the real-time information signs and manage the audio messages announced on the audio system. The preliminary requirements for the media player are provided below.

a) Shall be fully compatible with the Content Management System (CMS).
b) Shall communicate with the CMS via a cellular modem.
c) Shall have dual outputs to support at least two monitors simultaneously.
d) Shall be able to display layouts with content from sources compatible with the CMS.
e) Shall support all of the display content types that are supported by the CMS.
f) Shall include the following ports as a minimum:
   i) USB 2.0 (1)
   ii) 10/100 Ethernet port (1)
   iii) HDMI ports (2)
   iv) 3.5mm Audio Jack (1)
g) The media player shall be capable of outputting audio to three speakers, one inside the bus shelter and the other two in the vertical marker.
h) Shall include a vendor-supplied power supply to operate with a 120 VAC source.
i) Shall have a minimum operating temperature range of 32° F to +122° F (0° C to +50° C)
j) Shall be UL or CE certified.
k) The media player shall meet the recommended specifications of the CMS or the minimum requirements below, whichever are greater
   i) Processor: Intel 1.8GHz, Quad Core or greater
   ii) Memory: 4 GB minimum
   iii) Operating System: Windows 7 or Equivalent
   iv) Hard Drive Space: 40 GB minimum
l) The media player shall have a small form factor.
m) The media player shall be wall-mountable or DIN rail mountable and include mounting hardware.
n) The media player shall be capable of accepting an I/O event input from the cellular modem or directly through one of its communications ports to trigger the CMS to play an appropriate bus arrival time audio file through the speaker connections.
o) Contractor shall submit technical details on the media player to Pace for review and approval.

6) Communications

Pace operates an existing TransitMaster system by Trapeze Software Group, Inc., which serves as the central component of Pace's IBS. The IBS stores the real-time bus position data, which is accessed by an existing program and made available as a GTFS real-time data feed. The CMS software programming will need to include a conversion of the online GTFS real-time feed into a format compatible with the media players. This data must be accessed and received at the media player at each Pulse station where the CMS software will manage the display of the bus arrival times in the proper format. The online data will be transmitted over cellular communications through the cellular modem at each Pulse station.

a) Cellular Modems

The real-time information signs shall use a cellular modem to communicate, using a static IP, with the CMS. The modem shall be installed within the Pulse vertical marker at a location that is accessible for maintenance. The preliminary requirements for the cellular modem are provided below.

i) Shall be fully compatible with the Pulse station media players.
ii) Shall be static IP addressable.
iii) Shall support real-time two-way communications for remote management and shall include vendor-supplied management software.
iv) Shall have SIM-based auto carrier selection for all North American carriers.
v) The cellular modem shall meet the following requirements:
vi) Port Requirements (minimum)
   (1) USB 2.0 (1)
   (2) 10/100 Ethernet ports (3)
   (3) Cellular antenna connectors (SMA) (2)
   (4) Active GPS antenna connector (SMA) (1)
   (5) RS-232 serial connector (1)
   (6) Wi-Fi antenna connectors (R-SMA) (2)
   (7) WAN port speed control
vii) Frequency Band and Network
   (1) 4G LTE multi-band support for 700/850/1700/1900/2100 Mhz
   (2) Compatible with HSPA+, HSPA, EDGE, GSM, GPRS,EV DO (Rev A)
   (3) Wi-Fi compatibility with 802.11 b/g/n
   (4) IP passthrough
   (5) Load balancing
   (6) Advanced modem failure check
viii) Management and Diagnostics
   (1) Web-based Graphical User Interface (GUI).
   (2) Command Line Interface (CLI) access.
   (3) Compatibility with Simple Network Management Protocol (SNMP)
   (4) Light-Emitting Diode (LED) indicators for Ethernet, power, cellular link/activity and signal strength.
   (5) Event reporting: network parameters, data usage, power, and temp.
ix) Security
   (1) Network Address Translation (NAT)
   (2) Ability to establish VPN tunnels
   (3) IPsec, SSL, and GRE VPN client
   (4) Port forwarding and DMZ
   (5) Filtering: IP address, MAC address
x) Temperature (cellular modem, power supply, and all connectors)
   (1) Operating temperature: -22° F to +122° F (-30° C to +50° C)
   (2) Storage temperature: -40° F to +185° F (-40° C to +85° C
   (3) Relative humidity: 5% to 95% (non-condensing)
xi) Power
   (1) Input Voltage: 10 to 30 VDC (power supply provided by manufacturer)

b) Antenna and Cabling

Dual antennas and cabling shall be provided to support 4G data rates.

i) The antenna shall meet the following requirements:
   (1) Indoor/outdoor-type

(2) multiple-in, multiple-out (MIMO) (2)
(3) Maximum input power: 100W
(4) Impedance: 50 Ohms (nominal)
(5) Gain: 3.0 dBi
(6) Frequencies: 698 MHz to 2170 MHz
(7) VSWR: 1.5:1 or less at resonant point
(8) Omni-directional radiation pattern
(9) Vertical polarization
(10) IP67 waterproof
(11) RoHS compliant
(12) Glass-filled polypropylene radome
(13) Threaded bolt, adhesive and magnetic mounting options (all hardware provided by manufacturer)
(14) Maximum weight: 800g

ii) Antenna cable:
(1) Low loss 1M CFD-200 cables (1dB per 20 feet) (2)
(2) Connectors: SMA (male)
(3) Cable length: 10-15 feet
(4) Manufacturer pre-terminated

8.1.2 Acceptance Testing and Training

1) Acceptance Testing

All technology subsystems shall be subject to testing to demonstrate proper functionality prior to being accepted as complete by Pace. Acceptance testing shall include the following requirements:

a) General

i) The acceptance testing plan shall include specific, step-by-step procedures that verify and explain how each requirement is met.

ii) The acceptance testing plan shall include forms to document passing criteria, record testing results, and to document signatures of witnessing representatives of Pace and other pertinent agencies.

iii) Documentation on the conditions and equipment configuration parameters of a given test, such as photos, technical specifications, make and model numbers, temperature, cable types and lengths, shall be included with the recorded test result forms.

iv) Each acceptance testing procedure shall explicitly identify all the requirements that it verifies. All the acceptance testing procedures shall collectively verify all requirements; no requirement shall be left unverified.

v) Each acceptance testing procedure shall designate the location of the testing.

vi) Acceptance testing plans shall be submitted in advance to Pace for approval. Only approved acceptance testing plans shall be used.

vii) Acceptance testing shall be successfully conducted on subsystems prior to testing systems that rely on the subsystems. Adherence to this order is required to simplify troubleshooting.

viii) All material, such as subsystem components, measuring devices, portable computers, software, and mounting hardware, required for conducting acceptance testing shall be provided by the awarded contractor.

ix) Any subsequent modifications to a previously approved acceptance testing plan must receive written approval from Pace.

x) A minimum 10 working days advance notice shall be provided to Pace prior to scheduling an acceptance testing date and location.

xi) At a date mutually agreed upon by the Contractor and Pace, but no more than 30 days after final acceptance of all contract work, the Contractor shall meet with Pace, make its project management personnel available to review the functionality of the equipment and make any repairs or adjustments that may be necessary.

xii) The acceptance testing plan shall be initiated after the contractor has informed Pace and other pertinent agencies that all equipment has been installed and is ready for the acceptance testing plan to begin.

b) Real-Time Arrival Information System

Acceptance testing shall be consistent with the respective equipment manufacturer's recommendations. Testing shall be in accordance with the corresponding contract specifications. The media player and CMS components of the real-time information system shall be in accordance with the requirements defined under the system integration contract. The acceptance testing plan for components of the real-time arrival information system that are covered under the Pulse corridor contracts shall provide verification of the following items. Testing requires all components from both the Pulse corridor contracts and the system integration contract to be installed and operational.

i) Video Subsystem
   (1) The bus arrival times displayed on the LCD monitors are updated automatically.
   (2) Each bus arrival time is displayed on a single line on the LCD monitor.
   (3) Long text lines are scrolled on the LCD monitor.
   (4) Identical next bus arrival times are displayed on both LCD monitors simultaneously.
   (5) The bus arrival times and bus IDs match the real-time data feed for each Pulse station from the Pace IBS.
   (6) The display of bus arrival times resumes after a loss and return of power of the LCD monitor without manual intervention.

ii) Audio Subsystem
   (1) The announcement of the next bus arrival time is played upon request using any of the pushbuttons.
   (2) The same next bus arrival time is announced on all outdoor speakers.
   (3) The volume is automatically adjusted based on varying levels of background noise. Each ambient noise microphone shall be tested individually.
   (4) The announcement of the next bus arrival time is consistent with the next bus arrival time that is displayed on the LCD monitor.
   (5) The arrival of the bus is automatically announced on all outdoor speakers.

iii) Communications Subsystem
   (1) Sufficient signal quality is achieved at each Pulse station.
   (2) The cellular modem has stable Internet connectivity.
   (3) The cellular modem enables the media player and CMS to read the real-time bus arrival time data feed from the Pace IBS.

2) Training Requirements

a) Training shall be provided by the Contractor to Pace after all components from both the Pulse corridor contracts and the system integration contract are installed and operational.

b) The Contractor shall provide training for each technology component or system installed, including the media player, CMS, ANS, cellular modem, and LCD monitor.
c) A comprehensive training plan shall be developed and submitted to Pace for review and approval.
   i) A minimum of three hardcopy sets and one electronic copy of approved training manuals shall be submitted to Pace.
   ii) Training shall cover both hardware installation and maintenance as well as software operation.
d) Training shall incorporate the operational instructions of the component equipment manufacturers.
e) All training schedules shall be coordinated with and at the convenience of Pace. Training must correspond to Pace's work schedule, and training must be provided to all shifts of workers that will be working with the new technologies.
f) On-site training shall be in a classroom setting conducted at Pace's headquarters and shall provide detailed hands-on instruction to Pace's personnel for complete system operation, system configurations, interpretation of data, troubleshooting, and care and maintenance of the components.
g) Training course instructors shall have prior training experience and thorough familiarity with all aspects of the systems and topics covered in the training materials.
h) The vendor shall provide training sessions up to three 8-hour days to instruct Pace's personnel in operation and maintenance of the system. Training may be in non-contiguous days at the request of Pace. Pace will notify the vendor a minimum seven (7) calendar days in advance of each day of requested training. The vendor's designated training personnel shall meet with Pace for the purpose of discussing and fine-tuning the training agenda prior to the first training session.
i) Training agenda shall cover the following items:
   i) Overview of the various parts of the O&M manuals.
   ii) Demonstration of login/logout procedures, password setup, and reporting.
   iii) Demonstration of software menu penetration and overview of the various features.
   iv) Presentation of configuration databases and upload/download procedures.
   v) Overview of alert features and setup.
   vi) Review of components and how to configure them.
   vii) Review of common technical issues, diagnostic procedures, and remedies.
   viii) Creation of customized reports selectable by Pace personnel.

9 Preliminary Operating Plan

This chapter presents the estimated running times and draft proposed schedules for the Pulse Dempster Line, as well as proposed changes to the existing local Route 250 to be implemented upon commencement of Pulse service in the corridor. The proposed running times in the corridor are based on the existing published schedules and analyses of actual operating conditions in the corridor, as well as estimated changes resulting from increased service frequencies, increased ridership, limited stops, TSP, and raised boarding platforms.

9.1 CORRIDOR OVERVIEW

The running time estimate and associated O&M cost estimate provided in this document are based on the corridor station assumptions described in the previously submitted *Conceptual Station Design* technical memorandum (June 2016) and documented in Chapter 4, as shown in Figure 4.13. The Pulse Dempster Line corridor will consist of two terminal stations (O'Hare and Davis CTA/Metra) and 15 intermediate stations. One station (Dee) is still being considered for relocation to a nearby intersection (Potter), but this decision will not affect the overall number of stations nor the overall running time.

9.2 RUNNING TIME ESTIMATE

Several planned changes in the corridor will impact the future running times for both Pulse and local Route 250 trips between O'Hare and Davis CTA/Metra. These changes will affect the O&M costs associated with the service by reducing the time required to complete a single trip and also potentially reducing the number of vehicles required to meet a given service level.

Specific changes that will impact running time include the following:

- **Stop Consolidation:** Each time the bus stops to board and alight passengers, running time is impacted in two ways. First is the time the bus spends decelerating as it approaches a stop and accelerating as it departs, which is a direct function of the number of stops served. Pulse Dempster Line running times are expected to decrease as a result of fewer stops, and therefore less time spent accelerating and decelerating. The second impact to running time is the dwell time in which the bus is stopped while boarding and alighting passengers. This is a more complex matter, as some existing passengers who will not be well served by the reduced number of Pulse stations are unlikely to use the service (thus reducing passenger loads and dwell times), but the increase in service is expected to increase overall ridership at Pulse stations (thus increasing passenger loads and dwell times). This is discussed in greater detail in the methodology section that follows.

- **Level Boarding:** Pulse stations will feature a 12-inch raised boarding platform. Based on the Transit Capacity and Quality of Service Manual, raised platforms reduce boarding times by approximately ½ second per passenger.[17]

- **Higher Frequency and Increased Ridership:** For a given ridership level, a higher frequency service means fewer passengers per individual trip, which reduces running time. In practice, the higher frequency service will also be expected to generate higher ridership, so these two factors are somewhat offsetting (this is further addressed in the methodology section below). The reverse will be true of the reduced local Route 250, which will be expected to serve fewer passengers but will also operate at lower frequencies.

- **Transit Signal Priority:** TSP will enable buses to stay on schedule by requesting extended green lights or shorter red lights when they are running behind. This permits more aggressive scheduling and can thus reduce the expected running time for both Pulse and local Route 250 trips.

9.2.1 Basis for Estimate

The future running time estimate was constructed starting from the existing observed breakdown of running times by category (moving, boarding/alighting, stopped at traffic signals, etc.). The basis for the understanding of existing conditions was the following sources:

- Current scheduled running times from the Route 250 timetable dated April 14, 2014.

- On board travel time survey documented in the *Route 250 Travel Time Analysis* Technical Memorandum (May 2016).

- On time performance (OTP) data as documented in the *Route 250 On-Time Performance Analysis* Technical Memorandum (May 2016).

- Posted speed limits obtained from observation.

- Distance for each corridor segment (obtained using Google Maps).

- The number and location of proposed Pulse stations as documented in the *Conceptual Station Design* Technical Memorandum (June 2016).

The detailed results of the aforementioned technical analyses can be found in the respective technical memoranda associated with each.

9.2.2 Methodology

Running times were estimated for the Pulse Dempster Line and local Route 250 using the methodology described in this section. This method utilizes existing running times and dwell times to estimate projected travel time under the Build condition.

[17] Transit Cooperative Research Program, *Report 165: Transit Capacity and Quality of Service Manual, Third Edition*, Transportation Research Board, Washington, DC. 2013.

9.2.2.1 CURRENT RUNNING TIME BREAKDOWN

To estimate future running times, the analysis starts with current run times. Table 6.3 in Section 6.1 provides current running times and dwell times for average trips by time of day. This running time, minus the dwell time, was further reduced by the time spent idling at time points (from Table 6.6). Idling at time points is not a desirable characteristic for Pulse service, as it detracts from the customer's expectation and perception of faster service. Finally, the running time was reduced once more by subtracting the time required to accelerate and decelerate from 28 bus stops, the average number of stops made per trip. The result is a "stripped" running time consisting of the actual time spent moving at cruising speed through the corridor. This is described in Table 9.1.

TABLE 9.1: ROUTE 250 OBSERVED RUNNING TIME BREAKDOWN

Direction / Time Period	Total Travel Time	Dwell Time	Running Time minus Dwell	Idling	Acceleration/ Deceleration	Stripped Running Time
Eastbound						
AM Peak	1:08:54	0:07:29	1:01:25	0:00:25	0:13:03	0:47:57
Midday	1:08:05	0:08:14	0:59:51	0:01:21	0:13:03	0:45:27
PM Peak	1:18:10	0:08:48	1:09:22	0:01:23	0:13:03	0:54:56
Evening	0:58:55	0:06:05	0:52:50	0:01:21	0:13:03	0:38:26
Westbound						
AM Peak	1:04:44	0:09:46	0:54:58	0:00:25	0:13:03	0:41:30
Midday	1:09:42	0:11:02	0:58:40	0:01:21	0:13:03	0:44:16
PM Peak	1:19:24	0:11:56	1:07:28	0:01:23	0:13:03	0:53:02
Evening	0:56:43	0:08:04	0:48:39	0:01:21	0:13:03	0:34:15

9.2.2.2 PULSE RUNNING TIME ESTIMATE

The Pulse running time was estimated using the stripped running time estimated in the previous step, and adding the various additional running time components that describe the overall operations of the vehicle en route.

Transit Signal Priority

TSP will enable buses to stay on schedule by requesting extended green lights or shorter red lights when they are running behind. This permits more aggressive scheduling and can thus reduce the expected running time for both Pulse and local Route 250 trips. Estimated time savings from TSP were based on the existing time spent stopped at traffic signals as described in Table 6.6. The number of intersections assumed to be eligible for TSP was based on the Signal Coordination and Timing (SCAT) reports conducted for the Dempster Street corridor, which established that out of 97 intersections in the corridor, 43 intersections were suitable for TSP and another 18 were possible candidates. Assuming that all of the suitable and half of the possible intersections would be equipped with TSP, 53 intersections, or 54% of the corridor, would be equipped. It was further assumed that among these 53 intersections, 20% of existing stopped time could be eliminated. The result was an estimated TSP time savings of between one and two minutes per trip, as described in Table 9.2.

TABLE 9.2: TSP TIME SAVINGS ESTIMATE

Time Period	Existing Signal Time per Trip	Eligible Intersections	Time Savings per Intersection	Net TSP Time Savings
AM Peak	0:14:06	54%	20%	0:01:31
Midday	0:13:34	54%	20%	0:01:27
PM Peak	0:15:39	54%	20%	0:01:41
Evening	0:13:34	54%	20%	0:01:27

Dwell Time

The dwell time estimate is based on current dwell times to ensure that current ridership characteristics are reflected in the new dwell time. The total current dwell time is based on Table 6.5 in Section 6.2.

The following changes were applied to the existing dwell time to arrive at the estimated Pulse Dempster Line dwell time:

- Current dwell time was *reduced* by 15% to represent the share of existing Route 250 boardings beyond ¼ mile from a proposed Pulse station that would be unlikely to use the new limited-stop service.
- The remaining dwell time was then *increased* by 35% to represent anticipated growth in ridership resulting from the improved service. This growth was *reduced* by one-quarter because approximately every fourth bus will be a local bus, and passengers are likely to continue boarding whichever vehicle arrives first at any Pulse station.
- The new subtotal dwell time was *reduced* by one-third in the peak and one-half off-peak to represent the increased frequency of service. More frequent service results in lower passenger loads – and lower dwell time – per trip.

- The second subtotal was *reduced* by 15% to represent the time savings associated with level boarding. The 15% reduction is based on the *Transit Capacity and Quality of Service Manual*, which estimates level boarding to reduce boarding time per-passenger from 3.25 seconds to 2.75 seconds, assuming smart card payment on board.[18] Based on the most recent data available for Route 250, more than 80% of all boardings use the Ventra transit card, and this share is expected to continue growing in the future.

9.2.2.3 ROUTE 250 RUNNING TIME ESTIMATE

Under the Build condition, the local Route 250 will operate at reduced frequencies, this “reduced local Route 250” will also experience running time savings, although the magnitude of savings will be less than for the Pulse Dempster Line. Local service running time does not benefit from fewer stops; however, speed on the local service will improve due to TSP and reduced passenger loads. The following adjustments were made to the existing running times to estimate the running times for Route 250 after Pulse service commences:

- TSP time savings were assumed to be the same as for Pulse (see Table 9.2).
- Dwell time savings assumed a substantial reduction in ridership (85% of existing riders are expected to use Pulse), partly offset by growth at Pulse stations (approximately ¼ of which will use local Route 250 trips) and by frequency reductions (higher loads per vehicle).

9.2.3 Final Estimated Running Time

9.2.3.1 PULSE DEMPSTER LINE

Table 9.3 shows the projected end-to-end running times for the Pulse Dempster Line by time period and by direction. Running times are expected to decline by 15% to 23% compared with existing service, with overall running time savings of up to 16 minutes for a full length one-way trip.

[18] Transit Cooperative Research Program, *Report 165: Transit Capacity and Quality of Service Manual, Third Edition*, Transportation Research Board, Washington, DC. 2013.

TABLE 9.3: ESTIMATED PULSE DEMPSTER LINE RUNNING TIME

Direction / Time Period	Stripped Running Time	Accel/ Decel	Revised Dwell Time	TSP Time Savings	Total Running Time	Existing Route 250	Percent Improvement
Eastbound							
AM Peak	0:47:57	0:07:44	0:04:31	0:01:31	0:58:41	1:08:54	15%
Midday	0:45:27	0:07:44	0:02:58	0:01:27	0:54:42	1:08:05	20%
PM Peak	0:54:56	0:07:44	0:05:19	0:01:41	1:06:18	1:18:10	15%
Evening	0:38:26	0:07:44	0:02:58	0:01:27	0:47:41	0:58:55	19%
Westbound							
AM Peak	0:41:30	0:07:44	0:04:31	0:01:31	0:52:14	1:04:44	19%
Midday	0:44:16	0:07:44	0:02:58	0:01:27	0:53:31	1:09:42	23%
PM Peak	0:53:02	0:07:44	0:05:19	0:01:41	1:04:24	1:19:24	19%
Evening	0:34:15	0:07:44	0:02:58	0:01:27	0:43:30	0:56:43	23%

9.2.3.2 ROUTE 250

Table 9.4 shows projected running times for the reduced local Route 250 service by direction. Running times are expected to decline by 9% to 17% compared with existing service, with up to 11 minutes of running time savings for a full-length one-way trip.

TABLE 9.4: ESTIMATED REDUCED LOCAL ROUTE 250 FUTURE RUNNING TIME

Direction / Time Period	Stripped Running Time	Accel/ Decel	Revised Dwell Time	TSP Time Savings	Reduced Local Route 250 Running Time	Existing Route 250 Running Time	Percent Improvement
Eastbound							
AM Peak	0:47:57	0:13:03	0:03:21	0:01:31	1:02:50	1:08:54	9%
Midday	0:45:27	0:13:03	0:02:12	0:01:27	0:59:15	1:08:05	13%
PM Peak	0:54:56	0:13:03	0:03:56	0:01:41	1:10:15	1:18:10	10%
Evening	0:38:26	0:13:03	0:02:12	0:01:27	0:52:14	0:58:55	11%
Westbound							
AM Peak	0:41:30	0:13:03	0:03:21	0:01:31	0:56:23	1:04:44	13%
Midday	0:44:16	0:13:03	0:02:12	0:01:27	0:58:04	1:09:42	17%
PM Peak	0:53:02	0:13:03	0:03:56	0:01:41	1:08:21	1:19:24	14%
Evening	0:34:15	0:13:03	0:02:12	0:01:27	0:48:03	0:56:43	15%

9.2.3.3 RUNNING TIMES BY SEGMENT

The running times shown in Table 9.3 and Table 9.4 were allocated across the length of the route to provide travel times by segment. The segments adopted for this analysis are the existing Route 250 time points shown in the published schedule. Table 9.5 is an example of eastbound Pulse and Local running times by segment during the PM peak period. The running times by segment and time of day were used to produce draft schedules for the Pulse Dempster Line and reduced local Route 250.

TABLE 9.5: PULSE AND LOCAL RUNNING TIMES BY SEGMENT, PM PEAK HOUR, EASTBOUND

Segment	Existing Route 250	Pulse Travel Time	Reduced Local Route 250 Travel Time
O'Hare to Lee/Touhy	0:09:39	0:06:44	0:07:08
Lee/Touhy to DP Metra	0:14:51	0:11:32	0:12:14
DP Metra to Hosp	0:08:14	0:07:41	0:08:10
Hosp to Milwaukee	0:07:38	0:04:48	0:05:06
Milwaukee to Waukegan	0:05:06	0:05:46	0:06:07
Waukegan to CTA Skokie	0:09:14	0:08:39	0:09:11
CTA Skokie to Crawford	0:04:50	0:04:48	0:05:06
Crawford to Dodge	0:05:53	0:06:44	0:07:08
Dodge to Davis	0:07:09	0:07:41	0:08:10
Total	1:12:34	1:04:24	1:08:21

9.3 SERVICE PLANNING ASSUMPTIONS

9.3.1 Baseline Operating Plan

The policy framework for Pulse service planning on the Dempster Line was established during the Pulse Milwaukee Line Project Definition study, completed in 2014. That study established that Pulse service should offer 10-minute headways during peak hours and 15-minute headways during off-peak hours and on weekends, following a span of service that is equal to or better than the existing local service on the corridor. Further, it was established on the Milwaukee Line study that local service reductions should include a reduction in the span of local service, particularly during evenings, during which time Pulse would be the only available service on the corridor. Local service should operate at headways of 30 minutes or greater during daytime hours, and 60 minutes during evenings and weekends.

It was assumed that these principles would be applied as a baseline service planning assumption on the Dempster Line as well. The Dempster Line is assumed to operate from 5:00 am to 1:00 am on weekdays, which matches the already extensive span of service provided by Route 250. Three hours in the morning and afternoon will feature 10-minute headways (approximately 6:00 am to 9:00 am and 3:00 pm to 6:00 pm), with 15-minute service throughout the rest of the day, with the exception of 30-minute service during late evening hours (after 10:00 pm).

Pace is implementing service enhancements to Route 250 in August 2016. These service changes will include increased weekday off-peak service, with no changes to weekend service and no increase in vehicle requirements. Upon the commencement of Pulse Dempster Line service, Route 250 service would be reduced in both span and frequency, operating at 35-minute peak and 70-minute off-peak headways, with service beginning 30 minutes after

Dempster Line service and final trips departing at approximately 9:30 pm on all days.[19] Any changes to Route 250 would be subject to a separate public hearing process. The underlying Pulse corridor local service planning assumptions will be further evaluated after the Pulse Milwaukee Line begins service as similar local reductions are proposed in that corridor. The assumed spans and frequencies for Pulse Dempster Line and reduced local Route 250 service are summarized in Table 9.6.

[19] In preliminary discussions with Pace service planning staff, a 30-minute peak and 60-minute off peak headway was identified as appropriate for reduced local Route 250 service. However, based on the estimated running time for the corridor and the low frequency of service, these headways resulted in unreasonably long layovers at the route termini. Increasing the headways by five minutes allowed for much shorter layovers, and therefore allowed for the service to be provided with one fewer vehicle.

TABLE 9.6: SERVICE SPANS AND HEADWAYS FOR PULSE DEMPSTER LINE AND REDUCED LOCAL ROUTE 250 SERVICE

Time Period	Pulse	Reduced Local Route 250
Weekdays		
Span of Service	5:00 – 1:00	5:30 – 21:30
Peak Headway	10 minutes	35 minutes
Peak Hours	6:00 – 9:00 15:00 – 18:00	6:30 – 9:30, 15:00 – 18:00
Off Peak Headway	15 minutes	70 minutes
Off Peak Hours	5:00 – 6:00 9:00 – 15:00 18:00 – 22:00	5:30 – 6:30 9:30 – 15:00 18:00 – 21:30
Late Night Headway	30 minutes	N/A
Late Night Hours	22:00 – 1:00	N/A
Saturdays		
Span of Service	6:00 – 1:00	6:30 – 21:30
Daytime Headway	15 minutes	60 minutes
Daytime Hours	7:00 – 21:00	6:30 – 21:30
Night Headway	30 minutes	N/A
Night Hours	6:00 – 7:00 21:00 – 1:00	N/A
Sundays		
Span of Service	7:00 – 1:00	7:30 – 21:30
Daytime Headway	15 minutes	60 minutes
Daytime Hours	8:00 – 21:00	7:30 – 21:30
Night Headway	30 minutes	N/A
Night Hours	7:00 – 8:00 21:00 – 1:00	N/A

Note: The span of service describes the departure times of the first and last trips of the day. For example, the last weekday Pulse Dempster Line trips would depart each terminal at approximately 1:00 am.

9.3.2 Corridor Service Statistics

Table 9.7 summarizes the estimated existing and future vehicle revenue hours, vehicle revenue miles, and vehicles operating in maximum service. In addition to existing Route 250 service, the table also includes approved service improvements for Route 250 set for implementation in August 2016. Future conditions in the corridor include both the

Pulse Dempster Line and the reduced local Route 250 service. In total, revenue hours are expected to grow by 95% and revenue miles are expected to grow by 129% over the fall 2016 service levels. Compared with approximately nine vehicles required to serve the current Route 250 peak service levels, Pulse service is estimated to require 15 vehicles in maximum service. Reduced local Route 250 service would require five vehicles during peak service. Because Pulse service will use a dedicated fleet of branded vehicles, a total of 18 Pulse buses would need to be purchased to supply the necessary vehicles in service, including three spares.

It should be noted that the future service statistics shown below do not include school trips. Currently, there are three westbound trips in the morning and two eastbound trips in the afternoon serving Maine Township high schools (Maine East and Maine West). These specialized trips operate on only small portions of the Route 250 corridor, and it is assumed that they would continue to operate. In total these trips add approximately two revenue hours of service per school day, or approximately 400 revenue hours annually.

TABLE 9.7: EXISTING AND FUTURE CORRIDOR SERVICE STATISTICS

	Existing Route 250	Fall 2016 Route 250	Pulse Dempster Line	Reduced Local Route 250	Total Future Condition	Percent Growth
Revenue Hours						
Weekday	89.0	110.0	158.9	40.6	199.5	81%
Saturday	65.0	65.0	120.8	31.3	152.1	134%
Sunday	52.1	52.1	113.6	29.3	142.9	174%
Estimated Annual	*29,084*	*34,356*	*53,403*	*13,670*	*67,073*	*95%*
Revenue Miles						
Weekday	1,241	1,539	2,678	612	3,290	114%
Saturday	914	914	2,050	490	2,540	178%
Sunday	770	770	1,928	459	2,387	210%
Estimated Annual	*408,697*	*484,559*	*901,185*	*208,141*	*1,109,326*	*129%*
Vehicles Operated in Maximum Service	9	9	15	5	20	122%

Notes: Percent Growth in service statistics is based on the planned fall 2016 Route 250 service levels. Reduced Local Route 250 Service Statistics do not include school trips, which are expected to be retained and add approximately 400 revenue hours of service per year. Vehicles Operated in Maximum Service for the existing Route 250 is an estimate and may not precisely reflect current Pace operations. The estimated VOMS does not include school trips, which are interlined with other routes.

9.3.3 Draft Schedules

Detailed draft schedules for the Pulse Dempster Line and for the reduced local Route 250 are included in Appendix G. The draft schedules do not include the current Maine Township High School trips, which are assumed to remain in operation with their current schedules.

9.4 ALTERNATIVE OPERATING PLANS

Several alternative operating plans for the Dempster Corridor have been discussed as potential options for reducing cost or improving service and connectivity to other transit services. Two such alternative operating plans were analyzed and compared to the baseline operating plan. One evaluated alternative eliminates the 10-minute headway. The second alternative considers the extension of the Pulse service to the Rosemont Transit Center.

9.4.1 15 Minute Peak Headway

To mitigate the substantial increase in revenue hours and O&M costs that are projected under the baseline operating plan, an alternative operating plan was considered in which the 10-minute peak headway would be eliminated, with Pulse Dempster Line service operating at a 15-minute all-day headway.

Table 9.8 summarizes the impact of this alternative operating plan compared to the baseline. Eliminating 10-minute peak period service would reduce annual revenue hours by approximately 4%, resulting in cost savings of approximately $240,000 in current year dollars compared to the baseline.

TABLE 9.8: ALTERNATIVE OPERATING PLAN: 15 MINUTE ALL DAY SERVICE

	Baseline Operating Plan (Pulse + Local)	Alternative Operating Plan (Pulse + Local)	Difference
Annual Revenue Hours	67,074	64,641	-2,433 (-4%)
Vehicles Operated in Maximum Service	15 Pulse, 5 Local	10 Pulse, 5 Local	-5 Pulse vehicles
O&M Cost, 2016 Dollars	$6.7 million	$6.4 million	-$240,000 (-4%)
O&M Cost, 2019 Dollars	$7.5 million	$7.2 million	-$270,000 (-4%)

9.4.2 Rosemont Extension

To address a recommendation made during the station site selection process, an alternative operating plan was developed in which service continues to the Rosemont Transit Center, connecting with the CTA Blue Line and numerous Pace bus routes. Under this operating plan, the western terminus of the Pulse Dempster Line would be moved from the O'Hare station to the existing Rosemont Transit Center. O'Hare would remain as an intermediate station between the Rosemont and Mannheim/Higgins station. The analysis was based on the following route: Depart O'Hare Transfer Station via Mannheim south to I-190 east, exit at River Road, and proceed north to the Rosemont Transit Center. According to Google Maps, this adds 3.1 miles each way. Running times assume express operation and were also obtained from Google Maps at differing times of day. For planning purposes, an additional running time of nine to 12 minutes was assumed between Rosemont and O'Hare, varying by time period. This alternative operating plan was based on the Baseline Operating Plan (10-minute peak period Pulse service). It was assumed that only Pulse service would be extended to Rosemont, while Route 250 would continue to terminate at O'Hare.

Table 9.9 summarizes the impact of this alternative operating plan as compared to the baseline operating plan. Extending Pulse service to Rosemont would increase annual revenue hours by approximately 19% over the baseline, resulting in additional annual O&M cost of approximately $1.1 million in current year dollars.

TABLE 9.9: ALTERNATIVE OPERATING PLAN: ROSEMONT EXTENSION

Segment	Baseline Operating Plan (Pulse + Local)	Alternative Operating Plan (Pulse + Local)	Difference
Annual Revenue Hours	67,074	77,142	10,068 (+19%)
Vehicles Operated in Maximum Service	15 Pulse, 5 Local	18 Pulse, 5 Local	+3 Pulse vehicles
O&M Cost, 2016 Dollars	$6.7 million	$7.7 million	+$1.0 million (+19%)
O&M Cost, 2019 Dollars	$7.5 million	$8.6 million	+1.1 million (+19%)

10 Branding

10.1 BRAND NAME

Pulse is the brand name established for the arterial rapid transit service. The name selection was informed by market research, focus groups, an internal survey, and a branding workshop. In order to arrive at the brand name, a brand identity was defined to describe the service as ***A Better Time Machine***, and the brand promise was defined as follows:

> *With faster routes and more frequent service, Pace's new ART service will help you make better use of your time.*

Graphic treatments were developed for the Pulse brand name including the brand logo (see Figure 10.1) and color scheme. These treatments have been incorporated into the Pulse station design, with particular attention given to the vertical marker and its map elements, which reflect the overall look and feel of the brand name and logo.

FIGURE 10.1: PACE ART BRAND NAME AND PRELIMINARY LOGO

10.2 BRAND APPLICATION GUIDELINES

Brand Application Guidelines have been developed in draft form and are being finalized by Pace. The guidelines detail the application of the brand to the Pulse vehicles and stations as well as supporting elements such as outreach materials, maps, schedules and the Pulse website.

11 National Environmental Policy Act Documentation

Pace plans to pursue a documented Categorical Exclusion (CE) under 23 CFR 771.118(d) of the NEPA for the Pulse Dempster Line project. The Pulse Milwaukee Line qualified for a CE in September 2015. Sections 11.1 through 11.4 reflect the document submitted to the FTA on June 14, 2016 as the Pulse Dempster Line Purpose and Need Statement. It will be used as the basis for the environmental analysis conducted in the next phase of the Dempster Line development.

11.1 PURPOSE STATEMENT

The purpose of the Pulse Dempster Line project is to provide an enhanced and cost-effective bus rapid transit service in the Dempster Street and Lee Street, Mannheim Road and Touhy Avenue corridors through the improved frequency, reliability and travel time of bus transit service, as well as improved bus transit facilities.

Definition: *A Purpose and Need Statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action.*[20]

The proposed action must address the following needs:

- Improve the frequency of bus transit service;
- Improve the reliability of bus transit service;
- Improve travel time of bus transit service vehicles; and
- Improve the quality of bus transit facilities.

[20] https://www.gpo.gov/fdsys/pkg/CFR-2012-title40-vol34/pdf/CFR-2012-title40-vol34-sec1502-13.pdf

11.2 NEED ELEMENTS

The proposed action must address the following needs:

- Improve the frequency of bus transit service;
- Improve the reliability of bus transit service;
- Improve travel time of bus transit service vehicles; and
- Improve the quality of bus transit facilities.

The need to improve bus service and the quality of bus transit facilities in the Dempster Street and Lee Street, Mannheim Road and Touhy Avenue corridors (Pace Bus Route 250) dates back to 2001, when Pace published Vision 2020[21]. The Pulse Dempster Line project was identified in Vision 2020 as one of twenty-four corridors that would provide a regional network of premium transit services across Pace's six county service area. Over the next several years, Pace completed additional planning studies[22] to develop a specific action plan for implementation of Pulse corridors. The studies completed by Pace helped to better define the infrastructure improvements and design elements that would be feasible and would provide cost-effective transit investments throughout Pace's service area. Six priority Pulse corridors were identified:

- Milwaukee Avenue – Jefferson Park Transit Center to Golf Mill Shopping Center;
- Dempster Street – CTA Purple Line Davis Street Station/Metra UP North Line Station to O'Hare Kiss 'n' Fly;
- Oak Brook – CTA Blue Line/Pink Line to Yorktown;
- Harlem Avenue – Milwaukee Avenue to 95th Street;
- 95th Street – CTA Red Line 95th Street/Dan Ryan to Harlem Avenue; and
- Halsted Street – CTA Red Line 95th Street/Dan Ryan to 159th Street.

The proposed J-Route from Schaumburg/O'Hare to Oak Brook and Naperville was also identified as a potential priority Pulse corridor, but was not associated with a specific alignment at the time. Subsequent studies have identified multiple potential Pulse corridors to satisfy the north-south travel demand addressed by the J-Route concept.

The Pulse Dempster Line corridor was identified as a priority for implementation due to several factors, including strength of existing transit service, benefits to local and regional transit connectivity, existing and projected ridership and the potential to begin establishing the Pulse network by offering a connection with the Pulse Milwaukee Line.

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[21] http://www.pacebus.com/sub/vision2020/study_contents.asp

[22] Other studies completed by Pace include Arterial Rapid Transit (ART) Study (May 2009) and ART Implementation Plan (December 2009).

11.3 GOALS AND OBJECTIVES

The following goals and objectives were identified through a review of Pace's past transit planning efforts, discussions with local planning officials, as well as direct input provided by members of the Project's Corridor Advisory Group (CAG). The CAG serves an advisory role by reviewing transit improvements and design elements, service and station features, and environmental considerations. The CAG is composed of local, state, and federal government officials and staff, regional transportation and transit agencies, transit advocacy groups, and other key stakeholders in the study area. The first CAG meeting was held on March 23, 2016. Up to three additional CAG meetings are anticipated throughout the duration of the project, providing stakeholder input at key project milestones.

The goals and objectives identified below are not the core transportation needs the proposed action is intended to address. However, they were used to shape the project's purpose and need statement and will be used in conjunction with the identified needs to evaluate the proposed action.

The following goals and objectives have been identified for the Pulse Dempster Line project:

- Encourage suburban transit usage through the establishment of a network of higher-quality line-haul routes;
- Improve the visibility and perception of suburban bus transit service; and
- Support transportation, land use and growth objectives identified in the study corridor.

11.4 LOGICAL TERMINI

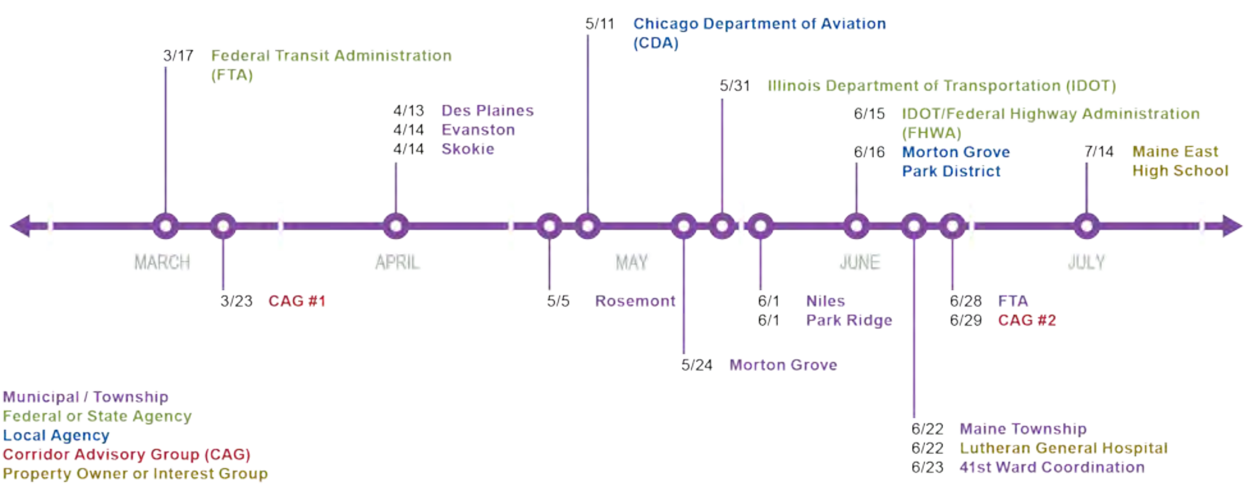
Based on ridership and operational data, the limits of this transit improvement project will be the new O'Hare Airport Kiss 'N' Fly/Consolidated Rental Car and Joint Use Facility (CRCF) on the west end and the CTA Purple Line Davis Street Station and Metra UP North Line Station in Evanston on the east end. The new CRCF is a transportation hub that will provide connections to Metra's NCS Line, Pace Route 330, O'Hare's Airport Transit System (an automated people mover system that operates 24 hours a day, connecting all four terminals and the remote parking lots) as well as rental car facilities. The new CRCF is replacing the current O'Hare Airport Kiss 'N' Fly, which is on the opposite side of Mannheim Road. On the other end of the corridor, the CTA Purple Line Davis Street Station and Metra UP North Line Station serves as an existing transit hub with connections to Pace bus, CTA bus, CTA rail, and Metra commuter rail lines.

The existing O'Hare Airport Kiss 'N' Fly and the CTA Purple Line Davis Street Station and Metra UP North Line Station are the current end points of Pace Route 250. As a result, the logical termini for any potential infrastructure improvements necessary to provide enhanced transit service in the project corridor are the new CRCF and the CTA Purple Line Davis Street Station and Metra UP North Line Station. The designated termini are also sufficient to allow for appropriate consideration of environmental conditions and effects / benefits.

12 Stakeholder Involvement

Pace developed a Dempster Line Stakeholder Involvement Plan (SIP) in January of 2016 and updated the document in February and June of 2016. The SIP outlines project goals and objectives, project activities, stakeholder groups, stakeholder involvement activities, and ongoing management of the SIP. During the Project Definition phase, Pace engaged stakeholders at the local, state and federal level. The meeting format ranged from large Corridor Advisory Group (CAG) meetings, which included a variety of stakeholders, to smaller, individual meetings with property owners, local government representatives, and agency representatives. The meetings fall within the following general categories: Corridor Advisory Group, Municipal/Township, Local Agencies, and Federal and State Agencies. Stakeholder coordination will continue through the environmental review phase and expand to include broader public participation. The following subsections describe activities within each of the categories. Figure 12.1 shows a timeline of stakeholder involvement activities.

FIGURE 12.1: PULSE DEMPSTER LINE STAKEHOLDER INVOLVEMENT ACTIVITY TIMELINE



12.1 CORRIDOR ADVISORY GROUP

CAG #1 was held on March 23, 2016 at the Morton Grove Library. The purpose of the meeting was to introduce the Pulse Program and Pulse Dempster Line project to communities and agencies throughout the corridor. The meeting included a presentation, which provided an overview of the Pulse Program and Dempster Line project; role of the

Corridor Advisory Group; project schedule; preliminary station locations; current ridership statistics; transit needs discussion; station concepts; public involvement process; and next steps. The meeting concluded with a question and answer session. Thirty-seven CAG members attended the meeting including representatives from local agencies, private and public properties, municipalities, state agencies and offices, and a federal agency.

CAG #2 was held on June 29, 2016 at the Morton Grove Library. The purpose of the meeting was to provide an update on Pulse Dempster Line project activities. The meeting included a presentation, which provided an overview of the Pulse Dempster Line project; feedback received from CAG members; preliminary station locations changes; preliminary service plan and capital costs; and next steps. A question and answer session was facilitated at the end of the presentation. The 27 attendees included representatives from local agencies, private and public properties, municipalities, and state agencies and offices.

12.2 AGENCY COORDINATION AND COMMUNITY OUTREACH

In addition to the CAG meetings, Pace engaged stakeholders through 16 meetings with representatives from local governments, local agencies, and federal and state agencies. These meetings were tailored to address specific topics or issues particular to specific station sites.

12.2.1 Municipal/Township

Pace facilitated an outreach meeting with each of the eight municipalities along the corridor including: Chicago, Rosemont, Des Plaines, Park Ridge, Niles, Morton Grove, Skokie, and Evanston. Meetings were also held with Maine Township, which serves an unincorporated portion of Cook County near Park Ridge and Niles. The coordination meetings with the City of Chicago were held with the 41st Ward as well as the Chicago Department of Aviation (CDA) (see Section 12.2.2). The O'Hare station is in the City of Chicago, but is under CDA management. Outreach meetings with municipalities and the township along the corridor focused on the specific proposed station sites within the community. Table 12.1 shows the proposed station platforms and alternates that remain under consideration within each municipality or township.

TABLE 12.1: MUNICIPALITIES AND TOWNSHIPS WITH CORRESPONDING PROPOSED STATION SITES

Municipality/Township	Proposed Station Sites
City of Chicago	O'Hare (Alt 1) Mannheim/Higgins WB (Alt 2)
Rosemont	Mannheim/Higgins EB (Alt 2) Mannheim/Higgins WB (Alt 1)
Des Plaines	Mannheim/Higgins EB (Alt 1) Lee/Touhy EB (Alt 2) Lee/Touhy WB (Alt 2) Lee-Mannheim/Oakton EB (Alt 2) Lee-Mannheim/Oakton WB (Alt 2) Des Plaines Metra EB (Alt 1) Des Plaines Metra WB (Alt 1, Alt 2, Alt 3) Potter WB (Alt 1)

Municipality/Township	Proposed Station Sites
Park Ridge	Potter EB (Alt 2) Dee EB (Alt 1) Western EB (Alt 1)
Niles	Western WB (Alt 1) Cumberland EB (Alt 1, Alt 2) Cumberland WB (Alt 1) Milwaukee EB (Alt 1) Milwaukee WB (Alt 1, Alt 2, Alt 3) Harlem EB (Alt 1)
Maine Township	Potter WB (Alt 2) Dee WB (Alt 1, Alt 2)
Morton Grove	Harlem WB (Alt 1) Waukegan EB (Alt 1) Waukegan WB (Alt 2) Austin EB (Alt 1) Austin WB (Alt 1)
Skokie	Dempster-Skokie CTA EB (Alt 2) Dempster-Skokie CTA WB (Alt 2) Crawford EB (Alt 1) Crawford WB (Alt 3, Alt 4) Lincolnwood EB (Alt 1, Alt 2) Lincolnwood WB (Alt 1, Alt 2)
Evanston	Davis CTA/Metra WB Dodge EB (Alt 1) Dodge WB (Alt 1, Alt 3)

12.2.2 Local Agencies

Pace met with the CDA and the Morton Grove Park District to discuss proposed station locations near each agency's facilities. Pace proposed siting the O'Hare station at the new CRCF which is on City of Chicago property and under CDA jurisdiction. The CRCF is anticipated to be completed in December of 2018, though it is uncertain if the ATS will be extended at that time. Shuttle buses will operate between the CRCF and the existing ATS terminal if the ATS extension is not complete. Pace does not anticipate building a typical station at the site, but rather using the saw tooth design bus bays as they are being constructed. With two designated curbside stalls, Pace will be able to operate Pulse service, Route 250 and Route 330 without significant conflict, though the Route 330 service may be relocated. Because this will be an intermodal hub, Pace will coordinate with the RTA and CDA to have real time information signage provided at the facility.

Pace met with the Morton Grove Park District to discuss the proposed Waukegan station location. The proposed site is located one block east of Waukegan Road, on the far side of the park district entrance (Athletic Drive). This signalized intersection is eligible for TSP. The far side site is not anticipated to require any permanent acquisition of Park District property; however, Pace will examine sightlines in relation to the Pulse station and the Park District's existing marquee sign. This will be confirmed during the environmental review phase through a survey and refinement of station designs. The Maine-Niles Association of Special Recreation (MNASR) has an office inside the Park District administration building at this site. The Pulse Dempster Line's ADA accessible stations would better serve MNASR and offer more frequent service to MNASR's clients.

12.2.3 Federal and State Agencies

Pace held two meetings with FTA Region 5 to establish early coordination for the environmental review phase. The purpose of the first meeting was to introduce the Pulse Dempster Line project and provide updates on the current project status, project schedule, public involvement, and agency coordination activities. Pulse Dempster Line impacts are anticipated to be similar to those documented for the Pulse Milwaukee Line. Impacts may include some driveway consolidation and/or closure, minor land acquisition, changes to local bus service, and, potentially, the use of queue jumps. The purpose of the second meeting was to provide an update on the Pulse Dempster Line Project Definition study and discuss the draft Purpose and Need document and a potential Class of Action determination. The FTA is generally supportive of a CE. Pace is currently preparing documentation seeking the formal Class of action determination.

A meeting was held with IDOT to review the progress of the Pulse Dempster Line project. Participants discussed the station locations, stakeholder feedback, IDOT and other agency projects along the corridor, and the project timeline. IDOT provided information regarding installation of a new storm sewer from Ozark to west of Waukegan along the center of Dempster Street. The Phase 1 report for the project and ADA improvements along Dempster should be completed by the end of 2017. Construction is anticipated to occur between 2020 and 2021. IDOT shared information on Morton Grove's planned drainage improvements, which were anticipated to be completed in 2017, though the timeline is uncertain. MWRD's drainage project from I-294 to Luther Lane was also discussed. The tentative timeframe for construction is 2017. An additional meeting was held with IDOT and the Federal Highway Administration (FHWA) to discuss routing, preliminary station design, and project schedule.

12.3 PROPERTY OWNERS AND INTEREST GROUPS

Because it a major employment center and attraction along the corridor, Pace held an outreach meeting with representatives from Advocate Lutheran General Hospital. The purpose of the meeting was to discuss the proposed station location near the hospital. Pace proposes locating the station at Western Avenue due to a higher number of boardings here than at Luther Lane, a connection to the Niles Free Bus (Route 411) on the north side of Dempster Street, and closer proximity to commercial development. The discussion centered on the proposed location of the eastbound station site at Western Avenue and the extent to which the station improvements would encroach onto the hospital's property. The discussion also addressed snow removal and the snowmelt system as well as traffic backups at Luther, which Pulse service will not negatively impact.

An outreach meeting was held with Maine East High School to discuss a station at Dee Road and possibility of an alternate station location at Potter Road. Representatives of Maine East High School expressed opposition to impacts on the natural area west of Dee Road and concerns about traffic and sight lines related to the Potter Road location.

Maine East High School representatives recommended a site located just east of the one-way egress driveway near the tennis courts.

Additional meetings with property owners and interest groups will be held during future project phases.

12.4 FUTURE STAKEHOLDER INVOLVEMENT ACTIVITIES

As the Pulse Dempster Line project advances from the Project Definition phase to the environmental review phase, stakeholder involvement activities will expand to include broader participation. Pace will actively engage stakeholders including Pace customers, residents, affected property owners, business groups, and the general public. The project website will be updated and planned activities include fact sheets, project newsletters, public meetings, and one-on-one stakeholder meetings. Pace will continue to coordinate with local communities, government officials, and local, state, and federal agencies.

13 Financial Plan

13.1 CAPITAL COST ESTIMATE

This section presents the capital cost estimate for Pace's proposed Pulse Dempster Line service. This estimate is based on station layout drawings submitted to Pace on June 14, 2016 and dated June 10, 2016. The updated station layout drawings submitted with this Project Definition Report and dated July 15, 2016 have not changed in any substantive way sufficient to warrant revision of the preliminary capital cost estimate.

Included in this report is a cost estimate for all 48 station layouts included in Appendix F, including the two layout options for the Des Plaines Metra WB Alternate #3 (alternates #3A and #3B). In addition, a corridor-level cost estimate was developed to present the total project cost for the Dempster Line. The corridor-level estimate assumes 17 stations, including two terminal stations and 15 intermediate stations, with one station site in each direction for a total of 32 station sites . Table 13.1 identifies each of the station sites for which a capital cost estimate was developed and indicates which sites are included in the corridor-level estimate.

TABLE 13.1: PULSE DEMPSTER LINE STATION SITES

Station Site	Alternate #	Included in Corridor-Level Estimate
O'Hare		Yes
Mannheim/Higgins (NB)	Alt #1	
Mannheim/Higgins (SB)	Alt #1	
Mannheim/Higgins (NB)	Alt #2	Yes
Mannheim/Higgins (SB)	Alt #2	Yes
Lee/Touhy (EB)	Alt #2	Yes
Lee/Touhy (WB)	Alt #2	Yes
Lee/Mannheim/Oakton (NB)	Alt #2	Yes
Lee/Mannheim/Oakton (SB)	Alt #2	Yes
Des Plaines Metra (EB)	Alt #1	Yes
Des Plaines Metra (WB)	Alt #1	
Des Plaines Metra (WB)	Alt #2	
Des Plaines Metra (WB)	Alt #3A	
Des Plaines Metra (WB)	Alt #3B	Yes

Station Site	Alternate #	Included in Corridor-Level Estimate
Dee (EB)	Alt #2	
Dee (WB)	Alt #1	
Dee (WB)	Alt #2	
Potter (EB)	Alt #2	Yes
Potter (WB)	Alt #1	
Potter (WB)	Alt #2	Yes
Western (EB)	Alt #1	Yes
Western (WB)	Alt #1	Yes
Cumberland (EB)	Alt #1	Yes
Cumberland (EB)	Alt #2	
Cumberland (WB)	Alt #1	Yes
Milwaukee (EB)	Alt #1	Yes
Milwaukee (WB)	Alt #1	
Milwaukee (WB)	Alt #2	Yes
Milwaukee (WB)	Alt #3	
Harlem (EB)	Alt #1	Yes
Harlem (WB)	Alt #1	Yes
Waukegan (EB)	Alt #1	Yes
Waukegan (WB)	Alt #2	Yes
Austin (EB)	Alt #1	Yes
Austin (WB)	Alt #1	Yes
Dempster-Skokie CTA (EB)	Alt #2	Yes
Dempster-Skokie CTA (WB)	Alt #2	Yes
Crawford (EB)	Alt #1	Yes
Crawford (WB)	Alt #3	Yes
Crawford (WB)	Alt #4	
Lincolnwood (EB)	Alt #1	
Lincolnwood (EB)	Alt #2	Yes
Lincolnwood (WB)	Alt #1	Yes
Lincolnwood (WB)	Alt #2	
Dodge (EB)	Alt #1	Yes

Station Site	Alternate #	Included in Corridor-Level Estimate
Dodge (WB)	Alt #1	Yes
Dodge (WB)	Alt #3	
Davis CTA/Metra		Yes

13.1.1 Methodology

A capital cost estimate was prepared based on the Pulse Dempster Line station layouts dated June 10, 2016 as well as aerial photography showing the individual station sites' existing features and utilities, potential site requirements and limitations, and a general indication of the work anticipated to occur at each station along the corridor. The 60% design files for the Milwaukee Line were also used as a reference for the capital costs of the Dempster Line station features and amenities. The cost estimate reflects existing conditions where known or observed, such as underground utilities or planned infrastructure projects that were identified through agency coordination.

Sage Timberline Estimating software (now known as Sage Estimating) was used to develop the estimate in a two-step approach. The first step was establishing a station-level estimate and using that to build a corridor-level estimate.

The station-level estimate provides estimates for each of the 48 station layouts. Historical bid prices, time (i.e. labor) and materials were used to develop unit prices. These unit prices were used in conjunction with takeoff quantities obtained from the station layouts to arrive at a total cost per item, which was rolled up to a total for each station site. Backup detail on the takeoff quantities are documented Appendix H. All monetary figures included in this estimate and the appendices are reported in 2015 dollars, unless otherwise noted.

The corridor-level estimate provides a total project capital cost for the Dempster Line project. It is based on the station-level estimate, but assumes that 15 intermediate stations will be built, with two stations in each direction of travel and two terminal station sites for a total of 32 station sites in the corridor-level estimate. The station sites selected for inclusion in the corridor-level estimate were chosen because they are generally representative of the improvements needed for that station location. They do not necessarily represent a preferred station site.

To establish the corridor-level cost estimate, the station-level costs for the 32 selected station sites were subtotaled and contingency, and project costs such as engineering and project management/administration were added. A basis of estimate is provided in Appendix I that provides additional information on the development of the station-level estimate and the corridor-level estimate.

13.1.2 Station-Level Estimate

The estimate for station sites includes station elements and amenities, access features, related infrastructure requirements, and other miscellaneous items and tasks. Dempster Line Pulse stations will include station features currently being used on the Milwaukee Line, which have been selected by Pace to enhance passenger comfort, address safety and operations concerns, and reflect the Pulse brand. A selection of Pulse station features and their unit costs are provided in Table 13.2.

TABLE 13.2: TYPICAL PULSE STATION FEATURES

Station Feature	Unit Cost (2015$)
Pulse Shelter	$35,000/each
Vertical Marker	$60,000/each
Real-Time Sign	$24,000 ($12,000 x 2 per marker)
Shelter Heater	$12,000 (2 per shelter)
Bench	$3,400/each
Trash Receptacle	$1,500/each
Bike Rack	$850/each
Tactile Strip	$27.70/square foot
Pavement Snowmelt	$16,000/each
Electrical Cabinet	$14,000/each
Railing	$176/linear foot

For the shelters, vertical marker, heaters, pavement snowmelt system, and real time information signs, cost allowances established during the development of the Pulse Milwaukee Line were also used for this estimate through a parametric approach that applies historical unit prices with a unit of measure. Bottom–up production based costs, or the total costs based on a detailed breakdown of the cost of each task or component, were prepared for all other elements for the stations such as the concrete pad, concrete ramp, tactile warning strip, stations furnishings, and steel railing. The unit prices for the electrical cabinet and the conduit/wire from the cabinet to the station elements were also developed using this method. The estimate also applied an order of magnitude cost to ComEd service drops, the purchase or acquisition of right-of way, and utility relocations. All items included in the station-level estimate were categorized according to the Federal Transit Administration's (FTA) standard cost categories (SCC) to facilitate the documentation of the estimate in the SCC Small Starts workbook.

A separate station site cost is provided for each of the 48 individual station layouts. These station site costs include costs for labor, materials, subcontracts, equipment and other related construction costs. Capital costs for each of the station sites are summarized in Table 13.3; detailed cost information for each site is provided in Appendix J.

TABLE 13.3: STATION SITE CAPITAL COSTS - ALL SITES

Station Sites	Alternate	Amount (2015$)
O'Hare		$195
Mannheim/Higgins (NB)	Alt #1	$291,626
Mannheim/Higgins (SB)	Alt #1	$288,896
Mannheim/Higgins (NB)	Alt #2	$277,108
Mannheim/Higgins (SB)	Alt #2	$273,013

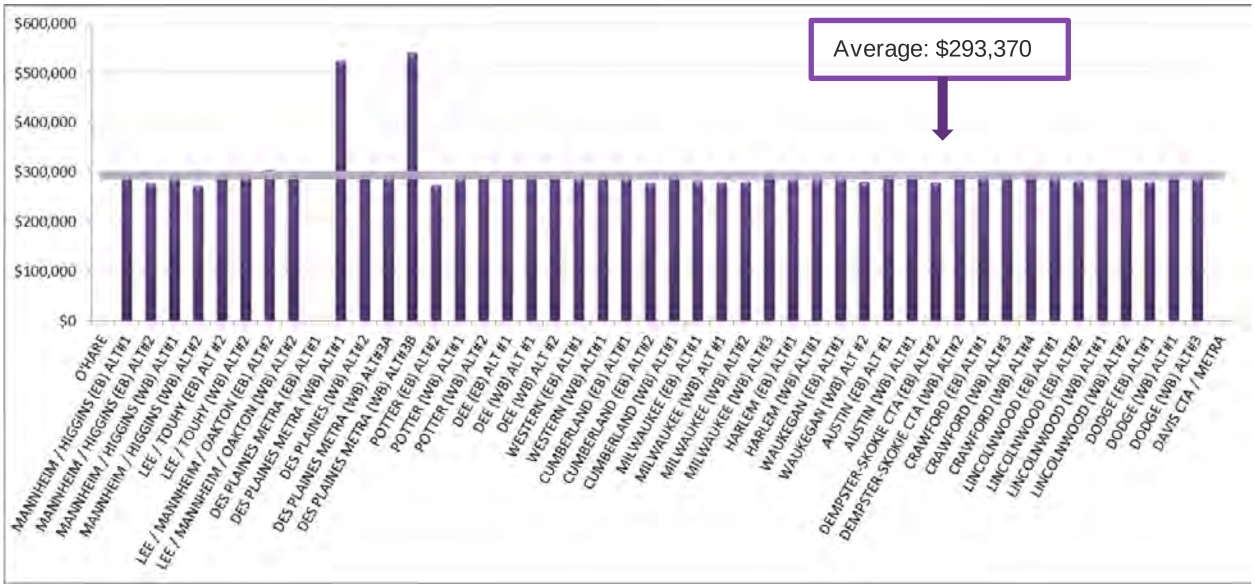
Station Sites	Alternate	Amount (2015$)
Lee/Touhy (EB)	Alt #2	$294,854
Lee/Touhy (WB)	Alt #2	$289,077
Lee/Mannheim/Oakton (NB)	Alt #2	$303,233
Lee/Mannheim/Oakton (SB)	Alt #2	$294,615
Des Plaines Metra (EB)	Alt #1	$195
Des Plaines Metra (WB)	Alt #1	$525,414
Des Plaines Metra (WB)	Alt #2	$298,697
Des Plaines Metra (WB)	Alt #3A	$289,139
Des Plaines Metra (WB)	Alt #3B	$540,953
Dee (EB)	Alt #1	$291,298
Dee (WB)	Alt #1	$292,824
Dee (WB)	Alt #2	$292,468
Potter (EB)	Alt #2	$274,474
Potter (WB)	Alt #1	$288,628
Potter (WB)	Alt #2	$296,609
Western (EB)	Alt #1	$287,993
Western (WB)	Alt #1	$291,038
Cumberland (EB)	Alt #1	$288,928
Cumberland (EB)	Alt #2	$277,792
Cumberland (WB)	Alt #1	$290,627
Milwaukee (EB)	Alt #1	$282,177
Milwaukee (WB)	Alt #1	$278,648
Milwaukee (WB)	Alt #2	$280,116
Milwaukee (WB)	Alt #3	$302,298
Harlem (EB)	Alt #1	$284,624
Harlem (WB)	Alt #1	$286,333
Waukegan (EB)	Alt #1	$287,452
Waukegan (WB)	Alt #2	$280,519
Austin (EB)	Alt #1	$296,526
Austin (WB)	Alt #1	$295,083
Dempster-Skokie CTA (EB)	Alt #2	$278,548

Station Sites	Alternate	Amount (2015$)
Dempster-Skokie CTA (WB)	Alt #2	$292,740
Crawford (EB)	Alt #1	$287,407
Crawford (WB)	Alt #3	$295,879
Crawford (WB)	Alt #4	$302,966
Lincolnwood (EB)	Alt #1	$285,919
Lincolnwood (EB)	Alt #2	$281,861
Lincolnwood (WB)	Alt #1	$302,289
Lincolnwood (WB)	Alt #2	$291,302
Dodge (EB)	Alt #1	$280,994
Dodge (WB)	Alt #1	$294,652
Dodge (WB)	Alt #3	$287,190
Davis CTA/Metra	Alt #1	$195

Figure 13.1 depicts the capital costs of each of the 48 station layouts as well as the average cost. The average capital cost of a station site is $293,370 when eliminating the station sites with minimal capital improvements planned (e.g. signage). These include the terminal at O'Hare, Des Plaines Metra (EB), and the Davis CTA/Metra station.

When comparing the costs of all other station sites, the majority are relatively comparable to one another. The exceptions are the Des Plaines Metra (WB) Alternate #1 and Alternate #3B, which are almost double the average station cost as it was assumed an elongated platform with a bus turnout would be needed at these station sites.

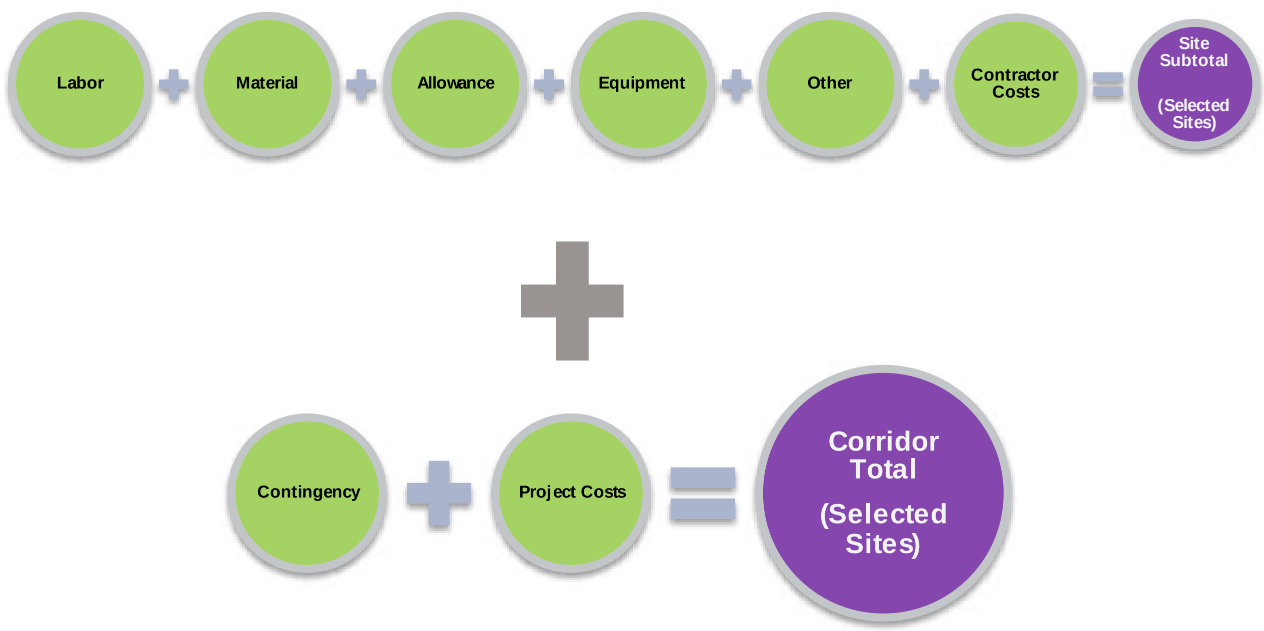
FIGURE 13.1: STATION SITE SUBTOTAL COSTS



13.1.3 Corridor-Level Estimate

The corridor-level estimate was built upon the station-level estimate using the subtotal of costs for a subset of the 48 station layouts and then adding global project-level costs. A total of 32 site specific station layouts were included in the site subtotal used to establish the corridor total. These station sites are generally representative of the improvements needed for that station location. While only a representative sample of station sites are included in the corridor-level estimate, all station sites and layout options will be evaluated during the environmental review phase and a preferred alternative will be established that identifies one station site in each direction to be developed with detailed design drawings during the design phase. Figure 13.2 illustrates the process of building the corridor-level estimate.

FIGURE 13.2: CORRIDOR-LEVEL COST ESTIMATE FORMULA



13.1.3.1 STATION SITE SUBTOTAL

Appendix K includes a detailed accounting of costs for each station site included in the corridor-level estimate as well as a summary sheet for the total capital cost for Pulse Dempster Line stations. A brief summary of the costs for each selected station site is shown below in Table 13.4 as well as a subtotal for all 32 station sites. As noted above, station sites selected for the corridor-level cost estimate were chosen to provide a representative sample of all station sites, with one station site in each direction chosen for the intermediate station locations and both terminal station sites included.

TABLE 13.4: STATION SITE CAPITAL COSTS - SELECTED SITES AND SITE SUBTOTAL

Station Sites	Alternate	Amount (2015$)
O'Hare		$195
Mannheim/Higgins (NB)	Alt #2	$277,108
Mannheim/Higgins (SB)	Alt #2	$273,013
Lee/Touhy (EB)	Alt #2	$294,854
Lee/Touhy (WB)	Alt #2	$289,077
Lee/Mannheim/Oakton (NB)	Alt #2	$303,233
Lee/Mannheim/Oakton (SB)	Alt #2	$294,615
Des Plaines Metra (EB)	Alt #1	$195
Des Plaines Metra (WB)	Alt #3B	$540,953
Potter (EB)	Alt #2	$274,474
Potter (WB)	Alt #2	$296,609
Western (EB)	Alt #1	$287,993
Western (WB)	Alt #1	$291,038
Cumberland (EB)	Alt #1	$288,928
Cumberland (WB)	Alt #1	$290,627
Milwaukee (EB)	Alt #1	$282,177
Milwaukee (WB)	Alt #2	$280,116
Harlem (EB)	Alt #1	$284,624
Harlem (WB)	Alt #1	$286,333
Waukegan (EB)	Alt #1	$287,452
Waukegan (WB)	Alt #2	$280,519
Austin (EB)	Alt #1	$296,526
Austin (WB)	Alt #1	$295,083
Dempster-Skokie CTA (EB)	Alt #2	$278,548
Dempster-Skokie CTA (WB)	Alt #2	$292,740
Crawford (EB)	Alt #1	$287,407
Crawford (WB)	Alt #3	$295,879
Lincolnwood (EB)	Alt #2	$281,861
Lincolnwood (WB)	Alt #1	$302,289
Dodge (EB)	Alt #1	$280,994
Dodge (WB)	Alt #1	$294,652
Davis CTA/Metra	Alt #1	$195

Station Sites	Alternate	Amount (2015$)
SITE SUBTOTAL		$8,610,306

Note: Due to rounding adjustments, the sum of individual station sites may not equal $8,610,306.

The station site subtotal includes direct site costs such as labor, materials, subcontracts, large equipment and other direct costs in addition to contractor costs. A breakdown of the elements included in the site subtotal is shown in Table 13.5. The *site subtotal, contingency,* and *project costs* were combined to develop an estimate for the total corridor-level capital construction cost for the Pulse Dempster Line. The site subtotal for the selected station sites represents 69% of the total Dempster Line station capital costs at $8,610,306. Additional detail on the items included in the contractor costs are provided in the section that follows.

TABLE 13.5: BREAKDOWN OF COSTS INCLUDED IN THE SITE SUBTOTAL

Description	Amount (2015$)	Percent of Total Project Cost
Labor	$858,987	6.90%
Materials	$1,133,399	9.10%
Subcontracts	$5,007,500	40.23%
Equipment	$357,677	2.87%
Other	$145,000	1.16%
Subtotal - Direct Site Costs	$7,502,563	
Contractor Costs	$1,107,743	8.90%
SITE SUBTOTAL	$8,610,306	

13.1.3.1.1 Contractor Costs

Contractor costs are included in the costs for each individual station site in Table 13.4 as well as the breakdown of costs in Table 13.5. Contractor costs and fees total $1,107,743 and include contractor's general condition, overhead and profit, an adjustment for labor and payroll burden, small tools and equipment, bonds, and other insurance, sales tax and utility relocation costs. The costs are developed from rates based on historical data and estimator experience and are applied to the direct site costs of labor, material, subcontractors, large equipment and other direct costs. For information purposes, a breakdown of the rates and costs included in the total costs are provided in Table 13.6. Contractor costs represent 8.9% of total project costs.

TABLE 13.6: CONTRACTOR COSTS

Description	Amount (2015$)	Rate	Percent of Total Project Cost
General Conditions [23]	$117,503	5.0%	0.94%
Overhead & Profit	$423,011	18.0%	3.40%
Labor & Burden Adjustment[24]	$292,055	34.0%	2.35%
Small Tools and Equipment	$31,332	$1.50/hour	0.25%
Utility Relocations	$117,503	5.0%	0.94%
Bonds and Insurance	$47,001	2.0%	0.38%
Sales Tax	$79,338	7.0%	0.64%
TOTAL CONTRACTOR COSTS	$1,107,743		8.90%

13.1.3.2 CONTINGENCY

A *contingency allowance* of 25% of the site subtotal is included in the corridor-level estimate. The 25% rate is appropriate for the project's current level of design. The contingency cost of the project is $1,875,641 and represents 15% of the total project cost.

13.1.3.3 PROJECT COSTS

Project costs are costs included for the corridor-level estimate only and are applied as either a lump sum or percentage of the site subtotal and represent engineering, project management, land acquisition, permits and other associated costs. The rates applied are based on historical data and estimator experience. The project costs represent 16% of the total corridor-level capital costs for the Dempster Line. A breakdown of project costs is detailed in Table 13.7.

[23] General conditions include construction management personnel (e.g. superintendents, project manager, safety manager, time clerk), site facilities (e.g. trailers, sanitation units), and miscellaneous personal protective equipment and tools provided to the employees to meet the minimum safety standards.

[24] The labor rates used in the Sage Timberline Estimating software only include labor base rate and fringe benefits. The Labor & Burden Adjustment is included in the estimate to account for the fixed costs of worker's compensation, Federal and State unemployment taxes, FICA, insurance and liability.

TABLE 13.7: PROJECT COSTS

Project Cost Categories	Amount (2015$)	Rate	Percent of Total Project Cost
Preliminary Engineering	$375,128	5.0%	3.01%
Final Design	$375,128	5.0%	3.01%
Project Management, Agency/PM consulting	$375,128	5.0%	3.01%
Construction Administration & Management	$450,154	6.0%	3.62%
Insurance	$37,513	0.5%	0.30%
Legal, Permits, Review Fees	$187,564	2.5%	1.51%
Right-of-Way Acquisition	$87,000	Lump Sum	0.70%
Survey, Testing, Inspection	$75,026	1.0%	0.60%
TOTAL PROJECT COSTS	$1,962,641		15.77%

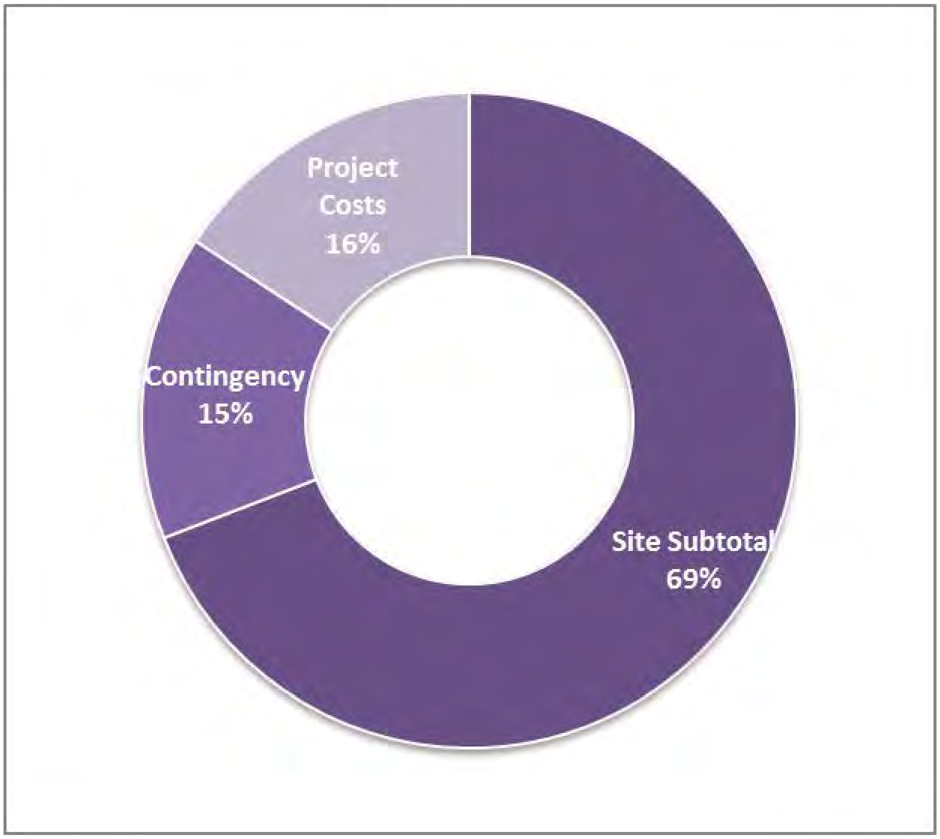
13.1.3.4 CORRIDOR-LEVEL TOTAL CAPITAL COSTS

Total corridor-level capital costs are $12,448,588. Project cost categories for the corridor are broken out in Table 13.7. A breakdown of all corridor-level cost components is provided in Table 13.8 and the percentage of the total corridor-level cost is shown in Figure 13.3.

TABLE 13.8: CORRIDOR-LEVEL CAPITAL COST CATEGORY TOTALS

Project Cost Categories	Amount (2015$)
Station Site Subtotal	$8,610,306
Contingency	$1,875,641
Project Costs	$1,962,641
TOTAL DEMPSTER LINE CORRIDOR-LEVEL CAPITAL COSTS	$12,448,588

FIGURE 13.3: SHARE OF CORRIDOR-LEVEL CAPITAL COST BY CATEGORY



13.1.4 Cost Escalation

All capital costs have been presented in 2015 dollars as the labor rates in the Sage Timberline Estimating software are in 2015 dollars. To escalate the estimated costs to the start of revenue service – currently anticipated to begin in 2019 – a variable escalation rate for each year was developed based on the monthly and historic Consumer Price Index (CPI) as well as forecast data obtained from the Congressional Budget Office (CBO) Baseline Economic Projections for June 2016. Based on these escalation rates, the corridor-level capital cost estimate of $12.45 million in 2015 dollars would increase to $13.53 million in 2019. Table 13.9 illustrates the escalation of capital costs for the stations 2015 to 2020.[25]

[25] Monthly and historic CPI (http://www.usinflationcalculator.com/inflation/consumer-price-index-and-annual-percent-changes-from-1913-to-2008/) and CBO Baseline Economic Projections, June 2016 (https://www.cbo.gov/sites/default/files/51135-2016-01-Economic%20Projections.xlsx)

TABLE 13.9: ESCALATED CORRIDOR-LEVEL CAPITAL COSTS

	2015	2016	2017	2018	2019	2020
Corridor Capital Cost (Stations)	$12,448,588	$12,600,563	$12,907,840	$13,214,557	$13,530,202	$13,858,452
Escalation Rate		1.22%	2.44%	2.38%	2.39%	2.43%

13.1.5 Vehicles

Pulse vehicles will be procured as part of Pace's regular vehicle replacement program. Based on the preliminary operating plan for the Dempster Line, there is an assumed need for 15 vehicles with 3 spares for a total of 18 new Pulse vehicles at a cost of $526,815 per vehicle.[26] Like the corridor-level cost estimate, a variable escalation rate for each year was used to escalate the vehicle costs to 2019. Vehicle costs of $9.6 million in 2016 dollars would increase to $10.3 million in 2019, the anticipated year of purchase and revenue service. Table 13.10 illustrates the escalation of vehicle costs.

TABLE 13.10: ESCALATED VEHICLE COSTS

	2015	2016	2017	2018	2019	2020
Pulse Vehicles (18 = 15 + 3 spares)	$9,482,670	$9,598,436	$9,832,504	$10,066,144	$10,306,586	$10,556,629
Escalation Rate		1.22%	2.44%	2.38%	2.39%	2.43%

[26] Vehicle costs were established during the Pulse Milwaukee Line capital cost estimate and may vary based on the current vehicle specifications.

13.1.6 Total Cost for the Dempster Line

As shown in Table 13.11, the total cost for the Pulse Dempster Line including the station capital costs and Pulse vehicles is $22.2 million in 2016 dollars and $23.8 million in 2019 dollars. Project costs are escalated to 2020 to show how the costs may increase with the start of revenue service.

TABLE 13.11: TOTAL PROJECT COSTS

	2015$	2016$	2017$	2018$	2019$	2020$
Station Capital Cost	$12,448,588	$12,600,563	$12,907,840	$13,214,557	$13,530,202	$13,858,452
Pulse Vehicles	$9,482,670	$9,598,436	$9,832,504	$10,066,144	$10,306,586	$10,556,629
Total Project Capital Cost	$21,931,258	$22,199,000	$22,740,344	$23,280,702	$23,836,789	$24,415,082
Escalation Rate		1.22%	2.44%	2.38%	2.39%	2.43%

13.1.7 FTA Standard Cost Categories

Projects that are pursuing federal funding through the Federal Transit Administration (FTA) grant programs, including the Congestion Mitigation and Air Quality (CMAQ) program, must organize project costs according to the FTA's Standard Cost Categories (SCC) structure. The Station Capital Cost estimate presented in this memorandum and detailed in Appendix J and Appendix K was transferred to a SCC Capital Cost Estimate workbook that follows FTA guidance and requirements for estimating and annualizing capital construction costs and other project costs and funding sources. While the cost of vehicles is not included in Appendix J and Appendix K, they are included in the SCC workbook, which is presented in Appendix L.

Following FTA methodology recommendations, the SCC Capital Cost Estimate is broken down into ten (10) major components including five (5) cost categories for station construction and five (5) cost categories for supporting project elements, needs and administration / finance. These include the following:

- Category 10: Guideway and Track Elements
- Category 20: Stations, Stops, Terminals and Intermodal
- Category 30: Support Facilities: Yards, Shops, and Administrative Buildings
- Category 40: Sitework and Special Conditions
- Category 50: Systems
- Category 60: Right of Way, Land, and Existing Improvements
- Category 70: Vehicles
- Category 80: Professional Services
- Category 90: Unallocated Contingency
- Category 100: Finance Charges

A key difference between the SCC format and the capital cost estimate presented in this memo is that the costs in the SCC workbook have variable years of expenditure to reflect when work is expected to occur. For example, in order for the Pulse Dempster Line to begin revenue service in 2019, the engineering design services must begin in 2017 and conclude in 2018. Because the schedule and years of expenditure are defined in more detail, the project costs are escalated to different years. The result is a total project cost of $23.5 million in year of expenditure dollars, with the largest share of expenses anticipated in 2019 (see the "Fund Source by Cat" worksheet in the SCC workbook, which can be found in Appendix L).

13.2 OPERATIONS AND MAINTENANCE COST ESTIMATE

13.2.1 Methodology

The O&M cost estimate for the Pulse Dempster Line and reduced local Route 250 service was developed using Pace's fully allocated unit costs for the first quarter of 2016, provided in June 2016. Pace allocates costs by operating division, and within each division costs are allocated by total vehicle hour, which includes both revenue and non-revenue hours (such as deadhead, layovers, etc.). By this approach, every route operated within a given division has the same unit cost structure. In the first quarter of 2016, the unit O&M cost for the Northwest Division was $78.22.

However, since the preliminary schedules developed as part of this study are sufficiently detailed only to describe *revenue* vehicle hours, the operating data provided by Pace was recalculated to estimate the unit O&M cost per revenue hour. When measuring costs by revenue hour, every route has a slightly different cost structure, reflecting different relationships between revenue hours and total hours that may arise from different deadhead distances, layovers, and other operational characteristics. The average unit cost per revenue hour for the Northwest Division was $105.45 in the first quarter of 2016, while the unit cost for Route 250 was $99.53 for the same period. These unit costs represent an annualized weighted average of weekday, Saturday, and Sunday operating conditions (assuming 255 weekdays, 52 Saturdays, and 58 Sundays/holidays).

Because the efficiencies associated with Route 250, including short deadheads to the garage in Des Plaines and relatively short and efficient layovers, are likely to continue when the Dempster Line commences service, the Dempster Line O&M cost estimate was developed using the specific Route 250 unit O&M cost of $99.53 per revenue hour. The same unit cost was used to estimate the future O&M costs for Route 250 after service reductions are implemented.

Because O&M cost is driven by a single-factor model driven directly by vehicle revenue hours, the percentage increase in O&M cost over existing conditions will be identical to the percentage increase in vehicle revenue hours.

It should be noted that the O&M costs documented in this report do not include additional O&M costs specific to Pulse operation, such as station electrical costs, station maintenance, cellular service, and real time information sign operation. These costs have been omitted per previous direction from Pace and have not been fully determined at this time.

13.2.1.1 FUTURE YEAR O&M COST GROWTH

To estimate the growth in O&M costs, Pace analyzed ten years' of O&M cost data as reported to the National Transit Database (NTD), for the years 2005 through 2014. Reported total O&M costs were compared with reported total vehicle revenue hours to estimate a unit cost per revenue hour for each year. The analysis specifically looked at Pace's directly operated service, and specifically at the Motor Bus mode; thus, any privately operated contract service, and all paratransit service, was excluded from the analysis.

Historical unit O&M costs were adjusted to constant 2016 dollars to analyze cost growth beyond the general rate of inflation. The analysis found that Pace's O&M costs have annually grown at approximately 1.46% *above the rate of inflation*.

To estimate future year growth, the 1.46% annual growth rate was combined with the projected rate of inflation, as developed by the Congressional Budget Office, to estimate a nominal rate of unit cost growth. The resulting unit cost growth estimate is shown in Table 13.12. Unit costs are estimated to grow at approximately 3.9% annually in year of expenditure dollars, resulting in a unit cost of $111.64 by the anticipated start of service in 2019.

TABLE 13.12: CURRENT AND FUTURE UNIT O&M COST, BY YEAR OF EXPENDITURE

	2016	2017	2018	2019
Dollars per Revenue Hour	$99.53	$103.45	$107.46	$111.64
Percent Increase	n/a	3.94%	3.88%	3.89%

13.2.2 Cost Estimate

Total aggregate O&M cost for existing and future conditions are summarized in Table 13.13. The summary shows the cost in both 2016 and 2019 dollars. The estimated total O&M cost for service in the corridor is expected to grow by $3.3 million or 95% over existing conditions.

TABLE 13.13: EXISTING AND FUTURE O&M COST

Segment	Existing Route 250	Fall 2016 Route 250	Pulse Dempster Line	Reduced Local Route 250	Total Future Condition	Percent Growth
Annual Revenue Hours	29,084	34,456	53,403	13,670	67,073	95%
O&M Cost, 2016 Dollars	$2.9 million	$3.4 million	$5.3 million	$1.4 million	$6.7 million	95%
O&M Cost, 2019 Dollars	$3.2 million	$3.8 million	$6.0 million	$1.5 million	$7.5 million	95%

Note: Percent Growth in O&M cost is based on the planned fall 2016 Route 250 service levels. Reduced Local Route 250 Service Statistics do not include school trips, which are expected to be retained and add approximately 400 revenue hours of service per year.

14 Ridership Forecast

This memorandum presents the ridership estimate for the Pulse Dempster Line, as well as proposed changes to the existing local Route 250 to be implemented upon commencement of Pulse service in the corridor. The forecast was built upon previous detailed ridership analysis for the corridor and was developed using Simplified Trips-on-Project Software (STOPS) ridership forecasting model, which was first released in 2013 by the Federal Transit Administration (FTA). The Chicago application of the STOPS model was originally constructed by the Regional Transportation Authority with additional modifications, calibration, and project coding completed for specific application to this project. The modified STOPS model developed for the development of this ridership forecast has not been calibrated to the full RTA region and is not necessarily suitable for use on other projects.

The ridership forecast documented in this memorandum is based on the corridor station assumptions described in Section 4.4. As shown in Figure 4.13, the Pulse Dempster Line corridor will consist of two terminal stations (Davis CTA/Metra and O'Hare) and 15 intermediate stations. One station (Dee) is still being considered for relocation to a nearby intersection (Potter), but this decision will not affect the overall number of stations nor the overall running time. For modeling purposes the station was assumed to be located halfway between the two intersections.

The running times, span of service, and frequency of service assumptions that were used in development of the ridership forecast are documented in Section 9.

Existing Route 250 ridership, which was used in the calibration stage of model development, was documented in the *Preliminary Station Location and Site Selection Options* technical memorandum, and supplemented with additional data provided by Pace addressing ridership beyond the Route 250 corridor.

14.1 STOPS MODEL BACKGROUND

STOPS was developed by the FTA in 2013 as an alternative to using a local travel demand model for transit ridership forecasting. Through several subsequent software releases and real-world experience running the software, the FTA has expanded the types of recommended applications for STOPS and has updated several important recommended procedures for model implementation.

The latest version of STOPS currently available is Version 2.0, which became available in early 2016. Version 2.0 has been released to users on request, but has not yet been fully documented. The most current documentation available is from the previous release, Version 1.5, and can be accessed on the FTA's STOPS website.[27] Version 2.0 includes several new features and updates which will be further discussed in Section 14.2.

[27] https://www.transit.dot.gov/funding/grant-programs/capital-investments/stops-%E2%80%93-documentation-and-software

14.1.1 Overview of the STOPS Model

The FTA's STOPS Model documentation contains an exhaustive discussion of how the model operates, key data inputs, etc., which this memorandum will not attempt to replicate. This section presents a high level discussion of the main features and data inputs in STOPS. For a detailed technical discussion, the model documentation should be consulted.

STOPS emulates the workflow of a traditional "four-step" travel demand model, with a greater focus on accurate representation of the transit network and detailed calibration to actual transit demand in the study area. Figure 14.1 summarizes the key data inputs used by STOPS, which include the following:

- **MPO Demographic Data:** While STOPS is intended to function as an alternative to using a regional travel demand model, a region must still have a conventional model available, as STOPS uses several items from these models. The first is the regional zone-based data set for base year and future year population and employment. For the Dempster Corridor model, the 1,944-zone demographic forecast prepared by the Chicago Metropolitan Agency for Planning (CMAP) was used. The demographic forecast is used to take existing base year journey-to-work data (described below) and grow it to current and future years.

- **MPO Travel Time Skims**: The second MPO model data set used by STOPS is the highway travel-time "skim" matrix, which is a database containing the estimated travel time and travel distance between any two pairs of MPO zones. Models typically contain skims for various time periods and forecast years. In accordance with STOPS Model recommended procedures, the AM Peak time period is used. The CMAP travel time skims contained separate distance and time tabulations for all forecast years (2015, 2020, 2030, and 2040). Travel time skims are used by STOPS to compare highway driving times to transit travel times (the latter of which are computed within the model), and thereby establish the highway/transit mode share of a given zone-to-zone travel movement.

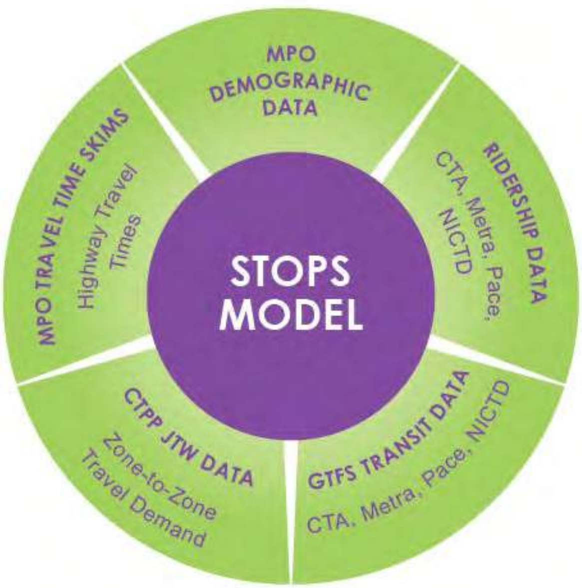
- **Journey to Work (JTW) Data**: The FTA packages and provides JTW data sets specifically for use in STOPS. The data comes from the Census Transportation Planning Package (CTPP), a modeling package produced using Census data to describe origin-destination patterns of travel demand specifically for work trips. The data contains a table of trip productions and trip attractions for every zone in a given region. Because the CTPP JTW data only describes work trips, STOPS uses internal factors within the model to expand the work trip table to include non-work trips. The zone system used in the JTW data is not necessarily the same zone system used in the previously described MPO demographic and travel time data; STOPS automatically reconciles the two zone systems.

- **GTFS Schedule Data**: One area where STOPS differs from conventional travel demand models is in the manner in which it represents existing and future transit service. While conventional models typically represent transit service in terms of a travel time between zones which includes an assumed waiting time (based on the frequency of service), STOPS uses detailed schedule data to develop a precise and far more accurate representation of the true transit travel time between any two zones at any given departure or arrival time. To do this, STOPS reads GTFS data. GTFS is the open-source standard for publishing transit schedule data, used in applications such as Google Maps and various other third-party trip planning tools. There are many GTFS reader and editor tools available, and the files are easily modified to represent future changes to the transit network. Additionally, many transit agencies use internal scheduling and run-cutting software that automatically generates GTFS files for both existing and proposed conditions. In addition to the standard GTFS file set, STOPS uses several "add-on" files that are not part of the standard GTFS file sets, which are used to represent the existence of park-and-ride facilities, and to facilitate quick edits to the transit network, such as turning off routes or rerouting service, without the need for extensive GTFS schedule coding.

The Dempster Corridor STOPS model contains a complete GTFS representation of CTA, Pace, Metra, and NICTD (South Shore Line) transit service.

- **Ridership Data**: STOPS uses ridership data at both the stop level and the system level as a tool for model calibration. Stop-level ridership data is entered as a Geographic Information System (GIS) Shapefile, while system-level ridership (linked and/or unlinked transit trips) is entered in a model parameter file as a control total. For the Dempster Corridor model, several sources of ridership data were combined. This is further described in Section 14.2.

FIGURE 14.1: KEY STOPS MODEL DATA INPUTS



In comparison to a traditional four-step travel demand model, STOPS differs primarily in the final two steps, Mode Choice and Trip Assignment. For the first two steps, Trip Generation and Trip Distribution, STOPS depends on external data sources (MPO data, CTPP JTW data) and on model calibration constants to develop an understanding of existing travel demand in the study area.

14.1.2 Regional Transportation Authority STOPS Model

In November 2015 Chicago's Regional Transportation Authority (RTA) publicly released a STOPS model for the Chicago region, for use by the various transit service providers and planning agencies in the region. This regionally calibrated model was used as the starting point for development of the Dempster Corridor model, with several significant modifications. This section briefly describes key inputs and assumptions that were used in the RTA's model. Section 14.2 then describes the modifications that were made in preparing the Dempster Corridor model.

The following is a summary of key elements of the RTA STOPS model. Additional technical detail can be found in that model's User Guide.[28]

- The RTA model was developed using Version 1.50 of STOPS, which was the latest version available at the time of the model's development. Accordingly, the RTA model used JTW data derived from the 2000 Census, the only JTW data set available for use in Version 1.50 of STOPS.
- For station-level calibration, the RTA model included station-level boarding data for all Metra, NICTD, and CTA rail stations, as well as for Pace's I-55 express corridors. CTA bus boardings and Pace boardings outside the I-55 corridor were not included in the station shapefile and were thus not used in calibration. The decision to include only fixed guideway stations was made in accordance with FTA guidance at the time of the RTA model's development.
    - o CTA boardings data represents October 2014 average weekday boardings.
    - o Metra boardings data represents average weekday boardings for calendar year 2014.
    - o NICTD boardings data represents estimated 2010 average weekday boardings, scaled up from station-level data collected in 2006.
    - o Pace boardings on I-55 services represent average weekday boardings for calendar year 2014.

  These stations are aggregated into 59 Station Groups based on operator, mode, line, and distance to Downtown Chicago.
- MPO zones are aggregated into 38 Districts based on areas of similar transit mode share and land use characteristics.
- GTFS files were assembled from the four existing transit agencies representing early 2015 service levels. Only existing conditions were represented; a future no-build was not developed.
- Various transfer penalties were imposed at the station and agency level to improve calibration results. For example, inter-agency transfer penalties were imposed at some Metra stations to suppress the number of transfers between Metra and other transit services, especially to CTA service at non-downtown locations in Chicago.

14.2 DEMPSTER CORRIDOR MODEL PARAMETERS

The RTA model covers a very large area including Chicago, its surrounding suburbs, and beyond (including portions of Indiana and Wisconsin), and was intended by its developers to be modified and supplemented for corridor-specific applications such as the Dempster Corridor. Additionally, non-downtown-oriented corridors such as Dempster are particularly challenging for a regional, largely downtown-oriented model such as the RTA STOPS model, and require additional refinement and data to achieve a suitable level of local calibration. Additional detailed stop-level boardings data provided by Pace was available and was utilized to substantially enhance model calibration in the vicinity of the Dempster Corridor.

[28] http://www.rtams.org/pdf/planning/STOPSUserGuide.pdf

This chapter describes the adjustments and additional data used to update and enhance the RTA model for application to this project. In addition to detailed calibration adjustments, two key factors drove the need to modify the RTA's model. First, the RTA model was developed using Version 1.50 of STOPS, while the Dempster Corridor model was constructed using Version 2.0 in order to take advantage of important updates in that version.

14.2.1 JTW Data

The RTA model was developed using Version 1.50 of STOPS, which was the latest version available at the time of the model's release. Accordingly, the model was developed using JTW data from the 2000 Census, the only dataset available for use in Version 1.50. With Version 2.0, STOPS has been updated to also be compatible with updated JTW files based on the American Community Survey (ACS), representing a five-year average of the years 2006 through 2010. The Dempster Corridor Model uses this newer data set. In addition to more recent travel demand data, the ACS JTW data utilizes an updated zone system. Thus, the transition from the Census 2000 JTW data used in the RTA model to the ACS 2006-2010 JTW data used in the Dempster Corridor model had significant implications for model calibration, and represented a major change from the RTA's model.

14.2.2 Stations Shapefile

As previously noted, the stations shapefile developed for the RTA STOPS model included only fixed guideway stations, which was consistent with FTA guidance at the time of the model's development. By request of Pace, the RTA also included Pace's bus-on-shoulder stations along I-55 (and in Downtown Chicago) as well.

To aid in calibration, and in accordance with the latest FTA guidance, the Dempster Corridor model station shapefile was updated to include a large number of local bus stops. The station shapefile is limited to no more than 10,000 total records, whereas Pace has over 18,000 bus stops and CTA more than 12,000. To work within the limitations of the software and available data, the following approach was used to add local bus stops to the station shapefile:

- CTA bus stops were excluded entirely. This was done due to both the limitation in size of the data set (and a desire to prioritize Pace over CTA for calibration purposes), as well as a lack of available ridership data. The station shapefile requires stop-level ridership data that was not available for the CTA bus system.

- Pace bus stops within 10 miles of the Dempster corridor were included. Additionally, for any routes that pass within that 10 mile radius, all other stops on those routes, including stops beyond the 10 mile radius, were included as well. Stop-level average weekday ridership data was provided by Pace for the Fall 2014 period, representing the most recent quarter before the temporary closure of the CTA Yellow Line, which impacted Pace ridership in the project corridor. The list of stops included all of the following: (a) all stops included in the Fall 2014 ridership data; (b) any additional stops included in the corresponding August 2014 GTFS data set; (c) any additional stops included in the Spring 2016 GTFS data set (which was used as the basis for the future No Build and Build conditions); and (d) all new Pulse Milwaukee Line and Pulse Dempster Line stations included in the No Build and Build conditions, respectively. The stations shapefile attribute table includes a field indicating the source of each stop included in the shapefile.

14.2.3 Districts and Station Groups

14.2.3.1 DISTRICTS

In the initial Dempster Corridor model development, the RTA district-zone system was largely preserved. The 38 RTA districts had to be redefined using the updated ACS zone system, which resulted in small adjustments to the district boundaries, but the overall regional district definition scheme was preserved.

Through the Dempster Corridor model calibration, seven additional districts were defined and carved out of the existing districts in their vicinities. They are described below and shown in Figure 14.2:

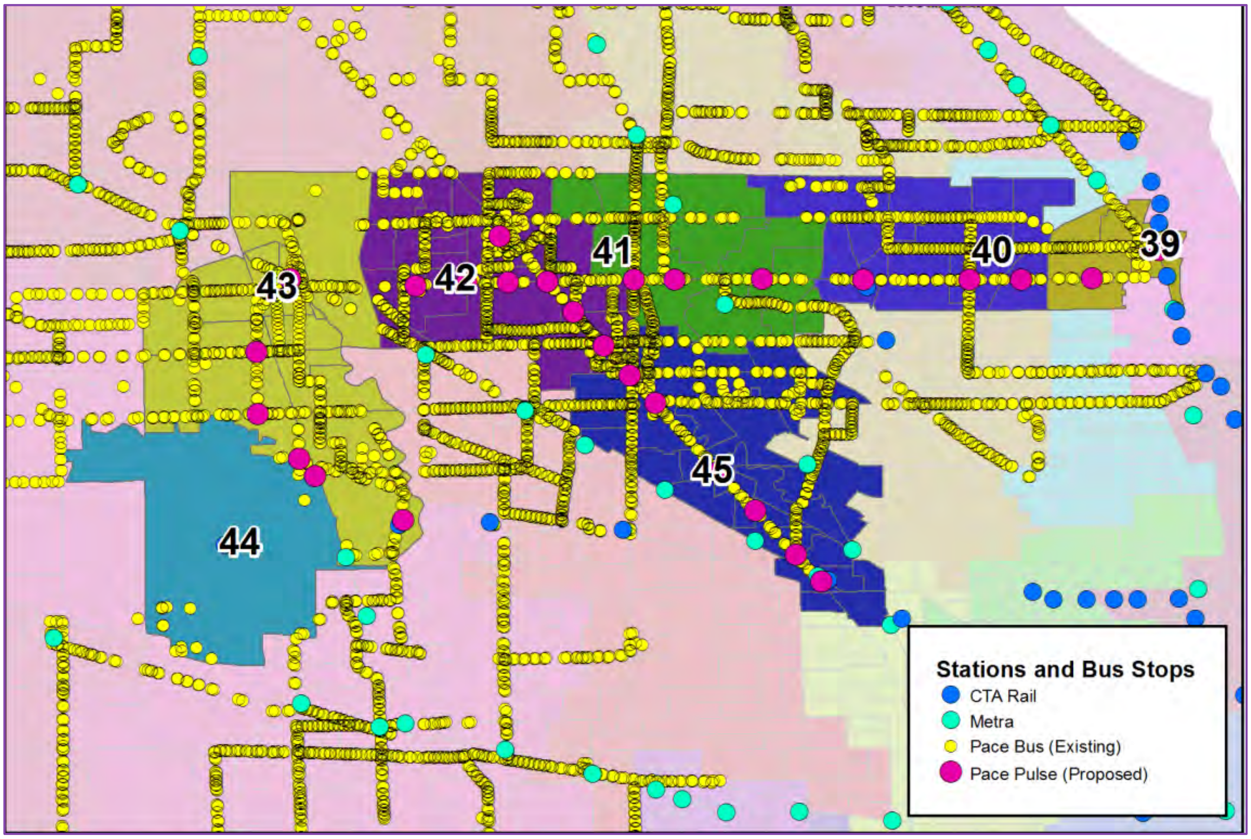
- District 39: Dempster-Evanston – created from parts of two other existing Evanston districts.
- District 40: Dempster-Skokie – created from parts of an existing Skokie (and surrounding suburbs) district and the western Evanston district.
- District 41: Dempster-Morton Grove – created from parts of existing Skokie, Glenview, and North Glenview districts.
- District 42: Dempster-Niles/Park Ridge – created from parts of existing Skokie and North Glenview districts.
- District 43: Dempster-Des Plaines/Rosemont – created from parts of existing Rosemont and Northwest Suburbs districts.
- District 44: Dempster-O'Hare – O'Hare Airport only, created from part of the adjacent Rosemont district.
- District 45: Milwaukee-Chicago – Representing the Chicago section of the Pulse Milwaukee Line, this district was created from parts of existing Jefferson Park, Northwest Side, and Skokie districts.

14.2.3.2 STATION GROUPS

Based on updated guidance from the FTA, and following calibration testing, the station grouping scheme developed for the RTA STOPS model was replaced by an entirely new regional station grouping scheme. The FTA now recommends that station groups follow the same boundaries as districts. For the Dempster Corridor model, the station groups were further subdivided by transit agency (with Metra and NICTD combined), such that there could be up to three station groups corresponding to each district, for any district in which there exist commuter rail stations, CTA rail stations, and Pace bus stops. In practice, many districts had fewer than three corresponding station groups, particularly outside the City of Chicago, where few CTA stations exist.

In a small number of cases, stations were assigned a group corresponding to a nearby adjacent district. This was the case in locations where stations were situated on the boundary between two districts, to keep reciprocal (e.g. northbound and southbound) stations together, and in situations where the character of a station was more relevant to a nearby district than to the district in which it was located. An example of this latter case occurred at O'Hare. The single zone representing the O'Hare district was very large and incorporated some Pace bus stops on the south and west end of the zone. These stops are functionally and operationally distinct from the O'Hare station, and thus were grouped separately from the existing O'Hare Kiss 'N' Fly stop and the future O'Hare Pulse station. They were instead grouped with other stops in the adjacent Rosemont district.

FIGURE 14.2: ADDITIONAL DISTRICTS, DEMPSTER AND MILWAUKEE CORRIDORS



Note: The colored polygons represent the districts described in section 14.2.3.1. The numbered, bold colored polygons represent the redefined districts.

14.2.4 GTFS Files

The following GTFS file sets were included in the Dempster Corridor STOPS model:

- **CTA:** The latest GTFS files were downloaded from the CTA website in April, 2016. The data set was modified to remove the temporary Purple Line Express southbound stops at Sheridan and Wilson.

  Under the Build condition, the permanent Purple Line Express northbound and southbound stop at Wilson station was added.

- **Metra**: The GTFS files developed by the RTA were used, with no further modifications for the Dempster Corridor model.

- **NICTD:** The GTFS files developed by the RTA were used, with no further modifications for the Dempster Corridor model.

- **Pace**: Existing Pace conditions were represented by the August 2014 GTFS files. This time period was selected to correspond to the ridership data that was provided. This was important to ensure that ridership was calibrated to the actual service levels in place at the time the ridership data was collected.

For No Build conditions, Pace's latest GTFS data set (May 2016) was used. The Pulse Milwaukee Line was added to this data set, and local service on Milwaukee Avenue (Route 270) was modified, both in accordance with the service plan described in the *Milwaukee Corridor Arterial Rapid Transit Project Definition Report* (December 2014).

For Build conditions, the Pulse Dempster Line was added to the No Build condition, and local Route 250 service was modified, both in accordance with the *Operating Plan and O&M Cost Estimate* technical memorandum (July 2016).

For both Pulse Lines, the service was coded in the GTFS data set as Type 3 (bus), as opposed to Type 0 (streetcar). There is no service type specific to BRT. Coding as Type 3 means that the service will compete against other bus routes strictly on the basis of service levels and travel times alone. There is no inherent "advantage" to the Pulse lines as compared with all other bus routes.

An alternate Build data set was developed featuring an extension of the Dempster Line beyond the O'Hare terminus to the Rosemont Transit Center. This was used for a model sensitivity test.

For all four transit agencies, the PnR.txt file that was developed by the RTA, which represents Park and Ride facilities, was added to the GTFS data set. The Pace PnR.txt file was modified to include the Golf Mill Shopping Center as an "unsanctioned Park-and-Ride" facility.

