

V. Surface Transportation/Parking Plan Development

The preferred landside concept for OMP consists of several elements that address various needs. Some elements from the World Gateway Program (WGP) have been retained, requirements for some elements were revisited with respect to OMP's activity forecasts, and other elements were programmed in the context of the preferred OMP airside and terminal concepts. This section details the various concepts considered for each landside element. Where landside elements were programmed with respect to OMP's activity forecasts, the methodology of the programming effort that resulted in facility requirements is presented prior to the concepts.

In the context of the surface transportation/parking plan development documentation, terminal facilities in the preferred plan are referred to as the East Terminals and the West Terminal Complex. The East Terminals, or facilities on the east side, refer to the existing terminal complex (Terminals 1, 2, 3, and 5) as well as the terminals proposed as part of the WGP (Terminals 4 and 6). The West Terminal Complex refers to the new western terminal complex identified in the preferred OMP terminal plan.

5.1 West Terminal Curb

This section summarizes facility requirements developed to identify appropriate curbfront length as well as concepts for lane configurations in front of the West Terminal. No other terminal curbfront changes are proposed under OMP.

5.1.1 West Terminal Curb Facility Requirements

The length of the curbfront to support the new West Terminal Complex was estimated based on the ramp frontage supporting the West Terminal Complex. The existing ratio of 10,150 linear feet of ramp frontage at gates that United Airlines' operates (United was selected as a representative hub carrier) to the 780-foot curbfront at Terminal 1 (United's curbfront) resulted in the preliminary identification of a planning factor of just over 13 linear feet of ramp frontage per one linear foot of curbfront. This planning factor was applied to the total ramp frontage at the new West Terminal Complex (8,825 linear feet) and resulted in the requirement for approximately 680 linear feet of curbfront, considering a similar upper (departures) and lower (arrivals) roadway system as currently supports United Airlines' operation. This methodology used to project curbfront length requirements was based on the potential that a hubbing carrier, of similar operational characteristics to United Airlines, would operate at the West Terminal Complex. The concept provides the ability to expand the curbfront length up to approximately 1,600 linear feet to accommodate requirements appropriate for the ultimate user of the West Terminal Complex.

5.1.2 West Terminal Curb Concept Refinement

Based on the facility requirements for the West Terminal curbfront, various layout concepts were developed and evaluated. The layout concept that was selected for inclusion in the ALP, depicted in **Exhibit V-1**, features a four-lane section for departures (upper level) and two three-lane sections for arrivals (lower level). The two lanes closest to the curbfront on the upper departures level provide parking and double-parking for unloading vehicles. The third and fourth lanes are provided for by-pass traffic. The upper departure level could be expanded to accommodate by-pass lanes similar to the operations that currently exist at Terminals 1, 2, and 3. The lower arrival level has two three-lane sections. Commercial vehicles would use the inner lanes, private vehicles the outer lanes.

A second concept, referred to as Concept 1 in Exhibit V-1, was developed. This concept features a four-lane section for departures (upper level) and one three-lane and two two-lane sections for arrivals (lower level). Three sets of lanes were considered for the lower arrival level as a means of creating additional terminal curbside for departure operations. Commercial vehicles such as taxis and bus/limousines would use the inner and middle lanes. The outside lanes would be used for private vehicles. This option was discarded because of the difficulties encountered in separating the vehicles into appropriate streams of traffic according to vehicle type. There is not enough physical distance along the inbound terminal roadway to inform motorists and separate the vehicles into the correct lanes. The same is true for the egress movement that requires the traffic to be merged together and separated into appropriate destination streams according to the regional road they wish to travel.

5.2 Roadways

This section summarizes concepts developed and selected for roadway improvements depicted on the ALP as part of the preferred landside concept. Some roadway improvements were programmed under the WGP planning effort and included on the approved May 2002 ALP. Roadway improvements (both on- and off-Airport) identified as part of the OMP include:

- West Terminal Access Roadways
- Irving Park Road/York Road Interchange, Irving Park Road Relocation
- Mt. Prospect Road

The WGP identified the following roadway improvements, which would be maintained and in some cases refined under OMP:

- Northeast Quadrant Roadway Concepts
- East Side I-190 Concepts
- Other World Gateway Program Roadway Concepts

5.2.1 West Terminal Access Roadway Concepts

5.2.1.1 Roadway and Access Requirements

Since there is no existing public roadway access on the west side of the Airport, an entirely new roadway system is needed for the OMP. This access system needs to accommodate the high level of peak hour traffic demand associated with the activity of the West Terminal, which is estimated at approximately 900 inbound trips and 800 outbound trips. These peak hour estimates include trips utilizing the curbside areas, the parking facilities adjacent to the West Terminal, and the commercial vehicle holding areas.

The current regional roadway network on the west side of O'Hare consists of York Road/Elmhurst Avenue, a north-south arterial roadway, and Thorndale Avenue, an east-west arterial facility. York Road/Elmhurst Road connects with the regional highway system on the south at I-290 and on the north at I-90.

Access serving the West Terminal also must meet the following additional criteria:

- must be cost effective from a construction, operation, and maintenance perspective;

- should cause minimal impact to adjacent communities including, but not limited to, right-of-way impacts, construction impacts, and access/circulation impacts; and
- provide for future expansion of the roadway system by state and local transportation agencies to accommodate roadways proposed in the Chicago region long range transportation plan.

5.2.1.2 Description of Concepts

Various West Terminal access roadway concepts and subsequent variations of those concepts were developed in concert with the airfield and terminal planning. As the airfield and terminal planning progressed, the various roadway options were considered qualitatively in terms of their relationship to the needs of the OMP. Based on emerging preferences for the airfield layout and the terminal configuration, roadway and access options were consolidated into four primary concepts. These four primary concepts are described in the following paragraphs:

- *Concept 1*, depicted in **Exhibit V-2**, provides elevated ramps linking York Road with the West Terminal loop roadways and a tunnel linking Thorndale Avenue with the West Terminal loop roadways. The elevated ramps pass above York Road and the Union Pacific and Canadian Pacific rail lines. The tunnel passes beneath York Road and the rail lines. This concept provides free-flow traffic movements into and out of the Airport, meaning that there are no traffic signals managing the flow of airport traffic. Thorndale Avenue would be depressed west of York Road, and ramps would be constructed to and from York Road to maintain the connection between York Road and Thorndale Avenue. The ramps would terminate in a single signalized intersection on York Road. Acquisition of some property along Thorndale Avenue west of York Road could be necessary to accommodate the depressed roadway section and the connector ramps. Similarly, acquisition of property along York Road may be necessary to accommodate the widening for the ramps linking York Road and the West Terminal.
- *Concept 2*, depicted in **Exhibit V-3**, provides a four-lane access road to and from the West Terminal. It would connect with a realigned Irving Park Road on the south and Elmhurst Road on the north via signalized intersections. This north/south roadway would lie primarily on Airport property with the exception of the portion that intersects with Elmhurst Road just east of the Union Pacific and Canadian Pacific rail lines. The grade separation between the proposed north/south roadway and the rail lines would be achieved by depressing the roadway and running it below the rail lines. Acquisition of property outside of the Airport boundaries would be necessary to accommodate the connection of the north/south roadway to Elmhurst Road. Two “T” intersections on the north/south roadway would provide for ingress and egress movements to and from the West Terminal complex. These “T” intersections would likely warrant traffic signals to manage the turn movements and prevent congestion.
- *Concept 3*, depicted in **Exhibit V-4**, utilizes the same the north-south roadway connection as described in Concept 1. In addition, a tunnel under York Road and the Union Pacific and Canadian Pacific rail lines would be constructed to provide a direct connection between the West Terminal and Thorndale Avenue. Terminal roadways are modified slightly to allow for movements to and from the added Thorndale Avenue connection. Thorndale Avenue would be depressed west of York Road, and ramps would be constructed to and from York Road to maintain the connection between York Road and Thorndale Avenue. The ramps would terminate in a single signalized intersection on York Road. Acquisition of some property along Thorndale Avenue west of York Road could be necessary to accommodate the depressed roadway section and the connector ramps.

- *Concept 4*, depicted in **Exhibit V-5**, realigns Thorndale Avenue to the north and constructs a partial cloverleaf interchange between York Road and Thorndale Avenue. A tunnel running beneath York Road and the Union Pacific and Canadian Pacific rail lines would connect Thorndale Avenue with the West Terminal. The interchange ramps between York Road and Thorndale Avenue would be signalized intersections. This concept provides for a connection between the terminal and York Road via the signalized intersections. It also requires the acquisition of an existing business and a relatively large piece of property on the west side of York Road.

5.2.1.3 Evaluation of Concepts

The four primary concepts for providing access to the proposed West Terminal were evaluated using a combination of qualitative and quantitative criteria.

Concept 1

Overall costs	The costs for Concept 1 include considerable bridge work associated with the flyover ramps at the intersection of Thorndale Avenue and York Road. The tunnel below York Road and the rail lines connecting Thorndale Avenue with the West Terminal is a second major construction cost consideration.
Construction impacts	Construction impacts would be contained within the area of the Thorndale Avenue and York Road intersection where the tunnel and the flyover ramps would be constructed. Special attention would need to be focused on maintaining traffic and rail operations during construction of the tunnel.
Traffic impacts/traffic capacity	Access to the West Terminal is consolidated to a single point under Concept 1. Free flow traffic operations would be provided to traffic accessing the West Terminal via Thorndale Avenue. Free flow traffic operations also would serve traffic accessing the West Terminal from York Road. A traffic signal would manage the traffic at the York Road and Thorndale Avenue intersection. The comparative estimated levels of service are good and the degree of congestion is projected to be relatively limited under this operational scenario.
Airfield impacts	There are no known airfield impacts under Concept 1.
Off-Airport impacts	Off-Airport impacts are focused on the properties along Thorndale Avenue near York Road. The addition of the tunnel connecting Thorndale Avenue to the West Terminal may require acquisition of strips of property in the northwest and southwest quadrants of the York Road/Thorndale Avenue intersection to accommodate the minor widening needed for the flyover ramps. Access to and from the properties along York Road near Thorndale Avenue may be limited to right-in-right-out movements because of the flyover structures.

Concept 1 preserves a corridor for the proposed Western By-Pass on Airport property.

Concept 2

Overall costs

Cost is considered comparatively lower for this concept because there is one tunnel required at the north end of the north/south roadway. The north/south roadway itself is a four-lane facility, constructed on grade, which is generally the least expensive method of roadway construction.

Construction impacts

Most of the construction activities occur on Airport property, so impacts are largely limited to airfield operations. However, some construction impacts are anticipated at the northerly segment of the north/south roadway where the roadway ties to Elmhurst Road. Also, construction of the tunnel below the active rail lines will require special attention.

Traffic impacts/traffic capacity

Access to the West Terminal is gained entirely from two signalized intersections, at each end of the north/south roadway. These intersections are on significant regional arterials that serve substantial through traffic volumes. The new intersections would introduce peak hour turning volumes of approximately 400 to 500 vehicles per hour. These added volumes would clearly worsen the overall levels of service and create added congestion and delay. The road also would provide a parallel route to Elmhurst-York Roads, meaning that it could attract non-Airport users should congestion on York and Elmhurst grow to levels that encourage drivers to use the north/south road as a "by-pass."

Airfield impacts

The north/south roadway would lie on Airport property, and thus may require special security considerations.

Off-Airport impacts

Off-Airport impacts are associated with the northerly segment of the north/south roadway where acquisition of property and businesses would be required. The southerly segment utilizes property that is to be acquired as part of the overall OMP, and not specifically for roadway purposes. Locating an access roadway on this alignment also would conflict with a potential alignment for the Western By-Pass.