14.2.5 Penalties

The majority of the access and transfer penalties defined in the RTA model were left unchanged. During Dempster Corridor model calibration, additional penalties were introduced at the O'Hare and Des Plaines Metra stations to suppress transfers between Pace and Metra at these locations. Additionally, a transfer was defined between the O'Hare Kiss 'N' Fly station and the CTA Blue Line at O'Hare. These stations are physically too far apart for STOPS to recognize the possibility of a transfer, but due to the existence of the Airport Transit System (ATS), which is not coded in STOPS, it is possible to transfer between these locations, and a small number of transfers do occur. The time penalty associated with this transfer was refined during calibration to generate a reasonably accurate number of existing transfer boardings.

14.2.6 STOPS Parameter File

The following are several key parameters that were used in the Dempster Corridor STOPS model parameter file:

- **CTPP Calibration Approach**: Productions and Attractions
- **Station Group Calibration Approach**: Type 06: Static Group Calibration
- **Fraction of Transfer Penalty to Apply**: 1.0 (default value)
- **Fixed Guideway Visibility:** 1.0 (default value)
- **Linked Trip Factors**: All default values were used as taken from the RTA model.

- **Weekday Unlinked Trip Control Total**: 2,036,255. This is the sum total of CTA, Metra, Pace, and NICTD ridership and is the combination of three sources: (1) Total rail ridership is based on the total indicated in the station shapefile from the RTA STOPS model; (2) CTA bus ridership is from the calendar year 2015 ridership report; (3) Pace ridership is based on the Fall 2014 data set for use in the STOPS model.

- **Weekday Regional Linked Transit Trips Made by Travelers from Home-to-Work or Work-to-Home:** 646,680, which is the default value contained in the RTA STOPS model.

14.3 RIDERSHIP FORECAST RESULTS

In total the model was run and updated 17 times during the calibration phase. The final results of the Existing Conditions calibration as well as the No Build and Build Condition forecasts for 2015 are shown in Table 14.1. The No Build differs from Existing conditions in two ways: first, it is based on May 2016 Pace service data as coded in the latest available GTFS files. Second, it assumes operation of the Pulse Milwaukee Line.

TABLE 14.1: SUMMARY OF CALIBRATION RESULTS AND BASELINE 2015 RIDERSHIP FORECAST FOR PACE SYSTEM AND THE DEMPSTER CORRIDOR

	Pace Systemwide Boardings	Pace Route 250	Pulse Dempster Line	Dempster Corridor Total
Existing Ridership (Actual)	111,593	3,002	N/A	3,002
Existing Ridership (Modeled)	126,776	2,671	N/A	2,671
Percent Difference vs. Actual Existing	*(+14%)*			*(-11%)*
No-Build Ridership (Modeled)	124,814	2,839	N/A	2,839
Percent Difference vs. Actual Existing	*(+12%)*			*(-5%)*
Build Condition Ridership	128,225	91	7,034	7,125
Percent Difference vs. Actual Existing	*(+3%)*			*(+151%)*

Note: The existing boardings number differs somewhat from the total reported in other technical memoranda. It is reflective of the specific stop-level data that was provided for the Fall 2014 time period, and corresponds with the Fall 2014 GTFS files used in the STOPS model.

As shown, the model forecast indicates that ridership on the corridor will increase by 151% over existing boardings. While this number is high, it falls between the 131% increase in revenue hours planned in the corridor and the 171% increase in revenue miles (a closer reflection of the overall increase in trips). Ridership growth in the corridor is driven by both frequency improvements and speed improvements. To better understand the relative ridership impacts of speed versus frequency improvements in the model, a sensitivity test was conducted, which is discussed in the following section.

The forecast indicates that between the No Build and Build conditions, average weekday Dempster Corridor ridership grows by 4,286 passengers (2,839 to 7,125), while Pace systemwide ridership grows by 3,411 boardings. Thus, approximately three quarters of new Dempster Corridor boardings are expected to represent new Pace passengers, while the remainder represent trips drawn from other bus routes. Due to data limitations in the STOPS model, the Build condition does not reflect potential passengers that could utilize the new Pulse Dempster Line service to transfer to or from an airport employee shuttle, rental car, or regional bus though there will be new opportunities for transfers to/from these non-Pace services.

14.4 SENSITIVITY TESTS

Sensitivity tests were conducted to examine the impacts of certain assumptions as well as to ascertain how changes to the project might affect ridership. Two sensitivity tests have been developed as part of the ridership forecast development, and are described in this section and summarized in Table 14.2.

14.4.1 Rosemont Extension

To address a recommendation made during the station site selection process, an alternative operating plan was developed in which service continues to the Rosemont Transit Center, connecting with the CTA Blue Line and numerous Pace bus routes. Under this operating plan, the western terminus of the Pulse Dempster Line would be moved from the O'Hare station to the existing Rosemont Transit Center. O'Hare would remain as an intermediate station between the Rosemont and Mannheim/Higgins station. The STOPS model does not consider the exact route, but rather generates results based on station locations and the travel times. As discussed in Section 9.4.2, running times assume express operation and were obtained from Google Maps at differing times of day. For modeling purposes, an additional running time of ten minutes was assumed between Rosemont and O'Hare. The operating assumptions (reflected in corresponding GTFS files) were based on the baseline ridership forecast (10-minute peak period Pulse service). It was assumed that only Pulse service would be extended to Rosemont, while Route 250 would continue to terminate at O'Hare.

The resulting forecast suggested approximately 20% growth in ridership, or approximately 1,500 additional weekday boardings, when service is extended to Rosemont. In addition to approximately 900 new boardings at the Rosemont Transit Center, the majority of new demand resulting from the extension is in the section of the corridor between Des Plaines Metra and O'Hare, where approximately 600 additional boardings are forecasted to occur. Some of the additional ridership is drawn from other routes operating between Rosemont and portions of the corridor, including Route 221 and Route 223. However, the sensitivity test results in nearly 500 new boardings on the Pace system and nearly 1,000 new transit unlinked trips in the region – the majority of the non-Pace ridership growth generated on the CTA rail system due to the improved transfer connection between CTA and Pace.

14.4.2 Speed Improvements Only

In light of the significant ridership increases generated in the STOPS model ridership forecast, it is important to better understand how the model is responding to the various changes between the Existing and Build conditions. A sensitivity test was performed in which the anticipated Pulse Dempster Line running time improvements were retained, but the frequency/headway improvements were removed. Under this scenario, the Dempster Line would operate at the same approximate spans and headways as the existing Route 250, and the reduced local Route 250 under the Build condition was eliminated.

Under this sensitivity test, the resulting forecast indicates 5,383 average weekday boardings in the corridor, which is more than 1,600 boardings fewer than the 7,125 baseline, or 23% below the baseline forecast. Nearly all of the reduction in boardings represents new transit trips, as opposed to trips drawn from other corridors, as overall Pace systemwide ridership in this sensitivity test is 1,400 lower than the baseline.

In total, approximately 40% of the ridership growth in the Dempster Corridor that was projected under the Baseline still occurs under the Speed Improvements sensitivity test. The remaining 60% of projected ridership growth under the Baseline Build scenario was attributable to the substantial proposed frequency improvements.

TABLE 14.2: SUMMARY OF SENSITIVITY TESTS

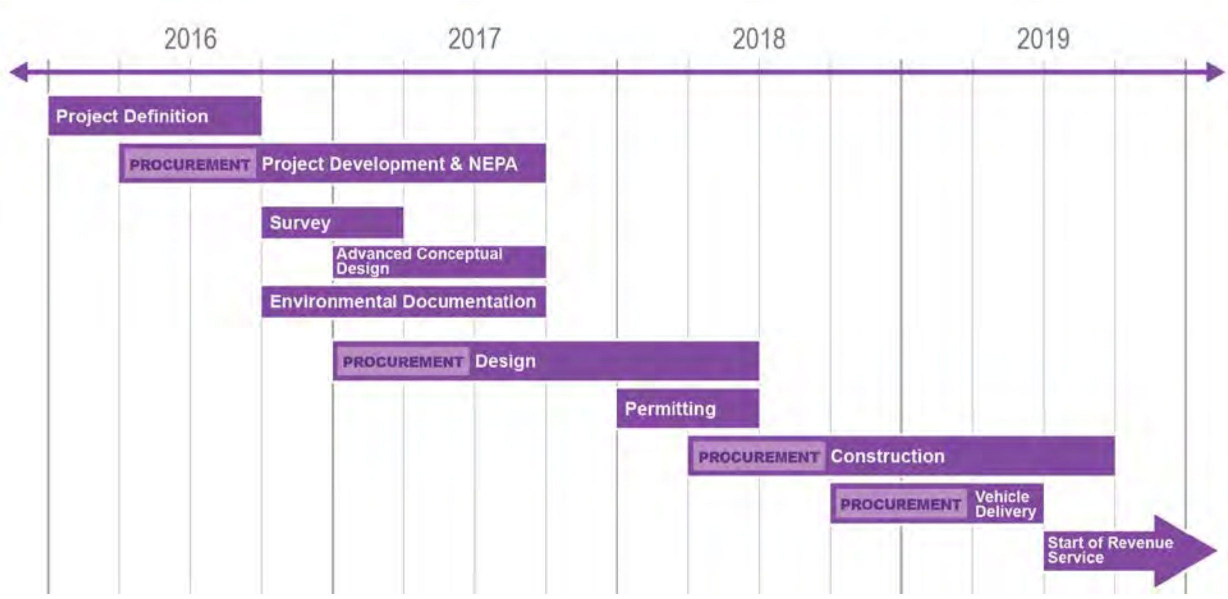
	Pace Systemwide Boardings	Pace Route 250	Pulse Dempster Line	Dempster Corridor Total
No Build Ridership	124,814	2,839	N/A	2,839
Baseline (Build) Ridership	128,225	91	7,034	7,125
Percent Different vs. No-Build	*(+3%)*			*(+151%)*
Rosemont Extension	128,703	96	8,538	8,634
Percent Difference vs. Baseline	*(+0.4%)*			*(+21%)*
Percent Different vs. No-Build	*(+3%)*			*(+201%)*
Speed Improvements Only	126,806	N/A	5,383	5,383
Percent Difference vs. Baseline	*(+3%)*			*(-23%)*
Percent Difference vs. No-Build	*(+2%)*			*(+90%)*

15 Project Delivery

15.1 PROJECT DELIVERY APPROACH

It is anticipated that the implementation of the Dempster Line will utilize a design-bid-build delivery method. Pace intends to procure a consultant to complete the required environmental documentation following the completion of the Project Definition phase. As the environmental documentation phase concludes in mid-2017, Pace will procure a designer to complete project engineering, which would then be followed by the procurement of a construction contractor. Pace has a goal of implementing the Dempster Line and beginning revenue service in the third quarter of 2019. A preliminary implementation schedule required to achieve this goal is shown in Figure 15.1.

FIGURE 15.1: DEMPSTER LINE IMPLEMENTATION SCHEDULE



15.1.1 Conceptual Design, National Environmental Policy Act (NEPA) Clearance, and Public Involvement

Conceptual design of the Dempster Line is complete and is being documented and finalized in this Project Definition report. To continue to advance the project through the environmental documentation phase to comply with NEPA and to support the 2019 implementation timeline, a survey and advanced conceptual design will be completed in late

2016-2017. During this time, the conceptual station layouts will be updated to reflect the conditions documented in the survey to a preliminary level of detail to support the environmental analysis. During the NEPA phase, Pace will undertake a public involvement and stakeholder outreach effort that will include public meetings, Corridor Advisory Group meetings and one-on-one stakeholder meetings to facilitate stakeholder input on impacts, particularly related to affected properties.

15.1.2 Engineering

As Pace anticipates using federal CMAQ dollars to fund the capital construction of the Dempster Line, a qualifications based solicitation will be used to procure a project designer. Similar to the process used for the Milwaukee Line, it is expected that Pace will solicit a qualified professional design firm using a Letters of Interest and Qualifications (LIQ) procurement. A scope of work for the designer will be developed during the NEPA phase and will be based on the scope for the design of the Milwaukee Line capital facilities as well as the advanced conceptual design drawings for the Dempster Line and will provide for the design of all station facilities, including the shelter, vertical marker, real time information signage, communications, and utility services. During the engineering phase, the designer will also coordinate with Pace to obtain the necessary project permits. It is anticipated that the Pace Purchasing Department will begin the procurement process in January 2017 in order to solicit qualified firms, award a contract and issue a notice to proceed (NTP) in the third quarter of 2017.

Throughout the engineering phase, Pace's External Relations and Strategic Services divisions will support the Capital, Financing and Infrastructure (CFI) department and Project Manager by coordinating community outreach and stakeholder involvement efforts appropriate to the engineering phase, including the development of intergovernmental agreements and coordination with property owners, businesses and other stakeholders.

15.1.3 Construction

As the engineering phase draws to a close, Pace will procure a general engineering contractor (GEC) to construct the Dempster Line capital facilities. The GEC will need to team will qualified subcontractors, fabricators and vendors capable of ensuring the fit and proper function of all station elements, including the real time information signs. Given the implementation timeline of the third quarter of 2019, the project team will need to coordinate early during the engineering phase to establish a procurement schedule that allows for a construction NTP by the fourth quarter of 2018 which will facilitate the winter fabrication of station elements and a spring groundbreaking on the station facilities.

As with the engineering phase work, Pace's External Relations and Strategic Services divisions will support the CFI project manager by coordinating community outreach and stakeholder involvement efforts appropriate to the construction phase.

15.1.4 Operations

At the close of project construction, Pace will conduct testing of the capital facilities associated with the Dempster Line and will train staff on Pulse operations. Revenue service is planned to begin on or about August 2019 with the regular school schedule pick. From that point forward, Pace will focus on launching and evaluating the performance of the service and making any necessary adjustments.

15.2 INTERGOVERNMENTAL COORDINATION

During the development of the Milwaukee Line, Pace has coordinated with municipal and agency representatives as well as the appropriate roadway authorities on roadway design modifications, right-of-way improvements, and the construction of station facilities and is developing intergovernmental agreements (IGAs) with these partnering entities to facilitate project implementation. As the Milwaukee Line IGAs are developed, they will set precedents for the implementation of future Pulse projects, including the Dempster Line, and help establish a consistent strategy for negotiating and administering community partnerships.

For the Dempster Line service, Pulse vehicles will operate on roadways that are primarily under the jurisdiction of IDOT and at off-street facilities controlled by local municipalities and other partner agencies such as CTA, Metra and the Chicago Department of Aviation. The route will serve and connect the communities of Chicago, Rosemont, Des Plaines, Park Ridge, Niles, Morton Grove, Skokie, and Evanston. During this Project Definition phase, Pace has initiated involvement and coordination with municipal and agency representatives and the appropriate roadway authorities. These efforts will be continued during the NEPA, engineering, and construction phases of the Dempster Line project.

Roadway design modifications, right-of-way improvements, and the construction of station facilities will require IGAs with partner entities in advance of construction; these IGAs will be detailed during the engineering phase. Each of the partners will have a unique perspective on the Dempster Line project and ability to facilitate the service. Pace will need to develop, negotiate, and execute IGAs with these parties as appropriate. Generally, coordination and support in the following areas will be critical to ensure maximum mutual benefit from Pace's investments:

- Facilitating efficient transfers between Pulse and connecting transit service at the O'Hare Airport CRCF, Des Plaines Metra, Dempster-Skokie CTA station and Davis CTA/Metra Station.
- IDOT investments in providing and maintaining appropriate roadway access and conditions, including coordination of right-of-way acquisition or easements with local jurisdictions in advance of construction.
- IDOT support for innovative transit facilities that support the program goals and project needs.
- Support for Pulse station improvements including construction within the public right-of-way and on publicly or privately owned property outside of the right-of-way limits.
- Permission for Pace to access and maintain station facilities within the public right-of-way as needed.
- Proactive coordination of agency activities that could impact access to or use of Pulse station facilities to ensure minimal service impacts.
- Local community investments in "last mile" mobility, ensuring adequate sidewalk and crosswalk access to Pulse stations.
- A coordinated strategy to mutually publicize and reinforce the Pace Pulse brand, while also providing opportunities for local branding, advertising, and community expression.

15.2.1 Pace Responsibilities

As the lead agency responsible for implementing the Pulse program and the Pulse Dempster Line project, Pace's responsibilities will include (but not be limited to) the following:

- Station area construction that complies with state and local codes/standards and permitting requirements.
- Timely and reasonable requests for variances, if needed.
- Coordination with local and other authorities, as appropriate, regarding the following:
    - Utility service to the station/shelter during and after construction, and any needed relocation of existing utility infrastructure.

- Demolition, clearing and earthwork at the station site.
- Connection to the existing sidewalk network in an ADA-compliant manner adjacent to the station site.
- Containment, mitigation, or removal and appropriate disposal of any hazardous materials disturbed during station site construction.
- Maintenance of traffic during station construction.
- Installation and removal of any required temporary facilities associated with station site construction.

- Minimization of disruptions to nearby property owners and the existing transportation network as a result of Pulse construction activities.
- Construction of the station shelter, platform, vertical marker and other associated amenities, which may or may not include the following:
  - Bicycle racks.
  - Trash receptacles.
  - Real-time information signage (on the vertical marker).
  - Other information signage including local area and transit information on the vertical marker.
- Maintenance of the vertical marker and periodic updates to associated information signage.
- Regular cleaning and sweeping of Pulse shelter structure and station platform (e.g. loose trash, landscape debris), if not provided for in a service agreement with IC&SC, Titan or other advertising shelter contractor.
- Regular trash collection (frequency to be determined by Pace).
- Guarantee of a minimum number of years of Pulse service in response to local infrastructure investments (pending discussion between Pace and local agencies).
- Release of Pulse operations-related liability for local governments and DOTs (pending discussion between Pace and local agencies).

15.2.2 Local Municipality Responsibilities

In order to facilitate Pulse implementation, Pace will need to form partnerships with local communities and coordinate on the provision of mutually beneficial improvements. While construction of the station improvements will be Pace's primary responsibility, local municipalities may be relied upon to deliver, facilitate or support some or all of the following:

- Commitment to implement Pulse improvements at on-street stations and transit centers such as the Dempster-Skokie CTA Station and the Davis CTA/Metra station.
- Timely reviews and a streamlined permitting process, and approval of reasonable variances when needed (for example, to accommodate the height of the vertical marker, if needed, and Pulse-related electronic signage).
- Location and marking of any existing underground utilities in the station area prior to commencement of construction (Pace will bear no responsibility for impacts to existing utilities not accurately marked in advance by others).
- Provision and maintenance of sufficient street lighting near the station platform area for visibility of and for Pulse passengers.
- Facilitation of agreements with IC&SC and other advertising shelter contractors for station and shelter maintenance, if appropriate.
- Timely snow and ice removal when needed, including salting/sanding for slip resistance. (The station snow melt system planned for the stations will melt snow falling at a moderate rate, but significant snow events will require manual clearing of snow and ice.)
- Any locally desired security measures, potentially to include: security cameras, emergency call boxes, and emergency response (Pace will provide supporting conduit runs in the standard shelters to enable local

installation and maintenance of security related equipment. Pace will be provided "read only" access as requested to video feed from security cameras and will bear no responsibility for responding to calls for emergency assistance).

- Installation and maintenance of public art, if desired.
- Maintenance of community expression elements desired by the local community as established in the *Community Expression Features: Cost Sharing Strategy and Coordination Guidelines* document.
- Installation and maintenance of local advertising (on panels affixed to the shelter structure, in coordination with Pace).
- Provision of ADA-accessible sidewalk access routes to the station.
- Provision of at least one fully marked and signalized pedestrian crossing across an arterial roadway within 200 feet of a station platform with crossing locations to be mutually agreed upon by Pace and the local municipality.
- Installation of missing segments, or upgrades to existing segments, of the broader pedestrian and bicycle access network within a one-quarter (1/4) mile area surrounding each station location.
- Coordination with local plans and programmed roadway improvements:
  - TSP
  - Turn lane and other roadway configuration coordination.
- Facilitation of use agreements with adjacent private property owners where temporary and/or permanent off-street station access is needed.
- Facilitation of right-of-way acquisition or easement negotiations as needed (and potentially acquiring right-of-way or easements on Pace's behalf, as appropriate).
- Development of transit-supportive land uses along the Dempster corridor and TOD-friendly zoning amendments.

15.2.3 Transportation Department Responsibilities

Departments of Transportation, in this case IDOT and Maine Township, have a critical role to play in facilitating the development of the Pulse Dempster Line, which may include, but not be limited to, the following;

- Timely reviews and permitting.
- Allowing reasonable use of and access to the right-of-way:
  - Allowing installation and use/maintenance of structures within the right-of-way.
  - Coordinating with Pace with regards to any changes to the station improvements or access and ensuring that Pace will have continued access to and use of such improvements.
  - Facilitating transit signal priority, raised platforms, bus pads, curb bump outs, and other roadway treatments as appropriate.
- Allowing innovative transit facilities (e.g. raised platforms and bus curbs) that support the program goals and project needs.
- Supporting the right-of-way acquisition process.

15.2.4 Transit Agency Responsibilities

Other transit agencies, specifically Metra, the CTA, and the RTA, also have a role to play in facilitating Pulse, including (but not limited to) the following:

- Commitment by the CTA through an IGA to implement effective Pulse transfers at the Dempster-Skokie and Davis stations, which may involve:
  - Allocation of bus bays to Pulse service.
  - Allocation of space for a vertical marker and/or other Pulse signage.

- Commitment by Metra to work cooperatively to facilitate effective Pulse transfer opportunities at the North Central Service O'Hare Transfer Metra station, UP-Northwest Des Plaines Metra station and UP-North Davis Street Metra station.
- Commitment by the RTA to support Pulse throughout the suburban market where demand has been identified:
    - o Provide general support and funding for Bus Rapid Transit projects throughout the region.
    - o Provide support and leadership on interagency signage, including real time information signs where two or more transit services meet
    - o Facilitating IGAs when needed (e.g. CTA and Pace, Metra and Pace).

15.2.5 Intergovernmental Agreements (IGAs)

Pulse implementation will require more complex and varied IGAs than have been needed for Pace service and facilities in the past, with a new emphasis on the construction and maintenance of physical infrastructure located primarily within the public right-of-way.

IGAs are currently being developed for the Pulse Milwaukee Line and should serve as templates for the implementation of the Dempster Line and other future Pulse projects. The IGAs will serve to clarify the respective roles and responsibilities of the various parties involved in Pulse implementation, both during the construction phase and during ongoing operations. This includes the customization of community expression features and the ongoing maintenance responsibilities for these elements as documented in the guidelines Pace developed in February 2016, entitled *Community Expression Features: Cost Sharing Strategy and Coordination Guidelines* 2016 (see Appendix M). IGAs with local and agency stakeholders needed to support Pulse-related improvements may address (but are not limited to) the items listed below. IGAs should be executed prior to the commencement of station construction in each municipality.

15.2.5.1 POTENTIAL IGA ELEMENTS

- Utility locating, relocation and/or extension.
- Hazardous material testing, and mitigation or removal as needed.
- Temporary or permanent easements.
- Temporary construction facilities and/or detours.
- Installation of TSP.
- Roadway construction and maintenance (e.g. curb bumpouts, bus pads, etc.).
- Local provision of pedestrian crossings and sidewalk connections.
- Upgrades from basic station amenities (e.g. custom platform paving, additional bicycle racks, custom railing-mounted panels, etc.), with local municipalities funding (or securing funding for) the incremental increase in cost.
- Public art installation, if desired.

16 Next Steps

Pace plans to apply for CMAQ funding to support the implementation of the Pulse Dempster Line. CMAQ funds are federal funds administered by the FTA when used for transit projects. Use of CMAQ funds requires compliance with federal aid procedures, including compliance with the NEPA. The Dempster Line must receive environmental clearance in order to advance into the engineering phase, making the environmental analysis the next step to be completed to advance the project.

Additional key steps to continue the implementation process beyond this Project Definition Report include (but are not limited to) the following:

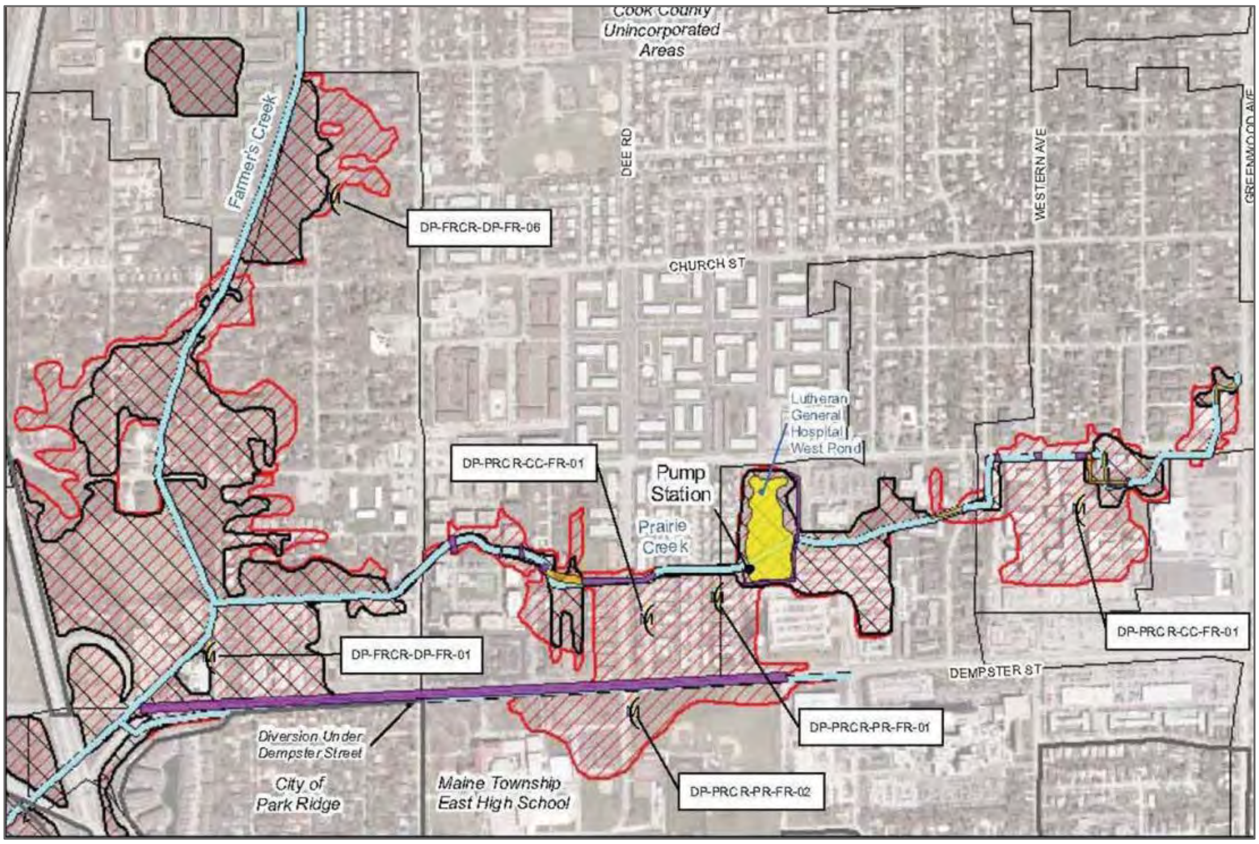
1. Prepare a land survey to delineate the right-of-way and identify parcel boundaries.
2. Identify any easements, land acquisitions, and driveway closures and/or consolidations needed to support the construction of the stations and shelters.
3. Solicit feedback from the public and project stakeholders on the location and configuration of each stations as well as the proposed operating plan.
4. Update conceptual station layouts, capital cost estimates and station design criteria to incorporate and respond to survey information.
5. Complete NEPA documentation process and FTA approval.
6. Engage a design contractor to design the station improvements and prepare construction bid documents as part of the engineering phase.
7. Develop IGAs with local communities, IDOT, and other agencies to address the varied aspects of Pulse, as described in previous sections.
8. Acquire any easements, right-of-way and complete any driveway closures or consolidations needed to support the construction of the stations and shelters.
9. Complete the engineering for the station improvements.
10. Secure the necessary project permits.
11. Procure a general engineering contractor to construct the station improvements.
12. Secure permits for utilities and/or permanent structures in the right-of-way.
13. Construct the station improvements.
14. Train Pulse operators on the use of the near level boarding and bus curbs.
15. Complete operational test of facilities.

By employing these steps in a timely and coordinated manner, Pace will be well positioned for CMAQ funding for the Dempster Line and future Pulse projects. Further, Pace will lay the groundwork for efficient implementation of Pulse projects and the rapid establishment of the Pulse network.

Appendix A

FARMER'S PRAIRIE CREEK FLOOD CONTROL

New storm sewers and water main are proposed along the south side of Dempster Street between I-294 to and Vernon Avenue (1 block west of Luther Lane). Storm sewer improvements will include: a new 58” x 91” storm sewer from east of I-294 (near the Dempster On-Ramp) to Elliot Avenue, a 48” x 76” storm sewer from Elliot Avenue to Dee Road, and a 60” storm sewer from Dee Road to east of Vernon Avenue. A new 10” water main will be installed from east of I-294 to Potter Road. The diagram below (not to scale) depicts the flood control project in it is entirety, with the work location impacting the Pulse Dempster Line highlighted in purple.



A survey was prepared as part of the flood control project and provided to Pace. As a result of this data availability, detailed station site assessments were prepared for proposed Pulse station locations Potter, Dee, and Luther. The site assessments are summarized in the Preliminary Station Location and Site Selection Options Technical Memorandum (Chapter 5). Preliminary conceptual station layouts are presented in the following pages.

Appendix B

HISTORIC RESOURCES REVIEW LOCATION DATA

Bolded text highlights HARGIS properties with multiple street addresses associated with a single listed property and the single street address used to geocode the property.

Rows with grey banded rows highlights HARGIS properties with misspelled or otherwise incorrect street addresses and the edited street address used to geocode the property.

HISTORIC RESOURCES REVIEW LOCATION DATA

ID #	HARGIS Street Address	Cook County Street Address	National Register (NR) Status	HARGIS Reference #
1	707 S. Center	707 Center St	Undetermined	153496
2	766 Graceland Avenue	766 Graceland Ave	Determined eligible for the NR	153500
3	1085 W. Walnut	1085 E Walnut Ave	Undetermined	153503
4	725 Des Plaines River Road	725 S Des Plaines River Rd	Undetermined	153651
5	Des Plaines River Rd. at Miner	S Des Plaines River Rd & Miner St	Undetermined	153652
6	1702 Mill St.	1702 Mill St	Undetermined	153655
7	796 S. Center	796 Center St	Undetermined	153658
8	1700 Asbury	1700 Asbury Ave	Part of a NR Historic District	154250
9	1520 Chicago	1520 Chicago Ave	Undetermined	154267
10	918 Clark	918 Clark St	Undetermined	154270
11	816 Clark St.	816 Clark St	Undetermined	154271
12	1322 Davis	1322 Davis St	Part of a NR Historic District	154287
13	1416 Elinor Place	1416 Elinor Pl	Part of a NR Historic District	154292
14	1308 Elmwood	1308 Elmwood Ave	Undetermined	154294
15	1207 Greenleaf	1207 Greenleaf St	Part of a NR Historic District	154325
16	1215 Lake	1215 Lake St	Part of a NR Historic District	154395
17	1419 Lake	1419 Lake St	Undetermined	154398
18	1613 Lake	1613 Lake St	Undetermined	154399
19	1802 Maple	1802 Maple Ave	Undetermined	154424
20	1028 Clark	1028 Clark St	Undetermined	154426
21	1450-1456 Oak & 1101-1111 Lake	1450 Oak Ave	Undetermined	154445
22	1700 Ridge	1700 Ridge Ave	Part of a NR Historic District	154482
23	1578 Sherman	1578 Sherman Ave	Undetermined	154519
24	1830 Sherman	1830 Sherman Ave	Undetermined	154521

ID #	HARGIS Street Address	Cook County Street Address	National Register (NR) Status	HARGIS Reference #
25	1604 Chicago (601 Davis)	1604 Chicago Ave	Undetermined	154559
26	1637 Chicago Ave.	1637 Chicago Ave	Undetermined	154560
27	614 Clark	614 Clark St	Undetermined	154565
28	711 Elgin Rd.	711 Elgin Rd	Undetermined	154577
29	1423 Elmwood	1423 Elmwood Ave	Undetermined	154578
30	1426 Elmwood	1426 Elmwood Ave	Undetermined	154579
31	1033 Greenwood	1033 Greenwood St	Part of a NR Historic District	154604
32	610 Grove	610 Grove St	Part of a NR Historic District	154606
33	1032 Lake	1032 Lake St	Undetermined	154625
34	1745 Orrington	1745 Orrington Ave	Undetermined	154652
35	1424 Wesley	1424 Wesley Ave	Undetermined	154698
36	1632 Wesley	1632 Wesley Ave	Part of a NR Historic District	154700
37	1404 Ashland	1404 Ashland Ave	Undetermined	154714
38	1702 Chicago Ave.	1702 Chicago Ave	Entered in the NR	154743
39	1724 Chicago Ave.	1724 Chicago Ave	Undetermined	154745
40	1325 Church	1325 Church St	Part of a NR Historic District	154748
41	619 Clark	619 Clark St	Undetermined	155752
42	1400 Davis St.	1400 Davis St	Part of a NR Historic District	155788
43	2100 Dempster	2100 Dempster St	Undetermined	155799
44	1306 Dewey	1306 Dewey Ave	Undetermined	155800
45	1316 Elmwood	1316 Elmwood Ave	Undetermined	155811
46	1325 Elmwood	1325 Elmwood Ave	Undetermined	155812
47	1325 Greenwood	1325 Greenwood St	Part of a NR Historic District	155875
48	1326 Greenwood	1326 Greenwood St	Part of a NR Historic District	155876
49	1333 Greenwood	1333 Greenwood St	Part of a NR Historic District	155877
50	1109 Grove	1109 Grove St	Part of a NR Historic District	155880
51	1112 Grove	1112 Grove St	Part of a NR Historic District	155881
52	1115 Grove	1115 Grove St	Part of a NR Historic District	155882
53	1313 Lake	1313 Lake St	Part of a NR Historic District	155988
54	1505 Lake	1505 Lake St	Undetermined	155990

ID #	HARGIS Street Address	Cook County Street Address	National Register (NR) Status	HARGIS Reference #
55	1621 Lake	1621 Lake St	Undetermined	155991
56	1712 Oak	1712 Oak Ave	Undetermined	156111
57	1450 Pitner	1450 Pitner Ave	Undetermined	156141
58	1407 Ridge	1407 Ridge Ave	Part of a NR Historic District	156158
59	1563 Sherman	1563 Sherman Ave	Undetermined	156211
60	8970 N. Milwaukee Ave.	8970 N Milwaukee Ave	Undetermined	157434
61	901 Davis	901 Davis St	Undetermined	163565
62	1000 Grove	1000 Grove St	Undetermined	163566
63	1314 Ridge Ave.	1314 Ridge Ave	Entered in the NR	200192
64	1703--1713 Ridge Ave.	1703 Ridge Ave	Entered in the NR	200193
65	1730 Chicago Ave.	1730 Chicago Ave	Entered in the NR	200495
66	5001 Dempster St.	5001 Dempster St	Entered in the NR	201160
67	1209-1217 Maple Ave.	1209 Maple Ave	Entered in the NR	201241
68	1316 Maple Ave.	1316 Maple Ave	Entered in the NR	201244
69	1401-1407 Elmwood Ave.	1401 Elmwood Ave	Entered in the NR	201245
70	1505-1509 Oak Ave.	1505 Oak Ave	Entered in the NR	201258
71	1627-1645 Ridge Ave., 1124-1136 Church St.	1627 Ridge Ave	Entered in the NR	201276
72	1115-1133 Maple Ave.	1115 Maple Ave	Entered in the NR	201499
73	1615-1625 Ridge Ave.	1615 Ridge Ave	Entered in the NR	201504
74	1112 Grove St.	1112 Grove St	Entered in the NR	201506
75	1603-1611 Ridge Ave. and 1125 Davis St.	1603 Ridge Ave	Entered in the NR	201507
76	1450--1456 Oak Ave. and 1101-1111 Lake St.	1450 Oak Ave	Entered in the NR	201539
77	614 Clark St.	614 Clark St	Entered in the NR	201545
78	1112 Asbury Ave.	1112 Asbury Ave	Part of a NR Historic District - contributing	208102
79	1117 Asbury Ave.	1117 Asbury Ave	Part of a NR Historic District - contributing	208103
80	1120 Asbury Ave.	1120 Asbury Ave	Part of a NR Historic District - contributing	208104
81	1124 Asbury Ave.	1124 Asbury Ave	Part of a NR Historic District - contributing	208105
82	1141 Asbury Ave.	1141 Asbury Ave	Part of a NR Historic District - contributing	208106

ID #	HARGIS Street Address	Cook County Street Address	National Register (NR) Status	HARGIS Reference #
83	1231 Asbury Ave.	1231 Asbury Ave	Part of a NR Historic District - contributing	208107
84	1232 Asbury Ave.	1232 Asbury Ave	Part of a NR Historic District - contributing	208108
85	1239 Asbury Ave.	1239 Asbury Ave	Part of a NR Historic District - contributing	208109
86	1404 Asbury Ave.	1404 Asbury Ave	Part of a NR Historic District - contributing	208115
87	1454 Asbury Ave.	1454 Asbury Ave	Part of a NR Historic District - contributing	208116
88	1459 Asbury Ave.	1459 Asbury Ave	Part of a NR Historic District - contributing	208117
89	1460 Asbury Ave.	1460 Asbury Ave	Part of a NR Historic District - contributing	208118
90	1501 Asbury Ave.	1501 Asbury Ave	Part of a NR Historic District - contributing	208119
91	1512 Asbury Ave.	1512 Asbury Ave	Part of a NR Historic District - contributing	208120
92	1513 Asbury Ave.	1513 Asbury Ave	Part of a NR Historic District - contributing	208121
93	1710 Asbury Ave.	1710 Asbury Ave	Part of a NR Historic District - contributing	208122
94	1714 Asbury Ave.	1714 Asbury Ave	Part of a NR Historic District - contributing	208123
95	1720 Asbury Ave.	1720 Asbury Ave	Part of a NR Historic District - contributing	208124
96	1723 Asbury Ave.	1723 Asbury Ave	Part of a NR Historic District - contributing	208125
97	1724 Asbury Ave.	1724 Asbury Ave	Part of a NR Historic District - contributing	208126
98	1733 Asbury Ave.	1733 Asbury Ave	Part of a NR Historic District - contributing	208127
99	1734 Asbury Ave.	1734 Asbury Ave	Part of a NR Historic District - contributing	208128
100	1742 Asbury Ave.	1742 Asbury Ave	Part of a NR Historic District - contributing	208129
101	1800 Asbury Ave.	1800 Asbury Ave	Part of a NR Historic District - contributing	208130
102	1812 Asbury Ave.	1812 Asbury Ave	Part of a NR Historic District - contributing	208131
103	1817 Asbury Ave.	1817 Asbury Ave	Part of a NR Historic District - contributing	208132
104	1833 Asbury Ave.	1833 Asbury Ave	Part of a NR Historic District - contributing	208133
105	1416 Church Street	1416 Church St	Part of a NR Historic District - contributing	208145
106	1215 Church Street	1215 Church St	Part of a NR Historic District - contributing	208146
107	1312 Church Street	1312 Church St	Part of a NR Historic District - contributing	208147
108	1316 Church Street	1316 Church St	Part of a NR Historic District - contributing	208148
109	1416 Church Street	1416 Church St	Part of a NR Historic District - contributing	208151
110	1220 Crain Street	1220 Crain St	Part of a NR Historic District - contributing	208152
111	1233 Crain Street	1233 Crain St	Part of a NR Historic District - contributing	208153
112	1319 Crain Street	1319 Crain St	Part of a NR Historic District - contributing	208154

ID #	HARGIS Street Address	Cook County Street Address	National Register (NR) Status	HARGIS Reference #
113	1300 Davis Street	1300 Davis St	Part of a NR Historic District - contributing	208155
114	1302 Davis Street	1302 Davis St	Part of a NR Historic District - contributing	208156
115	1306 Davis Street	1306 Davis St	Part of a NR Historic District - contributing	208157
116	1315 Davis Street	1315 Davis St	Part of a NR Historic District - contributing	208158
117	1316 Davis Street	1316 Davis St	Part of a NR Historic District - contributing	208159
118	1132 Davis Street	1132 Davis St	Part of a NR Historic District - contributing	208160
119	1401 Davis Street	1401 Davis St	Part of a NR Historic District - contributing	208161
120	1606 Wesley Ave.	1606 Wesley Ave	Part of a NR Historic District - contributing	208162
121	910 Dempster Street	910 Dempster St	Part of a NR Historic District - contributing	208163
122	1311 Dempster Ave.	1311 Dempster St	Part of a NR Historic District - contributing	208164
123	1415 Elinor Place	1415 Elinor Pl	Part of a NR Historic District - contributing	208165
124	1416 Elinor Place	1416 Elinor Pl	Part of a NR Historic District - contributing	208166
125	1207 Greenleaf Street	1207 Greenleaf St	Part of a NR Historic District - contributing	208168
126	1215 Greenleaf Street	1215 Greenleaf St	Part of a NR Historic District - contributing	208169
127	1015 Greenwood Street	1015 Greenwood St	Part of a NR Historic District - contributing	208170
128	1022 Greenwood Street	1022 Greenwood St	Part of a NR Historic District - contributing	208171
129	1112 Greenwood Street	1112 Greenwood St	Part of a NR Historic District - contributing	208172
130	1100 Lake Street	1100 Lake St	Part of a NR Historic District - contributing	208173
131	1316 Lake Street	1316 Lake St	Part of a NR Historic District - contributing	208174
132	1319 Lake Street	1319 Lake St	Part of a NR Historic District - contributing	208175
133	1322 Lake Street	1322 Lake St	Part of a NR Historic District - contributing	208176
134	1327 Lake Street	1327 Lake St	Part of a NR Historic District - contributing	208177
135	1330 Lake Street	1330 Lake St	Part of a NR Historic District - contributing	208178
136	1403 Maple Ave.	1403 Maple Ave	Part of a NR Historic District - contributing	208185
137	1411 Maple	1411 Maple Ave	Part of a NR Historic District	208186
138	1415 Maple	1415 Maple Ave	Part of a NR Historic District	208187
139	1425 Maple Ave.	1425 Maple Ave	Part of a NR Historic District - contributing	208188
140	1106 Oak Ave.	1106 Oak Ave	Part of a NR Historic District - contributing	208190
141	1119 Oak Ave.	1119 Oak Ave	Part of a NR Historic District - contributing	208191
142	1115 Oak Ave.	1115 Oak Ave	Part of a NR Historic District - contributing	208192

ID #	HARGIS Street Address	Cook County Street Address	National Register (NR) Status	HARGIS Reference #
143	1118 Oak Ave.	1118 Oak Ave	Part of a NR Historic District - contributing	208193
144	1401 Oak Ave.	1401 Oak Ave	Part of a NR Historic District - contributing	208195
145	1417 Oak Ave.	1417 Oak Ave	Part of a NR Historic District - contributing	208196
146	1421 Oak Ave.	1421 Oak Ave	Part of a NR Historic District - contributing	208198
147	1560 Oak Ave.	1560 Oak Ave	Part of a NR Historic District - contributing	208199
148	1100 Ridge Ave.	1100 Ridge Ave	Part of a NR Historic District - contributing	208207
149	1101 Ridge Ave.	1101 Ridge Ave	Part of a NR Historic District - contributing	208208
150	1123 Ridge Ave	1123 Ridge Ave	Part of a NR Historic District - contributing	208209
151	1128 Ridge Ave.	1128 Ridge Ave	Part of a NR Historic District - contributing	208210
152	1307 Ridge Ave.	1307 Ridge Ave	Part of a NR Historic District - contributing	208214
153	1313 Ridge Ave.	1313 Ridge Ave	Part of a NR Historic District - contributing	208215
154	1456 Ridge Ave.	1456 Ridge Ave	Part of a NR Historic District - contributing	208217
155	1461 Ridge Ave.	1461 Ridge Ave	Part of a NR Historic District - contributing	208218
156	1462 Ridge Ave.	1462 Ridge Ave	Part of a NR Historic District - contributing	208219
157	1622 Ridge Ave.	1622 Ridge Ave	Part of a NR Historic District - contributing	208221
158	1628 Ridge Ave.	1628 Ridge Ave	Part of a NR Historic District - contributing	208222
159	1601 Wesley Ave.	1601 Wesley Ave	Part of a NR Historic District - contributing	208223
160	1606 Wesley Ave.	1606 Wesley Ave	Part of a NR Historic District - contributing	208224
161	1612 Wesley Ave.	1612 Wesley Ave	Part of a NR Historic District - contributing	208225
162	1621 Wesley Ave.	1621 Wesley Ave	Part of a NR Historic District - contributing	208226
163	1624 Wesley Ave.	1624 Wesley Ave	Part of a NR Historic District - contributing	208227
164	1627 Wesley Ave.	1627 Wesley Ave	Part of a NR Historic District - contributing	208228
165	1743 Wesley Ave.	1743 Wesley Ave	Part of a NR Historic District - contributing	208229
166	1632 Wesley Ave.	1632 Wesley Ave	Part of a NR Historic District - contributing	208231
167	1127 Asbury Ave.	1127 Asbury Ave	Part of a NR Historic District - contributing	208232
168	1133 Asbury Ave.	1133 Asbury Ave	Part of a NR Historic District - contributing	208233
169	1135 Asbury Ave.	1135 Asbury Ave	Part of a NR Historic District - contributing	208234
170	1144 Asbury Ave.	1144 Asbury Ave	Part of a NR Historic District - contributing	208235
171	1145 Asbury Ave.	1145 Asbury Ave	Part of a NR Historic District - contributing	208236
172	1204 Asbury Ave.	1204 Asbury Ave	Part of a NR Historic District - contributing	208237

ID #	HARGIS Street Address	Cook County Street Address	National Register (NR) Status	HARGIS Reference #
173	1218 Asbury Ave.	1218 Asbury Ave	Part of a NR Historic District - contributing	208238
174	1222 Asbury Ave.	1222 Asbury Ave	Part of a NR Historic District - contributing	208239
175	1236 Asbury Ave.	1236 Asbury Ave	Part of a NR Historic District - contributing	208240
176	1242 Asbury Ave.	1242 Asbury Ave	Part of a NR Historic District - contributing	208241
177	1250 Asbury Ave.	1250 Asbury Ave	Part of a NR Historic District - contributing	208242
178	1410 Asbury Ave.	1410 Asbury Ave	Part of a NR Historic District - contributing	208246
179	1416 Asbury Ave.	1416 Asbury Ave	Part of a NR Historic District - contributing	208247
180	1430 Asbury Ave.	1430 Asbury Ave	Part of a NR Historic District - contributing	208248
181	1432 Asbury Ave.	1432 Asbury Ave	Part of a NR Historic District - contributing	208249
182	1500 Asbury Ave.	1500 Asbury Ave	Part of a NR Historic District - contributing	208250
183	1509 Asbury Ave.	1509 Asbury Ave	Part of a NR Historic District - contributing	208251
184	1564 Asbury Ave.	1564 Asbury Ave	Part of a NR Historic District - contributing	208252
185	1570 Asbury Ave.	1570 Asbury Ave	Part of a NR Historic District - contributing	208253
186	1574 Asbury Ave.	1574 Asbury Ave	Part of a NR Historic District - contributing	208254
187	1700 Asbury Ave.	1700 Asbury Ave	Part of a NR Historic District - contributing	208255
188	1713 Asbury Ave.	1713 Asbury Ave	Part of a NR Historic District - contributing	208256
189	1719 Asbury Ave.	1719 Asbury Ave	Part of a NR Historic District - contributing	208257
190	1735 Asbury Ave.	1735 Asbury Ave	Part of a NR Historic District - contributing	208258
191	1801 Asbury Ave.	1801 Asbury Ave	Part of a NR Historic District - contributing	208259
192	1820 Asbury Ave.	1820 Asbury Ave	Part of a NR Historic District - contributing	208260
193	1821 Asbury Ave.	1821 Asbury Ave	Part of a NR Historic District - contributing	208261
194	1825 Asbury Ave.	1825 Asbury Ave	Part of a NR Historic District - contributing	208262
195	1827 Asbury Ave.	1827 Asbury Ave	Part of a NR Historic District - contributing	208263
196	1832 Asbury Ave.	1832 Asbury Ave	Part of a NR Historic District - contributing	208264
197	1837 Asbury Ave.	1837 Asbury Ave	Part of a NR Historic District - contributing	208265
198	1214 Church Street	1214 Church St	Part of a NR Historic District - contributing	208276
199	1217 Church Street	1217 Church St	Part of a NR Historic District - contributing	208277
200	1314 Church Street	1314 Church St	Part of a NR Historic District - contributing	208278
201	1414 Church Street	1414 Church St	Part of a NR Historic District - contributing	208279
202	1415 Church Street	1415 Church St	Part of a NR Historic District - contributing	208280

ID #	HARGIS Street Address	Cook County Street Address	National Register (NR) Status	HARGIS Reference #
203	1332 Davis Street	1332 Davis St	Part of a NR Historic District - contributing	208282
204	1326 Davis Street	1326 Davis St	Part of a NR Historic District - contributing	208283
205	1411 Davis Street	1411 Davis St	Part of a NR Historic District - contributing	208284
206	1415 Davis Street	1415 Davis St	Part of a NR Historic District - contributing	208285
207	1414 Davis Street	1414 Davis St	Part of a NR Historic District - contributing	208286
208	1420 Davis Street	1420 Davis St	Part of a NR Historic District - contributing	208287
209	1425 Davis Street	1425 Davis St	Part of a NR Historic District - contributing	208288
210	1030 Dempster Street	1030 Dempster St	Part of a NR Historic District - contributing	208289
211	1402 Elinor Place	1402 Elinor Pl	Part of a NR Historic District - contributing	208290
212	1421 Elinor Place	1421 Elinor Pl	Part of a NR Historic District - contributing	208291
213	1424 Elinor Place	1424 Elinor Pl	Part of a NR Historic District - contributing	208292
214	1225 Greenleaf Street	1225 Greenleaf St	Part of a NR Historic District - contributing	208293
215	925 Greenwood Street	925 Greenwood St	Part of a NR Historic District - contributing	208294
216	1004 Greenwood Street	1004 Greenwood St	Part of a NR Historic District - contributing	208295
217	1021 Greenwood Street	1021 Greenwood St	Part of a NR Historic District - contributing	208296
218	1027 Greenwood Street	1027 Greenwood St	Part of a NR Historic District - contributing	208297
219	1028 Greenwood Street	1028 Greenwood St	Part of a NR Historic District - contributing	208298
220	1104 Grenwood Street	1104 Greenwood St	Part of a NR Historic District - contributing	208299
221	1314 Greenwood Street	1314 Greenwood St	Part of a NR Historic District - contributing	208300
222	1109 Grove Street	1109 Grove St	Part of a NR Historic District - contributing	208301
223	1111 Grove Street	1111 Grove St	Part of a NR Historic District - contributing	208302
224	1115 Grove Street	1115 Grove St	Part of a NR Historic District - contributing	208303
225	1012 Lake Street	1012 Lake St	Part of a NR Historic District - contributing	208304
226	1110 Lake Street	1110 Lake St	Part of a NR Historic District - contributing	208305
227	1112 Lake Street	1112 Lake St	Part of a NR Historic District - contributing	208306
228	1115 Lake Street	1115 Lake St	Part of a NR Historic District - contributing	208307
229	1118 Lake Street	1118 Lake St	Part of a NR Historic District - contributing	208308
230	1120 Lake Street	1120 Lake St	Part of a NR Historic District - contributing	208310
231	1313 Lake Street	1313 Lake St	Part of a NR Historic District - contributing	208311
232	1317 Lyons Street	1317 Lyons St	Part of a NR Historic District - contributing	208317

ID #	HARGIS Street Address	Cook County Street Address	National Register (NR) Status	HARGIS Reference #
233	1421 Maple Ave.	1421 Maple Ave	Part of a NR Historic District - contributing	208331
234	1223 Oak Ave.	1223 Oak Ave	Part of a NR Historic District - contributing	208332
235	1229 Oak Ave.	1229 Oak Ave	Part of a NR Historic District - contributing	208333
236	1110 Ridge Ave.	1110 Ridge Ave	Part of a NR Historic District - contributing	208347
237	1131 Ridge Ave.	1131 Ridge Ave	Part of a NR Historic District - contributing	208348
238	1147 Ridge Ave.	1147 Ridge Ave	Part of a NR Historic District - contributing	208349
239	1319 Ridge Ave.	1319 Ridge Ave	Part of a NR Historic District - contributing	208353
240	1333 Ridge Ave.	1333 Ridge Ave	Part of a NR Historic District - contributing	208354
241	1425 Ridge Ave.	1425 Ridge Ave	Part of a NR Historic District - contributing	208355
242	1431 Ridge Ave.	1431 Ridge Ave	Part of a NR Historic District - contributing	208356
243	1453 Ridge Ave.	1453 Ridge Ave	Part of a NR Historic District - contributing	208357
244	1571 Wesley Ave.	1571 Wesley Ave	Part of a NR Historic District - contributing	208359
245	1584 Wesley Ave.	1584 Wesley Ave	Part of a NR Historic District - contributing	208360
246	1710 Wesley Ave.	1710 Wesley Ave	Part of a NR Historic District - contributing	208361
247	1721 Wesley Ave.	1721 Wesley Ave	Part of a NR Historic District - contributing	208362
248	1724 Wesley Ave.	1724 Wesley Ave	Part of a NR Historic District - contributing	208363
249	1727 Wesley Ave.	1727 Wesley Ave	Part of a NR Historic District - contributing	208364
250	1731 Wesley Ave.	1731 Wesley Ave	Part of a NR Historic District - contributing	208365
251	1735 Wesley Ave.	1735 Wesley Ave	Part of a NR Historic District - contributing	208366
252	1745 Wesley Ave.	1745 Wesley Ave	Part of a NR Historic District - contributing	208367
253	1314 Wilder Street	1314 Wilder St	Part of a NR Historic District - contributing	208368
254	1240 Asbury Ave.	1240 Asbury Ave	Part of a NR Historic District - non-contributing	208369
255	1426 Asbury Ave.	1426 Asbury Ave	Part of a NR Historic District - non-contributing	208370
256	1620 Asbury Ave.	1620 Asbury Ave	Part of a NR Historic District - non-contributing	208371
257	1625 Asbury Ave.	1625 Asbury Ave	Part of a NR Historic District - non-contributing	208372
258	1629 Asbury Ave.	1629 Asbury Ave	Part of a NR Historic District - non-contributing	208373
259	1633 Asbury Ave.	1633 Asbury Ave	Part of a NR Historic District - non-contributing	208374
260	1807 Asbury Ave.	1807 Asbury Ave	Part of a NR Historic District - non-contributing	208375
261	1809 Asbury Ave.	1809 Asbury Ave	Part of a NR Historic District - non-contributing	208376
262	1815 Asbury Ave.	1815 Asbury Ave	Part of a NR Historic District - non-contributing	208377

ID #	HARGIS Street Address	Cook County Street Address	National Register (NR) Status	HARGIS Reference #
263	1828 Asbury Ave.	1828 Asbury Ave	Part of a NR Historic District - non-contributing	208378
264	1841 Asbury Ave.	1841 Asbury Ave	Part of a NR Historic District - non-contributing	208379
265	1843 Asbury Ave.	1843 Asbury Ave	Part of a NR Historic District - non-contributing	208380
266	1411 Church Street	1411 Church St	Part of a NR Historic District - non-contributing	208386
267	1011 Crain Street	1011 Crain St	Part of a NR Historic District - non-contributing	208387
268	1016 Dempster Street	1016 Dempster St	Part of a NR Historic District - non-contributing	208388
269	1020 Dempster Street	1020 Dempster St	Part of a NR Historic District - non-contributing	208389
270	1024 Dempster Street	1024 Dempster St	Part of a NR Historic District - non-contributing	208390
271	1028 Dempster Street	1028 Dempster St	Part of a NR Historic District - non-contributing	208391
272	1104 Dempster Street	1104 Dempster St	Part of a NR Historic District - non-contributing	208393
273	1106 Dempster Street	1106 Dempster St	Part of a NR Historic District - non-contributing	208394
274	1221 Greenleaf Street	1221 Greenleaf St	Part of a NR Historic District - non-contributing	208396
275	1215 Lake Street	1215 Lake St	Part of a NR Historic District - non-contributing	208397
276	1323 Lake Street	1323 Lake St	Part of a NR Historic District - non-contributing	208398
277	1217 Oak Ave.	1217 Oak Ave	Part of a NR Historic District - non-contributing	208402
278	1219 Oak Ave.	1219 Oak Ave	Part of a NR Historic District - non-contributing	208403
279	1224 Oak Ave.	1224 Oak Ave	Part of a NR Historic District - non-contributing	208404
280	1225 Oak Ave.	1225 Oak Ave	Part of a NR Historic District - non-contributing	208405
281	1228 Oak Ave.	1228 Oak Ave	Part of a NR Historic District - non-contributing	208406
282	1231 Oak Ave.	1231 Oak Ave	Part of a NR Historic District - non-contributing	208407
283	1234 Oak Ave.	1234 Oak Ave	Part of a NR Historic District - non-contributing	208408
284	1236 Oak Ave.	1236 Oak Ave	Part of a NR Historic District - non-contributing	208410
285	1239 Oak Ave.	1239 Oak Ave	Part of a NR Historic District - non-contributing	208412
286	1139 Ridge Ave.	1139 Ridge Ave	Part of a NR Historic District - non-contributing	208415
287	1457 Ridge Ave.	1457 Ridge Ave	Part of a NR Historic District - non-contributing	208417
288	1577 Wesley Ave.	1577 Wesley Ave	Part of a NR Historic District - non-contributing	208418
289	1618 Wesley Ave.	1618 Wesley Ave	Part of a NR Historic District - non-contributing	208419
290	1702 Wesley Ave.	1702 Wesley Ave	Part of a NR Historic District - non-contributing	208420
291	1715 Wesley Ave.	1715 Wesley Ave	Part of a NR Historic District - non-contributing	208421
292	1720 Wesley Ave.	1720 Wesley Ave	Part of a NR Historic District - non-contributing	208422

ID #	HARGIS Street Address	Cook County Street Address	National Register (NR) Status	HARGIS Reference #
293	1123 Asbury Ave.	1123 Asbury Ave	Part of a NR Historic District - non-contributing	208423
294	1212 Asbury Ave.	1212 Asbury Ave	Part of a NR Historic District - non-contributing	208424
295	1225 Asbury Ave.	1225 Asbury Ave	Part of a NR Historic District - non-contributing	208425
296	1418 Asbury Ave.	1418 Asbury Ave	Part of a NR Historic District - non-contributing	208426
297	1464 Asbury Ave.	1464 Asbury Ave	Part of a NR Historic District - non-contributing	208427
298	1510 Asbury Ave.	1510 Asbury Ave	Part of a NR Historic District - non-contributing	208428
299	1550 Asbury Ave.	1550 Asbury Ave	Part of a NR Historic District - non-contributing	208429
300	1560 Asbury Ave.	1560 Asbury Ave	Part of a NR Historic District - non-contributing	208430
301	1610 Asbury Ave.	1610 Asbury Ave	Part of a NR Historic District - non-contributing	208431
302	1616 Asbury Ave.	1616 Asbury Ave	Part of a NR Historic District - non-contributing	208432
303	1202 Crain Street	1202 Crain St	Part of a NR Historic District - non-contributing	208435
304	1204 Crain Street	1204 Crain St	Part of a NR Historic District - non-contributing	208436
305	1205 Crain Street	1205 Crain St	Part of a NR Historic District - non-contributing	208437
306	1206 Crain Street	1206 Crain St	Part of a NR Historic District - non-contributing	208438
307	1212 Crain Street	1212 Crain St	Part of a NR Historic District - non-contributing	208439
308	1201 Croft Lane	1201 Croft Ln	Part of a NR Historic District - non-contributing	208440
309	1206 Croft Lane	1206 Croft Ln	Part of a NR Historic District - non-contributing	208441
310	1212 Croft Lane	1212 Croft Ln	Part of a NR Historic District - non-contributing	208442
311	1215 Croft Lane	1215 Croft Ln	Part of a NR Historic District - non-contributing	208443
312	1301 Davis Street	1301 Davis St	Part of a NR Historic District - non-contributing	208444
313	1311 Davis Street	1311 Davis St	Part of a NR Historic District - non-contributing	208445
314	1314 Davis Street	1314 Davis St	Part of a NR Historic District - non-contributing	208446
315	1421 Davis Street	1421 Davis St	Part of a NR Historic District - non-contributing	208447
316	1211 Greenleaf Street	1211 Greenleaf St	Part of a NR Historic District - non-contributing	208449
317	1005 Greenwood Street	1005 Greenwood St	Part of a NR Historic District - non-contributing	208450
318	1014 Greenwood Street	1014 Greenwood St	Part of a NR Historic District - non-contributing	208451
319	1018 Greenwood Street	1018 Greenwood St	Part of a NR Historic District - non-contributing	208452
320	1207 Greenwood Street	1207 Greenwood St	Part of a NR Historic District - non-contributing	208453
321	1215 Greenwood Street	1215 Greenwood St	Part of a NR Historic District - non-contributing	208454
322	1219 Greenwood Street	1219 Greenwood St	Part of a NR Historic District - non-contributing	208455

ID #	HARGIS Street Address	Cook County Street Address	National Register (NR) Status	HARGIS Reference #
323	1221 Greenwood Street	1221 Greenwood St	Part of a NR Historic District - non-contributing	208456
324	1222 Greenwood Street	1222 Greenwood St	Part of a NR Historic District - non-contributing	208457
325	1223 Greenwood Street	1223 Greenwood St	Part of a NR Historic District - non-contributing	208458
326	1225 Greenwood Street	1225 Greenwood St	Part of a NR Historic District - non-contributing	208459
327	1227 Greenwood Street	1227 Greenwood St	Part of a NR Historic District - non-contributing	208460
328	1311 Grove Street	1311 Grove St	Part of a NR Historic District - non-contributing	208461
329	1210 Lake Street	1210 Lake St	Part of a NR Historic District - non-contributing	208462
330	1218 Lake Street	1218 Lake St	Part of a NR Historic District - non-contributing	208464
331	1222 Lake Street	1222 Lake St	Part of a NR Historic District - non-contributing	208465
332	1224 Lake Street	1224 Lake St	Part of a NR Historic District - non-contributing	208466
333	1228 Lake Street	1228 Lake St	Part of a NR Historic District - non-contributing	208467
334	1400 Maple Ave.	1400 Maple Ave	Part of a NR Historic District - non-contributing	208468
335	1406 Maple Ave.	1406 Maple Ave	Part of a NR Historic District - non-contributing	208469
336	1414 Maple Ave.	1414 Maple Ave	Part of a NR Historic District - non-contributing	208470
337	1420 Maple Ave.	1420 Maple Ave	Part of a NR Historic District - non-contributing	208471
338	1400 Oak Ave.	1400 Oak Ave	Part of a NR Historic District - non-contributing	208472
339	1402 Oak Ave.	1402 Oak Ave	Part of a NR Historic District - non-contributing	208473
340	1408 Oak Ave.	1408 Oak Ave	Part of a NR Historic District - non-contributing	208474
341	1410 Oak Ave.	1410 Oak Ave	Part of a NR Historic District - non-contributing	208475
342	1111 Ridge Ave.	1111 Ridge Ave	Part of a NR Historic District - non-contributing	208485
343	1116 Ridge Ave.	1116 Ridge Ave	Part of a NR Historic District - non-contributing	208486
344	1118 Ridge Ave.	1118 Ridge Ave	Part of a NR Historic District - non-contributing	208487
345	1120 Ridge Ave.	1120 Ridge Ave	Part of a NR Historic District - non-contributing	208488
346	1330 Ridge Ave.	1330 Ridge Ave	Part of a NR Historic District - non-contributing	208492
347	1408 Ridge Ave.	1408 Ridge Ave	Part of a NR Historic District - non-contributing	208493
348	1414 Ridge Ave.	1414 Ridge Ave	Part of a NR Historic District - non-contributing	208494
349	1420 Ridge Ave.	1420 Ridge Ave	Part of a NR Historic District - non-contributing	208495
350	1426 Ridge Ave.	1426 Ridge Ave	Part of a NR Historic District - non-contributing	208496
351	1430 Ridge Ave.	1430 Ridge Ave	Part of a NR Historic District - non-contributing	208497
352	1501 Ridge Ave	1501 Ridge Ave	Part of a NR Historic District - non-contributing	208498

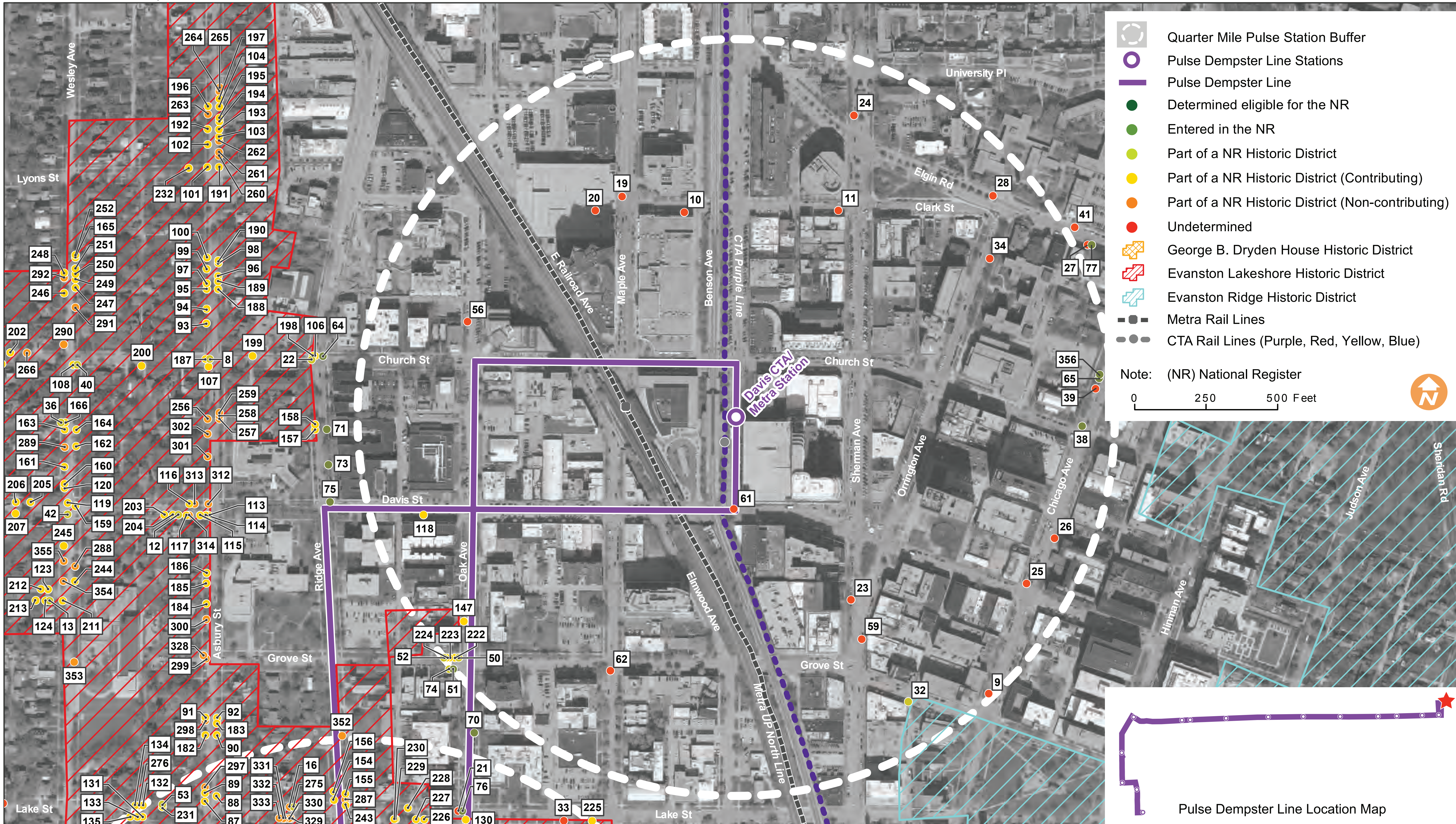
ID #	HARGIS Street Address	Cook County Street Address	National Register (NR) Status	HARGIS Reference #
353	1551 Wesley Ave.	1551 Wesley Ave	Part of a NR Historic District - non-contributing	208499
354	1570 Wesley Ave.	1570 Wesley Ave	Part of a NR Historic District - non-contributing	208500
355	1578 Wesley Ave.	1578 Wesley Ave	Part of a NR Historic District - non-contributing	208501
356	1730R Chicago Ave.	1730 Chicago Ave	Entered in the NR	219400
357	Ellinwood & Pearson	Ellinwood St & Pearson St	Undetermined	305542
358	777 Lee St.	777 Lee St	Undetermined	305543
359	1400 Wesley	1400 Wesley Ave	Undetermined	305554

Appendix C

HISTORIC RESOURCES STATION AREA MAPS

PULSE
pace

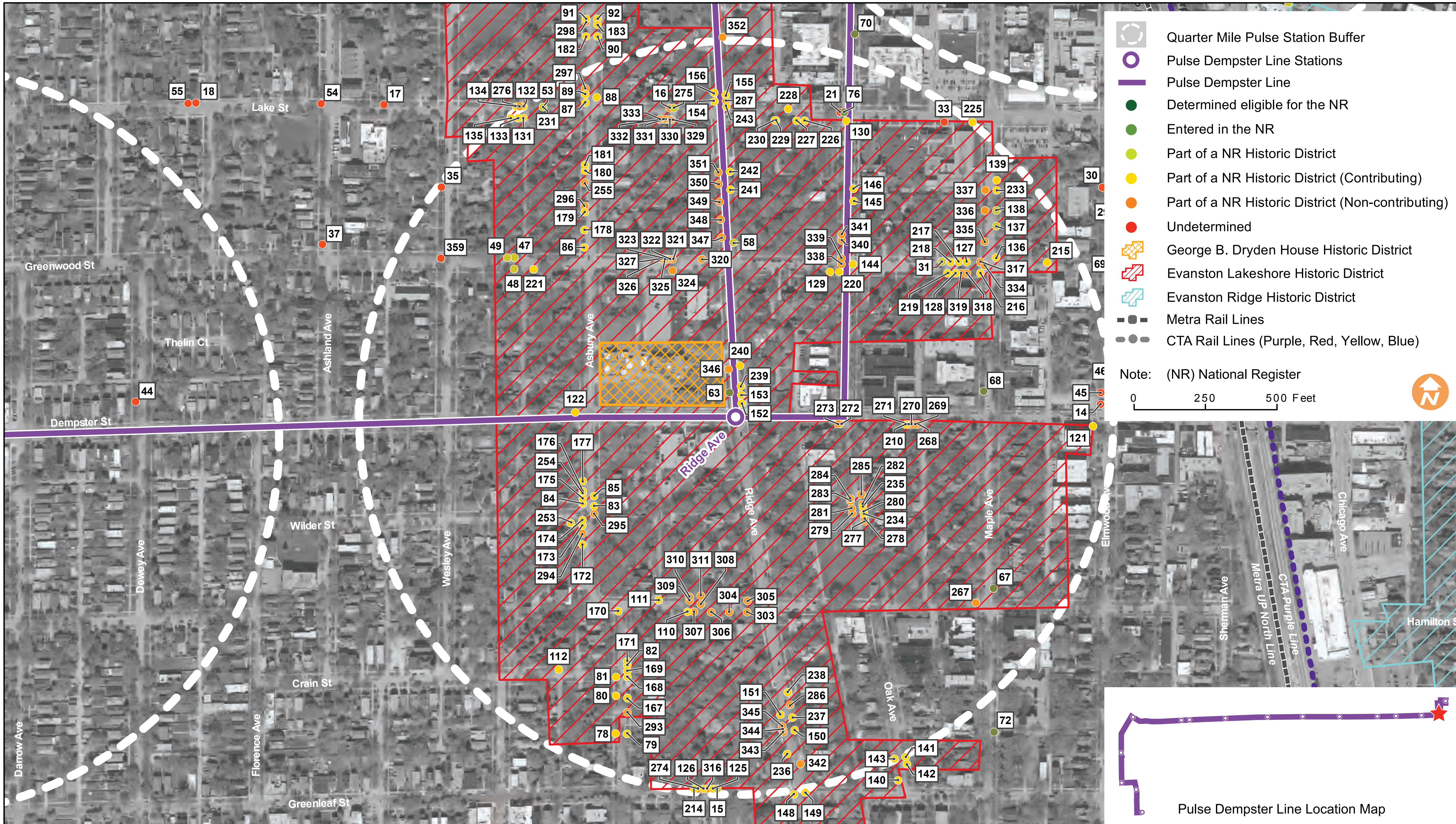
APPENDIX C-1: DAVIS CTA/METRA STATION



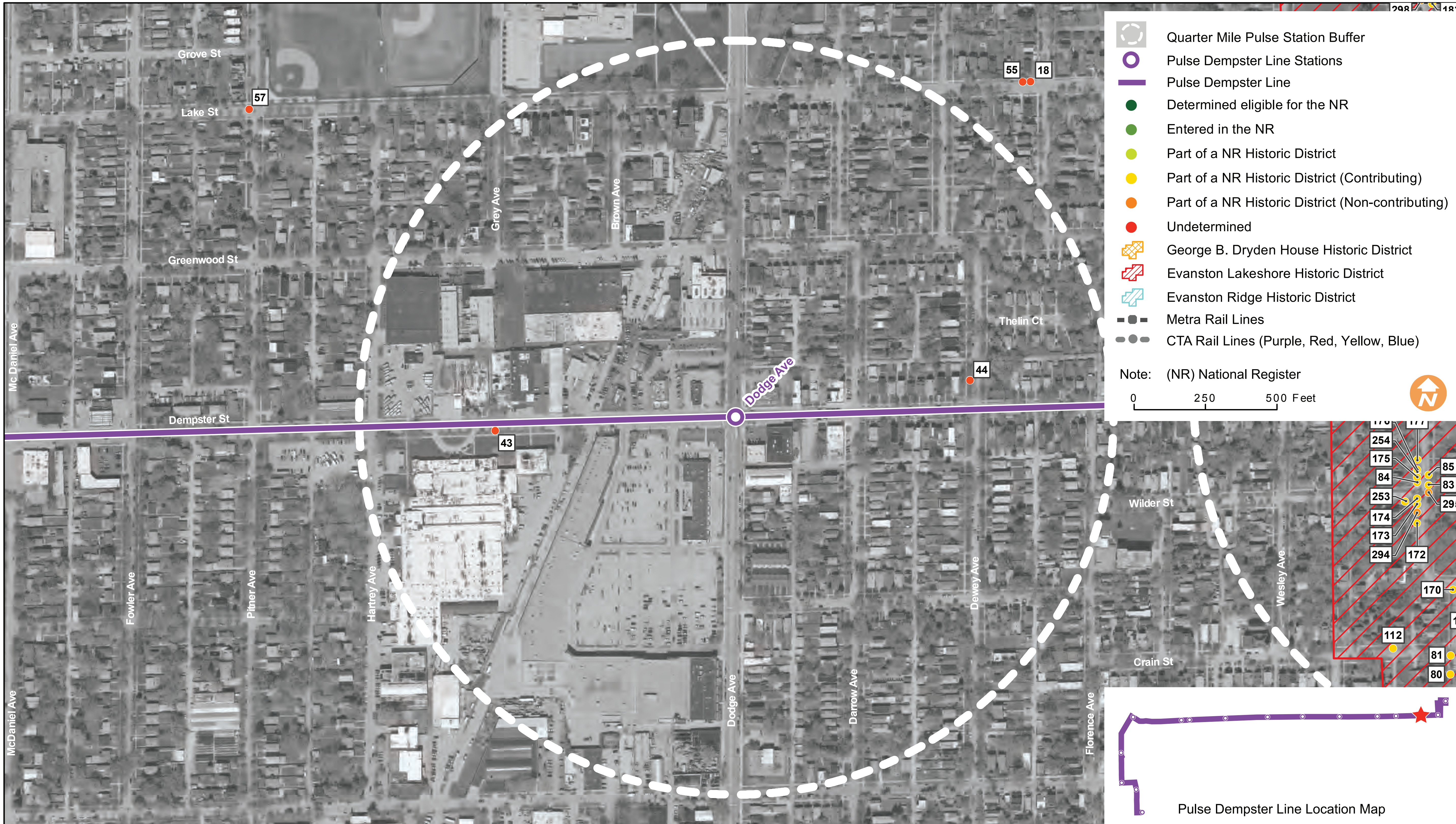
Source: Historical and Architectural Resources Geographic Information System (HARGIS). Accessed on January 7, 2016. Retrieved from http://gis.hpa.state.il.us/hargis/.
Basemap: United States Geological Survey. (2012). Accessed on January 6, 2016.

2/10/2016

APPENDIX C-2: RIDGE AVE



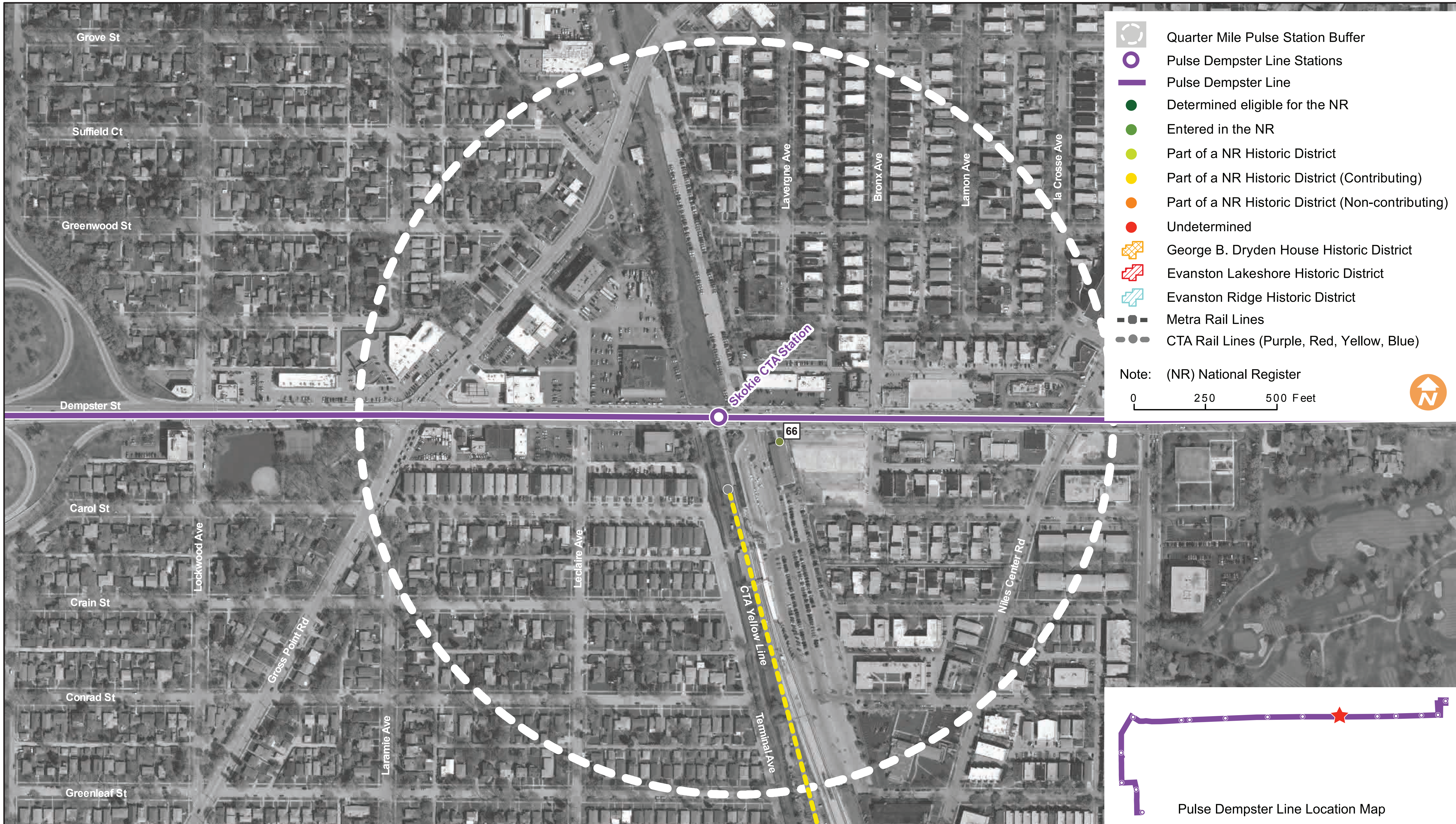
APPENDIX C-3: DODGE AVE



Source: Historical and Architectural Resources Geographic Information System (HARGIS). Accessed on January 7, 2016. Retrieved from http://gis.hpa.state.il.us/hargis/.
Basemap: United States Geological Survey. (2012). Accessed on January 6, 2016.

2/10/2016

APPENDIX C-4: SKOKIE CTA STATION



Source: Historical and Architectural Resources Geographic Information System (HARGIS). Accessed on January 7, 2016. Retrieved from http://gis.hpa.state.il.us/hargis/.
Basemap: United States Geological Survey. (2012). Accessed on January 6, 2016.

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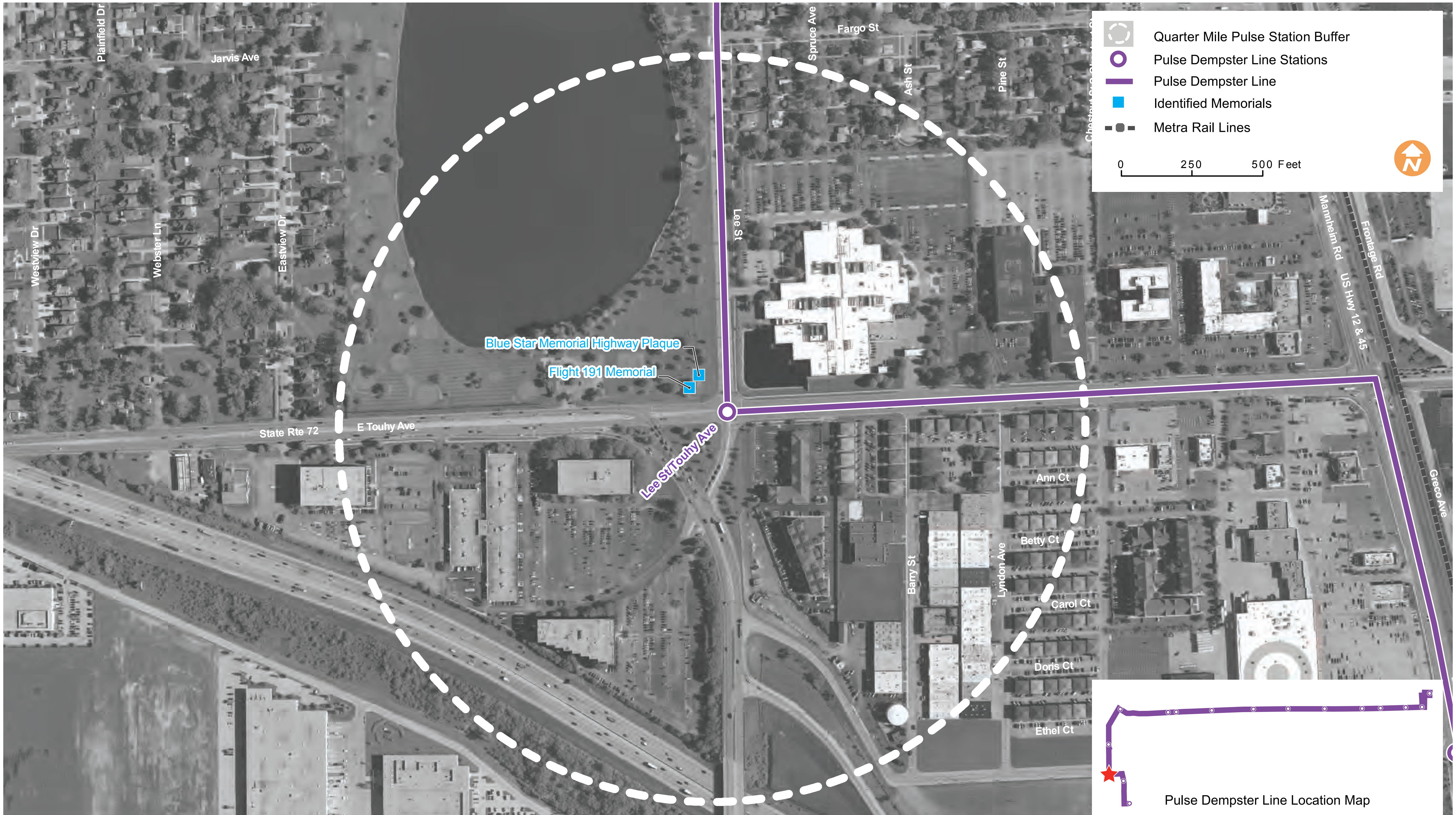
APPENDIX C-5: DES PLAINES METRA STATION

Appendix D

DES PLAINES MEMORIALS LOCATION MAP

APPENDIX D: DES PLAINES MEMORIALS LOCATION MAP



Source: Project team field visit, December 18, 2015.
Basemap: United States Geological Survey. (2012). Accessed on January 10, 2016.

2/10/2016

Appendix E

PULSE DEMPSTER LINE STATION SITE SUMMARY

PULSE DEMPSTER LINE STATION SITE SUMMARY

Station Location	TSP Intersection	Station Site	Source	Intersection Location	Municipality	Road/Site Jurisdiction	Private Property Impact Concern	Section 106 / 4(f) Concern	Included (June 2016)	Reason Excluded
Rosemont CTA†	n/a	Terminal	PMO	Terminal	Rosemont	CTA				Excluded due to capacity constraints, traffic congestion on River Road, and need for a broader facility plan
O'Hare	n/a	Terminal	Pace 2010 Study	Terminal	City of Chicago	Municipal			✓	
Mannheim/Higgins	No	EB Alternate 1	Outreach	Midblock	Des Plaines	State			✓	
		EB Alternate 2	Outreach	Near side	Rosemont	State			✓	
		WB Alternate 1	Outreach	Midblock	Rosemont	State			✓	
		WB Alternate 2	Outreach	Far side	Rosemont	State			✓	
Mannheim/Lunt	Yes	EB Alternate 1	Pace 2010 Study	Far side	Des Plaines	State				Excluded due to low ridership and community feedback
		EB Alternate 2	PMO	Near side	Des Plaines	State				Excluded due to low ridership and community feedback
		WB Alternate 1	Pace 2010 Study	Far side	Rosemont	State				Excluded due to low ridership and community feedback
Lee/Touhy	Yes	EB Alternate 1	Pace 2010 Study	Far side	Des Plaines	State				Excluded due to distance to signalized crossing and lack of direct connection to Route 221 and future Pulse Touhy Line
		EB Alternate 2	PMO	Near side	Des Plaines	State			✓	
		WB Alternate 1	PMO	Near side	Des Plaines	State		✓		Excluded due to potential 4(f) issues, operational issues, and lack of direct connection to Route 221 and future Pulse Touhy Line
		WB Alternate 2	Pace 2010 Study	Far side	Des Plaines	State			✓	
Lee-Mannheim/Oakton	No	EB Alternate 1	Pace 2010 Study	Midblock	Des Plaines	State				Site excluded due to safety concerns of midblock station
		EB Alternate 2	PMO	Far side	Des Plaines	State			✓	
		WB Alternate 1	Pace 2010 Study	Midblock	Des Plaines	State				Site excluded due to safety concerns of midblock station
		WB Alternate 2	PMO	Far side	Des Plaines	State			✓	
Lee-Mannheim/Thacker/Graceland†	OK	EB Alternate 1	PMO	Near side	Des Plaines	State				Excluded as it was contingent on extension of Dempster Line to Rosemont CTA Blue Line
		WB Alternate 1	PMO	Far side	Des Plaines	State				Excluded as it was contingent on extension of Dempster Line to

Station Location	TSP Intersection	Station Site	Source	Intersection Location	Municipality	Road/Site Jurisdiction	Private Property Impact Concern	Section 106 / 4(f) Concern	Included (June 2016)	Reason Excluded
										Rosemont CTA Blue Line
Des Plaines Metra	OK	EB Alternate 1	Pace 2010 Study	Far side	Des Plaines	State			✓	
		EB Alternate 2	Pace 2010 Study	Far side	Des Plaines	State				Excluded due to limited capacity of site
		WB Alternate 1	Pace 2010 Study	Far side	Des Plaines	State	✓		✓	
		WB Alternate 2	Pace 2010 Study	Far side	Des Plaines	State	✓		✓	
		WB Alternate 3A & 3B	PMO	Near side	Des Plaines	State			✓	
Potter (Dee Alternate)	OK	EB Alternate 1	PMO	Near side	Park Ridge	State	✓			Excluded due to property impacts, lack of ridership
		EB Alternate 2	PMO	Far side	Park Ridge	State			✓	
		WB Alternate 1	PMO	Far side	Des Plaines	State	✓		✓	
		WB Alternate 2	PMO	Near side	Maine Township	State			✓	
Dee	Yes	EB Alternate 1	PMO	Near side	Park Ridge	State			✓	
		EB Alternate 2	Pace 2010 Study	Far side	Park Ridge	State				Excluded due to infrastructure and drainage issues
		WB Alternate 1	Pace 2010 Study	Far side	Maine Township	State	✓		✓	
		WB Alternate 2	PMO	Near side	Maine Township	State			✓	
Luther†	OK	EB Alternate 1	PMO	Near side	Park Ridge	State				Station relocated from Luther to Western to serve higher ridership stop, hospital entrance, and adjacent commercial land use
		EB Alternate 2	Pace 2010 Study	Far side	Park Ridge	State				Station relocated from Luther to Western to serve higher ridership stop, hospital entrance, and adjacent commercial land use
		WB Alternate 1	Pace 2010 Study	Far side	Park Ridge	State				Station relocated from Luther to Western to serve higher ridership existing stop and commercial land use
		WB Alternate 2	PMO	Near side	Park Ridge	State				Station relocated from Luther to Western to serve higher ridership existing stop and commercial land use
Western	Yes	EB Alternate 1	PMO	Near side	Park Ridge	State	✓		✓	
		WB Alternate 1	PMO	Far side	Niles	State			✓	
Cumberland	Yes	EB Alternate 1	PMO	Near side	Niles	State			✓	
		EB Alternate 2	PMO	Far side	Niles		✓		✓	

Station Location	TSP Intersection	Station Site	Source	Intersection Location	Municipality	Road/Site Jurisdiction	Private Property Impact Concern	Section 106 / 4(f) Concern	Included (June 2016)	Reason Excluded
		WB Alternate 1	Pace Feedback	Far side	Niles	State			✓	
Milwaukee	Yes	EB Alternate 1	PMO	Near side	Niles	State	✓		✓	
		EB Alternate 2	Pace 2010 Study	Far side	Niles	State	✓			Excluded due to limited right-of-way and potential environmental issues
		WB Alternate 1	PMO	Far side	Niles	State	✓		✓	
		WB Alternate 2	Pace 2010 Study	Far side	Niles	State	✓		✓	
		WB Alternate 3	PMO	Near side	Niles	State	✓		✓	
Harlem	OK	EB Alternate 1	PMO	Near side	Niles	State	✓		✓	
		WB Alternate 1	PMO	Far side	Morton Grove	State	✓		✓	
Waukegan	No	EB Alternate 1	Pace 2010 Study	Far side	Morton Grove	State	✓		✓	
		WB Alternate 1	Pace 2010 Study	Far side	Morton Grove	State	✓			Excluded due to limited right-of-way
		WB Alternate 2	PMO	Near side	Morton Grove	State		✓	✓	
		WB Alternate 3	PMO	Near side	Morton Grove	State		✓		Excluded due to distance from Waukegan, potential for 4(f) impacts, and near side location
Austin	Yes	EB Alternate 1	Pace 2010 Study	Far side	Morton Grove	State	✓		✓	
		WB Alternate 1	Pace 2010 Study	Far side	Morton Grove	State	✓		✓	
Dempster-Skokie CTA	Yes	EB-WB Alternate 1	Pace 2010 Study	Other	Skokie	CTA				Excluded due to travel time impacts and community feedback in support of on-street stations
		EB Alternate 2	Village of Skokie	Near side	Skokie	State		✓	✓	
		EB Alternate 3	PMO	Far side	Skokie	State		✓		Excluded due to distance from CTA Yellow Line Dempster-Skokie station as well as potential incompatibility with future development
		WB Alternate 2	Village of Skokie	Far side	Skokie	State			✓	
Crawford	No	EB Alternate 1	Pace 2010 Study	Far side	Skokie	State	✓		✓	
		WB Alternate 1	PMO	Far side	Skokie	State	✓			Excluded due to distance from intersection and property impacts
		WB Alternate 2	Pace 2010 Study	Far side	Skokie	State	✓			Excluded due to distance from intersection and property impacts
		WB Alternate 3	PMO	Far side	Skokie	State	✓		✓	
		WB Alternate 4	PMO	Near side	Skokie	State			✓	
Lincolnwood	Yes	EB Alternate 1	PMO	Near side	Skokie	State	✓		✓	

Station Location	TSP Intersection	Station Site	Source	Intersection Location	Municipality	Road/Site Jurisdiction	Private Property Impact Concern	Section 106 / 4(f) Concern	Included (June 2016)	Reason Excluded
		EB Alternate 2	Pace 2010 Study	Far side	Skokie	State	✓		✓	
		EB Alternate 3	Pace 2010 Study	Near side	Skokie	State	✓			Lincolnwood alternate at Kimball; excluded due to distance from signalized intersection, property impacts, and lack of safe crossing
		WB Alternate 1	Pace 2010 Study	Far side	Skokie	State	✓		✓	
		WB Alternate 2	PMO	Near side	Skokie		✓		✓	
		WB Alternate 3	PMO	Midblock	Skokie	State	✓			Lincolnwood alternate at Kimball; excluded due to distance from signalized intersection, property impacts, and lack of safe crossing
Dodge	OK	EB Alternate 1	PMO	Near side	Evanston	State	✓		✓	
		EB Alternate 2	Pace 2010 Study	Far side	Evanston	State	✓			Excluded due to lack of ridership and limited right-of-way
		EB Alternate 3	PMO	Near side	Evanston	State	✓			Dodge alternate; excluded due to potential site impacts, business opposition and distance from signalized intersection
		WB Alternate 1	PMO	Midblock	Evanston	State	✓		✓	
		WB Alternate 2	Pace 2010 Study	Far side	Evanston	State	✓			Excluded due to location between driveways, potential business opposition, and limited right-of-way
		WB Alternate 3	PMO	Near side	Evanston		✓		✓	
		WB Alternate 4	PMO	Far side	Evanston	State				Dodge alternate; excluded due to distance from signalized intersection
Ridge†	No	EB Alternate 1	Pace 2010 Study	Near side	Evanston	State	✓	✓		Excluded during initial review of Pace 2010 Study locations due to low ridership and Section 106 issues
		WB Alternate 1	Pace 2010 Study	Near side	Evanston	State		✓		Excluded during initial review of Pace 2010 Study locations due to low ridership and Section 106 issues
		WB Alternate 2	Pace 2010 Study	Far side	Evanston	State		✓		Excluded during initial review of Pace 2010 Study locations due to low ridership and Section 106 issues
Davis CTA/Metra	n/a	Terminal	Pace 2010 Study	Terminal	Evanston	Municipal			✓	

† Station eliminated per discussions with Pace at March 7, 2016 Station Location meeting and review of the Preliminary Station Location and Site Selection Options Technical Memorandum as noted in Chapter 1. These stations were not evaluated in Chapter 3.

Appendix F

CONCEPTUAL STATION IMPROVEMENT PLANS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	1
	ILLINOIS			56849

FOR INDEX OF SHEETS, SEE SHEET NO. 2

PROJECT LOCATED IN THE
1. CITY OF CHICAGO
2. VILLAGE OF ROSEMONT
3. CITY OF DES PLAINES
4. CITY OF PARK RIDGE
5. VILLAGE OF NILES
6. VILLAGE OF MORTON GROVE
7. VILLAGE OF SKOKIE
8. CITY OF EVANSTON

PACE SUBURBAN BUS
REGIONAL TRANSPORTATION AUTHORITY

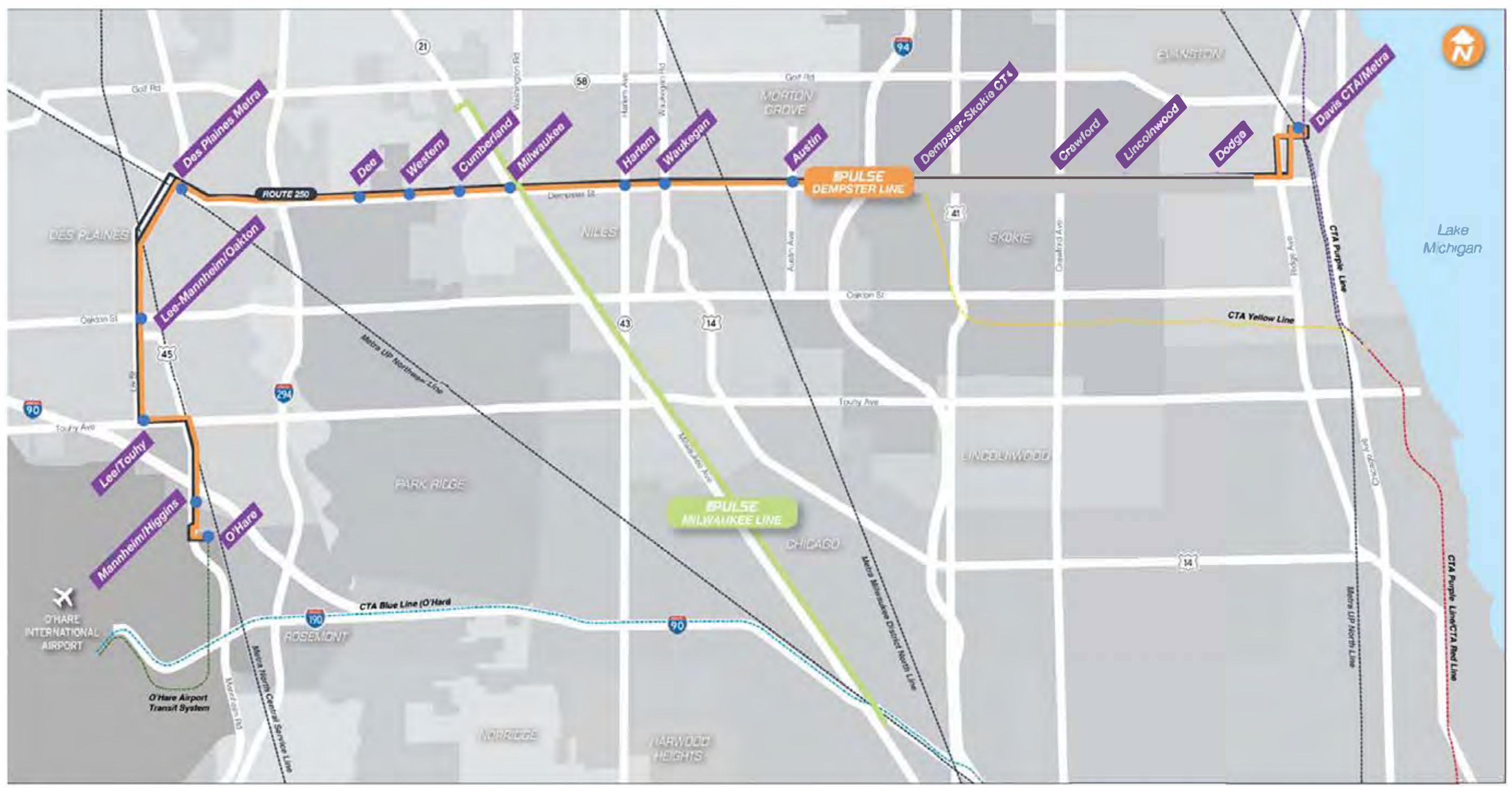
CONCEPTUAL STATION IMPROVEMENT PLANS

PULSE DEMPSTER LINE
ARTERIAL RAPID TRANSIT
FROM O'HARE (CHICAGO) TO DAVIS CTA / METRA FACILITIES (EVANSTON)

SUBMITTAL
JULY 15, 2016

RECONSTRUCTING, STATIONS, SIDEWALK, DRAINAGE, ITS

COOK COUNTY



LOCATION OF SECTION INDICATED THUS: –

0 100' 200' 300' — 1"= 100'
0 10' 20' 30' — 1"= 10'
0 50' 100' — 1"= 50'
0 30' 100' — 1"= 40'
0 50' 100' — 1"= 30'
0 50' 100' — 1"= 20'

FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

LOCATION MAP

N.T.S.

GROSS LENGHT = 15 MILES

CONTRACT NO. 56849

pace
Connecting Communities
550 WEST ALGONQUIN ROAD
ARLINGTON HEIGHTS, IL 60005-4412
(847) 364-7223

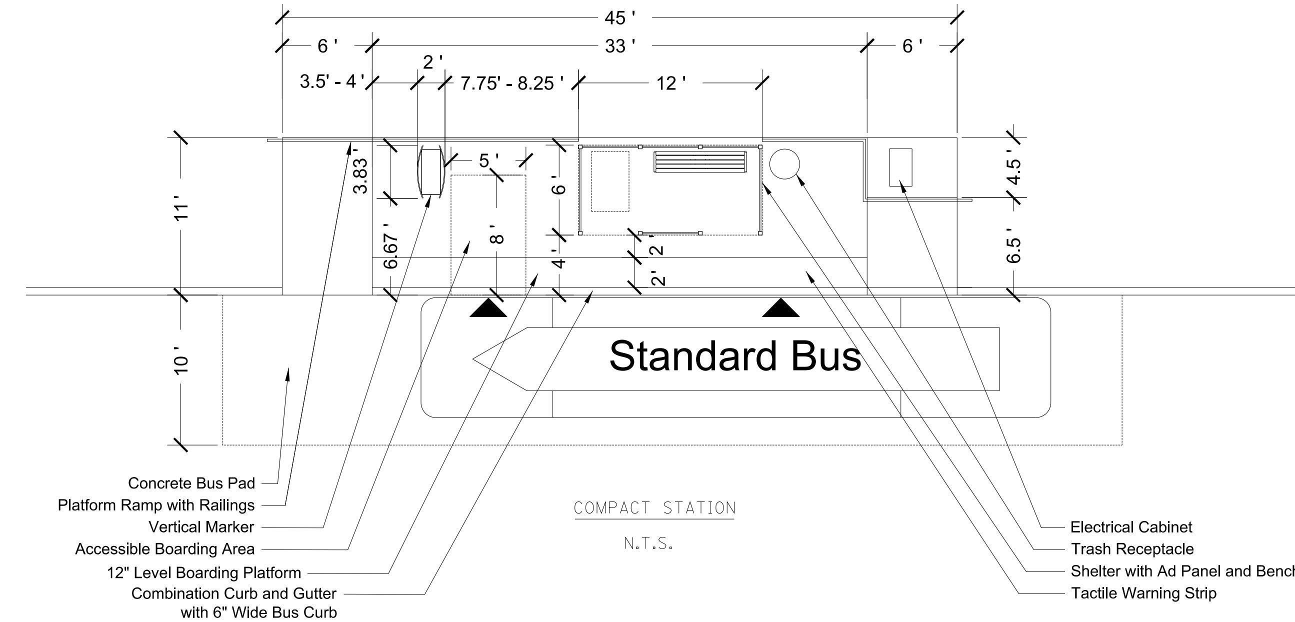
HNTB
ONE SOUTH WACKER DRIVE
SUITE 900
CHICAGO, IL 60606
(312) 930-9119
ILLINOIS PROFESSIONAL DESIGN FIRM
REGISTRATION NO. 184.001306

INDEX OF SHEETS

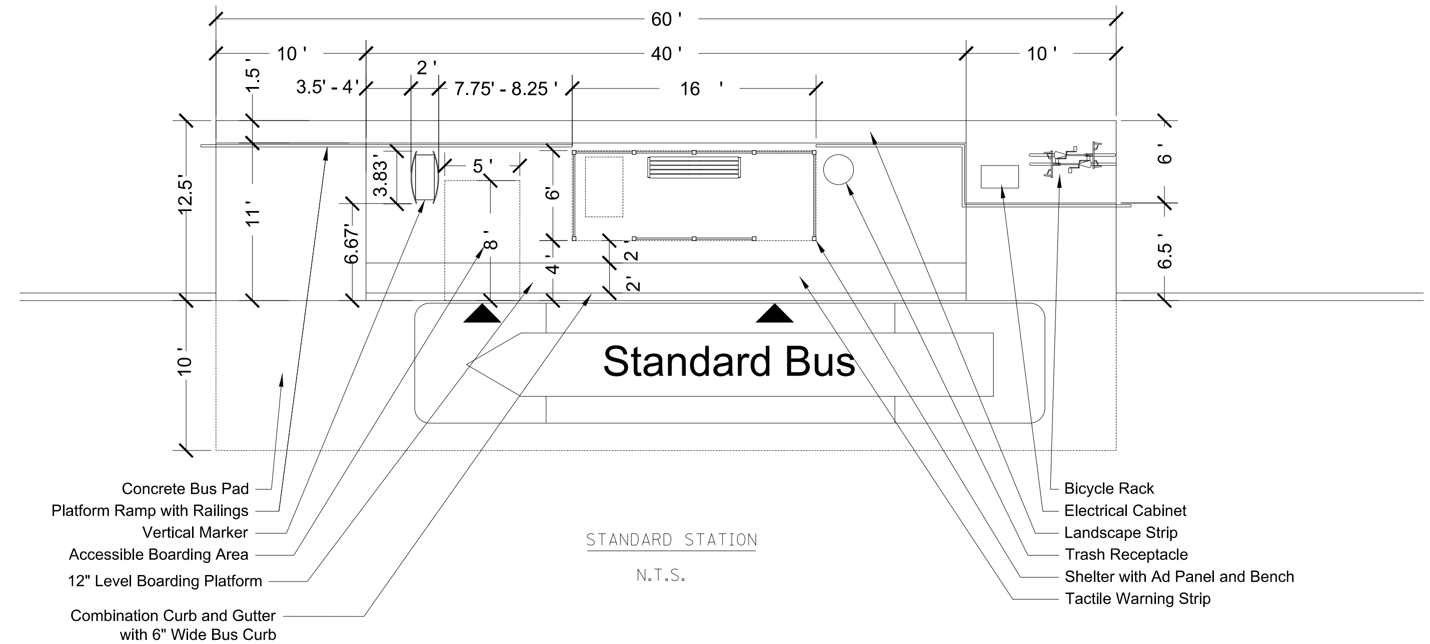
Station	Eastbound Alts. 1	2	3	4	Westbound Alts 1	2	3	4
O'Hare	-	-	-	-	✓	-	-	-
Mannheim/Higgins	✓	✓	-	-	✓	✓	-	-
Lee/Touhy	E	✓	-	-	E	✓	-	-
Lee-Mannheim/Oakton	E	✓	-	-	E	✓	-	-
Des Plaines Metra	✓	E	-	-	✓	✓	✓	-
Potter (Dee Alternate)	E	✓	-	-	✓	✓	-	-
Dee (Potter Alternate)	✓	E	-	-	✓	✓	-	-
Luther	E	E	-	-	E	E	-	-
Western	✓	-	-	-	✓	-	-	-
Cumberland	✓	✓	-	-	✓	-	-	-
Milwaukee	✓	E	-	-	✓	✓	✓	-
Harlem	✓	-	-	-	✓	-	-	-
Waukegan	✓	-	-	-	E	✓	E	-
Austin	✓	-	-	-	✓	-	-	-
Dempster-Skokie CTA	E	✓	E	-	E	✓	-	-
Crawford	✓	-	-	-	E	E	✓	✓
Lincolnwood	✓	✓	E	-	✓	✓	E	-
Dodge	✓	E	E	-	✓	E	✓	E
Davis CTA/Metra	✓	-	-	-	-	-	-	-

✓ Included in Conceptual Station Improvement Plans
E Eliminated from

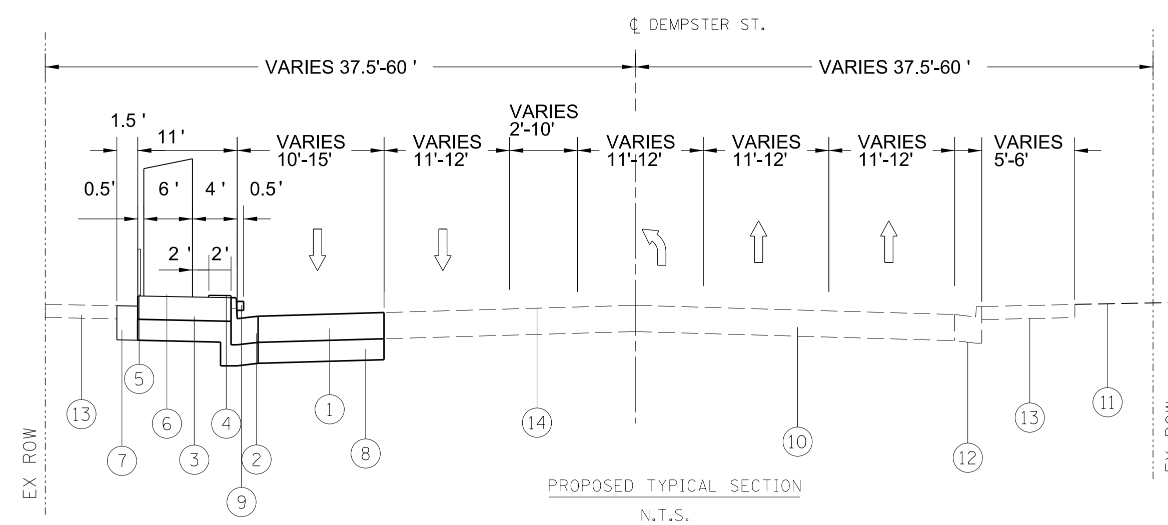
TYPICAL PLANS



COMPACT STATION
N.T.S.



STANDARD STATION
N.T.S.



PROPOSED TYPICAL SECTION
N.T.S.

1	PROPOSED PCC BUS PAD, 10"
2	PROPOSED CONCRETE CURB & GUTTER
3	PROPOSED PCC RAISED BOARDING PLATFORM WITH HEATED SNOW MELT SYSTEM, 12"
4	PROPOSED DETECTABLE WARNING
5	PROPOSED PLATFORM & RAMP RAILINGS
6	PROPOSED BUS SHELTER
7	PROPOSED LANDSCAPE STRIP
8	PROPOSED SUBBASE IMPROVEMENT
9	PROPOSED PLASTIC BUS CURB
10	EXISTING PAVEMENT
11	EXISTING GROUND
12	EXISTING CURB AND GUTTER
13	EXISTING SIDEWALK
14	EXISTING FLUSHED OR CURBED MEDIAN

NOTE:
ADDITIONAL STATION ELEMENTS NOT SHOWN INCLUDE VERTICAL MARKER, ELECTRICAL CABINET, BICYCLE RACK AND TRASH RECEPTACLE

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PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

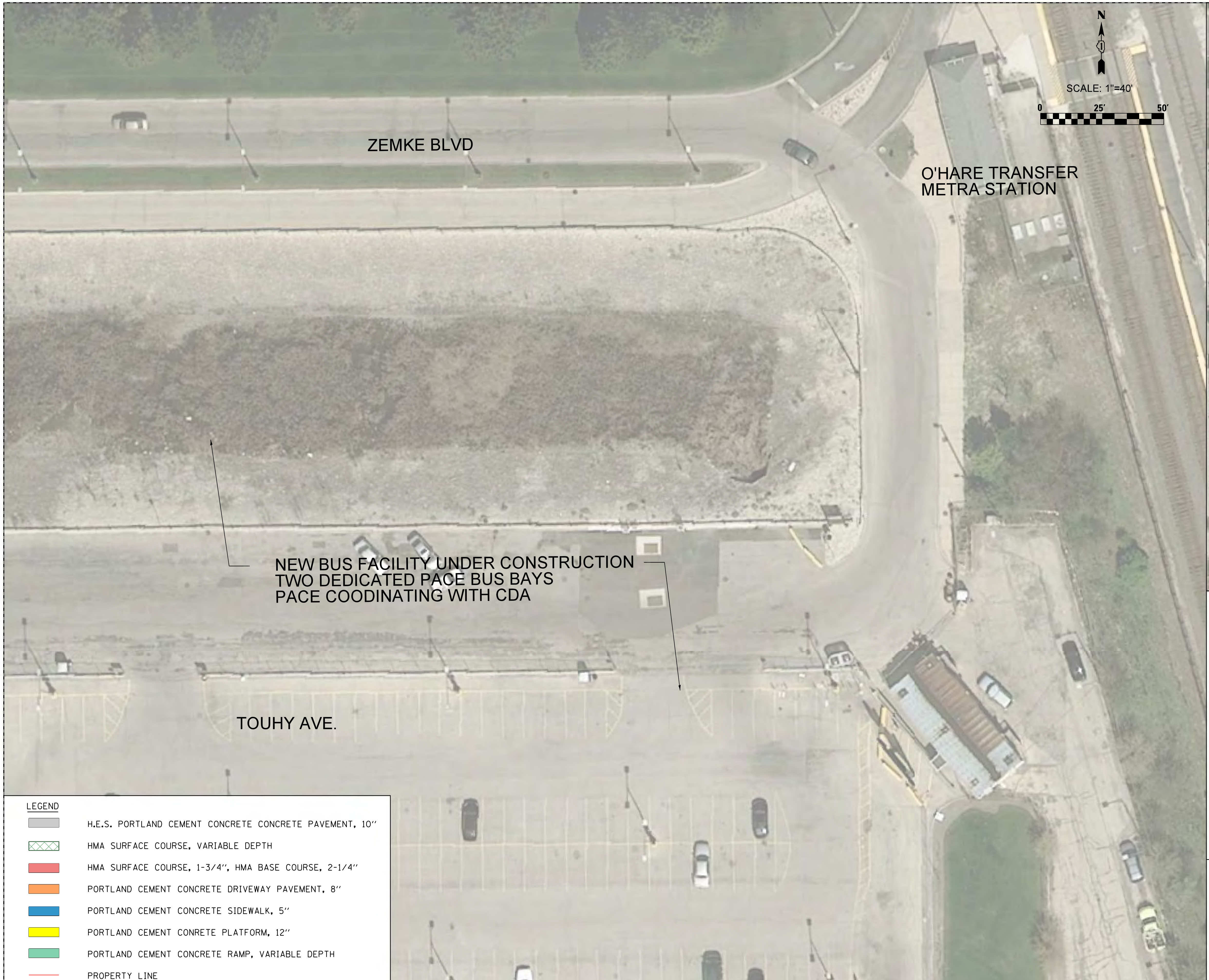
DEMPSTER STREET PULSE STATION
INDEX OF SHEETS, TYPICAL SECTION AND STATION PLANS

SCALE: | SHEET 2 OF 28 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	2

CONTRACT NO. 56849

ILLINOIS | FED. AID PROJECT



LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES

1. COORDINATE WITH CHICAGO DEPARTMENT OF AVIATION ON FUTURE SIGNAGE.

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	PLOT DATE = 6/7/2016	DATE - 05132016	REVISED -	

PULSE DEMPSTER LINE
O'HARE

SCALE: 1=40' | SHEET 3 OF 28 SHEETS | STA. ______ TO STA. ______

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	3

CONTRACT NO. ____

ILLINOIS FED. AID PROJECT

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES

1. AERIAL IS OUTDATED. IMPROVEMENTS TO MANNHEIM ROAD AND NEW DEVELOPMENT ON EAST SIDE OF MANNHEIM ROAD.
2. COORDINATE WITH IDOT FOR POTENTIAL TRAFFIC SIGNAL.
3. COORDINATE WITH VILLAGE OF ROSEMONT AND CITY OF DES PLAINES FOR PROPOSED STATIONS AND NEW DEVELOPMENT.

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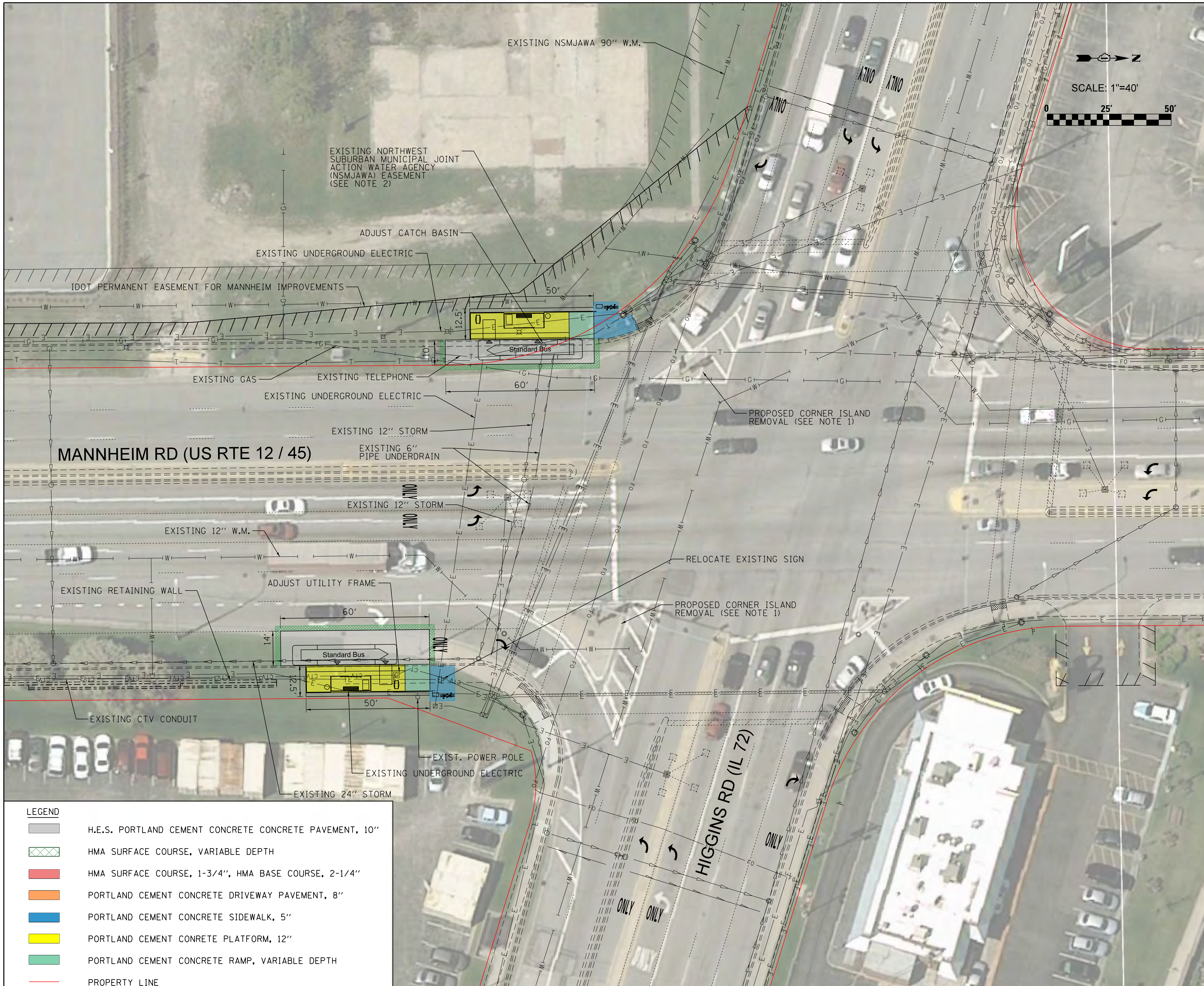
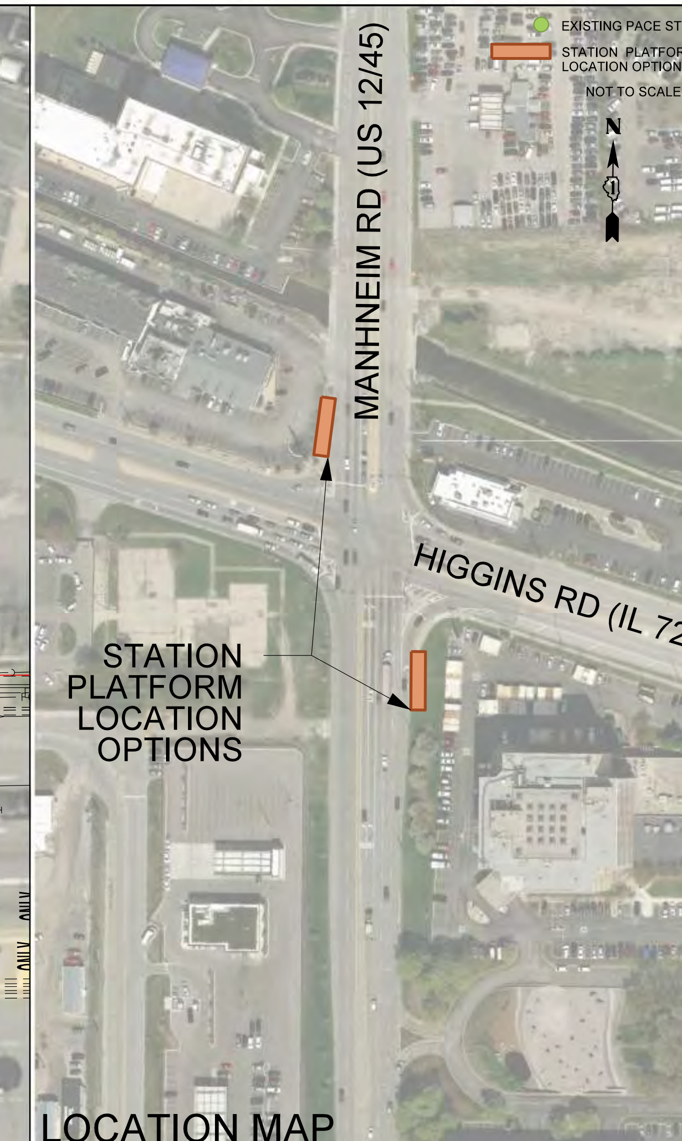
PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
MANNHEIM /HIGGINS:
NORTHBOUND ALT. 1 AND SOUTHBOUND ALT. 1

SCALE: 1=40' | SHEET 4A | OF 28 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	4A
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		





LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES

1. AERIAL IS OUTDATED. MANNHEIM ROAD AND HIGGINS ROAD IS CURRENTLY UNDER CONSTRUCTION.
2. COORDINATION WITH NSMJAWA IS REQUIRED. POTENTIAL CONFLICT WITH PROPOSING STATION NEAR EXISTING NSMJAWA 90" W.M.

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PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

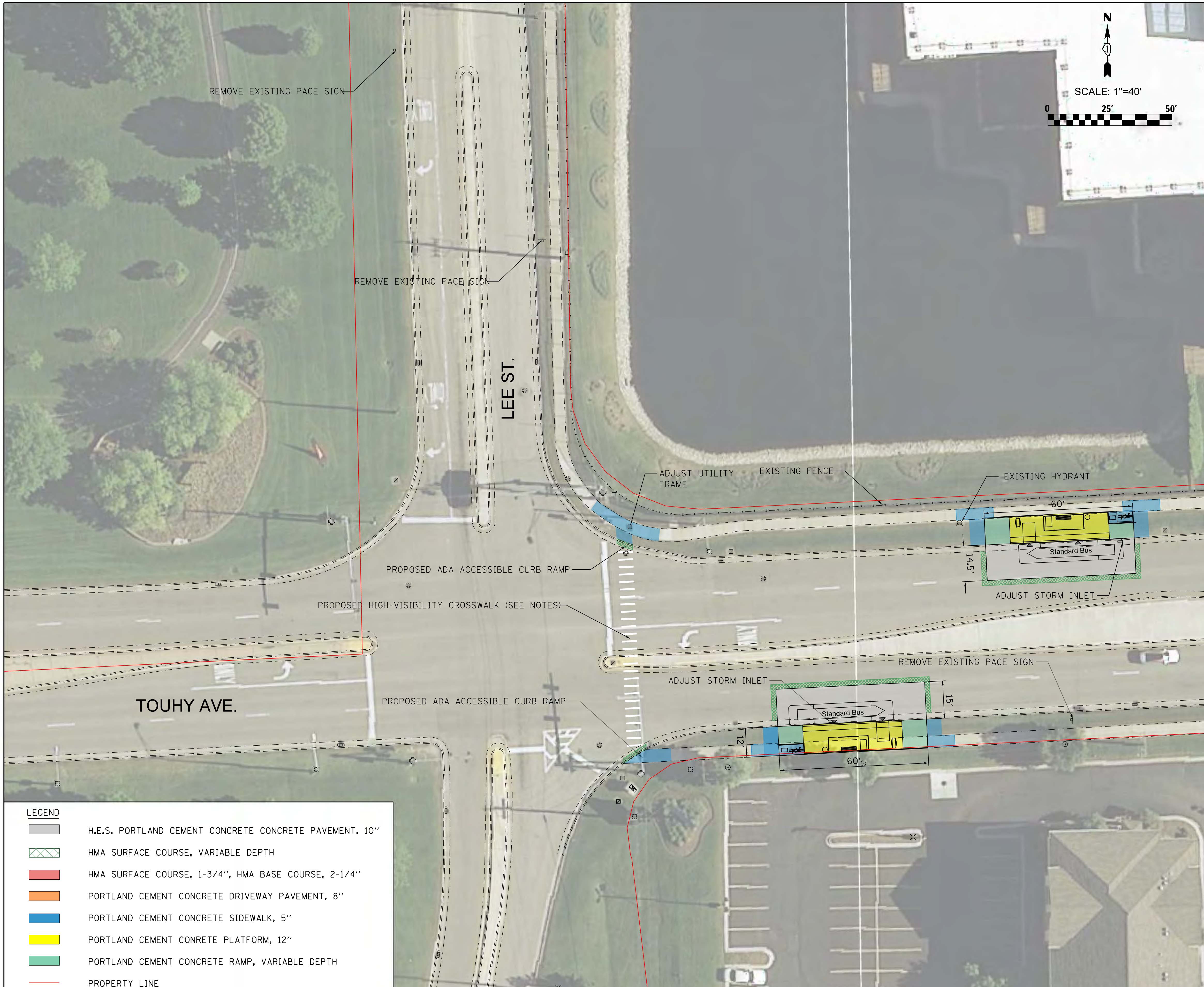
PULSE DEMPSTER LINE
MANNHEIM /HIGGINS:
NORTHBOUND ALT. 2 AND SOUTHBOUND ALT. 2

SCALE: 1=40' | SHEET 4B OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	4B

CONTRACT NO.

ILLINOIS | FED. AID PROJECT



LEGEND

	H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
	HMA SURFACE COURSE, VARIABLE DEPTH
	HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
	PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
	PORTLAND CEMENT CONCRETE SIDEWALK, 5"
	PORTLAND CEMENT CONRETE PLATFORM, 12"
	PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
	PROPERTY LINE

LOCATION MAP

QUANTITIES

NOTES

1. IDOT COORDINATION IS REQUIRED.
2. EXISTING WB LEFT TURNING STORAGE IS NOT MEETING IDOT BUREAU OF DESIGN AND ENVIRONMENT REQUIREMENTS.
3. INTERSECTION GEOMETRY REQUIRES EVALUATION TO ACCOMMODATE ACCESSIBILITY IMPROVEMENTS. PROPOSE TO RELOCATE STOP BAR AND RECONSTRUCT MEDIAN TO ACCOMMODATE PROPOSED CROSSWALK AND TO RECONFIGURE WESTBOUND LEFT LANE.
4. NO PROPOSED LANDSCAPE STRIP FOR EASTBOUND AND WESTBOUND STATIONS.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\5 sht-Lee-Touhy.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - DP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
LEE/TOUHY:
EASTBOUND ALT. 2 AND WESTBOUND ALT. 2

SCALE: 1=40' | SHEET 5 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	5

CONTRACT NO.

ILLINOIS FED. AID PROJECT

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

LOCATION MAP

QUANTITIES

NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT NORTHBOUND STATION.
2. PROPOSED SHELTER IS SET BACK TO MEET SIGHT DISTANCE REQUIREMENTS.
3. CURRENT BACK OF SIDEWALK USED FOR REAR LINE OF PLATFORM. PROPERTY LINES TO BE CONFIRMED VIA SURVEY DURING ADVANCED CONCEPTUAL DESIGN.
4. AERIAL IS OUTDATED. NEW CHASE BACK IS LOCATED AT THE NORTHWEST CORNER OF OAKTON STREET AND MANNHEIM ROAD.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\6 sht_Lee-Oakton.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - DP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
LEE–MANNHEIM/OAKTON:
NORTHBOUND ALT. 2 AND SOUTHBOUND ALT. 2

SCALE: 1=40' | SHEET 6 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	6
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES:
1. NO EASTBOUND STATION IMPROVEMENT PLANS.
2. FUTURE COORDINATION WITH REGIONAL TRANSPORTATION AUTHORITY ON INTERAGENCY REAL TIME ARRIVAL SIGNS.
3. NO PROPOSED LANDSCAPE STRIP AT WEST BOUND STATION.
4. APPROXIMATELY 20FT OF SIDEWALK FROM EXISTING CURB TO BUILDING.
5. TURN OUT DOES NOT MEET IDOT BDE REQUIREMENTS AND PACE TRANSIT SUPPORTIVE GUIDELINES FOR THE CHICAGOLAND REGION MARCH 2013. GUIDELINES SUGGEST 150FT. MINIMUM FOR BUS TURNOUT TAPER LENGTHS, 50FT. MINIMUM FOR ACCELERATION LENGTH AND 120FT. MINIMUM FOR DECELERATION LENGTH.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\7 sheDesPlaines-Metra-Alt 1.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - BP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DES PLAINES METRA:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

SCALE: 1=40' | SHEET 7 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	7

CONTRACT NO.

ILLINOIS | FED. AID PROJECT

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES:

1. SEE SHEET 7 FOR PROPOSED EASTBOUND STATION.
2. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION.
3. EIGHT PARKING SPACES (155 FT) WILL BE REPLACED WITH PROPOSED BUS PLATFORM. RESTRIPE PAVEMENT MARKINGS FOR NO PARKING.
4. APPROXIMATELY 22 FT OF SIDEWALK AREA FROM EXISTING CURB TO BUILDINGS.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\8 sht Des Plaines-Metra Alt 2.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - DP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DES PLAINES METRA:
WESTBOUND ALT. 2

SCALE: 1=40' | SHEET 8 OF 28 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	8

CONTRACT NO.

ILLINOIS | FED. AID PROJECT

LOCATION MAP

LEGEND

(grey)	H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
(green hatch)	HMA SURFACE COURSE, VARIABLE DEPTH
(red)	HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
(orange)	PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
(blue)	PORTLAND CEMENT CONCRETE SIDEWALK, 5"
(yellow)	PORTLAND CEMENT CONRETE PLATFORM, 12"
(light green)	PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
(red line)	PROPERTY LINE

QUANTITIES

NOTES:

1. SEE SHEET 7 FOR PROPOSED EASTBOUND STATION.
2. NO LANDSCAPE STRIP PROPOSED AT STATION.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\9 sht-Des Plaines-Metra-Alt 3.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
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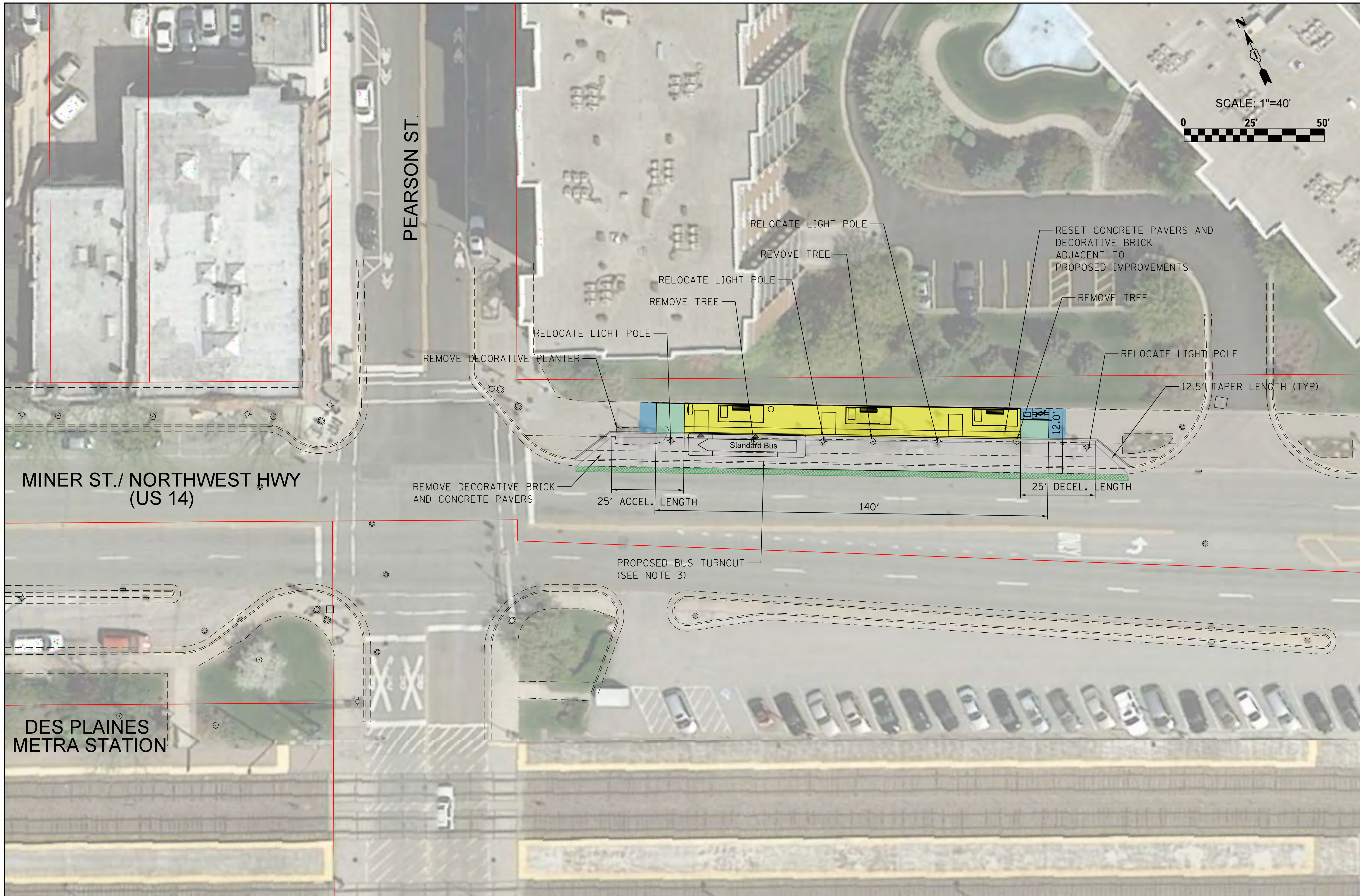
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DES PLAINES METRA:
WESTBOUND ALT. 3A

SCALE: 1=40' | SHEET 9 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	9
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		



LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES:

1. SEE SHEET 7 FOR PROPOSED EASTBOUND STATION
2. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION
3. TURNOUT DOES NOT MEET PACE TRANSIT SUPPORTIVE GUIDELINES FOR THE CHICAGOLAND REGION MARCH 2013. GUIDELINES SUGGEST 150 FT MINIMUM FOR BUS TURNOUT TAPER LENGTHS AND 120 FT MINIMUM FOR DECELERATION LENGTH.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\10 sht Des Plaines Metra Alt 4.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
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	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DES PLAINES METRA:
WESTBOUND ALT. 3B

SCALE: 1=40' | SHEET 10 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	10

CONTRACT NO.

ILLINOIS FED. AID PROJECT

QUANTITIES

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

NOTES

1. SURVEY WAS PERFORMED BY OTHERS AND SHALL BE VERIFIED.
2. AERIAL IS OUTDATED. NEW DECORATIVE LANDSCAPING IS LOCATED ADJACENT TO EXISTING SIDEWALK AT LURVEY LANDSCAPE SUPPY & GARDEN CENTER. SIGHT DISTANCE TRIANGLE REQUIRES PACE SHELTER TO BE SET BACK AND IMPACTS DECORATIVE LANDSCAPING.
3. SEE SHEET 11B FOR EASTBOUND STATION DETAILS.

FILE NAME = \\chi00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\11A sheet-er-REV-.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - DP	REVISED -
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	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

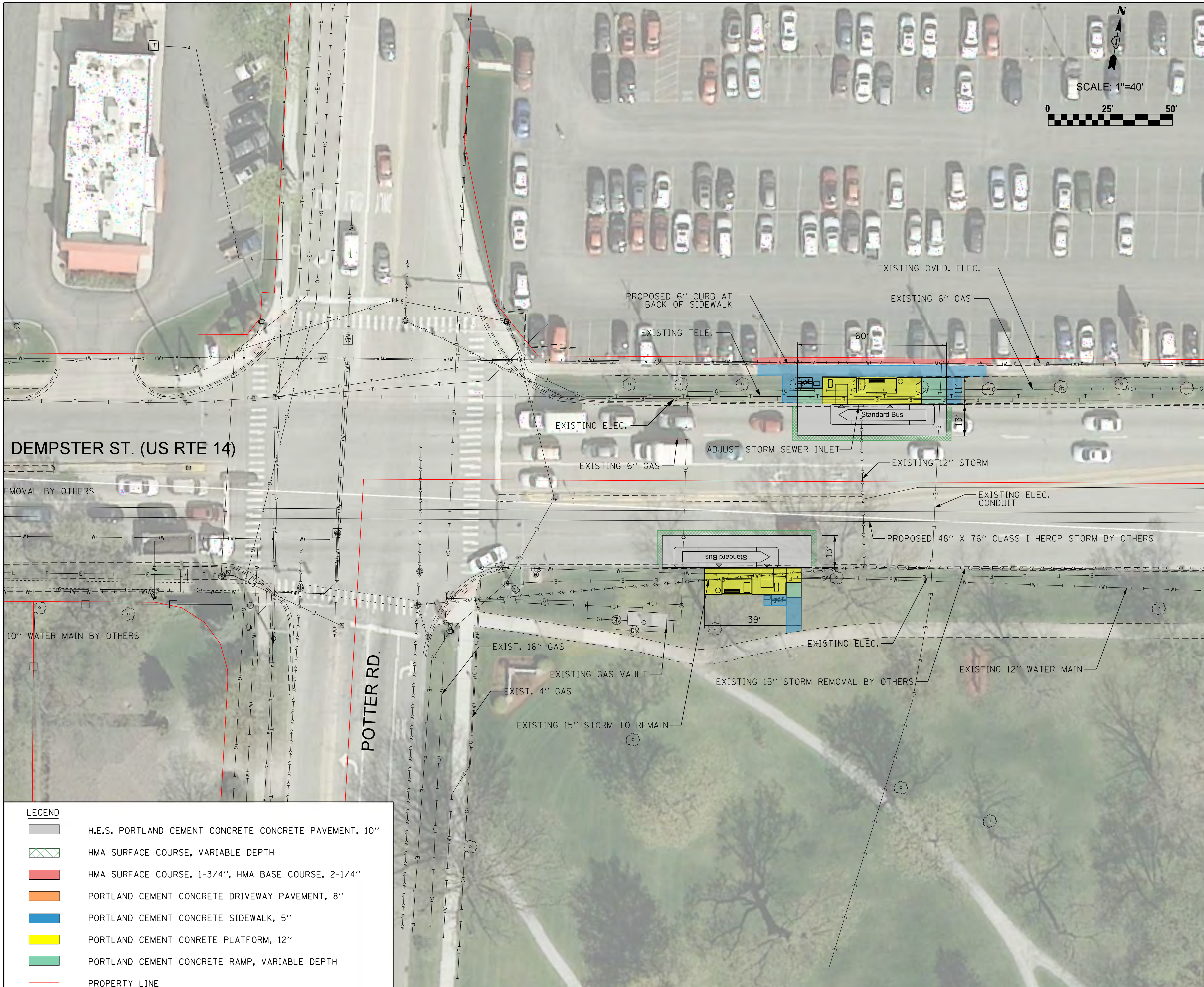
PULSE DEMPSTER LINE
POTTER (DEE ALTERNATE):
WESTBOUND ALT. 1

SCALE: 1=40' | SHEET 11A OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	11A

CONTRACT NO.

ILLINOIS FED. AID PROJECT



LEGEND

(grey)	H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
(green hatched)	HMA SURFACE COURSE, VARIABLE DEPTH
(red)	HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
(orange)	PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
(blue)	PORTLAND CEMENT CONCRETE SIDEWALK, 5"
(yellow)	PORTLAND CEMENT CONRETE PLATFORM, 12"
(light green)	PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
(red line)	PROPERTY LINE

QUANTITIES

NOTES

1. SURVEY WAS PERFORMED BY OTHERS AND SHALL BE VERIFIED. PRIVATE PARKING LOT WAS NOT SURVEYED
2. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS
3. REMOVE EXISTING PACE SIGN AT SOUTHWEST CORNER OF DEMPSTER ST. (US RTE 14) AND DEE RD. REMOVE EXISTING PACE SIGN, SHELTER, AND TRASH RECEPTACLE AT NORTHEAST CORNER OF DEMPSTER ST (US RTE 14) AND DEE RD.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\11B shtPotterREV.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
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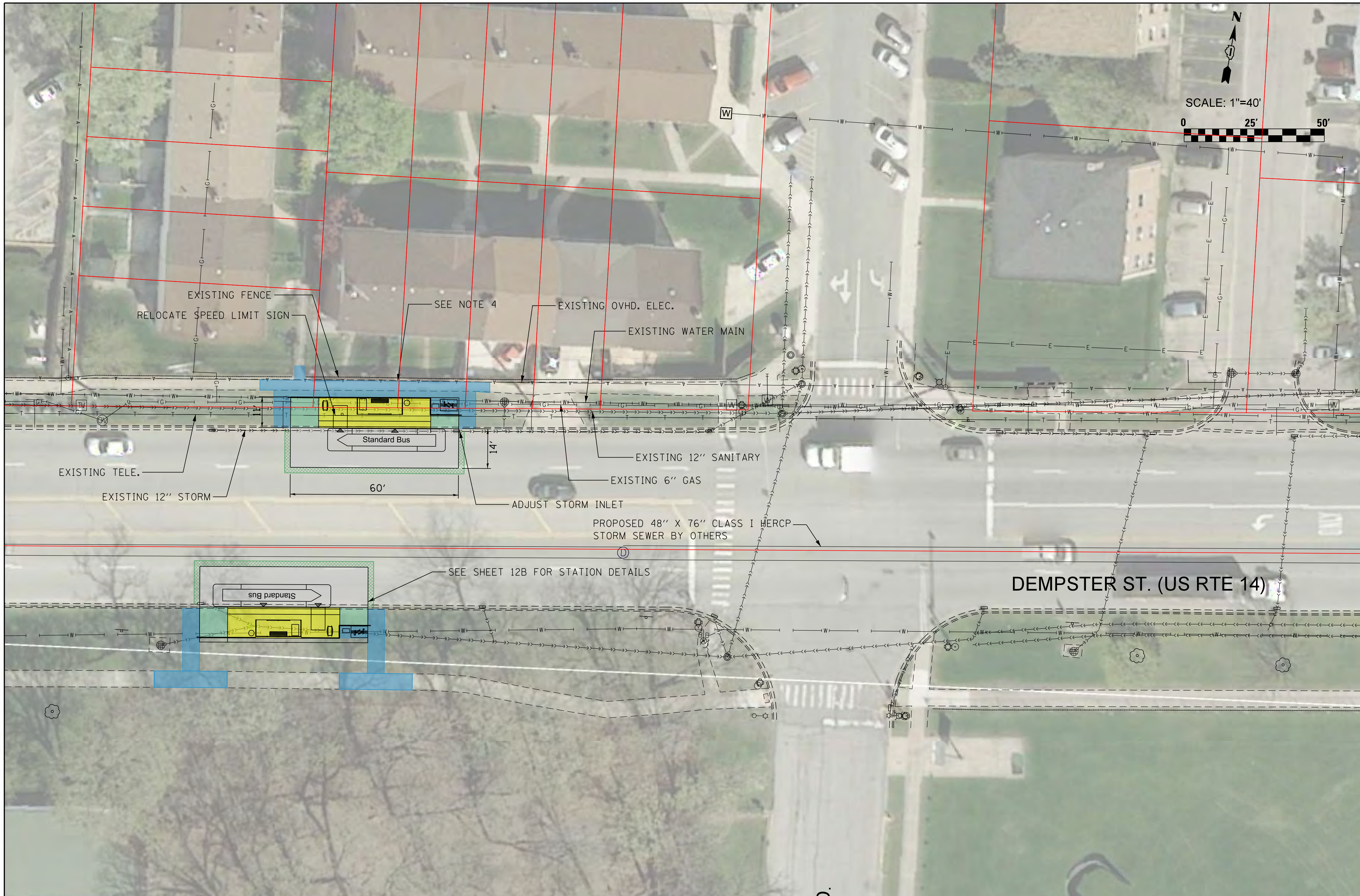
	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
POTTER (DEE ALTERNATE):
EASTBOUND ALT. 2 AND WESTBOUND ALT. 2

SCALE: 1=40' | SHEET 11B OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	11B
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		



LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES

1. SURVEY WAS PERFORMED BY OTHERS AND SHALL BE VERIFIED.
2. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION.
3. REMOVE EXISTING PACE SIGNS AT NORTHEAST AND SOUTHWEST CORNERS OF DEMPSTER (US RTE 14) AND DEE RD.
4. EXISTING CURB IS HIGHER THAN SIDEWALK AND PITCHED TOWARDS RESIDENTIAL PROPERTIES AT WESTBOUND STATION. GRADING IS REQUIRED AT THE BACK OF PROPOSED SIDEWALK AND POTENTIALLY IMPACTS RESIDENTIAL FENCES AND REQUIRES TEMPORARY CONSTRUCTION EASEMENT.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts.05132016\12A_Dee.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
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	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

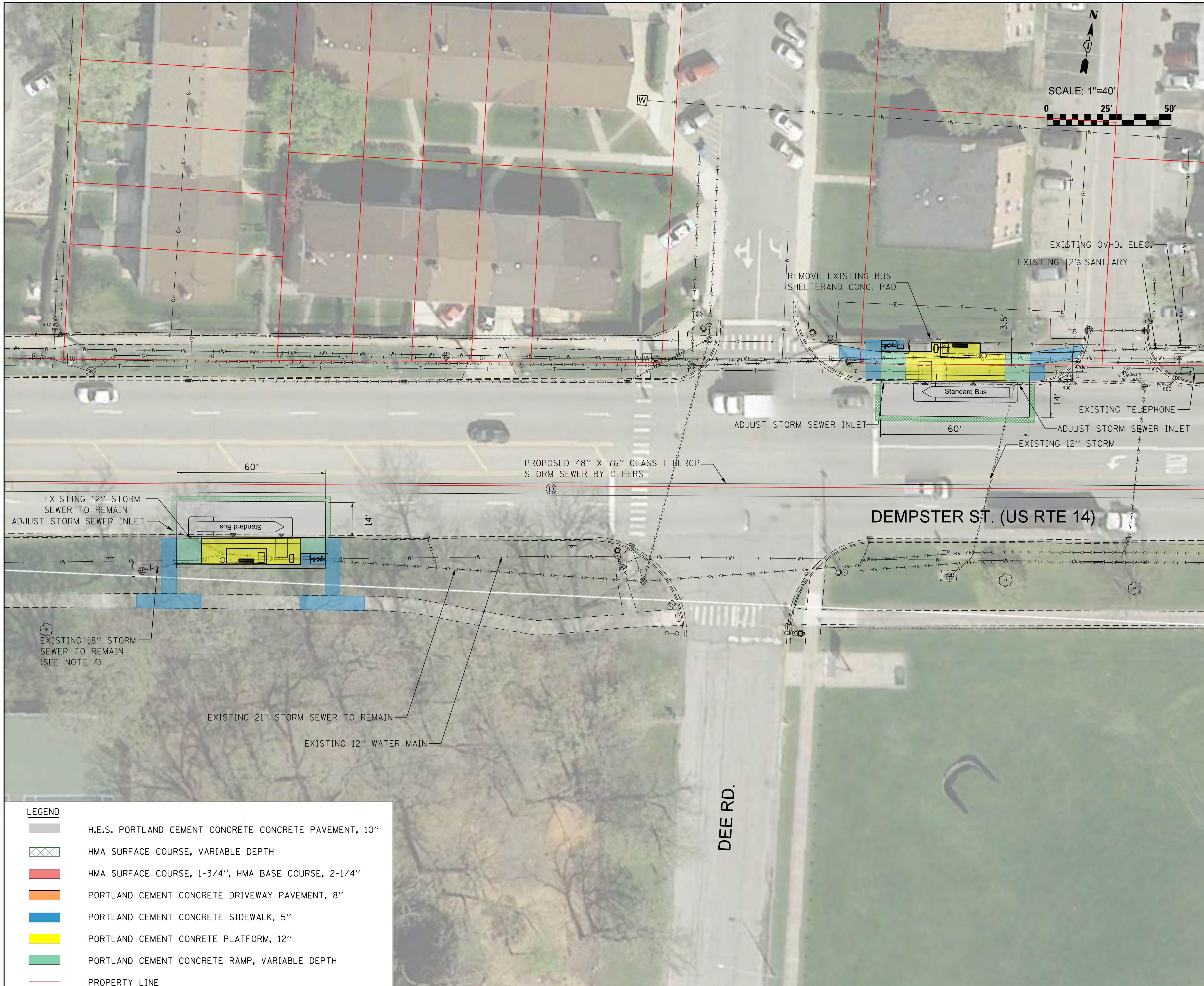
PULSE DEMPSTER LINE
DEE:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

SCALE: 1=40' | SHEET 12A OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	12A

CONTRACT NO.

ILLINOIS FED. AID PROJECT



QUANTITIES

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

NOTES

1. SURVEY WAS PERFORMED BY OTHERS AND SHALL BE VERIFIED.
2. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION
3. REMOVE EXISTING PACE SIGNS AT NORTHEAST AND SOUTHWEST CORNERS OF DEMPSTER (US RTE 14) AND DEE RD.
4. EXISTING CURB IS HIGHER THAN SIDEWALK AND PITCHED TOWARDS THE EXISTING CATCH BASIN IN TERRACE AREA AT EASTBOUND STATION.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\12B sheet.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
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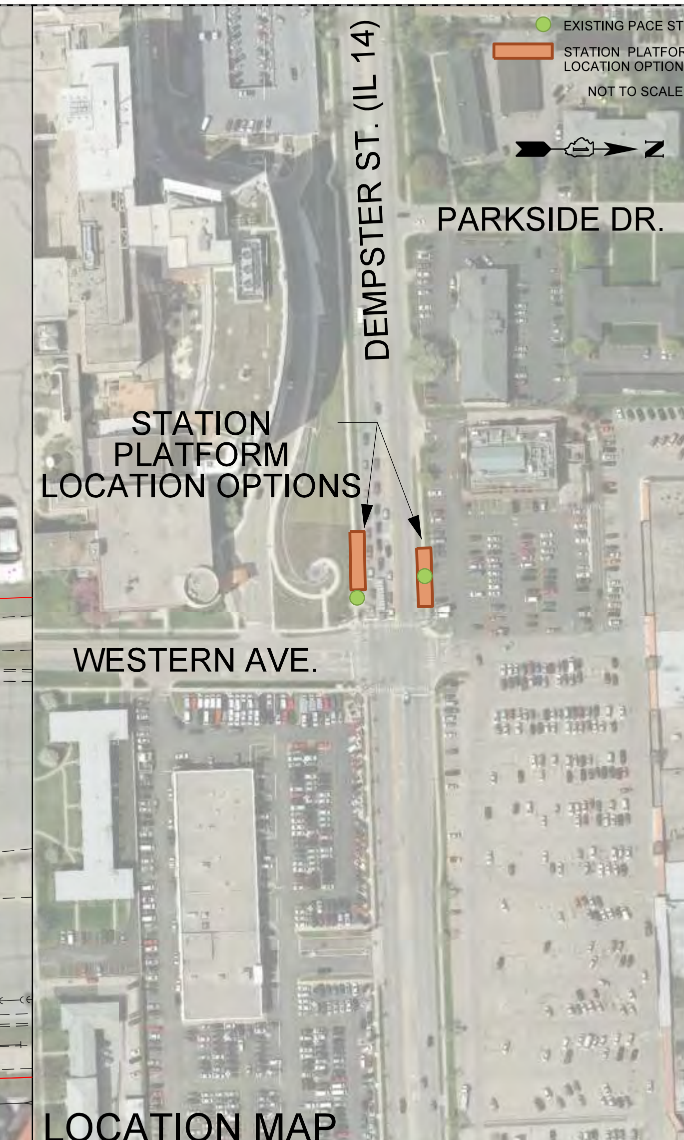
	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DEE:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 2

SCALE: 1=40' | SHEET 12B OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	12B
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES:

1. NO PROPSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND PLATFORMS.
2. CURRENT BACK OF SIDEWALK USED FOR REAR LINE OF PLATFORM. PROPERTY LINES TO BE CONFIRMED VIA SURVEY DURING ADVANCED CONCEPTUAL DESIGN.

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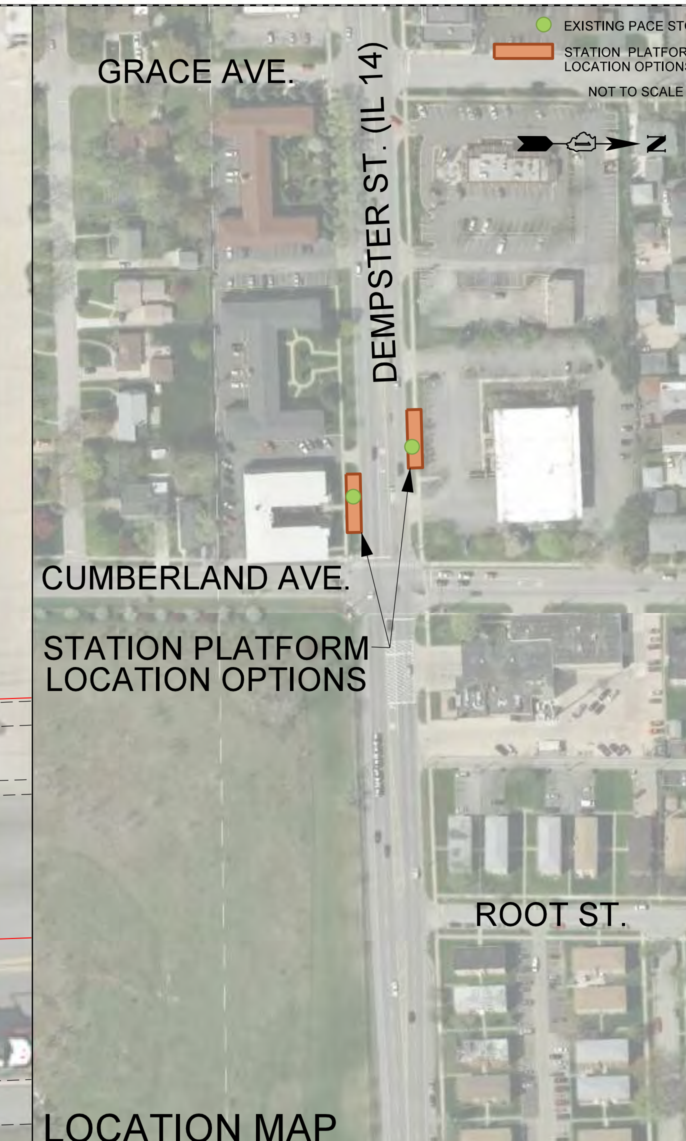
	PLOT DATE = 6/10/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
WESTERN:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

SCALE: 1=40' | SHEET 13 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	13
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		



LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS

FILE NAME = \\CHIW00\Project_Data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\14A sh-Cumberland.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
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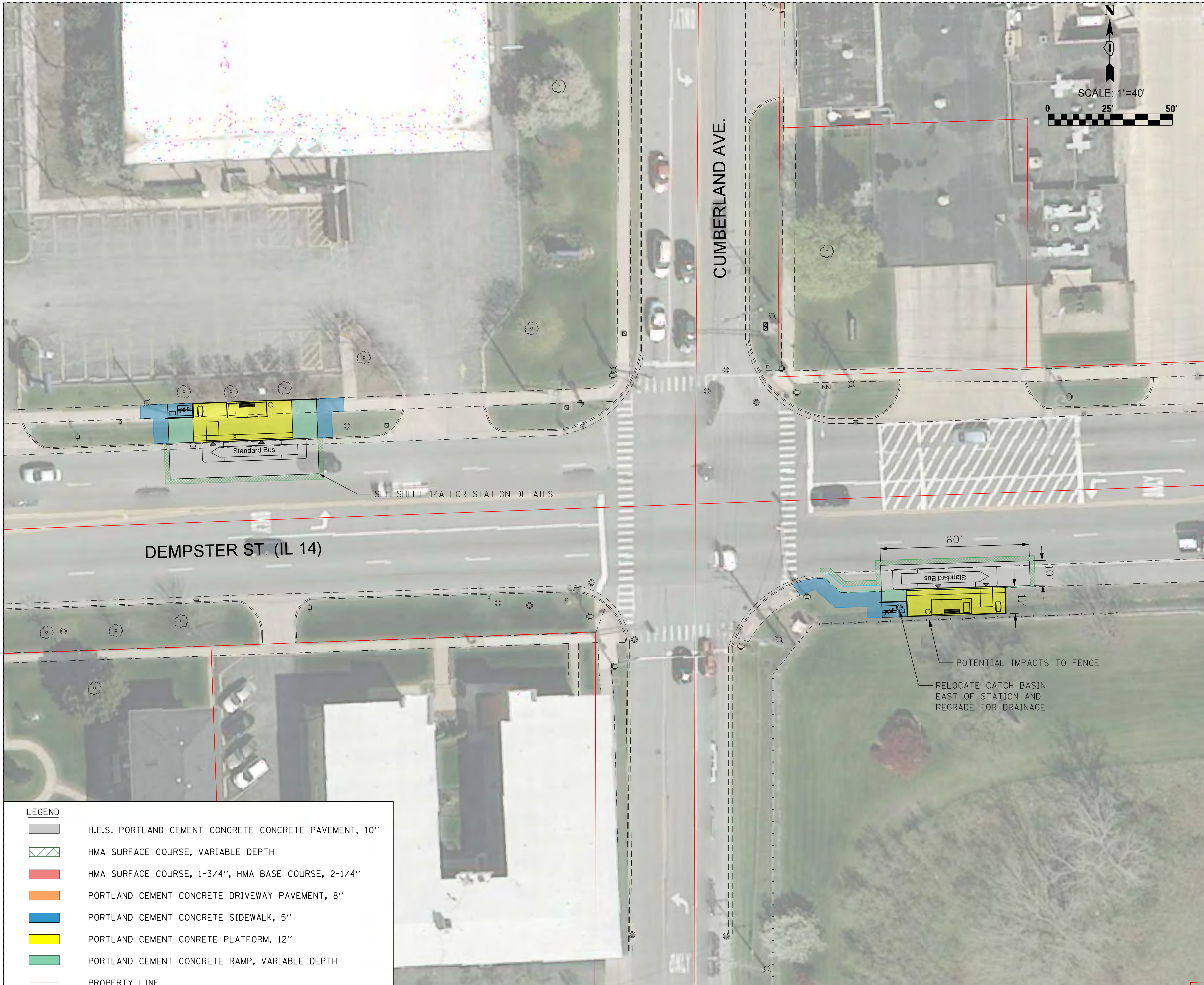
	PLOT DATE = 6/10/2016	DATE - 05132016	REVISED -

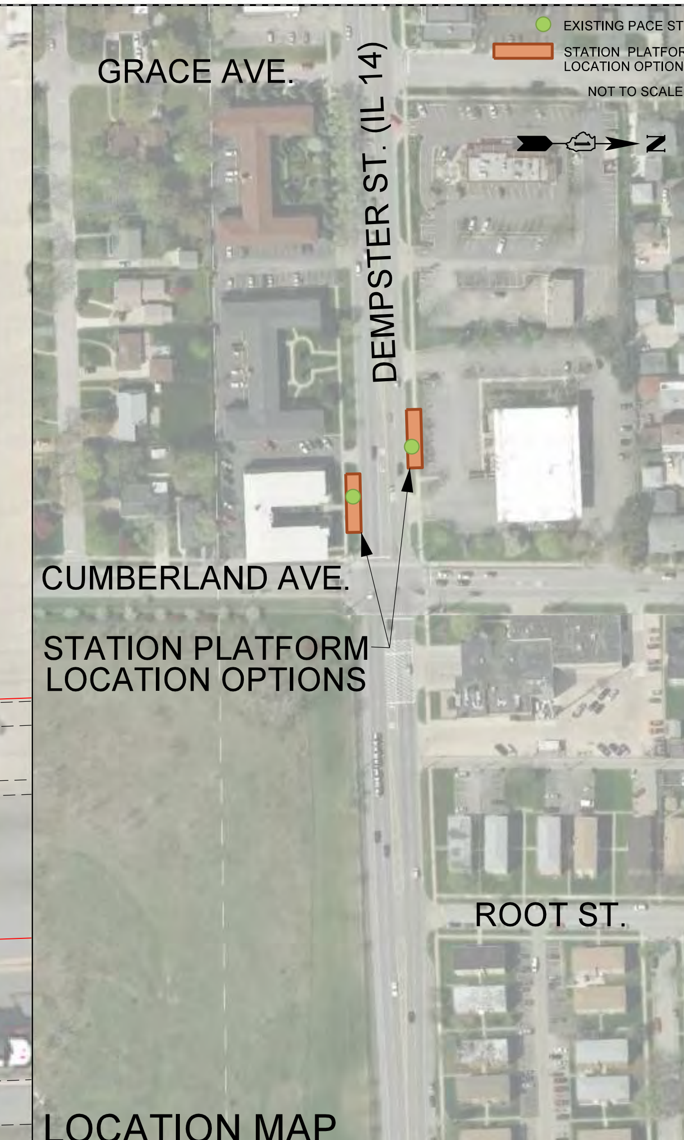
PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
CUMBERLAND:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

SCALE: 1=40' | SHEET 14A OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	14A
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			





LOCATION MAP

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\14B_Cumberland.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
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	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

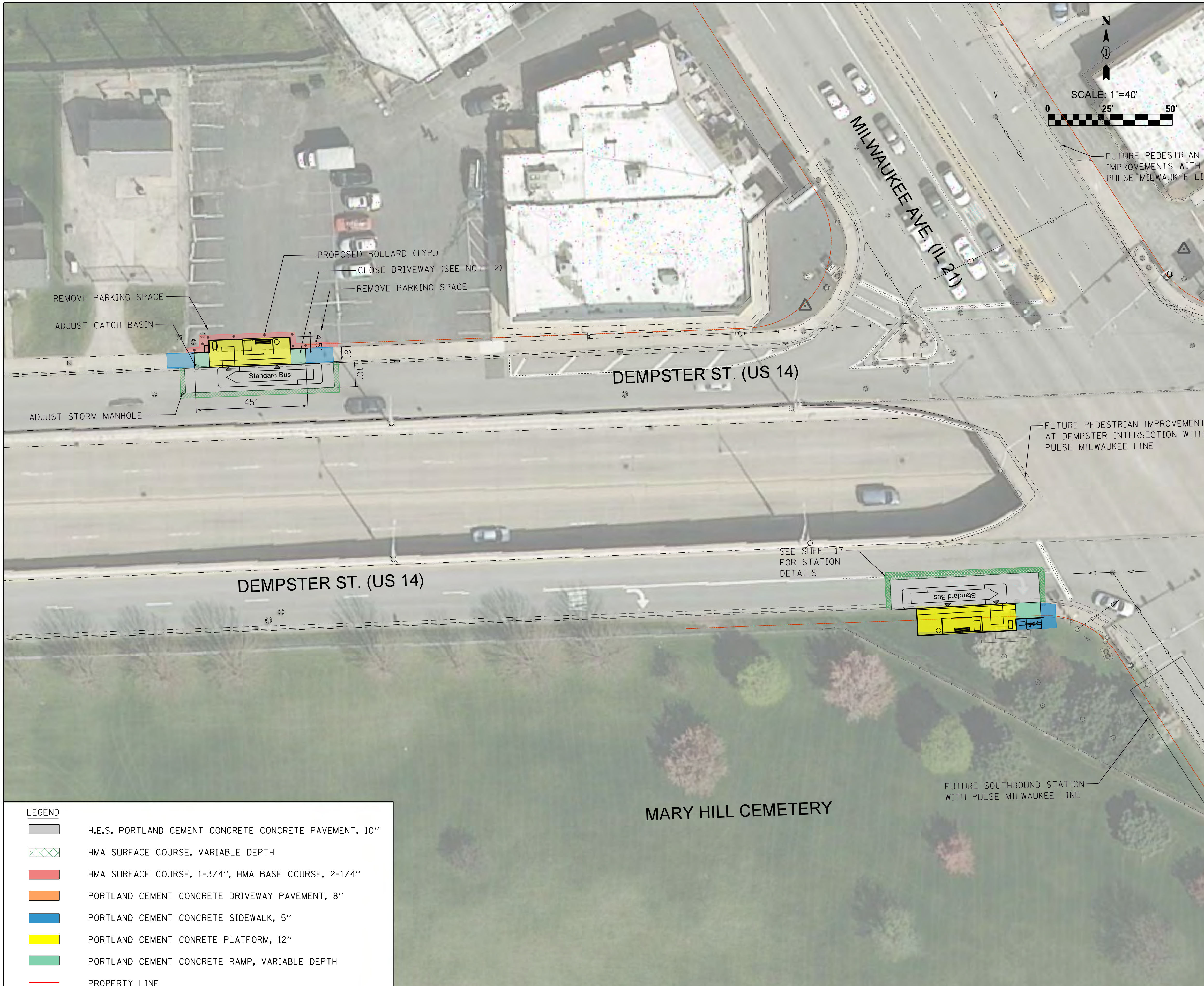
PULSE DEMPSTER LINE
CUMBERLAND:
EASTBOUND ALT. 2 AND WESTBOUND ALT. 1

SCALE: 1=40' | SHEET 14B OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	14B

CONTRACT NO.

ILLINOIS | FED. AID PROJECT



LEGEND

	H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
	HMA SURFACE COURSE, VARIABLE DEPTH
	HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
	PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
	PORTLAND CEMENT CONCRETE SIDEWALK, 5"
	PORTLAND CEMENT CONRETE PLATFORM, 12"
	PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
	PROPERTY LINE

LOCATION MAP

QUANTITIES

NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION.
2. CLOSE EXISTING DRIVEWAY. COORDINATE WITH PROPERTY OWNER.
3. EXISTING CONDITIONS AND PROPERTY LINES ARE SURVEYED FROM PULSE MILWAUKEE LINE.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\15 ...Milwaukee Alt 1.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - BP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
MILWAUKEE:
WESTBOUND ALT. 1

SCALE: 1=40' | SHEET 15 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	15
		CONTRACT NO.		

ILLINOIS FED. AID PROJECT

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION.
2. COORDINATE WITH PROPERTY OWNER ON MODIFYING STEPS FOR PROPOSED STATION.
3. EXISTING CONDITIONS AND PROPERTY LINES ARE SURVEYED FROM PULSE MILWAUKEE LINE.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\16 shtMilwaukee Alt 2.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - DP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
MILWAUKEE:
WESTBOUND ALT. 2

SCALE: 1=40' | SHEET 16 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	16

CONTRACT NO.

ILLINOIS FED. AID PROJECT

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS.
2. CLOSE EXISTING DRIVEWAY. DRIVEWAY CAN POTENTIALLY BE RELOCATED TO WASHINGTON ST. COORDINATE WITH PROPERTY OWNER AND VILLAGE.
3. RESTRIPE PAVEMENT MARKINGS AT EASTBOUND AND WESTBOUND STATIONS.
4. EXISTING CONDITIONS AND PROPERTY LINES ARE SURVEYED FROM PULSE MILWAUKEE LINE.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\17 shMilwaukee Alt 3.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - DP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

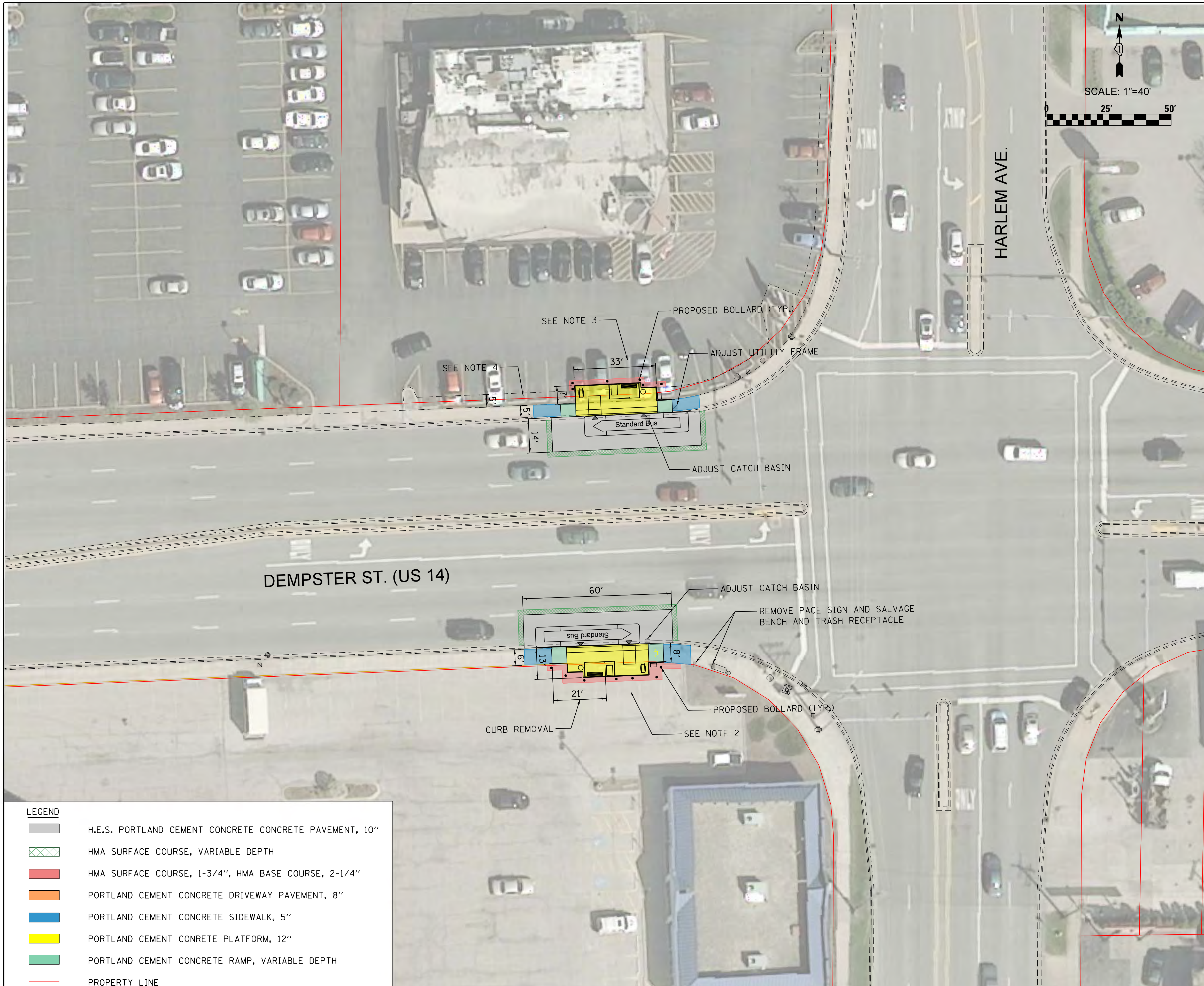
PULSE DEMPSTER LINE
MILWAUKEE:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 3

SCALE: 1=40' | SHEET 17 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	17

CONTRACT NO.

ILLINOIS | FED. AID PROJECT



QUANTITIES

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

NOTES

1. NO PROPOSED LANDSCAPE STRIP AND BICYCLE RACK AT EASTBOUND AND WESTBOUND STATIONS.
2. SHELTER IS SETBACK ON PRIVATE PARKING LOT. SIX PARKING SPACES WILL BE REMOVED FOR PROPOSED EASTBOUND STATION.
3. SHELTER IS SETBACK ON PRIVATE PARKING LOT. FIVE PARKING SPACES WILL BE IMPACTED FOR PROPOSED WESTBOUND STATION. POTENTIALLY CAN RESTRIPE PARKING SPACES TO ACCOMMODATE STATION.
4. AERIAL IS OUT DATED. FIVE FEET OF PARKING LOT ALONG VILLAGE SIDEWALK HAS BEEN REPLACED WITH DECORATIVE LANDSCAPING AND CURB.

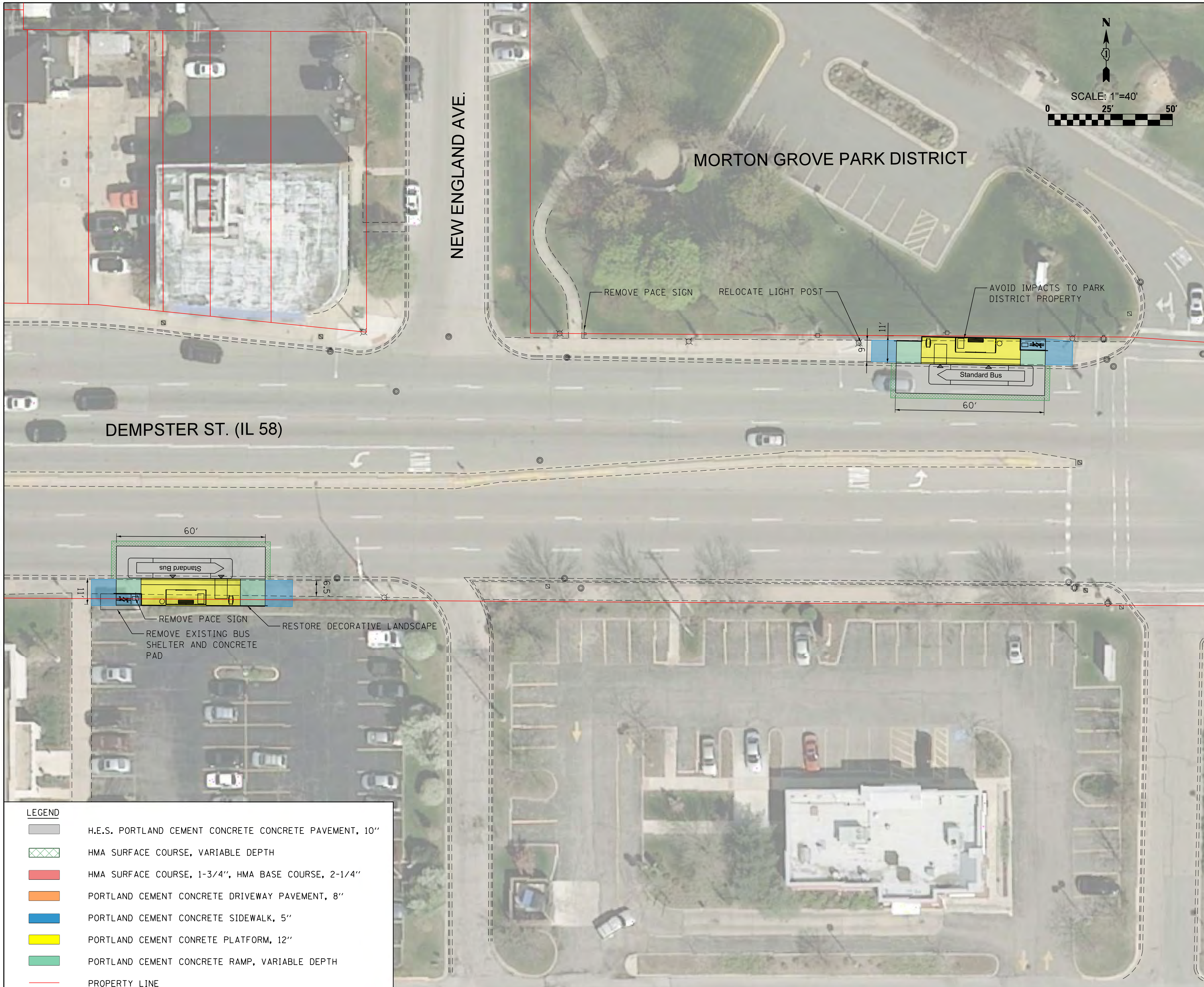
FILE NAME = \\CHIW00\Project_Data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\18 Harlem.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - DP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 6/10/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
HARLEM:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

SCALE: 1=40' | SHEET 18 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	18
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

ESTIMATE

1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS.

FILE NAME = I:\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\19 sht-Waukegan.dgn	USER NAME = amjensen	DESIGNED - AMJ	REVISED -
	PLOT SCALE = 1.0000 ' / in.	DRAWN - DP	REVISED -
	PLOT DATE = 7/7/2016	CHECKED - SH	REVISED -
		DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

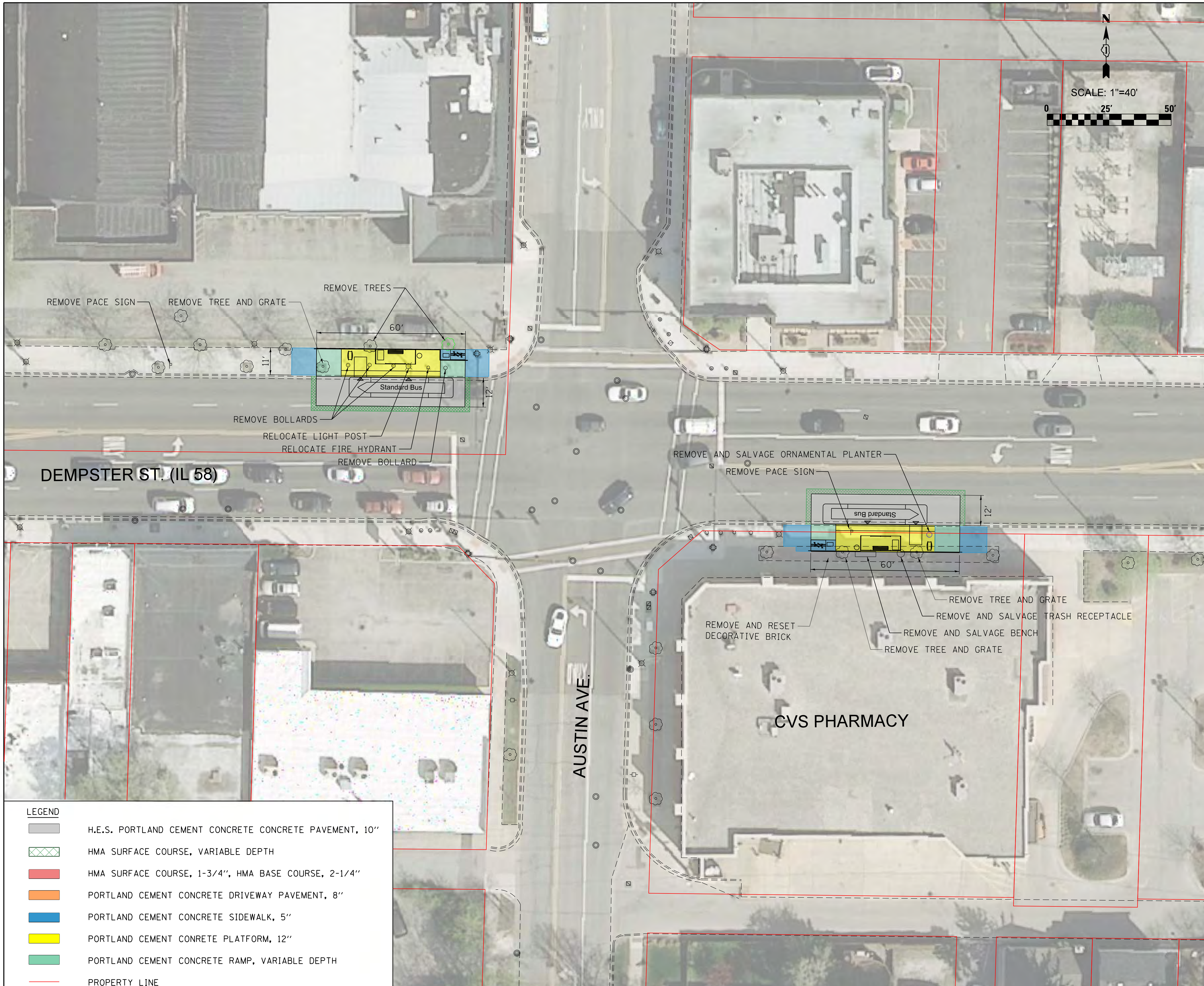
PULSE DEMPSTER LINE
WAUKEGAN:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 2

SCALE: 1=40' | SHEET 19 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	19

CONTRACT NO.

ILLINOIS FED. AID PROJECT



LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\20 sht_Austin.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - DP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

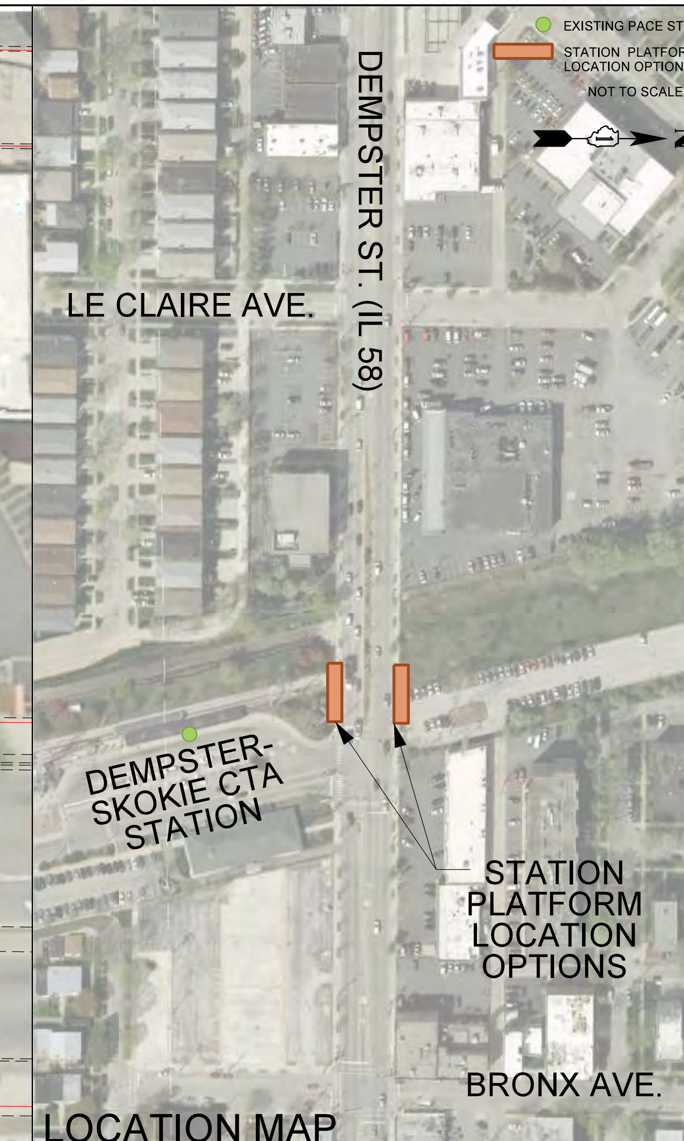
PULSE DEMPSTER LINE
AUSTIN:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

SCALE: 1=40' | SHEET 20 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	20
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE



LOCATION MAP

QUANTITIES

NOTES:

1. NO LANDSCAPE PROPOSED AT WESTBOUND AND EASTBOUND PLATFORMS.
2. COORDINATION WITH COMED IS REQUIRED FOR EASTBOUND AND WESTBOUND STATIONS.
3. AERIAL IS OUTDATED. SKOKIE VALLEY TRAIL HAS BEEN CONSTRUCTED. COODINATION WITH VILLAGE OF SKOKIE IS REQUIRED FOR CONSTRUCTING WESTBOUND STATION ADJACENT TO NEW TRAIL AND FOR PLACEMENT OF BICYCLE RACKS.

FILE NAME = I:\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\21 sht-Skokie.dgn	USER NAME = amjensen	DESIGNED - AMJ	REVISED -
		DRAWN - DP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 7/7/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

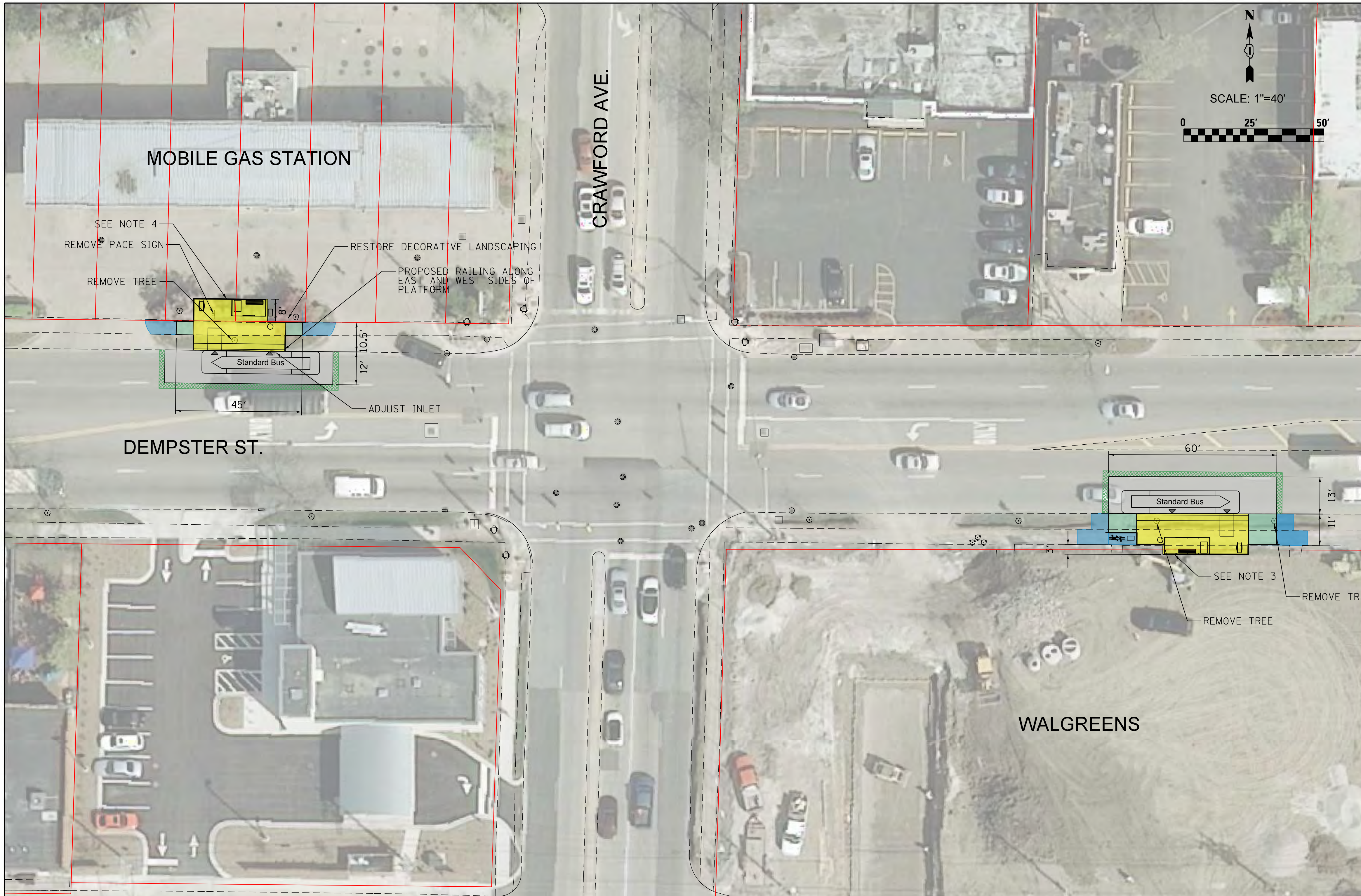
PULSE DEMPSTER LINE
DEMPSTER–SKOKIE CTA:
EASTBOUND ALT. 2 AND WESTBOUND ALT. 2

SCALE: 1=40' | SHEET 21 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	21

CONTRACT NO.

ILLINOIS | FED. AID PROJECT



QUANTITIES

LEGEND

(grey)	H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
(green hatch)	HMA SURFACE COURSE, VARIABLE DEPTH
(red)	HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
(orange)	PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
(blue)	PORTLAND CEMENT CONCRETE SIDEWALK, 5"
(yellow)	PORTLAND CEMENT CONRETE PLATFORM, 12"
(teal)	PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
(red line)	PROPERTY LINE

NOTES:

1. AERIAL IS OUTDATED. A NEW CVS PHARMACY IS LOCATED AT THE SOUTHEAST CORNER OF CRAWFORD AND DEMPSTER
2. PROPOSE NO LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS AND NO BIKE RACK AT WESTBOUND STATION.
3. SHELTER IS SET BACK TO MEET SIGHT DISTANCE REQUIREMENTS. SHELTER WILL POTENTIALLY BE AGAINST BUILDING.
4. SHELTER IS SET BACK TO MEET SIGHT DISTANCE REQUIREMENTS. SHELTER MAY ENCROACH INTO PRIVATE PARKING LOT.

FILE NAME = \\CHIW00\Project_Data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\22 shtCrawford Alt 1.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - DP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 6/10/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
CRAWFORD:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 3

SCALE: 1=40' | SHEET 22 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	22
		CONTRACT NO.		
	ILLINOIS	FED. AID PROJECT		

QUANTITIES

LEGEND

(grey)	H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
(green hatch)	HMA SURFACE COURSE, VARIABLE DEPTH
(red)	HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
(orange)	PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
(blue)	PORTLAND CEMENT CONCRETE SIDEWALK, 5"
(yellow)	PORTLAND CEMENT CONRETE PLATFORM, 12"
(green)	PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
(red line)	PROPERTY LINE

NOTES:

1. AERIAL IS OUTDATED. A NEW CVS PHARMACY IS LOCATED AT THE SOUTHEAST CORNER OF CRAWFORD AND DEMPSTER
2. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION
3. REMOVE EXISTING PACE SIGN AT NORTHWEST CORNER OF DEMPSTER ST AND CRAWFORD AVE
4. SHELTER IS SET BACK TO MEET SIGHT DISTANCE REQUIREMENTS. SHELTER MAY ENCROACH INTO PRIVATE PARKING LOT.

FILE NAME = I:\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\23 sht-Crawford Alt 2.dgn	USER NAME = amjensen	DESIGNED - AMJ	REVISED -	PACE SUBURBAN BUS A DIVISION OF THE REGIONAL TRANSPORTATION AUTHORITY	PULSE DEMPSTER LINE CRAWFORD: WESTBOUND ALT. 4	F.A. RTE. / SECTION / COUNTY: COOK / TOTAL SHEETS: 28 / SHEET NO.: 23
		DRAWN - DP	REVISED -			CONTRACT NO.
	PLOT SCALE = 1.0000 '/ in.	CHECKED - SH	REVISED -		SCALE: 1=40' / SHEET 23 OF 28 SHEETS / STA. / TO STA.	ILLINOIS FED. AID PROJECT
	PLOT DATE = 6/10/2016	DATE - 05132016	REVISED -			

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS.
2. SHELTER IS SET BACK TO MEET SIGHT DISTANCE REQUIREMENTS. SHELTER MAY ENCROACH INTO PRIVATE PARKING LOT.

FILE NAME = \\CHIW00\Project_Data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\24 st Lincolnwoon Alt.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - DP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 6/10/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
LINCOLNWOOD:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

SCALE: 1=40' | SHEET 24 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	24
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS.
2. SHELTER IS SET BACK TO MEET SIGHT DISTANCE REQUIREMENTS. SHELTER MAY ENCROACH INTO PRIVATE PARKING LOT AND ELIMINATE 4 PARKING SPACES.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\25 ... Lincolnwoon Alt.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
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	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
LINCOLNWOOD:
EASTBOUND ALT. 2 AND WESTBOUND ALT. 2

SCALE: 1=40' | SHEET 25 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	25

CONTRACT NO.

ILLINOIS FED. AID PROJECT

LEGEND

(gray)	H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
(hatched)	HMA SURFACE COURSE, VARIABLE DEPTH
(red)	HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
(orange)	PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
(blue)	PORTLAND CEMENT CONCRETE SIDEWALK, 5"
(yellow)	PORTLAND CEMENT CONRETE PLATFORM, 12"
(green)	PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
(red line)	PROPERTY LINE

QUANTITIES

NOTES:

1. NO PROPOSED LANDSCAPE AT EASTBOUND AND WESTBOUND STATIONS.
2. SHELTER IS SET BACK ONTO PRIVATE PROPERTY TO MEET SIGHT DISTANCE REQUIREMENTS. MAY ENCROACH INTO PRIVATE PARKING LOT.

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\26 sht Dodge Alt 1.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
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	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

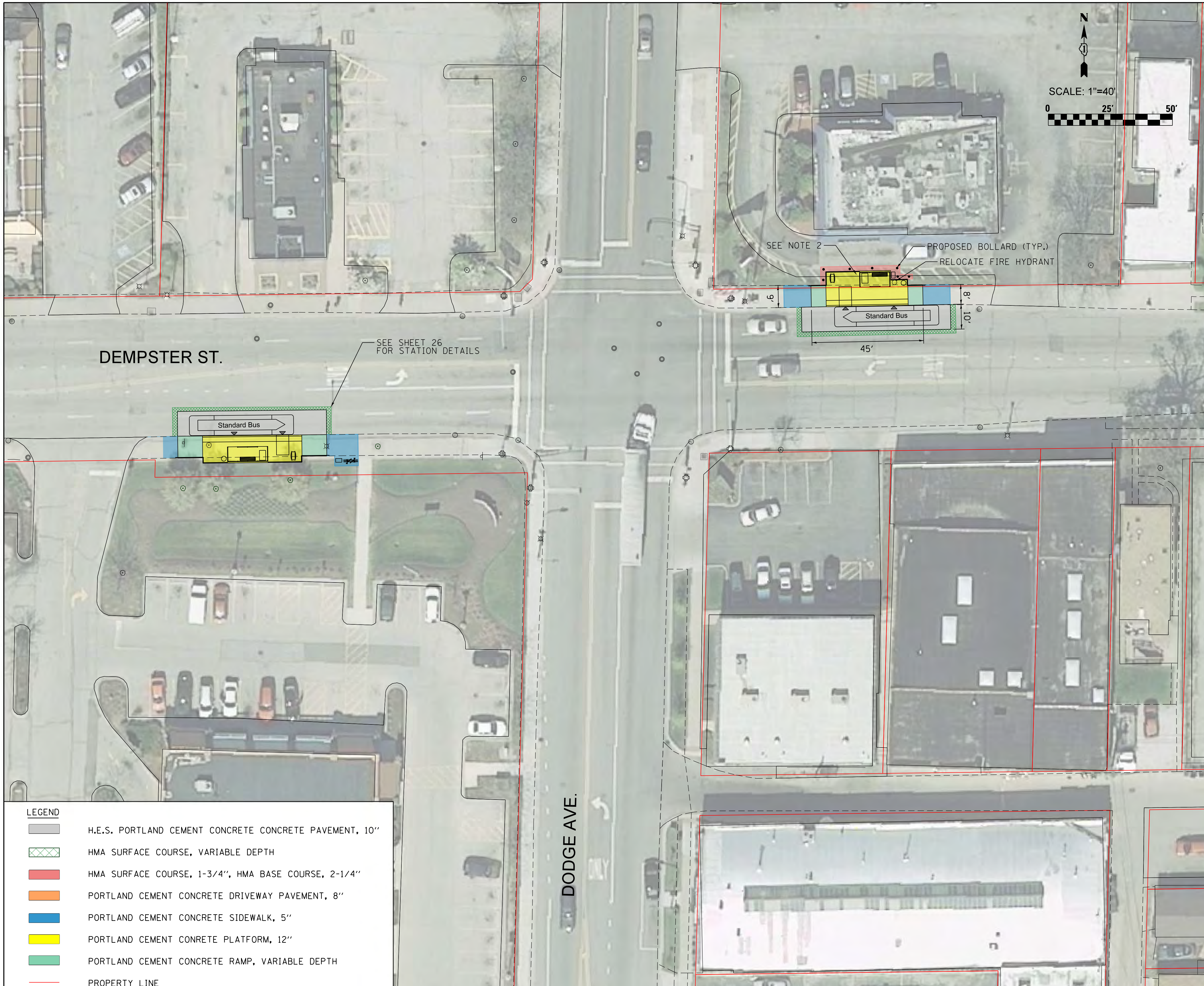
PULSE DEMPSTER LINE
DODGE:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

SCALE: 1=40' | SHEET 26 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	26

CONTRACT NO.

ILLINOIS | FED. AID PROJECT



LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION
2. STATION IS SET BACK ONTO PRIVATE PROPERTY TO MEET SIGHT DISTANCE REQUIREMENTS

FILE NAME = \\chiw00\Project_data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\27 sht Dodge Alt 2.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - DP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 7/6/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

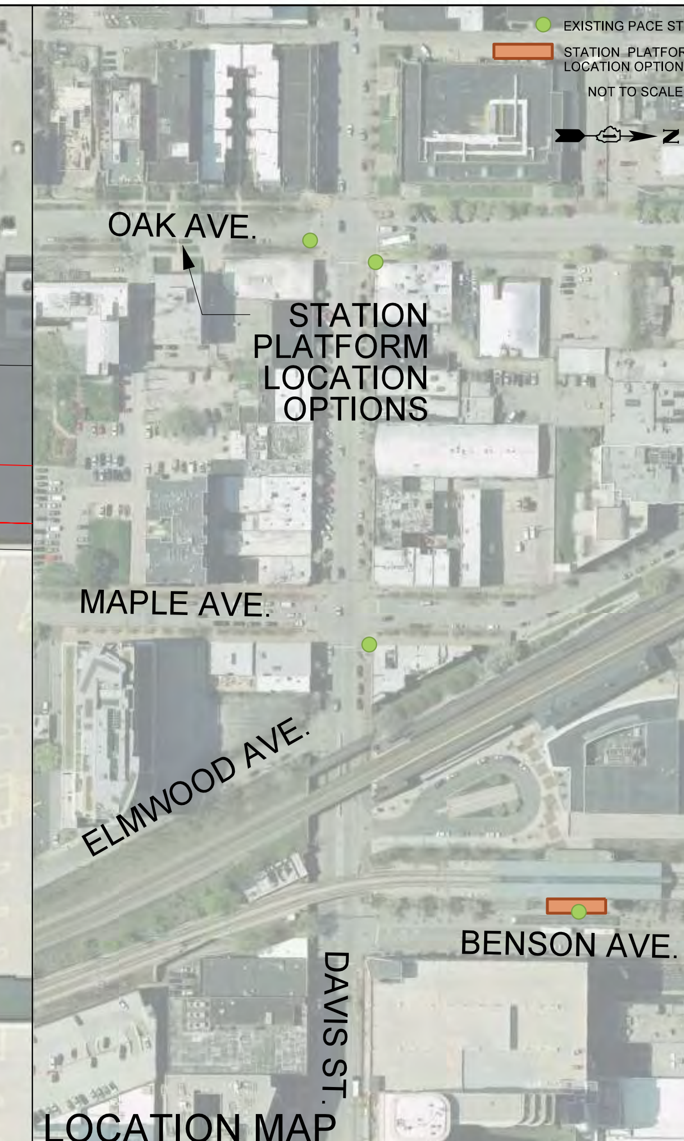
PULSE DEMPSTER LINE
DODGE:
WESTBOUND ALT. 3

SCALE: 1=40' | SHEET 27 OF 28 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	27

CONTRACT NO.