Concept 3

Overall costs

The costs issues for Concept 3 are similar to Concept 2, with the addition of the tunnel connecting Thorndale Avenue with the West Terminal.

Construction impacts

Construction impacts are identical to Concept 2, with the addition of those impacts associated with construction of the tunnel below York Road and the active rail lines. Properties

adjacent to the York Road/Thorndale Avenue intersection would be modestly affected by construction activities.

Traffic impacts/traffic capacity

Access to the West Terminal would be split between the Thorndale Avenue tunnel and the two signalized intersections at each end of the north/south roadway. Direct access from York Road is not provided in Concept 3. The intersections at either end of the north/south roadway will gain some relief of turning movement volumes because of the Thorndale Avenue connection. However, it is assumed that the new intersections would still likely serve added peak hour turning volumes of approximately 300 to 400 vehicles per hour. The north/south roadway has the potential to attract non-Airport users as a "by-pass" of congestion on York Road.

Airfield impacts

Airfield impacts are consistent with those identified for Concept 2.

Off-Airport impacts

Off-Airport impacts are the same as those identified for Concept 2. The addition of the tunnel connecting Thorndale Avenue to the West Terminal will likely require acquisition of strips of property in the northwest and southwest quadrants of the York Road/Thorndale Avenue intersection. Access to and from the properties along Thorndale Avenue near York Road also may be constrained by the new design of Thorndale Avenue.

Concept 4

Overall costs

The significant cost consideration in this concept is the tunnel below York Road and the rail lines connecting Thorndale Avenue with the West Terminal.

Construction impacts

Construction impacts would be contained within the area of the interchange between Thorndale Avenue and York Road. Special attention would need to be focused on maintaining traffic and rail operations during construction of the tunnel.

Traffic impacts/traffic capacity

Access to the West Terminal is consolidated to a single point under Concept 4. Free flow traffic operations would be provided to traffic accessing the West Terminal via Thorndale Avenue. Signal controlled operations would serve traffic accessing the West Terminal from York Road. The traffic signals also would manage the traffic that interchanges between York Road and Thorndale Avenue. These signals are spaced relatively close together (approximately 1,000 feet apart) and would thus negatively impact levels of service and congestion along this segment of York Road.

Airfield impacts

There are no known airfield impacts under Concept 4.

Off-Airport impacts Off-Airport impacts are focused on the properties along Thorndale Avenue near York Road. In particular, the business and properties in the northwest quadrant of the existing York Road/Thorndale Avenue intersection would need to be acquired.

5.2.1.4 Selection of Preferred Concept

Concept 1, as depicted in Exhibit V-2, is the preferred concept selected for inclusion in the ALP. It is the preferred concept for the following reasons:

Overall costs The comparative construction costs for Concept 1 are perhaps the highest among the four concepts considered but not significantly higher. The flyover structures and the tunnel below York Road and the rail lines, while the major cost elements, are relatively matched by the cost of the north-south roadway in Concepts 2 and 3 along with the tunnel at the northern end of the roadway. Concept 4 is thought to have the lowest relative construction cost of the four concepts.

Construction impacts Concept 1 features the fewest construction impacts.

Traffic impacts/traffic capacity Concept 1 causes the least impacts to existing traffic patterns and levels of service near the York Road/Thorndale Avenue intersection. This concept includes flyover ramps between York Road and the terminal circulation roadways, which creates free flow movements in and out of the Airport from York Road. It also includes direct access from Thorndale Avenue with a tunnel under York Road and the railroad tracks. Traffic circulation on the adjacent roadways remains unchanged in this concept.

Airfield impacts There are no known airfield impacts under Concept 1.

Off-Airport impacts Concept 1 has minimal impact on the area west of York Road. The West Terminal roadways are set back 300 feet west of the railroad tracks to provide a future right of way for the proposed Western By-Pass.

5.2.2 York Road/Irving Park Road Interchange and Irving Park Road Relocation

Irving Park Road must be relocated in order to allow for the construction of Runway 10R/28L. In addition, the relocation of the Union Pacific Railroad line (discussed in detail in Section 5.8) impacts the alignment and elevation of the roadway. This section discusses the requirement for the relocation of Irving Park Road, alternative concepts, an evaluation of the concepts, and selection of the preferred concept.

5.2.2.1 York Road/Irving Park Road Interchange and Irving Park Road Relocation Requirements

The requirements of the Irving Park Road relocation include the need to grade separate Irving Park Road from the existing Canadian Pacific Railroad tracks and the relocated Union Pacific Railroad tracks in order to maintain roadway traffic operations and to realign Irving Park Road, east of York Road, in a manner that:

- Allows construction of the South Runway (10R-27L);
- Complies with TERPS requirements (with a 15-foot high vehicle on the roadway per FAA requirements) and CAT III capabilities on the Runway 10R approach;
- Provides a corridor for the future development of the Western By-Pass including room for ramp connections to/from the south with Irving Park Road;
- Maintains or improves existing through-put capacity along Irving Park Road; and
- Minimizes impacts on properties west of York Road.

5.2.2.2 York Road/Irving Park Road Interchange and Irving Park Road Relocation Concept Refinement

Five alternatives for the Irving Park Road relocation were developed using the following criteria:

- Meet Illinois Department of Transportation (IDOT) Strategic Regional Arterial (SRA) design guidelines;
- Grade separate Irving Park Road and railroad crossings east of York Road;
- Avoid intrusion and impacts with proposed Runway 10R RPZ and approach lighting;
- Accommodate the proposed and preferred railroad relocation alternative;
- Meet the existing alignment of Irving Park Road west of York Road; and
- Accommodate the proposed Western By-Pass and potential interchange at Irving Park Road.

A description of the concepts follows.

- *Concept IP-1*, depicted in **Exhibit V-6**, the preferred concept, depresses Irving Park Road under the Union Pacific and Canadian Pacific railroads and York Road. No turning movements between Irving Park Road and York Road are allowed at the proposed crossing. Instead, a new side street between Irving Park Road west of York Road and York Road north of Irving Park Road is proposed. This new side street is partially on new alignment and partially on an existing side street. The intersections of the new side street with Irving Park Road and York Road will be signalized and provide for all turning movements. Due to the vertical separation, the intersection of Irving Park Road and Center Street is closed off by a cul-de-sac, which minimizes adverse impacts to residential properties south of Irving Park Road. Concept IP-1 is consistent with a concept proposed by the Village of Bensenville for safety and operational improvements at the intersection of Irving Park Road and York Road. This concept builds upon, and is consistent with, the Irving Park Road and York Road grade-separation improvement concept that was developed by the Village of Bensenville and submitted to IDOT as a candidate project for study using Congestion Management and Air

Quality (CMAQ) funds. The DOA supports the improvements outlined in the CMAQ request and the goals of the Village of Bensenville and IDOT to improve traffic operations in this area.

- *Concept IP-2*, depicted in **Exhibit V-7**, is similar to Concept IP-1 except that the proposed new side street is omitted. Instead, frontage roads north and south of Irving Park Road provide for turning movements between York Road and Irving Park Road. This concept minimizes adverse residential property impacts with a cul-de-sac on both Center Street and North Addison Street. The concept requires a wider frontage and right of way along Irving Park Road to accommodate proposed frontage roads, which further restricts geometry and the effectiveness of the intersection in accommodating trucks servicing nearby cargo and intermodal facilities.
- *Concept IP-3*, depicted in **Exhibit V-8**, involves a below-grade signalized intersection of Irving Park Road and York Road. Irving Park Road passes below the Union Pacific and Canadian Pacific Railroads. All turning movements between Irving Park Road and York Road are allowed at the signalized intersection. However, the proposed retaining walls along each quadrant of the intersection sever driveway and side street access in the affected areas and restrict movements on Center Street. Additionally, this concept requires depressing York Road across an existing stream, which presents substantial environmental and hydrologic concerns.
- *Concept IP-4*, depicted in **Exhibit V-9**, presents an above-grade intersection of Irving Park Road and York Road. Irving Park Road crosses over both the Canadian Pacific and Union Pacific Railroads on structure. York Road is elevated on structure to meet Irving Park Road. All turning movements between Irving Park Road and York Road are accommodated at the signalized intersection.
- *Concept IP-5*, depicted in **Exhibit V-10**, is similar to Concept IP-4, except that all through movements on York Road are separated from the intersection with Irving Park Road. Slip ramps are provided for movements between Irving Park Road and York Road.

5.2.2.3 Evaluation of Concepts

Table V-1 summarizes the comparison of concepts. The evaluation criteria focused on cost and socio-economic impacts. Traffic operations were not evaluated since the IDOT publicly defined the build-out for Irving Park Road as being three lanes in each direction east of York Road and two lanes in each direction west of York Road.

Table V-1
Summary Comparison of Irving Park Realignment Concepts

Evaluation Criteria	IP-1	IP-2	IP-3	IP-4	IP-5
Operational Issues					
Irving Park Rd - Design Speed (mph) ^{1/}	45	45	45	45	45
York Rd - Design Speed (mph)	45	45	45	45	45
Lanes Each Direction - Irving Park Rd ^{2/}	2/3	2/3	2/3	2/3	2/3
Lanes Each Direction - York Rd ^{2/}	2	2	2	2	2
Left Turn Lanes at Signalized Intersections ^{1/}	yes	yes	yes	yes	yes
Side Streets closed west of York Rd	1	2	1	1	2
Driveways closed west of York Rd	3	0	3	2	2
Cost Considerations					
Order of Magnitude Roadway Cost (in millions of \$) ^{3/}	14	13.8	14.9	33.9	37.5
Railroad Bridges (track feet)	500	500	500	0	0
Roadway Bridges (lane feet)	300	525	0	500	1,420
Retaining Walls (linear feet)	2,800	2,800	5,100	5,100	5,500
Signalized Intersections	4	2	1	1	1
Safety Issues					
Distance between Signalized Intersections on York Rd	n/a	n/a	1,050	1,050	n/a
Runway 10R Protection Zone Impacts	none	none	none	none	none
Environmental Impacts					
Residential Properties taken west of York Rd ^{4/}	0	0	4	6	10
Commercial Properties taken west of York Rd ^{4/}	8	8	5	6	8
Property Access Restrictions - York Rd ^{4/}	0	0	0	0	1
Property Access Restrictions - Irving Park Rd west of York Rd ^{4/}	2	2	2	1	1

Notes:

- 1/ Design speed defined by IDOT SRA guidelines for IL 19.
- 2/ Travel lanes for Irving Park Road and York Road defined by IDOT SRA guidelines and do not reflect lane requirements based on traffic projections.
- 3/ Cost estimates exclude railroad relocation and Irving Park Road east of Runway 10R. Cost estimates include property acquisition west of York Road, but exclude property acquisition east of York Road. Cost estimates include provisions for utility relocation and construction staging.
- 4/ The number of properties impacted was derived from aerial photographs.

Source: URS Corporation.
Prepared by: URS Corporation.

5.2.2.4 Selection of the Preferred Concept

Each concept meets the design criteria defined for the alternatives development process, and, therefore, are comparable. Each concept provides for grade separation between Irving Park Road and the Union Pacific and Canadian Pacific railroads, and meets the vertical elevation constraint requirements for Runway 10R.

The significant differences between the alternatives are cost and property impacts. From a cost perspective, Concepts IP-4 and IP-5 are the most expensive and significantly higher than any of the other three. Concepts IP-1, IP-2, and IP-3 are comparable in terms of cost.

Concepts IP-1 and IP-2 are comparable in terms of property impacts, with Concept IP-3 affecting one additional property.

Each concept affects the adjacent side street system west of York Road. Concept IP-1 minimizes adverse impacts to residential properties south of Irving Park Road with a proposed cul-de-sac on Center Street. Concept IP-2 minimizes adverse residential property impacts with a cul-de-sac on both Center Street and North Addison Street.

Concept IP-3 affects properties and access from both Irving Park Road and York Road with the proposed retaining walls along each quadrant of the intersection. This physical constraint also restricts movements on Center Street. Concept IP-3 also requires depressing York Road across an existing stream that presents substantive environmental and hydrologic concerns.

Concept IP-2 requires a wider frontage and right of way along Irving Park to accommodate the proposed frontage roads. This further restricts intersection geometry and the effectiveness of the intersection in accommodating truck movements servicing nearby cargo and intermodal facilities.

Concept IP-1 accommodates turning movements through more traditional intersection configurations. Concept IP-1 also provides for improved connectivity between streets south of Irving Park and properties north of Irving Park Road.

Concept IP-1 is consistent with a concept proposed by the Village of Bensenville for safety and operational improvements at the intersection of Irving Park and York Road.

The preferred concept is IP-1, based on the factors of cost, property impacts and improved continuity between properties to the north and south of Irving Park Road.

5.2.3 Mt. Prospect Road Concepts

The location of the future Runway 9L-27R will require the relocation of Mt. Prospect Road south of Touhy Avenue. This section of Mt. Prospect Road currently provides access to the Northwest Maintenance Area of the Airport and the employee parking lots on the north side of the Airport.

5.2.3.1 Requirements

The new roadway connection between Touhy Avenue and the north airfield will require a four-lane roadway with the ability to handle a large volume of heavy trucks. A guard post with a vehicle inspection plaza will be required for the inspection of vehicles before they enter the secure area.

5.2.3.2 Description of Concepts

Three primary concepts for access to the north airfield were developed.

- *Concept 1*, depicted in **Exhibit V-11**, is a roadway that connects with Touhy Avenue in the same location as today and runs along the east side of the rail line, through the RPZ of future

Runway 9L-27R. The guard post entrance plaza to the secure area will be located just north of Old Higgins Road.

- *Concept 2*, depicted in **Exhibit V-12**, provides access to the north airfield from Elmhurst Road. This access road would have a signalized intersection with Elmhurst Road and a tunnel under the Union Pacific and Canadian Pacific railroad tracks. The existing access at Mt. Prospect Road south of Touhy Avenue would be abandoned.
- *Concept 3*, depicted in **Exhibit V-13**, follows the same horizontal alignment as the existing Mt. Prospect Road and the existing entrance plaza. Because of the location of new Runway 9L-27R, this road would require a tunnel section under the runway.

5.2.3.3 Evaluation of Concepts

Concept 1 will be located entirely on Airport property and will have no impacts to off Airport property. This concept will be all at grade, with no tunnels. The roadway will have a longer length from Touhy Avenue than Concept 3, because it will have to go around the end of Runway 9L.

Concept 2 will have a section between Elmhurst Road and the railroad that will require additional property acquisition. This concept will also require a tunnel section. The completely covered part of the tunnel section will need to span approximately 200 feet.

Concept 3 will be located entirely on Airport property and will have no impacts to off Airport property. This concept will require a tunnel section under the future north runway. This completely covered part of the tunnel section will need to span approximately 700 feet. This very long tunnel section will significantly add to the cost of this roadway.

5.2.3.4 Selection of Preferred Concept

The preferred concept selected for inclusion in the ALP is Concept 1, shown in Exhibit V-11. This concept was selected because it is entirely on Airport property, requires no additional property acquisition, and has no costly tunnel sections.

5.2.4 Northeast Quadrant Roadway Concept

The OMP required some modifications to the roadway layouts proposed as part of the WGP for the northeast area of the Airport, referred to as the Northeast Quadrant. A roadway plan was developed for this area in 2000 as part of the WGP to accommodate the redevelopment of this part of the Airport. The changes to the roadway layout required for the OMP are due to the addition of the closely spaced north parallel runway (Runway 9C-27C). The inclusion of this runway in the program required a shift in the proposed alignment of Bessie Coleman Drive and some changes in the alignment of the Mannheim Road flyover ramps.

The preferred roadway relocation concept is shown in **Exhibit V-14**. The following elements programmed as part of WGP were modified in the OMP concept refinement process.

- The proposed extension of Bessie Coleman Drive is realigned to the east in the vicinity of the proposed Runway 27C end.
- The flyover ramps connecting Mannheim Road and Bessie Coleman Drive were modified to connect with the new alignment of Bessie Coleman Drive.

5.2.5 East Side I-190 Concepts

The removal of Runway 14L-32R as a part of the OMP preferred airfield plan would allow the ability to develop a more direct routing of the Airport Access Road (I-190) west of Mannheim Road. The relocation of I-190 further to the north would open up opportunities for terminal development. Several concepts for the relocation of this part of I-190 were identified and are discussed below.

- *Concept 1*, depicted in **Exhibit V-15**, relocates I-190 to the north, just west of its interchange with Mannheim Road, and connects Bessie Coleman Drive to Balmoral Drive. A collector-distributor lane is added on the north side of I-190 to accommodate the tighter weave between the Mannheim Road interchange and the Bessie Coleman Drive movements. Westbound traffic on I-190 must use the Mannheim Road interchange for access to Bessie Coleman Drive. Eastbound traffic on I-190 must access Bessie Coleman Drive northbound through a signalized intersection. Northbound traffic from Balmoral Drive has a free flow movement onto westbound I-190 into the terminal area, but cannot access eastbound I-190. Southbound traffic on Bessie Coleman Drive has a free flow movement onto I-190 eastbound, but accesses westbound I-190 into the terminal area through a signalized intersection.
- *Concept 2*, depicted in **Exhibit V-16**, is similar to Concept 1 in regards to the relocation of I-190. However, it provides free flow movements for traffic leaving the terminal area on eastbound I-190 and connecting to Bessie Coleman Drive or Balmoral Drive. A third-level flyover is proposed for traffic heading northbound on Bessie Coleman Drive, and a free flow ramp is proposed for traffic heading southbound towards Balmoral Drive. Also, the movement from southbound Bessie Coleman Drive to I-190 westbound, into the terminal area, is proposed as a free flow ramp.
- *Concept 3*, depicted in **Exhibit V-17**, relocates I-190 to the north on the eastside of the Mannheim Road interchange. The relocated alignment of I-190 is straightened out and depressed below surface level for a direct connection into the terminal area. There is no connection to or from Bessie Coleman Drive other than through the Mannheim Road interchange. Bessie Coleman Drive connects to an east-west cross airfield roadway at its southern terminus between future Runways 9C-27C and 9R-27L. Free flow movements are provided for Balmoral Drive to and from the terminal area. This concept provides more available land for development.
- *Concept 4*, depicted in **Exhibit V-18**, is similar to Concept 3 in regards to the relocation of I-190. However, in this concept Bessie Coleman Drive and Balmoral Drive are connected. Free flow movements are provided between the terminal area and Bessie Coleman Drive/Balmoral Drive. Two proposed ramps are located in the RPZ for Runway 9C-27C, but they comply with height restrictions.

The I-190 upgrade concept that was included in the approved May 2002 ALP remains the preferred OMP alternative (no realignment of I-190). As discussed in Section 3.2, a realignment of I-190 was not considered as part of the final OMP preferred plan; however, it can be considered as a post-OMP development option.

5.2.6 Other World Gateway Program Roadway Concepts

Other roadway concepts that were included in the WGP were included in the OMP. These include roadways needed for access and circulation for new Terminal 6 as well as capacity improvements for I-190. These improvements include the following:

- The upper and lower level curbside roads for Terminal 5 are extended to serve proposed Terminal 6. Upper and lower level curbside roadways are provided at Terminal 6.
- Bessie Coleman Drive is widened and slightly realigned to the east at the interchange with I-190.
- Balmoral Drive is extended east from Bessie Coleman Drive across Mannheim Road to connect with the existing Balmoral Drive east of Mannheim Road.
- The ramps at the I-190 / Bessie Coleman Drive interchange are modified to accommodate the improvements to I-190.

5.3 Public Parking

Public parking facilities were programmed under the OMP planning effort based on the activity forecasts. Following the identification of public parking facility requirements, concepts were developed to identify how to best accommodate requirements in relation to the preferred airfield and terminal concepts.

5.3.1 Public Parking Facility Requirements

Public parking facility requirements were developed based on the existing correlation of peak month originating enplanements to available parking spaces and projected for the OMP planning horizon based on the forecast of peak month originating enplanements. The relationship between the existing (August 2001) peak month originating enplanements and existing (August 2001) available parking stalls yielded a planning factor of 13.4 stalls per thousand peak month originating enplanements. This factor was compared to guidance provided by the FAA (AC 150/5360-13) and confirmed as reasonable.

The preferred terminal concept includes terminal facilities on both the east and west sides of the Airport, requiring the provision of parking on both sides. Given the timing of the OMP projects, and specifically the timing of development of the West Terminal, it was determined to project public parking requirements for the forecast year over the OMP planning horizon representing the maximum loading for each side of the Airport. On the east side of the Airport, facilities will experience maximum loading in 2014, immediately before the West Terminal is operational. Therefore, public parking facility requirements were projected for the year 2014 for the east side of the Airport, and for 2018 for the west side of the Airport, 2018 being the final year of the OMP planning horizon. **Table V-2** summarizes the public parking facility requirements for 2014 and 2018.

Table V-2

Summary of Overall Public Parking Facility Requirements

	Existing	2014	2018
Peak Month Originating Enplanements	1,714,703	2,257,225	2,600,466
Total Number of Public Parking Stalls	23,001	30,278	34,883
Ratio (stalls per thousand peak month originating enplanements)	13.4	13.4	13.4

Source: Existing Stalls – Standard Parking, August 14, 2002; Existing Enplanements – 2001 FAA Terminal Area Forecast, U.S. DOT Origin-Destination Survey, Ricondo & Associates, Inc.; Future Enplanements – 2001 FAA Terminal Area Forecast, Ricondo & Associates, Inc.; 2014/2018 Stalls – Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

Table V-3 summarizes the assumptions utilized to develop public parking facility requirements. Requirements identified in Table V-2 to support activity in 2014 will be accommodated on the east side of the Airport, and separated into short-term and long-term parking stalls, while the 2018 requirements include short-term and long-term stall requirements for both the east and west sides of the Airport. The existing split between short-term and long-term parking stalls was maintained in future years' facility requirements, as listed in Table V-3. The split in 2018 between parking stalls on the east side and west side of the Airport reflect the gated schedule of peak month originating enplanements (i.e., 2,192,320 peak month originating enplanements on the east side, or 84 percent, and 408,146 peak month originating enplanements on the west side, or 16 percent).

Table V-3

Summary of Public Parking Facility Requirements Assumptions

Component	Assumption
Percent of Total Activity in 2018 accommodated in East Terminals	84%
Percent of Total Activity in 2018 accommodated in West Terminal	16%
Short-Term/Daily Parking of as Percent of Total Stalls	55%
Long-Term/Economy Parking of as Percent of Total Stalls	45%
Area/Stall for Structure Parking	350 sf
Area/Stall for Surface Parking	325 sf

Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

Public parking facility requirements were compared to the approved May 2002 ALP and the WGP Environmental Assessment. Where the OMP and WGP requirements differed, the most conservative (i.e., highest) number of parking spaces was selected. In the case of short-term public parking stalls on the east side, the approved May 2002 ALP included more stalls than that projected under the OMP; therefore, the number of stalls on the already approved ALP were maintained rather than scaled back.