ILLINOIS | FED. AID PROJECT



LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

NOTES:

1. FUTURE COORDINATION NEEDED WITH REGIONAL TRANSPORTATION AUTHORITY ON INTERAGENCY REAL TIME ARRIVAL INFORMATION SIGNS.

FILE NAME = \\CHIW00\Project_Data\56849\CADD\TO 11 Dempster\Sheets\Station Layouts_05132016\28 s... Metra.dgn	USER NAME = dpanfilo	DESIGNED - AMJ	REVISED -
		DRAWN - DP	REVISED -
	PLOT SCALE = 1.0000 ' / in.	CHECKED - SH	REVISED -
	PLOT DATE = 6/7/2016	DATE - 05132016	REVISED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DAVIS CTA / METRA

SCALE: 1=40' | SHEET 28 OF 28 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		COOK	28	28
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

Appendix G

DRAFT BUS SCHEDULES

BASELINE OPERATING PLAN: PULSE DEMPSTER LINE

Pace Dempster Pulse			(7/27/16)	**Weekday**				
Total annual rev vehicle hrs			53403:37:28			Peak Buses =	15	
Total annual rev vehicle mi			901,185.30			20% Spares =	3	
						Fleet Size =	18	
Schedule Inputs			AM EB	Running Time	0:58:41			
Headway 1		0:15:00	AM WB	Running Time	0:52:14		wkday rev hrs	158:56:30
Headway 2		0:10:00	Midday EB	Running Time	0:54:42		wkday rev mi	2677.5
Headway 3		0:30:00	Midday WB	Running Time	0:53:31			
Headway 4		0:00:00	PM EB	Running Time	1:06:18		annual rev hrs	40530:07:30
			PM WB	Running Time	1:04:24		annual rev mi	682762.5
			Eve EB	Running Time	0:47:41			
			Eve WB	Running Time	0:43:30			

Weekday	**Pace Dempster Pulse**																													Headways:	
Round trip Count	Block No.	Lv O'Hare	Lee/Touhy	DP Metra	Hosp	Milwaukee	Waukegan	CTA Skokie	Crawford	Dodge	Ar Davis	Recovery time	Lv Davis	Dodge	Crawford	CTA Skokie	Waukegan	Milwaukee	Hosp	DP Metra	Lee/Touhy	Ar O'Hare	Recovery time	Lv next trip		Trip Miles	Trip Hours	Total Recovery Time		EB	WB
1	1												5:00 AM	5:05 AM	5:09 AM	5:12 AM	5:18 AM	5:22 AM	5:25 AM	5:31 AM	5:38 AM	5:43 AM	0:16:30	6:00 AM	1	15.3	1:00:00	0:16:30			
2	2												5:15 AM	5:20 AM	5:24 AM	5:27 AM	5:33 AM	5:37 AM	5:40 AM	5:46 AM	5:53 AM	5:58 AM	0:11:30	6:10 AM	2	15.3	0:55:00	0:11:30			0:15:00
3	3												5:30 AM	5:35 AM	5:39 AM	5:42 AM	5:48 AM	5:52 AM	5:55 AM	6:01 AM	6:08 AM	6:13 AM	0:06:30	6:20 AM	3	15.3	0:50:00	0:06:30			0:15:00
4	4												5:45 AM	5:50 AM	5:54 AM	5:57 AM	6:03 AM	6:07 AM	6:10 AM	6:16 AM	6:23 AM	6:28 AM	0:11:30	6:40 AM	4	15.3	0:55:00	0:11:30			0:15:00
5	5	5:00 AM	5:04 AM	5:13 AM	5:19 AM	5:22 AM	5:27 AM	5:33 AM	5:37 AM	5:41 AM	5:47 AM	0:13:00	6:00 AM	6:06 AM	6:10 AM	6:15 AM	6:22 AM	6:26 AM	6:29 AM	6:35 AM	6:45 AM	6:52 AM	0:07:05	7:00 AM	5	30.6	2:00:00	0:20:05			0:15:41
6	6	5:15 AM	5:19 AM	5:28 AM	5:34 AM	5:37 AM	5:42 AM	5:48 AM	5:52 AM	5:56 AM	6:02 AM	0:08:00	6:10 AM	6:16 AM	6:20 AM	6:25 AM	6:32 AM	6:36 AM	6:39 AM	6:45 AM	6:55 AM	7:02 AM	0:07:05	7:10 AM	6	30.6	1:55:00	0:15:05		0:15:00	0:10:00
7	7												6:20 AM	6:26 AM	6:30 AM	6:35 AM	6:42 AM	6:46 AM	6:49 AM	6:55 AM	7:05 AM	7:12 AM	0:07:05	7:20 AM	7	15.3	0:59:19	0:07:05			0:10:00
8	8	5:30 AM	5:34 AM	5:43 AM	5:49 AM	5:52 AM	5:57 AM	6:03 AM	6:07 AM	6:11 AM	6:17 AM	0:13:00	6:30 AM	6:36 AM	6:40 AM	6:45 AM	6:52 AM	6:56 AM	6:59 AM	7:05 AM	7:15 AM	7:22 AM	0:07:05	7:30 AM	8	30.6	2:00:00	0:20:05		0:15:00	0:10:00
9	9	5:45 AM	5:49 AM	5:58 AM	6:04 AM	6:07 AM	6:12 AM	6:18 AM	6:22 AM	6:26 AM	6:32 AM	0:08:00	6:40 AM	6:46 AM	6:50 AM	6:55 AM	7:02 AM	7:06 AM	7:09 AM	7:15 AM	7:25 AM	7:32 AM	0:07:05	7:40 AM	9	30.6	1:55:00	0:15:05		0:15:00	0:10:00
10	10												6:50 AM	6:56 AM	7:00 AM	7:05 AM	7:12 AM	7:16 AM	7:19 AM	7:25 AM	7:35 AM	7:42 AM	0:07:05	7:50 AM	10	15.3	0:59:19	0:07:05			0:10:00
11	11												7:00 AM	7:06 AM	7:10 AM	7:15 AM	7:22 AM	7:26 AM	7:29 AM	7:35 AM	7:45 AM	7:52 AM	0:07:05	8:00 AM	11	15.3	0:59:19	0:07:05			0:10:00
12	1	6:00 AM	6:06 AM	6:16 AM	6:23 AM	6:28 AM	6:33 AM	6:41 AM	6:45 AM	6:51 AM	6:58 AM	0:10:00	7:08 AM	7:14 AM	7:18 AM	7:23 AM	7:30 AM	7:34 AM	7:37 AM	7:43 AM	7:53 AM	8:00 AM	0:09:05	8:10 AM	1	30.6	2:10:00	0:19:05		0:15:00	0:08:00
13	2	6:10 AM	6:16 AM	6:26 AM	6:33 AM	6:38 AM	6:43 AM	6:51 AM	6:55 AM	7:01 AM	7:08 AM	0:10:00	7:18 AM	7:24 AM	7:28 AM	7:33 AM	7:40 AM	7:44 AM	7:47 AM	7:53 AM	8:03 AM	8:10 AM	0:09:05	8:20 AM	2	30.6	2:10:00	0:19:05		0:10:00	0:10:00
14	3	6:20 AM	6:26 AM	6:36 AM	6:43 AM	6:48 AM	6:53 AM	7:01 AM	7:05 AM	7:11 AM	7:18 AM	0:10:00	7:28 AM	7:34 AM	7:38 AM	7:43 AM	7:50 AM	7:54 AM	7:57 AM	8:03 AM	8:13 AM	8:20 AM	0:09:05	8:30 AM	3	30.6	2:10:00	0:19:05		0:10:00	0:10:00
15	12	6:30 AM	6:36 AM	6:46 AM	6:53 AM	6:58 AM	7:03 AM	7:11 AM	7:15 AM	7:21 AM	7:28 AM	0:10:00	7:38 AM	7:44 AM	7:48 AM	7:53 AM	8:00 AM	8:04 AM	8:07 AM	8:13 AM	8:23 AM	8:30 AM	0:09:05	8:40 AM	12	30.6	2:10:00	0:19:05		0:10:00	0:10:00
16	4	6:40 AM	6:46 AM	6:56 AM	7:03 AM	7:08 AM	7:13 AM	7:21 AM	7:25 AM	7:31 AM	7:38 AM	0:10:00	7:48 AM	7:54 AM	7:58 AM	8:03 AM	8:10 AM	8:14 AM	8:17 AM	8:23 AM	8:33 AM	8:40 AM	0:09:05	8:50 AM	4	30.6	2:10:00	0:19:05		0:10:00	0:10:00
17	13	6:50 AM	6:56 AM	7:06 AM	7:13 AM	7:18 AM	7:23 AM	7:31 AM	7:35 AM	7:41 AM	7:48 AM	0:10:00	7:58 AM	8:04 AM	8:08 AM	8:13 AM	8:20 AM	8:24 AM	8:27 AM	8:33 AM	8:43 AM	8:50 AM	0:09:05	9:00 AM	13	30.6	2:10:00	0:19:05		0:10:00	0:10:00
18	5	7:00 AM	7:06 AM	7:16 AM	7:23 AM	7:28 AM	7:33 AM	7:41 AM	7:45 AM	7:51 AM	7:58 AM	0:10:00	8:08 AM	8:14 AM	8:18 AM	8:23 AM	8:30 AM	8:34 AM	8:37 AM	8:43 AM	8:53 AM	9:00 AM	0:00:00	9:00 AM	5	30.6	2:00:55	0:10:00		0:10:00	0:10:00
19	6	7:10 AM	7:16 AM	7:26 AM	7:33 AM	7:38 AM	7:43 AM	7:51 AM	7:55 AM	8:01 AM	8:08 AM	0:10:00	8:18 AM	8:24 AM	8:28 AM	8:33 AM	8:40 AM	8:44 AM	8:47 AM	8:53 AM	9:03 AM	9:10 AM	0:04:05	9:15 AM	6	30.6	2:05:00	0:14:05		0:10:00	0:10:00
20	7	7:20 AM	7:26 AM	7:36 AM	7:43 AM	7:48 AM	7:53 AM	8:01 AM	8:05 AM	8:11 AM	8:18 AM	0:10:00	8:28 AM	8:34 AM	8:38 AM	8:43 AM	8:50 AM	8:54 AM	8:57 AM	9:03 AM	9:13 AM	9:20 AM	0:09:05	9:30 AM	7	30.6	2:10:00	0:19:05		0:10:00	0:10:00
21	8	7:30 AM	7:36 AM	7:46 AM	7:53 AM	7:58 AM	8:03 AM	8:11 AM	8:15 AM	8:21 AM	8:28 AM	0:10:00	8:38 AM	8:44 AM	8:48 AM	8:53 AM	9:00 AM	9:04 AM	9:07 AM	9:13 AM	9:23 AM	9:30 AM	0:14:05	9:45 AM	8	30.6	2:15:00	0:24:05		0:10:00	0:10:00
22	9	7:40 AM	7:46 AM	7:56 AM	8:03 AM	8:08 AM	8:13 AM	8:21 AM	8:25 AM	8:31 AM	8:38 AM	0:10:00	8:48 AM	8:54 AM	8:58 AM	9:03 AM	9:10 AM	9:14 AM	9:17 AM	9:23 AM	9:33 AM	9:40 AM	0:00:00	9:40 AM	9	30.6	2:00:55	0:10:00		0:10:00	0:10:00
23	10	7:50 AM	7:56 AM	8:06 AM	8:13 AM	8:18 AM	8:23 AM	8:31 AM	8:35 AM	8:41 AM	8:48 AM	0:10:00	8:58 AM	9:04 AM	9:08 AM	9:13 AM	9:20 AM	9:24 AM	9:27 AM	9:33 AM	9:43 AM	9:50 AM	0:09:05	10:00 AM	10	30.6	2:10:00	0:19:05		0:10:00	0:10:00
24	11	8:00 AM	8:06 AM	8:16 AM	8:23 AM	8:28 AM	8:33 AM	8:41 AM	8:45 AM	8:51 AM	8:58 AM	0:12:00	9:10 AM	9:17 AM	9:22 AM	9:26 AM	9:33 AM	9:38 AM	9:42 AM	9:49 AM	9:58 AM	10:04 AM	0:10:48	10:15 AM	11	30.6	2:15:00	0:22:48		0:10:00	0:12:00
25	1	8:10 AM	8:16 AM	8:26 AM	8:33 AM	8:38 AM	8:43 AM	8:51 AM	8:55 AM	9:01 AM	9:08 AM														1	15.3	0:58:41	0:00:00		0:10:00	
26	2	8:20 AM	8:26 AM	8:36 AM	8:43 AM	8:48 AM	8:53 AM	9:01 AM	9:05 AM	9:11 AM	9:18 AM	0:07:00	9:25 AM	9:32 AM	9:37 AM	9:41 AM	9:48 AM	9:53 AM	9:57 AM	10:04 AM	10:13 AM	10:19 AM	0:10:48	10:30 AM	2	30.6	2:10:00	0:17:48		0:10:00	0:15:00
27	3	8:30 AM	8:36 AM	8:46 AM	8:53 AM	8:58 AM	9:03 AM	9:11 AM	9:15 AM	9:21 AM	9:28 AM	0:12:00	9:40 AM	9:47 AM	9:52 AM	9:56 AM	10:03 AM	10:08 AM	10:12 AM	10:19 AM	10:28 AM	10:34 AM	0:10:48	10:45 AM	3	30.6	2:15:00	0:22:48		0:10:00	0:15:00
28	12	8:40 AM	8:46 AM	8:56 AM	9:03 AM	9:08 AM	9:13 AM	9:21 AM	9:25 AM	9:31 AM	9:38 AM														12	15.3	0:58:41	0:00:00		0:10:00	
29	4	8:50 AM	8:56 AM	9:06 AM	9:13 AM	9:18 AM	9:23 AM	9:31 AM	9:35 AM	9:41 AM	9:48 AM	0:08:00	9:56 AM	10:03 AM	10:08 AM	10:12 AM	10:19 AM	10:24 AM	10:28 AM	10:35 AM	10:44 AM	10:50 AM	0:09:48	11:00 AM	4	30.6	2:10:00	0:17:48		0:10:00	0:16:00
30	13	9:00 AM	9:05 AM	9:15 AM	9:22 AM	9:26 AM	9:31 AM	9:38 AM	9:42 AM	9:48 AM	9:54 AM														13	15.3	0:54:42	0:00:00		0:10:00	0:18:01
31	6	9:15 AM	9:20 AM	9:26 AM	9:30 AM	9:37 AM	9:42 AM	9:46 AM	9:53 AM	10:03 AM	10:09 AM	0:05:00	10:14 AM	10:21 AM	10:26 AM	10:30 AM	10:37 AM	10:42 AM	10:46 AM	10:53 AM	11:02 AM	11:08 AM	0:06:47	11:15 AM	6	30.6	2:00:00	0:11:47		0:15:00	
32	7	9:30 AM	9:35 AM	9:45 AM	9:52 AM	9:56 AM	10:01 AM	10:08 AM	10:12 AM	10:18 AM	10:24 AM	0:08:00	10:32 AM	10:39 AM	10:44 AM	10:48 AM	10:55 AM	11:00 AM	11:04 AM	11:11 AM	11:20 AM	11:26 AM	0:03:47	11:30 AM	7	30.6	2:00:00	0:11:47		0:15:00	0:18:00
33	8	9:45 AM	9:50 AM	10:00 AM	10:07 AM	10:11 AM	10:16 AM	10:23 AM	10:27 AM	10:33 AM	10:39 AM	0:07:00	10:46 AM	10:53 AM	10:58 AM	11:02 AM	11:09 AM	11:14 AM	11:18 AM	11:25 AM	11:34 AM	11:40 AM	0:04:47	11:45 AM	8	30.6	2:00:00	0:11:47		0:15:00	0:14:00
34	10	10:00 AM	10:05 AM	10:15 AM	10:22 AM	10:26 AM	10:31 AM	10:38 AM	10:42 AM	10:48 AM	10:54 AM	0:07:00	11:01 AM	11:08 AM	11:13 AM	11:17 AM	11:24 AM	11:29 AM	11:33 AM	11:40 AM	11:49 AM	11:55 AM	0:04:47	12:00 PM	10	30.6	2:00:00	0:11:47		0:15:00	0:15:00
35	11	10:15 AM	10:20 AM	10:30 AM	10:37 AM	10:41 AM	10:46 AM	10:53 AM	10:57 AM	11:03 AM	11:09 AM	0:07:00	11:16 AM	11:23 AM	11:28 AM	11:32 AM	11:39 AM	11:44 AM	11:48 AM	11:55 AM	12:04 PM	12:10 PM	0:04:47	12:15 PM	11	30.6	2:00:00	0:11:47		0:15:00	0:15:00
36	2	10:30 AM	10:35 AM	10:45 AM	10:52 AM	10:56 AM	11:01 AM	11:08 AM	11:12 AM	11:18 AM	11:24 AM	0:07:00	11:31 AM	11:38 AM	11:43 AM	11:47 AM	11:54 AM	11:59 AM	12:03 PM	12:10 PM	12:19 PM	12:25 PM	0:04:47	12:30 PM	2	30.6	2:00:00	0:11:47		0:15:00	0:15:00
37	3	10:45 AM	10:50 AM	11:00 AM	11:07 AM	11:11 AM	11:16 AM	11:23 AM	11:27 AM	11:33 AM	11:39 AM	0:07:00	11:46 AM	11:53 AM	11:58 AM	12:02 PM	12:09 PM	12:14 PM	12:18 PM	12:25 PM	12:34 PM	12:40 PM	0:04:47	12:45 PM	3	30.6	2:00:00	0:11:47		0:15:00	0:15:00
38	4	11:00 AM	11:05 AM	11:15 AM	11:22 AM	11:26 AM	11:31 AM	11:38 AM	11:42 AM	11:48 AM	11:54 AM	0:07:00	12:01 PM	12:08 PM	12:13 PM	12:17 PM	12:24 PM	12:29 PM	12:33 PM	12:40 PM	12:49 PM	12:55 PM	0:04:47	1:00 PM	4	30.6	2:00:00	0:11:47		0:15:00	0:15:00
39	6	11:15 AM	11:20 AM	11:30 AM	11:37 AM	11:41 AM	11:46 AM	11:53 AM	11:57 AM	12:03 PM	12:09 PM	0:07:00	12:16 PM	12:23 PM	12:28 PM	12:32 PM	12:39 PM	12:44 PM	12:48 PM	12:55 PM	1:04 PM	1:10 PM	0:04:47	1:15 PM	6	30.6	2:00:00	0:11:47		0:15:00	0:15:00
40	7	11:30 AM	11:35 AM	11:45 AM	11:52 AM	11:56 AM	12:01 PM	12:08 PM	12:12 PM	12:18 PM	12:24 PM	0:07:00	12:31 PM	12:38 PM	12:43 PM	12:47 PM	12:54 PM	12:59 PM	1:03 PM	1:10 PM	1:19 PM	1:25 PM	0:04:47	1:30 PM	7	30.6	2:00:00	0:11:47		0:15:00	0:15:00
41	8	11:45 AM	11:50 AM	12:00 PM	12:07 PM	12:11 PM	12:16 PM	12:23 PM	12:27 PM	12:33 PM	12:39 PM	0:07:00	12:46 PM	12:53 PM	12:58 PM	1:02 PM	1:09 PM	1:14 PM	1:18 PM	1:25 PM	1:34 PM	1:40 PM	0:04:47	1:45 PM	8	30.6	2:00:00	0:11:47		0:15:00	0:15:00
42	10	12:00 PM	12:05 PM	12:15 PM	12:22 PM	12:26 PM	12:31 PM	12:38 PM	12:42 PM	12:48 PM	12:54 PM	0:07:00	1:01 PM	1:08 PM	1:13 PM	1:17 PM	1:24 PM	1:29 PM	1:33 PM	1:40 PM	1:49 PM	1:55 PM	0:04:47	2:00 PM	10	30.6	2:00:00	0:11:47		0:15:00	0:15:00
43	11	12:15 PM	12:20 PM	12:30 PM	12:37 PM	12:41 PM	12:46 PM	12:53 PM	12:57 PM	1:03 PM	1:09 PM	0:07:00	1:16 PM	1:23 PM	1:28 PM	1:32 PM	1:39 PM	1:44 PM	1:48 PM	1:55 PM	2:04 PM	2:10 PM	0:04:47	2:15 PM	11	30.6	2:00:00	0:11:47		0:15:00	0:15:00
44	2	12:30 PM	12:35 PM	12:45 PM	12:52 PM	12:56 PM	1:01 PM	1:08 PM	1:12 PM	1:18 PM	1:24 PM	0:07:00	1:31 PM	1:38 PM	1:43 PM	1:47 PM	1:54 PM	1:59 PM	2:03 PM	2:10 PM	2:19 PM	2:25 PM	0:04:47	2:30 PM	2	30.6	2:00:00	0:11:47		0:15:00	0:15:00
45	3	12:45 PM	12:50 PM	1:00 PM	1:07 PM	1:11 PM	1:16 PM	1:23 PM	1:27 PM	1:33 PM	1:39 PM	0:07:00	1:46 PM	1:53 PM	1:58 PM	2:02 PM	2:09 PM	2:14 PM	2:18 PM	2:25 PM	2:34 PM	2:40 PM	0:04:47	2:45 PM	3	30.6	2:00:00	0:11:47		0:15:00	0:15:00
46	4	1:00 PM	1:05 PM	1:15 PM	1:22 PM	1:26 PM	1:31 PM	1:38 PM	1:42 PM	1:48 PM	1:54 PM	0:07:00	2:01 PM	2:08 PM	2:14 PM	2:20 PM	2:29 PM	2:34 PM	2:38 PM	2:46 PM	2:57 PM	3:06 PM	0:03:54	3:10 PM	4	30.6	2:06:06	0:10:54		0:15:00	0:15:00
47	6	1:15 PM	1:20 PM	1:30 PM	1:37 PM	1:41 PM	1:46 PM	1:53 PM	1:57 PM	2:03 PM	2:09 PM	0:10:00	2:19 PM	2:26 PM	2:32 PM	2:38 PM	2:47 PM	2:52 PM	2:56 PM	3:04 PM	3:15 PM	3:24 PM	0:05:54	3:30 PM	6	30.6	2:15:00	0:15:54		0:15:00	0:18:00
48	7	1:30 PM	1:35 PM	1:45 PM	1:52 PM	1:56 PM	2:01 PM	2:08 PM	2:12 PM	2:18 PM	2:24 PM	0:10:00	2:34 PM	2:41 PM	2:47 PM	2:53 PM	3:02 PM	3:07 PM	3:11 PM	3:19 PM	3:30 PM	3:39 PM	0:10:54	3:50 PM	7	30.6	2:20:00	0:20:54		0:15:00	0:15:00
49	8	1:45 PM	1:50 PM	2:00 PM	2:07 PM	2:11 PM	2:16 PM	2:23 PM	2:27 PM	2:33 PM	2:39 PM	0:10:00	2:49 PM	2:56 PM	3:02 PM	3:08 PM	3:17 PM	3:22 PM	3:26 PM	3:34 PM	3:45 PM	3:54 PM	0:05:54	4:00 PM	8	30.6	2:15:00	0:15:54		0:15:00	0:15:00
	14												3:04 PM	3:11 PM	3:17 PM	3:23 PM	3:32 PM	3:37 PM	3:41 PM	3:49 PM	4:00 PM	4:09 PM	0:00:00	4:09 PM	14	15.3	1:04:24	0:00:00			0:15:00
50	10	2:00 PM	2:06 PM	2:19 PM	2:29 PM	2:34 PM	2:40 PM	2:48 PM	2:51 PM	2:59 PM	3:06 PM	0:08:24	3:14 PM	3:21 PM	3:27 PM	3:33 PM	3:42 PM	3:47 PM	3:51 PM	3:59 PM	4:10 PM	4:19 PM	0:10:54	4:30 PM	10	30.6	2:30:00	0:19:18		0:15:00	0:10:00
	15												3:24 PM	3:31 PM	3:37 PM	3:43 PM	3:52 PM	3:57 PM	4:01 PM	4:09 PM	4:20 PM	4:29 PM	0:10:54	4:40 PM	15	15.3	1:15:18	0:10:54			0:10:00
51	11	2:15 PM	2:21 PM	2:34 PM	2:44 PM	2:49 PM	2:55 PM	3:03 PM	3:06 PM	3:14 PM	3:21 PM	0:13:00	3:34 PM	3:41 PM	3:46 PM	3:52 PM	4:02 PM	4:07 PM	4:11 PM	4:19 PM	4:30 PM	4:38 PM	0:11:18	4:50 PM	11	30.6	2:35:00	0:24:18		0:15:00	0:09:36
52	2	2:30 PM	2:36 PM	2:49 PM	2:59 PM	3:04 PM	3:10 PM	3:18 PM	3:21 PM	3:29 PM	3:36 PM	0:08:00	3:44 PM	3:51 PM	3:56 PM	4:02 PM	4:12 PM	4:17 PM	4:21 PM	4:29 PM	4:40 PM	4:48 PM	0:11:18	5:00 PM	2	30.6	2:30:00	0:19:18		0:15:00	0:10:00
53	3	2:45 PM	2:51 PM	3:04 PM	3:14 PM	3:19 PM	3:25 PM	3:33 PM	3:36 PM	3:44 PM	3:51 PM	0:05:00	3:56 PM	4:03 PM	4:08 PM	4:14 PM	4:24 PM	4:29 PM	4:33 PM	4:41 PM	4:52 PM	5:00 PM	0:09:18	5:10 PM	3	30.6	2:25:00	0:14:18		0:15:00	0:12:00
	16												4:06 PM	4:13 PM	4:18 PM	4:24 PM	4:34 PM	4:39 PM	4:43 PM	4:51 PM	5:02 PM	5:10 PM	0:09:18	5:20 PM	16	15.3	1:13:42	0:09:18			0:10:00
54	17	3:00 PM	3:06 PM	3:19 PM	3:29 PM	3:34 PM	3:40 PM	3:48 PM	3:51 PM	3:59 PM	4:06 PM	0:10:00	4:16 PM	4:23 PM	4:28 PM	4:34 PM	4:44 PM	4:49 PM	4:53 PM	5:01 PM	5:12 PM	5:20 PM	0:09:18	5:30 PM	17	30.6	2:30:00	0:19:18		0:15:00	0:10:00
55	4	3:10 PM	3:16 PM	3:29 PM	3:39 PM	3:44 PM	3:50 PM	3:58 PM	4:01 PM	4:09 PM	4:16 PM	0:10:00	4:26 PM	4:33 PM	4:38 PM	4:44 PM	4:54 PM	4:59 PM	5:03 PM	5:11 PM	5:22 PM	5:30 PM	0:09:18	5:40 PM	4	30.6	2:30:00	0:19:18		0:10:00	0:10:00
56	18	3:20 PM	3:26 PM	3:39 PM	3:49 PM	3:54 PM	4:00 PM	4:08 PM	4:11 PM	4:19 PM	4:26 PM	0:10:00	4:36 PM	4:43 PM	4:48 PM	4:54 PM	5:04 PM	5:09 PM	5:13 PM	5:21 PM	5:32 PM	5:40 PM	0:09:18	5:50 PM	18	30.6	2:30:00	0:19:18		0:10:00	0:10:00
57	6	3:30 PM	3:36 PM	3:49 PM	3:59 PM	4:04 PM	4:10 PM	4:18 PM	4:21 PM	4:29 PM	4:36 PM	0:10:00	4:46 PM	4:53 PM	4:58 PM	5:04 PM	5:14 PM	5:19 PM	5:23 PM	5:31 PM	5:42 PM	5:50 PM	0:09:18	6:00 PM	6	30.6	2:30:00	0:19:18		0:10:00	0:10:00
58	19	3:40 PM	3:46 PM	3:59 PM	4:09 PM	4:14 PM	4:20 PM	4:28 PM	4:31 PM	4:39 PM	4:46 PM	0:10:00	4:56 PM	5:03 PM	5:08 PM	5:14 PM	5:24 PM	5:29 PM	5:33 PM	5:41 PM	5:52 PM	6:00 PM	0:00:00	6:00 PM	19	30.6	2:20:42	0:10:00		0:10:00	0:10:00
59	7	3:50 PM	3:56 PM	4:09 PM	4:19 PM	4:24 PM	4:30 PM	4:38 PM	4:41 PM	4:49 PM	4:56 PM	0:10:00	5:06 PM	5:13 PM	5:18 PM	5:24 PM	5:34 PM	5:39 PM	5:43 PM	5:51 PM	6:02 PM	6:10 PM	0:04:18	6:15 PM	7	30.6	2:25:00	0:14:18		0:10:00	0:10:00
60	8	4:00 PM	4:06 PM	4:19 PM	4:29 PM	4:34 PM	4:40 PM	4:48 PM	4:51 PM	4:59 PM	5:06 PM	0:10:00	5:16 PM	5:23 PM	5:28 PM	5:34 PM	5:44 PM	5:49 PM	5:53 PM	6:01 PM	6:12 PM	6:20 PM	0:09:18	6:30 PM	8	30.6	2:30:00	0:19:18		0:10:00	0:10:00
61	20	4:10 PM	4:16 PM	4:29 PM	4:39 PM	4:44 PM	4:50 PM	4:58 PM	5:01 PM	5:09 PM	5:16 PM	0:10:00	5:26 PM	5:33 PM	5:38 PM	5:44 PM	5:54 PM	5:59 PM	6:03 PM	6:11 PM	6:22 PM	6:30 PM	0:00:00	6:30 PM	20	30.6	2:20:42	0:10:00		0:10:00	0:10:00
62	21	4:20 PM	4:26 PM	4:39 PM	4:49 PM	4:54 PM	5:00 PM	5:08 PM	5:11 PM	5:19 PM	5:26 PM	0:10:00	5:36 PM	5:43 PM	5:48 PM	5:54 PM	6:04 PM	6:09 PM	6:13 PM	6:21 PM	6:32 PM	6:40 PM	0:04:18	6:45 PM	21	30.6	2:25:00	0:14:18		0:10:00	0:10:00
63	10	4:30 PM	4:36 PM	4:49 PM	4:59 PM	5:04 PM	5:10 PM	5:18 PM	5:21 PM	5:29 PM	5:36 PM	0:10:00	5:46 PM	5:53 PM	5:58 PM	6:04 PM	6:14 PM	6:19 PM	6:23 PM	6:31 PM	6:42 PM	6:50 PM	0:09:18	7:00 PM	10	30.6	2:30:00	0:19:18		0:10:00	0:10:00
64	15	4:40 PM	4:46 PM	4:59 PM	5:09 PM	5:14 PM	5:20 PM	5:28 PM	5:31 PM	5:39 PM	5:46 PM	0:10:00	5:56 PM	6:03 PM	6:08 PM	6:14 PM	6:24 PM	6:29 PM	6:33 PM	6:41 PM	6:52 PM	7:00 PM	0:00:00	7:00 PM	15	30.6	2:20:42	0:10:00		0:10:00	0:10:00
65	11	4:50 PM	4:56 PM	5:09 PM	5:19 PM	5:24 PM	5:30 PM	5:38 PM	5:41 PM	5:49 PM	5:56 PM	0:15:00	6:11 PM	6:16 PM	6:21 PM	6:24 PM	6:30 PM	6:34 PM	6:37 PM	6:42 PM	6:50 PM	6:54 PM	0:00:00	6:54 PM	11	30.6	2:04:48	0:15:00		0:10:00	0:15:00
	22												6:26 PM	6:31 PM	6:36 PM	6:39 PM	6:45 PM	6:49 PM	6:52 PM	6:57 PM	7:05 PM	7:09 PM	0:05:12	7:15 PM	22	15.3	0:48:42	0:05:12			0:15:00
66	2	5:00 PM	5:06 PM	5:19 PM	5:29 PM	5:34 PM	5:40 PM	5:48 PM	5:51 PM	5:59 PM	6:06 PM														2	15.3	1:06:18	0:00:00		0:10:00	
67	3	5:10 PM	5:16 PM	5:29 PM	5:39 PM	5:44 PM	5:50 PM	5:58 PM	6:01 PM	6:09 PM	6:16 PM														3	15.3	1:06:18	0:00:00		0:10:00	
68	16	5:20 PM	5:26 PM	5:39 PM	5:49 PM	5:54 PM	6:00 PM	6:08 PM	6:11 PM	6:19 PM	6:26 PM	0:09:00	6:35 PM	6:40 PM	6:45 PM	6:48 PM	6:54 PM	6:58 PM	7:01 PM	7:06 PM	7:14 PM	7:18 PM	0:11:12	7:30 PM	16	30.6	2:10:00	0:20:12		0:10:00	0:09:00
69	17	5:30 PM	5:36 PM	5:49 PM	5:59 PM	6:04 PM	6:10 PM	6:18 PM	6:21 PM	6:29 PM	6:36 PM	0:14:00	6:50 PM	6:55 PM	7:00 PM	7:03 PM	7:09 PM	7:13 PM	7:16 PM	7:21 PM	7:29 PM	7:33 PM	0:11:12	7:45 PM	17	30.6	2:15:00	0:25:12		0:10:00	0:15:00
70	4	5:40 PM	5:46 PM	5:59 PM	6:09 PM	6:14 PM	6:20 PM	6:28 PM	6:31 PM	6:39 PM	6:46 PM														4	15.3	1:06:18			0:10:00	
71	18	5:50 PM	5:56 PM	6:09 PM	6:19 PM	6:24 PM	6:30 PM	6:38 PM	6:41 PM	6:49 PM	6:56 PM	0:09:00	7:05 PM	7:10 PM	7:15 PM	7:18 PM	7:24 PM	7:28 PM	7:31 PM	7:36 PM	7:44 PM	7:48 PM	0:11:12	8:00 PM	18	30.6	2:10:00	0:20:12		0:10:00	0:15:00
72	6	6:00 PM	6:04 PM	6:13 PM	6:19 PM	6:22 PM	6:27 PM	6:33 PM	6:37 PM	6:41 PM	6:47 PM														6	15.3	0:47:41			0:10:00	
73	7	6:15 PM	6:19 PM	6:28 PM	6:34 PM	6:37 PM	6:42 PM	6:48 PM	6:52 PM	6:56 PM	7:02 PM	0:10:00	7:12 PM	7:17 PM	7:22 PM	7:25 PM	7:31 PM	7:35 PM	7:38 PM	7:43 PM	7:51 PM	7:56 PM	0:00:00	7:56 PM	7	30.6	1:41:11	0:10:00		0:15:00	0:07:23
74	8	6:30 PM	6:34 PM	6:43 PM	6:49 PM	6:52 PM	6:57 PM	7:03 PM	7:07 PM	7:11 PM	7:17 PM	0:10:00	7:27 PM	7:32 PM	7:37 PM	7:40 PM	7:46 PM	7:50 PM	7:53 PM	7:58 PM	8:06 PM	8:11 PM	0:03:49	8:15 PM	8	30.6	1:45:00	0:13:49	1:56:40	0:15:00	0:15:00
75	21	6:45 PM	6:49 PM	6:58 PM	7:04 PM	7:07 PM	7:12 PM	7:18 PM	7:22 PM	7:26 PM	7:32 PM	0:10:00	7:42 PM	7:47 PM	7:52 PM	7:55 PM	8:01 PM	8:05 PM	8:08 PM	8:13 PM	8:21 PM	8:26 PM	0:03:49	8:30 PM	21	30.6	1:45:00	0:13:49		0:15:00	0:15:00
76	10	7:00 PM	7:04 PM	7:13 PM	7:19 PM	7:22 PM	7:27 PM	7:33 PM	7:37 PM	7:41 PM	7:47 PM	0:10:00	7:57 PM	8:02 PM	8:07 PM	8:10 PM	8:16 PM	8:20 PM	8:23 PM	8:28 PM	8:36 PM	8:41 PM	0:03:49	8:45 PM	10	30.6	1:45:00	0:13:49		0:15:00	0:15:00
77	22	7:15 PM	7:19 PM	7:28 PM	7:34 PM	7:37 PM	7:42 PM	7:48 PM	7:52 PM	7:56 PM	8:02 PM	0:10:00	8:12 PM	8:17 PM	8:22 PM	8:25 PM	8:31 PM	8:35 PM	8:38 PM	8:43 PM	8:51 PM	8:56 PM	0:03:49	9:00 PM	22	30.6	1:45:00	0:13:49		0:15:00	0:15:00
78	16	7:30 PM	7:34 PM	7:43 PM	7:49 PM	7:52 PM	7:57 PM	8:03 PM	8:07 PM	8:11 PM	8:17 PM	0:10:00	8:27 PM	8:32 PM	8:37 PM	8:40 PM	8:46 PM	8:50 PM	8:53 PM	8:58 PM	9:06 PM	9:11 PM	0:03:49	9:15 PM	16	30.6	1:45:00	0:13:49		0:15:00	0:15:00
79	17	7:45 PM	7:49 PM	7:58 PM	8:04 PM	8:07 PM	8:12 PM	8:18 PM	8:22 PM	8:26 PM	8:32 PM	0:10:00	8:42 PM	8:47 PM	8:52 PM	8:55 PM	9:01 PM	9:05 PM	9:08 PM	9:13 PM	9:21 PM	9:26 PM	0:03:49	9:30 PM	17	30.6	1:45:00	0:13:49		0:15:00	0:15:00
80	18	8:00 PM	8:04 PM	8:13 PM	8:19 PM	8:22 PM	8:27 PM	8:33 PM	8:37 PM	8:41 PM	8:47 PM	0:10:00	8:57 PM	9:02 PM	9:07 PM	9:10 PM	9:16 PM	9:20 PM	9:23 PM	9:28 PM	9:36 PM	9:41 PM	0:03:49	9:45 PM	18	30.6	1:45:00	0:13:49		0:15:00	0:15:00
81	8	8:15 PM	8:19 PM	8:28 PM	8:34 PM	8:37 PM	8:42 PM	8:48 PM	8:52 PM	8:56 PM	9:02 PM	0:10:00	9:12 PM	9:17 PM	9:22 PM	9:25 PM	9:31 PM	9:35 PM	9:38 PM	9:43 PM	9:51 PM	9:56 PM	0:03:49	10:00 PM	8	30.6	1:45:00	0:13:49		0:15:00	0:15:00
82	21	8:30 PM	8:34 PM	8:43 PM	8:49 PM	8:52 PM	8:57 PM	9:03 PM	9:07 PM	9:11 PM	9:17 PM	0:10:00	9:27 PM	9:32 PM	9:37 PM	9:40 PM	9:46 PM	9:50 PM	9:53 PM	9:58 PM	10:06 PM	10:11 PM	0:00:00	10:11 PM	21	30.6	1:41:11	0:10:00		0:15:00	0:15:00
83	10	8:45 PM	8:49 PM	8:58 PM	9:04 PM	9:07 PM	9:12 PM	9:18 PM	9:22 PM	9:26 PM	9:32 PM	0:10:00	9:42 PM	9:47 PM	9:52 PM	9:55 PM	10:01 PM	10:05 PM	10:08 PM	10:13 PM	10:21 PM	10:26 PM	0:03:49	10:30 PM	10	30.6	1:45:00	0:13:49		0:15:00	0:15:00
84	22	9:00 PM	9:04 PM	9:13 PM	9:19 PM	9:22 PM	9:27 PM	9:33 PM	9:37 PM	9:41 PM	9:47 PM	0:10:00	9:57 PM	10:02 PM	10:07 PM	10:10 PM	10:16 PM	10:20 PM	10:23 PM	10:28 PM	10:36 PM	10:41 PM	0:00:00	10:41 PM	22	30.6	1:41:11	0:10:00		0:15:00	0:15:00
85	16	9:15 PM	9:19 PM	9:28 PM	9:34 PM	9:37 PM	9:42 PM	9:48 PM	9:52 PM	9:56 PM	10:02 PM	0:10:00	10:12 PM	10:17 PM	10:22 PM	10:25 PM	10:31 PM	10:35 PM	10:38 PM	10:43 PM	10:51 PM	10:56 PM	0:03:49	11:00 PM	16	30.6	1:45:00	0:13:49		0:15:00	0:15:00
86	17	9:30 PM	9:34 PM	9:43 PM	9:49 PM	9:52 PM	9:57 PM	10:03 PM	10:07 PM	10:11 PM	10:17 PM	0:10:00	10:27 PM	10:32 PM	10:37 PM	10:40 PM	10:46 PM	10:50 PM	10:53 PM	10:58 PM	11:06 PM	11:11 PM	0:18:49	11:30 PM	17	30.6	2:00:00	0:28:49		0:15:00	0:15:00
87	18	9:45 PM	9:49 PM	9:58 PM	10:04 PM	10:07 PM	10:12 PM	10:18 PM	10:22 PM	10:26 PM	10:32 PM														18	15.3	0:47:41			0:15:00	
88	8	10:00 PM	10:04 PM	10:13 PM	10:19 PM	10:22 PM	10:27 PM	10:33 PM	10:37 PM	10:41 PM	10:47 PM	0:10:00	10:57 PM	11:02 PM	11:07 PM	11:10 PM	11:16 PM	11:20 PM	11:23 PM	11:28 PM	11:36 PM	11:41 PM	0:18:49	12:00 AM	8	30.6	2:00:00	0:28:49		0:15:00	0:30:00
89	10	10:30 PM	10:34 PM	10:43 PM	10:49 PM	10:52 PM	10:57 PM	11:03 PM	11:07 PM	11:11 PM	11:17 PM	0:10:00	11:27 PM	11:32 PM	11:37 PM	11:40 PM	11:46 PM	11:50 PM	11:53 PM	11:58 PM	12:06 AM	12:11 AM	0:18:49	12:30 AM	10	30.6	2:00:00	0:28:49		0:30:00	0:30:00
90	16	11:00 PM	11:04 PM	11:13 PM	11:19 PM	11:22 PM	11:27 PM	11:33 PM	11:37 PM	11:41 PM	11:47 PM	0:10:00	11:57 PM	12:02 AM	12:07 AM	12:10 AM	12:16 AM	12:20 AM	12:23 AM	12:28 AM	12:36 AM	12:41 AM	0:18:49	1:00 AM	16	30.6	2:00:00	0:28:49		0:30:00	0:30:00
91	17	11:30 PM	11:34 PM	11:43 PM	11:49 PM	11:52 PM	11:57 PM	12:03 AM	12:07 AM	12:11 AM	12:17 AM	0:10:00	12:27 AM	12:32 AM	12:37 AM	12:40 AM	12:46 AM	12:50 AM	12:53 AM	12:58 AM	1:06 AM	1:11 AM			17	30.6	1:41:11	0:10:00		0:30:00	0:30:00
92	8	12:00 AM	12:04 AM	12:13 AM	12:19 AM	12:22 AM	12:27 AM	12:33 AM	12:37 AM	12:41 AM	12:47 AM	0:10:00	12:57 AM	1:02 AM	1:07 AM	1:10 AM	1:16 AM	1:20 AM	1:23 AM	1:28 AM	1:36 AM	1:41 AM			8	30.6	1:41:11	0:10:00		0:30:00	0:30:00
93	10	12:30 AM	12:34 AM	12:43 AM	12:49 AM	12:52 AM	12:57 AM	1:03 AM	1:07 AM	1:11 AM	1:17 AM														10	15.3	0:47:41			0:30:00	
94	16	1:00 AM	1:04 AM	1:13 AM	1:19 AM	1:22 AM	1:27 AM	1:33 AM	1:37 AM	1:41 AM	1:47 AM														16	15.3	0:47:41			0:30:00	
												12:03:24											10:07:36			2677.5	158:56:30	22:11:00			
												9:24											7:4		Total Hours with Recc		181:07:30				
																										% Rec =	0.139569024				
																										Ave run time	1:50:54				

Pace Dempster Pulse (7/27/16) **Saturday**

Schedule Inputs					
		AM EB Running Time	0:58:41		
		AM WB Running Time	0:52:14	Satday rev hrs	120:50:31
		Midday EB Running Time	0:54:42	Satday rev mi	2050.2
Headway 1	0:10:00	Midday WB Running Time	0:53:31		
Headway 2	0:15:00	PM EB Running Time	1:06:18	annual rev hrs	6283:46:52
Headway 3	0:30:00	PM WB Running Time	1:04:24	annual rev mi	106610.4
Headway 4	0:20:00	Eve EB Running Time	0:47:41		
		Eve WB Running Time	0:43:30		

Saturday **Pace Dempster Pulse**

Round trip Count	Block No.	Lv O'Hare	Lee/Touhy	DP Metra	Hosp	Milwaukee	Waukegan	CTA Skokie	Crawford	Dodge	Ar Davis	Recovery time	Lv Davis	Dodge	Crawford	CTA Skokie	Waukegan	Milwaukee	Hosp	DP Metra	Lee/Touhy	Ar O'Hare	Recovery time	Lv next trip	Trip Miles	Trip Hours	Total Rec Time	Headways: EB	WB
1													6:00 AM	6:06 AM	6:11 AM	6:15 AM	6:23 AM	6:27 AM	6:31 AM	6:38 AM	6:47 AM	6:53 AM	0:06:00	6:59 AM	15.3	0:59:31	0:06:00		
2													6:30 AM	6:36 AM	6:41 AM	6:45 AM	6:53 AM	6:57 AM	7:01 AM	7:08 AM	7:17 AM	7:23 AM	0:06:00	7:29 AM	15.3	0:59:31	0:06:00		0:30:00
3		6:00 AM	6:05 AM	6:15 AM	6:22 AM	6:26 AM	6:31 AM	6:38 AM	6:42 AM	6:48 AM	6:54 AM	0:06:00	7:00 AM	7:07 AM	7:12 AM	7:16 AM	7:23 AM	7:28 AM	7:32 AM	7:39 AM	7:48 AM	7:54 AM	0:06:00	8:00 AM	30.6	2:00:13	0:12:00		0:30:42
4													7:15 AM	7:22 AM	7:27 AM	7:31 AM	7:38 AM	7:43 AM	7:47 AM	7:54 AM	8:03 AM	8:09 AM	0:06:00	8:15 AM	15.3	0:59:31	0:06:00		0:15:00
5		6:30 AM	6:35 AM	6:45 AM	6:52 AM	6:56 AM	7:01 AM	7:08 AM	7:12 AM	7:18 AM	7:24 AM	0:06:00	7:30 AM	7:37 AM	7:42 AM	7:46 AM	7:53 AM	7:58 AM	8:02 AM	8:09 AM	8:18 AM	8:24 AM	0:06:00	8:30 AM	30.6	2:00:13	0:12:00	0:30:00	0:15:00
6													7:45 AM	7:52 AM	7:57 AM	8:01 AM	8:08 AM	8:13 AM	8:17 AM	8:24 AM	8:33 AM	8:39 AM	0:06:00	8:45 AM	15.3	0:59:31	0:06:00		0:15:00
7		7:00 AM	7:05 AM	7:15 AM	7:22 AM	7:26 AM	7:31 AM	7:38 AM	7:42 AM	7:48 AM	7:54 AM	0:06:00	8:00 AM	8:07 AM	8:12 AM	8:16 AM	8:23 AM	8:28 AM	8:32 AM	8:39 AM	8:48 AM	8:54 AM	0:06:00	9:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:15:00
8		7:15 AM	7:20 AM	7:30 AM	7:37 AM	7:41 AM	7:46 AM	7:53 AM	7:57 AM	8:03 AM	8:09 AM	0:06:00	8:15 AM	8:22 AM	8:27 AM	8:31 AM	8:38 AM	8:43 AM	8:47 AM	8:54 AM	9:03 AM	9:09 AM	0:06:00	9:15 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
9		7:30 AM	7:35 AM	7:45 AM	7:52 AM	7:56 AM	8:01 AM	8:08 AM	8:12 AM	8:18 AM	8:24 AM	0:06:00	8:30 AM	8:37 AM	8:42 AM	8:46 AM	8:53 AM	8:58 AM	9:02 AM	9:09 AM	9:18 AM	9:24 AM	0:06:00	9:30 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
10		7:45 AM	7:50 AM	8:00 AM	8:07 AM	8:11 AM	8:16 AM	8:23 AM	8:27 AM	8:33 AM	8:39 AM	0:06:00	8:45 AM	8:52 AM	8:57 AM	9:01 AM	9:08 AM	9:13 AM	9:17 AM	9:24 AM	9:33 AM	9:39 AM	0:06:00	9:45 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
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62		8:45 PM	8:50 PM	9:00 PM	9:07 PM	9:11 PM	9:16 PM	9:23 PM	9:27 PM	9:33 PM	9:39 PM														15.3	0:54:42		0:15:00	
63		9:00 PM	9:05 PM	9:15 PM	9:22 PM	9:26 PM	9:31 PM	9:38 PM	9:42 PM	9:48 PM	9:54 PM	0:06:00	10:00 PM	10:07 PM	10:12 PM	10:16 PM	10:23 PM	10:28 PM	10:32 PM	10:39 PM	10:48 PM	10:54 PM	0:06:00	11:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:30:00
64		9:30 PM	9:35 PM	9:45 PM	9:52 PM	9:56 PM	10:01 PM	10:08 PM	10:12 PM	10:18 PM	10:24 PM	0:06:00	10:30 PM	10:37 PM	10:42 PM	10:46 PM	10:53 PM	10:58 PM	11:02 PM	11:09 PM	11:18 PM	11:24 PM	0:06:00	11:30 PM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
65		10:00 PM	10:05 PM	10:15 PM	10:22 PM	10:26 PM	10:31 PM	10:38 PM	10:42 PM	10:48 PM	10:54 PM	0:06:00	11:00 PM	11:07 PM	11:12 PM	11:16 PM	11:23 PM	11:28 PM	11:32 PM	11:39 PM	11:48 PM	11:54 PM	0:06:00	12:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
66		10:30 PM	10:35 PM	10:45 PM	10:52 PM	10:56 PM	11:01 PM	11:08 PM	11:12 PM	11:18 PM	11:24 PM	0:06:00	11:30 PM	11:37 PM	11:42 PM	11:46 PM	11:53 PM	11:58 PM	12:02 AM	12:09 AM	12:18 AM	12:24 AM	0:06:00	12:30 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
67		11:00 PM	11:05 PM	11:15 PM	11:22 PM	11:26 PM	11:31 PM	11:38 PM	11:42 PM	11:48 PM	11:54 PM	0:06:00	12:00 AM	12:07 AM	12:12 AM	12:16 AM	12:23 AM	12:28 AM	12:32 AM	12:39 AM	12:48 AM	12:54 AM	0:06:00	1:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
68		11:30 PM	11:35 PM	11:45 PM	11:52 PM	11:56 PM	12:01 AM	12:08 AM	12:12 AM	12:18 AM	12:24 AM	0:06:00	12:30 AM	12:37 AM	12:42 AM	12:46 AM	12:53 AM	12:58 AM	1:02 AM	1:09 AM	1:18 AM	1:24 AM	0:06:00	1:30 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
69		12:00 AM	12:05 AM	12:15 AM	12:22 AM	12:26 AM	12:31 AM	12:38 AM	12:42 AM	12:48 AM	12:54 AM	0:06:00	1:00 AM	1:07 AM	1:12 AM	1:16 AM	1:23 AM	1:28 AM	1:32 AM	1:39 AM	1:48 AM	1:54 AM	0:06:00	2:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
70		12:30 AM	12:35 AM	12:45 AM	12:52 AM	12:56 AM	1:01 AM	1:08 AM	1:12 AM	1:18 AM	1:24 AM														15.3	0:54:42		0:30:00	
71		1:00 AM	1:05 AM	1:15 AM	1:22 AM	1:26 AM	1:31 AM	1:38 AM	1:42 AM	1:48 AM	1:54 AM														15.3	0:54:42		0:30:00	
												0:06:00											0:06:00		2050.2	120:50:31	13:00:00		
																									W/Rec =	133:50:31			
																									% Rec =	10.8%			

Pace Dempster Pulse (7/27/16) **Sunday**

Schedule Inputs					
		AM EB Running Time	0:58:41		
		AM WB Running Time	0:52:14	Sunday rev hrs	113:36:57
		Midday EB Running Time	0:54:42	Sunday rev mi	1927.8
Headway 1	0:10:00	Midday WB Running Time	0:53:31		
Headway 2	0:15:00	PM EB Running Time	1:06:18	annual rev hrs	6589:43:06
Headway 3	0:30:00	PM WB Running Time	1:04:24	annual rev mi	111812.40
Headway 4	0:05:00	Eve EB Running Time	0:47:41		
		Eve WB Running Time	0:43:30		

Sunday **Pace Dempster Pulse**

Round trip Count	Block No.	Lv O'Hare	Lee/Touhy	DP Metra	Hosp	Milwaukee	Waukegan	CTA Skokie	Crawford	Dodge	Ar Davis	Recovery time	Lv Davis	Dodge	Crawford	CTA Skokie	Waukegan	Milwaukee	Hosp	DP Metra	Lee/Touhy	Ar O'Hare	Recovery time	Lv next trip	Trip Miles	Trip Hours	Total Rec Time	Headways NB	SB
1													7:00 AM	7:06 AM	7:11 AM	7:15 AM	7:23 AM	7:27 AM	7:31 AM	7:38 AM	7:47 AM	7:53 AM	0:06:00	7:59 AM	15.3	0:59:31	0:06:00		
2													7:30 AM	7:36 AM	7:41 AM	7:45 AM	7:53 AM	7:57 AM	8:01 AM	8:08 AM	8:17 AM	8:23 AM	0:06:00	8:29 AM	15.3	0:59:31	0:06:00		0:30:00
3		7:00 AM	7:05 AM	7:15 AM	7:22 AM	7:26 AM	7:31 AM	7:38 AM	7:42 AM	7:48 AM	7:54 AM	0:06:00	8:00 AM	8:06 AM	8:11 AM	8:15 AM	8:23 AM	8:27 AM	8:31 AM	8:38 AM	8:47 AM	8:53 AM	0:06:00	8:59 AM	30.6	1:59:31	0:12:00		0:30:00
4													8:15 AM	8:21 AM	8:26 AM	8:30 AM	8:38 AM	8:42 AM	8:46 AM	8:53 AM	9:02 AM	9:08 AM	0:06:00	9:14 AM	15.3	0:59:31	0:06:00		0:15:00
5		7:30 AM	7:35 AM	7:45 AM	7:52 AM	7:56 AM	8:01 AM	8:08 AM	8:12 AM	8:18 AM	8:24 AM	0:06:00	8:30 AM	8:37 AM	8:42 AM	8:46 AM	8:53 AM	8:58 AM	9:02 AM	9:09 AM	9:18 AM	9:24 AM	0:06:00	9:30 AM	30.6	2:00:13	0:12:00	0:30:00	0:15:42
6													8:45 AM	8:52 AM	8:57 AM	9:01 AM	9:08 AM	9:13 AM	9:17 AM	9:24 AM	9:33 AM	9:39 AM	0:06:00	9:45 AM	15.3	0:59:31	0:06:00		0:15:00
7		8:00 AM	8:05 AM	8:15 AM	8:22 AM	8:26 AM	8:31 AM	8:38 AM	8:42 AM	8:48 AM	8:54 AM	0:06:00	9:00 AM	9:07 AM	9:12 AM	9:16 AM	9:23 AM	9:28 AM	9:32 AM	9:39 AM	9:48 AM	9:54 AM	0:06:00	10:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:15:00
8		8:15 AM	8:20 AM	8:30 AM	8:37 AM	8:41 AM	8:46 AM	8:53 AM	8:57 AM	9:03 AM	9:09 AM	0:06:00	9:15 AM	9:22 AM	9:27 AM	9:31 AM	9:38 AM	9:43 AM	9:47 AM	9:54 AM	10:03 AM	10:09 AM	0:06:00	10:15 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
9		8:30 AM	8:35 AM	8:45 AM	8:52 AM	8:56 AM	9:01 AM	9:08 AM	9:12 AM	9:18 AM	9:24 AM	0:06:00	9:30 AM	9:37 AM	9:42 AM	9:46 AM	9:53 AM	9:58 AM	10:02 AM	10:09 AM	10:18 AM	10:24 AM	0:06:00	10:30 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
10		8:45 AM	8:50 AM	9:00 AM	9:07 AM	9:11 AM	9:16 AM	9:23 AM	9:27 AM	9:33 AM	9:39 AM	0:06:00	9:45 AM	9:52 AM	9:57 AM	10:01 AM	10:08 AM	10:13 AM	10:17 AM	10:24 AM	10:33 AM	10:39 AM	0:06:00	10:45 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
11		9:00 AM	9:05 AM	9:15 AM	9:22 AM	9:26 AM	9:31 AM	9:38 AM	9:42 AM	9:48 AM	9:54 AM	0:06:00	10:00 AM	10:07 AM	10:12 AM	10:16 AM	10:23 AM	10:28 AM	10:32 AM	10:39 AM	10:48 AM	10:54 AM	0:06:00	11:00 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
12		9:15 AM	9:20 AM	9:30 AM	9:37 AM	9:41 AM	9:46 AM	9:53 AM	9:57 AM	10:03 AM	10:09 AM	0:06:00	10:15 AM	10:22 AM	10:27 AM	10:31 AM	10:38 AM	10:43 AM	10:47 AM	10:54 AM	11:03 AM	11:09 AM	0:06:00	11:15 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
13		9:30 AM	9:35 AM	9:45 AM	9:52 AM	9:56 AM	10:01 AM	10:08 AM	10:12 AM	10:18 AM	10:24 AM	0:06:00	10:30 AM	10:37 AM	10:42 AM	10:46 AM	10:53 AM	10:58 AM	11:02 AM	11:09 AM	11:18 AM	11:24 AM	0:06:00	11:30 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
14		9:45 AM	9:50 AM	10:00 AM	10:07 AM	10:11 AM	10:16 AM	10:23 AM	10:27 AM	10:33 AM	10:39 AM	0:06:00	10:45 AM	10:52 AM	10:57 AM	11:01 AM	11:08 AM	11:13 AM	11:17 AM	11:24 AM	11:33 AM	11:39 AM	0:06:00	11:45 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
15		10:00 AM	10:05 AM	10:15 AM	10:22 AM	10:26 AM	10:31 AM	10:38 AM	10:42 AM	10:48 AM	10:54 AM	0:06:00	11:00 AM	11:07 AM	11:12 AM	11:16 AM	11:23 AM	11:28 AM	11:32 AM	11:39 AM	11:48 AM	11:54 AM	0:06:00	12:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
16		10:15 AM	10:20 AM	10:30 AM	10:37 AM	10:41 AM	10:46 AM	10:53 AM	10:57 AM	11:03 AM	11:09 AM	0:06:00	11:15 AM	11:22 AM	11:27 AM	11:31 AM	11:38 AM	11:43 AM	11:47 AM	11:54 AM	12:03 PM	12:09 PM	0:06:00	12:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
17		10:30 AM	10:35 AM	10:45 AM	10:52 AM	10:56 AM	11:01 AM	11:08 AM	11:12 AM	11:18 AM	11:24 AM	0:06:00	11:30 AM	11:37 AM	11:42 AM	11:46 AM	11:53 AM	11:58 AM	12:02 PM	12:09 PM	12:18 PM	12:24 PM	0:06:00	12:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
18		10:45 AM	10:50 AM	11:00 AM	11:07 AM	11:11 AM	11:16 AM	11:23 AM	11:27 AM	11:33 AM	11:39 AM	0:06:00	11:45 AM	11:52 AM	11:57 AM	12:01 PM	12:08 PM	12:13 PM	12:17 PM	12:24 PM	12:33 PM	12:39 PM	0:06:00	12:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
19		11:00 AM	11:05 AM	11:15 AM	11:22 AM	11:26 AM	11:31 AM	11:38 AM	11:42 AM	11:48 AM	11:54 AM	0:06:00	12:00 PM	12:07 PM	12:12 PM	12:16 PM	12:23 PM	12:28 PM	12:32 PM	12:39 PM	12:48 PM	12:54 PM	0:06:00	1:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
20		11:15 AM	11:20 AM	11:30 AM	11:37 AM	11:41 AM	11:46 AM	11:53 AM	11:57 AM	12:03 PM	12:09 PM	0:06:00	12:15 PM	12:22 PM	12:27 PM	12:31 PM	12:38 PM	12:43 PM	12:47 PM	12:54 PM	1:03 PM	1:09 PM	0:06:00	1:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
21		11:30 AM	11:35 AM	11:45 AM	11:52 AM	11:56 AM	12:01 PM	12:08 PM	12:12 PM	12:18 PM	12:24 PM	0:06:00	12:30 PM	12:37 PM	12:42 PM	12:46 PM	12:53 PM	12:58 PM	1:02 PM	1:09 PM	1:18 PM	1:24 PM	0:06:00	1:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
22		11:45 AM	11:50 AM	12:00 PM	12:07 PM	12:11 PM	12:16 PM	12:23 PM	12:27 PM	12:33 PM	12:39 PM	0:06:00	12:45 PM	12:52 PM	12:57 PM	1:01 PM	1:08 PM	1:13 PM	1:17 PM	1:24 PM	1:33 PM	1:39 PM	0:06:00	1:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
23		12:00 PM	12:05 PM	12:15 PM	12:22 PM	12:26 PM	12:31 PM	12:38 PM	12:42 PM	12:48 PM	12:54 PM	0:06:00	1:00 PM	1:07 PM	1:12 PM	1:16 PM	1:23 PM	1:28 PM	1:32 PM	1:39 PM	1:48 PM	1:54 PM	0:06:00	2:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
24		12:15 PM	12:20 PM	12:30 PM	12:37 PM	12:41 PM	12:46 PM	12:53 PM	12:57 PM	1:03 PM	1:09 PM	0:06:00	1:15 PM	1:22 PM	1:27 PM	1:31 PM	1:38 PM	1:43 PM	1:47 PM	1:54 PM	2:03 PM	2:09 PM	0:06:00	2:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
25		12:30 PM	12:35 PM	12:45 PM	12:52 PM	12:56 PM	1:01 PM	1:08 PM	1:12 PM	1:18 PM	1:24 PM	0:06:00	1:30 PM	1:37 PM	1:42 PM	1:46 PM	1:53 PM	1:58 PM	2:02 PM	2:09 PM	2:18 PM	2:24 PM	0:06:00	2:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
26		12:45 PM	12:50 PM	1:00 PM	1:07 PM	1:11 PM	1:16 PM	1:23 PM	1:27 PM	1:33 PM	1:39 PM	0:06:00	1:45 PM	1:52 PM	1:57 PM	2:01 PM	2:08 PM	2:13 PM	2:17 PM	2:24 PM	2:33 PM	2:39 PM	0:06:00	2:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
27		1:00 PM	1:05 PM	1:15 PM	1:22 PM	1:26 PM	1:31 PM	1:38 PM	1:42 PM	1:48 PM	1:54 PM	0:06:00	2:00 PM	2:07 PM	2:12 PM	2:16 PM	2:23 PM	2:28 PM	2:32 PM	2:39 PM	2:48 PM	2:54 PM	0:06:00	3:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
28		1:15 PM	1:20 PM	1:30 PM	1:37 PM	1:41 PM	1:46 PM	1:53 PM	1:57 PM	2:03 PM	2:09 PM	0:06:00	2:15 PM	2:22 PM	2:27 PM	2:31 PM	2:38 PM	2:43 PM	2:47 PM	2:54 PM	3:03 PM	3:09 PM	0:06:00	3:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
29		1:30 PM	1:35 PM	1:45 PM	1:52 PM	1:56 PM	2:01 PM	2:08 PM	2:12 PM	2:18 PM	2:24 PM	0:06:00	2:30 PM	2:37 PM	2:42 PM	2:46 PM	2:53 PM	2:58 PM	3:02 PM	3:09 PM	3:18 PM	3:24 PM	0:06:00	3:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
30		1:45 PM	1:50 PM	2:00 PM	2:07 PM	2:11 PM	2:16 PM	2:23 PM	2:27 PM	2:33 PM	2:39 PM	0:06:00	2:45 PM	2:52 PM	2:57 PM	3:01 PM	3:08 PM	3:13 PM	3:17 PM	3:24 PM	3:33 PM	3:39 PM	0:06:00	3:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
31		2:00 PM	2:05 PM	2:15 PM	2:22 PM	2:26 PM	2:31 PM	2:38 PM	2:42 PM	2:48 PM	2:54 PM	0:06:00	3:00 PM	3:07 PM	3:12 PM	3:16 PM	3:23 PM	3:28 PM	3:32 PM	3:39 PM	3:48 PM	3:54 PM	0:06:00	4:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
32		2:15 PM	2:20 PM	2:30 PM	2:37 PM	2:41 PM	2:46 PM	2:53 PM	2:57 PM	3:03 PM	3:09 PM	0:06:00	3:15 PM	3:22 PM	3:27 PM	3:31 PM	3:38 PM	3:43 PM	3:47 PM	3:54 PM	4:03 PM	4:09 PM	0:06:00	4:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
33		2:30 PM	2:35 PM	2:45 PM	2:52 PM	2:56 PM	3:01 PM	3:08 PM	3:12 PM	3:18 PM	3:24 PM	0:06:00	3:30 PM	3:37 PM	3:42 PM	3:46 PM	3:53 PM	3:58 PM	4:02 PM	4:09 PM	4:18 PM	4:24 PM	0:06:00	4:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
34		2:45 PM	2:50 PM	3:00 PM	3:07 PM	3:11 PM	3:16 PM	3:23 PM	3:27 PM	3:33 PM	3:39 PM	0:06:00	3:45 PM	3:52 PM	3:57 PM	4:01 PM	4:08 PM	4:13 PM	4:17 PM	4:24 PM	4:33 PM	4:39 PM	0:06:00	4:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
35		3:00 PM	3:05 PM	3:15 PM	3:22 PM	3:26 PM	3:31 PM	3:38 PM	3:42 PM	3:48 PM	3:54 PM	0:06:00	4:00 PM	4:07 PM	4:12 PM	4:16 PM	4:23 PM	4:28 PM	4:32 PM	4:39 PM	4:48 PM	4:54 PM	0:06:00	5:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
36		3:15 PM	3:20 PM	3:30 PM	3:37 PM	3:41 PM	3:46 PM	3:53 PM	3:57 PM	4:03 PM	4:09 PM	0:06:00	4:15 PM	4:22 PM	4:27 PM	4:31 PM	4:38 PM	4:43 PM	4:47 PM	4:54 PM	5:03 PM	5:09 PM	0:06:00	5:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
37		3:30 PM	3:35 PM	3:45 PM	3:52 PM	3:56 PM	4:01 PM	4:08 PM	4:12 PM	4:18 PM	4:24 PM	0:06:00	4:30 PM	4:37 PM	4:42 PM	4:46 PM	4:53 PM	4:58 PM	5:02 PM	5:09 PM	5:18 PM	5:24 PM	0:06:00	5:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
38		3:45 PM	3:50 PM	4:00 PM	4:07 PM	4:11 PM	4:16 PM	4:23 PM	4:27 PM	4:33 PM	4:39 PM	0:06:00	4:45 PM	4:52 PM	4:57 PM	5:01 PM	5:08 PM	5:13 PM	5:17 PM	5:24 PM	5:33 PM	5:39 PM	0:06:00	5:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
39		4:00 PM	4:05 PM	4:15 PM	4:22 PM	4:26 PM	4:31 PM	4:38 PM	4:42 PM	4:48 PM	4:54 PM	0:06:00	5:00 PM	5:07 PM	5:12 PM	5:16 PM	5:23 PM	5:28 PM	5:32 PM	5:39 PM	5:48 PM	5:54 PM	0:06:00	6:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
40		4:15 PM	4:20 PM	4:30 PM	4:37 PM	4:41 PM	4:46 PM	4:53 PM	4:57 PM	5:03 PM	5:09 PM	0:06:00	5:15 PM	5:22 PM	5:27 PM	5:31 PM	5:38 PM	5:43 PM	5:47 PM	5:54 PM	6:03 PM	6:09 PM	0:06:00	6:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
41		4:30 PM	4:35 PM	4:45 PM	4:52 PM	4:56 PM	5:01 PM	5:08 PM	5:12 PM	5:18 PM	5:24 PM	0:06:00	5:30 PM	5:37 PM	5:42 PM	5:46 PM	5:53 PM	5:58 PM	6:02 PM	6:09 PM	6:18 PM	6:24 PM	0:06:00	6:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
42		4:45 PM	4:50 PM	5:00 PM	5:07 PM	5:11 PM	5:16 PM	5:23 PM	5:27 PM	5:33 PM	5:39 PM	0:06:00	5:45 PM	5:52 PM	5:57 PM	6:01 PM	6:08 PM	6:13 PM	6:17 PM	6:24 PM	6:33 PM	6:39 PM	0:06:00	6:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
43		5:00 PM	5:05 PM	5:15 PM	5:22 PM	5:26 PM	5:31 PM	5:38 PM	5:42 PM	5:48 PM	5:54 PM	0:06:00	6:00 PM	6:07 PM	6:12 PM	6:16 PM	6:23 PM	6:28 PM	6:32 PM	6:39 PM	6:48 PM	6:54 PM	0:06:00	7:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
44		5:15 PM	5:20 PM	5:30 PM	5:37 PM	5:41 PM	5:46 PM	5:53 PM	5:57 PM	6:03 PM	6:09 PM	0:06:00	6:15 PM	6:22 PM	6:27 PM	6:31 PM	6:38 PM	6:43 PM	6:47 PM	6:54 PM	7:03 PM	7:09 PM	0:06:00	7:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
45		5:30 PM	5:35 PM	5:45 PM	5:52 PM	5:56 PM	6:01 PM	6:08 PM	6:12 PM	6:18 PM	6:24 PM	0:06:00	6:30 PM	6:37 PM	6:42 PM	6:46 PM	6:53 PM	6:58 PM	7:02 PM	7:09 PM	7:18 PM	7:24 PM	0:06:00	7:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
46		5:45 PM	5:50 PM	6:00 PM	6:07 PM	6:11 PM	6:16 PM	6:23 PM	6:27 PM	6:33 PM	6:39 PM	0:06:00	6:45 PM	6:52 PM	6:57 PM	7:01 PM	7:08 PM	7:13 PM	7:17 PM	7:24 PM	7:33 PM	7:39 PM	0:06:00	7:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
47		6:00 PM	6:05 PM	6:15 PM	6:22 PM	6:26 PM	6:31 PM	6:38 PM	6:42 PM	6:48 PM	6:54 PM	0:06:00	7:00 PM	7:07 PM	7:12 PM	7:16 PM	7:23 PM	7:28 PM	7:32 PM	7:39 PM	7:48 PM	7:54 PM	0:06:00	8:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
48		6:15 PM	6:20 PM	6:30 PM	6:37 PM	6:41 PM	6:46 PM	6:53 PM	6:57 PM	7:03 PM	7:09 PM	0:06:00	7:15 PM	7:22 PM	7:27 PM	7:31 PM	7:38 PM	7:43 PM	7:47 PM	7:54 PM	8:03 PM	8:09 PM	0:06:00	8:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
49		6:30 PM	6:35 PM	6:45 PM	6:52 PM	6:56 PM	7:01 PM	7:08 PM	7:12 PM	7:18 PM	7:24 PM	0:06:00	7:30 PM	7:37 PM	7:42 PM	7:46 PM	7:53 PM	7:58 PM	8:02 PM	8:09 PM	8:18 PM	8:24 PM	0:06:00	8:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
50		6:45 PM	6:50 PM	7:00 PM	7:07 PM	7:11 PM	7:16 PM	7:23 PM	7:27 PM	7:33 PM	7:39 PM	0:06:00	7:45 PM	7:52 PM	7:57 PM	8:01 PM	8:08 PM	8:13 PM	8:17 PM	8:24 PM	8:33 PM	8:39 PM	0:06:00	8:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
51		7:00 PM	7:05 PM	7:15 PM	7:22 PM	7:26 PM	7:31 PM	7:38 PM	7:42 PM	7:48 PM	7:54 PM	0:06:00	8:00 PM	8:07 PM	8:12 PM	8:16 PM	8:23 PM	8:28 PM	8:32 PM	8:39 PM	8:48 PM	8:54 PM	0:06:00	9:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
52		7:15 PM	7:20 PM	7:30 PM	7:37 PM	7:41 PM	7:46 PM	7:53 PM	7:57 PM	8:03 PM	8:09 PM	0:06:00	8:15 PM	8:22 PM	8:27 PM	8:31 PM	8:38 PM	8:43 PM	8:47 PM	8:54 PM	9:03 PM	9:09 PM	0:06:00	9:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
53		7:30 PM	7:35 PM	7:45 PM	7:52 PM	7:56 PM	8:01 PM	8:08 PM	8:12 PM	8:18 PM	8:24 PM	0:06:00	8:30 PM	8:37 PM	8:42 PM	8:46 PM	8:53 PM	8:58 PM	9:02 PM	9:09 PM	9:18 PM	9:24 PM	0:06:00	9:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
54		7:45 PM	7:50 PM	8:00 PM	8:07 PM	8:11 PM	8:16 PM	8:23 PM	8:27 PM	8:33 PM	8:39 PM	0:06:00	8:45 PM	8:52 PM	8:57 PM	9:01 PM	9:08 PM	9:13 PM	9:17 PM	9:24 PM	9:33 PM	9:39 PM	0:06:00	9:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
55		8:00 PM	8:05 PM	8:15 PM	8:22 PM	8:26 PM	8:31 PM	8:38 PM	8:42 PM	8:48 PM	8:54 PM	0:06:00	9:00 PM	9:07 PM	9:12 PM	9:16 PM	9:23 PM	9:28 PM	9:32 PM	9:39 PM	9:48 PM	9:54 PM	0:06:00	10:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
56		8:15 PM	8:20 PM	8:30 PM	8:37 PM	8:41 PM	8:46 PM	8:53 PM	8:57 PM	9:03 PM	9:09 PM														15.3	0:54:42		0:15:00	
57		8:30 PM	8:35 PM	8:45 PM	8:52 PM	8:56 PM	9:01 PM	9:08 PM	9:12 PM	9:18 PM	9:24 PM	0:06:00	9:30 PM	9:37 PM	9:42 PM	9:46 PM	9:53 PM	9:58 PM	10:02 PM	10:09 PM	10:18 PM	10:24 PM	0:06:00	10:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:30:00
58		8:45 PM	8:50 PM	9:00 PM	9:07 PM	9:11 PM	9:16 PM	9:23 PM	9:27 PM	9:33 PM	9:39 PM														15.3	0:54:42		0:15:00	
59		9:00 PM	9:05 PM	9:15 PM	9:22 PM	9:26 PM	9:31 PM	9:38 PM	9:42 PM	9:48 PM	9:54 PM	0:06:00	10:00 PM	10:07 PM	10:12 PM	10:16 PM	10:23 PM	10:28 PM	10:32 PM	10:39 PM	10:48 PM	10:54 PM	0:06:00	11:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:30:00
60		9:30 PM	9:35 PM	9:45 PM	9:52 PM	9:56 PM	10:01 PM	10:08 PM	10:12 PM	10:18 PM	10:24 PM	0:06:00	10:30 PM	10:37 PM	10:42 PM	10:46 PM	10:53 PM	10:58 PM	11:02 PM	11:09 PM	11:18 PM	11:24 PM	0:06:00	11:30 PM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
61		10:00 PM	10:05 PM	10:15 PM	10:22 PM	10:26 PM	10:31 PM	10:38 PM	10:42 PM	10:48 PM	10:54 PM	0:06:00	11:00 PM	11:07 PM	11:12 PM	11:16 PM	11:23 PM	11:28 PM	11:32 PM	11:39 PM	11:48 PM	11:54 PM	0:06:00	12:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
62		10:30 PM	10:35 PM	10:45 PM	10:52 PM	10:56 PM	11:01 PM	11:08 PM	11:12 PM	11:18 PM	11:24 PM	0:06:00	11:30 PM	11:37 PM	11:42 PM	11:46 PM	11:53 PM	11:58 PM	12:02 AM	12:09 AM	12:18 AM	12:24 AM	0:06:00	12:30 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
63		11:00 PM	11:05 PM	11:15 PM	11:22 PM	11:26 PM	11:31 PM	11:38 PM	11:42 PM	11:48 PM	11:54 PM	0:06:00	12:00 AM	12:07 AM	12:12 AM	12:16 AM	12:23 AM	12:28 AM	12:32 AM	12:39 AM	12:48 AM	12:54 AM	0:06:00	1:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
64		11:30 PM	11:35 PM	11:45 PM	11:52 PM	11:56 PM	12:01 AM	12:08 AM	12:12 AM	12:18 AM	12:24 AM	0:06:00	12:30 AM	12:37 AM	12:42 AM	12:46 AM	12:53 AM	12:58 AM	1:02 AM	1:09 AM	1:18 AM	1:24 AM			30.6	1:54:13	0:06:00	0:30:00	0:30:00
65		12:00 AM	12:05 AM	12:15 AM	12:22 AM	12:26 AM	12:31 AM	12:38 AM	12:42 AM	12:48 AM	12:54 AM	0:06:00	1:00 AM	1:07 AM	1:12 AM	1:16 AM	1:23 AM	1:28 AM	1:32 AM	1:39 AM	1:48 AM	1:54 AM			30.6	1:54:13	0:06:00	0:30:00	0:30:00
66		12:30 AM	12:35 AM	12:45 AM	12:52 AM	12:56 AM	1:01 AM	1:08 AM	1:12 AM	1:18 AM	1:24 AM														15.3	0:54:42	0:00:00	0:30:00	
67		1:00 AM	1:05 AM	1:15 AM	1:22 AM	1:26 AM	1:31 AM	1:38 AM	1:42 AM	1:48 AM	1:54 AM														15.3	0:54:42	0:00:00	0:30:00	
												0:06:00											0:06:00		1927.8	113:36:57	12:00:00		
																								Total Hours w/F		125:36:57			
																								% Rec =		0.147929			

BASELINE OPERATING PLAN: REDUCED LOCAL ROUTE 250

Pace Dempster Local (7/30/16) **Weekday**

Total annual rev vehicle hrs	13669:54:13		Peak Buses =	5
Total annual rev vehicle mi	208,141.20		20% Spares =	1
			Fleet Size =	6

Schedule Inputs					
Headway 1	0:15:00	AM EB Running Time	1:02:50		
Headway 2	0:10:00	AM WB Running Time	0:56:23	wkday rev hrs	40:33:25
Headway 3	0:35:00	Midday EB Running Time	0:59:15	wkday rev mi	612
Headway 4	1:10:00	Midday WB Running Time	0:58:04		
		PM EB Running Time	1:10:15	annual rev hrs	10342:01:15
		PM WB Running Time	1:08:21	annual rev mi	156060
		Eve EB Running Time	0:52:14		
		Eve WB Running Time	0:48:03		

Weekday **Pace Dempster Local**

Round trip Count	Block No.	Lv O'Hare	Lee/Touhy	DP Metra	Hosp	Milwaukee	Waukegan	CTA Skokie	Crawford	Dodge	Ar Davis	Recovery time
1	1											
2	2	5:30 AM	5:35 AM	5:44 AM	5:51 AM	5:54 AM	5:59 AM	6:06 AM	6:10 AM	6:16 AM	6:22 AM	0:08:00
3	3											
4	1	6:40 AM	6:46 AM	6:57 AM	7:05 AM	7:10 AM	7:15 AM	7:24 AM	7:28 AM	7:35 AM	7:42 AM	0:05:00
5	4	7:15 AM	7:21 AM	7:32 AM	7:40 AM	7:45 AM	7:50 AM	7:59 AM	8:03 AM	8:10 AM	8:17 AM	0:05:00
6	2	7:50 AM	7:56 AM	8:07 AM	8:15 AM	8:20 AM	8:25 AM	8:34 AM	8:38 AM	8:45 AM	8:52 AM	0:05:00
7	3	8:25 AM	8:31 AM	8:42 AM	8:50 AM	8:55 AM	9:00 AM	9:09 AM	9:13 AM	9:20 AM	9:27 AM	0:05:00
8	1	9:00 AM	9:06 AM	9:17 AM	9:25 AM	9:30 AM	9:35 AM	9:44 AM	9:48 AM	9:55 AM	10:02 AM	
9	4	9:35 AM	9:41 AM	9:51 AM	9:58 AM	10:03 AM	10:08 AM	10:16 AM	10:20 AM	10:27 AM	10:34 AM	0:05:00
10	3	10:45 AM	10:51 AM	11:01 AM	11:08 AM	11:13 AM	11:18 AM	11:26 AM	11:30 AM	11:37 AM	11:44 AM	0:05:00
11	4	11:55 AM	12:01 PM	12:11 PM	12:18 PM	12:23 PM	12:28 PM	12:36 PM	12:40 PM	12:47 PM	12:54 PM	0:05:00
12	3	1:05 PM	1:11 PM	1:21 PM	1:28 PM	1:33 PM	1:38 PM	1:46 PM	1:50 PM	1:57 PM	2:04 PM	0:05:00
13	4	2:15 PM	2:21 PM	2:31 PM	2:38 PM	2:43 PM	2:48 PM	2:56 PM	3:00 PM	3:07 PM	3:14 PM	0:05:00
14	5											
15	6	3:05 PM	3:11 PM	3:26 PM	3:36 PM	3:41 PM	3:48 PM	3:56 PM	3:59 PM	4:07 PM	4:15 PM	0:10:00
16	7	3:40 PM	3:46 PM	4:01 PM	4:11 PM	4:16 PM	4:23 PM	4:31 PM	4:34 PM	4:42 PM	4:50 PM	0:10:00
17	8	4:15 PM	4:21 PM	4:36 PM	4:46 PM	4:51 PM	4:58 PM	5:06 PM	5:09 PM	5:17 PM	5:25 PM	0:10:00
18	9	4:50 PM	4:56 PM	5:11 PM	5:21 PM	5:26 PM	5:33 PM	5:41 PM	5:44 PM	5:52 PM	6:00 PM	0:10:00
19	5	5:25 PM	5:31 PM	5:46 PM	5:56 PM	6:01 PM	6:08 PM	6:16 PM	6:19 PM	6:27 PM	6:35 PM	
20	6	6:00 PM	6:06 PM	6:21 PM	6:31 PM	6:36 PM	6:43 PM	6:51 PM	6:54 PM	7:02 PM	7:10 PM	0:10:00
21	8	7:10 PM	7:15 PM	7:24 PM	7:31 PM	7:34 PM	7:39 PM	7:46 PM	7:50 PM	7:56 PM	8:20 PM	0:10:00
22	6	8:20 PM	8:25 PM	8:34 PM	8:41 PM	8:44 PM	8:49 PM	8:56 PM	9:00 PM	9:06 PM	9:12 PM	0:10:00
23	8	9:30 PM	9:35 PM	9:44 PM	9:51 PM	9:54 PM	9:59 PM	10:06 PM	10:10 PM	10:16 PM	10:22 PM	
												2:03:00

Round trip Count	Lv Davis	Dodge	Crawford	CTA Skokie	Waukegan	Milwaukee	Hosp	DP Metra	Lee/Touhy	Ar O'Hare	Recovery time	Lv next trip
1	5:30 AM	5:35 AM	5:40 AM	5:44 AM	5:50 AM	5:55 AM	5:58 AM	6:04 AM	6:13 AM	6:18 AM	0:21:57	6:40 AM
2	6:30 AM	6:36 AM	6:41 AM	6:46 AM	6:53 AM	6:58 AM	7:01 AM	7:08 AM	7:18 AM	7:26 AM	0:23:23	7:50 AM
3	7:05 AM	7:11 AM	7:16 AM	7:21 AM	7:28 AM	7:33 AM	7:36 AM	7:43 AM	7:53 AM	8:01 AM	0:23:23	8:25 AM
4	7:47 AM	7:53 AM	7:58 AM	8:03 AM	8:11 AM	8:15 AM	8:19 AM	8:25 AM	8:35 AM	8:44 AM	0:15:47	9:00 AM
5	8:22 AM	8:28 AM	8:33 AM	8:38 AM	8:46 AM	8:50 AM	8:54 AM	9:00 AM	9:10 AM	9:19 AM	0:15:47	9:35 AM
6	8:57 AM	9:03 AM	9:08 AM	9:13 AM	9:21 AM	9:25 AM	9:29 AM	9:35 AM	9:45 AM	9:54 AM	0:00:00	9:54 AM
7	9:32 AM	9:39 AM	9:45 AM	9:50 AM	9:57 AM	10:03 AM	10:07 AM	10:14 AM	10:24 AM	10:30 AM	0:14:06	10:45 AM
8												
9	10:39 AM	10:46 AM	10:52 AM	10:56 AM	11:04 AM	11:09 AM	11:13 AM	11:20 AM	11:31 AM	11:37 AM	0:17:41	11:55 AM
10	11:49 AM	11:56 AM	12:02 PM	12:06 PM	12:14 PM	12:19 PM	12:23 PM	12:30 PM	12:41 PM	12:47 PM	0:17:41	1:05 PM
11	12:59 PM	1:06 PM	1:12 PM	1:16 PM	1:24 PM	1:29 PM	1:33 PM	1:40 PM	1:51 PM	1:57 PM	0:17:41	2:15 PM
12	2:09 PM	2:16 PM	2:22 PM	2:26 PM	2:34 PM	2:39 PM	2:43 PM	2:50 PM	3:01 PM	3:07 PM	0:00:00	3:07 PM
13	3:19 PM	3:26 PM	3:32 PM	3:39 PM	3:48 PM	3:54 PM	3:58 PM	4:06 PM	4:18 PM	4:27 PM	0:00:00	4:27 PM
14	3:54 PM	4:02 PM	4:08 PM	4:14 PM	4:24 PM	4:30 PM	4:34 PM	4:42 PM	4:54 PM	5:02 PM	0:22:24	5:25 PM
15	4:25 PM	4:33 PM	4:39 PM	4:45 PM	4:55 PM	5:01 PM	5:05 PM	5:13 PM	5:25 PM	5:33 PM	0:26:24	6:00 PM
16	5:00 PM	5:08 PM	5:14 PM	5:20 PM	5:30 PM	5:36 PM	5:40 PM	5:48 PM	6:00 PM	6:08 PM	0:00:00	6:08 PM
17	5:35 PM	5:43 PM	5:49 PM	5:55 PM	6:05 PM	6:11 PM	6:15 PM	6:23 PM	6:35 PM	6:43 PM	0:26:24	7:10 PM
18	6:10 PM	6:18 PM	6:24 PM	6:30 PM	6:40 PM	6:46 PM	6:50 PM	6:58 PM	7:10 PM	7:18 PM	0:00:00	7:18 PM
19												
20	7:20 PM	7:25 PM	7:31 PM	7:34 PM	7:41 PM	7:45 PM	7:48 PM	7:54 PM	8:03 PM	8:08 PM	0:11:42	8:20 PM
21	8:30 PM	8:35 PM	8:41 PM	8:44 PM	8:51 PM	8:55 PM	8:58 PM	9:04 PM	9:13 PM	9:18 PM	0:11:42	9:30 PM
22	9:22 PM	9:27 PM	9:32 PM	9:36 PM	9:43 PM	9:47 PM	9:50 PM	9:56 PM	10:05 PM	10:10 PM	0:00:00	10:10 PM
23												
											4:26:02	

Headways:

Round trip Count		Trip Miles	Trip Hours	Total Recovery Time	EB	WB
1	1	15.3	1:10:00	0:21:57		
2	2	30.6	2:20:00	0:31:23		1:00:14
3	3	15.3	1:19:46	0:23:23		0:35:00
4	1	30.6	2:20:00	0:20:47	1:10:00	0:42:36
5	4	30.6	2:20:00	0:20:47	0:35:00	0:35:00
6	2	30.6	2:04:13	0:05:00	0:35:00	0:35:00
7	3	30.6	2:20:00	0:19:06	0:35:00	0:35:00
8	1	15.3	1:02:50	0:00:00	0:35:00	
9	4	30.6	2:20:00	0:22:41	0:35:00	1:06:25
10	3	30.6	2:20:00	0:22:41	1:10:00	1:10:00
11	4	30.6	2:20:00	0:22:41	1:10:00	1:10:00
12	3	30.6	2:02:19	0:05:00	1:10:00	1:10:00
13	4	30.6	2:12:36	0:05:00	1:10:00	1:10:00
14	5	15.3	1:30:45	0:22:24		0:35:00
15	6	30.6	2:55:00	0:36:24	0:50:00	0:31:00
16	7	30.6	2:28:36	0:10:00	0:35:00	0:35:00
17	8	30.6	2:55:00	0:36:24	0:35:00	0:35:00
18	9	30.6	2:28:36	0:10:00	0:35:00	0:35:00
19	5	15.3	1:10:15	0:00:00	0:35:00	
20	6	30.6	2:20:00	0:21:42	0:35:00	1:10:00
21	8	30.6	2:20:00	0:21:42	1:10:00	1:10:00
22	6	30.6	1:50:17	0:10:00	1:10:00	0:51:59
23	8	15.3	0:52:14	0:00:00	1:10:00	
		612	40:33:25	6:29:02		

Total Hours with Recover	47:02:27
% Rec =	0.15987124
Ave run time	2:02:43

Pace Dempster Local (7/30/16) Saturday

Schedule Inputs					
		AM EB Running Time	1:02:50		
		AM WB Running Time	0:56:23	Satday rev hrs	31:17:04
		Midday EB Running Time	0:59:15	Satday rev mi	489.6
Headway 1	0:10:00	Midday WB Running Time	0:58:04		
Headway 2	0:15:00	PM EB Running Time	1:10:15	annual rev hrs	1626:47:28
Headway 3	0:30:00	PM WB Running Time	1:08:21	annual rev mi	25459.2
Headway 4	1:00:00	Eve EB Running Time	0:52:14		
		Eve WB Running Time	0:48:03		

Saturday Pace Dempster Local

Round trip Count	Block No.	Lv O'Hare	Lee/Touhy	DP Metra	Hosp	Milwaukee	Waukegan	CTA Skokie	Crawford	Dodge	Ar Davis	Recovery time
1												
2		6:30 AM	6:36 AM	6:46 AM	6:53 AM	6:58 AM	7:03 AM	7:11 AM	7:15 AM	7:22 AM	7:29 AM	0:06:00
3		7:30 AM	7:36 AM	7:46 AM	7:53 AM	7:58 AM	8:03 AM	8:11 AM	8:15 AM	8:22 AM	8:29 AM	0:06:00
4		8:30 AM	8:36 AM	8:46 AM	8:53 AM	8:58 AM	9:03 AM	9:11 AM	9:15 AM	9:22 AM	9:29 AM	0:06:00
5		9:30 AM	9:36 AM	9:46 AM	9:53 AM	9:58 AM	10:03 AM	10:11 AM	10:15 AM	10:22 AM	10:29 AM	0:06:00
6		10:30 AM	10:36 AM	10:46 AM	10:53 AM	10:58 AM	11:03 AM	11:11 AM	11:15 AM	11:22 AM	11:29 AM	0:06:00
7		11:30 AM	11:36 AM	11:46 AM	11:53 AM	11:58 AM	12:03 PM	12:11 PM	12:15 PM	12:22 PM	12:29 PM	0:06:00
8		12:30 PM	12:36 PM	12:46 PM	12:53 PM	12:58 PM	1:03 PM	1:11 PM	1:15 PM	1:22 PM	1:29 PM	0:06:00
9		1:30 PM	1:36 PM	1:46 PM	1:53 PM	1:58 PM	2:03 PM	2:11 PM	2:15 PM	2:22 PM	2:29 PM	0:06:00
10		2:30 PM	2:36 PM	2:46 PM	2:53 PM	2:58 PM	3:03 PM	3:11 PM	3:15 PM	3:22 PM	3:29 PM	0:06:00
11		3:30 PM	3:36 PM	3:46 PM	3:53 PM	3:58 PM	4:03 PM	4:11 PM	4:15 PM	4:22 PM	4:29 PM	0:06:00
12		4:30 PM	4:36 PM	4:46 PM	4:53 PM	4:58 PM	5:03 PM	5:11 PM	5:15 PM	5:22 PM	5:29 PM	0:06:00
13		5:30 PM	5:36 PM	5:46 PM	5:53 PM	5:58 PM	6:03 PM	6:11 PM	6:15 PM	6:22 PM	6:29 PM	0:06:00
14		6:30 PM	6:36 PM	6:46 PM	6:53 PM	6:58 PM	7:03 PM	7:11 PM	7:15 PM	7:22 PM	7:29 PM	0:06:00
15		7:30 PM	7:36 PM	7:46 PM	7:53 PM	7:58 PM	8:03 PM	8:11 PM	8:15 PM	8:22 PM	8:29 PM	0:06:00
16		8:30 PM	8:36 PM	8:46 PM	8:53 PM	8:58 PM	9:03 PM	9:11 PM	9:15 PM	9:22 PM	9:29 PM	0:06:00
17		9:30 PM	9:36 PM	9:46 PM	9:53 PM	9:58 PM	10:03 PM	10:11 PM	10:15 PM	10:22 PM	10:29 PM	
												0:06:00

Round trip Count	Lv Davis	Dodge	Crawford	CTA Skokie	Waukegan	Milwaukee	Hosp	DP Metra	Lee/Touhy	Ar O'Hare	Recovery time	Lv next trip	Trip Miles	Trip Hours	Total Rec Time	Headways: EB	WB
1	6:30 AM	6:36 AM	6:43 AM	6:47 AM	6:55 AM	7:00 AM	7:04 AM	7:11 AM	7:22 AM	7:28 AM	0:06:00	7:34 AM	15.3	1:04:04	0:06:00		
2	7:35 AM	7:42 AM	7:48 AM	7:52 AM	8:00 AM	8:05 AM	8:09 AM	8:16 AM	8:27 AM	8:33 AM	0:06:00	8:39 AM	30.6	2:09:19	0:12:00		1:05:15
3	8:35 AM	8:42 AM	8:48 AM	8:52 AM	9:00 AM	9:05 AM	9:09 AM	9:16 AM	9:27 AM	9:33 AM	0:06:00	9:39 AM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
4	9:35 AM	9:42 AM	9:48 AM	9:52 AM	10:00 AM	10:05 AM	10:09 AM	10:16 AM	10:27 AM	10:33 AM	0:06:00	10:39 AM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
5	10:35 AM	10:42 AM	10:48 AM	10:52 AM	11:00 AM	11:05 AM	11:09 AM	11:16 AM	11:27 AM	11:33 AM	0:06:00	11:39 AM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
6	11:35 AM	11:42 AM	11:48 AM	11:52 AM	12:00 PM	12:05 PM	12:09 PM	12:16 PM	12:27 PM	12:33 PM	0:06:00	12:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
7	12:35 PM	12:42 PM	12:48 PM	12:52 PM	1:00 PM	1:05 PM	1:09 PM	1:16 PM	1:27 PM	1:33 PM	0:06:00	1:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
8	1:35 PM	1:42 PM	1:48 PM	1:52 PM	2:00 PM	2:05 PM	2:09 PM	2:16 PM	2:27 PM	2:33 PM	0:06:00	2:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
9	2:35 PM	2:42 PM	2:48 PM	2:52 PM	3:00 PM	3:05 PM	3:09 PM	3:16 PM	3:27 PM	3:33 PM	0:06:00	3:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
10	3:35 PM	3:42 PM	3:48 PM	3:52 PM	4:00 PM	4:05 PM	4:09 PM	4:16 PM	4:27 PM	4:33 PM	0:06:00	4:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
11	4:35 PM	4:42 PM	4:48 PM	4:52 PM	5:00 PM	5:05 PM	5:09 PM	5:16 PM	5:27 PM	5:33 PM	0:06:00	5:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
12	5:35 PM	5:42 PM	5:48 PM	5:52 PM	6:00 PM	6:05 PM	6:09 PM	6:16 PM	6:27 PM	6:33 PM	0:06:00	6:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
13	6:35 PM	6:42 PM	6:48 PM	6:52 PM	7:00 PM	7:05 PM	7:09 PM	7:16 PM	7:27 PM	7:33 PM	0:06:00	7:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
14	7:35 PM	7:42 PM	7:48 PM	7:52 PM	8:00 PM	8:05 PM	8:09 PM	8:16 PM	8:27 PM	8:33 PM	0:06:00	8:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
15	8:35 PM	8:42 PM	8:48 PM	8:52 PM	9:00 PM	9:05 PM	9:09 PM	9:16 PM	9:27 PM	9:33 PM	0:06:00	9:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
16	9:35 PM	9:42 PM	9:48 PM	9:52 PM	10:00 PM	10:05 PM	10:09 PM	10:16 PM	10:27 PM	10:33 PM			30.6	2:03:19	0:06:00	1:00:00	1:00:00
17													15.3	0:59:15		1:00:00	
											0:06:00		489.6	31:17:04	3:00:00		

W/Rec =	34:17:04
% Rec =	9.6%

Pace Dempster Local (7/30/16) **Sunday**

Schedule Inputs						
		AM EB	Running Time	1:02:50		
		AM WB	Running Time	0:56:23	Sunday rev hrs	29:19:45
		Midday EB	Running Time	0:59:15	Sunday rev mi	459
Headway 1	0:10:00	Midday WB	Running Time	0:58:04		
Headway 2	0:15:00	PM EB	Running Time	1:10:15	annual rev hrs	1701:05:30
Headway 3	0:30:00	PM WB	Running Time	1:08:21	annual rev mi	26622.00
Headway 4	1:00:00	Eve EB	Running Time	0:52:14		
		Eve WB	Running Time	0:48:03		

Sunday **Pace Dempster Local**

Round trip Count	Block No.	Lv O'Hare	Lee/Touhy	DP Metra	Hosp	Milwaukee	Waukegan	CTA Skokie	Crawford	Dodge	Ar Davis	Recovery time
1												
2		7:30 AM	7:36 AM	7:46 AM	7:53 AM	7:58 AM	8:03 AM	8:11 AM	8:15 AM	8:22 AM	8:29 AM	0:06:00
3		8:30 AM	8:36 AM	8:46 AM	8:53 AM	8:58 AM	9:03 AM	9:11 AM	9:15 AM	9:22 AM	9:29 AM	0:06:00
4		9:30 AM	9:36 AM	9:46 AM	9:53 AM	9:58 AM	10:03 AM	10:11 AM	10:15 AM	10:22 AM	10:29 AM	0:06:00
5		10:30 AM	10:36 AM	10:46 AM	10:53 AM	10:58 AM	11:03 AM	11:11 AM	11:15 AM	11:22 AM	11:29 AM	0:06:00
6		11:30 AM	11:36 AM	11:46 AM	11:53 AM	11:58 AM	12:03 PM	12:11 PM	12:15 PM	12:22 PM	12:29 PM	0:06:00
7		12:30 PM	12:36 PM	12:46 PM	12:53 PM	12:58 PM	1:03 PM	1:11 PM	1:15 PM	1:22 PM	1:29 PM	0:06:00
8		1:30 PM	1:36 PM	1:46 PM	1:53 PM	1:58 PM	2:03 PM	2:11 PM	2:15 PM	2:22 PM	2:29 PM	0:06:00
9		2:30 PM	2:36 PM	2:46 PM	2:53 PM	2:58 PM	3:03 PM	3:11 PM	3:15 PM	3:22 PM	3:29 PM	0:06:00
10		3:30 PM	3:36 PM	3:46 PM	3:53 PM	3:58 PM	4:03 PM	4:11 PM	4:15 PM	4:22 PM	4:29 PM	0:06:00
11		4:30 PM	4:36 PM	4:46 PM	4:53 PM	4:58 PM	5:03 PM	5:11 PM	5:15 PM	5:22 PM	5:29 PM	0:06:00
12		5:30 PM	5:36 PM	5:46 PM	5:53 PM	5:58 PM	6:03 PM	6:11 PM	6:15 PM	6:22 PM	6:29 PM	0:06:00
13		6:30 PM	6:36 PM	6:46 PM	6:53 PM	6:58 PM	7:03 PM	7:11 PM	7:15 PM	7:22 PM	7:29 PM	0:06:00
14		7:30 PM	7:36 PM	7:46 PM	7:53 PM	7:58 PM	8:03 PM	8:11 PM	8:15 PM	8:22 PM	8:29 PM	0:06:00
15		8:30 PM	8:36 PM	8:46 PM	8:53 PM	8:58 PM	9:03 PM	9:11 PM	9:15 PM	9:22 PM	9:29 PM	0:06:00
16		9:30 PM	9:36 PM	9:46 PM	9:53 PM	9:58 PM	10:03 PM	10:11 PM	10:15 PM	10:22 PM	10:29 PM	
												0:06:00

Round trip Count	Lv Davis	Dodge	Crawford	CTA Skokie	Waukegan	Milwaukee	Hosp	DP Metra	Lee/Touhy	Ar O'Hare	Recovery time	Lv next trip	Trip Miles	Trip Hours	Total Rec Time	Headways NB	Headways SB
1	7:35 AM	7:41 AM	7:48 AM	7:52 AM	8:00 AM	8:05 AM	8:09 AM	8:16 AM	8:27 AM	8:33 AM	0:06:00	8:39 AM	15.3	1:04:04	0:06:00		
2	8:35 AM	8:42 AM	8:48 AM	8:52 AM	9:00 AM	9:05 AM	9:09 AM	9:16 AM	9:27 AM	9:33 AM	0:06:00	9:39 AM	30.6	2:09:19	0:12:00		1:00:15
3	9:35 AM	9:42 AM	9:48 AM	9:52 AM	10:00 AM	10:05 AM	10:09 AM	10:16 AM	10:27 AM	10:33 AM	0:06:00	10:39 AM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
4	10:35 AM	10:42 AM	10:48 AM	10:52 AM	11:00 AM	11:05 AM	11:09 AM	11:16 AM	11:27 AM	11:33 AM	0:06:00	11:39 AM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
5	11:35 AM	11:42 AM	11:48 AM	11:52 AM	12:00 PM	12:05 PM	12:09 PM	12:16 PM	12:27 PM	12:33 PM	0:06:00	12:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
6	12:35 PM	12:42 PM	12:48 PM	12:52 PM	1:00 PM	1:05 PM	1:09 PM	1:16 PM	1:27 PM	1:33 PM	0:06:00	1:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
7	1:35 PM	1:42 PM	1:48 PM	1:52 PM	2:00 PM	2:05 PM	2:09 PM	2:16 PM	2:27 PM	2:33 PM	0:06:00	2:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
8	2:35 PM	2:42 PM	2:48 PM	2:52 PM	3:00 PM	3:05 PM	3:09 PM	3:16 PM	3:27 PM	3:33 PM	0:06:00	3:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
9	3:35 PM	3:42 PM	3:48 PM	3:52 PM	4:00 PM	4:05 PM	4:09 PM	4:16 PM	4:27 PM	4:33 PM	0:06:00	4:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
10	4:35 PM	4:42 PM	4:48 PM	4:52 PM	5:00 PM	5:05 PM	5:09 PM	5:16 PM	5:27 PM	5:33 PM	0:06:00	5:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
11	5:35 PM	5:42 PM	5:48 PM	5:52 PM	6:00 PM	6:05 PM	6:09 PM	6:16 PM	6:27 PM	6:33 PM	0:06:00	6:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
12	6:35 PM	6:42 PM	6:48 PM	6:52 PM	7:00 PM	7:05 PM	7:09 PM	7:16 PM	7:27 PM	7:33 PM	0:06:00	7:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
13	7:35 PM	7:42 PM	7:48 PM	7:52 PM	8:00 PM	8:05 PM	8:09 PM	8:16 PM	8:27 PM	8:33 PM	0:06:00	8:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
14	8:35 PM	8:42 PM	8:48 PM	8:52 PM	9:00 PM	9:05 PM	9:09 PM	9:16 PM	9:27 PM	9:33 PM	0:06:00	9:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
15	9:35 PM	9:42 PM	9:48 PM	9:52 PM	10:00 PM	10:05 PM	10:09 PM	10:16 PM	10:27 PM	10:33 PM	0:06:00	10:39 PM	30.6	2:09:19	0:12:00	1:00:00	1:00:00
16													15.3	0:59:15		1:00:00	
											0:06:00		459	29:19:45	2:54:00		
													Total Hours w/Rec =	32:13:45			
													% Rec =	0.14793			

PULSE

ALTERNATIVE OPERATING PLAN: 15-MINUTE PEAK HEADWAY

Pace Dempster Pulse		(7/27/16)	**Weekday**			
Total annual rev vehicle hrs		50970:51:13			Peak Buses =	10
Total annual rev vehicle mi		854,367.30			20% Spares =	2
					Fleet Size =	12
Schedule Inputs		AM EB	Running Time	0:58:41		
Headway 1	0:15:00	AM WB	Running Time	0:52:14	wkday rev hrs	149:24:05
Headway 2	0:15:00	Midday EB	Running Time	0:54:42	wkday rev mi	2493.9
Headway 3	0:30:00	Midday WB	Running Time	0:53:31		
Headway 4	0:00:00	PM EB	Running Time	1:06:18	annual rev hrs	38097:21:15
		PM WB	Running Time	1:04:24	annual rev mi	635944.5
		Eve EB	Running Time	0:47:41		
		Eve WB	Running Time	0:43:30		

Weekday **Pace Dempster Pulse** Headways:

Round trip Count	Block No.	Lv O'Hare	Lee/Touhy	DP Metra	Hosp	Milwaukee	Waukegan	CTA Skokie	Crawford	Dodge	Ar Davis	Recovery time	Lv Davis	Dodge	Crawford	CTA Skokie	Waukegan	Milwaukee	Hosp	DP Metra	Lee/Touhy	Ar O'Hare	Recovery time	Lv next trip		Trip Miles	Trip Hours	Total Recovery Time		EB	WB
1	1												5:00 AM	5:05 AM	5:09 AM	5:12 AM	5:18 AM	5:22 AM	5:25 AM	5:31 AM	5:38 AM	5:43 AM	0:16:30	6:00 AM	1	15.3	1:00:00	0:16:30			
2	2												5:15 AM	5:20 AM	5:24 AM	5:27 AM	5:33 AM	5:37 AM	5:40 AM	5:46 AM	5:53 AM	5:58 AM	0:16:30	6:15 AM	2	15.3	1:00:00	0:16:30			0:15:00
3	3												5:30 AM	5:35 AM	5:39 AM	5:42 AM	5:48 AM	5:52 AM	5:55 AM	6:01 AM	6:08 AM	6:13 AM	0:16:30	6:30 AM	3	15.3	1:00:00	0:16:30			0:15:00
4	4												5:45 AM	5:50 AM	5:54 AM	5:57 AM	6:03 AM	6:07 AM	6:10 AM	6:16 AM	6:23 AM	6:28 AM	0:16:30	6:45 AM	4	15.3	1:00:00	0:16:30			0:15:00
5	5	5:00 AM	5:04 AM	5:13 AM	5:19 AM	5:22 AM	5:27 AM	5:33 AM	5:37 AM	5:41 AM	5:47 AM	0:13:00	6:00 AM	6:06 AM	6:10 AM	6:15 AM	6:22 AM	6:26 AM	6:29 AM	6:35 AM	6:45 AM	6:52 AM	0:07:05	7:00 AM	5	30.6	2:00:00	0:20:05			0:15:41
6	6	5:15 AM	5:19 AM	5:28 AM	5:34 AM	5:37 AM	5:42 AM	5:48 AM	5:52 AM	5:56 AM	6:02 AM	0:13:00	6:15 AM	6:21 AM	6:25 AM	6:30 AM	6:37 AM	6:41 AM	6:44 AM	6:50 AM	7:00 AM	7:07 AM	0:07:05	7:15 AM	6	30.6	2:00:00	0:20:05		0:15:00	0:15:00
7	7	5:30 AM	5:34 AM	5:43 AM	5:49 AM	5:52 AM	5:57 AM	6:03 AM	6:07 AM	6:11 AM	6:17 AM	0:13:00	6:30 AM	6:36 AM	6:40 AM	6:45 AM	6:52 AM	6:56 AM	6:59 AM	7:05 AM	7:15 AM	7:22 AM	0:07:05	7:30 AM	7	30.6	2:00:00	0:20:05		0:15:00	0:15:00
8	8	5:45 AM	5:49 AM	5:58 AM	6:04 AM	6:07 AM	6:12 AM	6:18 AM	6:22 AM	6:26 AM	6:32 AM	0:08:00	6:40 AM	6:46 AM	6:50 AM	6:55 AM	7:02 AM	7:06 AM	7:09 AM	7:15 AM	7:25 AM	7:32 AM	0:12:05	7:45 AM	8	30.6	2:00:00	0:20:05		0:15:00	0:10:00
9	9												6:55 AM	7:01 AM	7:05 AM	7:10 AM	7:17 AM	7:21 AM	7:24 AM	7:30 AM	7:40 AM	7:47 AM	0:12:05	8:00 AM	9	15.3	1:04:19	0:12:05			0:15:00
10	1	6:00 AM	6:06 AM	6:16 AM	6:23 AM	6:28 AM	6:33 AM	6:41 AM	6:45 AM	6:51 AM	6:58 AM	0:12:00	7:10 AM	7:16 AM	7:20 AM	7:25 AM	7:32 AM	7:36 AM	7:39 AM	7:45 AM	7:55 AM	8:02 AM	0:12:05	8:15 AM	1	30.6	2:15:00	0:24:05		0:15:00	0:15:00
11	2	6:15 AM	6:21 AM	6:31 AM	6:38 AM	6:43 AM	6:48 AM	6:56 AM	7:00 AM	7:06 AM	7:13 AM	0:10:00	7:23 AM	7:29 AM	7:33 AM	7:38 AM	7:45 AM	7:49 AM	7:52 AM	7:58 AM	8:08 AM	8:15 AM	0:14:05	8:30 AM	2	30.6	2:15:00	0:24:05		0:15:00	0:13:00
12	3	6:30 AM	6:36 AM	6:46 AM	6:53 AM	6:58 AM	7:03 AM	7:11 AM	7:15 AM	7:21 AM	7:28 AM	0:10:00	7:38 AM	7:44 AM	7:48 AM	7:53 AM	8:00 AM	8:04 AM	8:07 AM	8:13 AM	8:23 AM	8:30 AM	0:14:05	8:45 AM	3	30.6	2:15:00	0:24:05		0:15:00	0:15:00
13	4	6:45 AM	6:51 AM	7:01 AM	7:08 AM	7:13 AM	7:18 AM	7:26 AM	7:30 AM	7:36 AM	7:43 AM	0:10:00	7:53 AM	7:59 AM	8:03 AM	8:08 AM	8:15 AM	8:19 AM	8:22 AM	8:28 AM	8:38 AM	8:45 AM	0:14:05	9:00 AM	4	30.6	2:15:00	0:24:05		0:15:00	0:15:00
14	5	7:00 AM	7:06 AM	7:16 AM	7:23 AM	7:28 AM	7:33 AM	7:41 AM	7:45 AM	7:51 AM	7:58 AM	0:10:00	8:08 AM	8:14 AM	8:18 AM	8:23 AM	8:30 AM	8:34 AM	8:37 AM	8:43 AM	8:53 AM	9:00 AM	0:14:05	9:15 AM	5	30.6	2:15:00	0:24:05		0:15:00	0:15:00
15	6	7:15 AM	7:21 AM	7:31 AM	7:38 AM	7:43 AM	7:48 AM	7:56 AM	8:00 AM	8:06 AM	8:13 AM	0:10:00	8:23 AM	8:29 AM	8:33 AM	8:38 AM	8:45 AM	8:49 AM	8:52 AM	8:58 AM	9:08 AM	9:15 AM	0:14:05	9:30 AM	6	30.6	2:15:00	0:24:05		0:15:00	0:15:00
16	7	7:30 AM	7:36 AM	7:46 AM	7:53 AM	7:58 AM	8:03 AM	8:11 AM	8:15 AM	8:21 AM	8:28 AM	0:10:00	8:38 AM	8:44 AM	8:48 AM	8:53 AM	9:00 AM	9:04 AM	9:07 AM	9:13 AM	9:23 AM	9:30 AM	0:14:05	9:45 AM	7	30.6	2:15:00	0:24:05		0:15:00	0:15:00
17	8	7:45 AM	7:51 AM	8:01 AM	8:08 AM	8:13 AM	8:18 AM	8:26 AM	8:30 AM	8:36 AM	8:43 AM	0:10:00	8:53 AM	8:59 AM	9:03 AM	9:08 AM	9:15 AM	9:19 AM	9:22 AM	9:28 AM	9:38 AM	9:45 AM	0:14:05	10:00 AM	8	30.6	2:15:00	0:24:05		0:15:00	0:15:00
18	9	8:00 AM	8:06 AM	8:16 AM	8:23 AM	8:28 AM	8:33 AM	8:41 AM	8:45 AM	8:51 AM	8:58 AM	0:10:00	9:08 AM	9:14 AM	9:19 AM	9:23 AM	9:31 AM	9:35 AM	9:38 AM	9:44 AM	9:54 AM	10:00 AM	0:14:05	10:15 AM	9	30.6	2:15:00	0:24:05		0:15:00	0:15:00
19	1	8:15 AM	8:21 AM	8:31 AM	8:38 AM	8:43 AM	8:48 AM	8:56 AM	9:00 AM	9:06 AM	9:13 AM	0:10:00	9:23 AM	9:29 AM	9:34 AM	9:38 AM	9:46 AM	9:50 AM	9:53 AM	9:59 AM	10:09 AM	10:15 AM	0:14:05	10:30 AM	1	30.6	2:15:00	0:24:05		0:15:00	0:15:00
20	2	8:30 AM	8:36 AM	8:46 AM	8:53 AM	8:58 AM	9:03 AM	9:11 AM	9:15 AM	9:21 AM	9:28 AM	0:10:00	9:38 AM	9:44 AM	9:49 AM	9:53 AM	10:01 AM	10:05 AM	10:08 AM	10:14 AM	10:24 AM	10:30 AM	0:14:05	10:45 AM	2	30.6	2:15:00	0:24:05		0:15:00	0:15:00
21	3	8:45 AM	8:51 AM	9:01 AM	9:08 AM	9:13 AM	9:18 AM	9:26 AM	9:30 AM	9:36 AM	9:43 AM	0:10:00	9:53 AM	9:59 AM	10:04 AM	10:08 AM	10:16 AM	10:20 AM	10:23 AM	10:29 AM	10:39 AM	10:45 AM	0:14:05	11:00 AM	3	30.6	2:15:00	0:24:05		0:15:00	0:15:00
22	4	9:00 AM	9:05 AM	9:16 AM	9:23 AM	9:27 AM	9:32 AM	9:40 AM	9:45 AM	9:51 AM	9:58 AM	0:10:00	10:08 AM	10:14 AM	10:19 AM	10:23 AM	10:31 AM	10:35 AM	10:38 AM	10:44 AM	10:54 AM	11:02 AM	0:12:48	11:15 AM	4	30.6	2:15:00	0:22:48		0:15:00	0:15:00
25	5	9:15 AM	9:20 AM	9:30 AM	9:37 AM	9:41 AM	9:46 AM	9:53 AM	9:57 AM	10:03 AM	10:13 AM	0:10:00	10:23 AM	10:29 AM	10:34 AM	10:38 AM	10:46 AM	10:50 AM	10:53 AM	10:59 AM	11:09 AM	11:17 AM	0:12:48	11:30 AM	5	30.6	2:15:00	0:22:48		0:15:00	0:15:00
26	6	9:30 AM	9:35 AM	9:45 AM	9:52 AM	9:56 AM	10:01 AM	10:08 AM	10:12 AM	10:18 AM	10:28 AM	0:10:00	10:38 AM	10:45 AM	10:50 AM	10:54 AM	11:01 AM	11:06 AM	11:10 AM	11:17 AM	11:26 AM	11:32 AM	0:12:48	11:45 AM	6	30.6	2:15:00	0:22:48		0:15:00	0:15:00
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75	11	9:30 PM	9:34 PM	9:43 PM	9:49 PM	9:52 PM	9:57 PM	10:03 PM	10:07 PM	10:11 PM	10:17 PM	0:10:00	10:27 PM	10:32 PM	10:37 PM	10:40 PM	10:46 PM	10:50 PM	10:53 PM	10:58 PM	11:06 PM	11:11 PM	0:03:49	11:15 PM	####	30.6	1:45:00	0:13:49	2:13:21	0:15:00	0:15:00
76	1	9:45 PM	9:49 PM	9:58 PM	10:04 PM	10:07 PM	10:12 PM	10:18 PM	10:22 PM	10:26 PM	10:32 PM	0:10:00	10:42 PM	10:47 PM	10:52 PM	10:55 PM	11:01 PM	11:05 PM	11:08 PM	11:13 PM	11:21 PM	11:26 PM	0:03:49	11:30 PM	1	30.6	1:45:00	0:13:49		0:15:00	0:15:00
77	2	10:00 PM	10:04 PM	10:13 PM	10:19 PM	10:22 PM	10:27 PM	10:33 PM	10:37 PM	10:41 PM	10:47 PM	0:10:00	10:57 PM	11:02 PM	11:07 PM	11:10 PM	11:16 PM	11:20 PM	11:23 PM	11:28 PM	11:36 PM	11:41 PM	0:03:49	11:45 PM	2	30.6	1:45:00	0:13:49		0:15:00	0:15:00
78	4	10:15 PM	10:19 PM	10:28 PM	10:34 PM	10:37 PM	10:42 PM	10:48 PM	10:52 PM	10:56 PM	11:02 PM	0:10:00	11:12 PM	11:17 PM	11:22 PM	11:25 PM	11:31 PM	11:35 PM	11:38 PM	11:43 PM	11:51 PM	11:56 PM	0:03:49	12:00 AM	4	30.6	1:45:00	0:13:49		0:15:00	0:15:00
79	10	10:30 PM	10:34 PM	10:43 PM	10:49 PM	10:52 PM	10:57 PM	11:03 PM	11:07 PM	11:11 PM	11:17 PM	0:10:00	11:27 PM	11:32 PM	11:37 PM	11:40 PM	11:46 PM	11:50 PM	11:53 PM	11:58 PM	12:06 AM	12:11 AM	0:03:49	12:15 AM	####	30.6	1:45:00	0:13:49		0:15:00	0:15:00
80	5	10:45 PM	10:49 PM	10:58 PM	11:04 PM	11:07 PM	11:12 PM	11:18 PM	11:22 PM	11:26 PM	11:32 PM	0:10:00	11:42 PM	11:47 PM	11:52 PM	11:55 PM	12:01 AM	12:05 AM	12:08 AM	12:13 AM	12:21 AM	12:26 AM	0:03:49	12:30 AM	5	30.6	1:45:00	0:13:49		0:15:00	0:15:00
81	6	11:00 PM	11:04 PM	11:13 PM	11:19 PM	11:22 PM	11:27 PM	11:33 PM	11:37 PM	11:41 PM	11:47 PM	0:10:00	11:57 PM	12:02 AM	12:07 AM	12:10 AM	12:16 AM	12:20 AM	12:23 AM	12:28 AM	12:36 AM	12:41 AM	0:03:49	12:45 AM	6	30.6	1:45:00	0:13:49		0:15:00	0:15:00
82	11	11:15 PM	11:19 PM	11:28 PM	11:34 PM	11:37 PM	11:42 PM	11:48 PM	11:52 PM	11:56 PM	12:02 AM	0:10:00	12:12 AM	12:17 AM	12:22 AM	12:25 AM	12:31 AM	12:35 AM	12:38 AM	12:43 AM	12:51 AM	12:56 AM	0:03:49	1:00 AM	####	30.6	1:45:00	0:13:49		0:15:00	0:15:00
83	1	11:30 PM	11:34 PM	11:43 PM	11:49 PM	11:52 PM	11:57 PM	12:03 AM	12:07 AM	12:11 AM	12:17 AM	0:10:00	12:27 AM	12:32 AM	12:37 AM	12:40 AM	12:46 AM	12:50 AM	12:53 AM	12:58 AM	1:06 AM	1:11 AM	0:00:00	1:11 AM	1	30.6	1:41:11	0:10:00		0:15:00	0:15:00
84	2	11:45 PM	11:49 PM	11:58 PM	12:04 AM	12:07 AM	12:12 AM	12:18 AM	12:22 AM	12:26 AM	12:32 AM	0:10:00	12:42 AM	12:47 AM	12:52 AM	12:55 AM	1:01 AM	1:05 AM	1:08 AM	1:13 AM	1:21 AM	1:26 AM	0:00:00	1:26 AM	2	30.6	1:41:11	0:10:00		0:15:00	0:15:00
85	4	12:00 AM	12:04 AM	12:13 AM	12:19 AM	12:22 AM	12:27 AM	12:33 AM	12:37 AM	12:41 AM	12:47 AM	0:10:00	12:57 AM	1:02 AM	1:07 AM	1:10 AM	1:16 AM	1:20 AM	1:23 AM	1:28 AM	1:36 AM	1:41 AM	0:00:00	1:41 AM	4	30.6	1:41:11	0:10:00		0:15:00	0:15:00
86	10	12:15 AM	12:19 AM	12:28 AM	12:34 AM	12:37 AM	12:42 AM	12:48 AM	12:52 AM	12:56 AM	1:02 AM														####	15.3	0:47:41	0:00:00		0:15:00	########
87	5	12:30 AM	12:34 AM	12:43 AM	12:49 AM	12:52 AM	12:57 AM	1:03 AM	1:07 AM	1:11 AM	1:17 AM														5	15.3	0:47:41	0:00:00		0:15:00	0:00:00
88	6	12:45 AM	12:49 AM	12:58 AM	1:04 AM	1:07 AM	1:12 AM	1:18 AM	1:22 AM	1:26 AM	1:32 AM														6	15.3	0:47:41			0:15:00	
89	11	1:00 AM	1:04 AM	1:13 AM	1:19 AM	1:22 AM	1:27 AM	1:33 AM	1:37 AM	1:41 AM	1:47 AM														####	15.3	0:47:41	0:00:00		0:15:00	0:00:00
												12:17:24											12:12:18			2493.9	149:24:05	24:29:42			
																									Total Hours with Re		173:53:47				
																										% Rec =	0.1639543				
																										Ave run time	1:59:56				