Table V-4 summarizes public parking facility requirements, by short-term and long-term stalls, and by the east and west sides of the Airport.

Table V-4
Public Parking Facility Requirements by Location

Location	Stalls
East Terminals	
Short-Term/Daily	21,280
Long-Term/Economy	13,625
West Terminal	
Short-Term/Daily	3,800
Long-Term/Economy	2,465

Source: Ricondo & Associates, Inc.; and World Gateway Program Environmental Assessment.
Prepared by: Ricondo & Associates, Inc.

Public parking requirements are projected to meet the highest level of demand on the east side, experienced in 2014. Between 2015 and 2018, the demand for public parking on the east side of the Airport will be lower than it was in 2014, due to the opening of the West Terminal. Therefore, in the final years of the OMP planning horizon, when total passenger loading is split between east and west, it is expected that there could be an excess of parking stalls on the east side.

5.3.2 Public Parking Concept Refinement

Public parking facility requirements included the need for the provision of both short-term and long-term parking at the East and West Terminals. The following subsections present public parking by type and location, and the final subsection summarizes accommodation of facility requirements by location.

5.3.2.1 East Side Public Parking – Short-Term/Daily

The WGP includes expansion of short-term public parking at the Core Terminals, as well as development of new short-term parking associated with Terminal 6. This development, included on the approved May 2002 ALP, met projected facility requirements based on the OMP activity forecast for short-term public parking on the east side of the Airport. Therefore, no alternative concepts were considered.

5.3.2.2 East Side Public Parking – Long-Term/Economy

Estimated facility requirements for OMP long-term parking on the east side closely matched the requirements projected in the WGP. The WGP included an expansion of the existing Lot E surface parking southward (into the existing rental car area), the reinstatement of public parking in the northwest portion of Lot F (which had been closed following the opening of Lot G and a decline in parking demand following September 11), and the development of a new six-level elevated parking structure in Lot E. Based on the preferred airfield concept defined under the OMP planning process, the proposed WGP long-term elevated parking structure was located within the RPZ for new Runway 9C-27C. The need for relocation of the parking structure, as well as several other programmatic differences between the WGP and OMP, prompted the reconsideration of land use allocation in the Northeast Quadrant of the Airport.

- *Concept 1*, depicted in **Exhibit V-19**, includes long-term parking located between the area proposed for future development and the Mannheim Road flyover ramps. It is not likely that

a parking structure could be constructed on the parcel west of Bessie Coleman Drive, due to its location within the eastern RPZs of Runways 9C-27C and 9R-27L. A second parcel, at the northeast corner of I-190 and Mannheim Road, provides additional space for parking; however, the I-190/Mannheim Road ramp interchanges make the ability to provide access to this parcel difficult.

- *Concept 2*, depicted in **Exhibit V-20**, accommodates all long-term parking on the west side of Mannheim Road. This concept provides sufficient area to develop a parking structure north of the Mannheim Road flyover ramps.
- *The Preferred Concept*, depicted in **Exhibit V-21**, is a refinement of Concept 2. Upon finalization of the parking requirements, area not needed to support long-term public parking was dedicated to other land uses. The preferred concept includes development of a four-level parking structure to the north of the Mannheim Road flyover ramps, and maintains the existing Lot E ATS Station. This concept is similar to that depicted in the approved May 2002 ALP, with the exception of the provision of public parking in Lot F, which is not contained in the preferred OMP landside concept.

The preferred concept was selected because the basic layout of the WGP concept satisfied the OMP facility requirements and was operationally feasible given the preferred OMP airfield and terminal concepts; therefore, it was decided to not vary significantly from the concept identified in the WGP.

5.3.2.3 West Side Public Parking – Short-Term/Daily

The preferred terminal concept for the west side and the preferred terminal access roadway system allow for the development of an elevated parking structure immediately to the west of the terminal. No other concepts for short-term public parking were considered for the west side of the Airport. This concept is depicted in **Exhibit V-22**.

5.3.2.4 West Side Public Parking – Long-Term/Economy

Several concepts to accommodate long-term public parking supporting the West Terminal were considered. Due to the preferred secure automated people mover (APM) concept (as discussed in Section 5.7.1), it was necessary to provide long-term public parking facilities on the west side of the Airport, rather than requiring passenger movements between the non-secure areas of the east and west sides of the Airport. **Exhibit V-23** depicts the alternative locations considered for the provision of long-term public parking on the west side.

Two alternative sites for long-term public parking were considered for the west side of the Airport, to the north and to the south of the West Terminal loop roadway system. The eastern boundary of the area available for development of a parking lot in either area is restricted by FAR Part 77 surfaces associated with the adjacent runways (i.e., Runways 9C-27C and 9R-27L to the north and Runways 10L-28R and 10C-28C to the south) as defined in the preferred airfield concept. The western border was originally defined as the Union Pacific/Canadian Pacific rail corridor. The rail corridor presents grade separation issues with respect to access from York Road; therefore, either of these alternative parking lot locations would require access roadways from the terminal roadway system. Due to the City's desire to protect a north-south 300-foot-wide corridor for potential development of the Western By-Pass on Airport property, this concept was eliminated because a reasonable area would not remain if and when the By-Pass is constructed.

In the preferred concept, depicted in Exhibit V-22, long-term public parking for the West Terminal is located at the northeast corner of realigned Irving Park Road and York Road, immediately west of

the Southwest Cargo Area. This site provides sufficient area to meet the projected public parking facility requirement for the west side of the Airport, and provides good access from the local roadway network.

5.3.2.5 Summary of Public Parking Facility Requirements

Table V-5 summarizes facility requirements, identified in Section 5.3.1, and demonstrates how the preferred public parking concept for the various areas of the Airport meets projected requirements.

Table V-5
Summary of Public Parking Facility Requirements

Parking Type by Location	Number of Stalls	
	Facility Requirements	Facilities in Preferred Concept
East Terminals		
Short-Term/Daily Parking	21,280	
Terminal Core: Lot A (structure)		15,707
Terminal Core: Lot B (surface)		1,048
Terminal Core: Lot C (surface)		575
Terminal 5: Lot D (surface)		1,050
Terminal 6 (proposed structure)		<u>2,900</u>
Subtotal		21,280
Long-Term/Economy Parking	13,625	
Lot E (surface)		10,153
Lot E (proposed structure)		<u>3,472</u>
Subtotal		13,625
West Terminal		
Short-Term/Daily Parking ^{1/}	3,800	
Proposed Structure		<u>3,800</u>
Subtotal		3,800
Long-Term/Economy Parking	2,465	
Proposed Surface Lot		<u>2,515</u>
Subtotal		2,515

1/ Public parking is assumed to be accommodated on Levels 2, 3, and 4 of the proposed parking structure. Per preliminary structure concepts, a total of 4,240 stalls could be accommodated on these three levels.

Source: Ricondo & Associates, Inc.; Stalls accommodated in West Terminal Short-Term Structure – Kimley-Horn and Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

5.4 Employee Parking

Employee parking facilities were programmed under the OMP planning effort based on the activity forecasts. Following the identification of employee parking facility requirements, concepts were developed to identify how to accommodate these requirements in relation to the preferred airfield and terminal concepts.

5.4.1 Employee Parking Facility Requirements

Employee parking facility requirements were developed for employees working in and flight crews departing from the Airport's terminals. The methodology used to project these facility requirements is discussed in the following section. Additionally, parking needs for other areas of the Airport are discussed in later subsections.

5.4.1.1 Employees Working in the Terminals/Flight Crews

Employee parking facility requirements for employees working in and flight crews departing from the terminals were developed based on the existing correlation of total annual enplanements to available parking spaces and projected for the OMP planning horizon based on the forecast of total annual enplanements. The relation between the existing (2001) annual enplanements and existing (2001) available employee parking stalls yielded a planning factor of approximately 0.23 employee stalls per 1,000 annual enplanements.¹

The preferred terminal concept includes terminal facilities on both the east and west sides of the Airport, requiring the ability to transport employees to both sides. Given the timing of the OMP projects, and specifically the timing of development of the West Terminal, it was determined to project employee parking requirements for the forecast year over the OMP planning horizon representing the maximum loading for each side of the Airport, similar to the methodology used to project public parking requirements. Therefore, east side requirements were projected based on the 2014 annual enplanements and west side requirements were projected based on the 2018 annual enplanements. **Table V-6** summarizes parking requirements for 2014 and 2018 for employees working in and flight crews departing from the Airport's terminals.

Table V-6

Summary of Parking Facility Requirements for Employees Working in Terminals and Flight Crews

	Existing	2014	2018
Annual Enplanements	33,308,138	48,628,901	52,994,226
Total Number of Employee Parking Stalls	7,601 ^{1/}	11,100	12,090
Ratio (stalls per thousand annual enplanement)	0.23	0.23	0.23

1/ The existing employee parking lots are located in two areas of the Airport. The lot west of the AMC Building in the Southeast Services Area provides 1,134 employee parking stalls. In addition, United Airlines and American Airlines have approximately 6,467 employee parking stalls in the Northwest Maintenance Area to accommodate employees working in the Terminals. The remainder of the stalls in the Northwest Maintenance Area accommodates employees working at maintenance facilities in this area of the Airport, as discussed in Section 5.4.1.2.

Source: Existing Annual Enplanements – City of Chicago Department of Aviation, Airport Management Records; 2014/2018 Annual Enplanements – 2001 FAA Terminal Area Forecast, Ricondo & Associates, Inc.; Existing/2014/2018 Stalls– Ricondo & Associates, Inc. Prepared by: Ricondo & Associates, Inc.

¹ The approach of projecting demand for employee parking stalls (for employees working in the terminals) based on a relationship to enplanement growth is considered reasonable given that the majority of employees at O'Hare work for airlines. While this methodology is less accurate in projecting growth related to employees providing functions such as terminal support (e.g., janitorial) and other employees working for the Department of Aviation, this segment of employees is not a significant portion of the total employee population at the Airport. Therefore, this methodology is considered a reasonable tool for the projection of gross employee parking facility requirements.

The assumption used to estimate the area requirement for employee parking lots was 300 square feet per stall for surface parking, and 325 square feet per stall for structured parking.

Requirements identified in Table V-6 to support activity in 2014 will support parking for employees working in the East Terminals, while the 2018 requirements support parking for employees working in both the East and West Terminals. The split in 2018 between employee parking stalls for the East versus West Terminals reflect the gated schedule of annual enplanements (i.e., 44,676,724 annual enplanements on the east side, or 84 percent, and 8,317,502 annual enplanements on the west side, or 16 percent). **Table V-7** identifies the requirements by Airport area, given the assumptions regarding the availability of the West Terminal Complex.

Table V-7
Terminal Employee Parking Facility Requirements by Airport Area

Airport Area	Number of Stalls
East Terminals	11,100
West Terminal	1,900

Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

5.4.1.2 Employees Working in the Northwest Maintenance Area

The relocation of employee parking currently accommodated in the Northwest Maintenance Area is a long-term goal of the Department of Aviation. The Northwest Maintenance Area parking facilities currently accommodate employees working in this area of the Airport as well as employees working in and flight crews departing from the terminals. The relocation of parking for employees working in and flight crews departing from the terminals would be accomplished by accommodation of the parking requirements identified in the Section 5.4.1 to another area of the Airport.

As it was the intent of the OMP planning process to identify an area for the relocation of the parking spaces supporting Northwest Maintenance Area employees, the OMP facility requirements planning effort considers in-kind replacement of the parking facilities. **Table V-8** identifies the number of stalls associated with this segment of employees.

Table V-8
Northwest Maintenance Area Employee Parking Facility Requirements

	Existing	2018
Total Number of Employee Parking Stalls	3,121	3,121

Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

5.4.1.3 Employees Working in Other Facilities

Parking will be provided for employees working in areas of the Airport other than the Terminals and the Northwest Maintenance Area onsite at each facility. Separate parking facility requirements were not developed for this segment of employees.

5.4.2 Employee Parking Concept Refinement

Facility requirements were accommodated in multiple areas of the Airport, as discussed below.

5.4.2.1 Flight Crews/Employees Working in the East Terminals

Flight crews and employees working in the Terminals currently park in a lot west of the AMC Building in the Southeast Services Area and in parking lots in the Northwest Maintenance Area. The relocation of employee parking currently accommodated in the Northwest Maintenance Area is a long-term goal of the Department of Aviation. Therefore, concepts developed to accommodate employee parking had to consider growth in the number of employees as well as the relocation of the existing employee parking in the Northwest Maintenance Area.

It was assumed that the parking lot west of the AMC Building will remain operational. Employees are bused from this lot to the East Terminals. This lot will continue to support East Terminal employees; however, it only accommodates approximately 10 percent of the demand for East Terminal employee parking.

Concepts to accommodate employee parking in the northwest corner of the Airport were explored. **Exhibit V-24** depicts alternative locations identified in this area. A parcel to the north of new Runway 9L-27R was identified. The area bounded by the airfield service road to the south, the Airport property line to the east, Touhy Avenue to the north, and the realigned Mt. Prospect Road entrance to the west could accommodate employee parking as well as an area for on-site employee screening, and be supported by a secure busing operation that transports employees via service road across the airfield to the East Terminals. A second parcel, located west of the Union Pacific/Canadian Pacific rail corridor, was also identified. This parcel, however, is located within the Runway 9L-27R RPZ, so it was considered less desirable. Therefore, this second parcel was eliminated from further consideration.

The remaining area in existing Lot F, not dedicated to the relocated ATS maintenance and storage facility, was identified as a potential location to accommodate employee parking. This site currently accommodates employee parking. Additionally, the preferred ATS concept identified in the WGP includes development of a new ATS station at the Metra Transfer Station in Lot F. This would provide employees parking in this lot with transportation to the East Terminals.

The preferred concept consists of three of the lots to accommodate employee parking identified above: the lot west of the AMC Building, the new Northwest Employee Lot, and the northern portion of Lot F. These lots are depicted in **Exhibit V-25**. The number of stalls provided in these three lots is discussed in Section 5.4.2.5, which summarizes the preferred concept in relation to the facility requirements.

5.4.2.2 Flight Crews/Employees Working in the West Terminal

Several concepts for accommodating West Terminal employee parking were explored. The original West Terminal landside concept included a surface lot within the loop roadway system, north of the public parking structure. As other needs for this area with higher priorities were identified (i.e., the APM maintenance yard), this concept was eliminated.

Two alternative sites for employee parking on the west side were considered, to the north and to the south of the West Terminal loop roadway system (the same sites considered for long-term public parking and depicted in Exhibit V-23). The eastern boundary of the area available for development of a parking lot in either area is restricted by the FAR Part 77 surfaces associated with the adjacent runways (i.e., Runways 9C-27C and 9R-27L to the north and Runways 10L-28R and 10C-28C to the south) as defined in the preferred airfield concept. The western border was originally defined as the

Union Pacific/Canadian Pacific rail corridor. The rail corridor presents grade separation issues with respect to access from York Road; therefore, either of these alternative parking lot locations would require access roadways from the terminal roadway system. Due to the City's desire to protect space for a north-south 300-foot wide corridor for the development of the Western By-Pass on Airport property, this concept was eliminated because a reasonable area would not remain if and when the by-pass is constructed.

The area available for development of surface parking in the Northwest Employee Parking Lot was utilized for employees working in the East Terminals and Northwest Maintenance Area. No additional area was available to support West Terminal employees.

The preferred concept identifies area to the west of the Southwest Cargo Area for surface parking. This area has been allocated to employee parking and public long-term parking, with separate access roadways to each lot. This lot is depicted in Exhibit V-25.

5.4.2.3 Northwest Maintenance Area Employees

The OMP ALP update depicts area supporting the relocation of Northwest Maintenance Area employee parking from the Northwest Maintenance Area. The accommodation of this segment of employee parking is not a programmatic requirement of OMP. Thus, the area identified to accommodate growth in employee parking requirements through the OMP planning horizon was expanded to accommodate in-kind replacement of these displaced parking stalls.

The new Northwest Employee Lot, depicted in Exhibit V-25, will involve on-site employee screening and a secure busing operation that transports employees via service road to the facilities in the Northwest Maintenance Area.

5.4.2.4 Employees Working at Other On-Airport Facilities

Parking for employees working in areas of the Airport other than the Terminals and the Northwest Maintenance Area will be provided onsite at each facility.

5.4.2.5 Summary of Employee Parking Facility Requirements

Table V-9 summarizes the employee parking facility requirements, identified in Section 5.4.1, and demonstrates how the preferred landside concept meets the projected requirements for employee parking.

Table V-9

Summary of Employee Parking Facility Requirements (number of stalls)

Facility Requirement	Number of Stalls		
	East Terminals Employees ^{1/}	West Terminal Employees ^{2/}	Northwest Maint. Area Employees ^{3/}
Facility Requirement	11,100	1,900	3,121
Preferred Concept by Location			
Lot West of AMC	1,134	0	0
Lot F	2,595	0	0
New Northwest Employee Lot	7,990	0	3,121
New West Terminal Employee Lot	<u>0</u>	<u>3,542</u>	<u>0</u>
Total	11,719	3,542 ^{4/}	3,121

- 1/ Employee parking stall requirements for the East Terminals were projected to meet demand in 2014.
- 2/ Employee parking stall requirements for the West Terminal Complex were projected to meet demand in 2018.
- 3/ Stall requirements for the Northwest Maintenance Area employees reflect in-kind replacement of existing employee parking stalls.
- 4/ Although the identified parking requirement for West Terminal employees is 1,900 stalls, the land available in this portion of the Airport is able to accommodate a larger number of stalls than the identified requirement. Rather than reduce the area, the larger area was retained for this "planning level" concept.

Source: Ricondo & Associates, Inc.
 Prepared by: Ricondo & Associates, Inc.

5.5 Rental Car Facilities

Requirements for rental car facilities were reviewed under the OMP planning effort in relation to the activity forecasts. Following the identification of rental car facility requirements, concepts were developed to identify how to accommodate requirements in relation to the preferred airfield and terminal plans.

5.5.1 Rental Car Facility Requirements

The OMP planning process identified the need to provide rental car facilities on both the east and west sides of the Airport, given the nature of passenger movements between the east and west in the preferred plan, and discussed further in Section 5.7.

For the east side of the Airport, programming materials developed in 1999 during conceptual planning for a consolidated rental car facility were reviewed and verified for their applicability based on the OMP planning horizon. The 1999 conceptual planning exercise identified the requirement for 118-119 acres to meet future requirements of the rental car market at O'Hare. This conclusion was based on the following:

- The requirement would consist of a structured consolidated rental car facility and surrounding surface areas located on Airport property.
- The entire O'Hare rental car market would be accommodated in the facility, not a specific number of companies.
- Deplaning passenger growth and rental car transaction growth would continue according to historic trends.

The 118- to 119-acre requirement was verified in September 2002² as still valid in the context of OMP given market conditions of the rental car industry.

The ability to connect an east side consolidated rental car facility to the ATS to transport passengers to the Terminals was identified as a preference in selecting a site to accommodate a consolidated rental car facility.

The September 2002 verification process noted that the rental car companies may be opposed, from a customer service perspective, to a split operation, i.e., having rental car ready spaces and a quick turn-around facility (QTA) at a remote terminal in addition to consolidated facilities on the east side.

Comprehensive rental car support facilities were not considered critical to the operation of the West Terminal facility. However, limited amounts of ready-car/ready-return and quick turn around (QTA) maintenance facilities were considered to be a valuable component of the West Terminal Complex for customer service reasons. Thus, the need to accommodate rental car support facilities within the West Terminal Complex was identified.

5.5.2 Rental Car Concept Refinement

Due to the need to accommodate rental car facilities on both the east and west sides of the Airport, concepts were explored on both sides for the accommodation of these facilities.

5.5.2.1 East Side Rental Car Facilities

The WGP included a consolidated rental car facility (consisting of a structure and surface parking) in the southern portion of the Northeast Quadrant, and a rental car storage and maintenance lot on a parcel located at the northeast corner of I-190 and the Canadian National Railway. The two sites would be linked together by a dedicated non-public road and bridge over Mannheim Road. The square footage accommodated in this concept did not meet the projected facility requirement identified in the OMP planning process.

- *Concept 1*, depicted in Exhibit V-19, includes the relocation of a consolidated rental car facility. In this concept, the rental car campus is relocated to the northern part of the Northeast Quadrant. This area, however, is not currently served by an ATS station and, given the current alignment of the ATS, as well as the preferred alignment identified in Section 5.7.2.1, the addition of a station to serve a consolidated rental car facility would require ATS realignment.
- *The Preferred Concept*, depicted in Exhibit V-21, is a refinement of Concept 2, depicted in Exhibit V-20. This concept maintains the existing footprint of the rental car facilities and includes the addition of the parcel at the northeast corner of I-190 and the Canadian Pacific Railway for a maintenance and storage facility. A four-level consolidated rental car structure could be accommodated at the southern part of the main parcel, to the west of Mannheim Road. The preferred concept maintains the new ATS station supporting the consolidated rental car structure, as proposed in the WGP. The preferred concept is similar to that contained in the WGP; however, the footprint is larger, reflecting the larger facility requirement identified in the OMP planning process.

² Memorandum from John F Brown Company to Jim Jarvis (Ricondo & Associates, Inc.), "ORD ALP and Rental Car Facilities," September 25, 2002.

The preferred concept was selected because the basic layout of the WGP concept, with minor changes to meet rental car requirements identified in the OMP planning process, satisfied the OMP facility requirements and was operationally feasible given the preferred OMP airfield and terminal concepts. Therefore, it was decided to minimize variations from the OMP concept to that identified in the WGP.

5.5.2.2 West Side Rental Car Facilities

The first level of the parking garage at the West Terminal Complex was designated for ready car/ready return functions and the area adjacent to and west of the parking garage was designated for rental car QTA uses such as vehicle cleaning and fueling. The preferred West Terminal landside concept is depicted in Exhibit V-22. No alternatives to this concept were explored.

5.5.2.3 Summary of Rental Car Facility Requirements

Table V-10 summarizes the facility requirements, identified in Section 5.5.1, and demonstrates how the preferred landside concept meets the projected requirements for rental car facilities.

Table V-10

Summary of Rental Car Facility Requirements

Facility Type by Location	Area (acres)	
	Facility Requirements	Facilities in Preferred Concept
East Terminals	118.0	
Consolidated RAC (surface)		29.8
Consolidated RAC (structure)		58.0
Maintenance/Storage (surface)		<u>29.8</u>
Total		117.6
West Terminal	See Note (1)	
Consolidated RAC (structure)		10.6
QTA		<u>1.8</u>
Total		12.4

1/ Comprehensive rental car support facilities were not considered critical to the West Terminal facility operation. However, limited amounts of ready-car/ready-return and quick turn around (QTA) maintenance facilities were considered to be a valuable component of the West Terminal Complex for customer services reasons. Therefore, area available given the configuration of the West Terminal Complex was identified to meet the limited rental car needs.