Pace Dempster Pulse (7/27/16) Saturday

Schedule Inputs					
		AM EB Running Time	0:58:41		
		AM WB Running Time	0:52:14	Satday rev hrs	120:50:31
		Midday EB Running Time	0:54:42	Satday rev mi	2050.2
Headway 1	0:10:00	Midday WB Running Time	0:53:31		
Headway 2	0:15:00	PM EB Running Time	1:06:18	annual rev hrs	6283:46:52
Headway 3	0:30:00	PM WB Running Time	1:04:24	annual rev mi	106610.4
Headway 4	0:20:00	Eve EB Running Time	0:47:41		
		Eve WB Running Time	0:43:30		

Saturday **Pace Dempster Pulse**

Round trip Count	Block No.	Lv O'Hare	Lee/Touhy	DP Metra	Hosp	Milwaukee	Waukegan	CTA Skokie	Crawford	Dodge	Ar Davis	Recovery time	Lv Davis	Dodge	Crawford	CTA Skokie	Waukegan	Milwaukee	Hosp	DP Metra	Lee/Touhy	Ar O'Hare	Recovery time	Lv next trip	Trip Miles	Trip Hours	Total Rec Time	Headways: EB	WB
1													6:00 AM	6:06 AM	6:11 AM	6:15 AM	6:23 AM	6:27 AM	6:31 AM	6:38 AM	6:47 AM	6:53 AM	0:06:00	6:59 AM	15.3	0:59:31	0:06:00		
2													6:30 AM	6:36 AM	6:41 AM	6:45 AM	6:53 AM	6:57 AM	7:01 AM	7:08 AM	7:17 AM	7:23 AM	0:06:00	7:29 AM	15.3	0:59:31	0:06:00		0:30:00
3		6:00 AM	6:05 AM	6:15 AM	6:22 AM	6:26 AM	6:31 AM	6:38 AM	6:42 AM	6:48 AM	6:54 AM	0:06:00	7:00 AM	7:07 AM	7:12 AM	7:16 AM	7:23 AM	7:28 AM	7:32 AM	7:39 AM	7:48 AM	7:54 AM	0:06:00	8:00 AM	30.6	2:00:13	0:12:00		0:30:42
4													7:15 AM	7:22 AM	7:27 AM	7:31 AM	7:38 AM	7:43 AM	7:47 AM	7:54 AM	8:03 AM	8:09 AM	0:06:00	8:15 AM	15.3	0:59:31	0:06:00		0:15:00
5		6:30 AM	6:35 AM	6:45 AM	6:52 AM	6:56 AM	7:01 AM	7:08 AM	7:12 AM	7:18 AM	7:24 AM	0:06:00	7:30 AM	7:37 AM	7:42 AM	7:46 AM	7:53 AM	7:58 AM	8:02 AM	8:09 AM	8:18 AM	8:24 AM	0:06:00	8:30 AM	30.6	2:00:13	0:12:00	0:30:00	0:15:00
6													7:45 AM	7:52 AM	7:57 AM	8:01 AM	8:08 AM	8:13 AM	8:17 AM	8:24 AM	8:33 AM	8:39 AM	0:06:00	8:45 AM	15.3	0:59:31	0:06:00		0:15:00
7		7:00 AM	7:05 AM	7:15 AM	7:22 AM	7:26 AM	7:31 AM	7:38 AM	7:42 AM	7:48 AM	7:54 AM	0:06:00	8:00 AM	8:07 AM	8:12 AM	8:16 AM	8:23 AM	8:28 AM	8:32 AM	8:39 AM	8:48 AM	8:54 AM	0:06:00	9:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:15:00
8		7:15 AM	7:20 AM	7:30 AM	7:37 AM	7:41 AM	7:46 AM	7:53 AM	7:57 AM	8:03 AM	8:09 AM	0:06:00	8:15 AM	8:22 AM	8:27 AM	8:31 AM	8:38 AM	8:43 AM	8:47 AM	8:54 AM	9:03 AM	9:09 AM	0:06:00	9:15 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
9		7:30 AM	7:35 AM	7:45 AM	7:52 AM	7:56 AM	8:01 AM	8:08 AM	8:12 AM	8:18 AM	8:24 AM	0:06:00	8:30 AM	8:37 AM	8:42 AM	8:46 AM	8:53 AM	8:58 AM	9:02 AM	9:09 AM	9:18 AM	9:24 AM	0:06:00	9:30 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
10		7:45 AM	7:50 AM	8:00 AM	8:07 AM	8:11 AM	8:16 AM	8:23 AM	8:27 AM	8:33 AM	8:39 AM	0:06:00	8:45 AM	8:52 AM	8:57 AM	9:01 AM	9:08 AM	9:13 AM	9:17 AM	9:24 AM	9:33 AM	9:39 AM	0:06:00	9:45 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
11		8:00 AM	8:05 AM	8:15 AM	8:22 AM	8:26 AM	8:31 AM	8:38 AM	8:42 AM	8:48 AM	8:54 AM	0:06:00	9:00 AM	9:07 AM	9:12 AM	9:16 AM	9:23 AM	9:28 AM	9:32 AM	9:39 AM	9:48 AM	9:54 AM	0:06:00	10:00 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
12		8:15 AM	8:20 AM	8:30 AM	8:37 AM	8:41 AM	8:46 AM	8:53 AM	8:57 AM	9:03 AM	9:09 AM	0:06:00	9:15 AM	9:22 AM	9:27 AM	9:31 AM	9:38 AM	9:43 AM	9:47 AM	9:54 AM	10:03 AM	10:09 AM	0:06:00	10:15 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
13		8:30 AM	8:35 AM	8:45 AM	8:52 AM	8:56 AM	9:01 AM	9:08 AM	9:12 AM	9:18 AM	9:24 AM	0:06:00	9:30 AM	9:37 AM	9:42 AM	9:46 AM	9:53 AM	9:58 AM	10:02 AM	10:09 AM	10:18 AM	10:24 AM	0:06:00	10:30 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
14		8:45 AM	8:50 AM	9:00 AM	9:07 AM	9:11 AM	9:16 AM	9:23 AM	9:27 AM	9:33 AM	9:39 AM	0:06:00	9:45 AM	9:52 AM	9:57 AM	10:01 AM	10:08 AM	10:13 AM	10:17 AM	10:24 AM	10:33 AM	10:39 AM	0:06:00	10:45 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
15		9:00 AM	9:05 AM	9:15 AM	9:22 AM	9:26 AM	9:31 AM	9:38 AM	9:42 AM	9:48 AM	9:54 AM	0:06:00	10:00 AM	10:07 AM	10:12 AM	10:16 AM	10:23 AM	10:28 AM	10:32 AM	10:39 AM	10:48 AM	10:54 AM	0:06:00	11:00 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
16		9:15 AM	9:20 AM	9:30 AM	9:37 AM	9:41 AM	9:46 AM	9:53 AM	9:57 AM	10:03 AM	10:09 AM	0:06:00	10:15 AM	10:22 AM	10:27 AM	10:31 AM	10:38 AM	10:43 AM	10:47 AM	10:54 AM	11:03 AM	11:09 AM	0:06:00	11:15 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
17		9:30 AM	9:35 AM	9:45 AM	9:52 AM	9:56 AM	10:01 AM	10:08 AM	10:12 AM	10:18 AM	10:24 AM	0:06:00	10:30 AM	10:37 AM	10:42 AM	10:46 AM	10:53 AM	10:58 AM	11:02 AM	11:09 AM	11:18 AM	11:24 AM	0:06:00	11:30 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
18		9:45 AM	9:50 AM	10:00 AM	10:07 AM	10:11 AM	10:16 AM	10:23 AM	10:27 AM	10:33 AM	10:39 AM	0:06:00	10:45 AM	10:52 AM	10:57 AM	11:01 AM	11:08 AM	11:13 AM	11:17 AM	11:24 AM	11:33 AM	11:39 AM	0:06:00	11:45 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
19		10:00 AM	10:05 AM	10:15 AM	10:22 AM	10:26 AM	10:31 AM	10:38 AM	10:42 AM	10:48 AM	10:54 AM	0:06:00	11:00 AM	11:07 AM	11:12 AM	11:16 AM	11:23 AM	11:28 AM	11:32 AM	11:39 AM	11:48 AM	11:54 AM	0:06:00	12:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
20		10:15 AM	10:20 AM	10:30 AM	10:37 AM	10:41 AM	10:46 AM	10:53 AM	10:57 AM	11:03 AM	11:09 AM	0:06:00	11:15 AM	11:22 AM	11:27 AM	11:31 AM	11:38 AM	11:43 AM	11:47 AM	11:54 AM	12:03 PM	12:09 PM	0:06:00	12:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
21		10:30 AM	10:35 AM	10:45 AM	10:52 AM	10:56 AM	11:01 AM	11:08 AM	11:12 AM	11:18 AM	11:24 AM	0:06:00	11:30 AM	11:37 AM	11:42 AM	11:46 AM	11:53 AM	11:58 AM	12:02 PM	12:09 PM	12:18 PM	12:24 PM	0:06:00	12:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
22		10:45 AM	10:50 AM	11:00 AM	11:07 AM	11:11 AM	11:16 AM	11:23 AM	11:27 AM	11:33 AM	11:39 AM	0:06:00	11:45 AM	11:52 AM	11:57 AM	12:01 PM	12:08 PM	12:13 PM	12:17 PM	12:24 PM	12:33 PM	12:39 PM	0:06:00	12:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
23		11:00 AM	11:05 AM	11:15 AM	11:22 AM	11:26 AM	11:31 AM	11:38 AM	11:42 AM	11:48 AM	11:54 AM	0:06:00	12:00 PM	12:07 PM	12:12 PM	12:16 PM	12:23 PM	12:28 PM	12:32 PM	12:39 PM	12:48 PM	12:54 PM	0:06:00	1:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
24		11:15 AM	11:20 AM	11:30 AM	11:37 AM	11:41 AM	11:46 AM	11:53 AM	11:57 AM	12:03 PM	12:09 PM	0:06:00	12:15 PM	12:22 PM	12:27 PM	12:31 PM	12:38 PM	12:43 PM	12:47 PM	12:54 PM	1:03 PM	1:09 PM	0:06:00	1:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
25		11:30 AM	11:35 AM	11:45 AM	11:52 AM	11:56 AM	12:01 PM	12:08 PM	12:12 PM	12:18 PM	12:24 PM	0:06:00	12:30 PM	12:37 PM	12:42 PM	12:46 PM	12:53 PM	12:58 PM	1:02 PM	1:09 PM	1:18 PM	1:24 PM	0:06:00	1:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
26		11:45 AM	11:50 AM	12:00 PM	12:07 PM	12:11 PM	12:16 PM	12:23 PM	12:27 PM	12:33 PM	12:39 PM	0:06:00	12:45 PM	12:52 PM	12:57 PM	1:01 PM	1:08 PM	1:13 PM	1:17 PM	1:24 PM	1:33 PM	1:39 PM	0:06:00	1:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
27		12:00 PM	12:05 PM	12:15 PM	12:22 PM	12:26 PM	12:31 PM	12:38 PM	12:42 PM	12:48 PM	12:54 PM	0:06:00	1:00 PM	1:07 PM	1:12 PM	1:16 PM	1:23 PM	1:28 PM	1:32 PM	1:39 PM	1:48 PM	1:54 PM	0:06:00	2:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
28		12:15 PM	12:20 PM	12:30 PM	12:37 PM	12:41 PM	12:46 PM	12:53 PM	12:57 PM	1:03 PM	1:09 PM	0:06:00	1:15 PM	1:22 PM	1:27 PM	1:31 PM	1:38 PM	1:43 PM	1:47 PM	1:54 PM	2:03 PM	2:09 PM	0:06:00	2:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
29		12:30 PM	12:35 PM	12:45 PM	12:52 PM	12:56 PM	1:01 PM	1:08 PM	1:12 PM	1:18 PM	1:24 PM	0:06:00	1:30 PM	1:37 PM	1:42 PM	1:46 PM	1:53 PM	1:58 PM	2:02 PM	2:09 PM	2:18 PM	2:24 PM	0:06:00	2:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
30		12:45 PM	12:50 PM	1:00 PM	1:07 PM	1:11 PM	1:16 PM	1:23 PM	1:27 PM	1:33 PM	1:39 PM	0:06:00	1:45 PM	1:52 PM	1:57 PM	2:01 PM	2:08 PM	2:13 PM	2:17 PM	2:24 PM	2:33 PM	2:39 PM	0:06:00	2:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
31		1:00 PM	1:05 PM	1:15 PM	1:22 PM	1:26 PM	1:31 PM	1:38 PM	1:42 PM	1:48 PM	1:54 PM	0:06:00	2:00 PM	2:07 PM	2:12 PM	2:16 PM	2:23 PM	2:28 PM	2:32 PM	2:39 PM	2:48 PM	2:54 PM	0:06:00	3:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
32		1:15 PM	1:20 PM	1:30 PM	1:37 PM	1:41 PM	1:46 PM	1:53 PM	1:57 PM	2:03 PM	2:09 PM	0:06:00	2:15 PM	2:22 PM	2:27 PM	2:31 PM	2:38 PM	2:43 PM	2:47 PM	2:54 PM	3:03 PM	3:09 PM	0:06:00	3:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
33		1:30 PM	1:35 PM	1:45 PM	1:52 PM	1:56 PM	2:01 PM	2:08 PM	2:12 PM	2:18 PM	2:24 PM	0:06:00	2:30 PM	2:37 PM	2:42 PM	2:46 PM	2:53 PM	2:58 PM	3:02 PM	3:09 PM	3:18 PM	3:24 PM	0:06:00	3:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
34		1:45 PM	1:50 PM	2:00 PM	2:07 PM	2:11 PM	2:16 PM	2:23 PM	2:27 PM	2:33 PM	2:39 PM	0:06:00	2:45 PM	2:52 PM	2:57 PM	3:01 PM	3:08 PM	3:13 PM	3:17 PM	3:24 PM	3:33 PM	3:39 PM	0:06:00	3:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
35		2:00 PM	2:05 PM	2:15 PM	2:22 PM	2:26 PM	2:31 PM	2:38 PM	2:42 PM	2:48 PM	2:54 PM	0:06:00	3:00 PM	3:07 PM	3:12 PM	3:16 PM	3:23 PM	3:28 PM	3:32 PM	3:39 PM	3:48 PM	3:54 PM	0:06:00	4:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
36		2:15 PM	2:20 PM	2:30 PM	2:37 PM	2:41 PM	2:46 PM	2:53 PM	2:57 PM	3:03 PM	3:09 PM	0:06:00	3:15 PM	3:22 PM	3:27 PM	3:31 PM	3:38 PM	3:43 PM	3:47 PM	3:54 PM	4:03 PM	4:09 PM	0:06:00	4:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
37		2:30 PM	2:35 PM	2:45 PM	2:52 PM	2:56 PM	3:01 PM	3:08 PM	3:12 PM	3:18 PM	3:24 PM	0:06:00	3:30 PM	3:37 PM	3:42 PM	3:46 PM	3:53 PM	3:58 PM	4:02 PM	4:09 PM	4:18 PM	4:24 PM	0:06:00	4:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
38		2:45 PM	2:50 PM	3:00 PM	3:07 PM	3:11 PM	3:16 PM	3:23 PM	3:27 PM	3:33 PM	3:39 PM	0:06:00	3:45 PM	3:52 PM	3:57 PM	4:01 PM	4:08 PM	4:13 PM	4:17 PM	4:24 PM	4:33 PM	4:39 PM	0:06:00	4:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
39		3:00 PM	3:05 PM	3:15 PM	3:22 PM	3:26 PM	3:31 PM	3:38 PM	3:42 PM	3:48 PM	3:54 PM	0:06:00	4:00 PM	4:07 PM	4:12 PM	4:16 PM	4:23 PM	4:28 PM	4:32 PM	4:39 PM	4:48 PM	4:54 PM	0:06:00	5:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
40		3:15 PM	3:20 PM	3:30 PM	3:37 PM	3:41 PM	3:46 PM	3:53 PM	3:57 PM	4:03 PM	4:09 PM	0:06:00	4:15 PM	4:22 PM	4:27 PM	4:31 PM	4:38 PM	4:43 PM	4:47 PM	4:54 PM	5:03 PM	5:09 PM	0:06:00	5:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
41		3:30 PM	3:35 PM	3:45 PM	3:52 PM	3:56 PM	4:01 PM	4:08 PM	4:12 PM	4:18 PM	4:24 PM	0:06:00	4:30 PM	4:37 PM	4:42 PM	4:46 PM	4:53 PM	4:58 PM	5:02 PM	5:09 PM	5:18 PM	5:24 PM	0:06:00	5:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
42		3:45 PM	3:50 PM	4:00 PM	4:07 PM	4:11 PM	4:16 PM	4:23 PM	4:27 PM	4:33 PM	4:39 PM	0:06:00	4:45 PM	4:52 PM	4:57 PM	5:01 PM	5:08 PM	5:13 PM	5:17 PM	5:24 PM	5:33 PM	5:39 PM	0:06:00	5:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
43		4:00 PM	4:05 PM	4:15 PM	4:22 PM	4:26 PM	4:31 PM	4:38 PM	4:42 PM	4:48 PM	4:54 PM	0:06:00	5:00 PM	5:07 PM	5:12 PM	5:16 PM	5:23 PM	5:28 PM	5:32 PM	5:39 PM	5:48 PM	5:54 PM	0:06:00	6:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
44		4:15 PM	4:20 PM	4:30 PM	4:37 PM	4:41 PM	4:46 PM	4:53 PM	4:57 PM	5:03 PM	5:09 PM	0:06:00	5:15 PM	5:22 PM	5:27 PM	5:31 PM	5:38 PM	5:43 PM	5:47 PM	5:54 PM	6:03 PM	6:09 PM	0:06:00	6:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
45		4:30 PM	4:35 PM	4:45 PM	4:52 PM	4:56 PM	5:01 PM	5:08 PM	5:12 PM	5:18 PM	5:24 PM	0:06:00	5:30 PM	5:37 PM	5:42 PM	5:46 PM	5:53 PM	5:58 PM	6:02 PM	6:09 PM	6:18 PM	6:24 PM	0:06:00	6:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
46		4:45 PM	4:50 PM	5:00 PM	5:07 PM	5:11 PM	5:16 PM	5:23 PM	5:27 PM	5:33 PM	5:39 PM	0:06:00	5:45 PM	5:52 PM	5:57 PM	6:01 PM	6:08 PM	6:13 PM	6:17 PM	6:24 PM	6:33 PM	6:39 PM	0:06:00	6:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
47		5:00 PM	5:05 PM	5:15 PM	5:22 PM	5:26 PM	5:31 PM	5:38 PM	5:42 PM	5:48 PM	5:54 PM	0:06:00	6:00 PM	6:07 PM	6:12 PM	6:16 PM	6:23 PM	6:28 PM	6:32 PM	6:39 PM	6:48 PM	6:54 PM	0:06:00	7:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
48		5:15 PM	5:20 PM	5:30 PM	5:37 PM	5:41 PM	5:46 PM	5:53 PM	5:57 PM	6:03 PM	6:09 PM	0:06:00	6:15 PM	6:22 PM	6:27 PM	6:31 PM	6:38 PM	6:43 PM	6:47 PM	6:54 PM	7:03 PM	7:09 PM	0:06:00	7:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
49		5:30 PM	5:35 PM	5:45 PM	5:52 PM	5:56 PM	6:01 PM	6:08 PM	6:12 PM	6:18 PM	6:24 PM	0:06:00	6:30 PM	6:37 PM	6:42 PM	6:46 PM	6:53 PM	6:58 PM	7:02 PM	7:09 PM	7:18 PM	7:24 PM	0:06:00	7:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
50		5:45 PM	5:50 PM	6:00 PM	6:07 PM	6:11 PM	6:16 PM	6:23 PM	6:27 PM	6:33 PM	6:39 PM	0:06:00	6:45 PM	6:52 PM	6:57 PM	7:01 PM	7:08 PM	7:13 PM	7:17 PM	7:24 PM	7:33 PM	7:39 PM	0:06:00	7:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
51		6:00 PM	6:05 PM	6:15 PM	6:22 PM	6:26 PM	6:31 PM	6:38 PM	6:42 PM	6:48 PM	6:54 PM	0:06:00	7:00 PM	7:07 PM	7:12 PM	7:16 PM	7:23 PM	7:28 PM	7:32 PM	7:39 PM	7:48 PM	7:54 PM	0:06:00	8:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
52		6:15 PM	6:20 PM	6:30 PM	6:37 PM	6:41 PM	6:46 PM	6:53 PM	6:57 PM	7:03 PM	7:09 PM	0:06:00	7:15 PM	7:22 PM	7:27 PM	7:31 PM	7:38 PM	7:43 PM	7:47 PM	7:54 PM	8:03 PM	8:09 PM	0:06:00	8:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
53		6:30 PM	6:35 PM	6:45 PM	6:52 PM	6:56 PM	7:01 PM	7:08 PM	7:12 PM	7:18 PM	7:24 PM	0:06:00	7:30 PM	7:37 PM	7:42 PM	7:46 PM	7:53 PM	7:58 PM	8:02 PM	8:09 PM	8:18 PM	8:24 PM	0:06:00	8:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
54		6:45 PM	6:50 PM	7:00 PM	7:07 PM	7:11 PM	7:16 PM	7:23 PM	7:27 PM	7:33 PM	7:39 PM	0:06:00	7:45 PM	7:52 PM	7:57 PM	8:01 PM	8:08 PM	8:13 PM	8:17 PM	8:24 PM	8:33 PM	8:39 PM	0:06:00	8:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
55		7:00 PM	7:05 PM	7:15 PM	7:22 PM	7:26 PM	7:31 PM	7:38 PM	7:42 PM	7:48 PM	7:54 PM	0:06:00	8:00 PM	8:07 PM	8:12 PM	8:16 PM	8:23 PM	8:28 PM	8:32 PM	8:39 PM	8:48 PM	8:54 PM	0:06:00	9:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
56		7:15 PM	7:20 PM	7:30 PM	7:37 PM	7:41 PM	7:46 PM	7:53 PM	7:57 PM	8:03 PM	8:09 PM	0:06:00	8:15 PM	8:22 PM	8:27 PM	8:31 PM	8:38 PM	8:43 PM	8:47 PM	8:54 PM	9:03 PM	9:09 PM	0:06:00	9:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
57		7:30 PM	7:35 PM	7:45 PM	7:52 PM	7:56 PM	8:01 PM	8:08 PM	8:12 PM	8:18 PM	8:24 PM	0:06:00	8:30 PM	8:37 PM	8:42 PM	8:46 PM	8:53 PM	8:58 PM	9:02 PM	9:09 PM	9:18 PM	9:24 PM	0:06:00	9:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
58		7:45 PM	7:50 PM	8:00 PM	8:07 PM	8:11 PM	8:16 PM	8:23 PM	8:27 PM	8:33 PM	8:39 PM	0:06:00	8:45 PM	8:52 PM	8:57 PM	9:01 PM	9:08 PM	9:13 PM	9:17 PM	9:24 PM	9:33 PM	9:39 PM	0:06:00	9:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
59		8:00 PM	8:05 PM	8:15 PM	8:22 PM	8:26 PM	8:31 PM	8:38 PM	8:42 PM	8:48 PM	8:54 PM	0:06:00	9:00 PM	9:07 PM	9:12 PM	9:16 PM	9:23 PM	9:28 PM	9:32 PM	9:39 PM	9:48 PM	9:54 PM	0:06:00	10:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
60		8:15 PM	8:20 PM	8:30 PM	8:37 PM	8:41 PM	8:46 PM	8:53 PM	8:57 PM	9:03 PM	9:09 PM														15.3	0:54:42		0:15:00	
61		8:30 PM	8:35 PM	8:45 PM	8:52 PM	8:56 PM	9:01 PM	9:08 PM	9:12 PM	9:18 PM	9:24 PM	0:06:00	9:30 PM	9:37 PM	9:42 PM	9:46 PM	9:53 PM	9:58 PM	10:02 PM	10:09 PM	10:18 PM	10:24 PM	0:06:00	10:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:30:00
62		8:45 PM	8:50 PM	9:00 PM	9:07 PM	9:11 PM	9:16 PM	9:23 PM	9:27 PM	9:33 PM	9:39 PM														15.3	0:54:42		0:15:00	
63		9:00 PM	9:05 PM	9:15 PM	9:22 PM	9:26 PM	9:31 PM	9:38 PM	9:42 PM	9:48 PM	9:54 PM	0:06:00	10:00 PM	10:07 PM	10:12 PM	10:16 PM	10:23 PM	10:28 PM	10:32 PM	10:39 PM	10:48 PM	10:54 PM	0:06:00	11:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:30:00
64		9:30 PM	9:35 PM	9:45 PM	9:52 PM	9:56 PM	10:01 PM	10:08 PM	10:12 PM	10:18 PM	10:24 PM	0:06:00	10:30 PM	10:37 PM	10:42 PM	10:46 PM	10:53 PM	10:58 PM	11:02 PM	11:09 PM	11:18 PM	11:24 PM	0:06:00	11:30 PM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
65		10:00 PM	10:05 PM	10:15 PM	10:22 PM	10:26 PM	10:31 PM	10:38 PM	10:42 PM	10:48 PM	10:54 PM	0:06:00	11:00 PM	11:07 PM	11:12 PM	11:16 PM	11:23 PM	11:28 PM	11:32 PM	11:39 PM	11:48 PM	11:54 PM	0:06:00	12:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
66		10:30 PM	10:35 PM	10:45 PM	10:52 PM	10:56 PM	11:01 PM	11:08 PM	11:12 PM	11:18 PM	11:24 PM	0:06:00	11:30 PM	11:37 PM	11:42 PM	11:46 PM	11:53 PM	11:58 PM	12:02 AM	12:09 AM	12:18 AM	12:24 AM	0:06:00	12:30 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
67		11:00 PM	11:05 PM	11:15 PM	11:22 PM	11:26 PM	11:31 PM	11:38 PM	11:42 PM	11:48 PM	11:54 PM	0:06:00	12:00 AM	12:07 AM	12:12 AM	12:16 AM	12:23 AM	12:28 AM	12:32 AM	12:39 AM	12:48 AM	12:54 AM	0:06:00	1:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
68		11:30 PM	11:35 PM	11:45 PM	11:52 PM	11:56 PM	12:01 AM	12:08 AM	12:12 AM	12:18 AM	12:24 AM	0:06:00	12:30 AM	12:37 AM	12:42 AM	12:46 AM	12:53 AM	12:58 AM	1:02 AM	1:09 AM	1:18 AM	1:24 AM	0:06:00	1:30 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
69		12:00 AM	12:05 AM	12:15 AM	12:22 AM	12:26 AM	12:31 AM	12:38 AM	12:42 AM	12:48 AM	12:54 AM	0:06:00	1:00 AM	1:07 AM	1:12 AM	1:16 AM	1:23 AM	1:28 AM	1:32 AM	1:39 AM	1:48 AM	1:54 AM	0:06:00	2:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
70		12:30 AM	12:35 AM	12:45 AM	12:52 AM	12:56 AM	1:01 AM	1:08 AM	1:12 AM	1:18 AM	1:24 AM														15.3	0:54:42		0:30:00	
71		1:00 AM	1:05 AM	1:15 AM	1:22 AM	1:26 AM	1:31 AM	1:38 AM	1:42 AM	1:48 AM	1:54 AM														15.3	0:54:42		0:30:00	
												0:06:00											0:06:00		2050.2	120:50:31	13:00:00		
																									W/Rec =	133:50:31			
																									% Rec =	10.8%			

Pace Dempster Pulse (7/27/16) **Sunday**

Schedule Inputs					
		AM EB Running Time	0:58:41		
		AM WB Running Time	0:52:14	Sunday rev hrs	113:36:57
		Midday EB Running Time	0:54:42	Sunday rev mi	1927.8
Headway 1	0:10:00	Midday WB Running Time	0:53:31		
Headway 2	0:15:00	PM EB Running Time	1:06:18	annual rev hrs	6589:43:06
Headway 3	0:30:00	PM WB Running Time	1:04:24	annual rev mi	111812.40
Headway 4	0:05:00	Eve EB Running Time	0:47:41		
		Eve WB Running Time	0:43:30		

Sunday **Pace Dempster Pulse**

Round trip Count	Block No.	Lv O'Hare	Lee/Touhy	DP Metra	Hosp	Milwaukee	Waukegan	CTA Skokie	Crawford	Dodge	Ar Davis	Recovery time	Lv Davis	Dodge	Crawford	CTA Skokie	Waukegan	Milwaukee	Hosp	DP Metra	Lee/Touhy	Ar O'Hare	Recovery time	Lv next trip	Trip Miles	Trip Hours	Total Rec Time	Headways NB	Headways SB
1													7:00 AM	7:06 AM	7:11 AM	7:15 AM	7:23 AM	7:27 AM	7:31 AM	7:38 AM	7:47 AM	7:53 AM	0:06:00	7:59 AM	15.3	0:59:31	0:06:00		
2													7:30 AM	7:36 AM	7:41 AM	7:45 AM	7:53 AM	7:57 AM	8:01 AM	8:08 AM	8:17 AM	8:23 AM	0:06:00	8:29 AM	15.3	0:59:31	0:06:00		0:30:00
3		7:00 AM	7:05 AM	7:15 AM	7:22 AM	7:26 AM	7:31 AM	7:38 AM	7:42 AM	7:48 AM	7:54 AM	0:06:00	8:00 AM	8:06 AM	8:11 AM	8:15 AM	8:23 AM	8:27 AM	8:31 AM	8:38 AM	8:47 AM	8:53 AM	0:06:00	8:59 AM	30.6	1:59:31	0:12:00		0:30:00
4													8:15 AM	8:21 AM	8:26 AM	8:30 AM	8:38 AM	8:42 AM	8:46 AM	8:53 AM	9:02 AM	9:08 AM	0:06:00	9:14 AM	15.3	0:59:31	0:06:00		0:15:00
5		7:30 AM	7:35 AM	7:45 AM	7:52 AM	7:56 AM	8:01 AM	8:08 AM	8:12 AM	8:18 AM	8:24 AM	0:06:00	8:30 AM	8:37 AM	8:42 AM	8:46 AM	8:53 AM	8:58 AM	9:02 AM	9:09 AM	9:18 AM	9:24 AM	0:06:00	9:30 AM	30.6	2:00:13	0:12:00	0:30:00	0:15:42
6													8:45 AM	8:52 AM	8:57 AM	9:01 AM	9:08 AM	9:13 AM	9:17 AM	9:24 AM	9:33 AM	9:39 AM	0:06:00	9:45 AM	15.3	0:59:31	0:06:00		0:15:00
7		8:00 AM	8:05 AM	8:15 AM	8:22 AM	8:26 AM	8:31 AM	8:38 AM	8:42 AM	8:48 AM	8:54 AM	0:06:00	9:00 AM	9:07 AM	9:12 AM	9:16 AM	9:23 AM	9:28 AM	9:32 AM	9:39 AM	9:48 AM	9:54 AM	0:06:00	10:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:15:00
8		8:15 AM	8:20 AM	8:30 AM	8:37 AM	8:41 AM	8:46 AM	8:53 AM	8:57 AM	9:03 AM	9:09 AM	0:06:00	9:15 AM	9:22 AM	9:27 AM	9:31 AM	9:38 AM	9:43 AM	9:47 AM	9:54 AM	10:03 AM	10:09 AM	0:06:00	10:15 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
9		8:30 AM	8:35 AM	8:45 AM	8:52 AM	8:56 AM	9:01 AM	9:08 AM	9:12 AM	9:18 AM	9:24 AM	0:06:00	9:30 AM	9:37 AM	9:42 AM	9:46 AM	9:53 AM	9:58 AM	10:02 AM	10:09 AM	10:18 AM	10:24 AM	0:06:00	10:30 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
10		8:45 AM	8:50 AM	9:00 AM	9:07 AM	9:11 AM	9:16 AM	9:23 AM	9:27 AM	9:33 AM	9:39 AM	0:06:00	9:45 AM	9:52 AM	9:57 AM	10:01 AM	10:08 AM	10:13 AM	10:17 AM	10:24 AM	10:33 AM	10:39 AM	0:06:00	10:45 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
11		9:00 AM	9:05 AM	9:15 AM	9:22 AM	9:26 AM	9:31 AM	9:38 AM	9:42 AM	9:48 AM	9:54 AM	0:06:00	10:00 AM	10:07 AM	10:12 AM	10:16 AM	10:23 AM	10:28 AM	10:32 AM	10:39 AM	10:48 AM	10:54 AM	0:06:00	11:00 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
12		9:15 AM	9:20 AM	9:30 AM	9:37 AM	9:41 AM	9:46 AM	9:53 AM	9:57 AM	10:03 AM	10:09 AM	0:06:00	10:15 AM	10:22 AM	10:27 AM	10:31 AM	10:38 AM	10:43 AM	10:47 AM	10:54 AM	11:03 AM	11:09 AM	0:06:00	11:15 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
13		9:30 AM	9:35 AM	9:45 AM	9:52 AM	9:56 AM	10:01 AM	10:08 AM	10:12 AM	10:18 AM	10:24 AM	0:06:00	10:30 AM	10:37 AM	10:42 AM	10:46 AM	10:53 AM	10:58 AM	11:02 AM	11:09 AM	11:18 AM	11:24 AM	0:06:00	11:30 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
14		9:45 AM	9:50 AM	10:00 AM	10:07 AM	10:11 AM	10:16 AM	10:23 AM	10:27 AM	10:33 AM	10:39 AM	0:06:00	10:45 AM	10:52 AM	10:57 AM	11:01 AM	11:08 AM	11:13 AM	11:17 AM	11:24 AM	11:33 AM	11:39 AM	0:06:00	11:45 AM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
15		10:00 AM	10:05 AM	10:15 AM	10:22 AM	10:26 AM	10:31 AM	10:38 AM	10:42 AM	10:48 AM	10:54 AM	0:06:00	11:00 AM	11:07 AM	11:12 AM	11:16 AM	11:23 AM	11:28 AM	11:32 AM	11:39 AM	11:48 AM	11:54 AM	0:06:00	12:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
16		10:15 AM	10:20 AM	10:30 AM	10:37 AM	10:41 AM	10:46 AM	10:53 AM	10:57 AM	11:03 AM	11:09 AM	0:06:00	11:15 AM	11:22 AM	11:27 AM	11:31 AM	11:38 AM	11:43 AM	11:47 AM	11:54 AM	12:03 PM	12:09 PM	0:06:00	12:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
17		10:30 AM	10:35 AM	10:45 AM	10:52 AM	10:56 AM	11:01 AM	11:08 AM	11:12 AM	11:18 AM	11:24 AM	0:06:00	11:30 AM	11:37 AM	11:42 AM	11:46 AM	11:53 AM	11:58 AM	12:02 PM	12:09 PM	12:18 PM	12:24 PM	0:06:00	12:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
18		10:45 AM	10:50 AM	11:00 AM	11:07 AM	11:11 AM	11:16 AM	11:23 AM	11:27 AM	11:33 AM	11:39 AM	0:06:00	11:45 AM	11:52 AM	11:57 AM	12:01 PM	12:08 PM	12:13 PM	12:17 PM	12:24 PM	12:33 PM	12:39 PM	0:06:00	12:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
19		11:00 AM	11:05 AM	11:15 AM	11:22 AM	11:26 AM	11:31 AM	11:38 AM	11:42 AM	11:48 AM	11:54 AM	0:06:00	12:00 PM	12:07 PM	12:12 PM	12:16 PM	12:23 PM	12:28 PM	12:32 PM	12:39 PM	12:48 PM	12:54 PM	0:06:00	1:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
20		11:15 AM	11:20 AM	11:30 AM	11:37 AM	11:41 AM	11:46 AM	11:53 AM	11:57 AM	12:03 PM	12:09 PM	0:06:00	12:15 PM	12:22 PM	12:27 PM	12:31 PM	12:38 PM	12:43 PM	12:47 PM	12:54 PM	1:03 PM	1:09 PM	0:06:00	1:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
21		11:30 AM	11:35 AM	11:45 AM	11:52 AM	11:56 AM	12:01 PM	12:08 PM	12:12 PM	12:18 PM	12:24 PM	0:06:00	12:30 PM	12:37 PM	12:42 PM	12:46 PM	12:53 PM	12:58 PM	1:02 PM	1:09 PM	1:18 PM	1:24 PM	0:06:00	1:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
22		11:45 AM	11:50 AM	12:00 PM	12:07 PM	12:11 PM	12:16 PM	12:23 PM	12:27 PM	12:33 PM	12:39 PM	0:06:00	12:45 PM	12:52 PM	12:57 PM	1:01 PM	1:08 PM	1:13 PM	1:17 PM	1:24 PM	1:33 PM	1:39 PM	0:06:00	1:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
23		12:00 PM	12:05 PM	12:15 PM	12:22 PM	12:26 PM	12:31 PM	12:38 PM	12:42 PM	12:48 PM	12:54 PM	0:06:00	1:00 PM	1:07 PM	1:12 PM	1:16 PM	1:23 PM	1:28 PM	1:32 PM	1:39 PM	1:48 PM	1:54 PM	0:06:00	2:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
24		12:15 PM	12:20 PM	12:30 PM	12:37 PM	12:41 PM	12:46 PM	12:53 PM	12:57 PM	1:03 PM	1:09 PM	0:06:00	1:15 PM	1:22 PM	1:27 PM	1:31 PM	1:38 PM	1:43 PM	1:47 PM	1:54 PM	2:03 PM	2:09 PM	0:06:00	2:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
25		12:30 PM	12:35 PM	12:45 PM	12:52 PM	12:56 PM	1:01 PM	1:08 PM	1:12 PM	1:18 PM	1:24 PM	0:06:00	1:30 PM	1:37 PM	1:42 PM	1:46 PM	1:53 PM	1:58 PM	2:02 PM	2:09 PM	2:18 PM	2:24 PM	0:06:00	2:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
26		12:45 PM	12:50 PM	1:00 PM	1:07 PM	1:11 PM	1:16 PM	1:23 PM	1:27 PM	1:33 PM	1:39 PM	0:06:00	1:45 PM	1:52 PM	1:57 PM	2:01 PM	2:08 PM	2:13 PM	2:17 PM	2:24 PM	2:33 PM	2:39 PM	0:06:00	2:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
27		1:00 PM	1:05 PM	1:15 PM	1:22 PM	1:26 PM	1:31 PM	1:38 PM	1:42 PM	1:48 PM	1:54 PM	0:06:00	2:00 PM	2:07 PM	2:12 PM	2:16 PM	2:23 PM	2:28 PM	2:32 PM	2:39 PM	2:48 PM	2:54 PM	0:06:00	3:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
28		1:15 PM	1:20 PM	1:30 PM	1:37 PM	1:41 PM	1:46 PM	1:53 PM	1:57 PM	2:03 PM	2:09 PM	0:06:00	2:15 PM	2:22 PM	2:27 PM	2:31 PM	2:38 PM	2:43 PM	2:47 PM	2:54 PM	3:03 PM	3:09 PM	0:06:00	3:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
29		1:30 PM	1:35 PM	1:45 PM	1:52 PM	1:56 PM	2:01 PM	2:08 PM	2:12 PM	2:18 PM	2:24 PM	0:06:00	2:30 PM	2:37 PM	2:42 PM	2:46 PM	2:53 PM	2:58 PM	3:02 PM	3:09 PM	3:18 PM	3:24 PM	0:06:00	3:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
30		1:45 PM	1:50 PM	2:00 PM	2:07 PM	2:11 PM	2:16 PM	2:23 PM	2:27 PM	2:33 PM	2:39 PM	0:06:00	2:45 PM	2:52 PM	2:57 PM	3:01 PM	3:08 PM	3:13 PM	3:17 PM	3:24 PM	3:33 PM	3:39 PM	0:06:00	3:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
31		2:00 PM	2:05 PM	2:15 PM	2:22 PM	2:26 PM	2:31 PM	2:38 PM	2:42 PM	2:48 PM	2:54 PM	0:06:00	3:00 PM	3:07 PM	3:12 PM	3:16 PM	3:23 PM	3:28 PM	3:32 PM	3:39 PM	3:48 PM	3:54 PM	0:06:00	4:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
32		2:15 PM	2:20 PM	2:30 PM	2:37 PM	2:41 PM	2:46 PM	2:53 PM	2:57 PM	3:03 PM	3:09 PM	0:06:00	3:15 PM	3:22 PM	3:27 PM	3:31 PM	3:38 PM	3:43 PM	3:47 PM	3:54 PM	4:03 PM	4:09 PM	0:06:00	4:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
33		2:30 PM	2:35 PM	2:45 PM	2:52 PM	2:56 PM	3:01 PM	3:08 PM	3:12 PM	3:18 PM	3:24 PM	0:06:00	3:30 PM	3:37 PM	3:42 PM	3:46 PM	3:53 PM	3:58 PM	4:02 PM	4:09 PM	4:18 PM	4:24 PM	0:06:00	4:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
34		2:45 PM	2:50 PM	3:00 PM	3:07 PM	3:11 PM	3:16 PM	3:23 PM	3:27 PM	3:33 PM	3:39 PM	0:06:00	3:45 PM	3:52 PM	3:57 PM	4:01 PM	4:08 PM	4:13 PM	4:17 PM	4:24 PM	4:33 PM	4:39 PM	0:06:00	4:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
35		3:00 PM	3:05 PM	3:15 PM	3:22 PM	3:26 PM	3:31 PM	3:38 PM	3:42 PM	3:48 PM	3:54 PM	0:06:00	4:00 PM	4:07 PM	4:12 PM	4:16 PM	4:23 PM	4:28 PM	4:32 PM	4:39 PM	4:48 PM	4:54 PM	0:06:00	5:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
36		3:15 PM	3:20 PM	3:30 PM	3:37 PM	3:41 PM	3:46 PM	3:53 PM	3:57 PM	4:03 PM	4:09 PM	0:06:00	4:15 PM	4:22 PM	4:27 PM	4:31 PM	4:38 PM	4:43 PM	4:47 PM	4:54 PM	5:03 PM	5:09 PM	0:06:00	5:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
37		3:30 PM	3:35 PM	3:45 PM	3:52 PM	3:56 PM	4:01 PM	4:08 PM	4:12 PM	4:18 PM	4:24 PM	0:06:00	4:30 PM	4:37 PM	4:42 PM	4:46 PM	4:53 PM	4:58 PM	5:02 PM	5:09 PM	5:18 PM	5:24 PM	0:06:00	5:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
38		3:45 PM	3:50 PM	4:00 PM	4:07 PM	4:11 PM	4:16 PM	4:23 PM	4:27 PM	4:33 PM	4:39 PM	0:06:00	4:45 PM	4:52 PM	4:57 PM	5:01 PM	5:08 PM	5:13 PM	5:17 PM	5:24 PM	5:33 PM	5:39 PM	0:06:00	5:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
39		4:00 PM	4:05 PM	4:15 PM	4:22 PM	4:26 PM	4:31 PM	4:38 PM	4:42 PM	4:48 PM	4:54 PM	0:06:00	5:00 PM	5:07 PM	5:12 PM	5:16 PM	5:23 PM	5:28 PM	5:32 PM	5:39 PM	5:48 PM	5:54 PM	0:06:00	6:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
40		4:15 PM	4:20 PM	4:30 PM	4:37 PM	4:41 PM	4:46 PM	4:53 PM	4:57 PM	5:03 PM	5:09 PM	0:06:00	5:15 PM	5:22 PM	5:27 PM	5:31 PM	5:38 PM	5:43 PM	5:47 PM	5:54 PM	6:03 PM	6:09 PM	0:06:00	6:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
41		4:30 PM	4:35 PM	4:45 PM	4:52 PM	4:56 PM	5:01 PM	5:08 PM	5:12 PM	5:18 PM	5:24 PM	0:06:00	5:30 PM	5:37 PM	5:42 PM	5:46 PM	5:53 PM	5:58 PM	6:02 PM	6:09 PM	6:18 PM	6:24 PM	0:06:00	6:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
42		4:45 PM	4:50 PM	5:00 PM	5:07 PM	5:11 PM	5:16 PM	5:23 PM	5:27 PM	5:33 PM	5:39 PM	0:06:00	5:45 PM	5:52 PM	5:57 PM	6:01 PM	6:08 PM	6:13 PM	6:17 PM	6:24 PM	6:33 PM	6:39 PM	0:06:00	6:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
43		5:00 PM	5:05 PM	5:15 PM	5:22 PM	5:26 PM	5:31 PM	5:38 PM	5:42 PM	5:48 PM	5:54 PM	0:06:00	6:00 PM	6:07 PM	6:12 PM	6:16 PM	6:23 PM	6:28 PM	6:32 PM	6:39 PM	6:48 PM	6:54 PM	0:06:00	7:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
44		5:15 PM	5:20 PM	5:30 PM	5:37 PM	5:41 PM	5:46 PM	5:53 PM	5:57 PM	6:03 PM	6:09 PM	0:06:00	6:15 PM	6:22 PM	6:27 PM	6:31 PM	6:38 PM	6:43 PM	6:47 PM	6:54 PM	7:03 PM	7:09 PM	0:06:00	7:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
45		5:30 PM	5:35 PM	5:45 PM	5:52 PM	5:56 PM	6:01 PM	6:08 PM	6:12 PM	6:18 PM	6:24 PM	0:06:00	6:30 PM	6:37 PM	6:42 PM	6:46 PM	6:53 PM	6:58 PM	7:02 PM	7:09 PM	7:18 PM	7:24 PM	0:06:00	7:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
46		5:45 PM	5:50 PM	6:00 PM	6:07 PM	6:11 PM	6:16 PM	6:23 PM	6:27 PM	6:33 PM	6:39 PM	0:06:00	6:45 PM	6:52 PM	6:57 PM	7:01 PM	7:08 PM	7:13 PM	7:17 PM	7:24 PM	7:33 PM	7:39 PM	0:06:00	7:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
47		6:00 PM	6:05 PM	6:15 PM	6:22 PM	6:26 PM	6:31 PM	6:38 PM	6:42 PM	6:48 PM	6:54 PM	0:06:00	7:00 PM	7:07 PM	7:12 PM	7:16 PM	7:23 PM	7:28 PM	7:32 PM	7:39 PM	7:48 PM	7:54 PM	0:06:00	8:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
48		6:15 PM	6:20 PM	6:30 PM	6:37 PM	6:41 PM	6:46 PM	6:53 PM	6:57 PM	7:03 PM	7:09 PM	0:06:00	7:15 PM	7:22 PM	7:27 PM	7:31 PM	7:38 PM	7:43 PM	7:47 PM	7:54 PM	8:03 PM	8:09 PM	0:06:00	8:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
49		6:30 PM	6:35 PM	6:45 PM	6:52 PM	6:56 PM	7:01 PM	7:08 PM	7:12 PM	7:18 PM	7:24 PM	0:06:00	7:30 PM	7:37 PM	7:42 PM	7:46 PM	7:53 PM	7:58 PM	8:02 PM	8:09 PM	8:18 PM	8:24 PM	0:06:00	8:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
50		6:45 PM	6:50 PM	7:00 PM	7:07 PM	7:11 PM	7:16 PM	7:23 PM	7:27 PM	7:33 PM	7:39 PM	0:06:00	7:45 PM	7:52 PM	7:57 PM	8:01 PM	8:08 PM	8:13 PM	8:17 PM	8:24 PM	8:33 PM	8:39 PM	0:06:00	8:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
51		7:00 PM	7:05 PM	7:15 PM	7:22 PM	7:26 PM	7:31 PM	7:38 PM	7:42 PM	7:48 PM	7:54 PM	0:06:00	8:00 PM	8:07 PM	8:12 PM	8:16 PM	8:23 PM	8:28 PM	8:32 PM	8:39 PM	8:48 PM	8:54 PM	0:06:00	9:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
52		7:15 PM	7:20 PM	7:30 PM	7:37 PM	7:41 PM	7:46 PM	7:53 PM	7:57 PM	8:03 PM	8:09 PM	0:06:00	8:15 PM	8:22 PM	8:27 PM	8:31 PM	8:38 PM	8:43 PM	8:47 PM	8:54 PM	9:03 PM	9:09 PM	0:06:00	9:15 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
53		7:30 PM	7:35 PM	7:45 PM	7:52 PM	7:56 PM	8:01 PM	8:08 PM	8:12 PM	8:18 PM	8:24 PM	0:06:00	8:30 PM	8:37 PM	8:42 PM	8:46 PM	8:53 PM	8:58 PM	9:02 PM	9:09 PM	9:18 PM	9:24 PM	0:06:00	9:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
54		7:45 PM	7:50 PM	8:00 PM	8:07 PM	8:11 PM	8:16 PM	8:23 PM	8:27 PM	8:33 PM	8:39 PM	0:06:00	8:45 PM	8:52 PM	8:57 PM	9:01 PM	9:08 PM	9:13 PM	9:17 PM	9:24 PM	9:33 PM	9:39 PM	0:06:00	9:45 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
55		8:00 PM	8:05 PM	8:15 PM	8:22 PM	8:26 PM	8:31 PM	8:38 PM	8:42 PM	8:48 PM	8:54 PM	0:06:00	9:00 PM	9:07 PM	9:12 PM	9:16 PM	9:23 PM	9:28 PM	9:32 PM	9:39 PM	9:48 PM	9:54 PM	0:06:00	10:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:15:00
56		8:15 PM	8:20 PM	8:30 PM	8:37 PM	8:41 PM	8:46 PM	8:53 PM	8:57 PM	9:03 PM	9:09 PM														15.3	0:54:42		0:15:00	
57		8:30 PM	8:35 PM	8:45 PM	8:52 PM	8:56 PM	9:01 PM	9:08 PM	9:12 PM	9:18 PM	9:24 PM	0:06:00	9:30 PM	9:37 PM	9:42 PM	9:46 PM	9:53 PM	9:58 PM	10:02 PM	10:09 PM	10:18 PM	10:24 PM	0:06:00	10:30 PM	30.6	2:00:13	0:12:00	0:15:00	0:30:00
58		8:45 PM	8:50 PM	9:00 PM	9:07 PM	9:11 PM	9:16 PM	9:23 PM	9:27 PM	9:33 PM	9:39 PM														15.3	0:54:42		0:15:00	
59		9:00 PM	9:05 PM	9:15 PM	9:22 PM	9:26 PM	9:31 PM	9:38 PM	9:42 PM	9:48 PM	9:54 PM	0:06:00	10:00 PM	10:07 PM	10:12 PM	10:16 PM	10:23 PM	10:28 PM	10:32 PM	10:39 PM	10:48 PM	10:54 PM	0:06:00	11:00 PM	30.6	2:00:13	0:12:00	0:15:00	0:30:00
60		9:30 PM	9:35 PM	9:45 PM	9:52 PM	9:56 PM	10:01 PM	10:08 PM	10:12 PM	10:18 PM	10:24 PM	0:06:00	10:30 PM	10:37 PM	10:42 PM	10:46 PM	10:53 PM	10:58 PM	11:02 PM	11:09 PM	11:18 PM	11:24 PM	0:06:00	11:30 PM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
61		10:00 PM	10:05 PM	10:15 PM	10:22 PM	10:26 PM	10:31 PM	10:38 PM	10:42 PM	10:48 PM	10:54 PM	0:06:00	11:00 PM	11:07 PM	11:12 PM	11:16 PM	11:23 PM	11:28 PM	11:32 PM	11:39 PM	11:48 PM	11:54 PM	0:06:00	12:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
62		10:30 PM	10:35 PM	10:45 PM	10:52 PM	10:56 PM	11:01 PM	11:08 PM	11:12 PM	11:18 PM	11:24 PM	0:06:00	11:30 PM	11:37 PM	11:42 PM	11:46 PM	11:53 PM	11:58 PM	12:02 AM	12:09 AM	12:18 AM	12:24 AM	0:06:00	12:30 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
63		11:00 PM	11:05 PM	11:15 PM	11:22 PM	11:26 PM	11:31 PM	11:38 PM	11:42 PM	11:48 PM	11:54 PM	0:06:00	12:00 AM	12:07 AM	12:12 AM	12:16 AM	12:23 AM	12:28 AM	12:32 AM	12:39 AM	12:48 AM	12:54 AM	0:06:00	1:00 AM	30.6	2:00:13	0:12:00	0:30:00	0:30:00
64		11:30 PM	11:35 PM	11:45 PM	11:52 PM	11:56 PM	12:01 AM	12:08 AM	12:12 AM	12:18 AM	12:24 AM	0:06:00	12:30 AM	12:37 AM	12:42 AM	12:46 AM	12:53 AM	12:58 AM	1:02 AM	1:09 AM	1:18 AM	1:24 AM			30.6	1:54:13	0:06:00	0:30:00	0:30:00
65		12:00 AM	12:05 AM	12:15 AM	12:22 AM	12:26 AM	12:31 AM	12:38 AM	12:42 AM	12:48 AM	12:54 AM	0:06:00	1:00 AM	1:07 AM	1:12 AM	1:16 AM	1:23 AM	1:28 AM	1:32 AM	1:39 AM	1:48 AM	1:54 AM			30.6	1:54:13	0:06:00	0:30:00	0:30:00
66		12:30 AM	12:35 AM	12:45 AM	12:52 AM	12:56 AM	1:01 AM	1:08 AM	1:12 AM	1:18 AM	1:24 AM														15.3	0:54:42	0:00:00	0:30:00	
67		1:00 AM	1:05 AM	1:15 AM	1:22 AM	1:26 AM	1:31 AM	1:38 AM	1:42 AM	1:48 AM	1:54 AM														15.3	0:54:42	0:00:00	0:30:00	
												0:06:00											0:06:00		1927.8	113:36:57	12:00:00		

Total Hours w/F 125:36:57
% Rec = 0.14792899

ALTERNATIVE OPERATING PLAN: ROSEMONT EXTENSION

Rosemont		**Pace Dempster Pulse Rosemont**			(7/27/16)	**Weekday**				
		Total annual rev vehicle hrs			63472:14:13			Peak Buses =	18	
		Total annual rev vehicle mi			1,088,470.40			20% Spares =	4	
								Fleet Size =	22	
		Schedule Inputs			AM EB	Running Time	1:07:41			
		Headway 1		0:15:00	AM WB	Running Time	1:01:14		wkday rev hrs	189:08:01
		Headway 2		0:10:00	Midday EB	Running Time	1:04:42		wkday rev mi	3238.4
		Headway 3		0:30:00	Midday WB	Running Time	1:03:31			
		Headway 4		0:00:00	PM EB	Running Time	1:18:18		annual rev hrs	48229:04:15
					PM WB	Running Time	1:16:24		annual rev mi	825792
					Eve EB	Running Time	0:56:41			
					Eve WB	Running Time	0:52:30			

Weekday **Pace Dempster Pulse Rosemont** Headways:

Round trip Count	Block No.	Lv Rosemont	Lee/Touhy	DP Metra	Hosp	Milwaukee	Waukegan	CTA Skokie	Crawford	Dodge	Ar Davis	Recovery time	Lv Davis	Dodge	Crawford	CTA Skokie	Waukegan	Milwaukee	Hosp	DP Metra	Lee/Touhy	Ar Rosemont	Recovery time	Lv next trip		Trip Miles	Trip Hours	Total Recovery Time		EB	WB
1	1												5:05 AM	5:11 AM	5:16 AM	5:20 AM	5:27 AM	5:32 AM	5:36 AM	5:42 AM	5:52 AM	5:57 AM	0:02:30	6:00 AM	1	18.4	0:55:00	0:02:30			
2	2												5:20 AM	5:26 AM	5:31 AM	5:35 AM	5:42 AM	5:47 AM	5:51 AM	5:57 AM	6:07 AM	6:12 AM	0:07:30	6:20 AM	2	18.4	1:00:00	0:07:30			0:15:00
3	3												5:35 AM	5:41 AM	5:46 AM	5:50 AM	5:57 AM	6:02 AM	6:06 AM	6:12 AM	6:22 AM	6:27 AM	0:02:30	6:30 AM	3	18.4	0:55:00	0:02:30			0:15:00
4	4												5:50 AM	5:56 AM	6:01 AM	6:05 AM	6:12 AM	6:17 AM	6:21 AM	6:27 AM	6:37 AM	6:42 AM	0:07:30	6:50 AM	4	18.4	1:00:00	0:07:30			0:15:00
5	5	5:00 AM	5:05 AM	5:16 AM	5:22 AM	5:27 AM	5:32 AM	5:39 AM	5:44 AM	5:49 AM	5:56 AM	0:10:00	6:06 AM	6:13 AM	6:18 AM	6:24 AM	6:32 AM	6:36 AM	6:40 AM	6:47 AM	6:58 AM	7:07 AM	0:02:05	7:10 AM	5	36.8	2:10:00	0:12:05			0:16:41
6	6	5:15 AM	5:20 AM	5:31 AM	5:37 AM	5:42 AM	5:47 AM	5:54 AM	5:59 AM	6:04 AM	6:11 AM	0:05:00	6:16 AM	6:23 AM	6:28 AM	6:34 AM	6:42 AM	6:46 AM	6:50 AM	6:57 AM	7:08 AM	7:17 AM	0:02:05	7:20 AM	6	36.8	2:05:00	0:07:05		0:15:00	0:10:00
7	7												6:26 AM	6:33 AM	6:38 AM	6:44 AM	6:52 AM	6:56 AM	7:00 AM	7:07 AM	7:18 AM	7:27 AM	0:02:05	7:30 AM	7	18.4	1:03:19	0:02:05			0:10:00
8	8	5:30 AM	5:35 AM	5:46 AM	5:52 AM	5:57 AM	6:02 AM	6:09 AM	6:14 AM	6:19 AM	6:26 AM	0:13:00	6:39 AM	6:46 AM	6:51 AM	6:57 AM	7:05 AM	7:09 AM	7:13 AM	7:20 AM	7:31 AM	7:40 AM	0:09:05	7:50 AM	8	36.8	2:20:00	0:22:05		0:15:00	0:13:00
9	9	5:45 AM	5:50 AM	6:01 AM	6:07 AM	6:12 AM	6:17 AM	6:24 AM	6:29 AM	6:34 AM	6:41 AM	0:08:00	6:49 AM	6:56 AM	7:01 AM	7:07 AM	7:15 AM	7:19 AM	7:23 AM	7:30 AM	7:41 AM	7:50 AM	0:09:05	8:00 AM	9	36.8	2:15:00	0:17:05		0:15:00	0:10:00
10	10												6:59 AM	7:06 AM	7:11 AM	7:17 AM	7:25 AM	7:29 AM	7:33 AM	7:40 AM	7:51 AM	8:00 AM	0:09:05	8:10 AM	10	18.4	1:10:19	0:09:05			0:10:00
11	11												7:09 AM	7:16 AM	7:21 AM	7:27 AM	7:35 AM	7:39 AM	7:43 AM	7:50 AM	8:01 AM	8:10 AM	0:09:05	8:20 AM	11	18.4	1:10:19	0:09:05			0:10:00
12	1	6:00 AM	6:07 AM	6:19 AM	6:27 AM	6:32 AM	6:38 AM	6:47 AM	6:52 AM	6:59 AM	7:07 AM	0:10:00	7:17 AM	7:24 AM	7:29 AM	7:35 AM	7:43 AM	7:47 AM	7:51 AM	7:58 AM	8:09 AM	8:18 AM	0:11:05	8:30 AM	1	36.8	2:30:00	0:21:05		0:15:00	0:08:00
13	12	6:10 AM	6:17 AM	6:29 AM	6:37 AM	6:42 AM	6:48 AM	6:57 AM	7:02 AM	7:09 AM	7:17 AM	0:10:00	7:27 AM	7:34 AM	7:39 AM	7:45 AM	7:53 AM	7:57 AM	8:01 AM	8:08 AM	8:19 AM	8:28 AM	0:11:05	8:40 AM	12	36.8	2:30:00	0:21:05		0:10:00	0:10:00
14	2	6:20 AM	6:27 AM	6:39 AM	6:47 AM	6:52 AM	6:58 AM	7:07 AM	7:12 AM	7:19 AM	7:27 AM	0:10:00	7:37 AM	7:44 AM	7:49 AM	7:55 AM	8:03 AM	8:07 AM	8:11 AM	8:18 AM	8:29 AM	8:38 AM	0:11:05	8:50 AM	2	36.8	2:30:00	0:21:05		0:10:00	0:10:00
15	3	6:30 AM	6:37 AM	6:49 AM	6:57 AM	7:02 AM	7:08 AM	7:17 AM	7:22 AM	7:29 AM	7:37 AM	0:10:00	7:47 AM	7:54 AM	7:59 AM	8:05 AM	8:13 AM	8:17 AM	8:21 AM	8:28 AM	8:39 AM	8:48 AM	0:11:05	9:00 AM	3	36.8	2:30:00	0:21:05		0:10:00	0:10:00
16	13	6:40 AM	6:47 AM	6:59 AM	7:07 AM	7:12 AM	7:18 AM	7:27 AM	7:32 AM	7:39 AM	7:47 AM	0:10:00	7:57 AM	8:04 AM	8:09 AM	8:15 AM	8:23 AM	8:27 AM	8:31 AM	8:38 AM	8:49 AM	8:58 AM	0:16:05	9:15 AM	13	36.8	2:35:00	0:26:05		0:10:00	0:10:00
17	4	6:50 AM	6:57 AM	7:09 AM	7:17 AM	7:22 AM	7:28 AM	7:37 AM	7:42 AM	7:49 AM	7:57 AM	0:10:00	8:07 AM	8:14 AM	8:19 AM	8:25 AM	8:33 AM	8:37 AM	8:41 AM	8:48 AM	8:59 AM	9:08 AM	0:00:00	9:08 AM	4	36.8	2:18:55	0:10:00		0:10:00	0:10:00
18	14	7:00 AM	7:07 AM	7:19 AM	7:27 AM	7:32 AM	7:38 AM	7:47 AM	7:52 AM	7:59 AM	8:07 AM	0:10:00	8:17 AM	8:24 AM	8:29 AM	8:35 AM	8:43 AM	8:47 AM	8:51 AM	8:58 AM	9:09 AM	9:18 AM	0:11:05	9:30 AM	14	36.8	2:30:00	0:21:05		0:10:00	0:10:00
19	5	7:10 AM	7:17 AM	7:29 AM	7:37 AM	7:42 AM	7:48 AM	7:57 AM	8:02 AM	8:09 AM	8:17 AM	0:10:00	8:27 AM	8:34 AM	8:39 AM	8:45 AM	8:53 AM	8:57 AM	9:01 AM	9:08 AM	9:19 AM	9:28 AM	0:00:00	9:28 AM	5	36.8	2:18:55	0:10:00		0:10:00	0:10:00
20	6	7:20 AM	7:27 AM	7:39 AM	7:47 AM	7:52 AM	7:58 AM	8:07 AM	8:12 AM	8:19 AM	8:27 AM	0:10:00	8:37 AM	8:44 AM	8:49 AM	8:55 AM	9:03 AM	9:07 AM	9:11 AM	9:18 AM	9:29 AM	9:38 AM	0:06:05	9:45 AM	6	36.8	2:25:00	0:16:05		0:10:00	0:10:00
21	7	7:30 AM	7:37 AM	7:49 AM	7:57 AM	8:02 AM	8:08 AM	8:17 AM	8:22 AM	8:29 AM	8:37 AM	0:10:00	8:47 AM	8:54 AM	8:59 AM	9:05 AM	9:13 AM	9:17 AM	9:21 AM	9:28 AM	9:39 AM	9:48 AM	0:11:05	10:00 AM	7	36.8	2:30:00	0:21:05		0:10:00	0:10:00
22	15	7:40 AM	7:47 AM	7:59 AM	8:07 AM	8:12 AM	8:18 AM	8:27 AM	8:32 AM	8:39 AM	8:47 AM	0:10:00	8:57 AM	9:04 AM	9:09 AM	9:15 AM	9:23 AM	9:27 AM	9:31 AM	9:38 AM	9:49 AM	9:58 AM	0:16:05	10:15 AM	15	36.8	2:35:00	0:26:05		0:10:00	0:10:00
23	8	7:50 AM	7:57 AM	8:09 AM	8:17 AM	8:22 AM	8:28 AM	8:37 AM	8:42 AM	8:49 AM	8:57 AM	0:10:00	9:07 AM	9:14 AM	9:19 AM	9:25 AM	9:33 AM	9:37 AM	9:41 AM	9:48 AM	9:59 AM	10:08 AM	0:00:00	10:08 AM	8	36.8	2:18:55	0:10:00		0:10:00	0:10:00
24	9	8:00 AM	8:07 AM	8:19 AM	8:27 AM	8:32 AM	8:38 AM	8:47 AM	8:52 AM	8:59 AM	9:07 AM														9	18.4	1:07:41	0:00:00		0:10:00	
25	10	8:10 AM	8:17 AM	8:29 AM	8:37 AM	8:42 AM	8:48 AM	8:57 AM	9:02 AM	9:09 AM	9:17 AM	0:05:00	9:22 AM	9:30 AM	9:36 AM	9:41 AM	9:50 AM	9:55 AM	10:00 AM	10:08 AM	10:19 AM	10:26 AM	0:03:48	10:30 AM	10	36.8	2:20:00	0:08:48		0:10:00	0:15:00
26	11	8:20 AM	8:27 AM	8:39 AM	8:47 AM	8:52 AM	8:58 AM	9:07 AM	9:12 AM	9:19 AM	9:27 AM	0:10:00	9:37 AM	9:45 AM	9:51 AM	9:56 AM	10:05 AM	10:10 AM	10:15 AM	10:23 AM	10:34 AM	10:41 AM	0:03:48	10:45 AM	11	36.8	2:25:00	0:13:48		0:10:00	0:15:00
27	1	8:30 AM	8:37 AM	8:49 AM	8:57 AM	9:02 AM	9:08 AM	9:17 AM	9:22 AM	9:29 AM	9:37 AM														1	18.4	1:07:41	0:00:00		0:10:00	
28	12	8:40 AM	8:47 AM	8:59 AM	9:07 AM	9:12 AM	9:18 AM	9:27 AM	9:32 AM	9:39 AM	9:47 AM	0:05:00	9:52 AM	10:00 AM	10:06 AM	10:11 AM	10:20 AM	10:25 AM	10:30 AM	10:38 AM	10:49 AM	10:56 AM	0:03:48	11:00 AM	12	36.8	2:20:00	0:08:48		0:10:00	0:15:00
29	2	8:50 AM	8:57 AM	9:09 AM	9:17 AM	9:22 AM	9:28 AM	9:37 AM	9:42 AM	9:49 AM	9:57 AM	0:10:00	10:07 AM	10:15 AM	10:21 AM	10:26 AM	10:35 AM	10:40 AM	10:45 AM	10:53 AM	11:04 AM	11:11 AM	0:03:48	11:15 AM	2	36.8	2:25:00	0:13:48		0:10:00	0:15:00
30	3	9:00 AM	9:06 AM	9:18 AM	9:26 AM	9:30 AM	9:36 AM	9:45 AM	9:50 AM	9:56 AM	10:04 AM	0:10:00	10:14 AM	10:22 AM	10:28 AM	10:33 AM	10:42 AM	10:47 AM	10:52 AM	11:00 AM	11:11 AM	11:18 AM	0:11:47	11:30 AM	3	36.8	2:30:00	0:21:47		0:10:00	0:07:01
31	13	9:15 AM	9:21 AM	9:28 AM	9:33 AM	9:42 AM	9:47 AM	9:52 AM	10:00 AM	10:11 AM	10:19 AM	0:05:00	10:24 AM	10:32 AM	10:38 AM	10:43 AM	10:52 AM	10:57 AM	11:02 AM	11:10 AM	11:21 AM	11:28 AM	0:16:47	11:45 AM	13	36.8	2:30:00	0:21:47		0:15:00	0:17:01
32	14	9:30 AM	9:36 AM	9:48 AM	9:56 AM	10:00 AM	10:06 AM	10:15 AM	10:20 AM	10:26 AM	10:34 AM	0:05:00	10:39 AM	10:47 AM	10:53 AM	10:58 AM	11:07 AM	11:12 AM	11:17 AM	11:25 AM	11:36 AM	11:43 AM	0:16:47	12:00 PM	14	36.8	2:30:00	0:21:47		0:15:00	0:15:00
33	6	9:45 AM	9:51 AM	10:03 AM	10:11 AM	10:15 AM	10:21 AM	10:30 AM	10:35 AM	10:41 AM	10:49 AM	0:07:00	10:56 AM	11:04 AM	11:10 AM	11:15 AM	11:24 AM	11:29 AM	11:34 AM	11:42 AM	11:53 AM	12:00 PM	0:14:47	12:15 PM	6	36.8	2:30:00	0:21:47		0:15:00	0:17:00
34	7	10:00 AM	10:06 AM	10:18 AM	10:26 AM	10:30 AM	10:36 AM	10:45 AM	10:50 AM	10:56 AM	11:04 AM	0:07:00	11:11 AM	11:19 AM	11:25 AM	11:30 AM	11:39 AM	11:44 AM	11:49 AM	11:57 AM	12:08 PM	12:15 PM	0:14:47	12:30 PM	7	36.8	2:30:00	0:21:47		0:15:00	0:15:00
35	15	10:15 AM	10:21 AM	10:33 AM	10:41 AM	10:45 AM	10:51 AM	11:00 AM	11:05 AM	11:11 AM	11:19 AM	0:07:00	11:26 AM	11:34 AM	11:40 AM	11:45 AM	11:54 AM	11:59 AM	12:04 PM	12:12 PM	12:23 PM	12:30 PM	0:14:47	12:45 PM	15	36.8	2:30:00	0:21:47		0:15:00	0:15:00
36	10	10:30 AM	10:36 AM	10:48 AM	10:56 AM	11:00 AM	11:06 AM	11:15 AM	11:20 AM	11:26 AM	11:34 AM	0:07:00	11:41 AM	11:49 AM	11:55 AM	12:00 PM	12:09 PM	12:14 PM	12:19 PM	12:27 PM	12:38 PM	12:45 PM	0:14:47	1:00 PM	10	36.8	2:30:00	0:21:47		0:15:00	0:15:00
37	11	10:45 AM	10:51 AM	11:03 AM	11:11 AM	11:15 AM	11:21 AM	11:30 AM	11:35 AM	11:41 AM	11:49 AM	0:07:00	11:56 AM	12:04 PM	12:10 PM	12:15 PM	12:24 PM	12:29 PM	12:34 PM	12:42 PM	12:53 PM	1:00 PM	0:14:47	1:15 PM	11	36.8	2:30:00	0:21:47		0:15:00	0:15:00
38	12	11:00 AM	11:06 AM	11:18 AM	11:26 AM	11:30 AM	11:36 AM	11:45 AM	11:50 AM	11:56 AM	12:04 PM	0:07:00	12:11 PM	12:19 PM	12:25 PM	12:30 PM	12:39 PM	12:44 PM	12:49 PM	12:57 PM	1:08 PM	1:15 PM	0:14:47	1:30 PM	12	36.8	2:30:00	0:21:47		0:15:00	0:15:00
39	2	11:15 AM	11:21 AM	11:33 AM	11:41 AM	11:45 AM	11:51 AM	12:00 PM	12:05 PM	12:11 PM	12:19 PM	0:07:00	12:26 PM	12:34 PM	12:40 PM	12:45 PM	12:54 PM	12:59 PM	1:04 PM	1:12 PM	1:23 PM	1:30 PM	0:14:47	1:45 PM	2	36.8	2:30:00	0:21:47		0:15:00	0:15:00
40	3	11:30 AM	11:36 AM	11:48 AM	11:56 AM	12:00 PM	12:06 PM	12:15 PM	12:20 PM	12:26 PM	12:34 PM	0:07:00	12:41 PM	12:49 PM	12:55 PM	1:00 PM	1:09 PM	1:14 PM	1:19 PM	1:27 PM	1:38 PM	1:45 PM	0:14:47	2:00 PM	3	36.8	2:30:00	0:21:47		0:15:00	0:15:00
41	13	11:45 AM	11:51 AM	12:03 PM	12:11 PM	12:15 PM	12:21 PM	12:30 PM	12:35 PM	12:41 PM	12:49 PM	0:07:00	12:56 PM	1:04 PM	1:10 PM	1:15 PM	1:24 PM	1:29 PM	1:34 PM	1:42 PM	1:53 PM	2:00 PM	0:14:47	2:15 PM	13	36.8	2:30:00	0:21:47		0:15:00	0:15:00
42	14	12:00 PM	12:06 PM	12:18 PM	12:26 PM	12:30 PM	12:36 PM	12:45 PM	12:50 PM	12:56 PM	1:04 PM	0:07:00	1:11 PM	1:19 PM	1:25 PM	1:30 PM	1:39 PM	1:44 PM	1:49 PM	1:57 PM	2:08 PM	2:15 PM	0:14:47	2:30 PM	14	36.8	2:30:00	0:21:47		0:15:00	0:15:00
43	6	12:15 PM	12:21 PM	12:33 PM	12:41 PM	12:45 PM	12:51 PM	1:00 PM	1:05 PM	1:11 PM	1:19 PM	0:07:00	1:26 PM	1:34 PM	1:40 PM	1:45 PM	1:54 PM	1:59 PM	2:04 PM	2:12 PM	2:23 PM	2:30 PM	0:14:47	2:45 PM	6	36.8	2:30:00	0:21:47		0:15:00	0:15:00
44	7	12:30 PM	12:36 PM	12:48 PM	12:56 PM	1:00 PM	1:06 PM	1:15 PM	1:20 PM	1:26 PM	1:34 PM	0:07:00	1:41 PM	1:49 PM	1:55 PM	2:00 PM	2:09 PM	2:14 PM	2:19 PM	2:27 PM	2:38 PM	2:45 PM	0:14:47	3:00 PM	7	36.8	2:30:00	0:21:47		0:15:00	0:15:00
45	15	12:45 PM	12:51 PM	1:03 PM	1:11 PM	1:15 PM	1:21 PM	1:30 PM	1:35 PM	1:41 PM	1:49 PM	0:07:00	1:56 PM	2:04 PM	2:10 PM	2:15 PM	2:24 PM	2:29 PM	2:34 PM	2:42 PM	2:53 PM	3:00 PM	0:09:47	3:10 PM	15	36.8	2:25:00	0:16:47		0:15:00	0:15:00
46	10	1:00 PM	1:06 PM	1:18 PM	1:26 PM	1:30 PM	1:36 PM	1:45 PM	1:50 PM	1:56 PM	2:04 PM	0:07:00	2:11 PM	2:19 PM	2:26 PM	2:33 PM	2:44 PM	2:50 PM	2:55 PM	3:04 PM	3:18 PM	3:28 PM	0:01:54	3:30 PM	10	36.8	2:28:06	0:08:54		0:15:00	0:15:00
47	11	1:15 PM	1:21 PM	1:33 PM	1:41 PM	1:45 PM	1:51 PM	2:00 PM	2:05 PM	2:11 PM	2:19 PM	0:10:00	2:29 PM	2:37 PM	2:44 PM	2:51 PM	3:02 PM	3:08 PM	3:13 PM	3:22 PM	3:36 PM	3:46 PM	0:03:54	3:50 PM	11	36.8	2:35:00	0:13:54		0:15:00	0:18:00
48	12	1:30 PM	1:36 PM	1:48 PM	1:56 PM	2:00 PM	2:06 PM	2:15 PM	2:20 PM	2:26 PM	2:34 PM	0:10:00	2:44 PM	2:52 PM	2:59 PM	3:06 PM	3:17 PM	3:23 PM	3:28 PM	3:37 PM	3:51 PM	4:01 PM	0:08:54	4:10 PM	12	36.8	2:40:00	0:18:54		0:15:00	0:15:00
49	2	1:45 PM	1:51 PM	2:03 PM	2:11 PM	2:15 PM	2:21 PM	2:30 PM	2:35 PM	2:41 PM	2:49 PM	0:10:00	2:59 PM	3:07 PM	3:14 PM	3:21 PM	3:32 PM	3:38 PM	3:43 PM	3:52 PM	4:06 PM	4:16 PM	0:03:54	4:20 PM	2	36.8	2:35:00	0:13:54		0:15:00	0:15:00
	15												3:14 PM	3:22 PM	3:29 PM	3:36 PM	3:47 PM	3:53 PM	3:58 PM	4:07 PM	4:21 PM	4:31 PM	0:08:54	4:40 PM	15	18.4	1:25:18	0:08:54			0:15:00
50	3	2:00 PM	2:07 PM	2:23 PM	2:35 PM	2:40 PM	2:48 PM	2:56 PM	3:01 PM	3:09 PM	3:18 PM	0:06:24	3:24 PM	3:32 PM	3:39 PM	3:46 PM	3:57 PM	4:03 PM	4:08 PM	4:17 PM	4:31 PM	4:41 PM	0:08:54	4:50 PM	3	36.8	2:50:00	0:15:18		0:15:00	0:10:00
	16												3:34 PM	3:42 PM	3:49 PM	3:56 PM	4:07 PM	4:13 PM	4:18 PM	4:27 PM	4:41 PM	4:51 PM	0:08:54	5:00 PM	16	18.4	1:25:18	0:08:54			0:10:00
51	13	2:15 PM	2:22 PM	2:38 PM	2:50 PM	2:55 PM	3:03 PM	3:11 PM	3:16 PM	3:24 PM	3:33 PM	0:13:00	3:46 PM	3:54 PM	4:01 PM	4:08 PM	4:19 PM	4:25 PM	4:30 PM	4:39 PM	4:52 PM	5:02 PM	0:07:18	5:10 PM	13	36.8	2:55:00	0:20:18		0:15:00	0:11:36
52	14	2:30 PM	2:37 PM	2:53 PM	3:05 PM	3:10 PM	3:18 PM	3:26 PM	3:31 PM	3:39 PM	3:48 PM	0:08:00	3:56 PM	4:04 PM	4:11 PM	4:18 PM	4:29 PM	4:35 PM	4:40 PM	4:49 PM	5:02 PM	5:12 PM	0:07:18	5:20 PM	14	36.8	2:50:00	0:15:18		0:15:00	0:10:00
53	6	2:45 PM	2:52 PM	3:08 PM	3:20 PM	3:25 PM	3:33 PM	3:41 PM	3:46 PM	3:54 PM	4:03 PM	0:05:00	4:08 PM	4:16 PM	4:23 PM	4:30 PM	4:41 PM	4:47 PM	4:52 PM	5:01 PM	5:14 PM	5:24 PM	0:05:18	5:30 PM	6	36.8	2:45:00	0:10:18		0:15:00	0:12:00
	17												4:18 PM	4:26 PM	4:33 PM	4:40 PM	4:51 PM	4:57 PM	5:02 PM	5:11 PM	5:24 PM	5:34 PM	0:05:18	5:40 PM	17	18.4	1:21:42	0:05:18			0:10:00
1	7	3:00 PM	3:07 PM	3:23 PM	3:35 PM	3:40 PM	3:48 PM	3:56 PM	4:01 PM	4:09 PM	4:18 PM	0:10:00	4:28 PM	4:36 PM	4:43 PM	4:50 PM	5:01 PM	5:07 PM	5:12 PM	5:21 PM	5:34 PM	5:44 PM	0:05:18	5:50 PM	7	36.8	2:50:00	0:15:18		0:15:00	0:10:00
2	15	3:10 PM	3:17 PM	3:33 PM	3:45 PM	3:50 PM	3:58 PM	4:06 PM	4:11 PM	4:19 PM	4:28 PM	0:10:00	4:38 PM	4:46 PM	4:53 PM	5:00 PM	5:11 PM	5:17 PM	5:22 PM	5:31 PM	5:44 PM	5:54 PM	0:05:18	6:00 PM	15	36.8	2:50:00	0:15:18		0:10:00	0:10:00
3	18	3:20 PM	3:27 PM	3:43 PM	3:55 PM	4:00 PM	4:08 PM	4:16 PM	4:21 PM	4:29 PM	4:38 PM	0:10:00	4:48 PM	4:56 PM	5:03 PM	5:10 PM	5:21 PM	5:27 PM	5:32 PM	5:41 PM	5:54 PM	6:04 PM	0:10:18	6:15 PM	18	36.8	2:55:00	0:20:18		0:10:00	0:10:00
4	10	3:30 PM	3:37 PM	3:53 PM	4:05 PM	4:10 PM	4:18 PM	4:26 PM	4:31 PM	4:39 PM	4:48 PM	0:10:00	4:58 PM	5:06 PM	5:13 PM	5:20 PM	5:31 PM	5:37 PM	5:42 PM	5:51 PM	6:04 PM	6:14 PM	0:15:18	6:30 PM	10	36.8	3:00:00	0:25:18		0:10:00	0:10:00
5	19	3:40 PM	3:47 PM	4:03 PM	4:15 PM	4:20 PM	4:28 PM	4:36 PM	4:41 PM	4:49 PM	4:58 PM	0:10:00	5:08 PM	5:16 PM	5:23 PM	5:30 PM	5:41 PM	5:47 PM	5:52 PM	6:01 PM	6:14 PM	6:24 PM	0:00:00	6:24 PM	19	36.8	2:44:42	0:10:00		0:10:00	0:10:00
6	11	3:50 PM	3:57 PM	4:13 PM	4:25 PM	4:30 PM	4:38 PM	4:46 PM	4:51 PM	4:59 PM	5:08 PM	0:10:00	5:18 PM	5:26 PM	5:33 PM	5:40 PM	5:51 PM	5:57 PM	6:02 PM	6:11 PM	6:24 PM	6:34 PM	0:10:18	6:45 PM	11	36.8	2:55:00	0:20:18		0:10:00	0:10:00
7	20	4:00 PM	4:07 PM	4:23 PM	4:35 PM	4:40 PM	4:48 PM	4:56 PM	5:01 PM	5:09 PM	5:18 PM	0:10:00	5:28 PM	5:36 PM	5:43 PM	5:50 PM	6:01 PM	6:07 PM	6:12 PM	6:21 PM	6:34 PM	6:44 PM	0:00:00	6:44 PM	20	36.8	2:44:42	0:10:00		0:10:00	0:10:00
8	12	4:10 PM	4:17 PM	4:33 PM	4:45 PM	4:50 PM	4:58 PM	5:06 PM	5:11 PM	5:19 PM	5:28 PM	0:10:00	5:38 PM	5:46 PM	5:53 PM	6:00 PM	6:11 PM	6:17 PM	6:22 PM	6:31 PM	6:44 PM	6:54 PM	0:05:18	7:00 PM	12	36.8	2:50:00	0:15:18		0:10:00	0:10:00
9	2	4:20 PM	4:27 PM	4:43 PM	4:55 PM	5:00 PM	5:08 PM	5:16 PM	5:21 PM	5:29 PM	5:38 PM	0:10:00	5:48 PM	5:56 PM	6:03 PM	6:10 PM	6:21 PM	6:27 PM	6:32 PM	6:41 PM	6:54 PM	7:04 PM	0:10:18	7:15 PM	2	36.8	2:55:00	0:20:18		0:10:00	0:10:00
10	21	4:30 PM	4:37 PM	4:53 PM	5:05 PM	5:10 PM	5:18 PM	5:26 PM	5:31 PM	5:39 PM	5:48 PM	0:10:00	5:58 PM	6:06 PM	6:13 PM	6:20 PM	6:31 PM	6:37 PM	6:42 PM	6:51 PM	7:04 PM	7:14 PM	0:15:18	7:30 PM	21	36.8	3:00:00	0:25:18		0:10:00	0:10:00
11	15	4:40 PM	4:47 PM	5:03 PM	5:15 PM	5:20 PM	5:28 PM	5:36 PM	5:41 PM	5:49 PM	5:58 PM	0:10:00	6:08 PM	6:16 PM	6:23 PM	6:30 PM	6:41 PM	6:47 PM	6:52 PM	7:01 PM	7:14 PM	7:24 PM	0:00:00	7:24 PM	15	36.8	2:44:42	0:10:00		0:10:00	0:10:00
12	3	4:50 PM	4:57 PM	5:13 PM	5:25 PM	5:30 PM	5:38 PM	5:46 PM	5:51 PM	5:59 PM	6:08 PM	0:15:00	6:23 PM	6:29 PM	6:35 PM	6:38 PM	6:46 PM	6:50 PM	6:54 PM	7:00 PM	7:10 PM	7:15 PM	0:00:00	7:15 PM	3	36.8	2:25:48	0:15:00		0:10:00	0:15:00
13	22												6:38 PM	6:44 PM	6:50 PM	6:53 PM	7:01 PM	7:05 PM	7:09 PM	7:15 PM	7:25 PM	7:30 PM	0:00:00	7:30 PM	22	18.4	0:52:30	0:00:00			0:15:00
14	16	5:00 PM	5:07 PM	5:23 PM	5:35 PM	5:40 PM	5:48 PM	5:56 PM	6:01 PM	6:09 PM	6:18 PM														16	18.4	1:18:18	0:00:00		0:10:00	
15	13	5:10 PM	5:17 PM	5:33 PM	5:45 PM	5:50 PM	5:58 PM	6:06 PM	6:11 PM	6:19 PM	6:28 PM														13	18.4	1:18:18	0:00:00		0:10:00	
16	14	5:20 PM	5:27 PM	5:43 PM	5:55 PM	6:00 PM	6:08 PM	6:16 PM	6:21 PM	6:29 PM	6:38 PM	0:09:00	6:47 PM	6:53 PM	6:59 PM	7:02 PM	7:10 PM	7:14 PM	7:18 PM	7:24 PM	7:34 PM	7:39 PM	0:05:12	7:45 PM	14	36.8	2:25:00	0:14:12		0:10:00	0:09:00
17	6	5:30 PM	5:37 PM	5:53 PM	6:05 PM	6:10 PM	6:18 PM	6:26 PM	6:31 PM	6:39 PM	6:48 PM	0:14:00	7:02 PM	7:08 PM	7:14 PM	7:17 PM	7:25 PM	7:29 PM	7:33 PM	7:39 PM	7:49 PM	7:54 PM	0:05:12	8:00 PM	6	36.8	2:30:00	0:19:12		0:10:00	0:15:00
18	17	5:40 PM	5:47 PM	6:03 PM	6:15 PM	6:20 PM	6:28 PM	6:36 PM	6:41 PM	6:49 PM	6:58 PM														17	18.4	1:18:18			0:10:00	
19	7	5:50 PM	5:57 PM	6:13 PM	6:25 PM	6:30 PM	6:38 PM	6:46 PM	6:51 PM	6:59 PM	7:08 PM	0:09:00	7:17 PM	7:23 PM	7:29 PM	7:32 PM	7:40 PM	7:44 PM	7:48 PM	7:54 PM	8:04 PM	8:09 PM	0:05:12	8:15 PM	7	36.8	2:25:00	0:14:12		0:10:00	0:15:00
20	15	6:00 PM	6:05 PM	6:16 PM	6:22 PM	6:27 PM	6:32 PM	6:39 PM	6:44 PM	6:49 PM	6:56 PM														15	18.4	0:56:41			0:10:00	
21	18	6:15 PM	6:20 PM	6:31 PM	6:37 PM	6:42 PM	6:47 PM	6:54 PM	6:59 PM	7:04 PM	7:11 PM	0:10:00	7:21 PM	7:27 PM	7:33 PM	7:37 PM	7:44 PM	7:49 PM	7:53 PM	7:59 PM	8:08 PM	8:14 PM	0:15:49	8:30 PM	18	36.8	2:15:00	0:25:49		0:15:00	0:04:23
22	10	6:30 PM	6:35 PM	6:46 PM	6:52 PM	6:57 PM	7:02 PM	7:09 PM	7:14 PM	7:19 PM	7:26 PM	0:10:00	7:36 PM	7:42 PM	7:48 PM	7:52 PM	7:59 PM	8:04 PM	8:08 PM	8:14 PM	8:23 PM	8:29 PM	0:15:49	8:45 PM	10	36.8	2:15:00	0:25:49	2:17:27	0:15:00	0:15:00
23	11	6:45 PM	6:50 PM	7:01 PM	7:07 PM	7:12 PM	7:17 PM	7:24 PM	7:29 PM	7:34 PM	7:41 PM	0:10:00	7:51 PM	7:57 PM	8:03 PM	8:07 PM	8:14 PM	8:19 PM	8:23 PM	8:29 PM	8:38 PM	8:44 PM	0:15:49	9:00 PM	11	36.8	2:15:00	0:25:49		0:15:00	0:15:00
24	12	7:00 PM	7:05 PM	7:16 PM	7:22 PM	7:27 PM	7:32 PM	7:39 PM	7:44 PM	7:49 PM	7:56 PM	0:10:00	8:06 PM	8:12 PM	8:18 PM	8:22 PM	8:29 PM	8:34 PM	8:38 PM	8:44 PM	8:53 PM	8:59 PM	0:15:49	9:15 PM	12	36.8	2:15:00	0:25:49		0:15:00	0:15:00
25	2	7:15 PM	7:20 PM	7:31 PM	7:37 PM	7:42 PM	7:47 PM	7:54 PM	7:59 PM	8:04 PM	8:11 PM	0:10:00	8:21 PM	8:27 PM	8:33 PM	8:37 PM	8:44 PM	8:49 PM	8:53 PM	8:59 PM	9:08 PM	9:14 PM	0:15:49	9:30 PM	2	36.8	2:15:00	0:25:49		0:15:00	0:15:00
26	21	7:30 PM	7:35 PM	7:46 PM	7:52 PM	7:57 PM	8:02 PM	8:09 PM	8:14 PM	8:19 PM	8:26 PM	0:10:00	8:36 PM	8:42 PM	8:48 PM	8:52 PM	8:59 PM	9:04 PM	9:08 PM	9:14 PM	9:23 PM	9:29 PM	0:15:49	9:45 PM	21	36.8	2:15:00	0:25:49		0:15:00	0:15:00
27	14	7:45 PM	7:50 PM	8:01 PM	8:07 PM	8:12 PM	8:17 PM	8:24 PM	8:29 PM	8:34 PM	8:41 PM	0:10:00	8:51 PM	8:57 PM	9:03 PM	9:07 PM	9:14 PM	9:19 PM	9:23 PM	9:29 PM	9:38 PM	9:44 PM	0:15:49	10:00 PM	14	36.8	2:15:00	0:25:49		0:15:00	0:15:00
28	6	8:00 PM	8:05 PM	8:16 PM	8:22 PM	8:27 PM	8:32 PM	8:39 PM	8:44 PM	8:49 PM	8:56 PM	0:10:00	9:06 PM	9:12 PM	9:18 PM	9:22 PM	9:29 PM	9:34 PM	9:38 PM	9:44 PM	9:53 PM	9:59 PM	0:00:00	9:59 PM	6	36.8	1:59:11	0:10:00		0:15:00	0:15:00
29	7	8:15 PM	8:20 PM	8:31 PM	8:37 PM	8:42 PM	8:47 PM	8:54 PM	8:59 PM	9:04 PM	9:11 PM	0:10:00	9:21 PM	9:27 PM	9:33 PM	9:37 PM	9:44 PM	9:49 PM	9:53 PM	9:59 PM	10:08 PM	10:14 PM	0:15:49	10:30 PM	7	36.8	2:15:00	0:25:49		0:15:00	0:15:00
30	18	8:30 PM	8:35 PM	8:46 PM	8:52 PM	8:57 PM	9:02 PM	9:09 PM	9:14 PM	9:19 PM	9:26 PM	0:10:00	9:36 PM	9:42 PM	9:48 PM	9:52 PM	9:59 PM	10:04 PM	10:08 PM	10:14 PM	10:23 PM	10:29 PM	0:00:00	10:29 PM	18	36.8	1:59:11	0:10:00		0:15:00	0:15:00
31	10	8:45 PM	8:50 PM	9:01 PM	9:07 PM	9:12 PM	9:17 PM	9:24 PM	9:29 PM	9:34 PM	9:41 PM	0:10:00	9:51 PM	9:57 PM	10:03 PM	10:07 PM	10:14 PM	10:19 PM	10:23 PM	10:29 PM	10:38 PM	10:44 PM	0:15:49	11:00 PM	10	36.8	2:15:00	0:25:49		0:15:00	0:15:00
32	11	9:00 PM	9:05 PM	9:16 PM	9:22 PM	9:27 PM	9:32 PM	9:39 PM	9:44 PM	9:49 PM	9:56 PM	0:10:00	10:06 PM	10:12 PM	10:18 PM	10:22 PM	10:29 PM	10:34 PM	10:38 PM	10:44 PM	10:53 PM	10:59 PM	0:00:00	10:59 PM	11	36.8	1:59:11	0:10:00		0:15:00	0:15:00
33	12	9:15 PM	9:20 PM	9:31 PM	9:37 PM	9:42 PM	9:47 PM	9:54 PM	9:59 PM	10:04 PM	10:11 PM	0:10:00	10:21 PM	10:27 PM	10:33 PM	10:37 PM	10:44 PM	10:49 PM	10:53 PM	10:59 PM	11:08 PM	11:14 PM	0:15:49	11:30 PM	12	36.8	2:15:00	0:25:49		0:15:00	0:15:00
34	2	9:30 PM	9:35 PM	9:46 PM	9:52 PM	9:57 PM	10:02 PM	10:09 PM	10:14 PM	10:19 PM	10:26 PM	0:10:00	10:36 PM	10:42 PM	10:48 PM	10:52 PM	10:59 PM	11:04 PM	11:08 PM	11:14 PM	11:23 PM	11:29 PM	0:00:00	11:29 PM	2	36.8	1:59:11	0:10:00		0:15:00	0:15:00
35	21	9:45 PM	9:50 PM	10:01 PM	10:07 PM	10:12 PM	10:17 PM	10:24 PM	10:29 PM	10:34 PM	10:41 PM														21	18.4	0:56:41			0:15:00	
36	14	10:00 PM	10:05 PM	10:16 PM	10:22 PM	10:27 PM	10:32 PM	10:39 PM	10:44 PM	10:49 PM	10:56 PM	0:05:00	11:01 PM	11:07 PM	11:13 PM	11:17 PM	11:24 PM	11:29 PM	11:33 PM	11:39 PM	11:48 PM	11:54 PM	0:05:49	12:00 AM	14	36.8	2:00:00	0:10:49		0:15:00	0:25:00
37	7	10:30 PM	10:35 PM	10:46 PM	10:52 PM	10:57 PM	11:02 PM	11:09 PM	11:14 PM	11:19 PM	11:26 PM	0:05:00	11:31 PM	11:37 PM	11:43 PM	11:47 PM	11:54 PM	11:59 PM	12:03 AM	12:09 AM	12:18 AM	12:24 AM	0:05:49	12:30 AM	7	36.8	2:00:00	0:10:49		0:30:00	0:30:00
38	10	11:00 PM	11:05 PM	11:16 PM	11:22 PM	11:27 PM	11:32 PM	11:39 PM	11:44 PM	11:49 PM	11:56 PM	0:05:00	12:01 AM	12:07 AM	12:13 AM	12:17 AM	12:24 AM	12:29 AM	12:33 AM	12:39 AM	12:48 AM	12:54 AM	0:05:49	1:00 AM	10	36.8	2:00:00	0:10:49		0:30:00	0:30:00
39	12	11:30 PM	11:35 PM	11:46 PM	11:52 PM	11:57 PM	12:02 AM	12:09 AM	12:14 AM	12:19 AM	12:26 AM	0:05:00	12:31 AM	12:37 AM	12:43 AM	12:47 AM	12:54 AM	12:59 AM	1:03 AM	1:09 AM	1:18 AM	1:24 AM			12	36.8	1:54:11	0:05:00		0:30:00	0:30:00
40	14	12:00 AM	12:05 AM	12:16 AM	12:22 AM	12:27 AM	12:32 AM	12:39 AM	12:44 AM	12:49 AM	12:56 AM	0:05:00	1:01 AM	1:07 AM	1:13 AM	1:17 AM	1:24 AM	1:29 AM	1:33 AM	1:39 AM	1:48 AM	1:54 AM			14	36.8	1:54:11	0:05:00		0:30:00	0:30:00
41	7	12:30 AM	12:35 AM	12:46 AM	12:52 AM	12:57 AM	1:02 AM	1:09 AM	1:14 AM	1:19 AM	1:26 AM														7	18.4	0:56:41			0:30:00	
42	10	1:00 AM	1:05 AM	1:16 AM	1:22 AM	1:27 AM	1:32 AM	1:39 AM	1:44 AM	1:49 AM	1:56 AM														10	18.4	0:56:41			0:30:00	
												11:28:24											12:34:11			3238.4	189:08:01	24:02:35			
																									Total Hours with Reco		213:10:36				
																										% Rec =	0.127122067				
																										Ave run time	2:10:31				

Pace Dempster Pulse (7/27/16) Saturday

Schedule Inputs					
		AM EB Running Time	1:07:41		
		AM WB Running Time	1:01:14	Satday rev hrs	143:10:31
		Midday EB Running Time	1:04:42	Satday rev mi	2465.6
Headway 1	0:10:00	Midday WB Running Time	1:03:31		
Headway 2	0:15:00	PM EB Running Time	1:18:18	annual rev hrs	7445:06:52
Headway 3	0:30:00	PM WB Running Time	1:16:24	annual rev mi	128211.2
Headway 4	0:20:00	Eve EB Running Time	0:56:41		
		Eve WB Running Time	0:52:30		

Saturday Pace Dempster Pulse Rosemont

Round trip Count	Block No.	Lv Rosemont	Lee/Touhy	DP Metra	Hosp	Milwaukee	Waukegan	CTA Skokie	Crawford	Dodge	Ar Davis	Recovery time	Lv Davis	Dodge	Crawford	CTA Skokie	Waukegan	Milwaukee	Hosp	DP Metra	Lee/Touhy	Ar Rosemont	Recovery time	Lv next trip	Trip Miles	Trip Hours	Total Rec Time	Headways: EB	WB
1													6:00 AM	6:07 AM	6:14 AM	6:18 AM	6:27 AM	6:33 AM	6:37 AM	6:45 AM	6:56 AM	7:03 AM	0:06:00	7:09 AM	18.4	1:09:31	0:06:00		
2													6:30 AM	6:37 AM	6:44 AM	6:48 AM	6:57 AM	7:03 AM	7:07 AM	7:15 AM	7:26 AM	7:33 AM	0:06:00	7:39 AM	18.4	1:09:31	0:06:00		0:30:00
3		6:00 AM	6:06 AM	6:18 AM	6:26 AM	6:30 AM	6:36 AM	6:45 AM	6:50 AM	6:56 AM	7:04 AM	0:06:00	7:10 AM	7:18 AM	7:24 AM	7:29 AM	7:38 AM	7:43 AM	7:48 AM	7:56 AM	8:07 AM	8:14 AM	0:06:00	8:20 AM	36.8	2:20:13	0:12:00		0:40:42
4													7:25 AM	7:33 AM	7:39 AM	7:44 AM	7:53 AM	7:58 AM	8:03 AM	8:11 AM	8:22 AM	8:29 AM	0:06:00	8:35 AM	18.4	1:09:31	0:06:00		0:15:00
5		6:30 AM	6:36 AM	6:48 AM	6:56 AM	7:00 AM	7:06 AM	7:15 AM	7:20 AM	7:26 AM	7:34 AM	0:06:00	7:40 AM	7:48 AM	7:54 AM	7:59 AM	8:08 AM	8:13 AM	8:18 AM	8:26 AM	8:37 AM	8:44 AM	0:06:00	8:50 AM	36.8	2:20:13	0:12:00	0:30:00	0:15:00
6													7:55 AM	8:03 AM	8:09 AM	8:14 AM	8:23 AM	8:28 AM	8:33 AM	8:41 AM	8:52 AM	8:59 AM	0:06:00	9:05 AM	18.4	1:09:31	0:06:00		0:15:00
7		7:00 AM	7:06 AM	7:18 AM	7:26 AM	7:30 AM	7:36 AM	7:45 AM	7:50 AM	7:56 AM	8:04 AM	0:06:00	8:10 AM	8:18 AM	8:24 AM	8:29 AM	8:38 AM	8:43 AM	8:48 AM	8:56 AM	9:07 AM	9:14 AM	0:06:00	9:20 AM	36.8	2:20:13	0:12:00	0:30:00	0:15:00
8		7:15 AM	7:21 AM	7:33 AM	7:41 AM	7:45 AM	7:51 AM	8:00 AM	8:05 AM	8:11 AM	8:19 AM	0:06:00	8:25 AM	8:33 AM	8:39 AM	8:44 AM	8:53 AM	8:58 AM	9:03 AM	9:11 AM	9:22 AM	9:29 AM	0:06:00	9:35 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
9		7:30 AM	7:36 AM	7:48 AM	7:56 AM	8:00 AM	8:06 AM	8:15 AM	8:20 AM	8:26 AM	8:34 AM	0:06:00	8:40 AM	8:48 AM	8:54 AM	8:59 AM	9:08 AM	9:13 AM	9:18 AM	9:26 AM	9:37 AM	9:44 AM	0:06:00	9:50 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
10		7:45 AM	7:51 AM	8:03 AM	8:11 AM	8:15 AM	8:21 AM	8:30 AM	8:35 AM	8:41 AM	8:49 AM	0:06:00	8:55 AM	9:03 AM	9:09 AM	9:14 AM	9:23 AM	9:28 AM	9:33 AM	9:41 AM	9:52 AM	9:59 AM	0:06:00	10:05 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
11		8:00 AM	8:06 AM	8:18 AM	8:26 AM	8:30 AM	8:36 AM	8:45 AM	8:50 AM	8:56 AM	9:04 AM	0:06:00	9:10 AM	9:18 AM	9:24 AM	9:29 AM	9:38 AM	9:43 AM	9:48 AM	9:56 AM	10:07 AM	10:14 AM	0:06:00	10:20 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
12		8:15 AM	8:21 AM	8:33 AM	8:41 AM	8:45 AM	8:51 AM	9:00 AM	9:05 AM	9:11 AM	9:19 AM	0:06:00	9:25 AM	9:33 AM	9:39 AM	9:44 AM	9:53 AM	9:58 AM	10:03 AM	10:11 AM	10:22 AM	10:29 AM	0:06:00	10:35 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
13		8:30 AM	8:36 AM	8:48 AM	8:56 AM	9:00 AM	9:06 AM	9:15 AM	9:20 AM	9:26 AM	9:34 AM	0:06:00	9:40 AM	9:48 AM	9:54 AM	9:59 AM	10:08 AM	10:13 AM	10:18 AM	10:26 AM	10:37 AM	10:44 AM	0:06:00	10:50 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
14		8:45 AM	8:51 AM	9:03 AM	9:11 AM	9:15 AM	9:21 AM	9:30 AM	9:35 AM	9:41 AM	9:49 AM	0:06:00	9:55 AM	10:03 AM	10:09 AM	10:14 AM	10:23 AM	10:28 AM	10:33 AM	10:41 AM	10:52 AM	10:59 AM	0:06:00	11:05 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
15		9:00 AM	9:06 AM	9:18 AM	9:26 AM	9:30 AM	9:36 AM	9:45 AM	9:50 AM	9:56 AM	10:04 AM	0:06:00	10:10 AM	10:18 AM	10:24 AM	10:29 AM	10:38 AM	10:43 AM	10:48 AM	10:56 AM	11:07 AM	11:14 AM	0:06:00	11:20 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
16		9:15 AM	9:21 AM	9:33 AM	9:41 AM	9:45 AM	9:51 AM	10:00 AM	10:05 AM	10:11 AM	10:19 AM	0:06:00	10:25 AM	10:33 AM	10:39 AM	10:44 AM	10:53 AM	10:58 AM	11:03 AM	11:11 AM	11:22 AM	11:29 AM	0:06:00	11:35 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
17		9:30 AM	9:36 AM	9:48 AM	9:56 AM	10:00 AM	10:06 AM	10:15 AM	10:20 AM	10:26 AM	10:34 AM	0:06:00	10:40 AM	10:48 AM	10:54 AM	10:59 AM	11:08 AM	11:13 AM	11:18 AM	11:26 AM	11:37 AM	11:44 AM	0:06:00	11:50 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
18		9:45 AM	9:51 AM	10:03 AM	10:11 AM	10:15 AM	10:21 AM	10:30 AM	10:35 AM	10:41 AM	10:49 AM	0:06:00	10:55 AM	11:03 AM	11:09 AM	11:14 AM	11:23 AM	11:28 AM	11:33 AM	11:41 AM	11:52 AM	11:59 AM	0:06:00	12:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
19		10:00 AM	10:06 AM	10:18 AM	10:26 AM	10:30 AM	10:36 AM	10:45 AM	10:50 AM	10:56 AM	11:04 AM	0:06:00	11:10 AM	11:18 AM	11:24 AM	11:29 AM	11:38 AM	11:43 AM	11:48 AM	11:56 AM	12:07 PM	12:14 PM	0:06:00	12:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
20		10:15 AM	10:21 AM	10:33 AM	10:41 AM	10:45 AM	10:51 AM	11:00 AM	11:05 AM	11:11 AM	11:19 AM	0:06:00	11:25 AM	11:33 AM	11:39 AM	11:44 AM	11:53 AM	11:58 AM	12:03 PM	12:11 PM	12:22 PM	12:29 PM	0:06:00	12:35 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
21		10:30 AM	10:36 AM	10:48 AM	10:56 AM	11:00 AM	11:06 AM	11:15 AM	11:20 AM	11:26 AM	11:34 AM	0:06:00	11:40 AM	11:48 AM	11:54 AM	11:59 AM	12:08 PM	12:13 PM	12:18 PM	12:26 PM	12:37 PM	12:44 PM	0:06:00	12:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
22		10:45 AM	10:51 AM	11:03 AM	11:11 AM	11:15 AM	11:21 AM	11:30 AM	11:35 AM	11:41 AM	11:49 AM	0:06:00	11:55 AM	12:03 PM	12:09 PM	12:14 PM	12:23 PM	12:28 PM	12:33 PM	12:41 PM	12:52 PM	12:59 PM	0:06:00	1:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
23		11:00 AM	11:06 AM	11:18 AM	11:26 AM	11:30 AM	11:36 AM	11:45 AM	11:50 AM	11:56 AM	12:04 PM	0:06:00	12:10 PM	12:18 PM	12:24 PM	12:29 PM	12:38 PM	12:43 PM	12:48 PM	12:56 PM	1:07 PM	1:14 PM	0:06:00	1:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
24		11:15 AM	11:21 AM	11:33 AM	11:41 AM	11:45 AM	11:51 AM	12:00 PM	12:05 PM	12:11 PM	12:19 PM	0:06:00	12:25 PM	12:33 PM	12:39 PM	12:44 PM	12:53 PM	12:58 PM	1:03 PM	1:11 PM	1:22 PM	1:29 PM	0:06:00	1:35 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
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27		12:00 PM	12:06 PM	12:18 PM	12:26 PM	12:30 PM	12:36 PM	12:45 PM	12:50 PM	12:56 PM	1:04 PM	0:06:00	1:10 PM	1:18 PM	1:24 PM	1:29 PM	1:38 PM	1:43 PM	1:48 PM	1:56 PM	2:07 PM	2:14 PM	0:06:00	2:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
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29		12:30 PM	12:36 PM	12:48 PM	12:56 PM	1:00 PM	1:06 PM	1:15 PM	1:20 PM	1:26 PM	1:34 PM	0:06:00	1:40 PM	1:48 PM	1:54 PM	1:59 PM	2:08 PM	2:13 PM	2:18 PM	2:26 PM	2:37 PM	2:44 PM	0:06:00	2:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
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51		6:00 PM	6:06 PM	6:18 PM	6:26 PM	6:30 PM	6:36 PM	6:45 PM	6:50 PM	6:56 PM	7:04 PM	0:06:00	7:10 PM	7:18 PM	7:24 PM	7:29 PM	7:38 PM	7:43 PM	7:48 PM	7:56 PM	8:07 PM	8:14 PM	0:06:00	8:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
52		6:15 PM	6:21 PM	6:33 PM	6:41 PM	6:45 PM	6:51 PM	7:00 PM	7:05 PM	7:11 PM	7:19 PM	0:06:00	7:25 PM	7:33 PM	7:39 PM	7:44 PM	7:53 PM	7:58 PM	8:03 PM	8:11 PM	8:22 PM	8:29 PM	0:06:00	8:35 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
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54		6:45 PM	6:51 PM	7:03 PM	7:11 PM	7:15 PM	7:21 PM	7:30 PM	7:35 PM	7:41 PM	7:49 PM	0:06:00	7:55 PM	8:03 PM	8:09 PM	8:14 PM	8:23 PM	8:28 PM	8:33 PM	8:41 PM	8:52 PM	8:59 PM	0:06:00	9:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
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58		7:45 PM	7:51 PM	8:03 PM	8:11 PM	8:15 PM	8:21 PM	8:30 PM	8:35 PM	8:41 PM	8:49 PM	0:06:00	8:55 PM	9:03 PM	9:09 PM	9:14 PM	9:23 PM	9:28 PM	9:33 PM	9:41 PM	9:52 PM	9:59 PM	0:06:00	10:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
59		8:00 PM	8:06 PM	8:18 PM	8:26 PM	8:30 PM	8:36 PM	8:45 PM	8:50 PM	8:56 PM	9:04 PM	0:06:00	9:10 PM	9:18 PM	9:24 PM	9:29 PM	9:38 PM	9:43 PM	9:48 PM	9:56 PM	10:07 PM	10:14 PM	0:06:00	10:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
60		8:15 PM	8:21 PM	8:33 PM	8:41 PM	8:45 PM	8:51 PM	9:00 PM	9:05 PM	9:11 PM	9:19 PM														18.4	1:04:42		0:15:00	
61		8:30 PM	8:36 PM	8:48 PM	8:56 PM	9:00 PM	9:06 PM	9:15 PM	9:20 PM	9:26 PM	9:34 PM	0:06:00	9:40 PM	9:48 PM	9:54 PM	9:59 PM	10:08 PM	10:13 PM	10:18 PM	10:26 PM	10:37 PM	10:44 PM	0:06:00	10:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:30:00
62		8:45 PM	8:51 PM	9:03 PM	9:11 PM	9:15 PM	9:21 PM	9:30 PM	9:35 PM	9:41 PM	9:49 PM														18.4	1:04:42		0:15:00	
63		9:00 PM	9:06 PM	9:18 PM	9:26 PM	9:30 PM	9:36 PM	9:45 PM	9:50 PM	9:56 PM	10:04 PM	0:06:00	10:10 PM	10:18 PM	10:24 PM	10:29 PM	10:38 PM	10:43 PM	10:48 PM	10:56 PM	11:07 PM	11:14 PM	0:06:00	11:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:30:00
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65		10:00 PM	10:06 PM	10:18 PM	10:26 PM	10:30 PM	10:36 PM	10:45 PM	10:50 PM	10:56 PM	11:04 PM	0:06:00	11:10 PM	11:18 PM	11:24 PM	11:29 PM	11:38 PM	11:43 PM	11:48 PM	11:56 PM	12:07 AM	12:14 AM	0:06:00	12:20 AM	36.8	2:20:13	0:12:00	0:30:00	0:30:00
66		10:30 PM	10:36 PM	10:48 PM	10:56 PM	11:00 PM	11:06 PM	11:15 PM	11:20 PM	11:26 PM	11:34 PM	0:06:00	11:40 PM	11:48 PM	11:54 PM	11:59 PM	12:08 AM	12:13 AM	12:18 AM	12:26 AM	12:37 AM	12:44 AM	0:06:00	12:50 AM	36.8	2:20:13	0:12:00	0:30:00	0:30:00
67		11:00 PM	11:06 PM	11:18 PM	11:26 PM	11:30 PM	11:36 PM	11:45 PM	11:50 PM	11:56 PM	12:04 AM	0:06:00	12:10 AM	12:18 AM	12:24 AM	12:29 AM	12:38 AM	12:43 AM	12:48 AM	12:56 AM	1:07 AM	1:14 AM	0:06:00	1:20 AM	36.8	2:20:13	0:12:00	0:30:00	0:30:00
68		11:30 PM	11:36 PM	11:48 PM	11:56 PM	12:00 AM	12:06 AM	12:15 AM	12:20 AM	12:26 AM	12:34 AM	0:06:00	12:40 AM	12:48 AM	12:54 AM	12:59 AM	1:08 AM	1:13 AM	1:18 AM	1:26 AM	1:37 AM	1:44 AM	0:06:00	1:50 AM	36.8	2:20:13	0:12:00	0:30:00	0:30:00
69		12:00 AM	12:06 AM	12:18 AM	12:26 AM	12:30 AM	12:36 AM	12:45 AM	12:50 AM	12:56 AM	1:04 AM	0:06:00	1:10 AM	1:18 AM	1:24 AM	1:29 AM	1:38 AM	1:43 AM	1:48 AM	1:56 AM	2:07 AM	2:14 AM	0:06:00	2:20 AM	36.8	2:20:13	0:12:00	0:30:00	0:30:00
70		12:30 AM	12:36 AM	12:48 AM	12:56 AM	1:00 AM	1:06 AM	1:15 AM	1:20 AM	1:26 AM	1:34 AM														18.4	1:04:42		0:30:00	
71		1:00 AM	1:06 AM	1:18 AM	1:26 AM	1:30 AM	1:36 AM	1:45 AM	1:50 AM	1:56 AM	2:04 AM														18.4	1:04:42		0:30:00	
												0:06:00											0:06:00		2465.6	143:10:31	13:00:00		
																								W/Rec =		156:10:31			
																								% Rec =		9.1%			