Source: East Terminal Requirements – John F Brown Company; Preferred Concept Facilities – Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

5.6 Commercial Vehicle Staging Areas

Commercial vehicle staging area facilities were programmed under the OMP planning effort based on the activity forecasts. Following the identification of staging area requirements, concepts were developed to identify how to accommodate requirements in relation to the preferred airfield and terminal concepts.

5.6.1 Commercial Vehicle Staging Areas Facility Requirements

Facility requirements for commercial vehicle staging areas were based on growth of the existing staging areas dedicated to City of Chicago taxis, limousines, and other commercial vehicles (i.e., suburban taxis, shuttle buses, and regional buses). Growth was projected based on the growth factor of public parking that resulted from the facility requirement methodology for public parking, as discussed in Section 5.3. Similar to the methodology of public parking facility requirements, the years of maximum passenger loading on each side of the Airport, 2014 for the east side and 2018 for the west side, were assessed.

The approved May 2002 ALP included an area (approximately 297,500 square feet) designated to accommodate a new Limo Service Center along the west side of Bessie Coleman Drive. The Limo Service Center footprint exceeded the projected facility requirement for limousines on the east side of the Airport by approximately 86,700 square feet. The facility requirements for the OMP deferred to an in-kind replacement of this area rather than a reduced square footage based on the OMP projections. The difference in square footage projections is attributable to amenities planned to be provided at the Limo Service Center that are not provided at the existing limousine staging facility, and the fact that future requirements were based on growth of existing facilities that do not provide these amenities. The existing limousine staging area accommodates parking and queuing area for limousines; however, the Limo Service Center, at 30 percent design during the OMP planning process,³ is planned to provide amenities to limousine operators, including fueling facilities, a light maintenance garage, and a convenience store.

Table V-10 summarizes the facility requirements for commercial vehicle staging areas, by type of vehicle and side of the Airport. The facility requirements listed in this table reflect the year of maximum loading on each side of the Airport (i.e., 2014 for the east side and 2018 for the west side.)

³ O'Hare Construction Operations Working Group, January 24, 2003.

Table V-11**Commercial Vehicle Staging Area Facility Requirements by Location**

Location	Area (sf)	
	2014	2018
East Terminals		
City of Chicago Taxis	202,790	202,790
Limousines	297,500	297,500
Other (suburban taxis, shuttle buses, regional buses)	167,220	167,220
West Terminal		
City of Chicago Taxis	0	37,362
Limousines	0	38,838
Other (suburban taxis, shuttle buses, regional buses)	0	30,810

Source: Ricondo & Associates, Inc.
 Prepared by: Ricondo & Associates, Inc.

5.6.2 Commercial Vehicle Staging Areas Concept Refinement

Staging for commercial vehicles, grouped into City of Chicago taxis, limousines, and bus/suburban taxi/other categories based on operational characteristics is required on the east and west sides of the Airport.

5.6.2.1 East Side Commercial Vehicle Staging Areas

OMP planning considered two areas for staging commercial vehicles on the east side of the Airport. In both alternatives, the existing Commercial Vehicle Holding Area (CVHA) at the northwest corner of Bessie Coleman Drive and I-190 would remain. The approved May 2002 ALP included a new Limo Service Center, located west of Bessie Coleman Drive. The preferred OMP airfield concept, however, will displace this facility, as it would be located within the RPZ of new Runway 9C-27C.

- *Concepts 1 and 2* developed for the Northeast Quadrant and depicted in Exhibits V-19 and V-20, consider the accommodation of commercial vehicle staging along the west side of realigned Bessie Coleman Drive, at the Military Site. The preferred collateral development/future airfield development area in this part of the Northeast Quadrant displaces this area identified for commercial vehicle staging.
- *The Preferred Concept*, depicted in Exhibit V-21, is a refinement of Concept 2 and meets facility requirements for commercial vehicle staging on the east side of the Airport by maintaining the existing Commercial Vehicle Staging Area and the designation of a new parcel, west of Bessie Coleman Drive and north of the new Runway 9C-27C RPZ, for staging areas. The relocation of this site out of the core of the former Military property allows for the allocation of this area to collateral/airfield development.

5.6.2.2 West Side Commercial Vehicle Staging Areas

The preferred landside concept for the West Terminal includes area identified for commercial vehicle staging in the southern end of the West Terminal roadway system loop, as depicted in Exhibit V-22. Various options for placement of commercial vehicle staging areas supporting the West Terminal

were explored but rejected due to the availability of land in close proximity to the terminal curbs that would provide fast response times and reduced vehicle miles traveled compared to areas farther away from the terminal.

5.6.2.3 Summary of Commercial Vehicle Staging Area Facility Requirements

Table V-12 summarizes facility requirements identified in Section 5.6.1, and demonstrates how the preferred landside concept meets the projected requirements for commercial vehicle staging areas.

Table V-12

Summary of Commercial Vehicle Staging Area Facility Requirements

Commercial Vehicle Lot Type by Location	Area (sf)	
	Facility Requirements	Facilities in Preferred Concept
East Terminals		
City Taxi	202,790	-
Limousine	297,500	-
Bus/Suburban Taxi/Other	167,220	-
Existing CVHA	-	313,325
Combined Holding Area	-	405,718
	<u>667,510</u>	<u>719,043</u>
West Terminal Complex^{1/}		
City Taxi	37,362	56,480
Limousine	38,838	93,111
Bus/Suburban Taxi/Other	<u>30,810</u>	<u>90,000</u>
	107,010	239,591

1/ Area within the preferred loop roadway system supporting the West Terminal was identified as appropriate to support commercial vehicle staging given the ability to provide fast response time and reduced vehicle miles traveled compared to other areas farther away from the terminal. Land available for commercial vehicle staging within the loop roadway system exceeds the identified facility requirements developed in the programming effort; however, since the land was available and it was not preferable to reduce the area in the middle of the loop roadway system, this area was dedicated to the support of commercial vehicle staging.

Source: Ricondo & Associates, Inc.
 Prepared by: Ricondo & Associates, Inc.

The preferred east side concept consists of two areas dedicated to accommodating commercial vehicles. The total area of these two sites satisfies projected facility requirements. The existing CVHA currently accommodates City of Chicago taxis and limousines; however, it is anticipated that limousines will be relocated to the proposed Limo Service Center in the near-term. This opens up space in the existing CVHA for growth in City of Chicago taxis as well as the relocation of staging area for another mode of commercial transportation to this site. While it is unknown what the ultimate mix of commercial vehicles will be in the existing CVHA, the analysis conducted in support of OMP indicates that the CVHA would be able to accommodate anticipated growth of City of Chicago taxis over the OMP planning horizon (to 2018), as well as accommodate a segment of the other commercial vehicle category, which includes suburban taxis, shuttle buses, and regional buses. For analysis purposes, these three commercial vehicle categories were combined; however, this combination does not reflect operational requirements. Therefore, any one of these commercial vehicle types could be collocated with City of Chicago taxis in the CVHA, and the remaining two

types of commercial vehicles would be accommodated in the new commercial vehicle staging area along with the relocated Limo Service Center. Thus, between a new combination of commercial vehicle types in the existing CVHA and relocation of the remaining commercial vehicle types to the new staging area, commercial vehicle staging needs for the various types of commercial vehicles on the east side of the Airport would be met.

It is noted that these requirements were developed before the potential need for screening commercial vehicles at the Airport was identified. Following finalization of the OMP ALP in December 2002, the Transportation Safety Administration (TSA) proposed the potential need for screening commercial vehicles.⁴ If this operational change is implemented, the area defined in the preferred concept for the east side may not be sufficient to accommodate a commercial vehicle staging and screening operation at the Airport.

The preferred west side concept exceeds the facility requirements identified to support commercial vehicle staging on the west side of the Airport. Area within the preferred loop roadway system supporting the West Terminal was identified as appropriate to support commercial vehicle staging given the ability to provide fast response time and reduced vehicle miles traveled compared to other areas farther away from the terminal. Land available for commercial vehicle staging within the loop roadway system exceeds the identified facility requirements developed in the programming effort; however, since the land was available and it was not preferable to reduce the area in the middle of the loop roadway system, this area was dedicated to the support of commercial vehicle staging.

5.7 On-Airport Passenger Movements

The OMP includes a West Terminal Complex with landside access provided from York Road and Thorndale Avenue. The West Terminal will act as a unit terminal with the full array of landside support facilities including terminal roadways, curbs, public parking, rental car facilities, and commercial vehicle holding areas.

Various concepts were evaluated for providing on-Airport connections between the existing Terminal Core on the east side of the Airport and the future West Terminal Complex. These concepts considered the accommodation of passenger movements between secure areas of the east and west sides of the Airport and the accommodation of passenger movements between non-secure areas of the east and west sides of the Airport. Early in the planning process, it was determined that secure passenger movements would be provided by a secure automated people movement system. No other concepts for the accommodation of secure passengers were considered. The OMP planning process explored several options for the transportation of non-secure passengers between the east and west sides of the Airport, including the extension of the existing non-secure ATS system, a cross-airfield roadway, and shuttle buses using public roads around the Airport. The preferred concept for transporting non-secure passengers between the East and West Terminals is the shuttle bus operation using public roads around the Airport, as discussed in Sections 5.7.2.3 and 5.7.2.4.

5.7.1 Secure East/West Passenger Movements - Secure Airport People Mover (APM) Systems Concept

It was determined early in the planning process that, at a minimum, a secure APM system connecting the east and west terminal complexes would be required regardless of which airlines ultimately reside in the West Terminal Complex. The reason for this is that it is assumed that the mid-field concourse

⁴ Department of Aviation, January 23, 2003.

will be developed in advance of the West Terminal, and that the mid-field concourse would be served by terminal and landside facilities at the existing Terminal Core. Once the West Terminal is constructed, the secure APM system would be extended to provide connectivity between the secure areas of the east and west terminal complexes.

Concept 1 involves a series of APM concepts that respond to a terminal development concept that includes multiple mid-field concourses, a West Terminal facility, southerly extension of Terminal 1 Concourses B and C, and redevelopment of the Terminal 2 area. Under this terminal development concept, most landside support functions for the mid-field concourses and for the extension of Concourses B and C would occur at the redeveloped Terminal 2 facility. APM system concepts are designed to provide high capacity passenger movement capability between the new Terminal 2 facility and the large number of gates located on mid-field concourses. The terminal concept assumes decentralized FIS facilities, and that arriving sterile FIS passengers use connected gates and do not ride the APM system prior to clearing the FIS.

- *Alternative 1-A*, shown in **Exhibit V-26**, would provide two secure pinched-loop APM systems connecting the new Terminal 2 to the mid-field concourses and the extensions of Concourses B and C. One APM system would serve Concourses B, C, and the smaller of the mid-field concourses. The second APM system would serve the major mid-field concourses and the West Terminal. The need for parallel APM systems is driven by the expected critical link demand volumes during peak operating times. Separate systems provide parity between service for airlines using the West Terminal and mid-field concourses, and double the capacity of the system in the peak links nearest the main terminal (Terminal 2).
- *Alternative 1-B*, shown in **Exhibit V-27**, provides a single APM system in a bi-directional loop configuration. This alternative provides increased redundancy and failure management options. It also provides the highest level of passenger service and shortest walking distances between APM stations and gates. However, the increased number of stations significantly increases system costs and complicates passenger way-finding.