Pace Dempster Pulse R (7/27/16) **Sunday**

Schedule Inputs						
		AM EB	Running Time	0:58:41		
		AM WB	Running Time	0:52:14	Sunday rev hrs	134:26:57
		Midday EB	Running Time	1:04:42	Sunday rev mi	2318.4
Headway 1	0:10:00	Midday WB	Running Time	1:03:31		
Headway 2	0:15:00	PM EB	Running Time	1:06:18	annual rev hrs	7798:03:06
Headway 3	0:30:00	PM WB	Running Time	1:04:24	annual rev mi	134467.20
Headway 4	0:05:00	Eve EB	Running Time	0:47:41		
		Eve WB	Running Time	0:43:30		

Sunday **Pace Dempster Pulse Rosemont**

Round trip Count	Block No.	Lv Rosemont	Lee/Touhy	DP Metra	Hosp	Milwaukee	Waukegan	CTA Skokie	Crawford	Dodge	Ar Davis	Recovery time	Lv Davis	Dodge	Crawford	CTA Skokie	Waukegan	Milwaukee	Hosp	DP Metra	Lee/Touhy	Ar Rosemont	Recovery time	Lv next trip	Trip Miles	Trip Hours	Total Rec Time	Headways NB	SB
1													7:00 AM	7:07 AM	7:14 AM	7:18 AM	7:27 AM	7:33 AM	7:37 AM	7:45 AM	7:56 AM	8:03 AM	0:06:00	8:09 AM	18.4	1:09:31	0:06:00		
2													7:30 AM	7:37 AM	7:44 AM	7:48 AM	7:57 AM	8:03 AM	8:07 AM	8:15 AM	8:26 AM	8:33 AM	0:06:00	8:39 AM	18.4	1:09:31	0:06:00		0:30:00
3		7:00 AM	7:06 AM	7:18 AM	7:26 AM	7:30 AM	7:36 AM	7:45 AM	7:50 AM	7:56 AM	8:04 AM	0:06:00	8:00 AM	8:07 AM	8:14 AM	8:18 AM	8:27 AM	8:33 AM	8:37 AM	8:45 AM	8:56 AM	9:03 AM	0:06:00	9:09 AM	36.8	2:09:31	0:12:00		0:30:00
4													8:15 AM	8:22 AM	8:29 AM	8:33 AM	8:42 AM	8:48 AM	8:52 AM	9:00 AM	9:11 AM	9:18 AM	0:06:00	9:24 AM	18.4	1:09:31	0:06:00		0:15:00
5		7:30 AM	7:36 AM	7:48 AM	7:56 AM	8:00 AM	8:06 AM	8:15 AM	8:20 AM	8:26 AM	8:34 AM	0:06:00	8:40 AM	8:48 AM	8:54 AM	8:59 AM	9:08 AM	9:13 AM	9:18 AM	9:26 AM	9:37 AM	9:44 AM	0:06:00	9:50 AM	36.8	2:20:13	0:12:00	0:30:00	0:25:42
6													8:55 AM	9:03 AM	9:09 AM	9:14 AM	9:23 AM	9:28 AM	9:33 AM	9:41 AM	9:52 AM	9:59 AM	0:06:00	10:05 AM	18.4	1:09:31	0:06:00		0:15:00
7		8:00 AM	8:06 AM	8:18 AM	8:26 AM	8:30 AM	8:36 AM	8:45 AM	8:50 AM	8:56 AM	9:04 AM	0:06:00	9:10 AM	9:18 AM	9:24 AM	9:29 AM	9:38 AM	9:43 AM	9:48 AM	9:56 AM	10:07 AM	10:14 AM	0:06:00	10:20 AM	36.8	2:20:13	0:12:00	0:30:00	0:15:00
8		8:15 AM	8:21 AM	8:33 AM	8:41 AM	8:45 AM	8:51 AM	9:00 AM	9:05 AM	9:11 AM	9:19 AM	0:06:00	9:25 AM	9:33 AM	9:39 AM	9:44 AM	9:53 AM	9:58 AM	10:03 AM	10:11 AM	10:22 AM	10:29 AM	0:06:00	10:35 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
9		8:30 AM	8:36 AM	8:48 AM	8:56 AM	9:00 AM	9:06 AM	9:15 AM	9:20 AM	9:26 AM	9:34 AM	0:06:00	9:40 AM	9:48 AM	9:54 AM	9:59 AM	10:08 AM	10:13 AM	10:18 AM	10:26 AM	10:37 AM	10:44 AM	0:06:00	10:50 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
10		8:45 AM	8:51 AM	9:03 AM	9:11 AM	9:15 AM	9:21 AM	9:30 AM	9:35 AM	9:41 AM	9:49 AM	0:06:00	9:55 AM	10:03 AM	10:09 AM	10:14 AM	10:23 AM	10:28 AM	10:33 AM	10:41 AM	10:52 AM	10:59 AM	0:06:00	11:05 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
11		9:00 AM	9:06 AM	9:18 AM	9:26 AM	9:30 AM	9:36 AM	9:45 AM	9:50 AM	9:56 AM	10:04 AM	0:06:00	10:10 AM	10:18 AM	10:24 AM	10:29 AM	10:38 AM	10:43 AM	10:48 AM	10:56 AM	11:07 AM	11:14 AM	0:06:00	11:20 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
12		9:15 AM	9:21 AM	9:33 AM	9:41 AM	9:45 AM	9:51 AM	10:00 AM	10:05 AM	10:11 AM	10:19 AM	0:06:00	10:25 AM	10:33 AM	10:39 AM	10:44 AM	10:53 AM	10:58 AM	11:03 AM	11:11 AM	11:22 AM	11:29 AM	0:06:00	11:35 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
13		9:30 AM	9:36 AM	9:48 AM	9:56 AM	10:00 AM	10:06 AM	10:15 AM	10:20 AM	10:26 AM	10:34 AM	0:06:00	10:40 AM	10:48 AM	10:54 AM	10:59 AM	11:08 AM	11:13 AM	11:18 AM	11:26 AM	11:37 AM	11:44 AM	0:06:00	11:50 AM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
14		9:45 AM	9:51 AM	10:03 AM	10:11 AM	10:15 AM	10:21 AM	10:30 AM	10:35 AM	10:41 AM	10:49 AM	0:06:00	10:55 AM	11:03 AM	11:09 AM	11:14 AM	11:23 AM	11:28 AM	11:33 AM	11:41 AM	11:52 AM	11:59 AM	0:06:00	12:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
15		10:00 AM	10:06 AM	10:18 AM	10:26 AM	10:30 AM	10:36 AM	10:45 AM	10:50 AM	10:56 AM	11:04 AM	0:06:00	11:10 AM	11:18 AM	11:24 AM	11:29 AM	11:38 AM	11:43 AM	11:48 AM	11:56 AM	12:07 PM	12:14 PM	0:06:00	12:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
16		10:15 AM	10:21 AM	10:33 AM	10:41 AM	10:45 AM	10:51 AM	11:00 AM	11:05 AM	11:11 AM	11:19 AM	0:06:00	11:25 AM	11:33 AM	11:39 AM	11:44 AM	11:53 AM	11:58 AM	12:03 PM	12:11 PM	12:22 PM	12:29 PM	0:06:00	12:35 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
17		10:30 AM	10:36 AM	10:48 AM	10:56 AM	11:00 AM	11:06 AM	11:15 AM	11:20 AM	11:26 AM	11:34 AM	0:06:00	11:40 AM	11:48 AM	11:54 AM	11:59 AM	12:08 PM	12:13 PM	12:18 PM	12:26 PM	12:37 PM	12:44 PM	0:06:00	12:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
18		10:45 AM	10:51 AM	11:03 AM	11:11 AM	11:15 AM	11:21 AM	11:30 AM	11:35 AM	11:41 AM	11:49 AM	0:06:00	11:55 AM	12:03 PM	12:09 PM	12:14 PM	12:23 PM	12:28 PM	12:33 PM	12:41 PM	12:52 PM	12:59 PM	0:06:00	1:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
19		11:00 AM	11:06 AM	11:18 AM	11:26 AM	11:30 AM	11:36 AM	11:45 AM	11:50 AM	11:56 AM	12:04 PM	0:06:00	12:10 PM	12:18 PM	12:24 PM	12:29 PM	12:38 PM	12:43 PM	12:48 PM	12:56 PM	1:07 PM	1:14 PM	0:06:00	1:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
20		11:15 AM	11:21 AM	11:33 AM	11:41 AM	11:45 AM	11:51 AM	12:00 PM	12:05 PM	12:11 PM	12:19 PM	0:06:00	12:25 PM	12:33 PM	12:39 PM	12:44 PM	12:53 PM	12:58 PM	1:03 PM	1:11 PM	1:22 PM	1:29 PM	0:06:00	1:35 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
21		11:30 AM	11:36 AM	11:48 AM	11:56 AM	12:00 PM	12:06 PM	12:15 PM	12:20 PM	12:26 PM	12:34 PM	0:06:00	12:40 PM	12:48 PM	12:54 PM	12:59 PM	1:08 PM	1:13 PM	1:18 PM	1:26 PM	1:37 PM	1:44 PM	0:06:00	1:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
22		11:45 AM	11:51 AM	12:03 PM	12:11 PM	12:15 PM	12:21 PM	12:30 PM	12:35 PM	12:41 PM	12:49 PM	0:06:00	12:55 PM	1:03 PM	1:09 PM	1:14 PM	1:23 PM	1:28 PM	1:33 PM	1:41 PM	1:52 PM	1:59 PM	0:06:00	2:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
23		12:00 PM	12:06 PM	12:18 PM	12:26 PM	12:30 PM	12:36 PM	12:45 PM	12:50 PM	12:56 PM	1:04 PM	0:06:00	1:10 PM	1:18 PM	1:24 PM	1:29 PM	1:38 PM	1:43 PM	1:48 PM	1:56 PM	2:07 PM	2:14 PM	0:06:00	2:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
24		12:15 PM	12:21 PM	12:33 PM	12:41 PM	12:45 PM	12:51 PM	1:00 PM	1:05 PM	1:11 PM	1:19 PM	0:06:00	1:25 PM	1:33 PM	1:39 PM	1:44 PM	1:53 PM	1:58 PM	2:03 PM	2:11 PM	2:22 PM	2:29 PM	0:06:00	2:35 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
25		12:30 PM	12:36 PM	12:48 PM	12:56 PM	1:00 PM	1:06 PM	1:15 PM	1:20 PM	1:26 PM	1:34 PM	0:06:00	1:40 PM	1:48 PM	1:54 PM	1:59 PM	2:08 PM	2:13 PM	2:18 PM	2:26 PM	2:37 PM	2:44 PM	0:06:00	2:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
26		12:45 PM	12:51 PM	1:03 PM	1:11 PM	1:15 PM	1:21 PM	1:30 PM	1:35 PM	1:41 PM	1:49 PM	0:06:00	1:55 PM	2:03 PM	2:09 PM	2:14 PM	2:23 PM	2:28 PM	2:33 PM	2:41 PM	2:52 PM	2:59 PM	0:06:00	3:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
27		1:00 PM	1:06 PM	1:18 PM	1:26 PM	1:30 PM	1:36 PM	1:45 PM	1:50 PM	1:56 PM	2:04 PM	0:06:00	2:10 PM	2:18 PM	2:24 PM	2:29 PM	2:38 PM	2:43 PM	2:48 PM	2:56 PM	3:07 PM	3:14 PM	0:06:00	3:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
28		1:15 PM	1:21 PM	1:33 PM	1:41 PM	1:45 PM	1:51 PM	2:00 PM	2:05 PM	2:11 PM	2:19 PM	0:06:00	2:25 PM	2:33 PM	2:39 PM	2:44 PM	2:53 PM	2:58 PM	3:03 PM	3:11 PM	3:22 PM	3:29 PM	0:06:00	3:35 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
29		1:30 PM	1:36 PM	1:48 PM	1:56 PM	2:00 PM	2:06 PM	2:15 PM	2:20 PM	2:26 PM	2:34 PM	0:06:00	2:40 PM	2:48 PM	2:54 PM	2:59 PM	3:08 PM	3:13 PM	3:18 PM	3:26 PM	3:37 PM	3:44 PM	0:06:00	3:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
30		1:45 PM	1:51 PM	2:03 PM	2:11 PM	2:15 PM	2:21 PM	2:30 PM	2:35 PM	2:41 PM	2:49 PM	0:06:00	2:55 PM	3:03 PM	3:09 PM	3:14 PM	3:23 PM	3:28 PM	3:33 PM	3:41 PM	3:52 PM	3:59 PM	0:06:00	4:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
31		2:00 PM	2:06 PM	2:18 PM	2:26 PM	2:30 PM	2:36 PM	2:45 PM	2:50 PM	2:56 PM	3:04 PM	0:06:00	3:10 PM	3:18 PM	3:24 PM	3:29 PM	3:38 PM	3:43 PM	3:48 PM	3:56 PM	4:07 PM	4:14 PM	0:06:00	4:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
32		2:15 PM	2:21 PM	2:33 PM	2:41 PM	2:45 PM	2:51 PM	3:00 PM	3:05 PM	3:11 PM	3:19 PM	0:06:00	3:25 PM	3:33 PM	3:39 PM	3:44 PM	3:53 PM	3:58 PM	4:03 PM	4:11 PM	4:22 PM	4:29 PM	0:06:00	4:35 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
33		2:30 PM	2:36 PM	2:48 PM	2:56 PM	3:00 PM	3:06 PM	3:15 PM	3:20 PM	3:26 PM	3:34 PM	0:06:00	3:40 PM	3:48 PM	3:54 PM	3:59 PM	4:08 PM	4:13 PM	4:18 PM	4:26 PM	4:37 PM	4:44 PM	0:06:00	4:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
34		2:45 PM	2:51 PM	3:03 PM	3:11 PM	3:15 PM	3:21 PM	3:30 PM	3:35 PM	3:41 PM	3:49 PM	0:06:00	3:55 PM	4:03 PM	4:09 PM	4:14 PM	4:23 PM	4:28 PM	4:33 PM	4:41 PM	4:52 PM	4:59 PM	0:06:00	5:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
35		3:00 PM	3:06 PM	3:18 PM	3:26 PM	3:30 PM	3:36 PM	3:45 PM	3:50 PM	3:56 PM	4:04 PM	0:06:00	4:10 PM	4:18 PM	4:24 PM	4:29 PM	4:38 PM	4:43 PM	4:48 PM	4:56 PM	5:07 PM	5:14 PM	0:06:00	5:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
36		3:15 PM	3:21 PM	3:33 PM	3:41 PM	3:45 PM	3:51 PM	4:00 PM	4:05 PM	4:11 PM	4:19 PM	0:06:00	4:25 PM	4:33 PM	4:39 PM	4:44 PM	4:53 PM	4:58 PM	5:03 PM	5:11 PM	5:22 PM	5:29 PM	0:06:00	5:35 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
37		3:30 PM	3:36 PM	3:48 PM	3:56 PM	4:00 PM	4:06 PM	4:15 PM	4:20 PM	4:26 PM	4:34 PM	0:06:00	4:40 PM	4:48 PM	4:54 PM	4:59 PM	5:08 PM	5:13 PM	5:18 PM	5:26 PM	5:37 PM	5:44 PM	0:06:00	5:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
38		3:45 PM	3:51 PM	4:03 PM	4:11 PM	4:15 PM	4:21 PM	4:30 PM	4:35 PM	4:41 PM	4:49 PM	0:06:00	4:55 PM	5:03 PM	5:09 PM	5:14 PM	5:23 PM	5:28 PM	5:33 PM	5:41 PM	5:52 PM	5:59 PM	0:06:00	6:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
39		4:00 PM	4:06 PM	4:18 PM	4:26 PM	4:30 PM	4:36 PM	4:45 PM	4:50 PM	4:56 PM	5:04 PM	0:06:00	5:10 PM	5:18 PM	5:24 PM	5:29 PM	5:38 PM	5:43 PM	5:48 PM	5:56 PM	6:07 PM	6:14 PM	0:06:00	6:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
40		4:15 PM	4:21 PM	4:33 PM	4:41 PM	4:45 PM	4:51 PM	5:00 PM	5:05 PM	5:11 PM	5:19 PM	0:06:00	5:25 PM	5:33 PM	5:39 PM	5:44 PM	5:53 PM	5:58 PM	6:03 PM	6:11 PM	6:22 PM	6:29 PM	0:06:00	6:35 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
41		4:30 PM	4:36 PM	4:48 PM	4:56 PM	5:00 PM	5:06 PM	5:15 PM	5:20 PM	5:26 PM	5:34 PM	0:06:00	5:40 PM	5:48 PM	5:54 PM	5:59 PM	6:08 PM	6:13 PM	6:18 PM	6:26 PM	6:37 PM	6:44 PM	0:06:00	6:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
42		4:45 PM	4:51 PM	5:03 PM	5:11 PM	5:15 PM	5:21 PM	5:30 PM	5:35 PM	5:41 PM	5:49 PM	0:06:00	5:55 PM	6:03 PM	6:09 PM	6:14 PM	6:23 PM	6:28 PM	6:33 PM	6:41 PM	6:52 PM	6:59 PM	0:06:00	7:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
43		5:00 PM	5:06 PM	5:18 PM	5:26 PM	5:30 PM	5:36 PM	5:45 PM	5:50 PM	5:56 PM	6:04 PM	0:06:00	6:10 PM	6:18 PM	6:24 PM	6:29 PM	6:38 PM	6:43 PM	6:48 PM	6:56 PM	7:07 PM	7:14 PM	0:06:00	7:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
44		5:15 PM	5:21 PM	5:33 PM	5:41 PM	5:45 PM	5:51 PM	6:00 PM	6:05 PM	6:11 PM	6:19 PM	0:06:00	6:25 PM	6:33 PM	6:39 PM	6:44 PM	6:53 PM	6:58 PM	7:03 PM	7:11 PM	7:22 PM	7:29 PM	0:06:00	7:35 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
45		5:30 PM	5:36 PM	5:48 PM	5:56 PM	6:00 PM	6:06 PM	6:15 PM	6:20 PM	6:26 PM	6:34 PM	0:06:00	6:40 PM	6:48 PM	6:54 PM	6:59 PM	7:08 PM	7:13 PM	7:18 PM	7:26 PM	7:37 PM	7:44 PM	0:06:00	7:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
46		5:45 PM	5:51 PM	6:03 PM	6:11 PM	6:15 PM	6:21 PM	6:30 PM	6:35 PM	6:41 PM	6:49 PM	0:06:00	6:55 PM	7:03 PM	7:09 PM	7:14 PM	7:23 PM	7:28 PM	7:33 PM	7:41 PM	7:52 PM	7:59 PM	0:06:00	8:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
47		6:00 PM	6:06 PM	6:18 PM	6:26 PM	6:30 PM	6:36 PM	6:45 PM	6:50 PM	6:56 PM	7:04 PM	0:06:00	7:10 PM	7:18 PM	7:24 PM	7:29 PM	7:38 PM	7:43 PM	7:48 PM	7:56 PM	8:07 PM	8:14 PM	0:06:00	8:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
48		6:15 PM	6:21 PM	6:33 PM	6:41 PM	6:45 PM	6:51 PM	7:00 PM	7:05 PM	7:11 PM	7:19 PM	0:06:00	7:25 PM	7:33 PM	7:39 PM	7:44 PM	7:53 PM	7:58 PM	8:03 PM	8:11 PM	8:22 PM	8:29 PM	0:06:00	8:35 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
49		6:30 PM	6:36 PM	6:48 PM	6:56 PM	7:00 PM	7:06 PM	7:15 PM	7:20 PM	7:26 PM	7:34 PM	0:06:00	7:40 PM	7:48 PM	7:54 PM	7:59 PM	8:08 PM	8:13 PM	8:18 PM	8:26 PM	8:37 PM	8:44 PM	0:06:00	8:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
50		6:45 PM	6:51 PM	7:03 PM	7:11 PM	7:15 PM	7:21 PM	7:30 PM	7:35 PM	7:41 PM	7:49 PM	0:06:00	7:55 PM	8:03 PM	8:09 PM	8:14 PM	8:23 PM	8:28 PM	8:33 PM	8:41 PM	8:52 PM	8:59 PM	0:06:00	9:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
51		7:00 PM	7:06 PM	7:18 PM	7:26 PM	7:30 PM	7:36 PM	7:45 PM	7:50 PM	7:56 PM	8:04 PM	0:06:00	8:10 PM	8:18 PM	8:24 PM	8:29 PM	8:38 PM	8:43 PM	8:48 PM	8:56 PM	9:07 PM	9:14 PM	0:06:00	9:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
52		7:15 PM	7:21 PM	7:33 PM	7:41 PM	7:45 PM	7:51 PM	8:00 PM	8:05 PM	8:11 PM	8:19 PM	0:06:00	8:25 PM	8:33 PM	8:39 PM	8:44 PM	8:53 PM	8:58 PM	9:03 PM	9:11 PM	9:22 PM	9:29 PM	0:06:00	9:35 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
53		7:30 PM	7:36 PM	7:48 PM	7:56 PM	8:00 PM	8:06 PM	8:15 PM	8:20 PM	8:26 PM	8:34 PM	0:06:00	8:40 PM	8:48 PM	8:54 PM	8:59 PM	9:08 PM	9:13 PM	9:18 PM	9:26 PM	9:37 PM	9:44 PM	0:06:00	9:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
54		7:45 PM	7:51 PM	8:03 PM	8:11 PM	8:15 PM	8:21 PM	8:30 PM	8:35 PM	8:41 PM	8:49 PM	0:06:00	8:55 PM	9:03 PM	9:09 PM	9:14 PM	9:23 PM	9:28 PM	9:33 PM	9:41 PM	9:52 PM	9:59 PM	0:06:00	10:05 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
55		8:00 PM	8:06 PM	8:18 PM	8:26 PM	8:30 PM	8:36 PM	8:45 PM	8:50 PM	8:56 PM	9:04 PM	0:06:00	9:10 PM	9:18 PM	9:24 PM	9:29 PM	9:38 PM	9:43 PM	9:48 PM	9:56 PM	10:07 PM	10:14 PM	0:06:00	10:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:15:00
56		8:15 PM	8:21 PM	8:33 PM	8:41 PM	8:45 PM	8:51 PM	9:00 PM	9:05 PM	9:11 PM	9:19 PM														18.4	1:04:42		0:15:00	
57		8:30 PM	8:36 PM	8:48 PM	8:56 PM	9:00 PM	9:06 PM	9:15 PM	9:20 PM	9:26 PM	9:34 PM	0:06:00	9:40 PM	9:48 PM	9:54 PM	9:59 PM	10:08 PM	10:13 PM	10:18 PM	10:26 PM	10:37 PM	10:44 PM	0:06:00	10:50 PM	36.8	2:20:13	0:12:00	0:15:00	0:30:00
58		8:45 PM	8:51 PM	9:03 PM	9:11 PM	9:15 PM	9:21 PM	9:30 PM	9:35 PM	9:41 PM	9:49 PM														18.4	1:04:42		0:15:00	
59		9:00 PM	9:06 PM	9:18 PM	9:26 PM	9:30 PM	9:36 PM	9:45 PM	9:50 PM	9:56 PM	10:04 PM	0:06:00	10:10 PM	10:18 PM	10:24 PM	10:29 PM	10:38 PM	10:43 PM	10:48 PM	10:56 PM	11:07 PM	11:14 PM	0:06:00	11:20 PM	36.8	2:20:13	0:12:00	0:15:00	0:30:00
60		9:30 PM	9:36 PM	9:48 PM	9:56 PM	10:00 PM	10:06 PM	10:15 PM	10:20 PM	10:26 PM	10:34 PM	0:06:00	10:40 PM	10:48 PM	10:54 PM	10:59 PM	11:08 PM	11:13 PM	11:18 PM	11:26 PM	11:37 PM	11:44 PM	0:06:00	11:50 PM	36.8	2:20:13	0:12:00	0:30:00	0:30:00
61		10:00 PM	10:06 PM	10:18 PM	10:26 PM	10:30 PM	10:36 PM	10:45 PM	10:50 PM	10:56 PM	11:04 PM	0:06:00	11:10 PM	11:18 PM	11:24 PM	11:29 PM	11:38 PM	11:43 PM	11:48 PM	11:56 PM	12:07 AM	12:14 AM	0:06:00	12:20 AM	36.8	2:20:13	0:12:00	0:30:00	0:30:00
62		10:30 PM	10:36 PM	10:48 PM	10:56 PM	11:00 PM	11:06 PM	11:15 PM	11:20 PM	11:26 PM	11:34 PM	0:06:00	11:40 PM	11:48 PM	11:54 PM	11:59 PM	12:08 AM	12:13 AM	12:18 AM	12:26 AM	12:37 AM	12:44 AM	0:06:00	12:50 AM	36.8	2:20:13	0:12:00	0:30:00	0:30:00
63		11:00 PM	11:06 PM	11:18 PM	11:26 PM	11:30 PM	11:36 PM	11:45 PM	11:50 PM	11:56 PM	12:04 AM	0:06:00	12:10 AM	12:18 AM	12:24 AM	12:29 AM	12:38 AM	12:43 AM	12:48 AM	12:56 AM	1:07 AM	1:14 AM	0:06:00	1:20 AM	36.8	2:20:13	0:12:00	0:30:00	0:30:00
64		11:30 PM	11:36 PM	11:48 PM	11:56 PM	12:00 AM	12:06 AM	12:15 AM	12:20 AM	12:26 AM	12:34 AM	0:06:00	12:40 AM	12:48 AM	12:54 AM	12:59 AM	1:08 AM	1:13 AM	1:18 AM	1:26 AM	1:37 AM	1:44 AM			36.8	2:14:13	0:06:00	0:30:00	0:30:00
65		12:00 AM	12:06 AM	12:18 AM	12:26 AM	12:30 AM	12:36 AM	12:45 AM	12:50 AM	12:56 AM	1:04 AM	0:06:00	1:10 AM	1:18 AM	1:24 AM	1:29 AM	1:38 AM	1:43 AM	1:48 AM	1:56 AM	2:07 AM	2:14 AM			36.8	2:14:13	0:06:00	0:30:00	0:30:00
66		12:30 AM	12:36 AM	12:48 AM	12:56 AM	1:00 AM	1:06 AM	1:15 AM	1:20 AM	1:26 AM	1:34 AM														18.4	1:04:42	0:00:00	0:30:00	
67		1:00 AM	1:06 AM	1:18 AM	1:26 AM	1:30 AM	1:36 AM	1:45 AM	1:50 AM	1:56 AM	2:04 AM														18.4	1:04:42	0:00:00	0:30:00	
												0:06:00											0:06:00		2318.4	134:26:57	12:00:00		

Total Hours w/F 146:26:57
% Rec = 0.14792899

Appendix H

COST ESTIMATE TAKE OFFS

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
PLATFORM COMPONENTS (COMPACT)								
(unassigned)								
3	12' Shelter	0"	1	EA	0		0	
4	Advertising Panel (48" x 72") two-sided	0"	1	EA	0		0	
5	74" Bench	0"	1	EA	0		0	
9	Electric Cabinet (NEMA Type 3R or 4X Stainless Steel) 74"x60"x18"	0"	1	EA	0		0	
10	Trash Receptacle	0"	1	EA	0		0	
12	Vertical Pylon Marker with Real-time Bus Information	0"	1	EA	0		0	
275	Underground Electric Conduit & Wire From Cabinet to PACE Sign	0"	41	LF	0		0	
PLATFORM COMPONENTS (TYPICAL)								
(unassigned)								
15	16' Shelter	0"	1	EA	0		0	
16	Advertising Panel (48" x 72") two-sided	0"	1	EA	0		0	
17	74" Bench	0"	1	EA	0		0	
22	Trash Receptacle	0"	1	EA	0		0	
24	Vertical Marker Pylon with Real-time Bus Information	0"	1	EA	0		0	
27	Bike Rack	0"	1	EA	0		0	
276	Underground Electric Conduit & Wire From Cabinet to PACE Sign	0"	50	LF	0		0	
277	Electric Cabinet (NEMA Type 3R or 4X Stainless Steel) 74"x60"x18"	0"	1	EA	0		0	
REMOVALS - PLATFORM #04 (WB) ALT #2 (LEE/TOUHY)								
(unassigned)								
126	Remove Concrete Sidewalk & Driveway	0"	298	SF	0		0	
127	Sawcut Full Depth Pvmt	0"	84	LF	0		0	
128	Sawcut 4" Asphalt Pvmt	0"	92	LF	0		0	
129	Remove Variable Asphalt - Road	0"	88	LF	176	SF	0	
130	Remove Curb & Gutter	0"	67	LF	0	SF	0	
131	Sawcut Sidewalk	0"	30	LF	0		0	
132	Remove Full Depth Pvmt (EA)	0"	1	EA	720	SF	0	
198	Sawcut Curb	0"	2	EA	0		0	

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
PROPOSED - PLATFORM #04 (WB) ALT #2 (LEE/TOUHY)								
(unassigned)								
145	Concrete Bus Pad (14') per EA	0"	1	EA	720	SF	144	LF
146	Curb & Gutter Type B-24.12	0"	67	LF	167	SF	0	
147	Adjust Utility Frame	0"	1	EA	0		0	
148	Steel Tube Railing	0"	66	LF	0		0	
149	Electric Service Connection on Existing Pole	0"	1	EA	0		0	
150	12" PCCP Platform Pad with Heating System	0"	419	SF	0		0	
151	5" Concrete Sidewalk	0"	494	SF	0		0	
152	Underground Electric Service Conduit & Wire	0"	226	LF	0		0	
153	Silt Fence	0"	260	LF	0		0	
154	6" Bus Curb	0"	60	LF	0		0	
155	Pavement Striping (LS)	0"	1	EA	0		0	
156	Tactile Warning Strip	0"	40	LF	80	SF	0	
158	MOT During Construction	0"	1	EA	0		0	
159	Platform Components (Typical)	0"	1	EA	0		0	
160	Adjust Storm Inlet	0"	1	EA	0		0	
161	Variable Depth Concrete Ramp	0"	162	SF	0		0	
163	New Variable Asphalt Patch - Road	0"	88	LF	176	SF	0	
164	Storm Inlet Protection	0"	2	EA	0		0	
196	Intersection Striping (High Visibility X-Wallk)	0"	1	EA	0		0	
204	Restore Sod (SF)	0"	945	SF	0		0	
PROPOSED - PLATFORM #07 (EB) ALT #1 (DES PLAINES)								
(unassigned)								
404	New Pace Sign	0"	1	EA	0		0	
PROPOSED - PLATFORM #09 (WB) ALT #1 (DES PLAINES)								
(unassigned)								
364	Curb & Gutter Type B-24.12	0"	136	LF	340	SF	0	
366	Steel Tube Railing	0"	95	LF	0		0	
367	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
368	12" PCCP Platform Pad with Heating System	0"	1,244	SF	0		0	

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
369	5" Concrete Sidewalk	0"	399	SF	0		0	
370	Underground Electric Service Conduit & Wire	0"	161	LF	0		0	
372	6" Bus Curb	0"	136	LF	0		0	
373	Pavement Striping (LS)	0"	1	EA	0		0	
374	Tactile Warning Strip	0"	120	LF	240	SF	0	
376	MOT During Construction	0"	1	EA	0		0	
377	Platform Components (Typical) Only (1) each vertical marker, bike reack and electrical cabinet	0"	3	EA	0		0	
379	Variable Depth Concrete Ramp	0"	159	SF	0		0	
380	Concrete Bus Pad (SF)	0"	1,831	SF	0		0	
381	New Variable Asphalt Patch - Road	0"	240	LF	480	SF	0	
REMOVALS - PLATFORM #09 (WB) ALT #1 (DES PLAINES)								
(unassigned)								
389	Remove Concrete Sidewalk & Driveway	0"	1,788	SF	0		0	
390	Sawcut Full Depth Pvmt	0"	240	LF	0		0	
391	Sawcut 4" Asphalt Pvmt	0"	245	LF	0		0	
392	Remove Variable Asphalt - Road	0"	240	LF	480	SF	0	
393	Remove Curb & Gutter	0"	136	LF	340	SF	0	
394	Sawcut Sidewalk	0"	194	LF	0		0	
396	Remove Full Depth Pvmt (SF)	0"	1,845	SF	0		0	
397	Remove & Relocate Underground Electric	0"	160	LF	0		0	
398	Sawcut Curb	0"	2	EA	0		0	
400	Relocate Light Pole	0"	2	EA	0		0	
401	Remove Existing Shelter	0"	1	EA	0		0	
403	Remove Tree	0"	3	EA	0		0	
PROPOSED - PLATFORM #11 (WB) ALT#1 (DEE)								
(unassigned)								
1983	Concrete Bus Pad (14') per EA	0"	1	EA	780	SF	146	LF
1984	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1986	Steel Tube Railing	0"	53	LF	0		0	
1987	Electric Service Connection on Existing Pole	0"	1	EA	0		0	
1988	12" PCCP Platform Pad with Heating System	0"	420	SF	0		0	
1989	5" Concrete Sidewalk	0"	772	SF	0		0	

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1990	Underground Electric Service Conduit & Wire	0"	39	LF	0		0	
1991	Silt Fence	0"	137	LF	0		0	
1992	6" Bus Curb	0"	60	LF	0		0	
1993	Pavement Striping (LS)	0"	1	EA	0		0	
1994	Tactile Warning Strip	0"	40	LF	80	SF	0	
1996	MOT During Construction	0"	1	EA	0		0	
1997	Platform Components (Typical)	0"	1	EA	0		0	
	Only (1) each vertical marker, bike reack and electrical cabinet							
1998	Adjust Storm Inlet	0"	1	EA	0		0	
1999	Variable Depth Concrete Ramp	0"	150	SF	0		0	
2001	New Variable Asphalt Patch - Road	0"	90	LF	180	SF	0	
2002	Storm Inlet Protection	0"	2	EA	0		0	
2004	Restore Sod	0"	74	LF	441	SF	0	
2005	Restore Sod (SF)	0"	347	SF	0		0	
REMOVALS - PLATFORM #11 (WB) ALT#1 (DEE)								
(unassigned)								
2008	Relocate Existing Sign	0"	1	EA	0		0	
2009	Remove Concrete Sidewalk & Driveway	0"	408	SF	0		0	
2010	Sawcut Full Depth Pvmt	0"	86	LF	0		0	
2011	Sawcut 4" Asphalt Pvmt	0"	94	LF	0		0	
2012	Remove Variable Asphalt - Road	0"	90	LF	180	SF	0	
2013	Remove Curb & Gutter	0"	60	LF	90	SF	0	
2014	Sawcut Sidewalk	0"	13	LF	0		0	
2015	Remove Full Depth Pvmt (EA)	0"	1	EA	780	SF	0	
2018	Sawcut Curb	0"	2	EA	0		0	
2024	Remove & Replace Wood Fencing	0"	107	LF	0		0	
PROPOSED - PLATFORM #14 (WB) ALT #2 (MILWAUKEE)								
(unassigned)								
913	Concrete Bus Pad (10') per EA	0"	1	EA	540	SF	138	LF
914	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
916	Steel Tube Railing	0"	58	LF	0		0	
917	Electric Service Connection on Existing Underground	0"	1	EA	0		0	

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
918	12" PCCP Platform Pad with Heating System	0"	346	SF	0		0	
919	5" Concrete Sidewalk	0"	373	SF	0		0	
920	Underground Electric Service Conduit & Wire	0"	63	LF	0		0	
922	6" Bus Curb	0"	60	LF	0		0	
923	Pavement Striping (LS)	0"	1	EA	0		0	
924	Tactile Warning Strip	0"	33	LF	66	SF	0	
926	MOT During Construction	0"	1	EA	0		0	
927	Platform Components (Compact)	0"	1	EA	0		0	
928	Adjust Storm Inlet	0"	1	EA	0		0	
929	Variable Depth Concrete Ramp	0"	58	SF	0		0	
931	New Variable Asphalt Patch - Road	0"	82	LF	164	SF	0	
932	Storm Inlet Protection	0"	1	EA	0		0	
REMOVALS - PLATFORM #14 (WB) ALT #2 (MILWAUKEE)								
(unassigned)								
939	Remove Existing Pace Sign	0"	1	EA	0		0	
940	Sawcut Full Depth Pvmt	0"	78	LF	0		0	
941	Sawcut 4" Asphalt Pvmt	0"	86	LF	0		0	
942	Remove Variable Asphalt - Road	0"	82	LF	164	SF	0	
943	Remove Curb & Gutter	0"	60	LF	90	SF	0	
944	Sawcut Sidewalk	0"	10	LF	0		0	
945	Remove Full Depth Pvmt (EA)	0"	1	EA	540	SF	0	
953	Remove Concrete Sidewalk & Driveway	0"	595	SF	0		0	
955	Remove Concrete Steps	0"	194	SF	0		0	
956	Sawcut Steps	0"	45	LF	0		0	
PROPOSED - PLATFORM #17 (EB) ALT #1 (WAUKEGAN)								
(unassigned)								
1167	Restore Landscape Area	0"	177	SF	0		0	
1168	Concrete Bus Pad (12') per EA	0"	1	EA	660	SF	142	LF
1169	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1171	Steel Tube Railing	0"	51	LF	0		0	
1172	Electric Service Connection on Existing Underground	0"	1	EA	0		0	

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1173	12" PCCP Platform Pad with Heating System	0"	400	SF	0		0	
1174	5" Concrete Sidewalk	0"	278	SF	0		0	
1175	Underground Electric Service Conduit & Wire	0"	81	LF	0		0	
1176	Silt Fence	0"	51	LF	0		0	
1177	6" Bus Curb	0"	60	LF	0		0	
1178	Pavement Striping (LS)	0"	1	EA	0		0	
1179	Tactile Warning Strip	0"	40	LF	80	SF	0	
1181	MOT During Construction	0"	1	EA	0		0	
1182	Platform Components (Typical)	0"	1	EA	0		0	
1184	Variable Depth Concrete Ramp	0"	160	SF	0		0	
1186	New Variable Asphalt Patch - Road	0"	88	LF	176	SF	0	
1187	Storm Inlet Protection	0"	1	EA	0		0	
1189	Restore Sod	0"	52	LF	315	SF	0	
REMOVALS - PLATFORM #17 (EB) ALT #1 (WAUKEGAN)								
(unassigned)								
1098	Remove Landscape Area	0"	322	SF	0		0	
1197	Remove Existing Pace Sign	0"	1	EA	0		0	
1198	Sawcut Full Depth Pvmt	0"	84	LF	0		0	
1199	Sawcut 4" Asphalt Pvmt	0"	92	LF	0		0	
1200	Remove Variable Asphalt - Road	0"	88	LF	176	SF	0	
1201	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1202	Sawcut Sidewalk	0"	29	LF	0		0	
1203	Remove Full Depth Pvmt (EA)	0"	1	EA	720	SF	0	
1206	Sawcut Curb	0"	2	EA	0		0	
1209	Remove Existing Shelter	0"	1	EA	0		0	
1211	Remove Concrete Sidewalk & Driveway	0"	709	SF	0		0	
PROPOSED - PLATFORM #18 (WB) ALT #1 (AUSTIN)								
(unassigned)								
1099	Remove & Replace Fire Hydrant	0"	1	EA	0		0	
1260	Concrete Bus Pad (12') per EA	0"	1	EA	660	SF	142	LF
1261	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1263	Steel Tube Railing	0"	50	LF	0		0	

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1264	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1265	12" PCCP Platform Pad with Heating System	0"	440	SF	0		0	
1266	5" Concrete Sidewalk	0"	344	SF	0		0	
1267	Underground Electric Service Conduit & Wire	0"	38	LF	0		0	
1269	6" Bus Curb	0"	60	LF	0		0	
1270	Pavement Striping (LS)	0"	1	EA	0		0	
1271	Tactile Warning Strip	0"	40	LF	80	SF	0	
1273	MOT During Construction	0"	1	EA	0		0	
1274	Platform Components (Typical)	0"	1	EA	0		0	
1276	Variable Depth Concrete Ramp	0"	175	SF	0		0	
1278	New Variable Asphalt Patch - Road	0"	86	LF	172	SF	0	
REMOVALS - PLATFORM #18 (WB) ALT #1 (AUSTIN)								
(unassigned)								
1289	Remove Existing Pace Sign	0"	1	EA	0		0	
1290	Sawcut Full Depth Pvmt	0"	82	LF	0		0	
1291	Sawcut 4" Asphalt Pvmt	0"	90	LF	0		0	
1292	Remove Variable Asphalt - Road	0"	86	LF	172	SF	0	
1293	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1294	Sawcut Sidewalk	0"	59	LF	0		0	
1295	Remove Full Depth Pvmt (EA)	0"	1	EA	660	SF	0	
1299	Remove Tree	0"	3	EA	0		0	
1300	Relocate Light Pole	0"	1	EA	0		0	
1303	Remove Concrete Sidewalk & Driveway	0"	976	SF	0		0	
1305	Remove Bollards	0"	4	EA	0		0	
PROPOSED - PLATFORM #19 (EB) ALT #1 (AUSTIN)								
(unassigned)								
1308	Concrete Bus Pad (12') per EA	0"	1	EA	660	SF	142	LF
1309	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1311	Steel Tube Railing	0"	46	LF	0		0	
1312	Electric Service Connection on Existing Underground	0"	1	EA	0		0	

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1313	12" PCCP Platform Pad with Heating System	0"	440	SF	0		0	
1314	5" Concrete Sidewalk	0"	596	SF	0		0	
1315	Underground Electric Service Conduit & Wire	0"	60	LF	0		0	
1317	6" Bus Curb	0"	60	LF	0		0	
1318	Pavement Striping (LS)	0"	1	EA	0		0	
1319	Tactile Warning Strip	0"	40	LF	80	SF	0	
1321	MOT During Construction	0"	1	EA	0		0	
1322	Platform Components (Typical)	0"	1	EA	0		0	
1324	Variable Depth Concrete Ramp	0"	175	SF	0		0	
1326	New Variable Asphalt Patch - Road	0"	86	LF	172	SF	0	
1356	Replace Brick Pavers	0"	383	SF	0		0	
REMOVALS - PLATFORM #19 (EB) ALT #1 (AUSTIN)								
(unassigned)								
1338	Salvage Decorative Brick Sidewalk	0"	531	SF	0		0	
1339	Sawcut Full Depth Pvmt	0"	82	LF	0		0	
1340	Sawcut 4" Asphalt Pvmt	0"	90	LF	0		0	
1341	Remove Variable Asphalt - Raod	0"	86	LF	172	SF	0	
1342	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1343	Sawcut Sidewalk	0"	45	LF	0		0	
1344	Remove Full Depth Pvmt (EA)	0"	1	EA	660	SF	0	
1347	Sawcut Curb	0"	2	EA	0		0	
1348	Remove Tree	0"	2	EA	0		0	
1351	Remove Bench	0"	1	EA	0		0	
1352	Remove Concrete Sidewalk & Driveway	0"	1,044	SF	0		0	
1353	Remove Existing Pace Sign	0"	1	EA	0		0	
1354	Remove Trash Receptacle	0"	1	EA	0		0	
1355	Remove 3' Dia Conc Planter	0"	1	EA	0		0	
PROPOSED - PLATFORM #22 (EB) ALT #1 (CRAWFORD)								
(unassigned)								
1507	Restore Landscape Area	0"	190	SF	0		0	
1508	Concrete Bus Pad (13') per EA	0"	1	EA	720	SF	144	LF

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1509	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1511	Steel Tube Railing	0"	53	LF	0		0	
1512	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1513	12" PCCP Platform Pad with Heating System	0"	560	SF	0		0	
1514	5" Concrete Sidewalk	0"	200	SF	0		0	
1515	Underground Electric Service Conduit & Wire	0"	62	LF	0		0	
1516	Silt Fence	0"	20	LF	0		0	
1517	6" Bus Curb	0"	60	LF	0		0	
1518	Pavement Striping (LS)	0"	1	EA	0		0	
1519	Tactile Warning Strip	0"	40	LF	80	SF	0	
1521	MOT During Construction	0"	1	EA	0		0	
1522	Platform Components (Typical)	0"	1	EA	0		0	
1524	Variable Depth Concrete Ramp	0"	175	SF	0		0	
1526	New Variable Asphalt Patch - Road	0"	88	LF	176	SF	0	
1529	Restore Sod	0"	60	LF	359	SF	0	
REMOVALS - PLATFORM #22 (EB) ALT #1 (CRAWFORD)								
(unassigned)								
1541	Sawcut Full Depth Pvmt	0"	86	LF	0		0	
1542	Sawcut 4" Asphalt Pvmt	0"	92	LF	0		0	
1543	Remove Variable Asphalt - Road	0"	88	LF	176	SF	0	
1544	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1545	Sawcut Sidewalk	0"	10	LF	0		0	
1546	Remove Full Depth Pvmt (EA)	0"	1	EA	720	SF	0	
1549	Sawcut Curb	0"	2	EA	0		0	
1550	Remove Tree	0"	2	EA	0		0	
1554	Remove Concrete Sidewalk & Driveway	0"	447	SF	0		0	
PROPOSED - PLATFORM #23 (WB) ALT #1 (LINCOLNWOOD)								
(unassigned)								
1610	Restore Landscape Area	0"	585	SF	0		0	
1611	Concrete Bus Pad (12.5') per EA	0"	1	EA	690	SF	143	LF
1612	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1614	Steel Tube Railing	0"	48	LF	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1615	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1616	12" PCCP Platform Pad with Heating System	0"	546	SF	0		0	
1617	5" Concrete Sidewalk	0"	311	SF	0		0	
1618	Underground Electric Service Conduit & Wire	0"	123	LF	0		0	
1620	6" Bus Curb	0"	60	LF	0		0	
1621	Pavement Striping (LS)	0"	1	EA	0		0	
1622	Tactile Warning Strip	0"	33	LF	66	SF	0	
1624	MOT During Construction	0"	1	EA	0		0	
1625	Platform Components (Compact)	0"	1	EA	0		0	
1627	Variable Depth Concrete Ramp	0"	96	SF	0		0	
1629	New Variable Asphalt Patch - Road	0"	87	LF	174	SF	0	
1637	Concrete Driveway	0"	222	SF	0		0	
REMOVALS - PLATFORM #23 (WB) ALT #1 (LINCOLNWOOD)								
(unassigned)								
1642	Remove Landscape Area	0"	977	SF	0		0	
1645	Sawcut Full Depth Pvmt	0"	83	LF	0		0	
1646	Sawcut 4" Asphalt Pvmt	0"	91	LF	0		0	
1647	Remove Variable Asphalt - Road	0"	87	LF	174	SF	0	
1648	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1649	Sawcut Sidewalk	0"	13	LF	0		0	
1650	Remove Full Depth Pvmt (EA)	0"	1	EA	690	SF	0	
1652	Remove & Relocate Underground Electric	0"	72	LF	0		0	
1653	Sawcut Curb	0"	2	EA	0		0	
1654	Remove Tree	0"	2	EA	0		0	
1655	Relocate Light Pole	0"	1	EA	0		0	
1658	Remove Concrete Sidewalk & Driveway	0"	773	SF	0		0	
1659	Relocate Existing Sign May be illuminated - has foundation	0"	1	EA	0		0	
PROPOSED - PLATFORM #24 (EB) ALT #2 (LIINCOLNWOOD)								
(unassigned)								
1770	Concrete Bus Pad (13.5') per EA	0"	1	EA	750	SF	145	LF
1771	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1773	Steel Tube Railing	0"	39	LF	0		0	
1774	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1775	12" PCCP Platform Pad with Heating System	0"	363	SF	0		0	
1776	5" Concrete Sidewalk	0"	441	SF	0		0	
1777	Underground Electric Service Conduit & Wire	0"	60	LF	0		0	
1779	6" Bus Curb	0"	60	LF	0		0	
1780	Pavement Striping (LS)	0"	1	EA	0		0	
1781	Tactile Warning Strip	0"	33	LF	66	SF	0	
1783	MOT During Construction	0"	1	EA	0		0	
1784	Platform Components (Compact)	0"	1	EA	0		0	
1786	Variable Depth Concrete Ramp	0"	103	SF	0		0	
1788	New Variable Asphalt Patch - Road	0"	89	LF	178	SF	0	
1791	Restore Sod	0"	58	LF	345	SF	0	
1792	Restore Sod (SF)	0"	137	SF	0		0	

REMOVALS - PLATFORM #24 (EB) ALT #2 (LINCOLNWOOD)

(unassigned)

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1803	Remove Existing Pace Sign	0"	1	EA	0		0	
1804	Sawcut Full Depth Pvmt	0"	85	LF	0		0	
1805	Sawcut 4" Asphalt Pvmt	0"	93	LF	0		0	
1806	Remove Variable Asphalt - Road	0"	89	LF	178	SF	0	
1807	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1808	Sawcut Sidewalk	0"	6	LF	0		0	
1809	Remove Full Depth Pvmt (EA)	0"	1	EA	750	SF	0	
1812	Sawcut Curb	0"	2	EA	0		0	
1813	Remove Tree	0"	1	EA	0		0	
1817	Remove Concrete Sidewalk & Driveway	0"	671	SF	0		0	
1818	Relocate Existing Sign May be illuminated - has foundation	0"	1	EA	0		0	

PROPOSED - PLATFORM #29 ALT #1 (DAVIS CTA/METRA)

(unassigned)

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1982	New Pace Sign	0"	1	EA	0		0	

REMOVALS - PLATFORM #31 (EB) ALT #2 (LEE/TOUHY)

(unassigned)

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
135	Remove Existing Pace Sign	0"	1	EA	0		0	
136	Remove Concrete Sidewalk & Driveway	0"	422	SF	0		0	
137	Sawcut Full Depth Pvmt	0"	85	LF	0		0	
138	Sawcut 4" Asphalt Pvmt	0"	93	LF	0		0	
139	Remove Variable Asphalt - Road	0"	89	LF	178	SF	0	
140	Remove Curb & Gutter	0"	72	LF	180	SF	0	
141	Sawcut Sidewalk	0"	8	LF	0		0	
142	Remove Full Depth Pvmt (EA)	0"	1	EA	750	SF	0	
197	Sawcut Curb	0"	2	EA	0		0	
PROPOSED - PLATFORM #31 (EB) ALT #2 (LEE/TOUHY)								
(unassigned)								
165	Concrete Bus Pad (15') per EA	0"	1	EA	750	SF	145	LF
166	Curb & Gutter Type B-24.12	0"	72	LF	181	SF	0	
167	Adjust Storm Inlet	0"	1	EA	0		0	
168	Steel Tube Railing	0"	54	LF	0		0	
169	Electric Service Connection on Existing Pole	0"	1	EA	0		0	
170	12" PCCP Platform Pad with Heating System	0"	481	SF	0		0	
171	5" Concrete Sidewalk	0"	328	SF	0		0	
172	Underground Electric Service Conduit & Wire	0"	43	LF	0		0	
173	Silt Fence	0"	151	LF	0		0	
174	6" Bus Curb	0"	60	LF	0		0	
175	Pavement Striping (LS)	0"	1	EA	0		0	
176	Tactile Warning Strip	0"	40	LF	80	SF	0	
178	MOT During Construction	0"	1	EA	0		0	
179	Platform Components (Typical)	0"	1	EA	0		0	
181	Variable Depth Concrete Ramp	0"	189	SF	0		0	
183	New Variable Asphalt Patch - Road	0"	89	LF	178	SF	0	
184	Storm Inlet Protection	0"	2	EA	0		0	
186	Intersection Striping (High Visibility X-Wallk)	0"	1	EA	0		0	
195	Restore Sod (SF)	0"	687	SF	0		0	
REMOVALS - PLATFORM #32 (WB) ALT #2 (DES PLAINES)								
(unassigned)								

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
406	Remove Concrete Sidewalk & Driveway	0"	1,350	SF	0		0	
407	Sawcut Full Depth Pvmt	0"	80	LF	0		0	
408	Sawcut 4" Asphalt Pvmt	0"	88	LF	0		0	
409	Remove Variable Asphalt - Road	0"	84	LF	168	SF	0	
410	Remove Curb & Gutter	0"	60	LF	150	SF	0	
411	Sawcut Sidewalk	0"	370	LF	0		0	
412	Remove Full Depth Pvmt (EA)	0"	1	EA	600	SF	0	
414	Remove & Relocate Underground Electric	0"	69	LF	0		0	
415	Sawcut Curb	0"	2	EA	0		0	
416	Remove Tree	0"	2	EA	0		0	
417	Relocate Light Pole	0"	1	EA	0		0	
PROPOSED - PLATFORM #32 (WB) ALT #2 (DES PLAINES)								
(unassigned)								
421	Concrete Bus Pad (12') per EA	0"	1	EA	600	SF	140	LF
422	Curb & Gutter Type B-24.12	0"	60	LF	150	SF	0	
424	Steel Tube Railing	0"	51	LF	0		0	
425	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
426	12" PCCP Platform Pad with Heating System	0"	420	SF	0		0	
427	5" Concrete Sidewalk	0"	813	SF	0		0	
428	Underground Electric Service Conduit & Wire	0"	148	LF	0		0	
430	6" Bus Curb	0"	60	LF	0		0	
431	Pavement Striping (LS)	0"	1	EA	0		0	
432	Tactile Warning Strip	0"	40	LF	80	SF	0	
434	MOT During Construction	0"	1	EA	0		0	
435	Platform Components (Typical)	0"	1	EA	0		0	
	Only (1) each vertical marker, bike reack and electrical cabinet							
437	Variable Depth Concrete Ramp	0"	160	SF	0		0	
439	New Variable Asphalt Patch - Road	0"	84	LF	168	SF	0	
PROPOSED - PLATFORM #33 (EB) ALT #1 (MILWAUKEE)								
(unassigned)								
958	Concrete Bus Pad (12') per EA	0"	1	EA	660	SF	142	LF

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
959	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
960	Adjust Utility Frame	0"	1	EA	0		0	
961	Steel Tube Railing	0"	49	LF	0		0	
962	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
963	12" PCCP Platform Pad with Heating System	0"	420	SF	0		0	
964	5" Concrete Sidewalk	0"	106	SF	0		0	
965	Underground Electric Service Conduit & Wire	0"	9	LF	0		0	
966	Silt Fence	0"	93	LF	0		0	
967	6" Bus Curb	0"	60	LF	0		0	
968	Pavement Striping (LS)	0"	1	EA	0		0	
969	Tactile Warning Strip	0"	40	LF	80	SF	0	
971	MOT During Construction	0"	1	EA	0		0	
972	Platform Components (Typical)	0"	1	EA	0		0	
973	Adjust Storm Inlet	0"	1	EA	0		0	
974	Variable Depth Concrete Ramp	0"	60	SF	0		0	
976	New Variable Asphalt Patch - Road	0"	86	LF	172	SF	0	
977	Storm Inlet Protection	0"	2	EA	0		0	
979	Restore Sod	0"	73	LF	438	SF	0	
980	Restore Sod (SF)	0"	55	SF	0		0	
981	Adjust Catch Basin	0"	1	EA	0		0	
REMOVALS - PLATFORM #33 (EB) ALT #1 (MILWAUKEE)								
(unassigned)								
984	Remove Existing Pace Sign	0"	1	EA	0		0	
985	Sawcut Full Depth Pvmt	0"	82	LF	0		0	
986	Sawcut 4" Asphalt Pvmt	0"	90	LF	0		0	
987	Remove Variable Asphalt - Road	0"	86	LF	172	SF	0	
988	Remove Curb & Gutter	0"	60	LF	90	SF	0	
989	Sawcut Sidewalk	0"	5	LF	0		0	
990	Remove Full Depth Pvmt (EA)	0"	1	EA	660	SF	0	
993	Sawcut Curb	0"	2	EA	0		0	
996	Remove Existing Shelter	0"	1	EA	0		0	
997	Remove Trash Receptacle	0"	1	EA	0		0	
998	Remove Concrete Sidewalk & Driveway	0"	334	SF	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
PROPOSED - PLATFORM #34 (WB) ALT #3 (MILWAUKEE)								
(unassigned)								
1001	Concrete Bus Pad (12') per EA	0"	1	EA	660	SF	142	LF
1002	Curb & Gutter Type B-12.12	0"	69	LF	103	SF	0	
1003	Adjust Utility Frame	0"	1	EA	0		0	
1004	Steel Tube Railing	0"	44	LF	0		0	
1005	Electric Service Connection on Existing Pole	0"	1	EA	0		0	
1006	12" PCCP Platform Pad with Heating System	0"	347	SF	0		0	
1007	5" Concrete Sidewalk	0"	295	SF	0		0	
1008	Underground Electric Service Conduit & Wire	0"	151	LF	0		0	
1009	Silt Fence	0"	6	LF	0		0	
1010	6" Bus Curb	0"	60	LF	0		0	
1011	Pavement Striping (LS)	0"	1	EA	0		0	
1012	Tactile Warning Strip	0"	33	LF	66	SF	0	
1014	MOT During Construction	0"	1	EA	0		0	
1015	Platform Components (Compact)	0"	1	EA	0		0	
1016	Adjust Storm Inlet	0"	1	EA	0		0	
1017	Variable Depth Concrete Ramp	0"	72	SF	0		0	
1019	New Variable Asphalt Patch - Road	0"	293	LF	585	SF	0	
1020	Storm Inlet Protection	0"	1	EA	0		0	
1022	Restore Sod	0"	96	LF	578	SF	0	
1043	Bollards	0"	8	EA	0		0	
1044	Concrete Driveway	0"	322	SF	0		0	
REMOVALS - PLATFORM #34 (WB) ALT #3 (MILWAUKEE)								
(unassigned)								
1027	Remove Existing Pace Sign	0"	1	EA	0		0	
1028	Sawcut Full Depth Pvmt	0"	82	LF	0		0	
1029	Sawcut 4" Asphalt Pvmt	0"	297	LF	0		0	
1030	Remove Variable Asphalt - Road	0"	132	LF	264	SF	0	
1031	Remove Curb & Gutter	0"	109	LF	164	SF	0	
1032	Sawcut Sidewalk	0"	35	LF	0		0	
1033	Remove Full Depth Pvmt (EA)	0"	1	EA	660	SF	0	
1036	Sawcut Curb	0"	4	EA	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1041	Remove Concrete Sidewalk & Driveway	0"	678	SF	0		0	
1094	Remove 4" Asphalt - Parking	0"	490	SF	0		0	
PROPOSED - PLATFORM #36 (WB) ALT #3 (CRAWFORD)								
(unassigned)								
1457	Restore Landscape Area	0"	257	SF	0		0	
1458	Concrete Bus Pad (12') per EA	0"	1	EA	660	SF	142	LF
1459	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1461	Steel Tube Railing	0"	75	LF	0		0	
1462	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1463	12" PCCP Platform Pad with Heating System	0"	559	SF	0		0	
1464	5" Concrete Sidewalk	0"	402	SF	0		0	
1465	Underground Electric Service Conduit & Wire	0"	89	LF	0		0	
1466	Silt Fence	0"	6	LF	0		0	
1468	Pavement Striping (LS)	0"	1	EA	0		0	
1469	Tactile Warning Strip	0"	33	LF	66	SF	0	
1471	MOT During Construction	0"	1	EA	0		0	
1472	Platform Components (Compact)	0"	1	EA	0		0	
1473	Adjust Storm Inlet	0"	1	EA	0		0	
1474	Variable Depth Concrete Ramp	0"	66	SF	0		0	
1476	New Variable Asphalt Patch - Road	0"	86	LF	172	SF	0	
1477	Storm Inlet Protection	0"	1	EA	0		0	
1480	Restore Sod (SF)	0"	266	SF	0		0	
REMOVALS - PLATFORM #36 (WB) ALT #3 (CRAWFORD)								
(unassigned)								
1101	Remove 4" Asphalt - Parking	0"	62	SF	0		0	
1487	Remove Landscape Area	0"	408	SF	0		0	
1489	Remove Existing Pace Sign	0"	1	EA	0		0	
1490	Sawcut Full Depth Pvmt	0"	82	LF	0		0	
1491	Sawcut 4" Asphalt Pvmt	0"	122	LF	0		0	
1492	Remove Variable Asphalt - Road	0"	86	LF	172	SF	0	
1493	Remove Curb & Gutter	0"	60	LF	90	SF	0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1494	Sawcut Sidewalk	0"	51	LF	0		0	
1495	Remove Full Depth Pvmt (EA)	0"	1	EA	660	SF	0	
1498	Sawcut Curb	0"	2	EA	0		0	
1499	Remove Tree	0"	1	EA	0		0	
1503	Remove Concrete Sidewalk & Driveway	0"	651	SF	0		0	
PROPOSED - PLATFORM #37 (EB) ALT #1 (LINCOLNWOOD)								
(unassigned)								
1664	Concrete Bus Pad (12') per EA	0"	1	EA	660	SF	142	LF
1665	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1667	Steel Tube Railing	0"	50	LF	0		0	
1668	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1669	12" PCCP Platform Pad with Heating System	0"	480	SF	0		0	
1670	5" Concrete Sidewalk	0"	324	SF	0		0	
1671	Underground Electric Service Conduit & Wire	0"	34	LF	0		0	
1672	Silt Fence	0"	119	LF	0		0	
1673	6" Bus Curb	0"	60	LF	0		0	
1674	Pavement Striping (LS)	0"	1	EA	0		0	
1675	Tactile Warning Strip	0"	40	LF	80	SF	0	
1677	MOT During Construction	0"	1	EA	0		0	
1678	Platform Components (Typical)	0"	1	EA	0		0	
1679	Adjust Storm Inlet	0"	1	EA	0		0	
1680	Variable Depth Concrete Ramp	0"	210	SF	0		0	
1682	New Variable Asphalt Patch - Road	0"	86	LF	172	SF	0	
1683	Storm Inlet Protection	0"	1	EA	0		0	
1685	Restore Sod	0"	115	LF	687	SF	0	
REMOVALS - PLATFORM #37 (EB) ALT #1 (LINCOLNWOOD)								
(unassigned)								
1698	Sawcut Full Depth Pvmt	0"	82	LF	0		0	
1699	Sawcut 4" Asphalt Pvmt	0"	90	LF	0		0	
1700	Remove Variable Asphalt - Road	0"	86	LF	172	SF	0	
1701	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1702	Sawcut Sidewalk	0"	12	LF	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1703	Remove Full Depth Pvmt (EA)	0"	1	EA	660	SF	0	
1706	Sawcut Curb	0"	2	EA	0		0	
1711	Remove Concrete Sidewalk & & Driveway	0"	567	SF	0		0	
PROPOSED - PLATFORM #38 (EB) ALT #1 (DODGE)								
(unassigned)								
1877	Concrete Bus Pad (10') per EA	0"	1	EA	540	SF	138	LF
1878	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1880	Steel Tube Railing	0"	51	LF	0		0	
1881	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1882	12" PCCP Platform Pad with Heating System	0"	480	SF	0		0	
1883	5" Concrete Sidewalk	0"	250	SF	0		0	
1884	Underground Electric Service Conduit & Wire	0"	70	LF	0		0	
1885	Silt Fence	0"	154	LF	0		0	
1886	6" Bus Curb	0"	60	LF	0		0	
1887	Pavement Striping (LS)	0"	1	EA	0		0	
1888	Tactile Warning Strip	0"	40	LF	80	SF	0	
1890	MOT During Construction	0"	1	EA	0		0	
1891	Platform Components (Typical)	0"	1	EA	0		0	
1893	Variable Depth Concrete Ramp	0"	179	SF	0		0	
1895	New Variable Asphalt Patch - Road	0"	82	LF	164	SF	0	
1899	Restore Sod (SF)	0"	867	SF	0		0	
REMOVALS - PLATFORM #38 (EB) ALT #1 (DODGE)								
(unassigned)								
1910	Remove Existing Pace Sign	0"	1	EA	0		0	
1911	Sawcut Full Depth Pvmt	0"	78	LF	0		0	
1912	Sawcut 4" Asphalt Pvmt	0"	86	LF	0		0	
1913	Remove Variable Asphalt - Road	0"	82	LF	164	SF	0	
1914	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1915	Sawcut Sidewalk	0"	29	LF	0		0	
1916	Remove Full Depth Pvmt (EA)	0"	1	EA	540	SF	0	
1919	Sawcut Curb	0"	2	EA	0		0	

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1920	Remove Tree	0"	1	EA	0		0	
1923	Remove Trash Receptacle	0"	1	EA	0		0	
1924	Remove Concrete Sidewalk & Driveway	0"	732	SF	0		0	
1925	Relocate Existing Sign	0"	1	EA	0		0	
PROPOSED - PLATFORM #39 (WB) ALT #3 (DODGE)								
(unassigned)								
1929	Remove & Replace Fire Hydrant	0"	1	EA	0		0	
1930	Restore Landscape Area	0"	160	SF	0		0	
1931	Concrete Bus Pad (10') per EA	0"	1	EA	540	SF	138	LF
1932	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1934	Steel Tube Railing	0"	46	LF	0		0	
1935	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1936	12" PCCP Platform Pad with Heating System	0"	448	SF	0		0	
1937	5" Concrete Sidewalk	0"	191	SF	0		0	
1938	Underground Electric Service Conduit & Wire	0"	77	LF	0		0	
1939	Silt Fence	0"	65	LF	0		0	
1940	6" Bus Curb	0"	60	LF	0		0	
1941	Pavement Striping (LS)	0"	1	EA	0		0	
1942	Tactile Warning Strip	0"	33	LF	66	SF	0	
1944	MOT During Construction	0"	1	EA	0		0	
1945	Platform Components (Compact)	0"	1	EA	0		0	
1947	Variable Depth Concrete Ramp	0"	102	SF	0		0	
1949	New Variable Asphalt Patch - Road	0"	82	LF	164	SF	0	
1956	Bollards	0"	7	EA	0		0	
1958	New 4" Asphalt Patch - Parking	0"	137	SF	0		0	
REMOVALS - PLATFORM #39 (WB) ALT #3 (DODGE)								
(unassigned)								
1960	Remove Parking Curb	0"	2	EA	0		0	
1961	Remove 4" Asphalt - Parking	0"	226	SF	0		0	
1962	Remove Landscape Area	0"	207	SF	0		0	
1965	Sawcut Full Depth Pvmt	0"	78	LF	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1966	Sawcut 4" Asphalt Pvmt	0"	140	LF	0		0	
1967	Remove Variable Asphalt - Road	0"	82	LF	164	SF	0	
1968	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1969	Sawcut Sidewalk	0"	17	LF	0		0	
1970	Remove Full Depth Pvmt (EA)	0"	1	EA	540	SF	0	
1973	Sawcut Curb	0"	2	EA	0		0	
1978	Remove Concrete Sidewalk & Driveway	0"	603	SF	0		0	
PROPOSED - PLATFORM #40 (WB) ALT #1 (DODGE)								
(unassigned)								
1103	New ADA Curb Ramp	0"	2	EA	0		0	
1822	Restore Landscape Area	0"	362	SF	0		0	
1824	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1826	Steel Tube Railing	0"	45	LF	0		0	
1827	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1828	12" PCCP Platform Pad with Heating System	0"	490	SF	0		0	
1829	5" Concrete Sidewalk	0"	673	SF	0		0	
1830	Underground Electric Service Conduit & Wire	0"	103	LF	0		0	
1832	6" Bus Curb	0"	60	LF	0		0	
1833	Pavement Striping (LS)	0"	1	EA	0		0	
1834	Tactile Warning Strip	0"	33	LF	66	SF	0	
1836	MOT During Construction	0"	1	EA	0		0	
1837	Platform Components (Compact)	0"	1	EA	0		0	
1839	Variable Depth Concrete Ramp	0"	128	SF	0		0	
1840	Concrete Bus Pad (SF)	0"	595	SF	0		0	
1841	New Variable Asphalt Patch - Road	0"	87	LF	173	SF	0	
1843	Intersection Striping (High Visibility X-Wallk)	0"	1	EA	0		0	
1846	Adjust Mabhole	0"	1	EA	0		0	
1849	Concrete Driveway	0"	224	SF	0		0	
REMOVALS - PLATFORM #40 (WB) ALT #1 (DODGE)								
(unassigned)								
1854	Remove Landscape Area	0"	520	SF	0		0	
1857	Sawcut Full Depth Pvmt	0"	83	LF	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1858	Sawcut 4" Asphalt Pvmt	0"	90	LF	0		0	
1859	Remove Variable Asphalt - Road	0"	87	LF	174	SF	0	
1860	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1861	Sawcut Sidewalk	0"	29	LF	0		0	
1863	Remove Full Depth Pvmt (SF)	0"	685	SF	0		0	
1865	Sawcut Curb	0"	2	EA	0		0	
1870	Remove Concrete Sidewalk	0"	1,395	SF	0		0	
PROPOSED - PLATFORM #42 (WB) ALT #4 (CRAWFORD)								
(unassigned)								
1558	Restore Landscape Area	0"	89	SF	0		0	
1559	Concrete Bus Pad (12') per EA	0"	1	EA	660	SF	142	LF
1560	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1562	Steel Tube Railing	0"	65	LF	0		0	
1563	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1564	12" PCCP Platform Pad with Heating System	0"	594	SF	0		0	
1565	5" Concrete Sidewalk	0"	246	SF	0		0	
1566	Underground Electric Service Conduit & Wire	0"	106	LF	0		0	
1568	6" Bus Curb	0"	60	LF	0		0	
1569	Pavement Striping (LS)	0"	1	EA	0		0	
1570	Tactile Warning Strip	0"	33	LF	66	SF	0	
1572	MOT During Construction	0"	1	EA	0		0	
1573	Platform Components (Compact)	0"	1	EA	0		0	
1575	Variable Depth Concrete Ramp	0"	93	SF	0		0	
1577	New Variable Asphalt Patch - Raod	0"	86	LF	172	SF	0	
1581	Restore Sod (SF)	0"	439	SF	0		0	
1585	Concrete Driveway	0"	224	SF	0		0	
REMOVALS - PLATFORM #42 (WB) ALT #4 (CRAWFORD)								
(unassigned)								
1102	Remove Parking Curb	0"	8	EA	0		0	
1588	Remove 4" Asphalt - Parking	0"	93	SF	0		0	
1589	Remove Landscape Area	0"	317	SF	0		0	
1592	Sawcut Full Depth Pvmt	0"	82	LF	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1593	Sawcut 4" Asphalt Pvmt	0"	125	LF	0		0	
1594	Remove Variable Asphalt - Road	0"	86	LF	172	SF	0	
1595	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1596	Sawcut Sidewalk	0"	37	LF	0		0	
1597	Remove Full Depth Pvmt (EA)	0"	1	EA	660	SF	0	
1599	Remove & Relocate Underground Electric	0"	63	LF	0		0	
1600	Sawcut Curb	0"	2	EA	0		0	
1601	Remove Tree	0"	1	EA	0		0	
1602	Relocate Light Pole	0"	1	EA	0		0	
1605	Remove Concrete Sidewalk & Driveway	0"	626	SF	0		0	
1608	Remove Single Curb	0"	44	LF	22	SF	0	
PROPOSED - PLATFORM #44 (SB) ALT #2 (LEE/MANN/OAK)								
(unassigned)								
205	Concrete Bus Pad (14) per EA	0"	1	EA	690	SF	143	LF
206	Curb & Gutter Type B-24.12	0"	60	LF	150	SF	0	
207	Adjust Utility Frame	0"	1	EA	0		0	
208	Steel Tube Railing	0"	51	LF	0		0	
209	Electric Service Connection on Existing Pole	0"	1	EA	0		0	
210	12" PCCP Platform Pad with Heating System	0"	420	SF	0		0	
211	5" Concrete Sidewalk	0"	329	SF	0		0	
212	Underground Electric Service Conduit & Wire	0"	110	LF	0		0	
213	Silt Fence	0"	129	LF	0		0	
214	6" Bus Curb	0"	60	LF	0		0	
215	Pavement Striping (LS)	0"	1	EA	0		0	
216	Tactile Warning Strip	0"	40	LF	80	SF	0	
217	Landscape Strip	0"	60	LF	90	SF	0	
218	MOT During Construction	0"	1	EA	0		0	
219	Platform Components (Typical)	0"	1	EA	0		0	
220	Adjust Storm Inlet	0"	1	EA	0		0	
221	Variable Depth Concrete Ramp	0"	205	SF	0		0	
223	New Variable Asphalt Patch - Road	0"	87	LF	174	SF	0	
224	Storm Inlet Protection	0"	1	EA	0		0	
226	Restore Sod	0"	123	LF	735	SF	0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
227	Restore Sod (SF)	0"	767	SF	0		0	
239	Adjust Manhole	0"	2	EA	0		0	
REMOVALS - PLATFORM #44 (SB) ALT #2 (LEE/MANN/OAK)								
(unassigned)								
228	Remove Existing Pace Sign	0"	2	EA	0		0	
229	Remove Concrete Sidewalk & Driveway	0"	209	SF	0		0	
230	Sawcut Full Depth Pvmt	0"	83	LF	0		0	
231	Sawcut 4" Asphalt Pvmt	0"	91	LF	0		0	
232	Remove Variable Asphalt - Road	0"	87	LF	174	SF	0	
233	Remove Curb & Gutter	0"	60	LF	150	SF	0	
234	Sawcut Sidewalk	0"	11	LF	0		0	
235	Remove Full Depth Pvmt (EA)	0"	1	EA	690	SF	0	
238	Sawcut Curb	0"	4	EA	0		0	
PROPOSED - PLATFORM #45 (NB) ALT #2 (LEE/MANN/OAK)								
(unassigned)								
241	Curb & Gutter Type B-24.12	0"	60	LF	150	SF	0	
243	Steel Tube Railing	0"	36	LF	0		0	
244	Electric Service Connection on Existing Pole	0"	1	EA	0		0	
245	12" PCCP Platform Pad with Heating System	0"	598	SF	0		0	
246	5" Concrete Sidewalk	0"	373	SF	0		0	
247	Underground Electric Service Conduit & Wire	0"	11	LF	0		0	
248	Silt Fence	0"	113	LF	0		0	
249	6" Bus Curb	0"	60	LF	0		0	
250	Pavement Striping (LS)	0"	1	EA	0		0	
251	Tactile Warning Strip	0"	33	LF	66	SF	0	
253	MOT During Construction	0"	1	EA	0		0	
254	Platform Components (Compact)	0"	1	EA	0		0	
256	Variable Depth Concrete Ramp	0"	192	SF	0		0	
257	Concrete Bus Pad (SF)	0"	650	SF	0		0	
258	New Variable Asphalt Patch - Road	0"	87	LF	175	SF	0	
259	Storm Inlet Protection	0"	1	EA	0		0	
261	Restore Sod	0"	73	LF	220	SF	0	
262	Restore Sod (SF)	0"	133	SF	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
263	Adjust Catch Basin	0"	1	EA	0		0	
REMOVALS - PLATFORM #45 (NB) ALT #2 (LEE/MANN/OAK)								
(unassigned)								
264	Relocate Existing Sign	0"	2	EA	0		0	
265	Remove Concrete Sidewalk & Driveway	0"	468	SF	0		0	
266	Sawcut Full Depth Pvmt	0"	83	LF	0		0	
267	Sawcut 4" Asphalt Pvmt	0"	92	LF	0		0	
268	Remove Variable Asphalt - Road	0"	87	LF	174	SF	0	
269	Remove Curb & Gutter	0"	60	LF	150	SF	0	
270	Sawcut Sidewalk	0"	13	LF	0		0	
272	Remove Full Depth Pvmt (SF)	0"	660	SF	0		0	
273	Remove & Relocate Underground Electric	0"	72	LF	0		0	
274	Sawcut Curb	0"	2	EA	0		0	
278	Relocate Power Pole	0"	1	EA	0		0	
279	Relocate Light Pole	0"	1	EA	0		0	
280	Remove Existing Shelter	0"	1	EA	0		0	
281	Remove Trash Receptacle	0"	1	EA	0		0	
PROPOSED - PLATFORM #46 (WB) ALT #2 (POTTER)								
(unassigned)								
282	Concrete Bus Pad (13') per EA	0"	1	EA	720	SF	144	LF
283	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
285	Steel Tube Railing	0"	50	LF	0		0	
286	Electric Service Connection on Existing Pole	0"	1	EA	0		0	
287	12" PCCP Platform Pad with Heating System	0"	400	SF	0		0	
288	5" Concrete Sidewalk	0"	653	SF	0		0	
289	Underground Electric Service Conduit & Wire	0"	60	LF	0		0	
290	Silt Fence	0"	21	LF	0		0	
291	6" Bus Curb	0"	60	LF	0		0	
292	Pavement Striping (LS)	0"	1	EA	0		0	
293	Tactile Warning Strip	0"	40	LF	80	SF	0	
295	MOT During Construction	0"	1	EA	0		0	
296	Platform Components (Typical)	0"	1	EA	0		0	
297	Adjust Storm Inlet	0"	1	EA	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
298	Variable Depth Concrete Ramp	0"	162	SF	0		0	
300	New Variable Asphalt Patch - Road	0"	88	LF	176	SF	0	
301	Storm Inlet Protection	0"	1	EA	0		0	
304	Restore Sod (SF)	0"	214	SF	0		0	
322	Curb 6"	0"	93	LF	0		0	
REMOVALS - PLATFORM #46 (WB) ALT #2 (POTTER)								
(unassigned)								
307	Remove Concrete Sidewalk & Driveway	0"	430	SF	0		0	
308	Sawcut Full Depth Pvmt	0"	83	LF	0		0	
309	Sawcut 4" Asphalt Pvmt	0"	91	LF	0		0	
310	Remove Variable Asphalt - Road	0"	87	LF	174	SF	0	
311	Remove Curb & Gutter	0"	60	LF	90	SF	0	
312	Sawcut Sidewalk	0"	10	LF	0		0	
313	Remove Full Depth Pvmt (EA)	0"	1	EA	690	SF	0	
315	Remove & Relocate Underground Electric	0"	80	LF	0		0	
316	Sawcut Curb	0"	2	EA	0		0	
321	Remove Tree	0"	3	EA	0		0	
PROPOSED - PLATFORM #47 (WB) ALT #1 (POTTER)								
(unassigned)								
486	Restore Landscape Area	0"	129	SF	0		0	
533	Concrete Bus Pad (10') per EA	0"	1	EA	690	SF	143	LF
534	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
536	Steel Tube Railing	0"	51	LF	0		0	
537	Electric Service Connection on Existing Pole	0"	1	EA	0		0	
538	12" PCCP Platform Pad with Heating System	0"	412	SF	0		0	
539	5" Concrete Sidewalk	0"	217	SF	0		0	
540	Underground Electric Service Conduit & Wire	0"	41	LF	0		0	
541	Silt Fence	0"	92	LF	0		0	
542	6" Bus Curb	0"	60	LF	0		0	
543	Pavement Striping (LS)	0"	1	EA	0		0	
544	Tactile Warning Strip	0"	40	LF	80	SF	0	
546	MOT During Construction	0"	1	EA	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
547	Platform Components (Typical)	0"	1	EA	0		0	
548	Adjust Storm Inlet	0"	1	EA	0		0	
549	Variable Depth Concrete Ramp	0"	140	SF	0		0	
551	New Variable Asphalt Patch - Road	0"	87	LF	174	SF	0	
552	Storm Inlet Protection	0"	1	EA	0		0	
554	Restore Sod	0"	24	LF	145	SF	0	
555	Restore Sod (SF)	0"	68	SF	0		0	
REMOVALS - PLATFORM #47 (WB) ALT #1 (POTTER)								
(unassigned)								
562	Sawcut Full Depth Pvmt	0"	83	LF	0		0	
563	Sawcut 4" Asphalt Pvmt	0"	91	LF	0		0	
564	Remove Variable Asphalt - Road	0"	87	LF	174	SF	0	
565	Remove Curb & Gutter	0"	60	LF	90	SF	0	
566	Sawcut Sidewalk	0"	10	LF	0		0	
567	Remove Full Depth Pvmt (EA)	0"	1	EA	690	SF	0	
570	Sawcut Curb	0"	2	EA	0		0	
575	Remove Concrete Sidewalk & Driveway	0"	414	SF	0		0	
PROPOSED - PLATFORM #48 (EB) ALT #2 (POTTER)								
(unassigned)								
323	Concrete Bus Pad (13') per EA	0"	1	EA	720	SF	144	LF
324	Curb & Gutter Type B-12.12	0"	39	LF	59	SF	0	
326	Steel Tube Railing	0"	33	LF	0		0	
327	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
328	12" PCCP Platform Pad with Heating System	0"	366	SF	0		0	
329	5" Concrete Sidewalk	0"	123	SF	0		0	
330	Underground Electric Service Conduit & Wire	0"	35	LF	0		0	
331	Silt Fence	0"	24	LF	0		0	
332	6" Bus Curb	0"	60	LF	0		0	
333	Pavement Striping (LS)	0"	1	EA	0		0	
334	Tactile Warning Strip	0"	33	LF	66	SF	0	
336	MOT During Construction	0"	1	EA	0		0	
337	Platform Components (Typical)	0"	1	EA	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
339	Variable Depth Concrete Ramp	0"	36	SF	0		0	
341	New Variable Asphalt Patch - Road	0"	88	LF	176	SF	0	
344	Restore Sod	0"	36	LF	108	SF	0	
345	Restore Sod (SF)	0"	331	SF	0		0	
REMOVALS - PLATFORM #48 (EB) ALT #2 (POTTER)								
(unassigned)								
350	Sawcut Full Depth Pvmt	0"	84	LF	0		0	
351	Sawcut 4" Asphalt Pvmt	0"	92	LF	0		0	
352	Remove Variable Asphalt - Road	0"	88	LF	176	SF	0	
353	Remove Curb & Gutter	0"	39	LF	59	SF	0	
355	Remove Full Depth Pvmt (EA)	0"	1	EA	720	SF	0	
358	Sawcut Curb	0"	2	EA	0		0	
PROPOSED - PLATFORM #49 (EB) ALT #1 (WESTERN)								
(unassigned)								
701	Concrete Bus Pad (14') per EA	0"	1	EA	720	SF	144	LF
702	Curb & Gutter Type B-24.12	0"	60	LF	150	SF	0	
704	Steel Tube Railing	0"	46	LF	0		0	
705	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
706	12" PCCP Platform Pad with Heating System	0"	539	SF	0		0	
707	5" Concrete Sidewalk	0"	270	SF	0		0	
708	Underground Electric Service Conduit & Wire	0"	80	LF	0		0	
709	Silt Fence	0"	103	LF	0		0	
710	6" Bus Curb	0"	60	LF	0		0	
711	Pavement Striping (LS)	0"	1	EA	0		0	
712	Tactile Warning Strip	0"	40	LF	80	SF	0	
714	MOT During Construction	0"	1	EA	0		0	
715	Platform Components (Typical)	0"	2	EA	0		0	
716	Adjust Storm Inlet	0"	1	EA	0		0	
717	Variable Depth Concrete Ramp	0"	226	SF	0		0	
719	New Variable Asphalt Patch - Road	0"	88	LF	176	SF	0	
720	Storm Inlet Protection	0"	2	EA	0		0	
723	Restore Sod (SF)	0"	789	SF	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
REMOVALS - PLATFORM #49 (EB) ALT #1 (WESTERN)								
(unassigned)								
727	Sawcut Full Depth Pvmt	0"	84	LF	0		0	
728	Sawcut 4" Asphalt Pvmt	0"	92	LF	0		0	
729	Remove Variable Asphalt - Road	0"	88	LF	176	SF	0	
730	Remove Curb & Gutter	0"	60	LF	150	SF	0	
731	Sawcut Sidewalk	0"	12	LF	0		0	
732	Remove Full Depth Pvmt (EA)	0"	1	EA	720	SF	0	
734	Remove & Relocate Underground Electric	0"	90	LF	0		0	
735	Sawcut Curb	0"	2	EA	0		0	
738	Remove Existing Shelter	0"	1	EA	0		0	
740	Remove Concrete Sidewalk & Driveway	0"	720	SF	0		0	
PROPOSED - PLATFORM #50 (WB) ALT #1 (WESTERN)								
(unassigned)								
659	Concrete Bus Pad (14') per EA	0"	1	EA	720	SF	144	LF
660	Curb & Gutter Type B-24.12	0"	60	LF	150	SF	0	
662	Steel Tube Railing	0"	47	LF	0		0	
663	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
664	12" PCCP Platform Pad with Heating System	0"	599	SF	0		0	
665	5" Concrete Sidewalk	0"	281	SF	0		0	
666	Underground Electric Service Conduit & Wire	0"	27	LF	0		0	
667	Silt Fence	0"	131	LF	0		0	
668	6" Bus Curb	0"	60	LF	0		0	
669	Pavement Striping (LS)	0"	1	EA	0		0	
670	Tactile Warning Strip	0"	40	LF	80	SF	0	
672	MOT During Construction	0"	1	EA	0		0	
673	Platform Components (Typical)	0"	1	EA	0		0	
674	Adjust Storm Inlet	0"	1	EA	0		0	
675	Variable Depth Concrete Ramp	0"	249	SF	0		0	
677	New Variable Asphalt Patch - Road	0"	88	LF	176	SF	0	
678	Storm Inlet Protection	0"	2	EA	0		0	
681	Restore Sod (SF)	0"	438	SF	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
REMOVALS - PLATFORM #50 (WB) ALT #1 (WESTERN)								
(unassigned)								
684	Remove Existing Pace Sign	0"	1	EA	0		0	
685	Sawcut Full Depth Pvmt	0"	84	LF	0		0	
686	Sawcut 4" Asphalt Pvmt	0"	92	LF	0		0	
687	Remove Variable Asphalt - Road	0"	88	LF	176	SF	0	
688	Remove Curb & Gutter	0"	60	LF	150	SF	0	
689	Sawcut Sidewalk	0"	10	LF	0		0	
690	Remove Full Depth Pvmt (EA)	0"	1	EA	720	SF	0	
692	Remove & Relocate Underground Electric	0"	111	LF	0		0	
693	Sawcut Curb	0"	2	EA	0		0	
698	Remove Concrete Sidewalk & Driveway	0"	447	SF	0		0	
699	Relocate Existing Sign	0"	1	EA	0		0	
REMOVALS - PLATFORM #55 (WB) ALT #2 (DEMP-SKOK)								
(unassigned)								
1100	Remove Landscape Area	0"	287	SF	0		0	
1357	Remove & Replace Chain Link Fence	0"	6	LF	0		0	
1359	Sawcut Full Depth Pvmt	0"	85	LF	0		0	
1360	Sawcut 4" Asphalt Pvmt	0"	93	LF	0		0	
1361	Remove Variable Asphalt - Road	0"	89	LF	178	SF	0	
1362	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1363	Sawcut Sidewalk	0"	19	LF	0		0	
1364	Remove Full Depth Pvmt (EA)	0"	1	EA	750	SF	0	
1367	Sawcut Curb	0"	2	EA	0		0	
1368	Remove Tree	0"	3	EA	0		0	
1372	Remove Concrete Sidewalk & Driveway	0"	639	SF	0		0	
1404	Salvage Brick Pavers	0"	201	SF	0		0	
PROPOSED - PLATFORM #55 (WB) ALT #2 (DEMP-SKOK)								
(unassigned)								
1375	Restore Landscape Area	0"	247	SF	0		0	
1376	Concrete Bus Pad (13.5') per EA	0"	1	EA	750	SF	145	LF
1377	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1378	Adjust Utility Frame	0"	1	EA	0		0	
1379	Steel Tube Railing	0"	50	LF	0		0	
1380	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1381	12" PCCP Platform Pad with Heating System	0"	420	SF	0		0	
1382	5" Concrete Sidewalk	0"	244	SF	0		0	
1383	Underground Electric Service Conduit & Wire	0"	25	LF	0		0	
1384	Silt Fence	0"	47	LF	0		0	
1385	6" Bus Curb	0"	60	LF	0		0	
1386	Pavement Striping (LS)	0"	1	EA	0		0	
1387	Tactile Warning Strip	0"	40	LF	80	SF	0	
1389	MOT During Construction	0"	1	EA	0		0	
1390	Platform Components (Typical)	0"	1	EA	0		0	
1392	Variable Depth Concrete Ramp	0"	163	SF	0		0	
1394	New Variable Asphalt Patch - Road	0"	89	LF	178	SF	0	
1397	Restore Sod	0"	36	LF	214	SF	0	
1398	Restore Sod (SF)	0"	33	SF	0		0	
1405	Replace Brick Pavers	0"	68	SF	0		0	
PROPOSED - PLATFORM #56 (EB) ALT #2 (DEMP-SKOK)								
(unassigned)								
1408	Concrete Bus Pad (12.5') per EA	0"	1	EA	690	SF	143	LF
1409	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1411	Steel Tube Railing	0"	39	LF	0		0	
1412	Electric Service Connection on Existing Pole	0"	1	EA	0		0	
1413	12" PCCP Platform Pad with Heating System	0"	370	SF	0		0	
1414	5" Concrete Sidewalk	0"	272	SF	0		0	
1415	Underground Electric Service Conduit & Wire	0"	49	LF	0		0	
1416	Silt Fence	0"	70	LF	0		0	
1417	6" Bus Curb	0"	60	LF	0		0	
1418	Pavement Striping (LS)	0"	1	EA	0		0	
1419	Tactile Warning Strip	0"	33	LF	66	SF	0	
1421	MOT During Construction	0"	1	EA	0		0	
1422	Platform Components (Compact)	0"	1	EA	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1424	Variable Depth Concrete Ramp	0"	93	SF	0		0	
1426	New Variable Asphalt Patch - Road	0"	87	LF	174	SF	0	
1429	Restore Sod	0"	55	LF	333	SF	0	
1430	Restore Sod (SF)	0"	33	SF	0		0	
1436	Replace Brick Pavers	0"	48	SF	0		0	
REMOVALS - PLATFORM #56 (EB) ALT #2 (DEMP-SKOK)								
(unassigned)								
1440	Sawcut Full Depth Pvmt	0"	83	LF	0		0	
1441	Sawcut 4" Asphalt Pvmt	0"	91	LF	0		0	
1442	Remove Variable Asphalt - Road	0"	87	LF	174	SF	0	
1443	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1444	Sawcut Sidewalk	0"	19	LF	0		0	
1445	Remove Full Depth Pvmt (EA)	0"	1	EA	690	SF	0	
1448	Sawcut Curb	0"	2	EA	0		0	
1449	Remove Tree	0"	2	EA	0		0	
1453	Remove Concrete Sidewalk & Driveway	0"	561	SF	0		0	
1454	Relocate Existing Sign	0"	1	EA	0		0	
1455	Salvage Brick Pavers	0"	196	SF	0		0	
PROPOSED - PLATFORM #60 (EB) ALT #1 (DEE)								
(unassigned)								
618	Concrete Bus Pad (13') per EA	0"	1	EA	780	SF	146	LF
619	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
621	Steel Tube Railing	0"	51	LF	0		0	
622	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
623	12" PCCP Platform Pad with Heating System	0"	420	SF	0		0	
624	5" Concrete Sidewalk	0"	633	SF	0		0	
625	Underground Electric Service Conduit & Wire	0"	129	LF	0		0	
626	Silt Fence	0"	145	LF	0		0	
627	6" Bus Curb	0"	120	LF	0		0	
628	Pavement Striping (LS)	0"	1	EA	0		0	
629	Tactile Warning Strip	0"	40	LF	80	SF	0	
630	Landscape Strip	0"	60	LF	90	SF	0	
631	MOT During Construction	0"	1	EA	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
632	Platform Components (Typical)	0"	1	EA	0		0	
633	Adjust Storm Inlet	0"	1	EA	0		0	
634	Variable Depth Concrete Ramp	0"	160	SF	0		0	
636	New Variable Asphalt Patch - Road	0"	90	LF	180	SF	0	
637	Storm Inlet Protection	0"	3	EA	0		0	
639	Restore Sod	0"	143	LF	861	SF	0	
640	Restore Sod (SF)	0"	656	SF	0		0	
REMOVALS - PLATFORM #60 (EB) ALT #1 (DEE)								
(unassigned)								
644	Sawcut Full Depth Pvmt	0"	86	LF	0		0	
645	Sawcut 4" Asphalt Pvmt	0"	94	LF	0		0	
646	Remove Variable Asphalt - Road	0"	90	LF	180	SF	0	
647	Remove Curb & Gutter	0"	60	LF	90	SF	0	
648	Sawcut Sidewalk	0"	24	LF	0		0	
649	Remove Full Depth Pvmt (EA)	0"	1	EA	780	SF	0	
652	Sawcut Curb	0"	2	EA	0		0	
657	Remove Concrete Sidewalk & Driveway	0"	315	SF	0		0	
PROPOSED - PLATFORM #61 (EB) ALT #1 (CUMBERLAND)								
(unassigned)								
785	Concrete Bus Pad (14') per EA	0"	1	EA	720	SF	144	LF
786	Curb & Gutter Type B-24.12	0"	60	LF	150	SF	0	
788	Steel Tube Railing	0"	51	LF	0		0	
789	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
790	12" PCCP Platform Pad with Heating System	0"	540	SF	0		0	
791	5" Concrete Sidewalk	0"	281	SF	0		0	
792	Underground Electric Service Conduit & Wire	0"	73	LF	0		0	
793	Silt Fence	0"	18	LF	0		0	
794	6" Bus Curb	0"	60	LF	0		0	
795	Pavement Striping (LS)	0"	1	EA	0		0	
796	Tactile Warning Strip	0"	40	LF	80	SF	0	
798	MOT During Construction	0"	1	EA	0		0	
799	Platform Components (Typical)	0"	1	EA	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
801	Variable Depth Concrete Ramp	0"	200	SF	0		0	
803	New Variable Asphalt Patch - Road	0"	88	LF	176	SF	0	
804	Storm Inlet Protection	0"	1	EA	0		0	
806	Restore Sod	0"	18	LF	107	SF	0	
807	Restore Sod (SF)	0"	600	SF	0		0	
808	Adjust Manholes	0"	2	EA	0		0	
REMOVALS - PLATFORM #61 (EB) ALT #1 (CUMBERLAND)								
(unassigned)								
810	Remove Existing Pace Sign	0"	1	EA	0		0	
811	Sawcut Full Depth Pvmt	0"	84	LF	0		0	
812	Sawcut 4" Asphalt Pvmt	0"	92	LF	0		0	
813	Remove Variable Asphalt - Road	0"	88	LF	176	SF	0	
814	Remove Curb & Gutter	0"	60	LF	150	SF	0	
816	Remove Full Depth Pvmt (EA)	0"	1	EA	720	SF	0	
819	Sawcut Curb	0"	2	EA	0		0	
PROPOSED - PLATFORM #62 (WB) ALT #1 (CUMBERLAND)								
(unassigned)								
743	Concrete Bus Pad (14') per EA	0"	1	EA	720	SF	144	LF
744	Curb & Gutter Type B-24.12	0"	60	LF	150	SF	0	
746	Steel Tube Railing	0"	53	LF	0		0	
747	Electric Service Connection on Existing Pole	0"	1	EA	0		0	
748	12" PCCP Platform Pad with Heating System	0"	642	SF	0		0	
749	5" Concrete Sidewalk	0"	324	SF	0		0	
750	Underground Electric Service Conduit & Wire	0"	18	LF	0		0	
751	Silt Fence	0"	109	LF	0		0	
753	Pavement Striping (LS)	0"	1	EA	0		0	
754	Tactile Warning Strip	0"	40	LF	80	SF	0	
756	MOT During Construction	0"	1	EA	0		0	
757	Platform Components (Typical)	0"	1	EA	0		0	
758	Adjust Storm Inlet	0"	1	EA	0		0	
759	Variable Depth Concrete Ramp	0"	258	SF	0		0	
761	New Variable Asphalt Patch - Road	0"	88	LF	176	SF	0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
762	Storm Inlet Protection	0"	1	EA	0		0	
765	Restore Sod (SF)	0"	156	SF	0		0	
REMOVALS - PLATFORM #62 (WB) ALT #1 (CUMBERLAND)								
(unassigned)								
768	Remove Existing Pace Sign	0"	1	EA	0		0	
769	Sawcut Full Depth Pvmt	0"	84	LF	0		0	
770	Sawcut 4" Asphalt Pvmt	0"	92	LF	0		0	
771	Remove Variable Asphalt - Road	0"	88	LF	176	SF	0	
772	Remove Curb & Gutter	0"	60	LF	150	SF	0	
773	Sawcut Sidewalk	0"	12	LF	0		0	
774	Remove Full Depth Pvmt (EA)	0"	1	EA	720	SF	0	
777	Sawcut Curb	0"	2	EA	0		0	
782	Remove Concrete Sidewalk & Driveway	0"	472	SF	0		0	
PROPOSED - PLATFORM #63 (EB) ALT #1 (HARLEM)								
(unassigned)								
1045	Restore Landscape Area	0"	240	SF	0		0	
1046	Concrete Bus Pad (14') per EA	0"	1	EA	780	SF	146	LF
1047	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1049	Steel Tube Railing	0"	44	LF	0		0	
1050	Electric Service Connection on Existing Pole	0"	1	EA	0		0	
1051	12" PCCP Platform Pad with Heating System	0"	404	SF	0		0	
1052	5" Concrete Sidewalk	0"	204	SF	0		0	
1053	Underground Electric Service Conduit & Wire	0"	69	LF	0		0	
1055	6" Bus Curb	0"	60	LF	0		0	
1056	Pavement Striping (LS)	0"	1	EA	0		0	
1057	Tactile Warning Strip	0"	33	LF	66	SF	0	
1059	MOT During Construction	0"	1	EA	0		0	
1060	Platform Components (Compact)	0"	1	EA	0		0	
1062	Variable Depth Concrete Ramp	0"	84	SF	0		0	
1064	New Variable Asphalt Patch - Road	0"	88	LF	176	SF	0	
1065	Storm Inlet Protection	0"	1	EA	0		0	
1070	Curb 6"	0"	3	LF	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1095	New 4" Asphalt Patch - Parking	0"	171	SF	0		0	
REMOVALS - PLATFORM #63 (EB) ALT #1 (HARLEM)								
(unassigned)								
1074	Remove Existing Pace Sign	0"	1	EA	0		0	
1075	Sawcut Full Depth Pvmt	0"	84	LF	0		0	
1076	Sawcut 4" Asphalt Pvmt	0"	161	LF	0		0	
1077	Remove Variable Asphalt - Road	0"	88	LF	176	SF	0	
1078	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1079	Sawcut Sidewalk	0"	14	LF	0		0	
1080	Remove Full Depth Pvmt (EA)	0"	1	EA	720	SF	0	
1083	Sawcut Curb	0"	2	EA	0		0	
1087	Remove Trash Receptacle	0"	1	EA	0		0	
1088	Remove Concrete Sidewalk & Driveway	0"	542	SF	0		0	
1090	Remove Bench	0"	1	EA	0		0	
1091	Remove Single Curb	0"	21	LF	11	SF	0	
1092	Remove 4" Asphalt - Parking	0"	334	SF	0		0	
1093	Remove Parking Curb	0"	4	EA	0	LF	0	
REMOVALS - PLATFORM #64 (WB) ALT #1 (HARLEM)								
(unassigned)								
1096	Remove 4" Asphalt - Parking	0"	263	SF	0		0	
1121	Sawcut Full Depth Pvmt	0"	86	LF	0		0	
1122	Sawcut 4" Asphalt Pvmt	0"	147	LF	0		0	
1123	Remove Variable Asphalt - Road	0"	90	LF	180	SF	0	
1124	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1125	Sawcut Sidewalk	0"	11	LF	0		0	
1126	Remove Full Depth Pvmt (EA)	0"	1	EA	780	SF	0	
1129	Sawcut Curb	0"	2	EA	0		0	
1134	Remove Concrete Sidewalk & Driveway	0"	357	SF	0		0	
1136	Remove Single Curb	0"	49	LF	24	SF	0	
1137	Remove Landscape Area	0"	147	SF	0		0	
PROPOSED - PLATFORM #64 (WB) ALT #1 (HARLEM)								
(unassigned)								

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1138	Restore Landscape Area	0"	50	SF	0		0	
1139	Concrete Bus Pad (14') per EA	0"	1	EA	780	SF	146	LF
1140	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1141	Adjust Utility Frame	0"	1	EA	0		0	
1142	Steel Tube Railing	0"	50	LF	0		0	
1143	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1144	12" PCCP Platform Pad with Heating System	0"	406	SF	0		0	
1145	5" Concrete Sidewalk	0"	122	SF	0		0	
1146	Underground Electric Service Conduit & Wire	0"	39	LF	0		0	
1148	6" Bus Curb	0"	60	LF	0		0	
1149	Pavement Striping (LS)	0"	1	EA	0		0	
1150	Tactile Warning Strip	0"	33	LF	66	SF	0	
1152	MOT During Construction	0"	1	EA	0		0	
1153	Platform Components (Compact)	0"	1	EA	0		0	
1155	Variable Depth Concrete Ramp	0"	60	SF	0		0	
1157	New Variable Asphalt Patch - Road	0"	90	LF	180	SF	0	
1158	Storm Inlet Protection	0"	1	EA	0		0	
1162	Adjust Catch Basin	0"	1	EA	0		0	
1163	Curb 6"	0"	16	LF	0		0	
1164	Bollards	0"	6	EA	0		0	
1166	New 4" Asphalt Patch - Parking	0"	133	SF	0		0	
REMOVALS - PLATFORM #66 (WB) ALT #2 (WAUKEGAN)								
(unassigned)								
1214	Remove Existing Pace Sign	0"	1	EA	0		0	
1215	Sawcut Full Depth Pvmt	0"	82	LF	0		0	
1216	Sawcut 4" Asphalt Pvmt	0"	90	LF	0		0	
1217	Remove Variable Asphalt - Road	0"	86	LF	172	SF	0	
1218	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1219	Sawcut Sidewalk	0"	18	LF	0		0	
1220	Remove Full Depth Pvmt (EA)	0"	1	EA	660	SF	0	
1222	Remove & Relocate Underground Electric	0"	87	LF	0		0	
1223	Sawcut Curb	0"	2	EA	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1225	Relocate Light Pole	0"	1	EA	0		0	
1228	Remove Concrete Sidewalk & Driveway	0"	791	SF	0		0	
PROPOSED - PLATFORM #66 (WB) ALT #2 (WAUKEGAN)								
(unassigned)								
1231	Concrete Bus Pad (12') per EA	0"	1	EA	660	SF	142	LF
1232	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1234	Steel Tube Railing	0"	50	LF	0		0	
1235	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1236	12" PCCP Platform Pad with Heating System	0"	419	SF	0		0	
1237	5" Concrete Sidewalk	0"	251	SF	0		0	
1238	Underground Electric Service Conduit & Wire	0"	88	LF	0		0	
1239	Silt Fence	0"	113	LF	0		0	
1240	6" Bus Curb	0"	60	LF	0		0	
1241	Pavement Striping (LS)	0"	1	EA	0		0	
1242	Tactile Warning Strip	0"	40	LF	80	SF	0	
1244	MOT During Construction	0"	1	EA	0		0	
1245	Platform Components (Typical)	0"	1	EA	0		0	
1247	Variable Depth Concrete Ramp	0"	171	SF	0		0	
1249	New Variable Asphalt Patch - Road	0"	86	LF	172	SF	0	
1250	Storm Inlet Protection	0"	1	EA	0		0	
1252	Restore Sod	0"	89	LF	535	SF	0	
1253	Restore Sod (SF)	0"	50	SF	0		0	
PROPOSED - PLATFORM #68 (WB) ALT #1 (MILWAUKEE)								
(unassigned)								
561	Bollards	0"	7	EA	0		0	
870	Concrete Bus Pad (10') per EA	0"	1	EA	540	SF	138	LF
871	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
873	Steel Tube Railing	0"	43	LF	0		0	
874	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
875	12" PCCP Platform Pad with Heating System	0"	346	SF	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
876	5" Concrete Sidewalk	0"	390	SF	0		0	
877	Underground Electric Service Conduit & Wire	0"	61	LF	0		0	
879	6" Bus Curb	0"	60	LF	0		0	
880	Pavement Striping (LS)	0"	1	EA	0		0	
881	Tactile Warning Strip	0"	33	LF	66	SF	0	
883	MOT During Construction	0"	1	EA	0		0	
884	Platform Components (Compact)	0"	1	EA	0		0	
886	Variable Depth Concrete Ramp	0"	72	SF	0		0	
888	New Variable Asphalt Patch - Road	0"	153	LF	307	SF	0	
889	Storm Inlet Protection	0"	1	EA	0		0	
REMOVALS - PLATFORM #68 (WB) ALT #1 (MILWAUKEE)								
(unassigned)								
897	Sawcut Full Depth Pvmt	0"	78	LF	0		0	
898	Sawcut 4" Asphalt Pvmt	0"	159	LF	0		0	
899	Remove Variable Asphalt - Road	0"	82	LF	164	SF	0	
900	Remove Curb & Gutter	0"	60	LF	90	SF	0	
901	Sawcut Sidewalk	0"	12	LF	0		0	
902	Remove Full Depth Pvmt (EA)	0"	1	EA	540	SF	0	
905	Sawcut Curb	0"	2	EA	0		0	
910	Remove Concrete Sidewalk & Driveway	0"	662	SF	0		0	
1097	Remove 4" Asphalt Parking	0"	309	SF	0		0	
PROPOSED - PLATFORM #70 (WB) ALT #2 (DEE)								
(unassigned)								
577	Concrete Bus Pad (13') per EA	0"	1	EA	780	SF	146	LF
578	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
580	Steel Tube Railing	0"	52	LF	0		0	
581	Electric Service Connection on Existing Pole	0"	1	EA	0		0	
582	12" PCCP Platform Pad with Heating System	0"	543	SF	0		0	
583	5" Concrete Sidewalk	0"	356	SF	0		0	
584	Underground Electric Service Conduit & Wire	0"	34	LF	0		0	
585	Silt Fence	0"	95	LF	0		0	
586	6" Bus Curb	0"	60	LF	0		0	

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PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
587	Pavement Striping (LS)	0"	1	EA	0		0	
588	Tactile Warning Strip	0"	40	LF	80	SF	0	
590	MOT During Construction	0"	1	EA	0		0	
591	Platform Components (Typical)	0"	1	EA	0		0	
592	Adjust Storm Inlet	0"	2	EA	0		0	
593	Variable Depth Concrete Ramp	0"	230	SF	0		0	
595	New Variable Asphalt Patch - Road	0"	90	LF	180	SF	0	
596	Storm Inlet Protection	0"	3	EA	0		0	
599	Restore Sod (SF)	0"	642	SF	0		0	
REMOVALS - PLATFORM #70 (WB) ALT #2 (DEE)								
(unassigned)								
602	Remove Existing Pace Sign	0"	1	EA	0		0	
603	Sawcut Full Depth Pvmt	0"	86	LF	0		0	
604	Sawcut 4" Asphalt Pvmt	0"	94	LF	0		0	
605	Remove Variable Asphalt - Road	0"	90	LF	180	SF	0	
606	Remove Curb & Gutter	0"	60	LF	90	SF	0	
607	Sawcut Sidewalk	0"	6	LF	0		0	
608	Remove Full Depth Pvmt (EA)	0"	1	EA	780	SF	0	
611	Sawcut Curb	0"	2	EA	0		0	
614	Remove Existing Shelter	0"	1	EA	0		0	
615	Remove Trash Receptacle	0"	1	EA	0		0	
616	Remove Concrete Sidewalk & Driveway	0"	627	SF	0		0	
PROPOSED - PLATFORM #73 (WB) ALT #3A (DES PLAINES)								
(unassigned)								
446	Concrete Bus Pad (10') per EA	0"	1	EA	480	SF	136	LF
447	Curb & Gutter Type B-24.12	0"	66	LF	165	SF	0	
449	Steel Tube Railing	0"	51	LF	0		0	
450	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
451	12" PCCP Platform Pad with Heating System	0"	407	SF	0		0	
452	5" Concrete Sidewalk	0"	43	SF	0		0	
453	Underground Electric Service Conduit & Wire	0"	98	LF	0		0	

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
454	Silt Fence	0"	88	LF	0		0	
455	6" Bus Curb	0"	60	LF	0		0	
456	Pavement Striping (LS)	0"	1	EA	0		0	
457	Tactile Warning Strip	0"	40	LF	80	SF	0	
459	MOT During Construction	0"	1	EA	0		0	
460	Platform Components (Typical)	0"	1	EA	0		0	
462	Variable Depth Concrete Ramp	0"	160	SF	0		0	
464	New Variable Asphalt Patch - Road	0"	80	LF	160	SF	0	
465	Storm Inlet Protection	0"	1	EA	0		0	
467	Restore Sod	0"	81	LF	485	SF	0	
488	Restore Concrete Paver Sidewalk	0"	140	SF	0		0	
489	Restore Brick Sidewalk	0"	149	SF	0		0	
REMOVALS - PLATFORM #73 (WB) ALT #3A (DES PLAINES)								
(unassigned)								
472	Salvage Decorative Brick Sidewalk	0"	553	SF	0		0	
473	Sawcut Full Depth Pvmt	0"	76	LF	0		0	
474	Sawcut 4" Asphalt Pvmt	0"	84	LF	0		0	
475	Remove Variable Asphalt - Road	0"	80	LF	160	SF	0	
476	Remove Curb & Gutter	0"	66	LF	165	SF	0	
478	Remove Full Depth Pvmt (EA)	0"	1	EA	480	SF	0	
480	Remove & Relocate Underground Electric	0"	75	LF	0		0	
481	Sawcut Curb	0"	2	EA	0		0	
482	Remove Tree	0"	2	EA	0		0	
483	Relocate Light Pole	0"	1	EA	0		0	
487	Salvage Concrete Paver Sidewalk	0"	360	SF	0		0	
PROPOSED - PLATFORM #73 (WB) ALT #3B (DES PLAINES)								
(unassigned)								
491	Curb & Gutter Type B-24.12	0"	214	LF	535	SF	0	
493	Steel Tube Railing	0"	98	LF	0		0	
494	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
495	12" PCCP Platform Pad with Heating System	0"	1,261	SF	0		0	
496	5" Concrete Sidewalk	0"	51	SF	0		0	

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
497	Underground Electric Service Conduit & Wire	0"	78	LF	0		0	
498	Silt Fence	0"	81	LF	0		0	
499	6" Bus Curb	0"	206	LF	0		0	
500	Pavement Striping (LS)	0"	1	EA	0		0	
501	Tactile Warning Strip	0"	120	LF	240	SF	0	
503	MOT During Construction	0"	1	EA	0		0	
504	Platform Components (Typical)	0"	3	EA	0		0	
	Only (1) each vertical marker, bike reack and electrical cabinet							
506	Variable Depth Concrete Ramp	0"	160	SF	0		0	
507	Concrete Bus Pad (SF)	0"	2,048	SF	0		0	
508	New Variable Asphalt Patch - Road	0"	200	LF	401	SF	0	
509	Storm Inlet Protection	0"	1	EA	0		0	
511	Restore Sod	0"	70	LF	420	SF	0	
512	Restore Sod (SF)	0"	34	SF	0		0	
515	Restore Concrete Paver Sidewalk	0"	194	SF	0		0	
516	Restore Brick Sidewalk	0"	54	SF	0		0	

REMOVALS - PLATFORM #73 (WB) ATL #3B (DES PLAINES)

(unassigned)

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
420	Remove Decorative Planter & Plantings	0"	1	EA	0		0	
518	Salvage Decorative Brick Sidewalk	0"	972	SF	0		0	
519	Sawcut Full Depth Pvmt	0"	199	LF	0		0	
520	Sawcut 4" Asphalt Pvmt	0"	205	LF	0		0	
521	Remove Variable Asphalt - Road	0"	200	LF	401	SF	0	
522	Remove Curb & Gutter	0"	205	LF	514	SF	0	
526	Remove & Relocate Underground Electric	0"	192	LF	0		0	
527	Sawcut Curb	0"	2	EA	0		0	
528	Remove Tree	0"	2	EA	0		0	
529	Relocate Light Pole	0"	4	EA	0		0	
532	Salvage Concrete Paver Sidewalk	0"	2,650	SF	0		0	

PROPOSED - PLATFORM #74 (WB) ALT #2 (LINCOLNWOOD)

(unassigned)

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1716	Restore Landscape Area	0"	86	SF	0		0	
1717	Concrete Bus Pad (12') per EA	0"	1	EA	660	SF	142	LF

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
1718	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
1720	Steel Tube Railing	0"	62	LF	0		0	
1721	Electric Service Connection on Existing Underground	0"	1	EA	0		0	
1722	12" PCCP Platform Pad with Heating System	0"	428	SF	0		0	
1723	5" Concrete Sidewalk	0"	543	SF	0		0	
1724	Underground Electric Service Conduit & Wire	0"	124	LF	0		0	
1726	6" Bus Curb	0"	60	LF	0		0	
1727	Pavement Striping (LS)	0"	1	EA	0		0	
1728	Tactile Warning Strip	0"	33	LF	66	SF	0	
1730	MOT During Construction	0"	1	EA	0		0	
1731	Platform Components (Compact)	0"	1	EA	0		0	
1733	Variable Depth Concrete Ramp	0"	72	SF	0		0	
1735	New Variable Asphalt Patch - Road	0"	86	LF	172	SF	0	
1736	Storm Inlet Protection	0"	1	EA	0		0	
1740	Adjust Catch Basin	0"	1	EA	0		0	
1741	Curb 6"	0"	6	LF	0		0	
1742	Bollards	0"	7	EA	0		0	
1744	New 4" Asphalt Patch - Parking	0"	131	SF	0		0	
REMOVALS - PLATFORM #74 (WB) ALT #2 (LINCOLNWOOD)								
(unassigned)								
1747	Remove 4" Asphalt - Parking	0"	286	SF	0		0	
1748	Remove Landscape Area	0"	182	SF	0		0	
1751	Sawcut Full Depth Pvmt	0"	82	LF	0		0	
1752	Sawcut 4" Asphalt Pvmt	0"	143	LF	0		0	
1753	Remove Variable Asphalt - Road	0"	86	LF	172	SF	0	
1754	Remove Curb & Gutter	0"	60	LF	90	SF	0	
1755	Sawcut Sidewalk	0"	12	LF	0		0	
1756	Remove Full Depth Pvmt (EA)	0"	1	EA	660	SF	0	
1759	Sawcut Curb	0"	2	EA	0		0	
1760	Remove Tree	0"	1	EA	0		0	
1764	Remove Concrete Sidewalk & Driveway	0"	820	SF	0		0	
1767	Remove Single Curb	0"	38	LF	19	SF	0	

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
PROPOSED - PLATFORM #75 (NB) ALT #1 (MANN/HIGGINS)								
(unassigned)								
1	Concrete Bus Pad (15')	0"	1	EA	840	SF	148	LF
2	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
6	Adjust Storm MH	0"	1	EA	0		0	
7	Steel Tube Railing	0"	58	LF	0		0	
8	Electric Service Connection on Exsting Pole	0"	1	EA	0		0	
11	12" PCCP Platform Pad with Heating System	0"	568	SF	0		0	
13	5" Concrete Sidewalk	0"	233	SF	0		0	
14	Underground Electric Service Conduit & Wire	0"	160	LF	0		0	
19	Silt Fence	0"	206	LF	0		0	
20	6" Bus Curb	0"	60	LF	0		0	
21	Pavement Striping (LS)	0"	1	EA	0		0	
23	Tactile Warning Strip	0"	40	LF	80	SF	0	
26	MOT During Construction	0"	1	EA	0		0	
28	Platform Components (Typical)	0"	1	EA	0		0	
33	Adjust Storm Inlet	0"	1	EA	0		0	
36	Variable Depth Concrete Ramp	0"	120	SF	0		0	
64	New Variable Asphalt Patch - Road	0"	92	LF	184	SF	0	
121	Storm Inlet Protection	0"	1	EA	0		0	
188	Restore Sod	0"	94	LF	562	SF	0	
189	Restore Sod (SF)	0"	591	SF	0		0	
REMOVALS - PLATFORM #75 (NB) ALT #1 (MANN/HIGGINS)								
(unassigned)								
18	Remove Concrete Sidewalk & Driveway	0"	531	SF	0		0	
29	Sawcut Full Depth Pvmt	0"	90	LF	0		0	
30	Sawcut 4" Asphalt Pvmt	0"	96	LF	0		0	
31	Remove Variable Asphalt - Road	0"	92	LF	184	SF	0	
32	Remove Curb & Gutter	0"	60	LF	90	SF	0	
34	Sawcut Sidewalk	0"	12	LF	0		0	
35	Remove Full Depth Pvmt	0"	1	EA	870	SF	0	
199	Sawcut Curb	0"	2	EA	0		0	
PROPOSED - PLATFORM #76 (SB) ALT #1 (MANN/HIGGINS)								
(unassigned)								

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
38	Curb & Gutter Type B-12.12	0"	60	LF	90	SF	0	
40	Steel Tube Railing	0"	86	LF	0		0	
41	Electric Service Connection on New Pole	0"	1	EA	0		0	
42	12" PCCP Platform Pad with Heating System	0"	730	SF	0		0	
43	5" Concrete Sidewalk	0"	234	SF	0		0	
44	Underground Electric Service Conduit & Wire	0"	21	LF	0		0	
45	Silt Fence	0"	106	LF	0		0	
46	6" Bus Curb	0"	60	LF	0		0	
47	Pavement Striping (LS)	0"	1	EA	0		0	
48	Tactile Warning Strip	0"	40	LF	80	SF	0	
50	MOT During Construction	0"	1	EA	0		0	
51	Platform Components (Typical)	0"	1	EA	0		0	
53	Variable Depth Concrete Ramp	0"	119	SF	0		0	
63	Concrete Bus Pad (SF)	0"	629	SF	0		0	
65	New Variable Asphalt Patch - Road	0"	85	LF	170	SF	0	
185	Restore Sod	0"	36	LF	216	SF	0	
187	Restore Sod (SF)	0"	362	SF	0		0	
REMOVALS - PLATFORM #76 (SB) ALT #1 (MANN/HIGGINS)								
(unassigned)								
54	Remove Concrete Sidewalk & Driveway	0"	499	SF	0		0	
55	Sawcut Full Depth Pvmt	0"	81	LF	0		0	
56	Sawcut 4" Asphalt Pvmt	0"	90	LF	0		0	
57	Remove Variable Asphalt - Road	0"	86	LF	171	SF	0	
58	Remove Curb & Gutter	0"	60	LF	90	SF	0	
59	Sawcut Sidewalk	0"	12	LF	0		0	
61	Remove Full Depth Pvmt (SF)	0"	688	SF	0		0	
200	Sawcut Curb	0"	2	EA	0		0	
PROPOSED - PLATFORM #77 (SB) ALT #2 (MANN/HIGGINS)								
(unassigned)								
66	Concrete Bus Pad (10') per EA	0"	1	EA	540	SF	138	LF
67	Curb & Gutter Type B-24.12	0"	60	LF	150	SF	0	
68	Adjust Storm CB	0"	1	EA	0		0	

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
69	Steel Tube Railing	0"	36	LF	0		0	
70	Electric Service Connection on New Pole	0"	1	EA	0		0	
71	12" PCCP Platform Pad with Heating System	0"	420	SF	0		0	
72	5" Concrete Sidewalk	0"	204	SF	0		0	
73	Underground Electric Service Conduit & Wire	0"	68	LF	0		0	
74	Silt Fence	0"	95	LF	0		0	
75	6" Bus Curb	0"	60	LF	0		0	
76	Pavement Striping (LS)	0"	1	EA	0		0	
77	Tactile Warning Strip	0"	40	LF	80	SF	0	
78	Landscape Strip	0"	50	LF	75	SF	0	
79	MOT During Construction	0"	1	EA	0		0	
80	Platform Components (Typical)	0"	1	EA	0		0	
82	Variable Depth Concrete Ramp	0"	108	SF	0		0	
84	New Variable Asphalt Patch - Road	0"	81	LF	162	SF	0	
123	Storm Inlet Protection	0"	1	EA	0		0	
191	Restore Sod (SF)	0"	767	SF	0		0	
REMOVALS - PLATFORM #77 (SB) ALT #2 (MANN/HIGGINS)								
(unassigned)								
105	Sawcut Full Depth Pvmt	0"	78	LF	0		0	
106	Sawcut 4" Asphalt Pvmt	0"	85	LF	0		0	
107	Remove Variable Asphalt - Road	0"	81	LF	162	SF	0	
108	Remove Curb & Gutter	0"	60	LF	149	SF	0	
110	Remove Full Depth Pvmt (EA)	0"	1	EA	540	SF	0	
124	Remove & Relocate Underground Electric	0"	71	LF	0		0	
202	Sawcut Curb	0"	2	EA	0		0	
PROPOSED - PLATFORM #78 (NB) ALT #2 (MANN/HIGGINS)								
(unassigned)								
85	Concrete Bus Pad (14') per EA	0"	1	EA	780	SF	146	LF
86	Curb & Gutter Type B-24.12	0"	60	LF	150	SF	0	
87	Adjust Utility Frame	0"	1	EA	0		0	
88	Steel Tube Railing	0"	45	LF	0		0	
89	Electric Service Connection on Existing Pole	0"	1	EA	0		0	

Takeoff Tab

PACE Dempster Line

Bid No. 19

No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
90	12" PCCP Platform Pad with Heating System	0"	400	SF	0		0	
91	5" Concrete Sidewalk	0"	149	SF	0		0	
92	Underground Electric Service Conduit & Wire	0"	9	LF	0		0	
93	Silt Fence	0"	100	LF	0		0	
94	6" Bus Curb	0"	60	LF	0		0	
95	Pavement Striping (LS)	0"	1	EA	0		0	
96	Tactile Warning Strip	0"	40	LF	80	SF	0	
97	Landscape Strip	0"	50	LF	75	SF	0	
98	MOT During Construction	0"	1	EA	0		0	
99	Platform Components (Typical)	0"	1	EA	0		0	
101	Variable Depth Concrete Ramp	0"	100	SF	0		0	
103	New Variable Asphalt Patch - Road	0"	90	LF	180	SF	0	
120	Storm Inlet Protection	0"	1	EA	0		0	
REMOVALS - PLATFORM #78 (NB) ALT #2 (MANN/HIGGINS)								
(unassigned)								
62	Relocate Existing Sign	0"	1	EA	0		0	
112	Remove Concrete Sidewalk & Driveway	0"	236	SF	0		0	
113	Sawcut Full Depth Pvmt	0"	88	LF	0		0	
114	Sawcut 4" Asphalt Pvmt	0"	94	LF	0		0	
115	Remove Variable Asphalt - Road	0"	90	LF	180	SF	0	
116	Remove Curb & Gutter	0"	60	LF	150	SF	0	
117	Sawcut Sidewalk	0"	6	LF	0		0	
119	Remove Full Depth Pvmt (SF)	0"	836	SF	0		0	
122	Remove & Relocate Underground Electric	0"	75	LF	0		0	
201	Sawcut Curb	0"	2	EA	0		0	
PROPOSED - PLATFORM #79 (EB) ALT #2 (CUMBERLAND)								
(unassigned)								
559	Relocate Storm Pipe Size not known - use 24" RCP	0"	12	LF	0		0	
827	Concrete Bus Pad (10') per EA	0"	1	EA	600	SF	140	LF
830	Steel Tube Railing	0"	52	LF	0		0	
831	Electric Service Connection on Existing Pole	0"	1	EA	0		0	
832	12" PCCP Platform Pad with Heating System	0"	421	SF	0		0	

Takeoff Tab

PACE Dempster Line

Bid No. 19

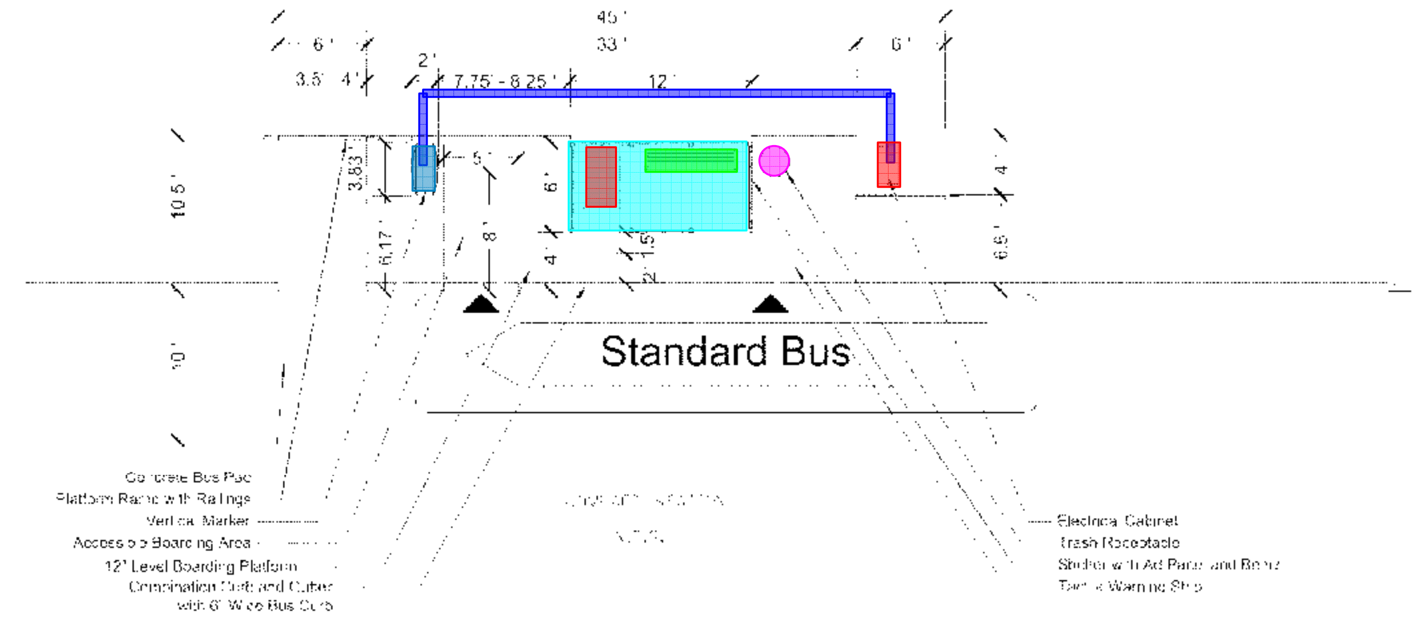
No.	Name	Height	Quantity1	UOM1	Quantity2	UOM2	Quantity3	UOM3
833	5" Concrete Sidewalk	0"	309	SF	0		0	
834	Underground Electric Service Conduit & Wire	0"	138	LF	0		0	
835	Silt Fence	0"	183	LF	0		0	
837	Pavement Striping (LS)	0"	1	EA	0		0	
838	Tactile Warning Strip	0"	40	LF	80	SF	0	
840	MOT During Construction	0"	1	EA	0		0	
841	Platform Components (Typical)	0"	1	EA	0		0	
842	Relocate Storm Catch Basin	0"	1	EA	0		0	
843	Variable Depth Concrete Ramp	0"	50	SF	0		0	
844	Concrete Bus Pad (SF)	0"	73	SF	0		0	
845	New Variable Asphalt Patch - Road	0"	109	LF	218	SF	0	
846	Storm Inlet Protection	0"	1	EA	0		0	
848	Restore Sod	0"	166	LF	997	SF	0	
849	Restore Sod (SF)	0"	91	SF	0		0	
REMOVALS - PLATFORM #79 (EB) ALT #2 (CUMBERLAND)								
(unassigned)								
558	Remove & Replace Chain Link Fence	0"	77	LF	0		0	
853	Sawcut Full Depth Pvmt	0"	104	LF	0		0	
854	Sawcut 4" Asphalt Pvmt	0"	113	LF	0		0	
855	Remove Variable Asphalt - Road	0"	109	LF	219	SF	0	
859	Remove Full Depth Pvmt (SF)	0"	715	SF	0		0	

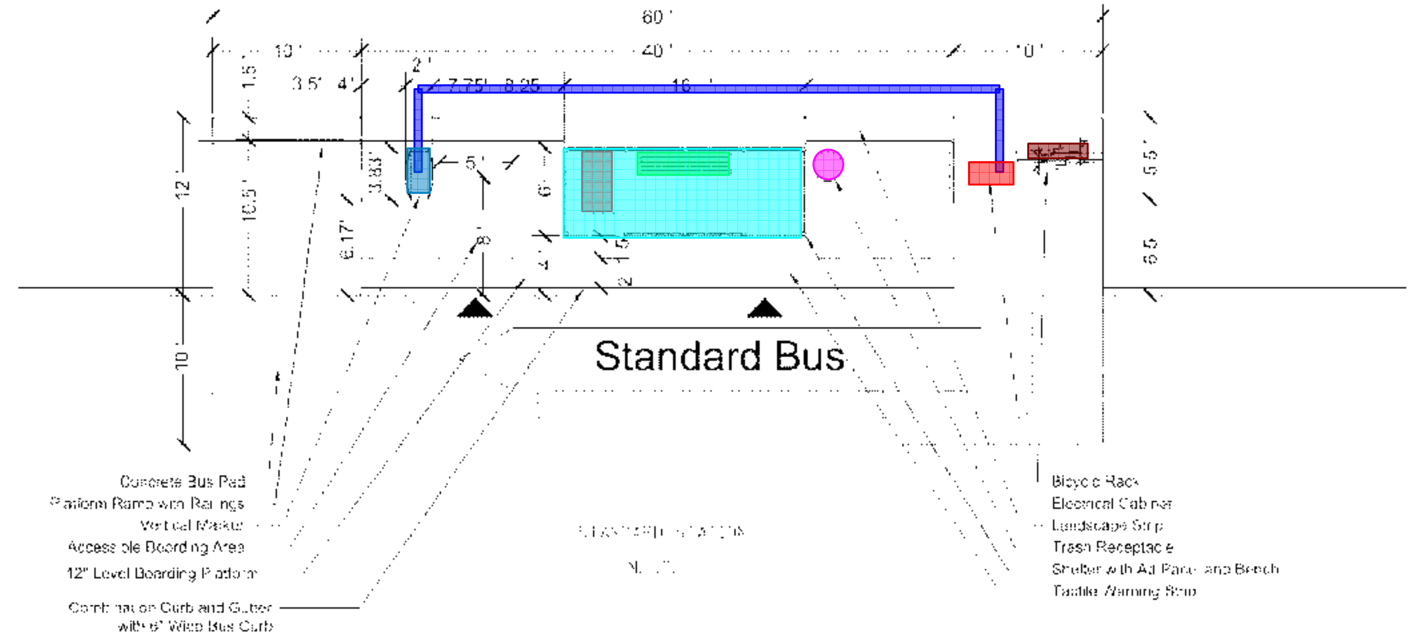
INDEX OF SHEETS

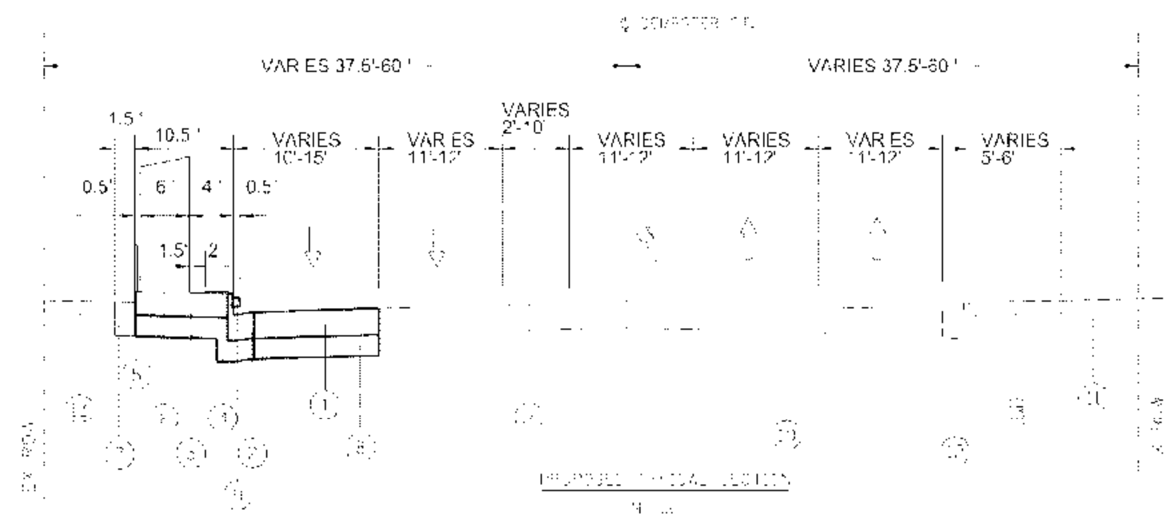
Station	Eastbound Alts. 1	2	3	4	Westbound Alts. 1	2	3	4
O'Hare					✓			
Mannheim/Higgins	✓	✓			✓	✓		
Lee/Touhy	E	✓	-	-	E	✓		
Lee Mannheim/Oakton	E	✓			E	✓		
Des Plaines Metra	✓	E	-	-	✓	✓	✓	-
Potter (Dee Alternate)	E	✓	-	-	✓	✓	-	-
Dee (Potter Alternate)	✓	E			✓	✓		
Luther	E	E			E	E		
Western	✓				✓			
Cumberland	✓	✓			✓			
Milwaukee	✓	E			✓	✓	✓	
Harlem	✓	-	-	-	✓	-	-	-
Waukegan	✓	-	-	-	E	✓	E	-
Austin	✓	-	-	-	✓	-	-	-
Dempster-Skokie CTA	E	✓	E	-	E	✓	-	-
Crawford	✓				E	E	✓	✓
Lincolnwood	✓	✓	E	-	✓	✓	E	-
Dodge	✓	E	E	-	✓	E	✓	E
Davis CTA/Metra	✓	-	-	-	-	-	-	-

✓ Included in Conceptual Station Improvement Plans
E Eliminated from

TYPICAL PLANS







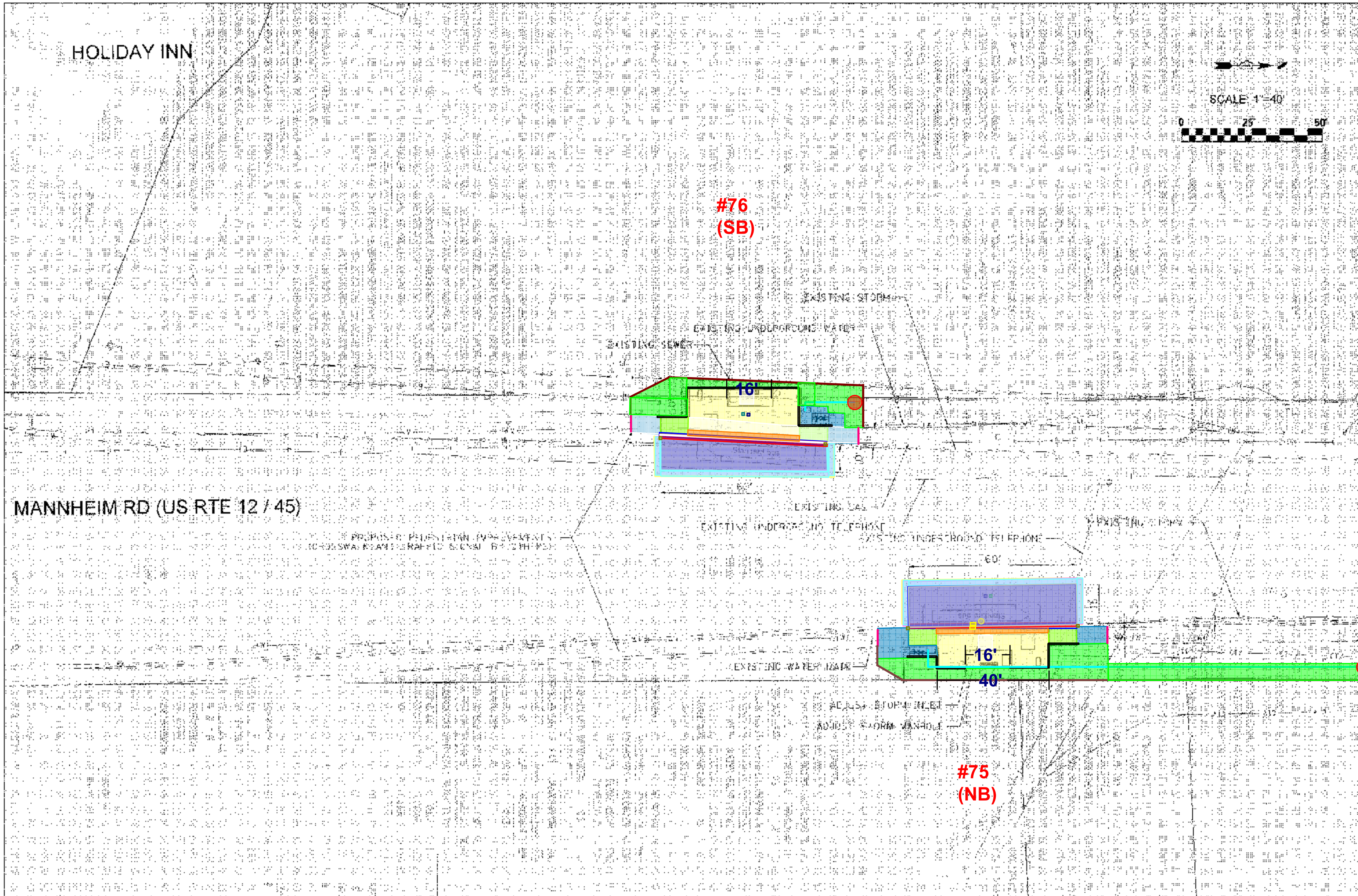
NOTE
ADDITIONAL STATION ELEMENTS NOT SHOWN INCLUDE VERTICAL MARKER, ELECTRICAL CABINET, BICYCLE RACK AND TRASH RECEPTACLE

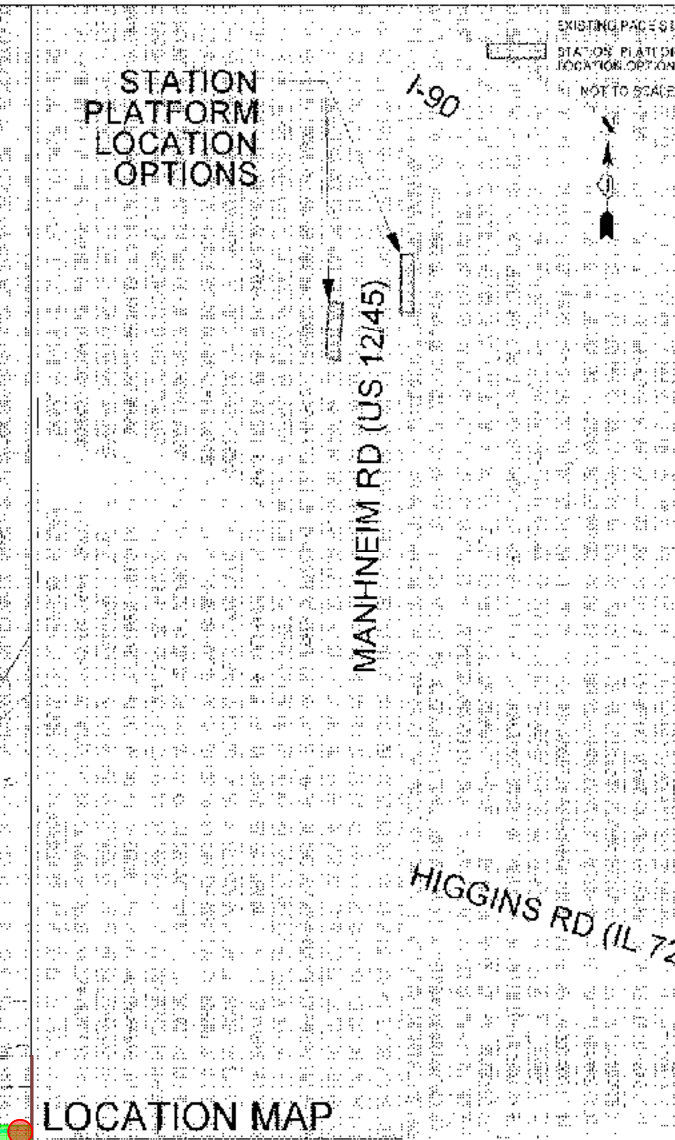
1 PROPOSED PCC BUS PAD, 10"
2 PROPOSED CONCRETE CURB & GUTTER
3 PROPOSED PCC RAISED BOARDING PLATFORM WITH HEATED SNOW MELT SYSTEM 12"
4 PROPOSED DETECTABLE WARNING
5 PROPOSED PLATFORM & RAMP RAILINGS
6 PROPOSED BUS SHELTER
7 PROPOSED LANDSCAPE STRIP
8 PROPOSED SUBBASE IMPROVEMENT
9 PROPOSED PLASTIC BUS CURB
10 EXISTING PAVEMENT
11 EXISTING GROUND
12 EXISTING CURB AND GUTTER
13 EXISTING SIDEWALK
14 EXISTING FLUSHED OR CURBED MEDIAN

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

DEMPSTER STREET PULSE STATION
INDEX OF SHEETS, TYPICAL SECTION AND STATION PLANS

CONTRACT NO. 56849





QUANTITIES

LEGEND

- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4"; HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 6"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

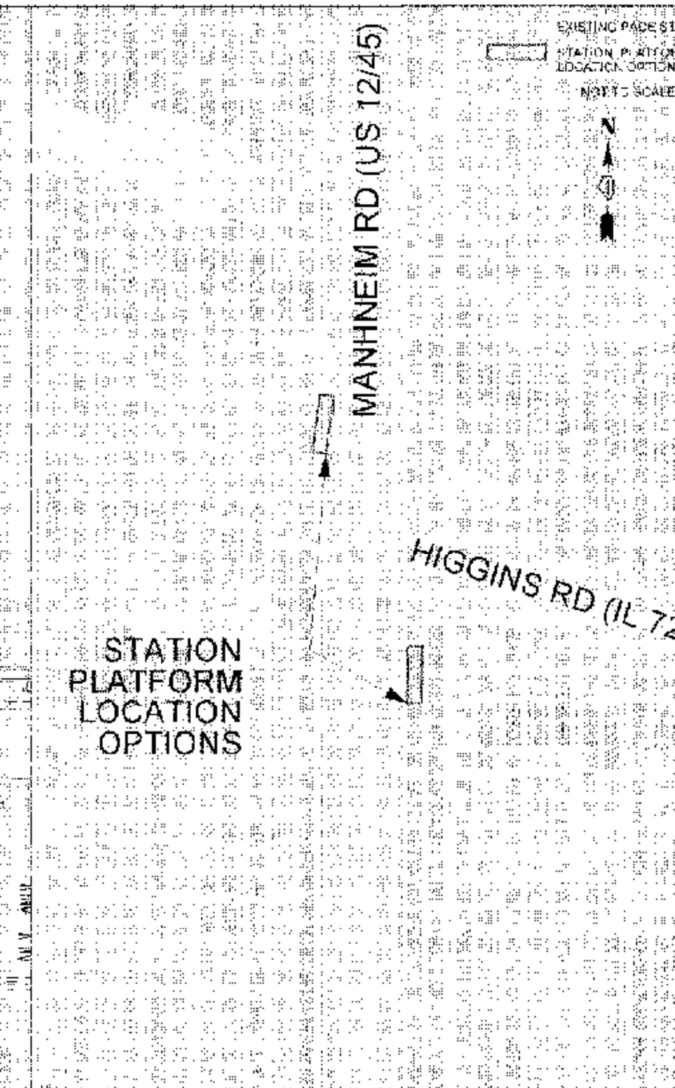
NOTES

1. AERIAL IS OUTDATED. IMPROVEMENTS TO MANNHEIM ROAD AND NEW DEVELOPMENT ON EAST SIDE OF MANNHEIM ROAD.
2. COORDINATE WITH IDOT FOR POTENTIAL TRAFFIC SIGNAL.
3. COORDINATE WITH VILLAGE OF ROSEMONT AND CITY OF DES PLAINES FOR PROPOSED STATIONS AND NEW DEVELOPMENT.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
MANNHEIM /HIGGINS:
NORTHBOUND ALT. 1 AND SOUTHBOUND ALT. 1

COUNTY
COOK
CONTRACT NO.



LOCATION MAP

QUANTITIES

NOTES

1. AERIAL IS OUTDATED. MANNHEIM ROAD AND HIGGINS ROAD IS CURRENTLY UNDER CONSTRUCTION.

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
MANNHEIM /HIGGINS:
NORTHBOUND ALT 2 AND SOUTHBOUND ALT 2

QUANTITIES

LEGEND

- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

NOTES

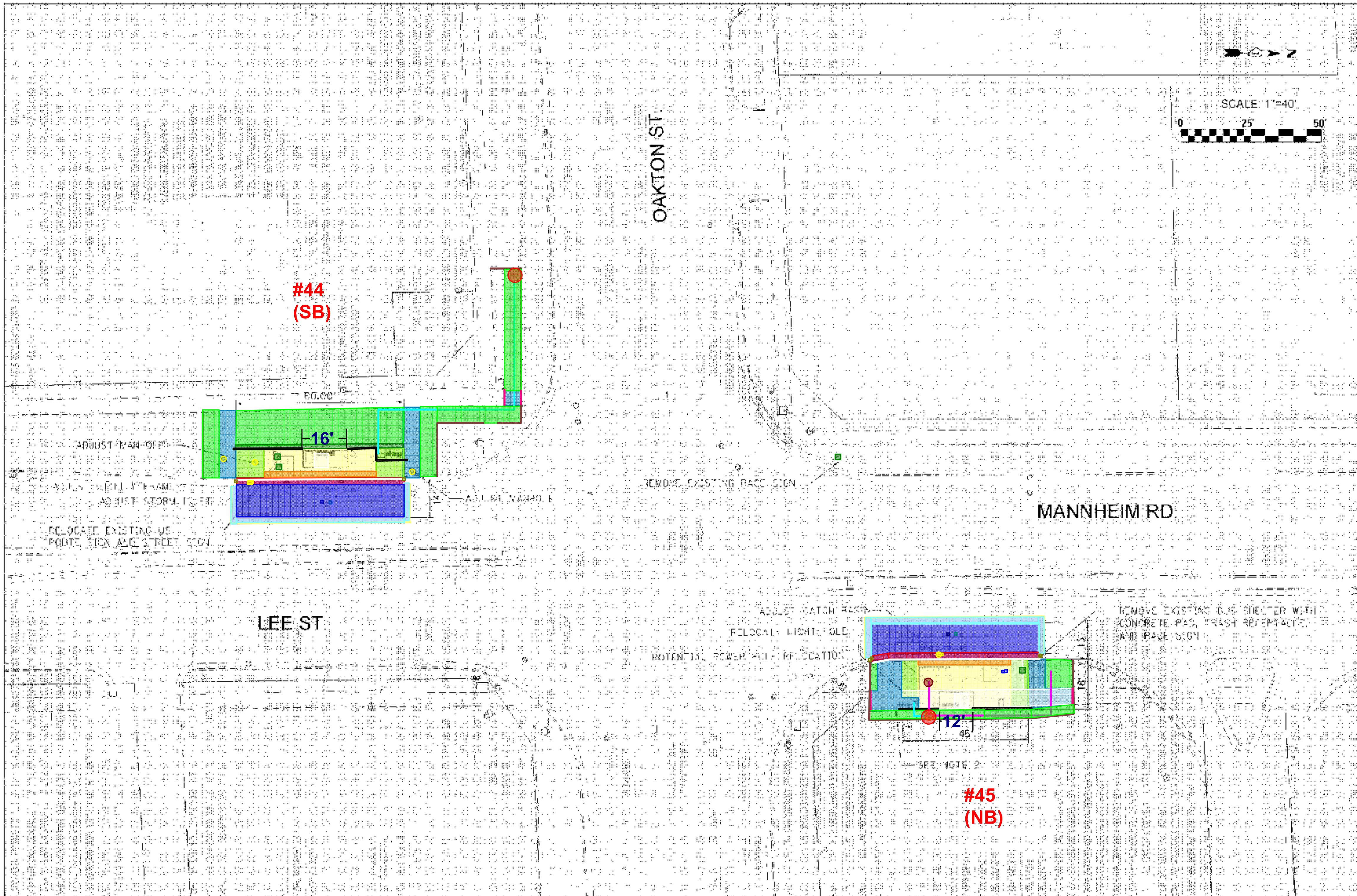
1. IDOT COORDINATION IS REQUIRED.
2. EXISTING WB LEFT TURNING STORAGE IS NOT MEETING IDOT BUREAU OF DESIGN AND ENVIRONMENT REQUIREMENTS.
3. INTERSECTION GEOMETRY REQUIRES EVALUATION TO ACCOMMODATE ACCESSIBILITY IMPROVEMENTS. PROPOSE TO RELOCATE STOP BAR AND RECONSTRUCT MEDIAN TO ACCOMMODATE PROPOSED CROSSWALK AND TO RECONFIGURE WESTBOUND LEFT LANE.
4. NO PROPOSED LANDSCAPE STRIP FOR EASTBOUND AND WESTBOUND STATIONS.

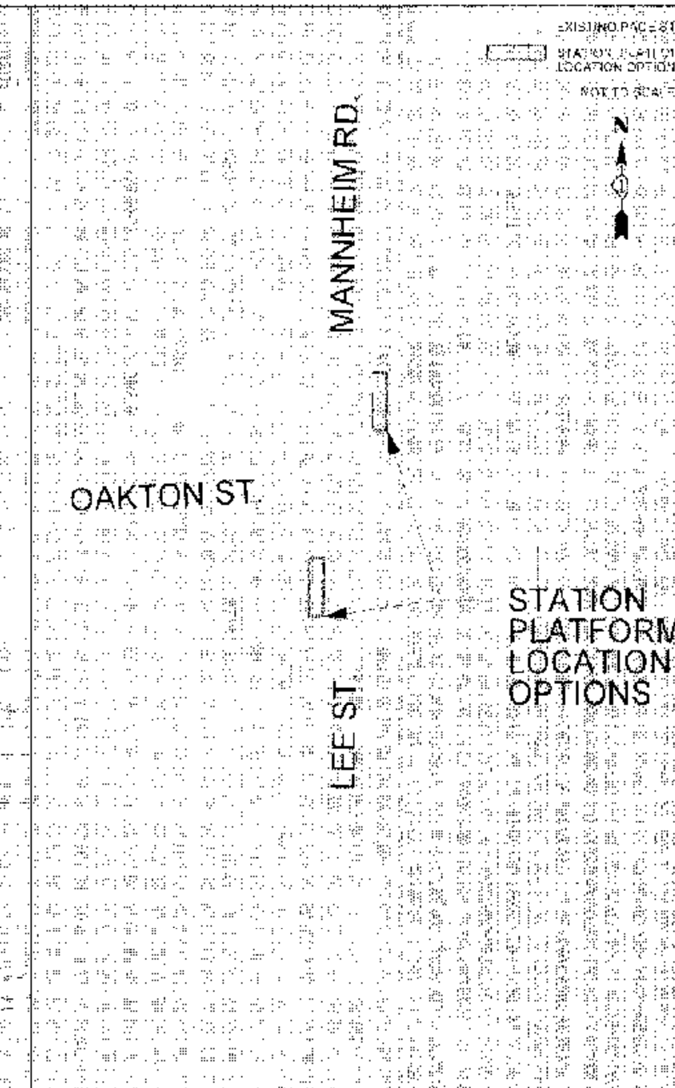
DESIGNED
DRAWN
CHECKED
REVISED
REVISED
REVISED
REVISED

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
LEE/TOUHY:
EASTBOUND ALT. 2 AND WESTBOUND ALT. 2

SHEETS
CONTRACT NO.





LOCATION MAP

QUANTITIES

LEGEND

- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4"; HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

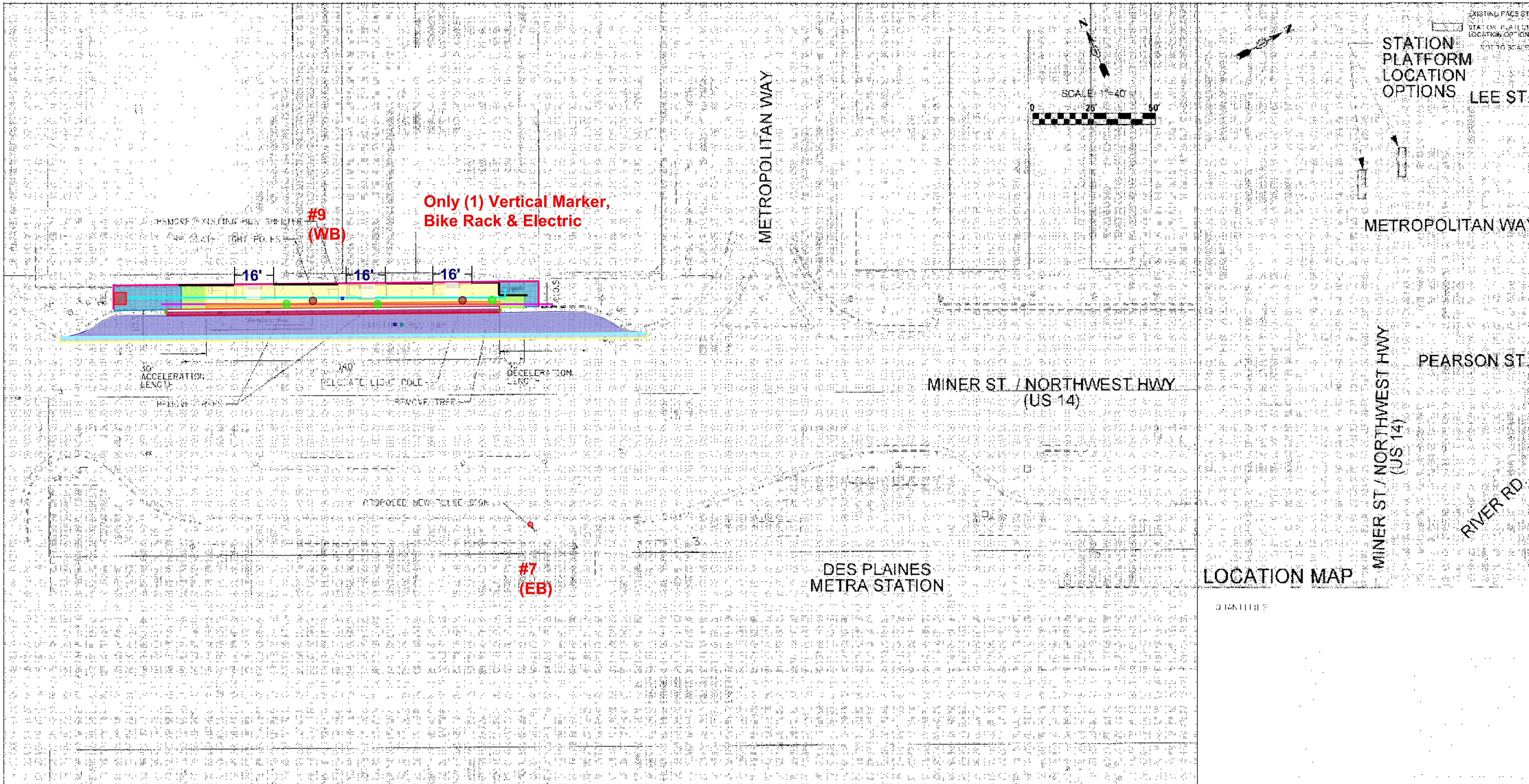
NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT NORTHBOUND STATION.
2. PROPOSED SHELTER IS SET BACK TO MEET SIGHT DISTANCE REQUIREMENTS.
3. CURRENT BACK OF SIDEWALK USED FOR REAR LINE OF PLATFORM. PROPERTY LINES TO BE CONFIRMED VIA SURVEY DURING ADVANCED CONCEPTUAL DESIGN.
4. AERIAL IS OUTDATED. NEW CHASE BACK IS LOCATED AT THE NORTHWEST CORNER OF OAKTON STREET AND MANNHEIM ROAD.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
LEE-MANNHEIM/OAKTON:
NORTHBOUND ALT. 2 AND SOUTHBOUND ALT. 2

CONTRACT NO.



LEGEND

- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

NOTES:

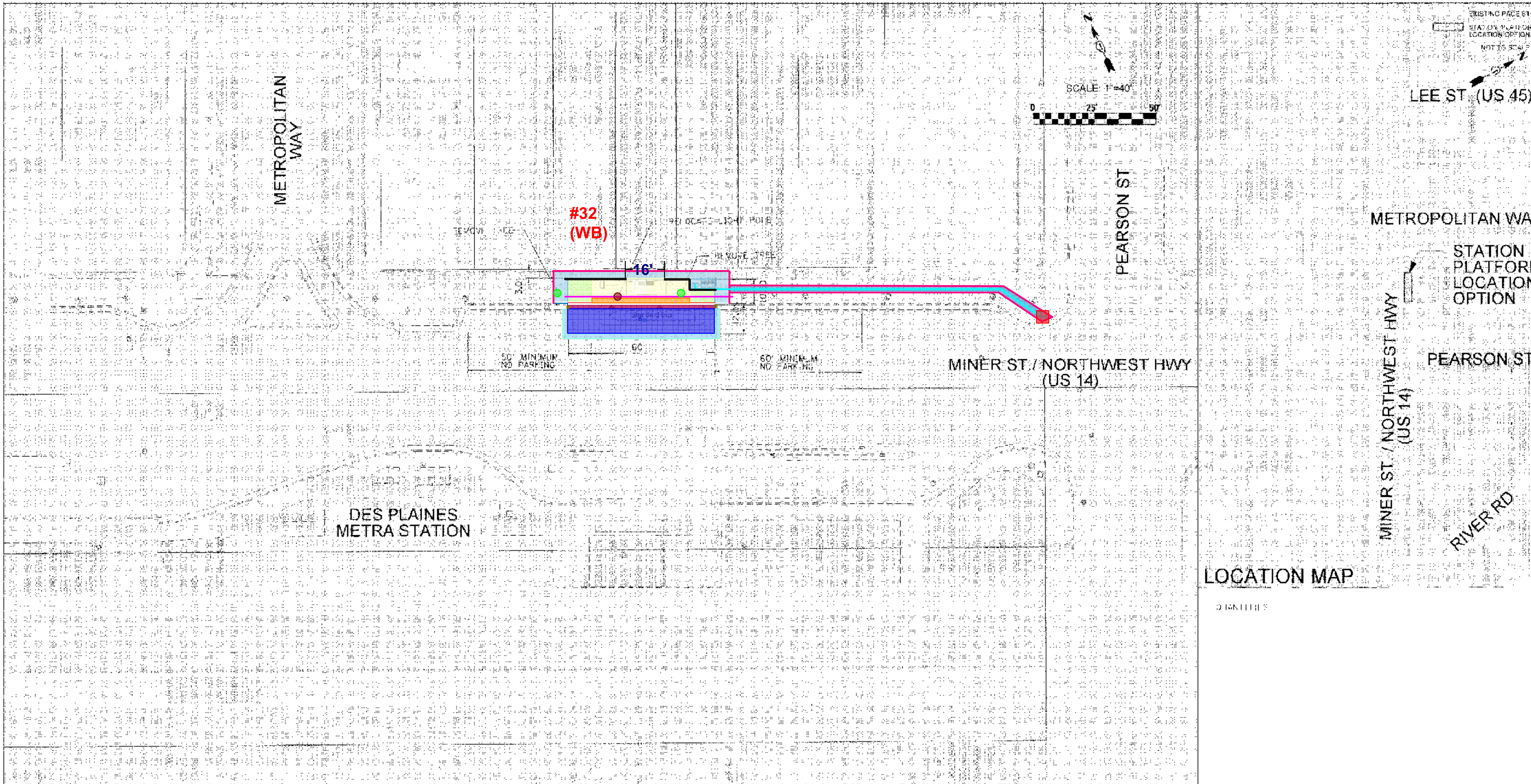
1. NO EASTBOUND STATION IMPROVEMENT PLANS.
2. FUTURE COORDINATION WITH REGIONAL TRANSPORTATION AUTHORITY ON INTERAGENCY REAL TIME ARRIVAL SIGNS.
3. NO PROPOSED LANDSCAPE STRIP AT WEST BOUND STATION.
4. APPROXIMATELY 20FT OF SIDEWALK FROM EXISTING CURB TO BUILDING.
5. TURN OUT DOES NOT MEET IDOT BDE REQUIREMENTS AND PACE TRANSIT SUPPORTIVE GUIDELINES FOR THE CHICAGOLAND REGION MARCH 2013. GUIDELINES SUGGEST 150FT. MINIMUM FOR BUS TURNOUT TAPER LENGTHS, 50FT. MINIMUM FOR ACCELERATION LENGTH AND 120FT. MINIMUM FOR DECELERATION LENGTH.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DES PLAINES METRA:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

SCALE: 1"=40'

CONTRACT NO.



LEGEND

- ...L.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

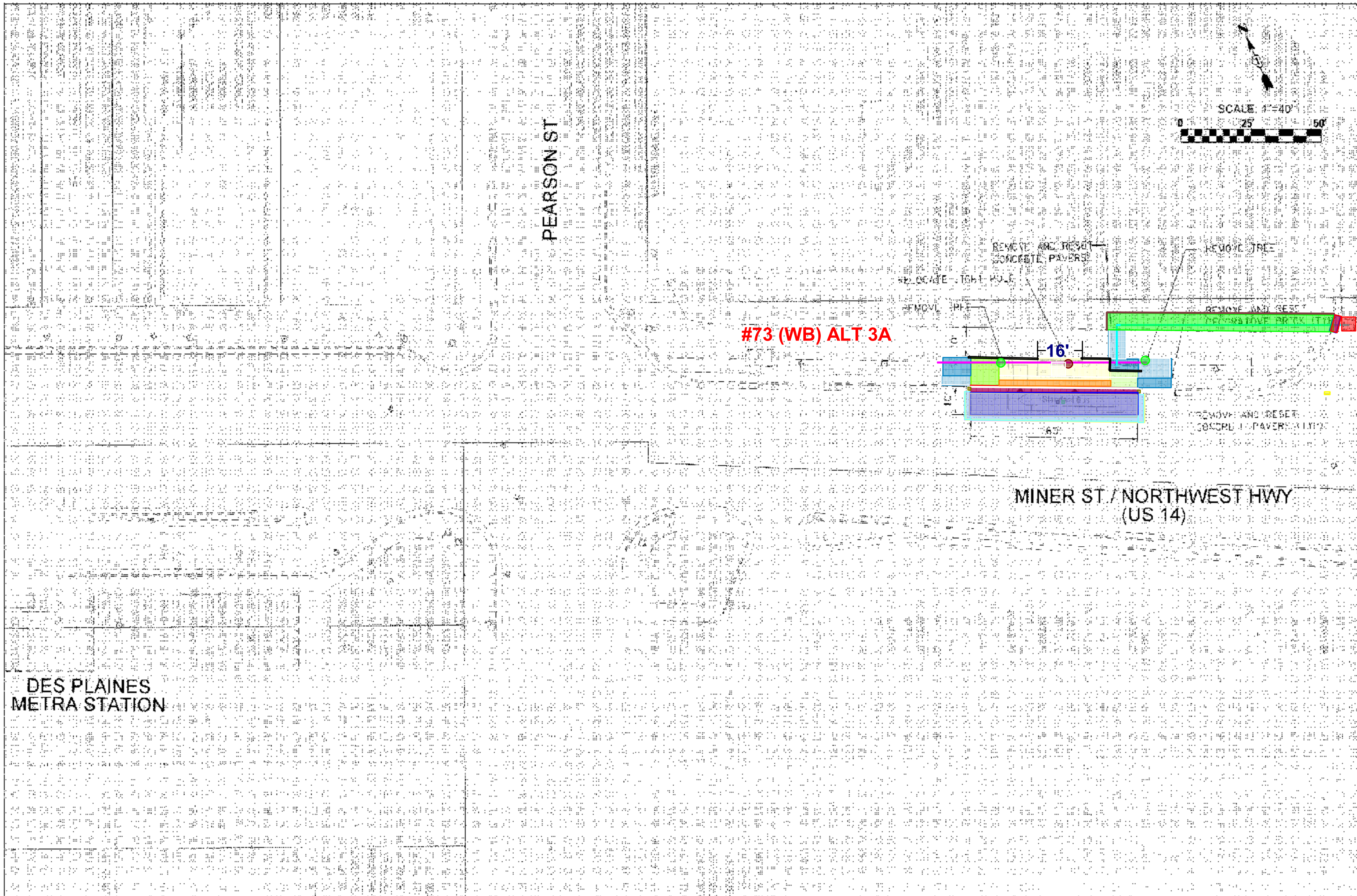
NOTES:

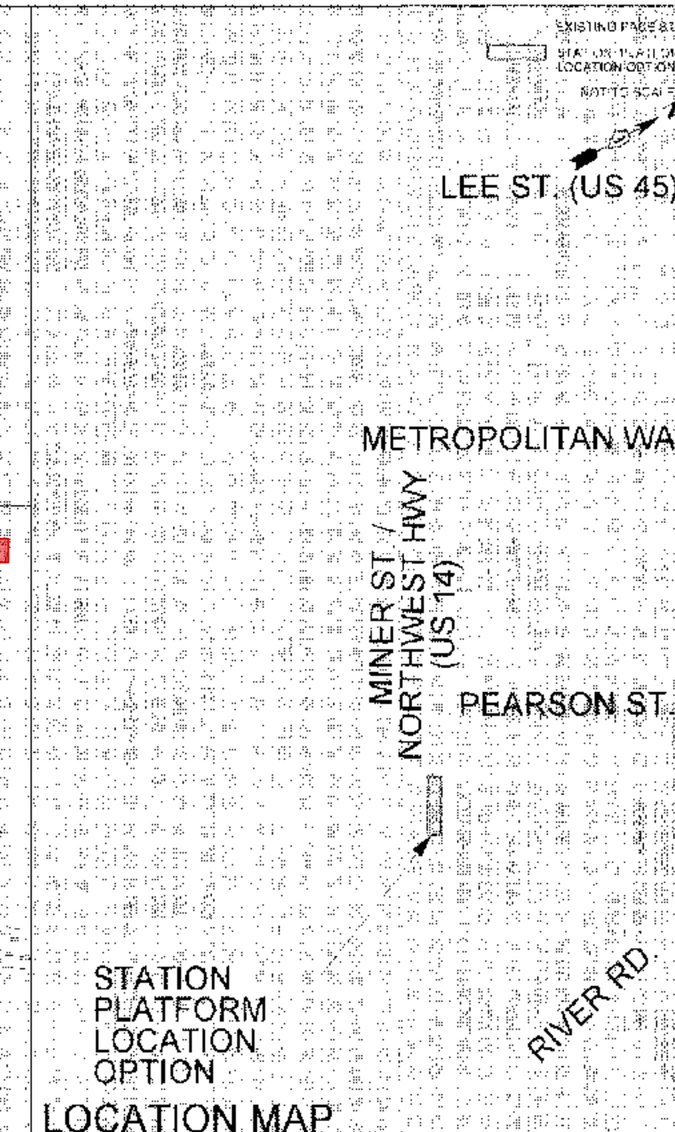
1. SEE SHEET 7 FOR PROPOSED EASTBOUND STATION.
2. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION.
3. EIGHT PARKING SPACES (165 FT) WILL BE REPLACED WITH PROPOSED BUS PLATFORM. RESTRIPE PAVEMENT MARKINGS FOR NO PARKING.
4. APPROXIMATELY 22 FT OF SIDEWALK AREA FROM EXISTING CURB TO BUILDINGS.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DES PLAINES METRA:
WESTBOUND ALT. 2

CONTRACT NO.





LOCATION MAP

LEGEND

- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4"; HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

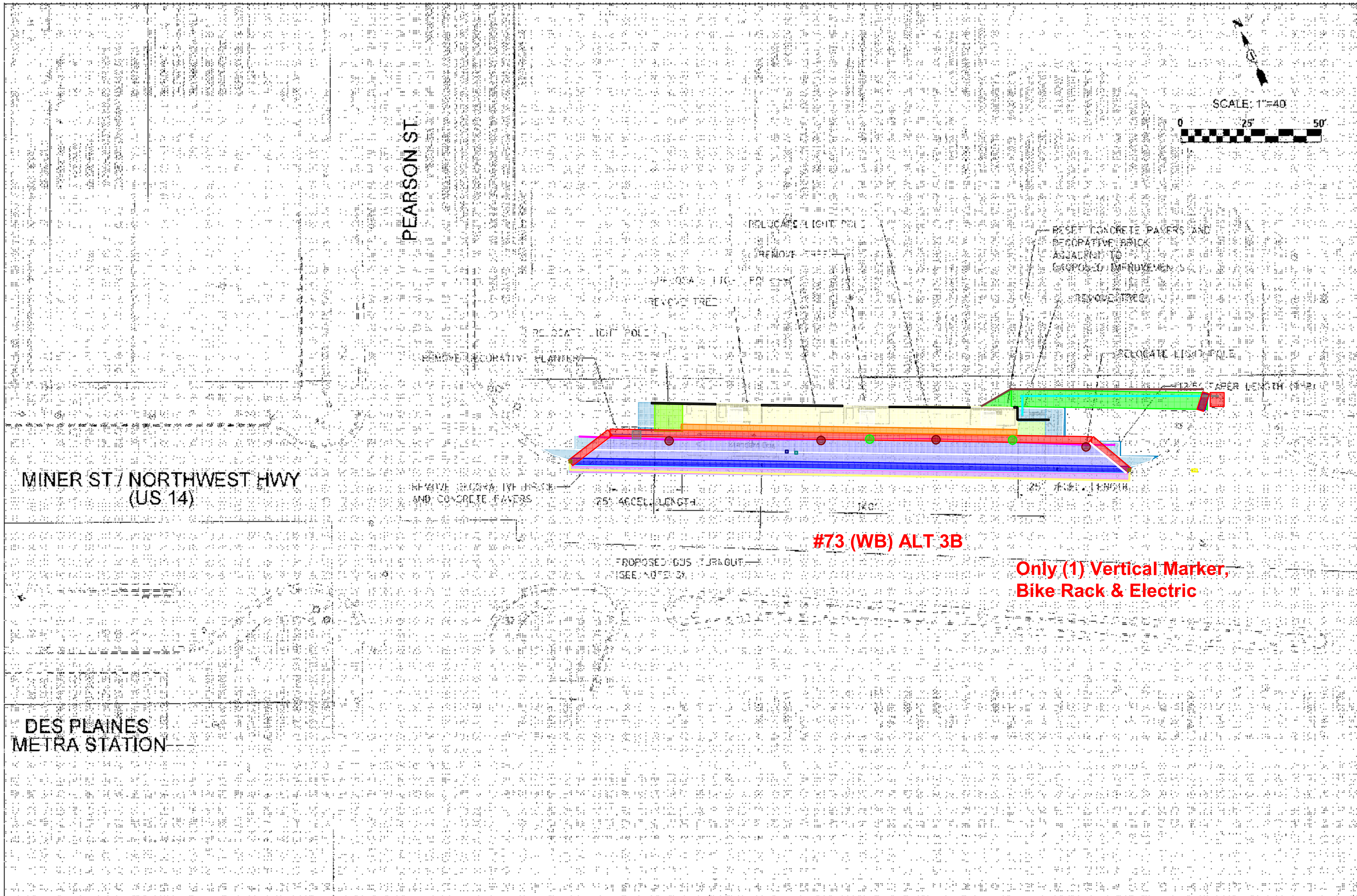
NOTES:

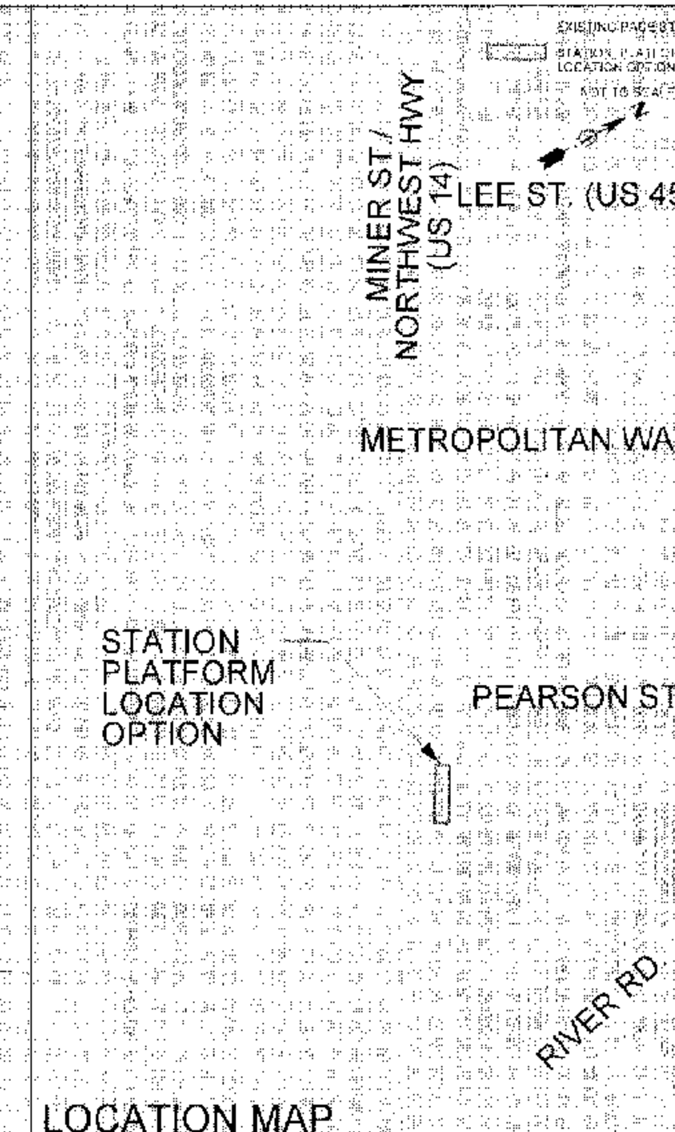
1. SEE SHEET 7 FOR PROPOSED EASTBOUND STATION.
2. NO LANDSCAPE STRIP PROPOSED AT STATION.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DES PLAINES METRA:
WESTBOUND ALT. 3A

CONTRACT NO.





LEGEND

- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4"; HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

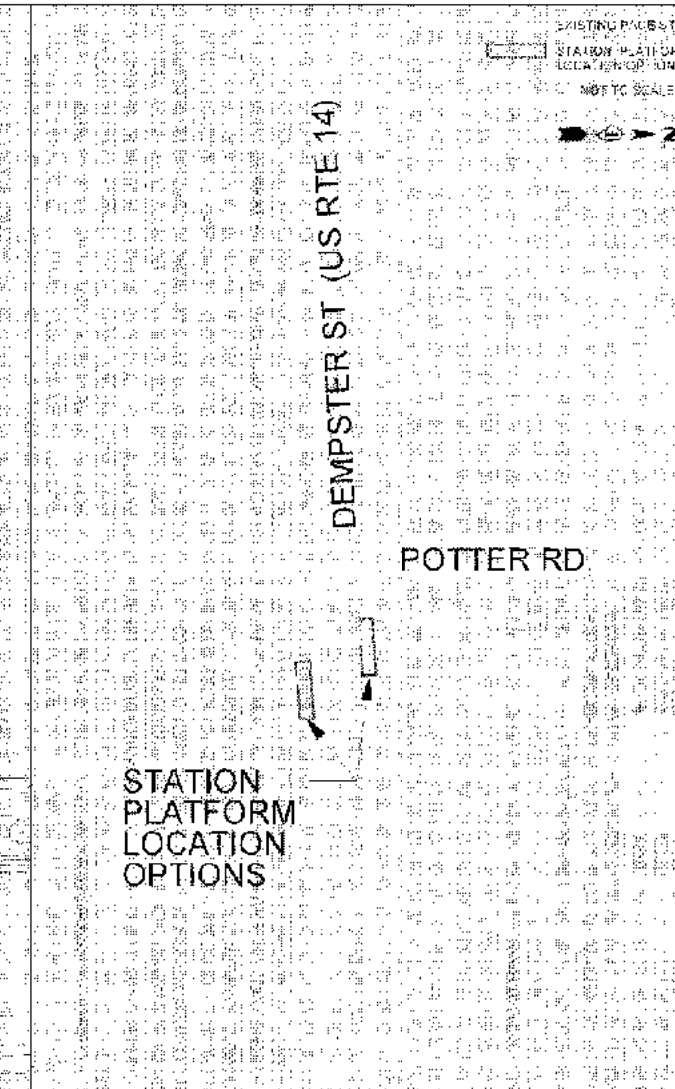
NOTES:

1. SEE SHEET 7 FOR PROPOSED EASTBOUND STATION
2. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION
3. TURNOUT DOES NOT MEET PACE TRANS. SUPPORTIVE GUIDELINES FOR THE CHICAGOLAND REGION MARCH 2013. GUIDELINES SUGGEST 150 FT MINIMUM FOR BUS TURNOUT TAPER LENGTHS AND 120 FT MINIMUM FOR DECELERATION LENGTH.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DES PLAINES METRA:
WESTBOUND ALT. 3B

CONTRACT NO.



LOCATION MAP

QUANTITIES

LEGEND

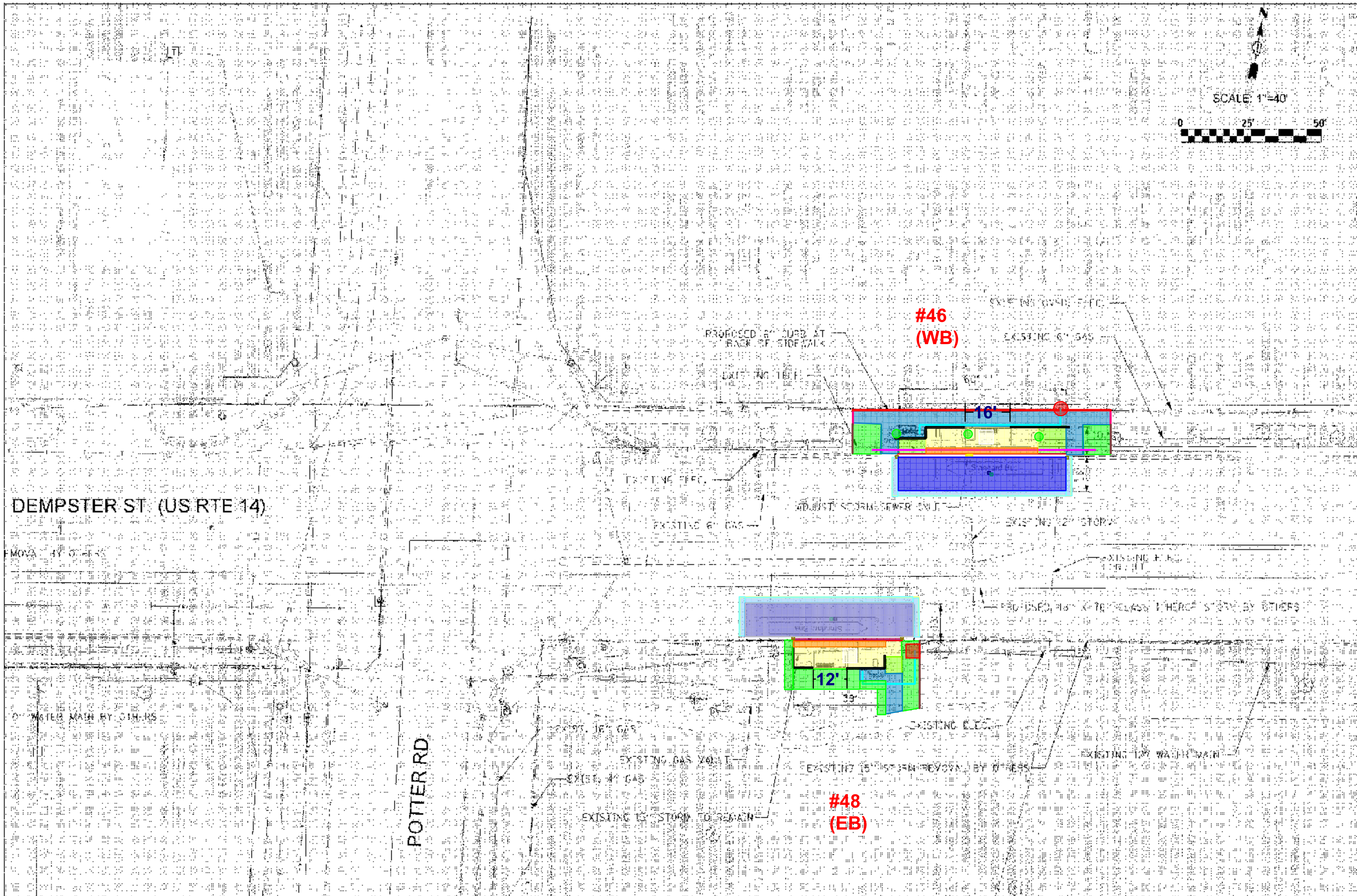
- PORTLAND CEMENT CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

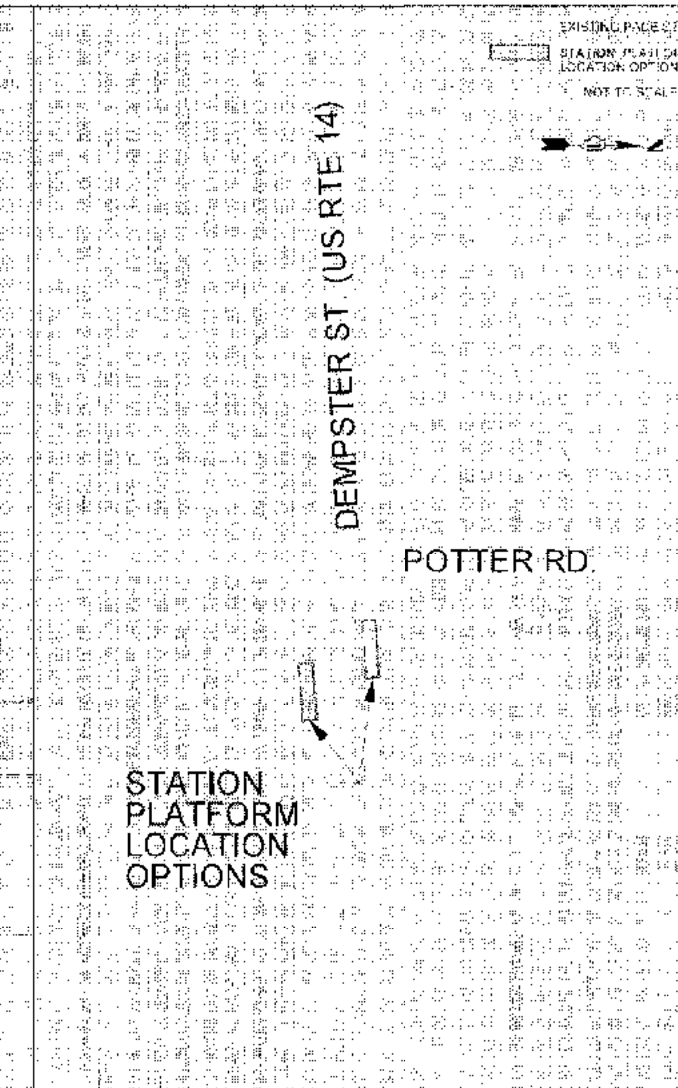
NOTES

1. SURVEY WAS PERFORMED BY OTHERS AND SHALL BE VERIFIED.
2. AERIAL IS OUTDATED. NEW DECORATIVE LANDSCAPING IS LOCATED ADJACENT TO EXISTING SIDEWALK AT LURVEY LANDSCAPE SUPPY & GARDEN CENTER. SIGHT DISTANCE TRIANGLE REQUIRES PACE SHELTER TO BE SET BACK AND IMPACTS DECORATIVE LANDSCAPING.
3. SEE SHEET 11B FOR EASTBOUND STATION DETAILS.

REVISED	PACE SUBURBAN BUS A DIVISION OF THE REGIONAL TRANSPORTATION AUTHORITY	PULSE DEMPSTER LINE POTTER (DEE ALTERNATE): WESTBOUND ALT. 1	CONTRACT NO.

SCALE: 1"=40' SHEET 11A OF 78 SHEETS





LOCATION MAP

LEGEND

- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4"; HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

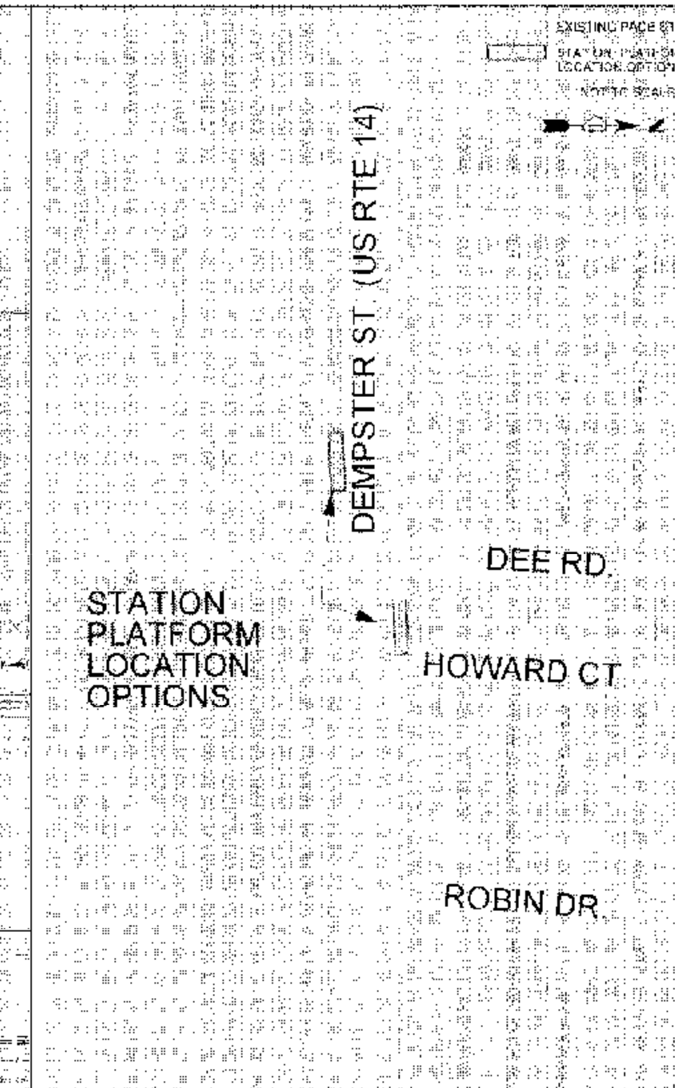
NOTES

1. SURVEY WAS PERFORMED BY OTHERS AND SHALL BE VERIFIED. PRIVATE PARKING LOT WAS NOT SURVEYED.
2. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS.
3. REMOVE EXISTING PACE SIGN AT SOUTHWEST CORNER OF DEMPSTER ST (US RTE 14) AND DEE RD. REMOVE EXISTING PACE SIGN, SHELTERS, AND TRASH RECEPTACLE AT NORTHEAST CORNER OF DEMPSTER ST (US RTE 14) AND DEE RD.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
POTTER (DEE ALTERNATE):
EASTBOUND ALT. 2 AND WESTBOUND ALT. 2

CONTRACT NO.



LOCATION MAP

QUANTITIES

LEGEND

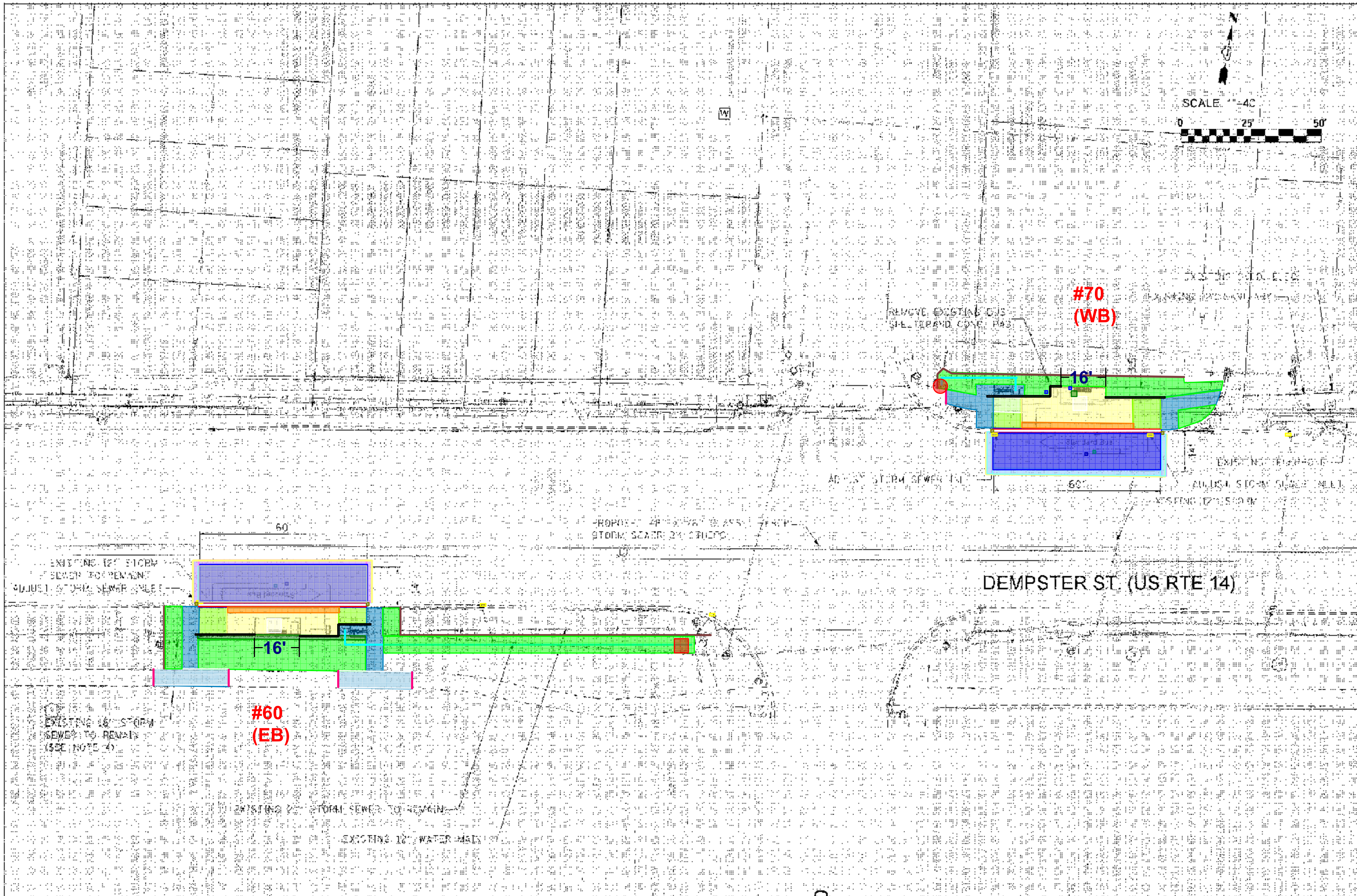
- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4"; HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

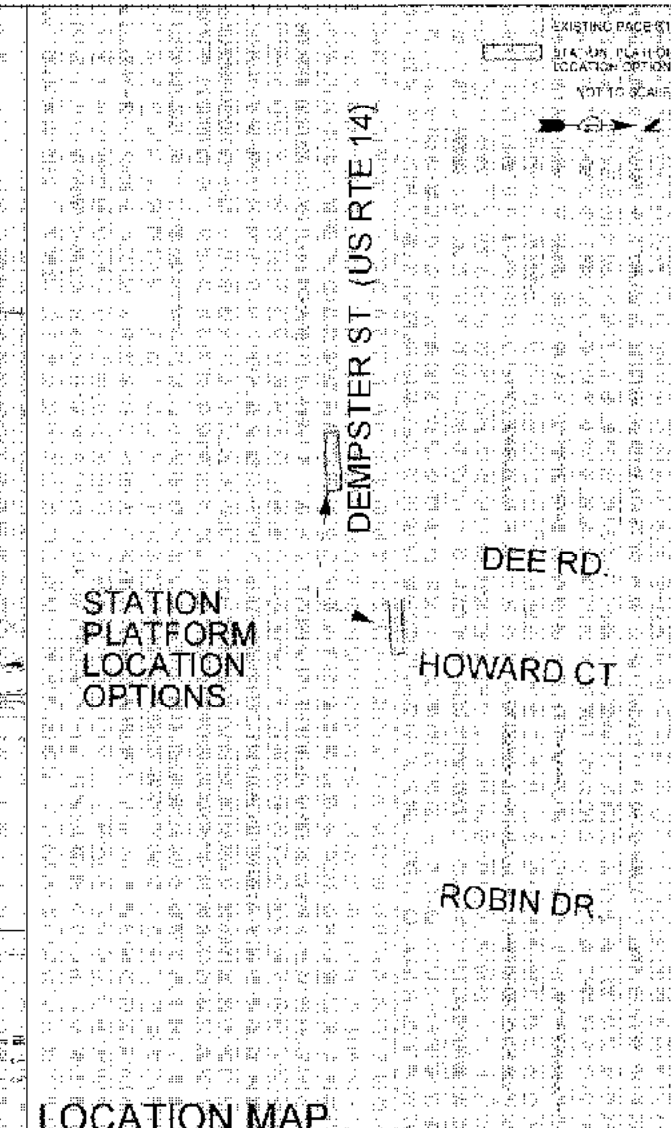
NOTES

1. SURVEY WAS PERFORMED BY OTHERS AND SHALL BE VERIFIED.
2. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION.
3. REMOVE EXISTING PACE SIGNS AT NORTHEAST AND SOUTHWEST CORNERS OF DEMPSTER (US RTE 14) AND DEE RD.
4. EXISTING CURB IS HIGHER THAN SIDEWALK AND PITCHED TOWARDS RESIDENTIAL PROPERTIES AT WESTBOUND STATION. GRADING IS REQUIRED AT THE BACK OF PROPOSED SIDEWALK AND POTENTIALLY IMPACTS RESIDENTIAL FENCES AND REQUIRES TEMPORARY CONSTRUCTION EASEMENT.

DESIGNED	REVISED	PACE SUBURBAN BUS	PULSE DEMPSTER LINE
CHECKED	REVISED	A DIVISION OF THE	DEE
	REVISED	REGIONAL TRANSPORTATION AUTHORITY	EASTBOUND ALT. 1 AND WESTBOUND ALT. 1
	REVISED		

COUNTY	TOTAL SHEETS	SHEET NO.
COOK	28	14A
CONTRACT NO.		





LEGEND

- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

NOTES

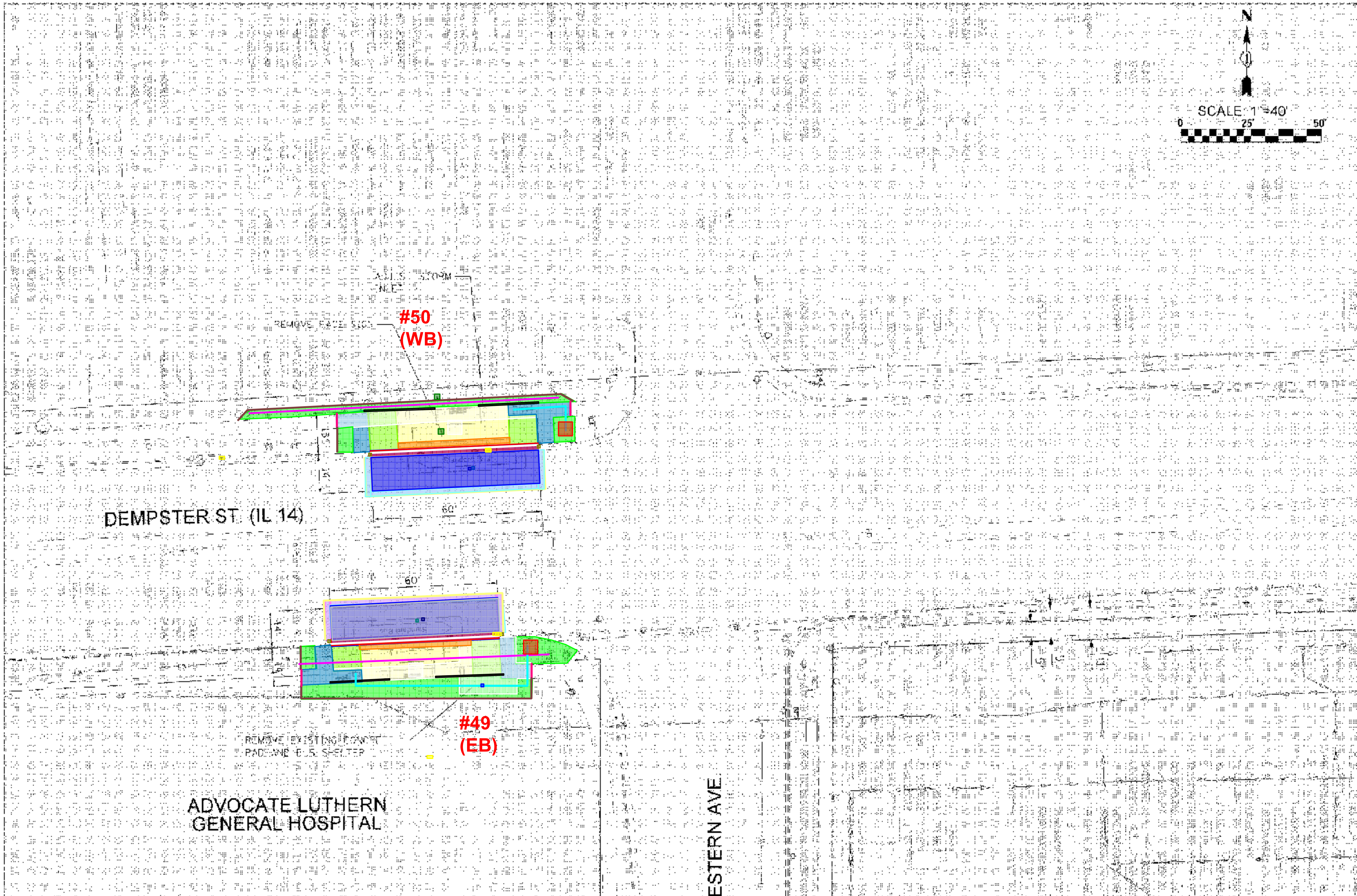
1. SURVEY WAS PERFORMED BY OTHERS AND SHALL BE VERIFIED.
2. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION
3. REMOVE EXISTING PACE SIGNS AT NORTHEAST AND SOUTHWEST CORNERS OF DEMPSTER (US RTE 14) AND DEE RD.
4. EXISTING CURB IS HIGHER THAN SIDEWALK AND PITCHED TOWARDS THE EXISTING CATCH BASIN IN TERRACE AREA AT EASTBOUND STATION.

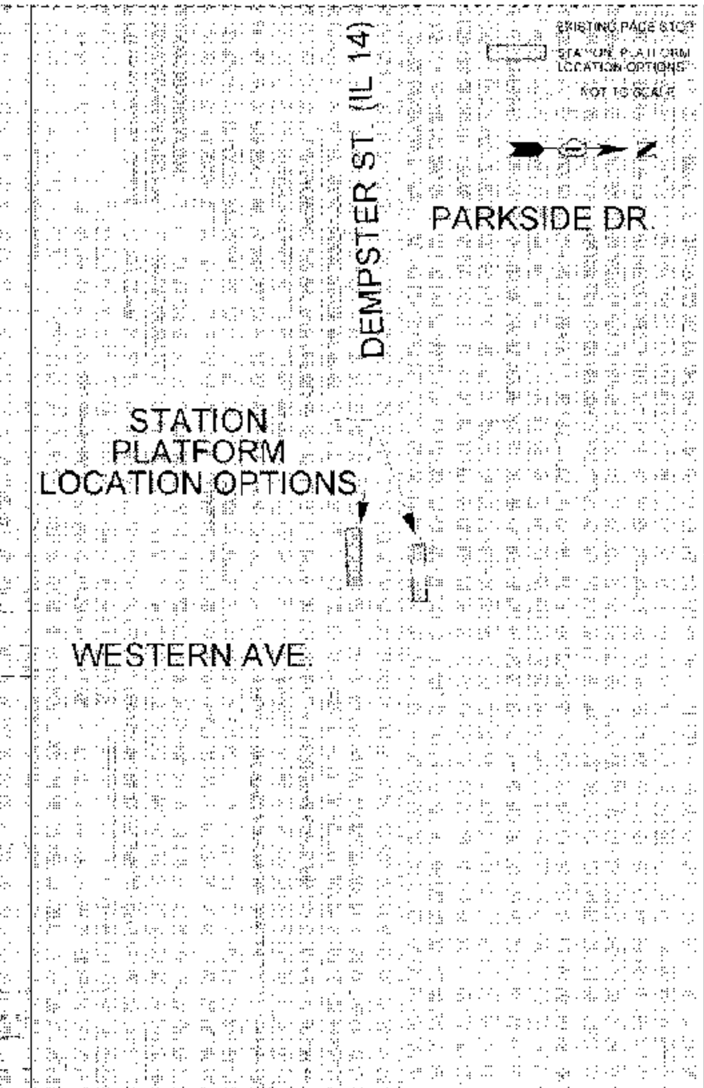
PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DEE
EASTBOUND ALT. 1 AND WESTBOUND ALT. 2

COUNTY: COOK
TOTAL SHEETS: 28
CONTRACT NO.

Combined_Dempster Conceptual Plans_06092016 small.pdf (15) (98% of Scale); PACE Dempster Line; 2016 - Database; 6/22/2016 11:28 AM





LOCATION MAP

QUANTITIES

LEGEND

- CL.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4"; HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

NOTES:

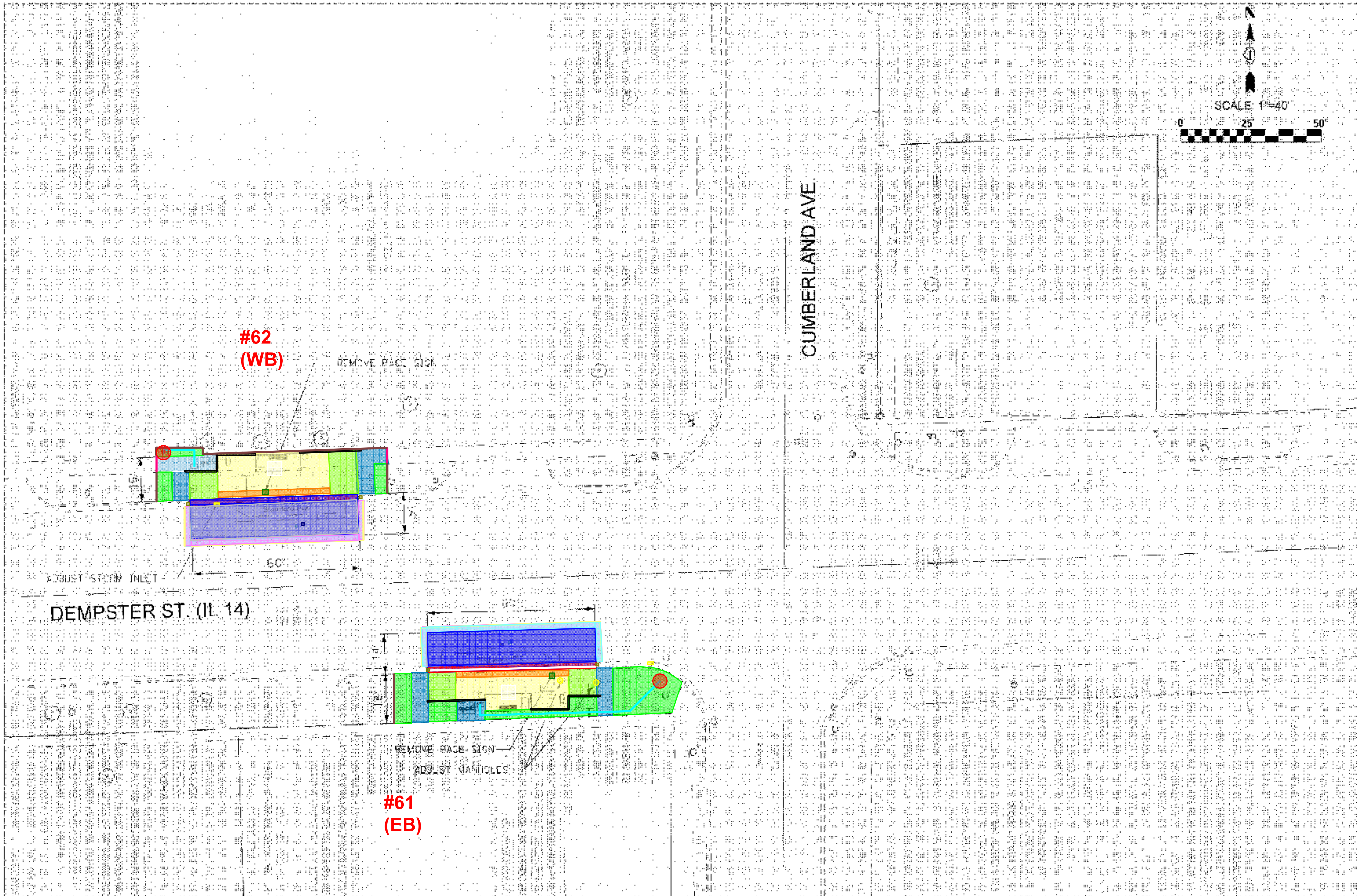
1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND PLATFORMS.
2. CURRENT BACK OF SIDEWALK USED FOR REAR LINE OF PLATFORM. PROPERTY LINES TO BE CONFIRMED VIA SURVEY DURING ADVANCED CONCEPTUAL DESIGN.

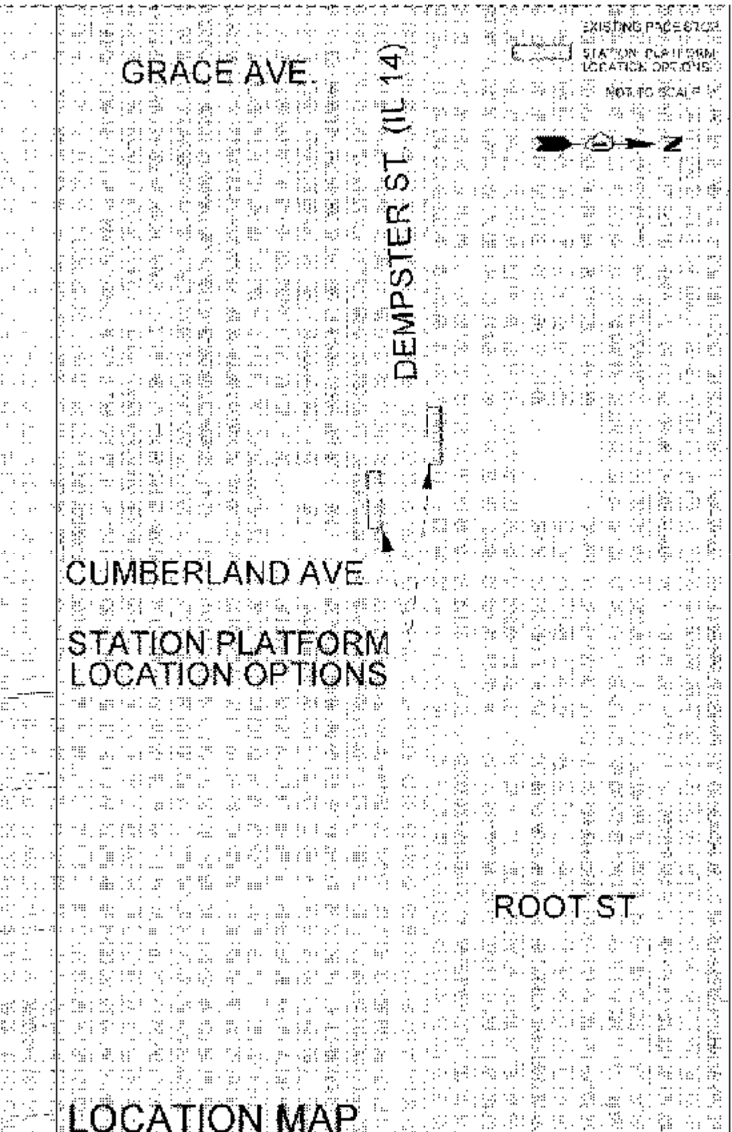
PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
WESTERN:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

SHEET 15 OF 24 SHEETS

CONTRACT NO.