Concept 2 was developed in response to a similar terminal configuration involving multiple mid-field concourses and a West Terminal facility, but continued use of existing Terminal 2 and no southerly extension of Concourses B and C. APM system concepts are designed to provide high capacity passenger movement capability between the centroid of the East Terminal facilities and the gates located on the mid-field concourses and at the West Terminal. The terminal concept assumes decentralized FIS facilities, and that arriving sterile FIS passengers use connected gates and do not ride the APM system prior to clearing the FIS.

- *Alternative 2-A*, shown in **Exhibit V-28**, is similar to Alternative 1-A in that it is a straight cross-airfield, pinched-loop alignment that connects the east-side terminal core with Concourse B, the mid-field concourses, and the West Terminal. However, since fewer gates would be served by the APM as compared to Alternative 1, a dual APM system would not be required. This alternative meets the basic passenger movement requirements necessary to support this terminal development concept.
- *Alternative 2-B*, shown in **Exhibit V-29**, is similar to Alternative 1-B in that it provides a single APM system in a bi-directional loop configuration. This alternative provides increased redundancy and failure management options. It also provides the highest level of passenger service and shortest walking distances between APM stations and gates. However,

this concept requires the construction of three additional stations and more than twice the linear feet of tunnels and system guideway compared to Alternative 2-A.

Concept 3 was developed to support a smaller mid-field concourse and West Terminal configuration with fewer overall gates than under Concepts 1 and 2. This mid-field concourse and West Terminal configuration are necessary to support the north-south aircraft movement areas between Runways 9R-27L and 10L-28R. This basic mid-field concourse and West Terminal configuration is the basis of the OMP plan.

- *Alternative 3-A* is a variation on the preferred alternative, but is materially different in that the system initially connects to Terminals 3, 4, and 5. This alternative is shown in **Exhibit V-30**. APM stations are provided between concourses at Terminals 1, 2, 3, and the WGP's Terminal 4. Stations would be provided at Terminal 5 and the WGP's Terminal 6 once it comes on-line. The primary advantage of this design is that it reduces the total number of stations and, in some instances, allows for improved vertical circulation between station platforms and terminal concourses. As with the Preferred Alternative, this concept incorporates a pinched-loop design that can be phased in over time depending on demand and airline needs.
- *Alternative 3-B* represents a slight variation of Alternative 3-A in that the system is routed to the north side on Concourse C, provides a station connection at the underground walkway connecting Concourses B and C, and then provides another station at Concourse E/Terminal 2. This Alternative is shown in **Exhibit V-31**. The primary disadvantages of this alternative APM system concept are the additional distances of tunnel and system guideway necessary to route the system to the north of Concourse C, and the additional station necessary to serve Concourses B and C separate from Concourse E.

The Preferred Secure APM Concept, a pinched loop APM system shown in **Exhibit V-32**, is a refinement of several alternatives aimed at reducing overall costs of the OMP and maintaining ultimate APM system flexibility. As proposed, the preferred alternative would begin operation when the mid-field concourse is opened. It will have a single station serving Terminals 1 and 2 in the existing Terminal Core, will connect with the mid-field concourse with a single station located near the center of the concourse, and will extend to the west to its terminus at the system's Operations/Maintenance and Storage facility. A third station would be constructed in conjunction with the development of the West Terminal at a later date. The system also is designed in a manner that would allow for a future extension in an easterly manner with station connections at Terminals 3 and 5 and the WGP's Terminals 4 and 6.

5.7.2 Non-Secure East/West Passenger Movements

Three methods for providing non-secure movements between the east and west sides of the Airport were considered during the development of the OMP full-build plan. Allowances for these movements were only considered necessary under the full-build condition when the West Terminal is operative and western landside access is provided from York Road and Thorndale Avenue. The need for a non-secure east/west airport connection is to facilitate the transportation of passengers and other Airport users that need to transfer between non-secure Airport areas such as passengers who may return from a trip and must claim bags at the West Terminal, but parked their car on the east side of the Airport, and those who arrive at the Airport on the wrong side to greet incoming passengers.

The alternatives reviewed for providing this non-secure cross-airport movement capability include:

- Extension of the existing non-secure Airport Transit System to the West Terminal,
- Providing a non-secure roadway across the airfield and providing a shuttle bus system; and
- Providing a shuttle bus system that operates on the future roadway system on and around the Airport.

5.7.2.1 Airport Transit System (ATS) Improvements Concept

A minor modification to the planned ATS extension in the Northeast Quadrant of the Airport, as depicted on the approved ALP, may be required in order to avoid conflicts with the FAR Part 77 surfaces of future Runway 9C-27C. The area in question is the point where the extension of the system guideway crosses the elevated flyover ramp between Bessie Coleman Drive and Mannheim Road. The extension of the APM guideway in this area is necessitated by a new Operations and Maintenance facility that must be replaced due the construction of Terminal 6 in the WGP. It is believed that the extension alignment may need to be shifted slightly to the west in order to cross the flyover ramp at a point where the roadway transitions back to grade, thereby lowering the height of the guideway in the RPZ.

Consideration was also given to extending the existing ATS system from its existing terminus at Terminal 1 to the future West Terminal facility. The purpose of such an extension of the non-secure people mover system would be to facilitate the east-west transfer of passenger, employees, meeter/greeters, etc. to the various terminals and other non-secure areas around the Airport. This system also would be useful for arriving passengers that have claimed their luggage (hence entered the non-secure area of the terminal) and find themselves on the other side of the Airport from their parked vehicle.

The following basic non-secure ATS westerly extension alternatives were considered:

- *Alternative 1*, shown in **Exhibit V-33**, involves extending the existing ATS from its current terminus near the station at Terminal 1 in a northeasterly direction, crossing the main Airport inbound roadway, turning west and transitioning below grade to run in a tunnel section parallel to Runway 9R-27L to a point immediately north of the proposed West Terminal Garage, and then connecting with the West Terminal. This extension meets the general objectives of connecting the East Terminal Core and the West Terminal facility, but creates constructability issues as it crosses the Main Airport roadway in the terminal area, and transitions to the below-grade alignment under the airfield.
- *Alternative 2*, shown in **Exhibit V-34**, relies on a helix design as the system is extended from the current terminus at Terminal 1 to a below-grade alignment that would turn northeast, then south, and finally west in the area roughly beneath the Hilton Hotel. From this point, the system would run below grade to the West Terminal facility. Note that since this is a non-secure system, no stations would be provided at the mid-field concourses. This alternative would have to be designed and constructed in a manner that avoids below-grade conflicts with the preferred secure APM alternative and the future extension of the CTA Blue Line (as discussed in Section 5.9).
- *Alternative 3*, shown in **Exhibit V-35**, is a more expansive variation of Alternative 2. In this concept, the system becomes a bi-directional loop system rather than a pinched-loop system,

and ATS trains would be able to take more direct paths from the West Terminal to the Airport's main landside support, including the location of the future consolidated rental car facility and remote parking lots. In this alternative the airfield must be crossed twice, once below-grade between the East Terminal Core and the West Terminal facility, and again between Runways 9L-27R and 9C-27C. The cross-airfield alignment between Runways 9L-27R and 9C-27C would be possible in a combination of tunnel sections (under taxiways), open cut sections, and a limited amount of at-grade guideway. This alternative requires the reconfiguration of some elements of the Northwest Maintenance Area.

- *Preferred Non-Secure ATS Extension Alternative*, shown in **Exhibit V-36**, is a hybrid of the non-secure extension considered in Alternatives 1 and 2. In this concept, the existing ATS would be extended to the west using a tight-radius helix immediately north of the Terminal 1 station, pass under the Main Airport Roadway at the extreme northern end of Terminal 1 in a westerly alignment, turn south at the northern end of Concourse C, and then turn west, paralleling the alignment of the secure APM preferred alternative to a terminus at the West Terminal facility. This alternative has several advantages over the other alternatives, including a more direct route to the West Terminal and construction economies of scale with the preferred secure APM system alignment (i.e., tunnels for the secure and non-secure systems would be located side-by-side at certain points along the alignment reducing the need for redundant emergency exit systems, etc.).

5.7.2.2 Cross-Airfield Roadway Concept

A number of cross-airfield roadway alternatives were developed to connect the west and east terminal areas in the OMP. The cross-airfield roadway concept provides a four-lane public access route across the airfield in the east-west direction. The primary emphasis of this concept was to provide a direct connection for traffic approaching from either direction to access either terminal and to provide a direct roadway connection between the terminals.

Eight alternatives were developed to determine geometric layouts, signal needs, and the location of tunnel sections, depressed roadway sections, and overpass structures. The location of the eight alternatives extends from the northern limits of the airfield to the southern limits, as depicted in **Exhibit V-37**. The preferred alternative (Alternative 3) is located approximately 750 feet north of the extended future Runway 9R-27L. This alternative offers a better balance among the cost, airfield disruption, and direct connection criteria than the other options.

The following is a description of the various alternatives identified for a cross-airfield roadway. These alternatives are shown in Exhibit V-37.

- *Alternative 1* is located in the northern end of the airfield, approximately 1,050 feet south of future Runway 9L-27R. A signalized intersection is proposed to provide access at Bessie Coleman Drive. The roadway crosses several taxiways as well as existing Runway 4L-22R, which will remain in the same location. Approximately 15,000 linear feet of the alignment is a depressed roadway section. Also, a major overpass structure for the existing Runway 4L-22R is required. On the western end, the roadway rises to surface level before crossing the RPZ for the proposed Runways 9C-27C and 9R-27L. Height restrictions throughout the RPZ are satisfied. In lieu of a signalized intersection at Bessie Coleman Drive, a full directional interchange was also considered to accommodate traffic at full build-out of the West Terminal.

- *Alternative 2* is located in the middle of the north airfield, approximately 640 feet north of future Runway 9C-27C. This more centralized location results in a shorter overall length than some of the other alternatives in the north or south airfield. However, this alternative has a major impact on the cargo/support area in the north airfield. This roadway alignment cuts through this area and would reduce the amount of land available for these uses. A signalized intersection was proposed to provide access at Bessie Coleman Drive. The roadway crosses several taxiways as well as Runway 4L-22R. Approximately 13,000 linear feet of the alignment is a depressed roadway section. A large bridge structure (approximately 250 feet wide) for Runway 4L-22R is also required. On the western end, the roadway rises to surface level before crossing the RPZ for the proposed Runways 9C-27C and 9R-27L. Height restrictions throughout the RPZ are satisfied. In lieu of a signalized intersection at Bessie Coleman Drive, a grade separated interchange was considered to accommodate traffic at full build-out of the West Terminal.
- *Alternative 3*, the preferred alternative of the cross-airfield roadway concept, is located in the middle of the north airfield between Runways 9C-27C and 9R-27L. The more centralized location results in a shorter overall length than most of the other alternatives. A signalized intersection is proposed to provide access at Bessie Coleman Drive. The roadway crosses several taxiways as well as Runway 4L-22R. Approximately 13,000 linear feet of the alignment is a depressed roadway section. A large bridge structure (approximately 250 feet wide) for Runway 4L-22R is also required. On the western end, the roadway rises to surface level before crossing the RPZ for Runways 9C-27C and 9R-27L. Height restrictions throughout the RPZ are satisfied. In lieu of a signalized intersection at Bessie Coleman Drive, a full directional interchange also was considered to accommodate traffic at full build out of the West Terminal.
- *Alternative 4* is located in the middle of the airfield providing a shorter and more direct connection. The taxiway crossings are almost continuous and the horizontal separation from the future Runway 9R-27L is the minimum allowable. Approximately 5,300 linear feet of the alignment is a depressed roadway section and 5,700 linear feet is a tunnel section. In addition, the connection to the existing roadway network on the east side is in the area of the existing terminal. As a result, modifications in this area resemble a grade separated interchange. This option would require a 600-foot northerly shift of existing Runway 9R-27L to accommodate the interchange with the existing Airport access road. Since the impact of this potential runway relocation would have a very significant negative impact on the entire program, this alternative was eliminated from further consideration.
- *Alternative 5* is located in the middle of the airfield with a connection through the existing east terminal area. It significantly alters the existing circulation of the terminal area and is dependent on the reconstruction of the existing terminal curbside roadways and much of Terminal 2. A completely new and expanded terminal curbside roadway system would be needed.
- *Alternative 6* is located in the southern end of the airfield, approximately 800 feet north of future Runway 10R-28L. The roadway crosses several taxiways as well as existing Runway 4R-22L, which will remain in the same location in the future. Approximately 12,000 linear feet of the alignment is a depressed roadway section. A large bridge structure (approximately 250 feet wide) for Runway 4L-22R is also required. On the western end, the roadway rises to surface level before crossing the RPZ for proposed Runways 10C-28C and 10L-28R. Height restrictions throughout the RPZ are satisfied. A signalized intersection is proposed to provide access to Irving Park Road.