LEGEND

- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

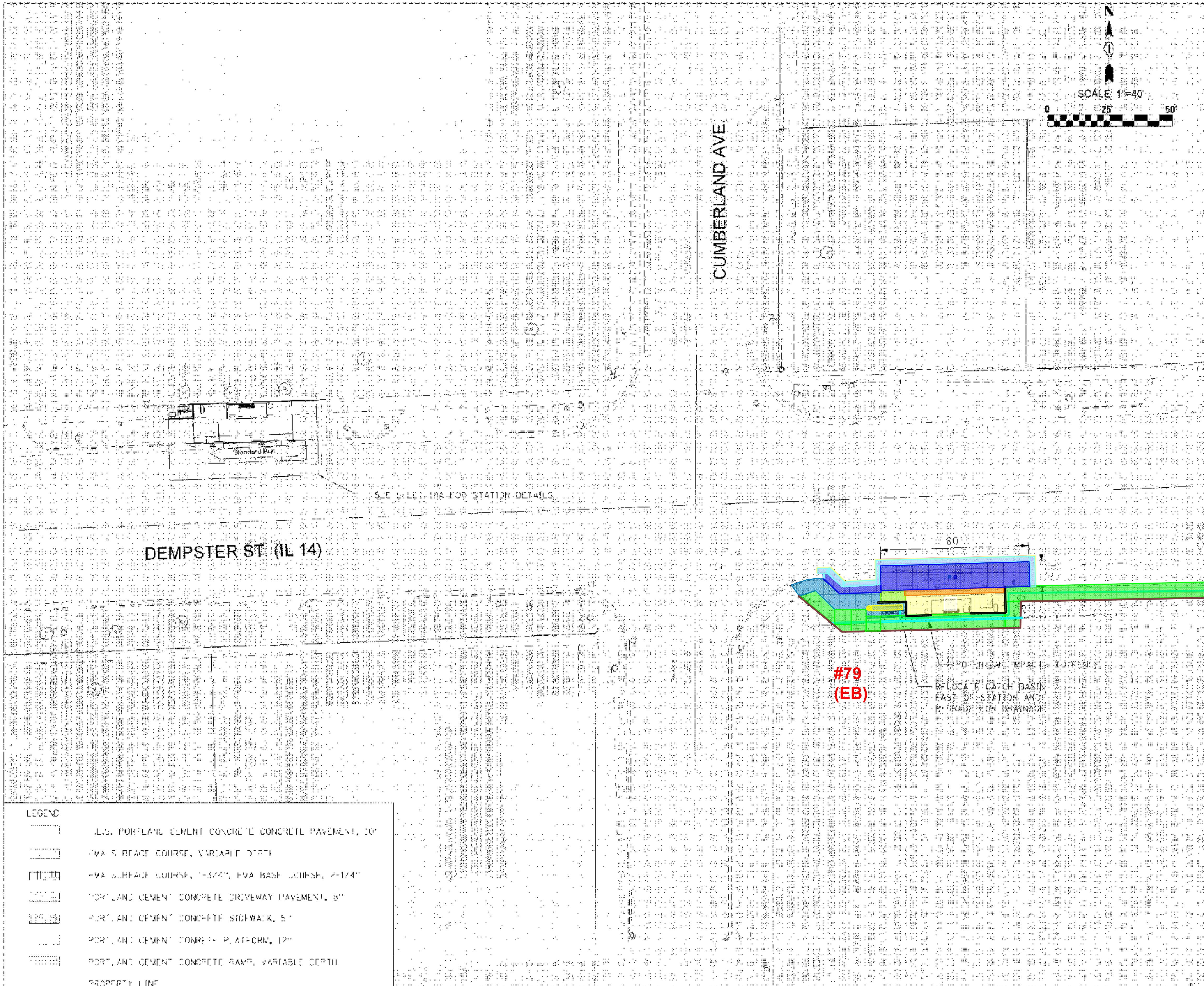
NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

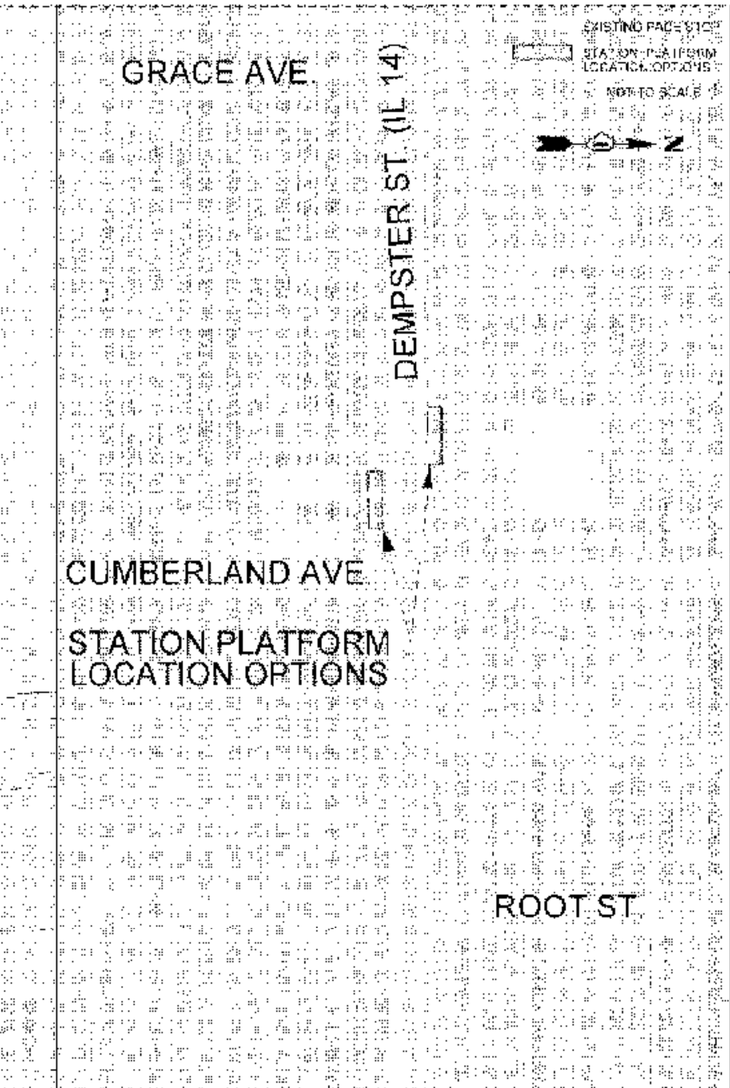
PULSE DEMPSTER LINE
CUMBERLAND:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

CONTRACT NO.



LEGEND

- U.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE



LOCATION MAP

QUANTITIES

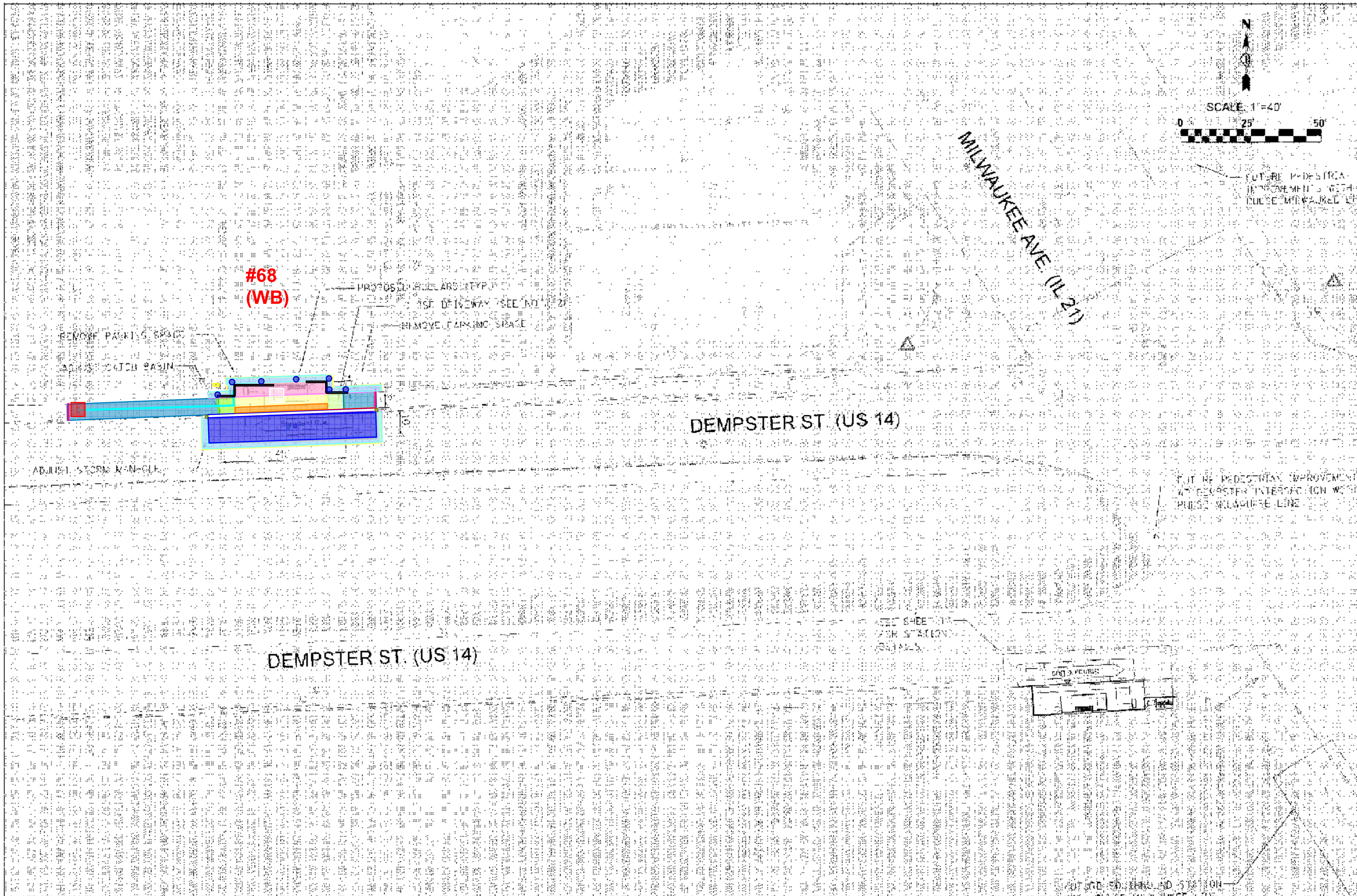
NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

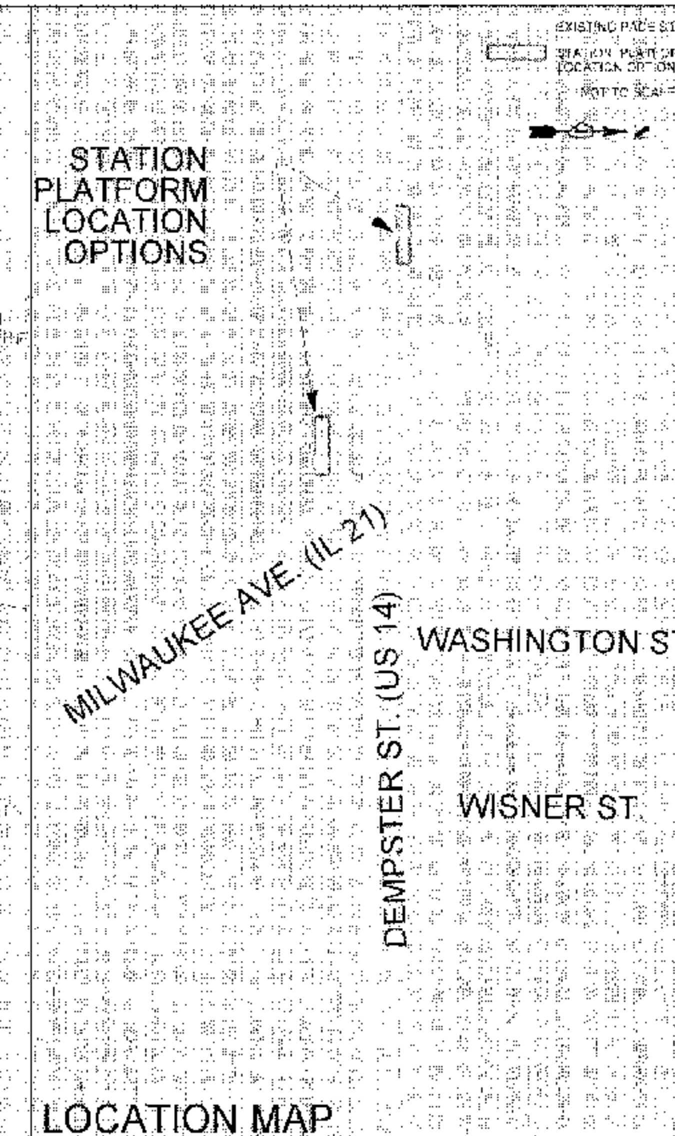
PULSE DEMPSTER LINE
CUMBERLAND:
EASTBOUND ALT. 2 AND WESTBOUND ALT. 1

CONTRACT NO.



LEGEND

- P.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4"; HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE



QUANTITIES

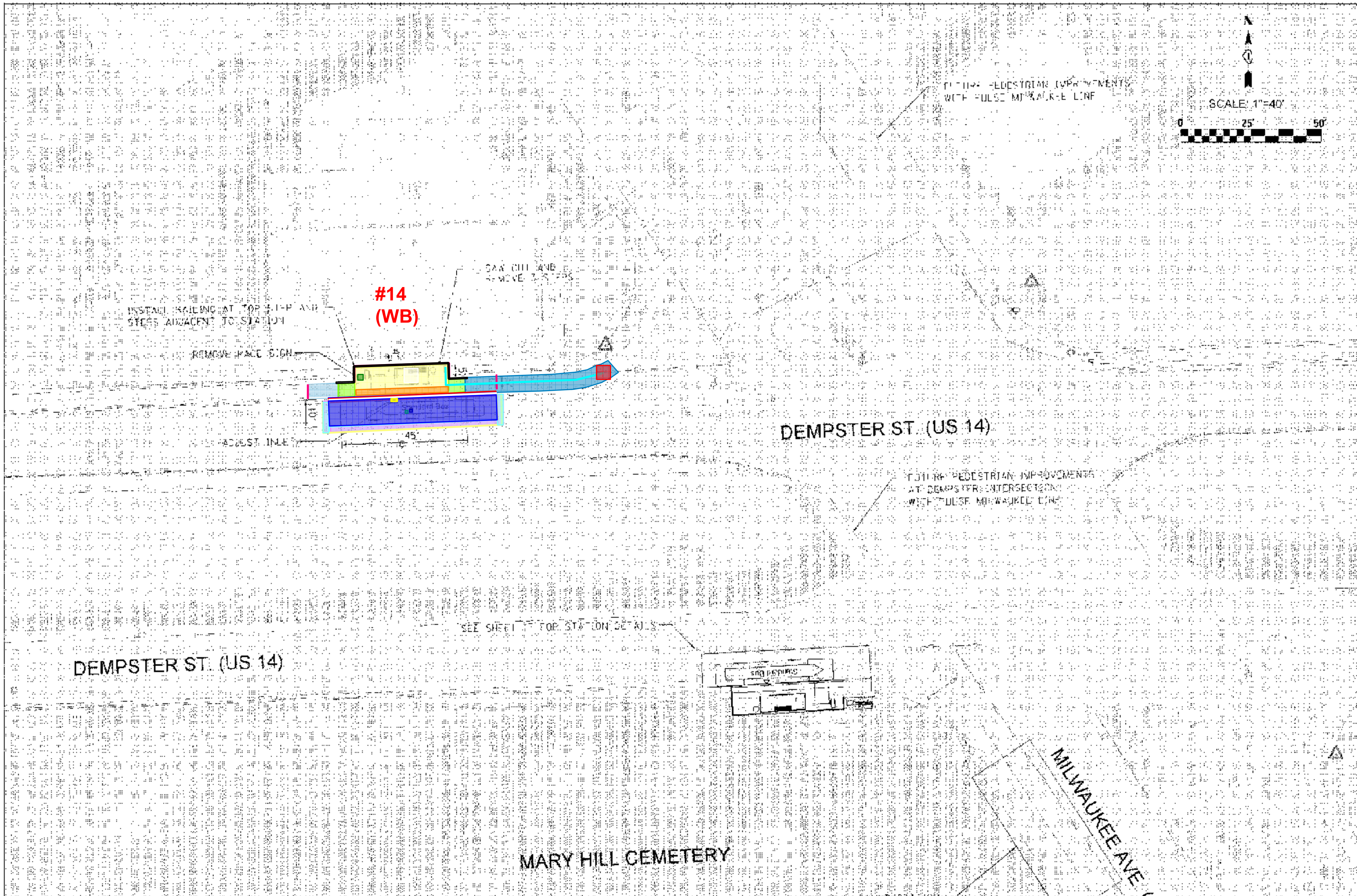
NOTES:

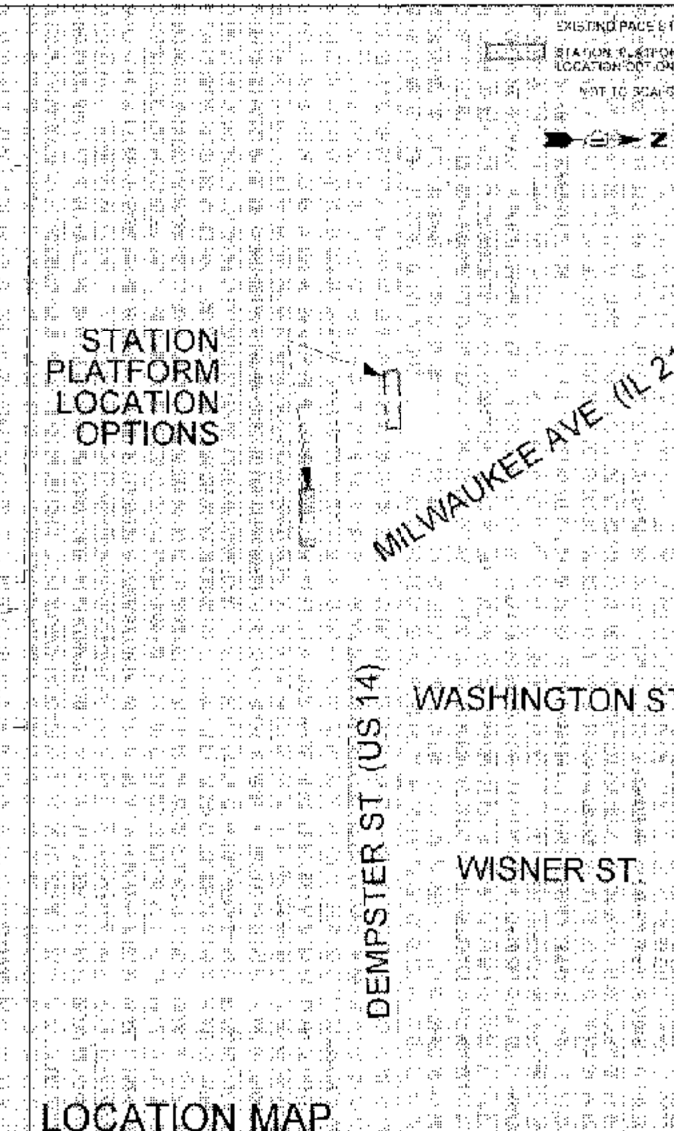
1. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION.
2. CLOSE EXISTING DRIVEWAY. COORDINATE WITH PROPERTY OWNER.
3. EXISTING CONDITIONS AND PROPERTY LINES ARE SURVEYED FROM PULSE MILWAUKEE LINE.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
MILWAUKEE:
WESTBOUND ALT. 1

CONTRACT NO.





QUANTITIES

LEGEND

- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4"; HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

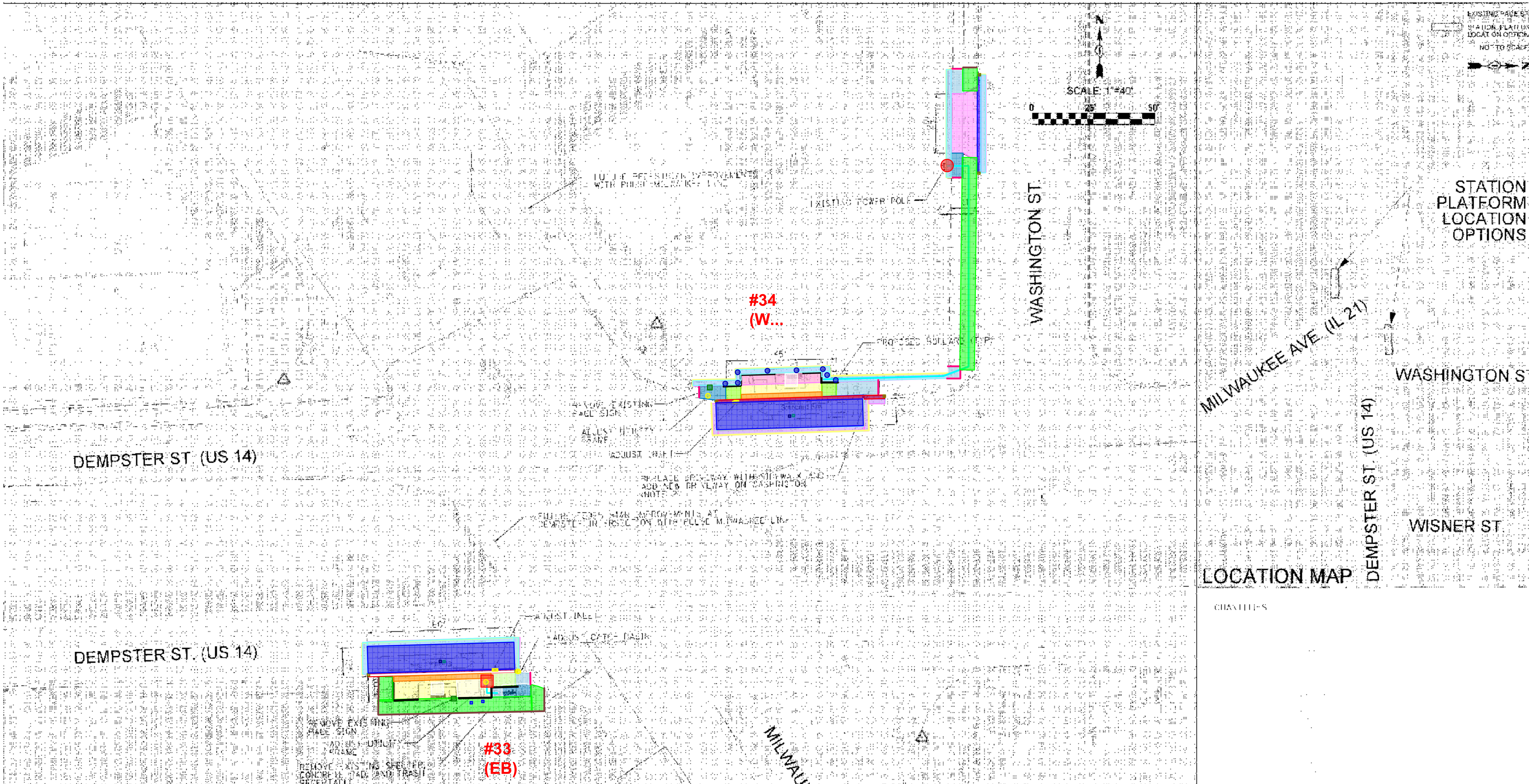
NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION.
2. COORDINATE WITH PROPERTY OWNER ON MODIFYING STEPS FOR PROPOSED STATION.
3. EXISTING CONDITIONS AND PROPERTY LINES ARE SURVEYED FROM PULSE MILWAUKEE LINE.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
MILWAUKEE:
WESTBOUND ALT. 2

CONTRACT NO.



LEGEND

- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 3-1/4"; HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

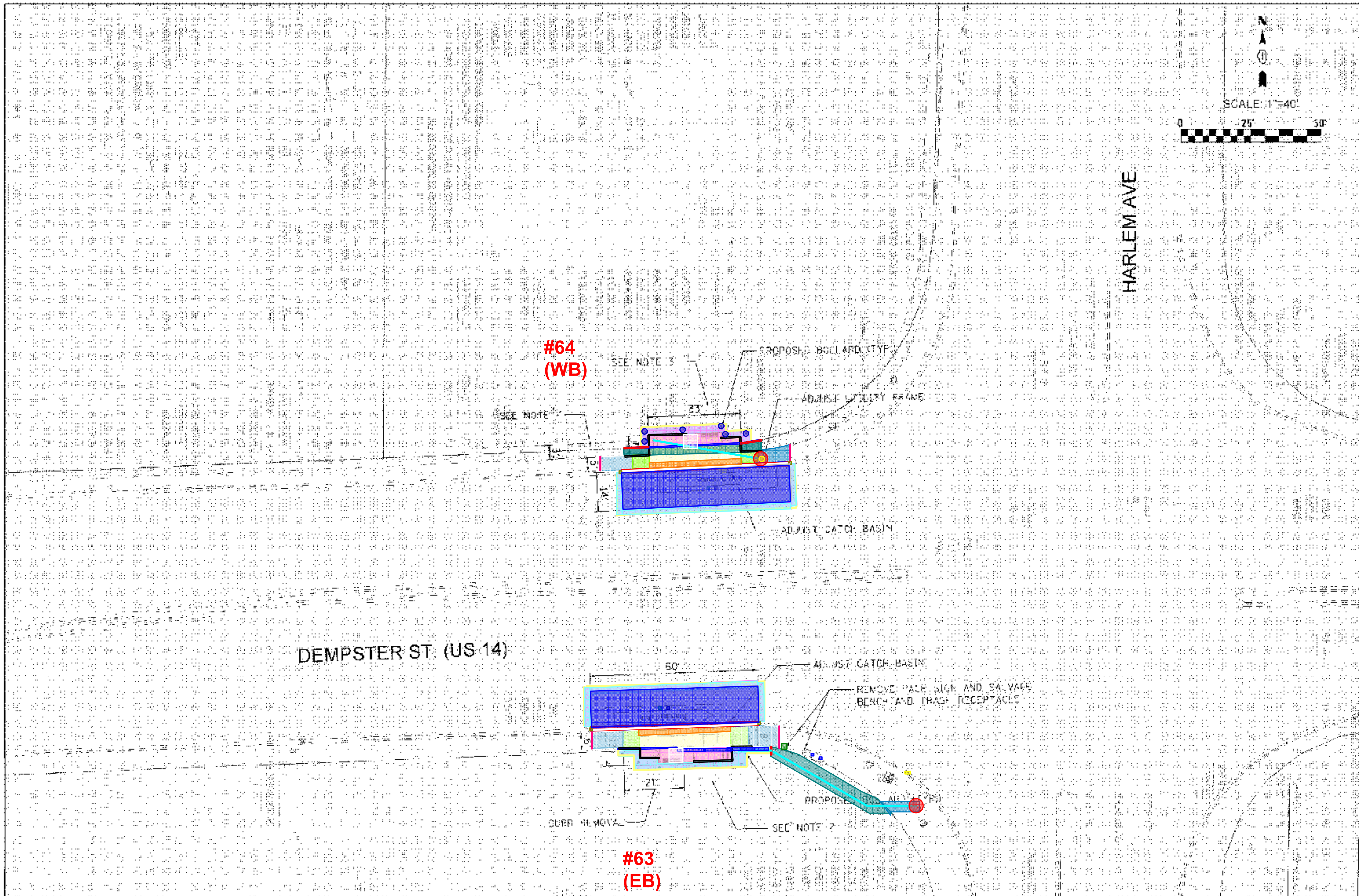
NOTES:

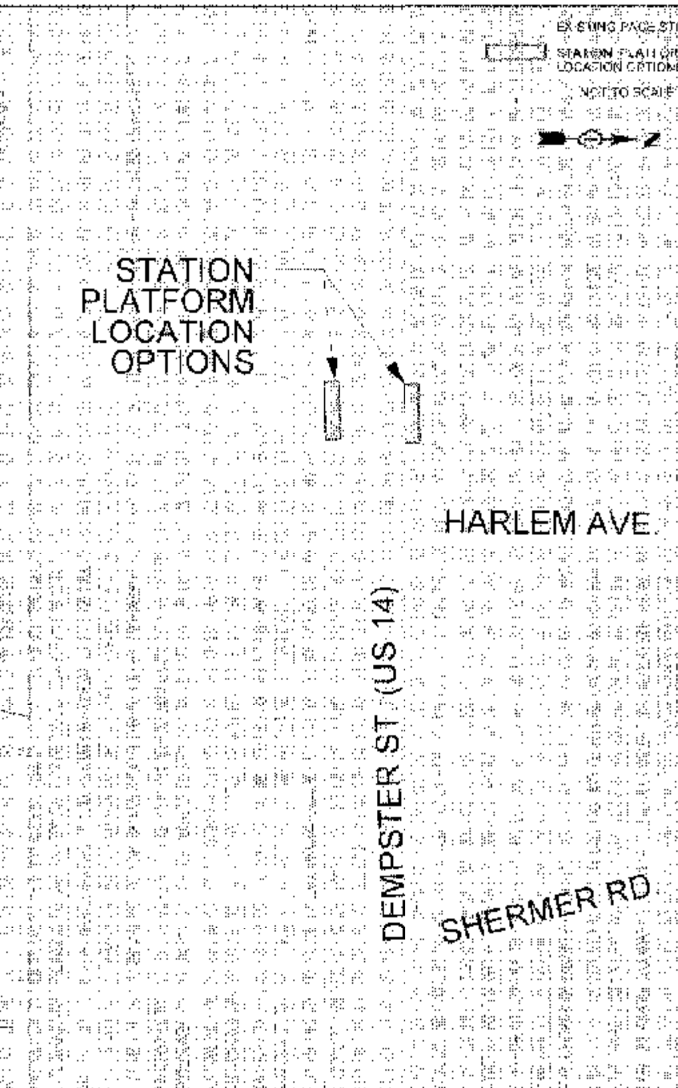
1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS.
2. CLOSE EXISTING DRIVEWAY. DRIVEWAY CAN POTENTIALLY BE RELOCATED TO WASHINGTON ST. COORDINATE WITH PROPERTY OWNER AND VILLAGE.
3. RESTRIPE PAVEMENT MARKINGS AT EASTBOUND AND WESTBOUND STATIONS.
4. EXISTING CONDITIONS AND PROPERTY LINES ARE SURVEYED FROM PULSE MILWAUKEE LINE.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
MILWAUKEE:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 3

COOK
CONTRACT NO.





LOCATION MAP

LEGEND

- ILL.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

NOTES

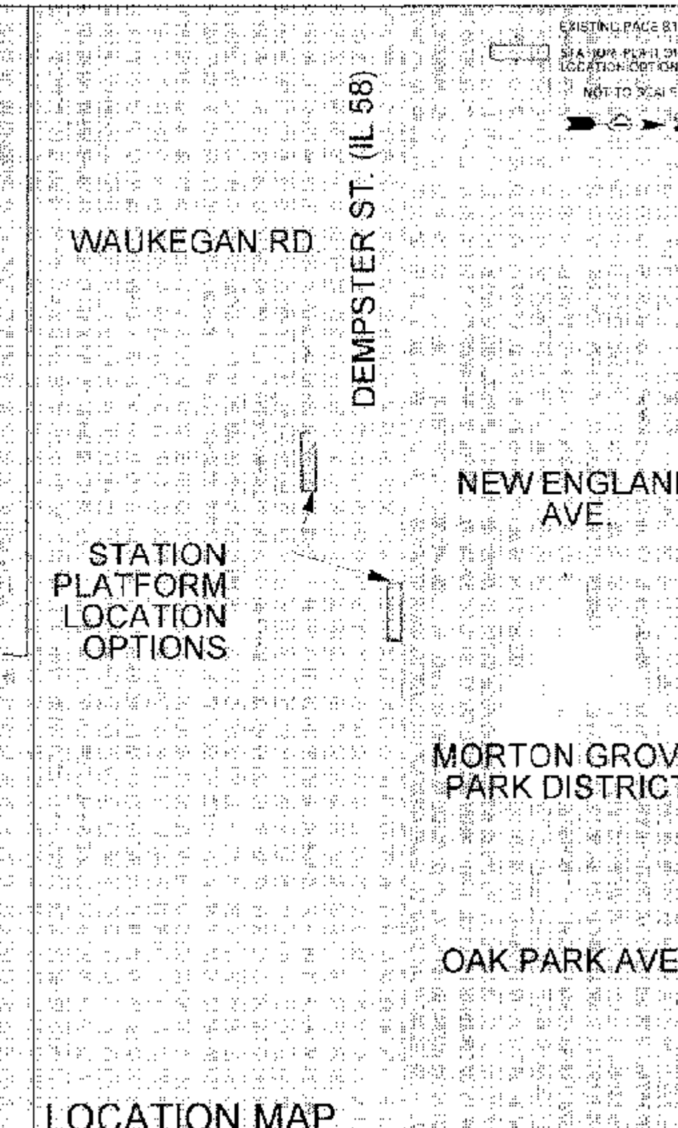
1. NO PROPOSED LANDSCAPE STRIP AND BICYCLE RACK AT EASTBOUND AND WESTBOUND STATIONS.
2. SHELTER IS SETBACK ON PRIVATE PARKING LOT. SIX PARKING SPACES WILL BE REMOVED FOR PROPOSED EASTBOUND STATION.
3. SHELTER IS SETBACK ON PRIVATE PARKING LOT. FIVE PARKING SPACES WILL BE IMPACTED FOR PROPOSED WESTBOUND STATION. POTENTIALLY CAN RESTRIPE PARKING SPACES TO ACCOMMODATE STATION.
4. AERIAL IS OUT DATED. FIVE FEET OF PARKING LOT ALONG VILLAGE SIDEWALK HAS BEEN REPLACED WITH DECORATIVE LANDSCAPING AND CURB.

DESIGNED - CHECKED -

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
HARLEM:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

COUNTY: COOK
CONTRACT NO.



LOCATION MAP

QUANTITIES

ESTIMATE

1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS.

LEGEND

P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"

HMA SURFACE COURSE, VARIABLE DEPTH

HMA SURFACE COURSE, 1-3/4"; HMA BASE COURSE, 2-1/4"

PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"

PORTLAND CEMENT CONCRETE SIDEWALK, 5"

PORTLAND CEMENT CONCRETE PLATFORM, 12"

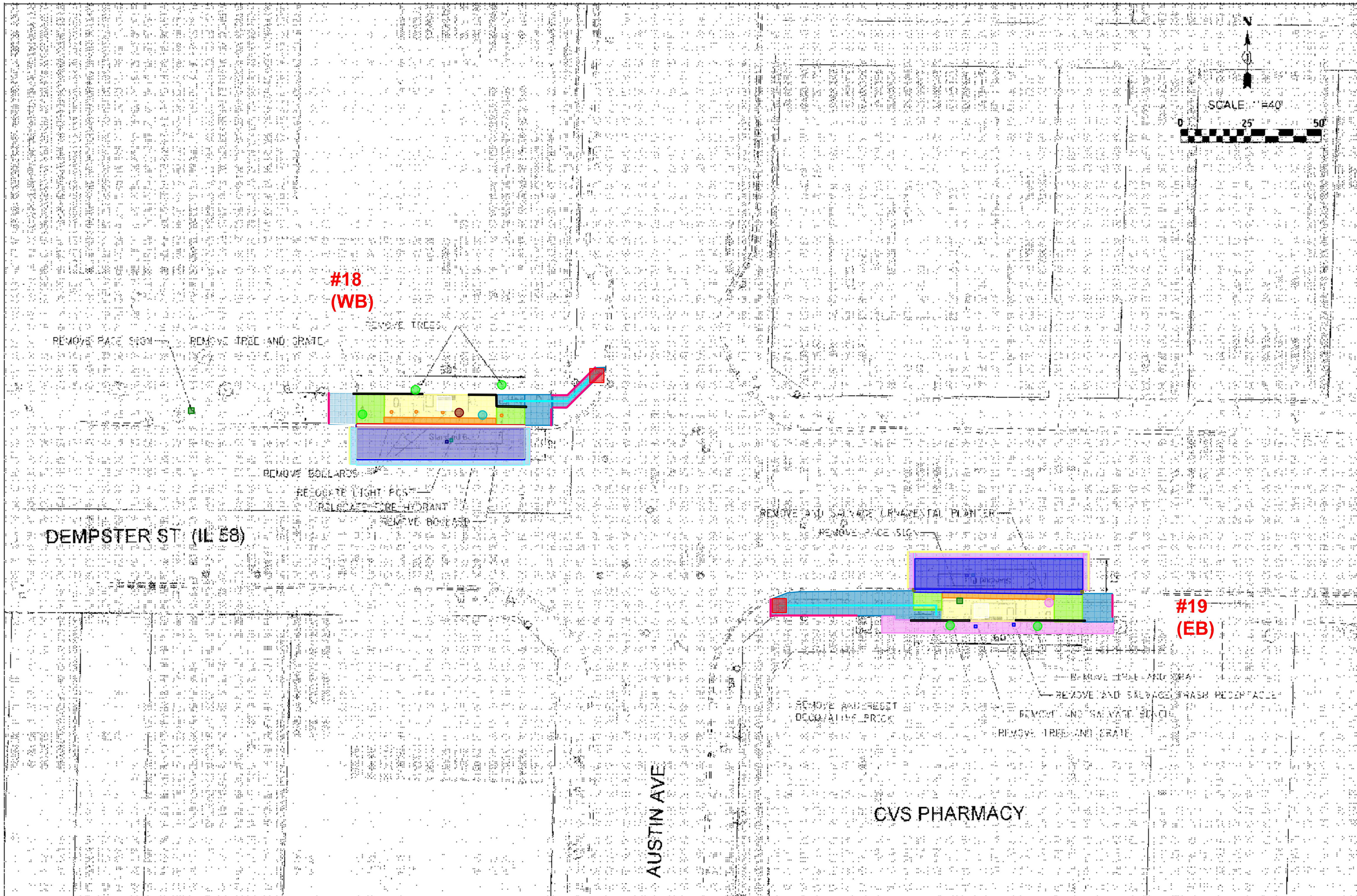
PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH

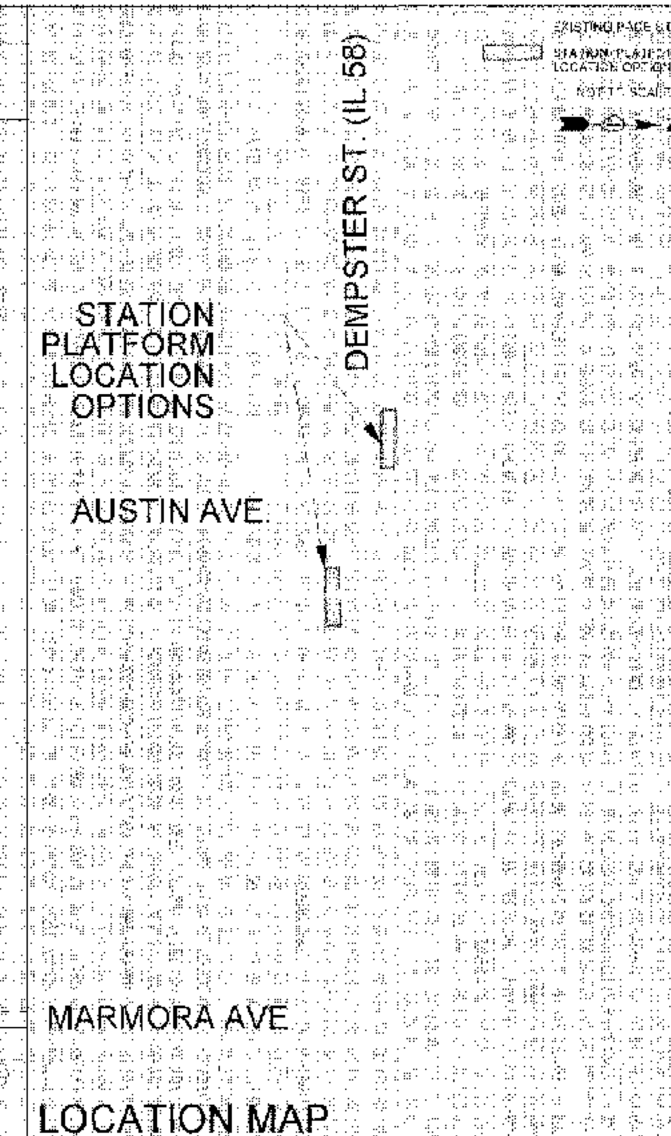
PROPERTY LINE

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
WAUKEGAN
EASTBOUND ALT. 1 AND WESTBOUND ALT. 2

CONTRACT NO.





QUANTITIES

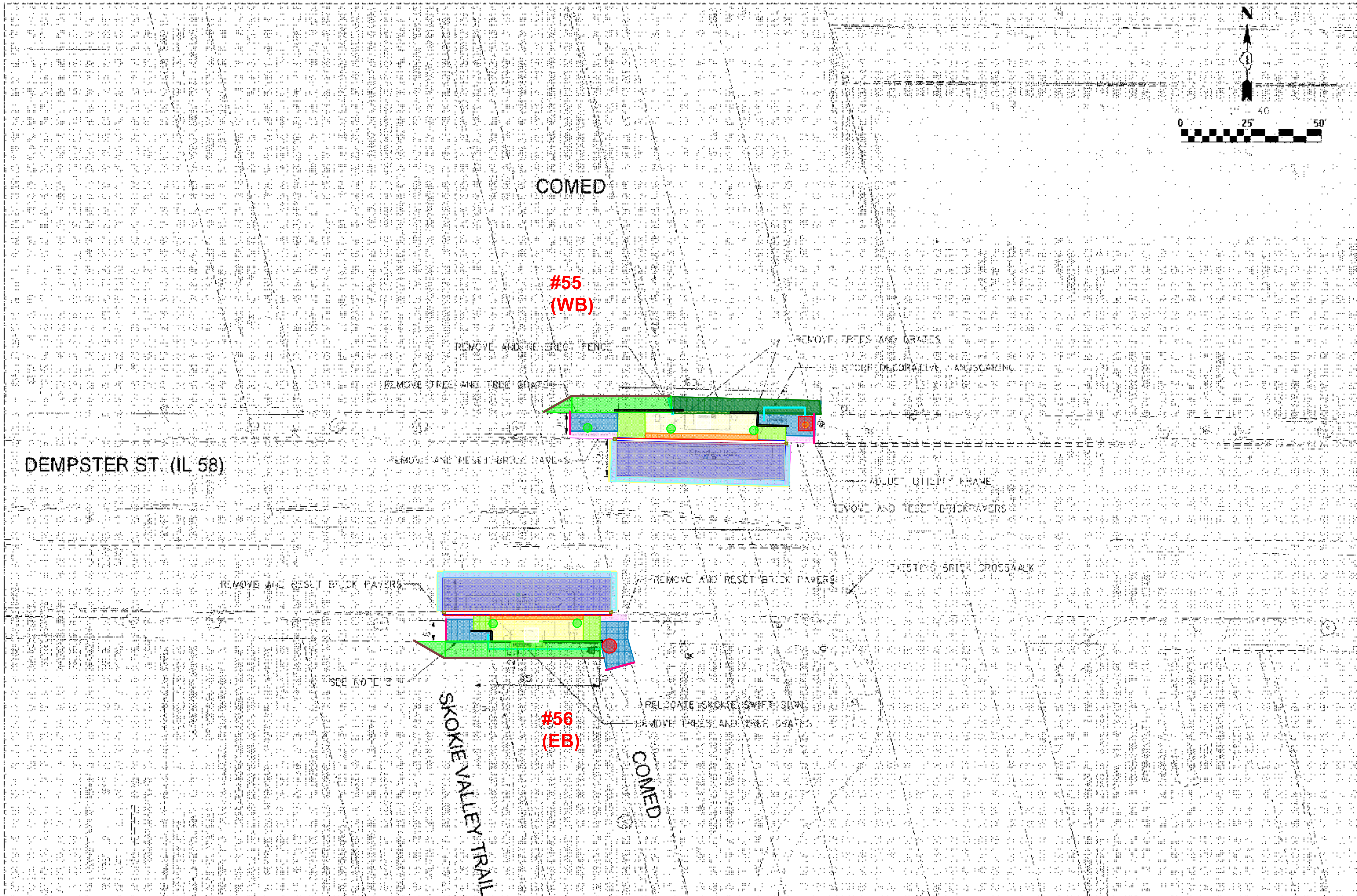
LEGEND

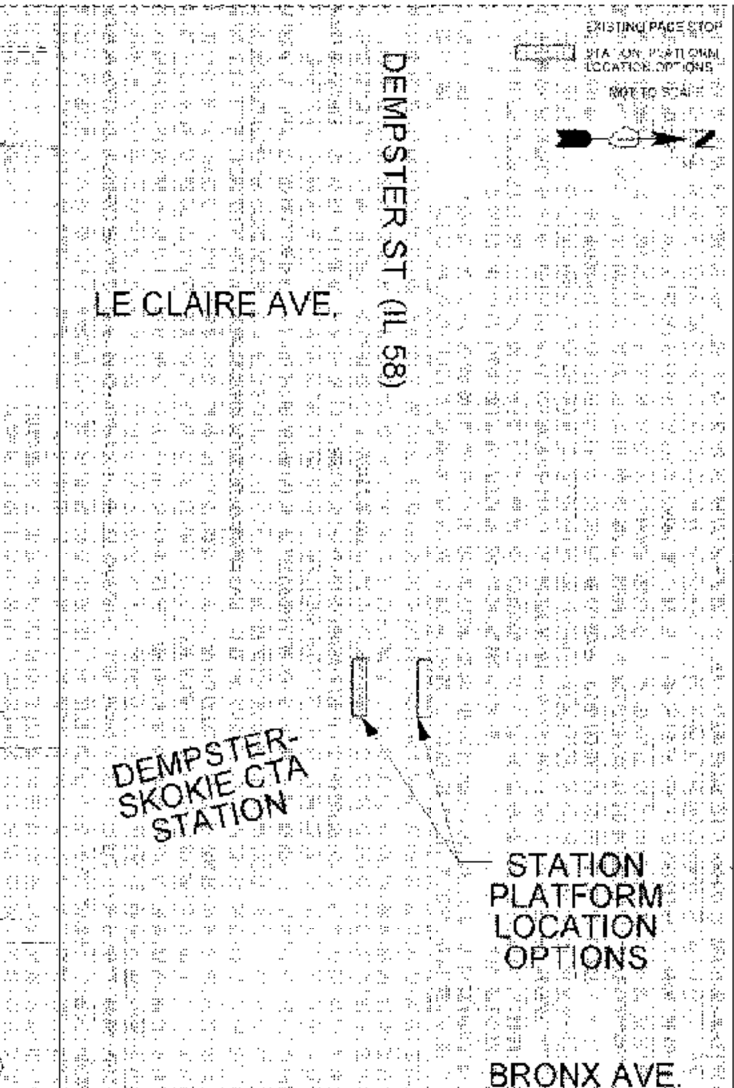
- U.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS.

DESIGNED -	REVISED -	PACE SUBURBAN BUS A DIVISION OF THE REGIONAL TRANSPORTATION AUTHORITY	PULSE DEMPSTER LINE AUSTIN: EASTBOUND ALT. 1 AND WESTBOUND ALT. 1	CONTRACT NO.
CHECKED -	REVISED -		SCALE: 1"=40'	
DATE -	REVISED -			





LOCATION MAP

LEGEND

- P.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

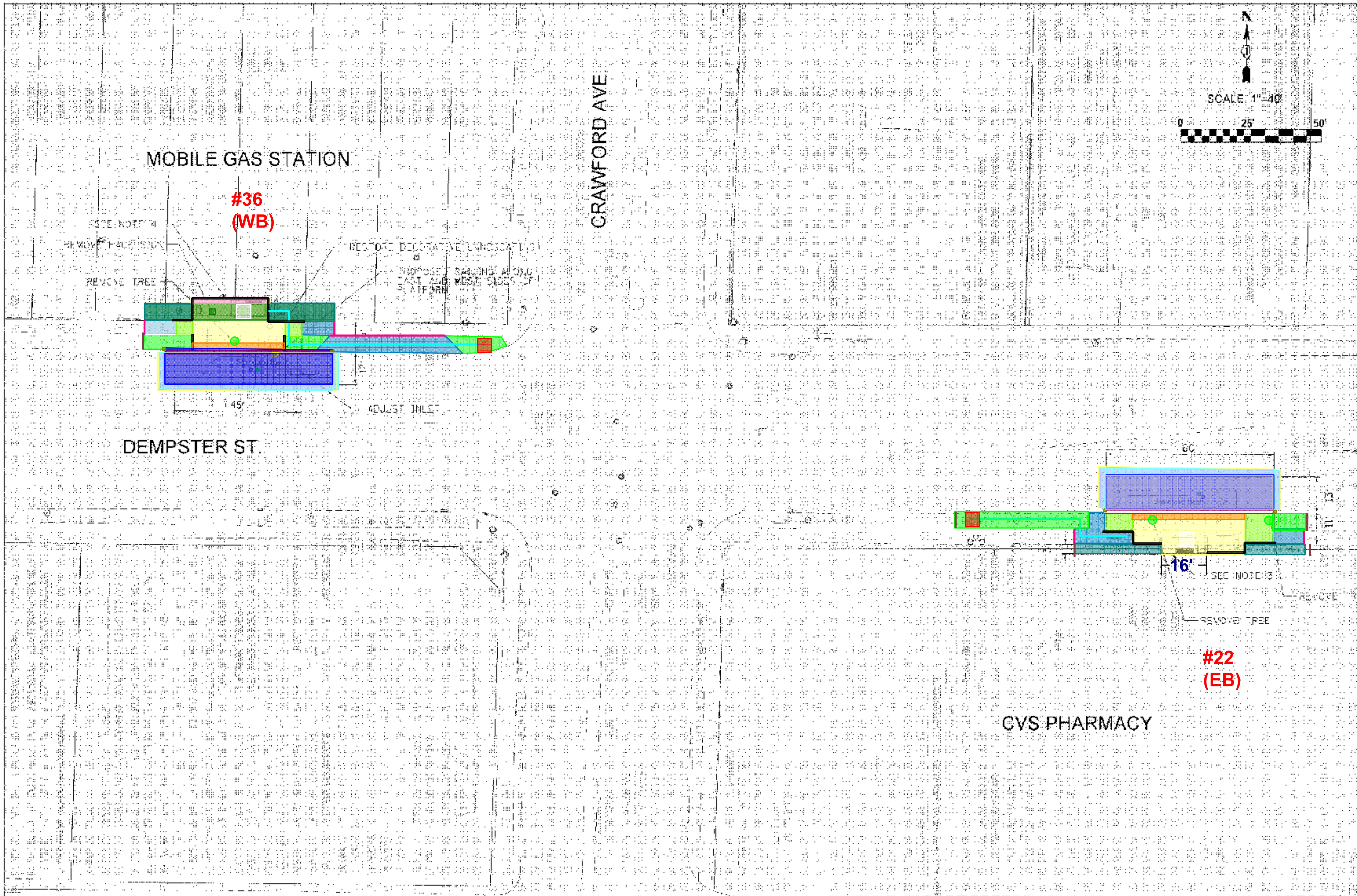
NOTES:

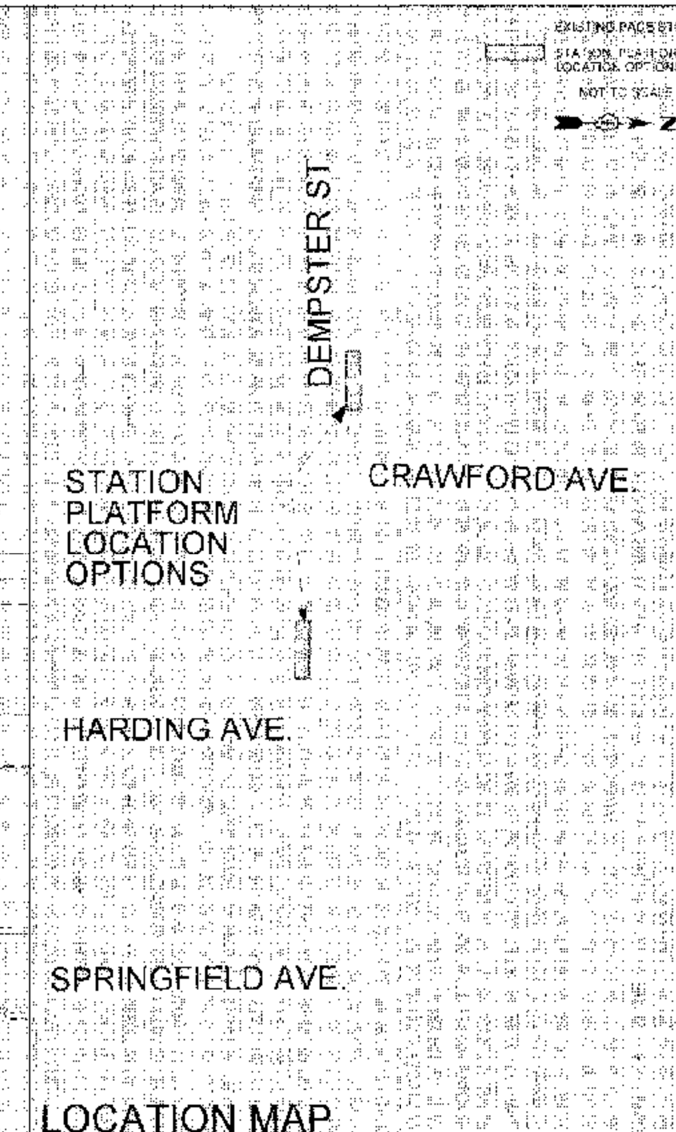
1. NO LANDSCAPE PROPOSED AT WESTBOUND AND EASTBOUND PLATFORMS.
2. COORDINATION WITH COMED IS REQUIRED FOR EASTBOUND AND WESTBOUND STATIONS.
3. AERIAL IS OUTDATED. SKOKIE VALLEY TRAIL HAS BEEN CONSTRUCTED. COODINATION WITH VILLAGE OF SKOKIE IS REQUIRED FOR CONSTRUCTING WESTBOUND STATION ADJACENT TO NEW TRAIL AND FOR PLACEMENT OF BICYCLE RACKS.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DEMPSTER-SKOKIE CTA:
EASTBOUND ALT. 2 AND WESTBOUND ALT. 2

CONTRACT NO.





LEGEND

- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4"; HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

NOTES:

1. AERIAL IS OUTDATED. A NEW CVS PHARMACY IS LOCATED AT THE SOUTHEAST CORNER OF CRAWFORD AND DEMPSTER.
2. PROPOSE NO LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS AND NO BIKE RACK AT WESTBOUND STATION.
3. SHELTER IS SET BACK TO MEET SIGHT DISTANCE REQUIREMENTS. SHELTER WILL POTENTIALLY BE AGAINST BUILDING.
4. SHELTER IS SET BACK TO MEET SIGHT DISTANCE REQUIREMENTS. SHELTER MAY ENCROACH INTO PRIVATE PARKING LOT.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
CRAWFORD:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 3

CONTRACT NO.

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

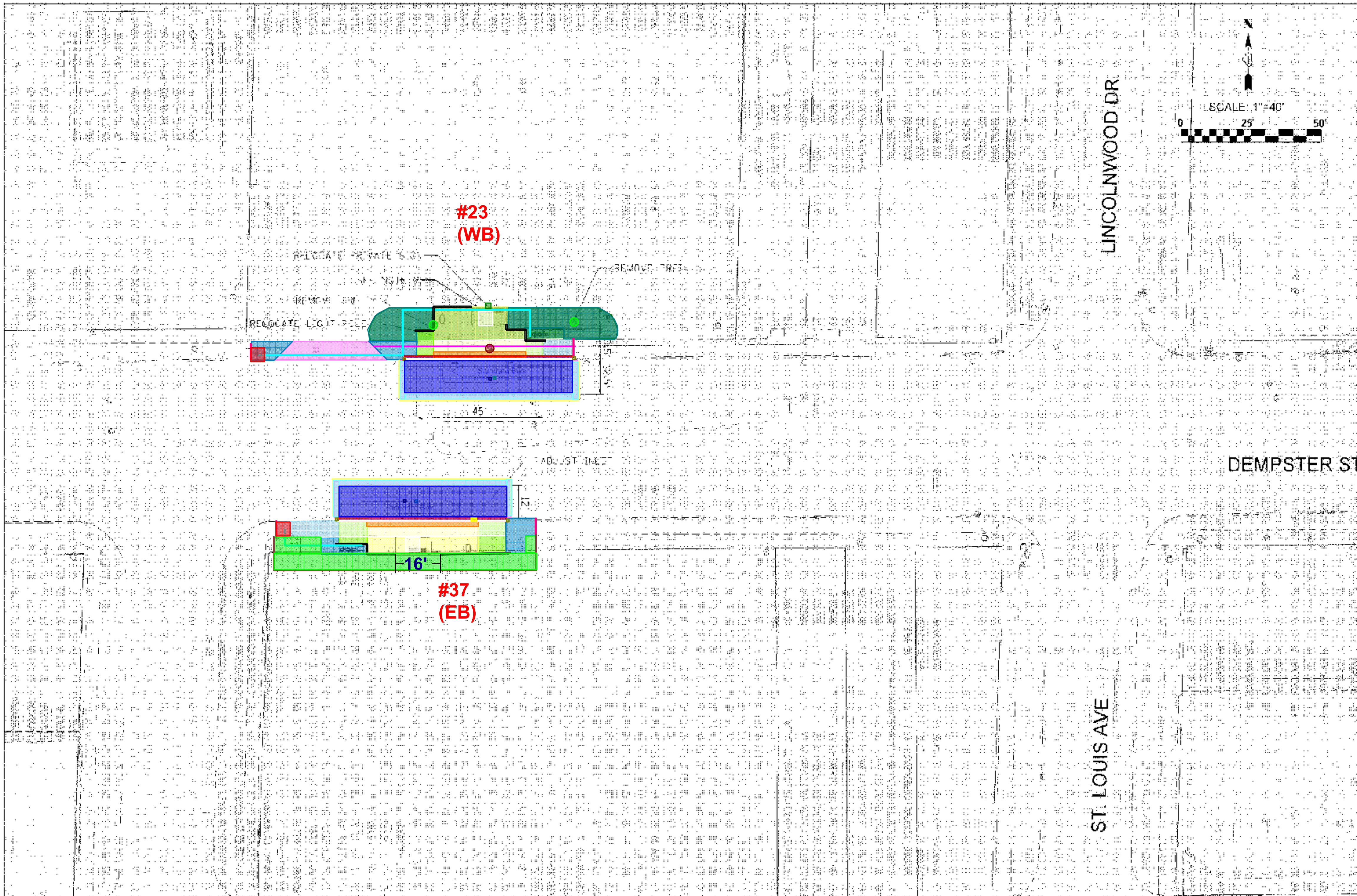
NOTES:

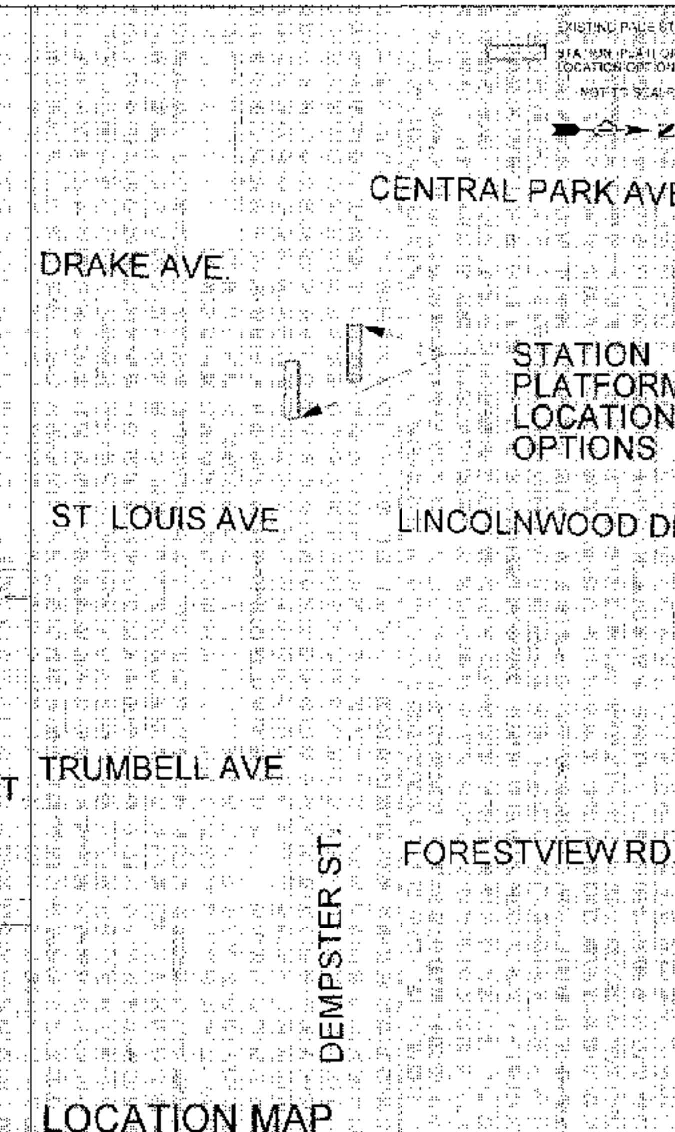
1. AERIAL IS OUTDATED. A NEW CVS PHARMACY IS LOCATED AT THE SOUTHEAST CORNER OF CRAWFORD AND DEMPSTER
2. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION
3. REMOVE EXISTING PACE SIGN AT NORTHWEST CORNER OF DEMPSTER ST AND CRAWFORD AVE
4. SHELTER IS SET BACK TO MEET SIGHT DISTANCE REQUIREMENTS. SHELTER MAY ENCROACH INTO PRIVATE PARKING LOT.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
CRAWFORD:
WESTBOUND ALT. 4

CONTRACT NO.





QUANTITIES

LEGEND

- H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4"; HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

NOTES:

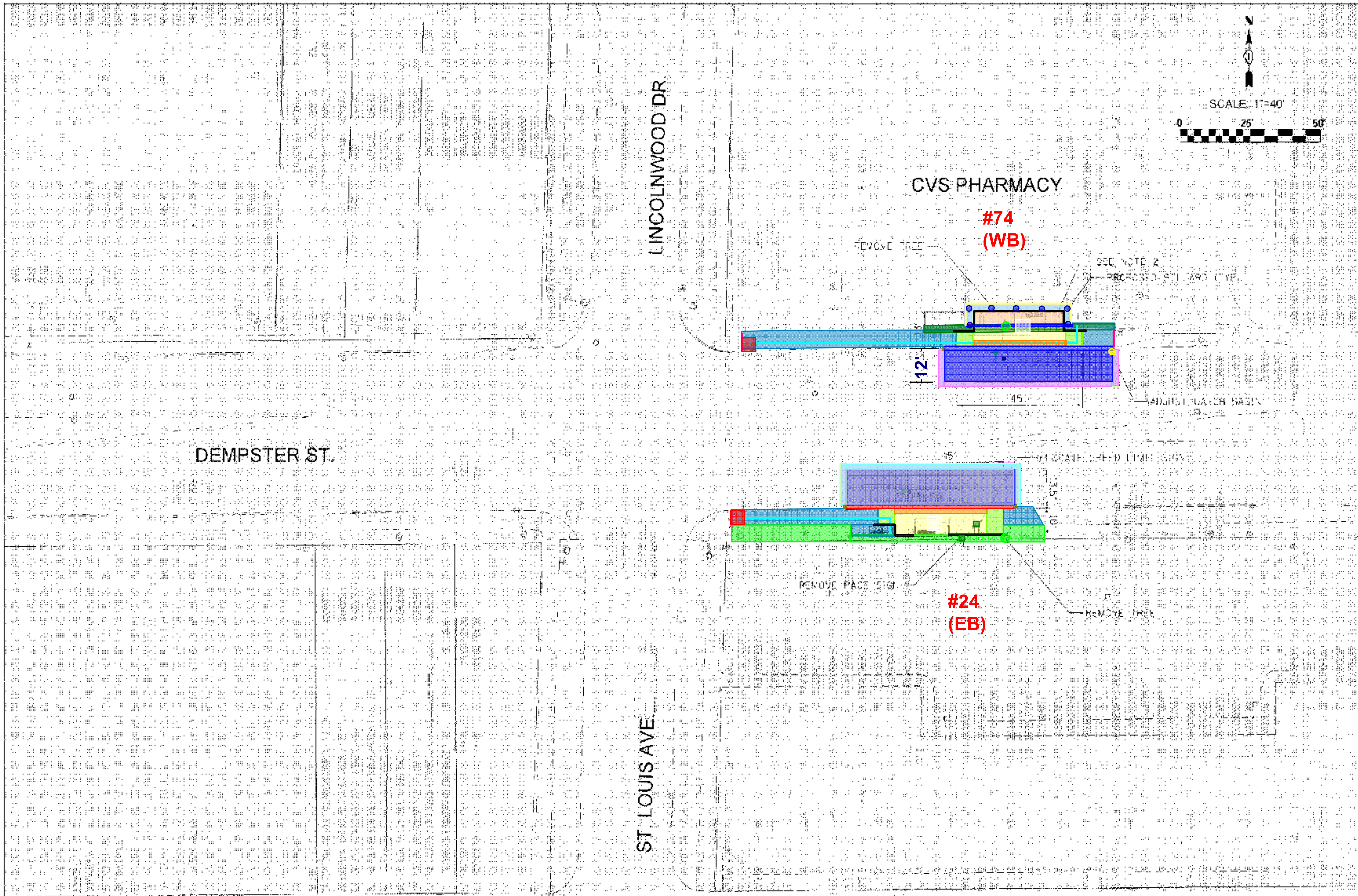
1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS.
2. SHELTER IS SET BACK TO MEET SIGHT DISTANCE REQUIREMENTS. SHELTER MAY ENCROACH INTO PRIVATE PARKING LOT.

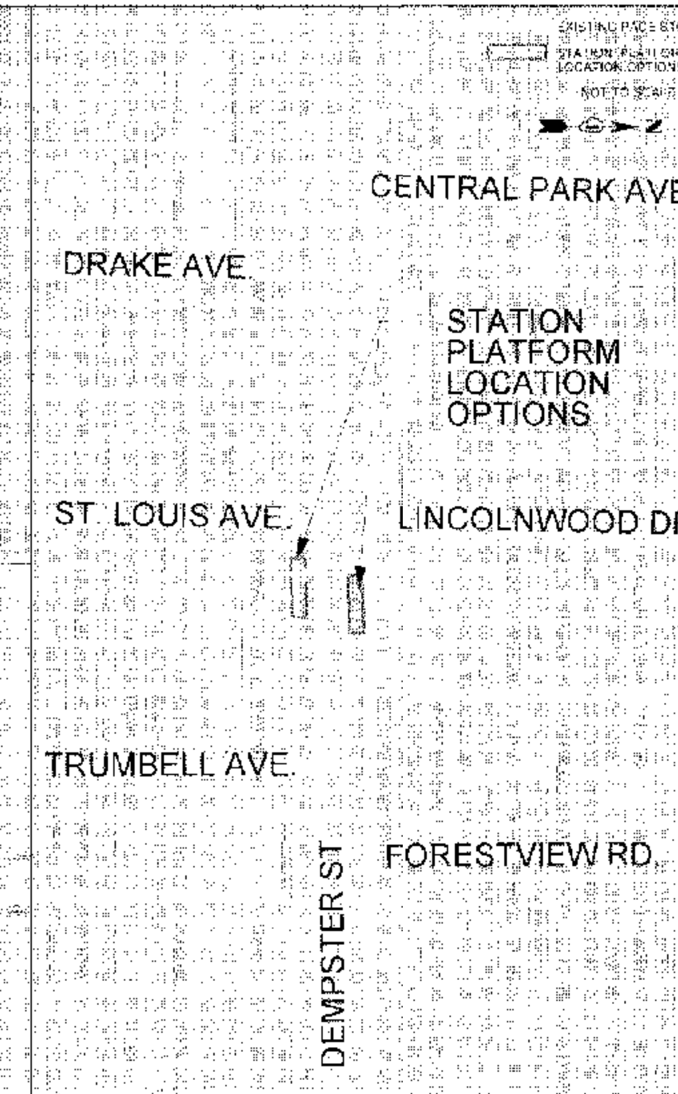
PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
LINCOLNWOOD:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

SCALE: 1"=40' | SHEET 24 OF 24 SHEETS

CONTRACT NO.





LOCATION MAP

LEGEND

- P.C.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4"; HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

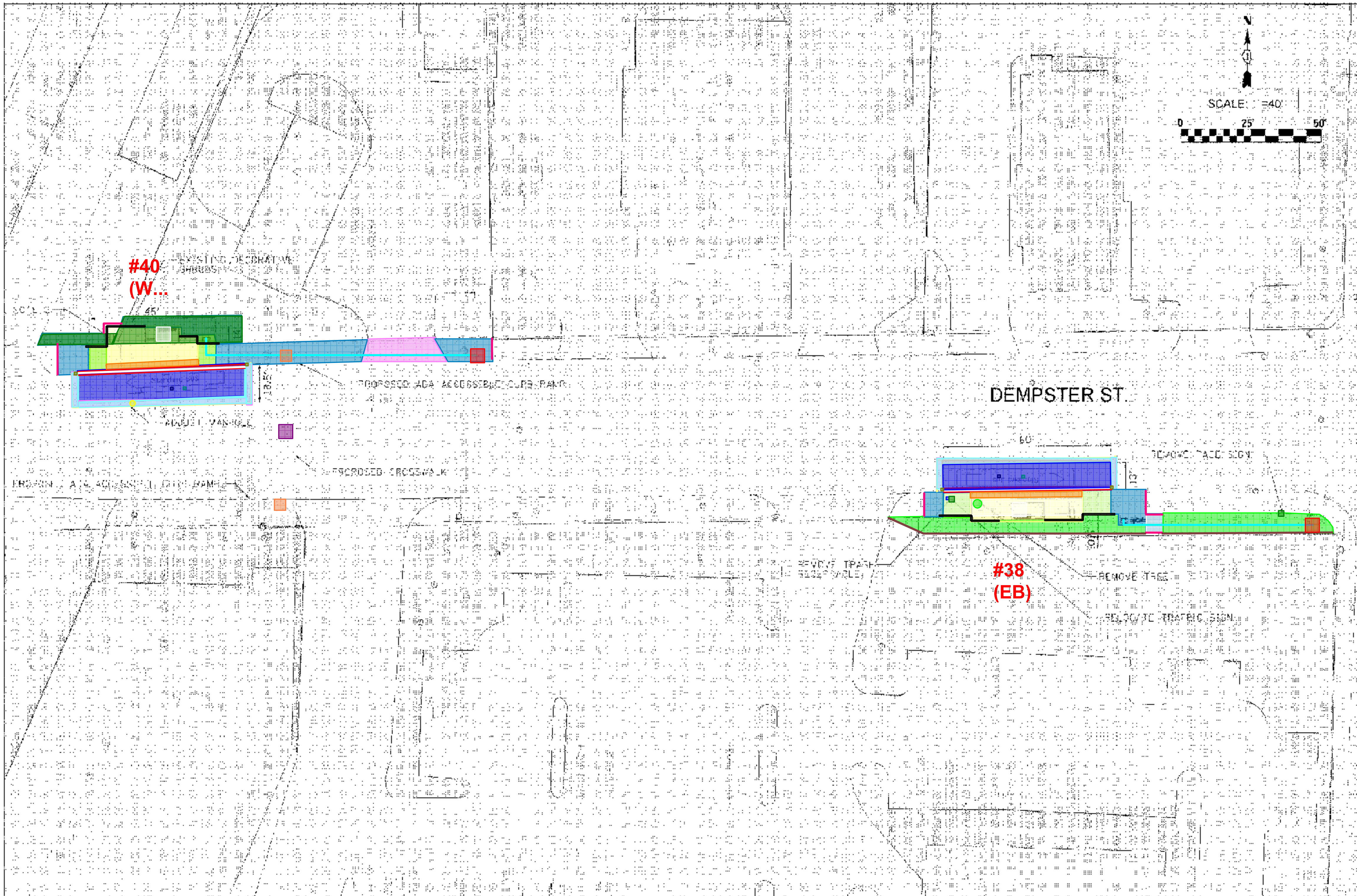
NOTES:

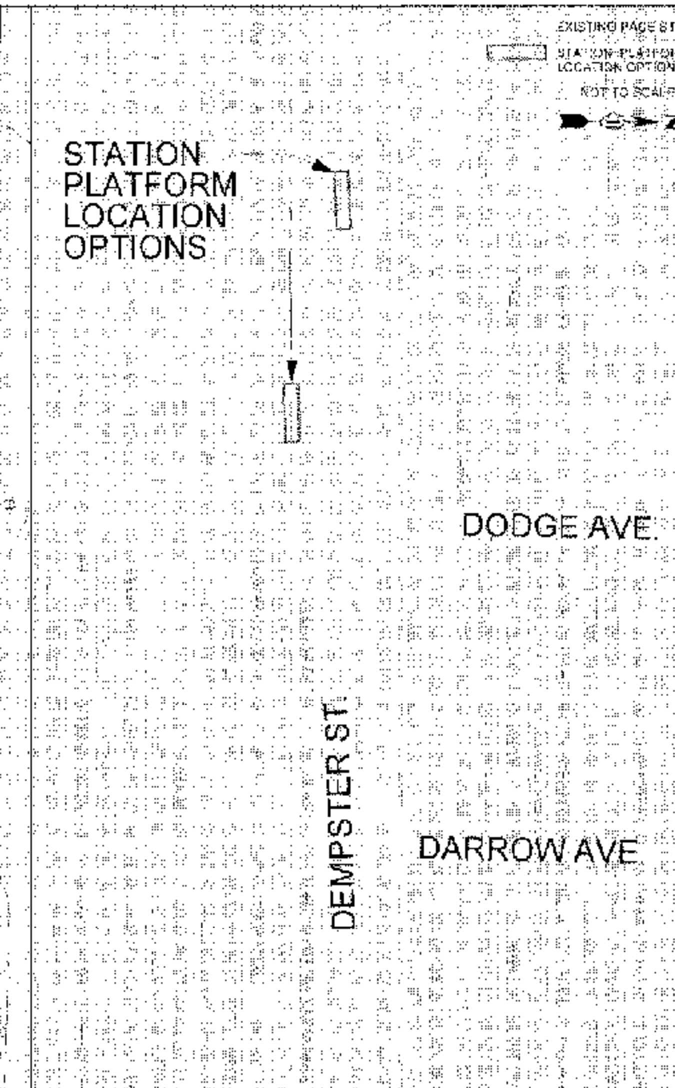
1. NO PROPOSED LANDSCAPE STRIP AT EASTBOUND AND WESTBOUND STATIONS.
2. SHELTER IS SET BACK TO MEET SIGHT DISTANCE REQUIREMENTS. SHELTER MAY ENCROACH INTO PRIVATE PARKING LOT AND ELIMINATE 4 PARKING SPACES.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
LINCOLNWOOD:
EASTBOUND ALT. 2 AND WESTBOUND ALT. 2

CONTRACT NO.





LOCATION MAP

LEGEND

- P.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

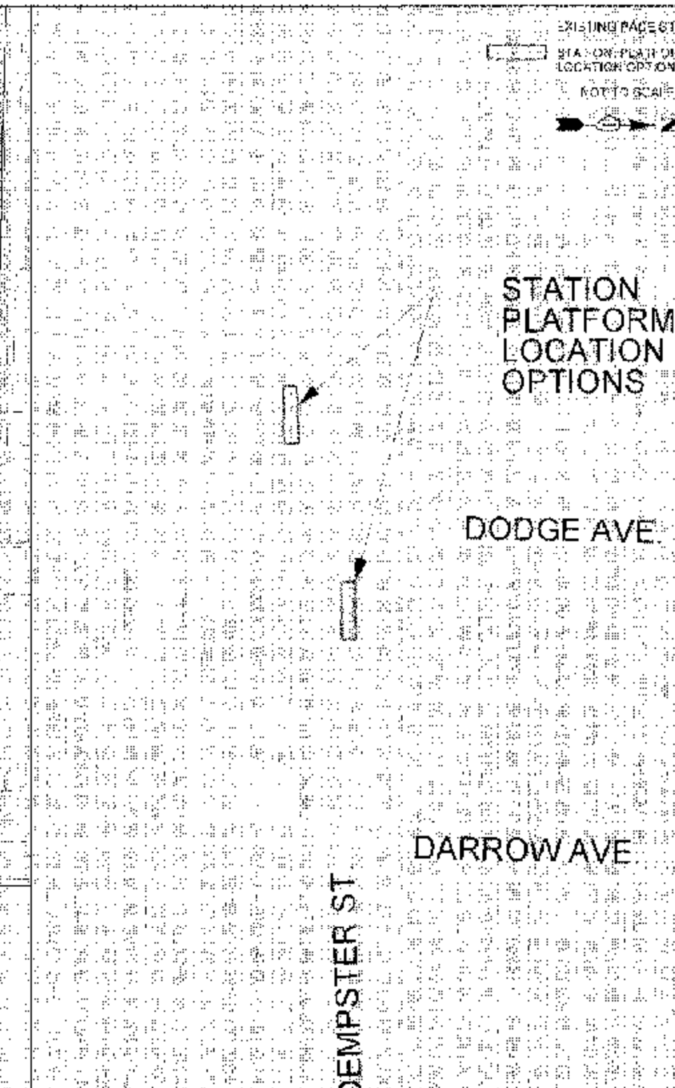
NOTES:

1. NO PROPOSED LANDSCAPE AT EASTBOUND AND WESTBOUND STATIONS.
2. SHELTER IS SET BACK ONTO PRIVATE PROPERTY TO MEET SIGHT DISTANCE REQUIREMENTS. MAY ENCROACH INTO PRIVATE PARKING LOT.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DODGE:
EASTBOUND ALT. 1 AND WESTBOUND ALT. 1

CONTRACT NO.



LOCATION MAP

LEGEND

- P.C. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
- HMA SURFACE COURSE, VARIABLE DEPTH
- HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
- PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
- PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- PORTLAND CEMENT CONCRETE PLATFORM, 12"
- PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
- PROPERTY LINE

QUANTITIES

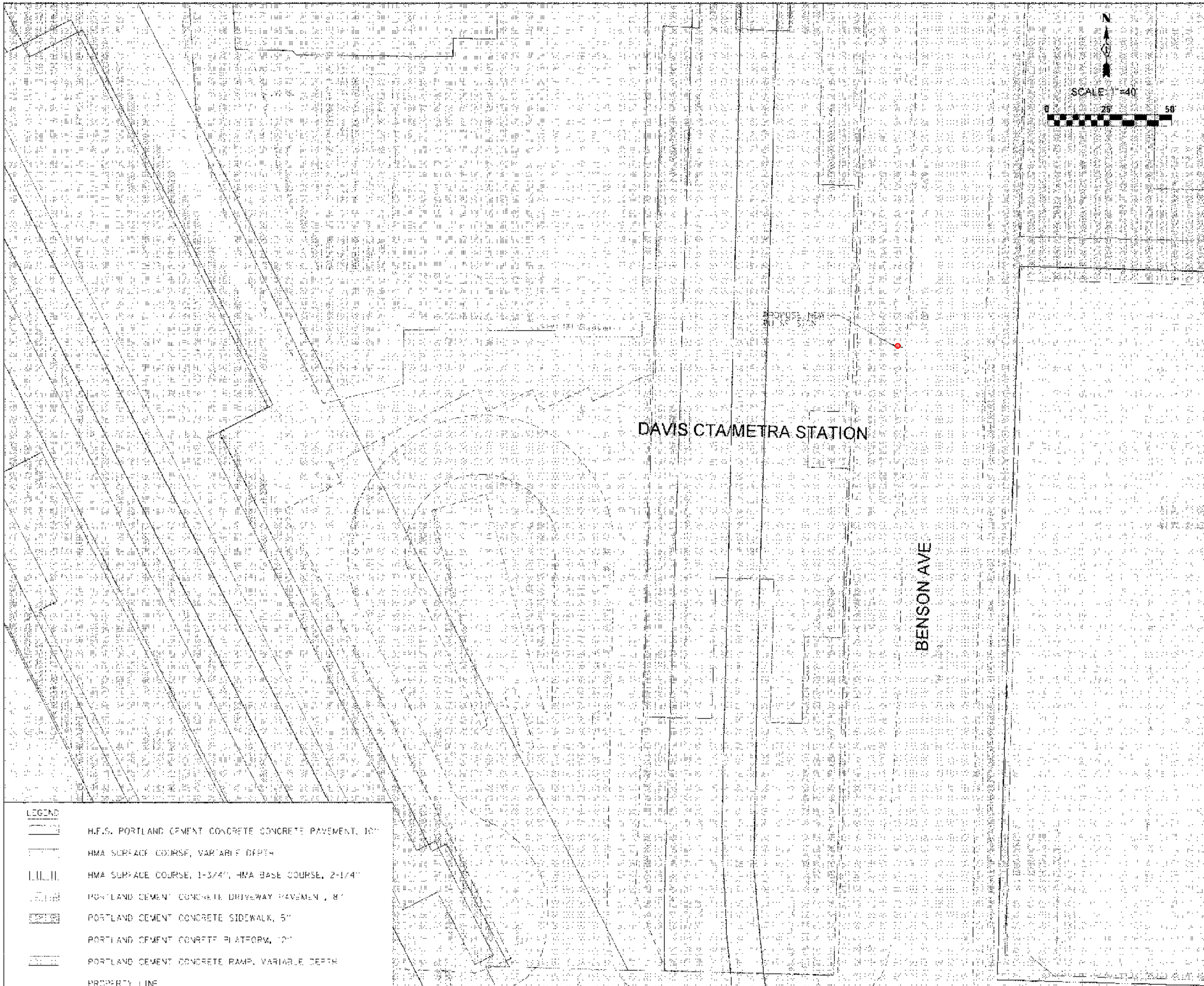
NOTES:

1. NO PROPOSED LANDSCAPE STRIP AT WESTBOUND STATION
2. STATION IS ... BACK ON ... PRIVATE PROPERTY TO MEET SIGHT DISTANCE REQUIREMENTS

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

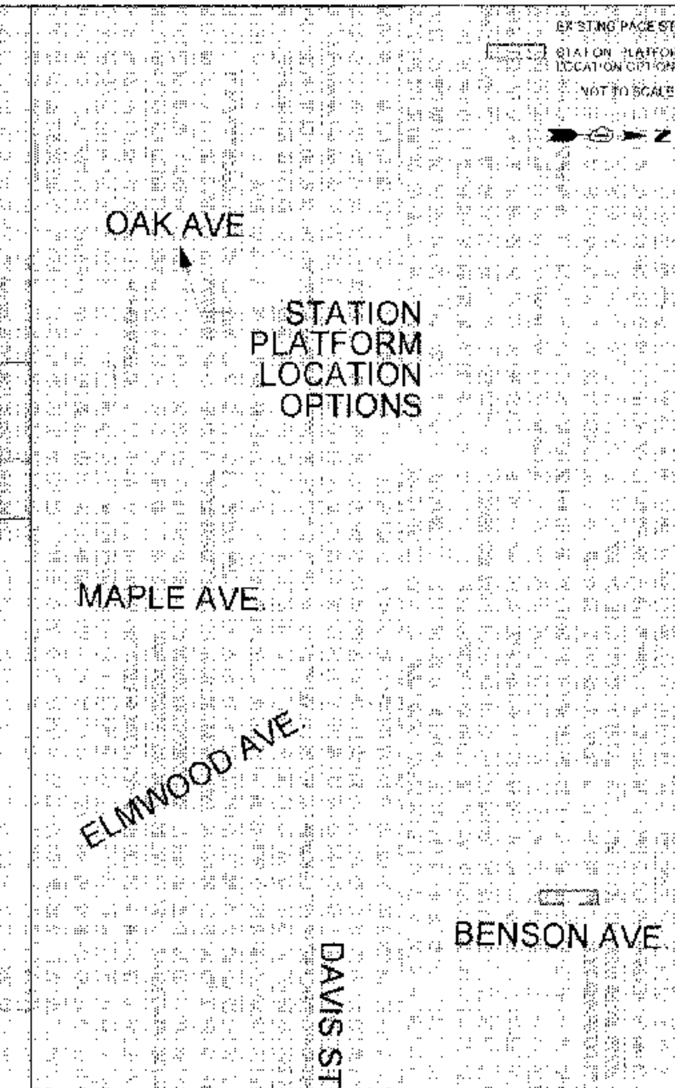
PULSE DEMPSTER LINE
DODGE:
WESTBOUND ALT. 3

CONTRACT NO.



LEGEND

H.E.S. PORTLAND CEMENT CONCRETE CONCRETE PAVEMENT, 10"
HMA SURFACE COURSE, VARIABLE DEPTH
HMA SURFACE COURSE, 1-3/4", HMA BASE COURSE, 2-1/4"
PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 8"
PORTLAND CEMENT CONCRETE SIDEWALK, 5"
PORTLAND CEMENT CONRETE PLATFORM, 12"
PORTLAND CEMENT CONCRETE RAMP, VARIABLE DEPTH
PROPERTY LINE



LOCATION MAP

QUANTITIES

NOTES:

1. FUTURE COORDINATION NEEDED WITH REGIONAL TRANSPORTATION AUTHORITY ON INTERAGENCY REAL TIME ARRIVAL INFORMATION SIGNS.

PACE SUBURBAN BUS
A DIVISION OF THE
REGIONAL TRANSPORTATION AUTHORITY

PULSE DEMPSTER LINE
DAVIS CTA / METRA

CONTRACT NO.

NEMA 4X Enclosures (1 Products)

Show all long descriptions ☑ Show Image **Update Cart**

Item Code▼	Short Description	Price (US $)▼	Quantity	Stock Status	Specs	Fav/BOM
 WA726018SSFSDN43PT ☐ Compare	Hubbell-Wiegmann enclosure, **NEMA** 4/4X/12, 72 x **60** x 18 inch (HxWxD), freestanding, **304 stainless steel**, smooth-grained finish, double-door, 3-point 316L keylocking/padlocking combo handle. *more...* Due to weight restrictions this item must ship via Freight. NEW! 10 Days LEADTIME	$8410.00	0	LEADTIME		

Enter the desired quantity and click 'Update Cart' **Update Cart**

Cynthia Rood

From: Bryan Olin <bryan.olin@polymerindustries.com>
Sent: Friday, June 17, 2016 4:24 PM
To: Cynthia Rood
Subject: POLYSLICK BUS CURB FOR PACE PROJECT
Attachments: POLYSLICK BUS CURB.PDF; c.jpg; f.jpg; g.jpg; j.jpg; k.jpg

Cindy,

As we discussed, attached is an informational sheet for POLYSLICK® BUS CURB along with a few extra photos of our product and below is an engineering estimate and sample specification.
I am providing pricing for 1.50", 2.00", and 2.50" thick all x 6.00" high.

All material shall be 6.00" high x 10'-0" long POLYSLICK® BUS CURB YELLOW drilled, c'bored, radius edged, and tapered (when required) as manufactured by Polymer Industries, Tacoma, WA 253-272-1217

112 ea. standard
56 ea. tapered (for lead in and trailing parts)

1.50" thick - $30,576.00 lot
2.00" thick - $38,448.00 lot
2.50" thick - $46,320.00 lot

Please acknowledge receipt and contact me with questions.
Thanks,
Bryan

Bryan Olin | Business Development Mgr. | **Polymer Industries** | 253.552.4558 direct | 800.872.8469 ph

HNTB

RECORD OF TELEPHONE CALL

Job #	PACE Dempster Line	**Date**	6-17-2016
Call From		**Of**	
Call To	Matt	**Of**	Landscape Forms 1-800-430-6209
By	Cindy Rood		

Subject Discussed	**Action to be Taken**
Site Furnishings	
Trash Can - " Steely Can" 39 gal	$ 910.00 each w/ freight @ $973.70
Bicycle Rack " Bola"	$ 320.00 each w/freight @ $342.40
74" backless "Arcata Bench"	$ 2,020.00 each w/freight @ 2,161.40
	Freight to Illinois @ 7%

HNTB

RECORD OF TELEPHONE CALL

Job #	PACE Dempster Line	**Date**	6-17-2016
Call From		**Of**	
Call To	Emily	**Of**	Ozinga Concrete 1-800-786-6380
By	Cindy Rood		

Subject Discussed	**Action to be Taken**
Concrete	Minimum 6 CY load & $ 20 delivery fee
High Early – State Mix 6.1	$ 188.80 per CY
3500 psi Concrete	$ 174. 00 per CY

Appendix I

BASIS OF COST ESTIMATE

CAPITAL COST ESTIMATE: BASIS OF ESTIMATE

Introduction

This document provides the basis of the Independent Cost Estimate (ICE) developed for the Pace – Dempster Line stations. The goal of this estimate is to evaluate the design documents produced and provide a detailed cost estimate to determine the appropriate construction costs for 47station sites. An additional estimate was provided that presented the total project cost for the Dempster Line corridor for 15 intermediate station locations (with two station sites per location) plus two additional terminal stations for a total of 32 estimated sites. All available project design files and documents were used to determine and evaluate anticipated construction costs for this project. The design documents were understood to be developed to a conceptual design level.

This report defines the parameters, scope of work, structure, assumptions and exclusions used in the development of the cost estimate. Separate reports may be developed, if needed, for further analysis and review.

It was understood that the design is at a preliminary stage and all elements of the project have not yet been fully detailed and designed; therefore estimating assumptions were utilized to generate the quantities and costs when needed. The documents provided for use in the preparation of the estimate include:

- Dempster station layouts (draft) – June 10, 2016
- Design Plan for Mannheim-Higgins
- PMO_DEMP_Stations-Platforms_For Estimate.xlsx
- GIS_PMO_DEMP_StationLayout_2016-06-06.shp
- Pulse Milwaukee Line 60% Design files
- Google Earth Pro

Quantity surveys (takeoff) have been developed and are included in the Backup attachment (Appendix A). These quantities are used for each station location and are complimented by details (shown or assumed) for the estimated element.

The purpose of this cost estimate, at this level, is to provide an accurate accounting and anticipated cost assessment for this project based on the information developed to date. The procedures used in the estimate are consistent with AACE International, formerly known as the Association for the Advancement of Cost Engineering.

Baseline Parameters for All Station Estimate and The Corridor Wide estimate

STATION DEMOLITION

Using design documents and Google Earth Pro the existing conditions demolition for each station location was compiled. The quantities of work will include items noted on the drawings and some assumed based on estimator experience. Station quantities for demolition vary per site.

EARTHWORK PARAMETERS

Grading documents were not included in the design documents available, so the earthwork related to the stations was quantified by taking square footage of proposed hard surface and assuming a cut of (1') to subgrade for new pavements. Each site was assumed to be an excess site with "clean" soils for distribution within a one hour 2-way travel time of each station location.

ROADWAY PARAMETERS

Elements of roadway construction required on this project are a 10" PCC bus pad using a high early concrete mix design, a 2' wide variable asphalt patch and B6-12 or B6124 curb & gutter (size determined by measurement on aerial photo).

LANDSCAPE

Landscape items figured in the estimate include restoring existing planting beds and sodded areas affected by the new station work. Also included are new planting beds but, the typical designs for the "Compact" and "Typical" stations would imply this landscape strip is not to be included at each site. Only a select few of the stations in the current design drawings for the Dempster Line included this new landscaping (noted as New Landscape Area) on the takeoff and estimate.

DRAINAGE AND UTILITY PARAMETERS

Drainage and utility relocations were included based on the design plans provided. In the absence of survey documents for existing utilities at each location, a complete cost determination could not be prepared at this time. Relocation for the utility items noted on the drawings has been included in the estimate, with an additional cost of 5% of the total construction cost allocated through the unit prices to cover the risk for unforeseen utility conflicts.

STATION PLATFORM

For the station platform the shelters, vertical marker, heaters, snow melting system, and real time sign allowances that were used in development of the Milwaukee Line were also used for this estimate. Bottoms–up production based costs were prepared on all other elements for the station platforms such as concrete pad, concrete ramp, tactile warning edge, stations furnishings, and steel railing. The unit prices for the electrical cabinet and conduit/wire from cabinet to station elements was also developed with this method. Local suppliers were contacted and copies of the quotes are attached to the backup documents.

EROSION CONTROL

Erosion control for each location was assumed based on estimator experience in storm water management practices. If the new station location had existing storm drainage structures in the area of construction, inlet protection was assumed. At the station location where existing sod was located, silt fence was added as both a construction zone fence and to prevent any silt runoff outside of construction limits.

MOBILIZATION AND TRAFFIC CONTROL

Each station is treated as an individual project in the estimate, requiring separate mobilization and traffic control per location. These items have been added based on a time determination or expectation for the amount of work that will be required at each station's location.

COMED ELECTRIC SERVICE DROP

The design drawings do not provide a power source for each of the station locations. Using Google Map Pro and any design drawings showing utility as-builts, a best guess for an electrical service drop location was used to determine length of conduit and wire needed for each station. An allowance of $5,000.00 was used for ComEd to provide the service connection to either an existing pole or on a buried power line. In some locations with power poles at or near the new station, the work required was clear-cut. In the station locations where the existing power lines were underground it was not always clear as to the amount of work involved to get electricity to the station. In these cases, at a minimum it was assumed a conduit would be placed within the right-of-way to the closest intersection were a power source may be available to tap into.

Work Breakdown

At the lowest level, the cost estimate is structured at established bid items in order to provide transparency to the listed items carried in the cost estimate. Each pay item or work activity number is broken down into further activities that represent the level of construction effort for the line item. Costs were derived to roll up to these items and generate a unit price for the associated item. A full detailed cost report showing all activities as well as a rolled up cost reports are included in the estimate document provided. In order to provide additional breakout and reporting flexibility, the estimate has additional breakdown above the item level, the full work breakdown structure utilized is shown below:

Station Site ID #

- #__ - Station Number, Name, Travel Direction and Alternate #
  - **SCC Code**
    - 20 - Stations, Stops, Terminals
    - 40 - Sitework & Special Conditions
    - 50 - Systems
  - **SCC Description**
    - 20.01 - At-grade station, stop, shelter, mall, terminal, platform
    - 40.01 - Demolition, Clearing, Earthwork
    - 40.02 - Site Utilities, Utility Relocation
    - 40.06 - Pedestrian / bike access and accommodation, landscaping
    - 40.07 - Automobile, bus, van accessways including roads, parking lots
    - 40.08 - Temporary Facilities and other indirect costs during construction
    - 50.05 - Communications
  - **Work Type**
    - 00 - General Conditions
    - 02 – Site Removals
    - 03 - Earthwork
    - 04 – Roadway
    - 05 - Utilities
    - 06 – Station Elements
    - 08 – Electric
    - 09 - Communications

Estimate Exclusions

COST ESTIMATE EXCLUSIONS / ADDITIONAL RISKS

1. Special insurances (railroad, builder's risk, etc.) are excluded.
2. Hazardous or contaminated material abatement and/or removal.
3. Archeological finds and/or any delays that could be caused by them.
4. 3rd Party utility impacts, relocation and/or any delays that could be caused by them.
5. Right of way (ROW) procurement costs or easement costs have not been included in the All-Station estimate, but an allowance of 600SF per location at a cost of $5.00 per SF was added to the Corridor Wide Estimate Summary Page.
6. Unforeseen conditions due borings or geotechnical information.

7 Special environmental considerations and mitigation have been excluded.

8 All other costs not specifically called out in this report or the estimate.

COST ESTIMATE ASSUMPTIONS

Labor Rates
2015 Labor rates, adjusted to the Chicago, IL market, were utilized in the estimate.

Overtime
Escalation for overtime and expedited schedule were not applied.

Unit Cost Development
The costs have been developed using typical estimating strategies. Where sufficient information was provided, quantities have been generated. If there was enough information to allow quantity takeoff and pricing, this method was chosen. In some instances, unit costs provided from previous Cost Data were applied in lieu of developing a full detailed estimate. Unit costs are developed by utilizing historical data developed over many years of estimating and construction experience. The estimate reports provided includes the fully resourced activities whenever applicable, identifying labor, equipment, subcontractors and materials.

Corridor-Level and All Stations (Station-Level) Estimate:

Current Year Dollars
The costs included in the estimate are 2015 dollars.

Overhead and Profit
Overhead and profit were figured at 18% of the project cost and is allocated throughout both estimates on construction costs.

Bonds and Insurances
Bonds and insurance were figured at 2% of the project cost and are allocated throughout the estimate.

Sales Taxes
A 7% sales tax was applied to material.

Labor Burden
A 34% labor and burden cost was added to the RS Means database rates for this estimate.

Utility Relocation
A 5% cost was added for unforeseen utility relocations.

Contractor General Conditions
A 5% cost was added for Contractor costs for project personnel.

Corridor-Level Estimate Only

Contingency of 25% was included in the estimate

- Preliminary Engineering 5%
- Final Design 5%
- Project Management, Agency/PMC 5%
- Construction Admin and Management 6%

- Insurance .5%
- Legal, Permits, Review Fees 2.5%

Escalation

Unit costs are set in 2015 dollars. Escalation was done to bring the costs to 2019 and 2020 dollars, a time period when the project would likely be under construction or operating. A variable inflation rate was used based on inflation forecasts from the Congressional Budget Office Baseline Economic Projections and Consumer Price Index, All Urban Users from the Bureau of Labor Statistics.

Appendix J

COST ESTIMATE: ALL STATION SITES EXCEL WORKBOOK

Appendix K

COST ESTIMATE: CORRIDOR STATION SITES

EXCEL WORKBOOK

Appendix L

FTA STANDARD COST CATEGORIES (SCC) EXCEL WORKBOOK

Appendix M

COMMUNITY EXPRESSION FEATURES: COST SHARING AND COORDINATION GUIDELINES

PULSE

Community Expression Features

Cost Sharing Strategy and Coordination Guidelines

February 5, 2016

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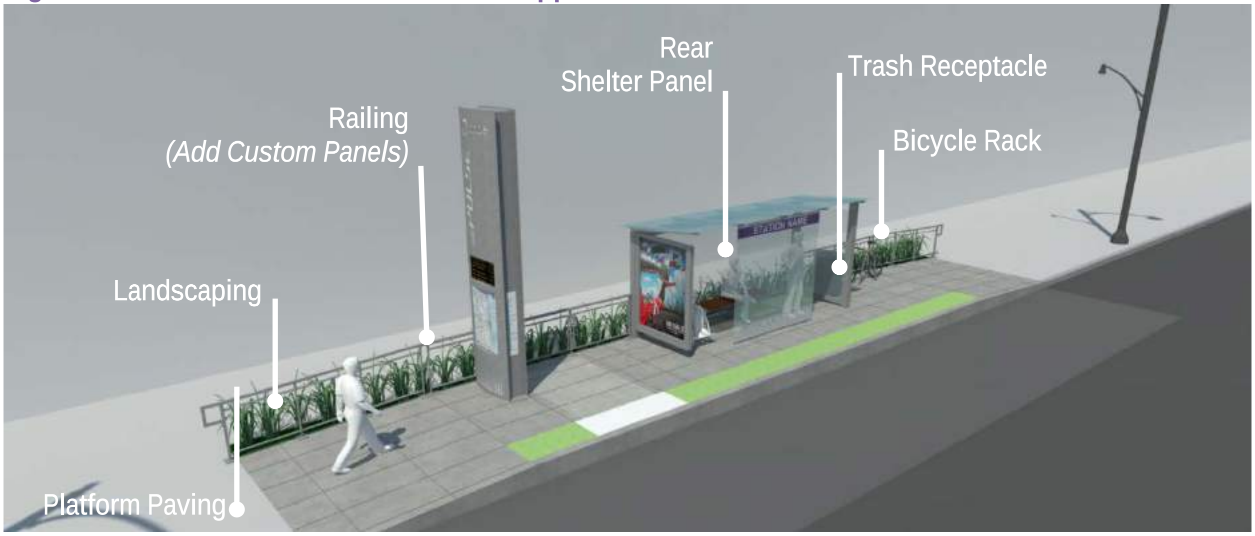
Community Expression Features | Cost-Sharing Strategy

Pace is coordinating with local communities to ensure Pulse stations are easily identifiable and communicate the Pace and Pulse brands while also being well integrated into the surrounding environment. As part of the planning and design process, Pace identified typical Pulse station elements. On average, Pace is investing $422,000 per station to install basic features as illustrated in Figure 1. Pace also identified which of these features could be customized community expression elements. The customizable features include landscaping, railing infill panels, shelter panels, trash receptacles, bicycle racks, and platform paving (see Figure 1). As part of this process, Pace also evaluated options for sharing the costs of customizing these station features with local communities. Provided below is a summary of Pace's cost-sharing strategy as well as guidelines for coordinating with communities on the customization of the features.

Figure 1: Station Feature Customization Opportunities



Cost Sharing Strategy

1. *Pace will pay for a customized rear etched* ***glass panel for station shelters*** *and will coordinate with communities on the design of the panel graphics. The approximate cost to customize the glass panel is $3,000 per shelter. Pace covers 100% of this custom element.*
2. *Pace has selected a* ***bicycle rack and trash receptacle*** *to be installed as a standard item at each station.*
   - *If a municipality would like to substitute its locally preferred bicycle rack and/or trash receptacle, Pace will make the substitution provided that the cost is equal to or less than the bicycle rack or trash receptacle selected by Pace. The municipality is also required to procure the substituted bicycle rack and trash receptacle that will be installed by Pace during station construction.*
   - *If the locally preferred bicycle rack and/or trash receptacle has a higher cost than the selected standard feature the municipality must cover the additional cost (see prices in Figure 2 below),*

3. *A municipality may customize the **platform railing** by adding 2 custom infill panels that feature community artwork adjacent to the passenger boarding area.*
    - *If a community desires to add custom infill panels, the community will be responsible for the standardized cost of the panels (See Figure 2).*
4. *Pace has specified a station **platform concrete paving**. If desired, the concrete paving material can be customized by a municipality. Available custom treatment options are limited to:*
    - *A single municipal logo stamped into concrete at the base of the ramps leading into the station area. If a community opts for a stamped concrete of their municipal logo at these locations the municipality will be required to design and furnish a stamp that Pace will use to imprint the concrete during construction. Pace will cover 100% of this construction cost.*
    - *Uniform color treatment for the entire platform with no stamping (limited approved colors TBD). If a community opts for a uniform color treatment, there will be a standardized cost of $1,000 per station for the custom treatment*

    For all the platform paving options, the municipality must agree to maintain the custom pavement and restore it to its original appearance if damaged or disturbed by construction or right-of-way work. (See Figure 2).
5. *The typical station will include **landscaping** adjacent to the back of the platform provided that a local partner (e.g. a local business, community, chamber of commerce, Special Service Area (SSA), or ward office) is willing to maintain it. Pace will specify a planting design appropriate for urban streetscapes.*
    - *If no local partner is willing to maintain the landscaping, none will be provided.*
    - *If a community would like to substitute its locally preferred planting palette, Pace will make the substitution provided that the cost is comparable to the design selected by Pace.*

Figure 2: Station Feature Customization Community Costs

CUSTOMIZED PULSE STATION FEATURES

<table>
<tr><th>Feature</th><th colspan="2">Community Cost Customized Station Features</th></tr>
<tr><td>Landscaping</td><td colspan="2">$0 (Plantings to be Coordinated with Community)</td></tr>
<tr><td>Railings (With Decorative Panels)</td><td colspan="2">$3,300 per station</td></tr>
<tr><td>Shelter
Standard Shelters with Customized Back Panel</td><td colspan="2">$0</td></tr>
<tr><td>Trash Receptacle</td><td colspan="2">Any amount in excess of $1,600/Unit</td></tr>
<tr><td>Bicycle Rack</td><td colspan="2">Any amount in excess of $1,300/Unit</td></tr>
<tr><td rowspan="2">Platform Paving (Stamped, Colored Concrete)</td><td>Stamped municipal logo (no color)</td><td>$0</td></tr>
<tr><td>Colored Concrete</td><td>$1000 per station</td></tr>
</table>

Coordination Guidelines

In addition to the above outlined strategy, Pace developed the guidelines below to facilitate agreements, and coordination with local communities on the feature customizations.

- Pace will coordinate directly with the municipality in which a station is located regarding any / all custom options. If a station is located in unincorporated territory, Pace may coordinate with the closest municipality or the county. If a station is located entirely or partially on private property, Pace may elect to coordinate with the property owner for the customization of station features.
- A municipality may offer customization decisions to local organizations. However, Pace accepts direction on station customization only from the municipal government (or county, or private property owner) in which the station is located and will enter into Intergovernmental Agreements only with municipal governments.
- If a municipality declines the opportunity to customize station features, Pace reserves the right to proceed with standard station features or custom features of its choosing.
- Pace reserves the right to enter into sponsorship agreements with public agencies or private entities to provide for the maintenance and/or customization of the Pulse system and Pulse station features.
- Pace has final authority to approve or disapprove all design treatments and customizations. Pace reserves its right to maintain design control over all features of the Pulse system and its stations, subject to compliance with local, state and federal regulations and permits.
- If a local municipality wishes to customize station features, it must enter into an Intergovernmental Agreement with Pace to document the features to be customized, the costs associated with such custom features, the responsibility of each party for payment of such costs, and responsibilities for maintenance of the features, including the cost of replacing damaged station features, among other items. General station maintenance, such as cleaning and trash removal, will be performed by Pace or a shelter vendor as determined or contracted by Pace. However, painting, general maintenance, repair and/or replacement of custom features (including landscaping, paving and railing panels) will be the responsibility of the partnering municipality.
- If a local municipality wishes to customize station features, the local community must provide Pace with vector-based digital files of any custom artwork or logos as well as any product specifications for the desired station features (e.g. bicycle rack or trash receptacle).
- Customized station features must be coordinated prior to the completion of 60% design drawings. Pace will not guarantee that new requests for custom station features can be accommodated after this point. Any requests for custom features received after the completion of 60% design drawings will be considered on a case by case basis with consideration given to the feasibility of accommodating the customized feature, the expected life and condition of the feature, and the costs for any associated change orders, including the responsibility for said costs.
- Custom features and/or substitutions (e.g. substituting a community's bicycle rack for Pace's standard bicycle rack) may be limited by site constraints and/or other

project requirements or restrictions, including rights of access to be granted through required real estate transactions, permits, and/or use agreements.

- If a municipality seeks a customization that is not listed on the above menu, it shall be submitted to Pace for consideration, with a visual rendering of the proposed element.