- *Alternative 7* is located in the northern extremity of the airfield, approximately 750 feet north of future Runway 9L-27R. A signalized intersection would provide access at Bessie Coleman Drive. This location avoids taxiway crossings and, therefore, allows most of the roadway to remain at surface level. However, it is approximately 10,000 feet longer on average than the other alternatives and much less direct. Additionally, a depressed section is required as the alternative crosses the RPZ for future Runway 9L-27R and existing Runway 4L-22R.
- *Alternative 8* is located in the far southern area of the airfield, along the alignment of relocated Irving Park Road. This alternative consists of a surface-level roadway section, which requires widening of existing arterial roadways.

These eight alternatives were developed and evaluated based on surface roadway length, depressed roadway length, tunnel sections, structures, and traffic signals. Each alternative offers distinct differences relating to specific costs that were evaluated. Variations and refinements to each of these alternatives were discussed and could be investigated further if the general concept for a cross-airfield roadway were to be pursued at a later date.

5.7.2.3 Shuttle Bus System Operating on Local Roadways

The preferred concept for transporting non-secure passengers between the East and West Terminals is a shuttle bus operating on public roadways around the Airport. The shuttle bus will carry passengers, visitors and employees who will not be able to go through security to use the secure APM system.

The routing of this shuttle from the West Terminal would go south on York Road, east on Irving Park Road, then north on Mannheim Road to the East Terminals.

During the development of the concept of operating a shuttle bus system on local roadways, the specific demand for the cross-airport movement had not been modeled. Thus demand was estimated at a gross level with the understanding that the number of vehicles shuttle buses used in the service could vary up or down depending on the ultimate need of the system. However, the shuttle bus system is a flexible alternative in that the number of vehicles in service and the size of the vehicles can be adjusted to meet demand.

In order to establish some evaluation parameters for evaluating the system and for modeling the future condition of the off-Airport transportation system, it was assumed that the shuttle bus system would operate on 10-minute headways (i.e., a shuttle vehicle serving a stop every 10 minutes) and that the average demand per vehicle would be 15 persons. However, full-size transit buses are assumed to be used in this service to account for peaks in demand and for establishing potential costs for providing the service.

The system is assumed to operate from 5 a.m. until midnight, or 20 hours per day. The total round trip time for a vehicle was assumed to take an average of 60 minutes accounting for all stops at each of the terminals.

5.7.2.4 Non-Secure East/West Passenger Movements Preferred Concept

The shuttle bus system operating on local roadways is the preferred concept of the non-secure east/west movement options. The overriding factor in determining the preferred concept was cost to

implement the system. Based on the system attributes discussed above, the capital costs to implement the Shuttle Bus on Local Roadways concept would be approximately \$4 million (assumes the purchase of 8 buses, of which 2 are spares, at a cost of \$500,000 per vehicle). This compares to an estimated capital cost of approximately \$400 million to extend the non-secure ATS system, and a capital cost of approximately \$200 million to construct the cross-airfield roadway (includes costs to purchase vehicles to operate a shuttle bus system between the east and west terminal areas). Note that the capital costs presented here are “planning level” costs estimates based on expected unit costs for each system, and do not represent detailed cost estimates based on preliminary engineering detail.

5.8 Railroads

The preferred airfield concept necessitates relocation of an existing active double track freight rail line owned by the Union Pacific Railroad that traverses the western and southern portions of the existing Airport property. Five alternative concepts were developed, two focusing on the east side of the Airport and three focusing on the west side of the Airport. This section describes each concept considered and summarizes the evaluation of the various concepts. **Exhibit V-38** depicts the rail system adjacent to O'Hare.

5.8.1 Union Pacific Railroad Concept Refinement

The following concepts for the Union Pacific Railroad were developed.

- *Concept E-1*, depicted in **Exhibit V-39**, reroutes the rail line to the Wisconsin Central corridor along the east side of the Airport. The relocation begins in Des Plaines and continues to Mannheim Road, where the Union Pacific follows a new alignment, crossing over the Metra tracks and the Canadian Pacific Railway yard on structure, following along the north side of Green Street, and connecting to the existing alignment.
- *Concept E-2*, depicted in **Exhibit V-40**, is also rerouted along the Wisconsin Central corridor beginning in Des Plaines and continues south to Franklin Park where it would be rerouted along the Indiana Harbor Belt Railroad tracks terminating at the eastern gateway to the Union Pacific's Proviso Yard.
- *Concept W-1*, depicted in **Exhibit V-41**, relocates the Union Pacific to the Canadian Pacific tracks along the west side of the Airport, crossing Irving Park Road on a new structure, crossing the Metra tracks and Canadian Pacific rail on structure, and then turning east along the south side of the Canadian Pacific rail yard connecting into the existing Union Pacific alignment at Green Street. The Canadian Pacific rail would follow the existing tracks south to where the existing Canadian Pacific/Union Pacific tracks split and then continue on a new alignment parallel to the east of the existing Canadian Pacific alignment. This alternative includes grade separations of the Canadian Pacific and Union Pacific railroads at Irving Park Road.
- *Concept W-2*, depicted in **Exhibit V-42**, is similar to Concept W-1, although the Canadian Pacific rail remains on its existing alignment and the Union Pacific is located on a new alignment parallel to and east of the Canadian Pacific tracks, crossing over Irving Park Road, Metra, and the Canadian Pacific rail on new structures then following an alignment along the south side of the Canadian Pacific's rail yard connecting with the Union Pacific's existing alignment at Green Street. This alternative includes grade separations of the Canadian Pacific and Union Pacific railroads at Irving Park Road.

- *Concept W-3*, the preferred concept, depicted in **Exhibit V-43**, is similar to Concept W-2 and has the Union Pacific following a new alignment parallel to and east of the Canadian Pacific tracks, crossing Irving Park Road on new structure, then turning east parallel to and north of Metra, crossing over Metra and the Canadian Pacific's rail yard on new structures, and connecting to the existing alignment at Green Street. This alternative includes grade separations of the Canadian Pacific and Union Pacific railroads at Irving Park Road.

5.8.2 Evaluation of Union Pacific Railroad Concepts

Table V-13 summarizes the comparison of the concepts for relocation of the Union Pacific Railroad. The evaluation criteria focused on operational and cost considerations, socioeconomic, safety and environmental impacts.

Table V-13

Summary Comparison of Union Pacific Railroad Relocation Alternatives

Evaluation Criteria	E-1	E-2	W-1	W-2	W-3
Operational Issues					
Freight Railroads Impacted	3	4	2	2	2
Commuter Rail Lines Impacted	3	3	1	1	1
Curtails Customer Service	yes	yes	no	no	no
Rail Yards Impacted	1	4	1	1	1
New Shared Track Rights Required	yes	yes	no	no	no
Requires New Interlocking(s)	yes	yes	yes	no	no
Affects Existing Interlocking	yes	yes	yes	no	no
Removes Canadian Pacific Yard Constraints	yes	yes	yes	yes	yes
Cost Considerations					
Length of New Track (linear feet)	90,200	121,300	26,500	33,900	32,700
Number of New Rail Bridges	6	5	1	1	1
Roadway Grade Separations	5	5	2	2	2
Reconfigured Interlocking(s)	2	3	1	0	0
New Interlocking(s)	1	1	0	0	0
Reconfigured Rail Yards Required	0	2	0	0	0
Safety Issues					
Rail/Road Grade Crossings	20	20	2	2	1
Rail/Rail Crossings	0	2	3	3	0
Carriers in Common Corridor	2	3	2	2	2
Freights Lines in Commuter Rail Corridor	2	2	0	0	0
Runway Approach Zone Constraints	4R-22L	none	none	none	none
Environmental Issues^{1/, 2/, 3/}					
Number of Residential Property Impacts	28	28	14 ^{4/}	13 ^{4/}	33 ^{4/}
Number of Industrial/Commercial Property Impacts	15	23	10 ^{4/}	16 ^{4/}	3 ^{4/}
Wetland Impacts ^{5/}	minor	minor	minor	minor	minor
Increased Rail Noise ^{6/}	yes	yes	no	no	no

Notes:

- 1/ Each alternative assumed that the existing number of tracks used or owned by a railroad in a corridor are accommodated in the proposed alternative. For Alternatives E-1 and E-2, this assumption increased the property and roadway impacts. While the number of impacts could be reduced if one instead of two tracks were provided, the length of new track along with the property and roadway impacts is still significantly more than Alternatives W-1, W-2, and W-3.
- 2/ Property impacts do not include additional takings necessary to accommodate roadway over railroad grade separations.
- 3/ The number of property impacts was derived from aerial photographs.
- 4/ Property impacts for Alternatives W-1, W-2, and W-3 are limited to areas within the proposed OMP boundaries. These properties are being taken for airport modernization and Runway 10R regardless of railroad relocation requirements.
- 5/ Wetlands impacts were derived from wetland resource information. Minor wetland impacts are less than two areas total in palustrine forested or emergent non-persistent isolated wetlands.
- 6/ Increased rail traffic in a given corridor increases associated railroad noise levels.

Source: URS Corporation.
Prepared by: URS Corporation.

5.8.3 Selection of the Preferred Union Pacific Railroad Concept

The two east concepts require substantially more length of track construction than do the three west concepts. Concepts E-1 and E-2 do not eliminate railroad operations from the west side of the Airport. Concepts E-1 and E-2 result in operational disadvantages and adverse economic impacts to the Union Pacific railroad. The Mannheim Road/Canadian National rail corridor is located in a densely developed residential and industrial corridor with severe land and road/rail operational constraints. Any additional track construction within this corridor poses severe adverse operational impacts. These alternatives adversely affect the Union Pacific's service to existing rail customers between the Proviso yard and the DuVal interlocking. These concepts provide no benefits to Union Pacific, Metra, Canadian National, or Indiana Harbor Belt operations or services.

Concept W-1 requires relocation and reconstruction of the Canadian Pacific/Metra interlocking in Bensenville. The relocation to the east would adversely impact the Canadian Pacific yard operations and require relocation of yard lead tracks and associated operations. The concept requires a new interlocking between the Canadian Pacific and Union Pacific tracks near Bryn Mawr. The concept also requires an increased degree of curvature for Union Pacific tracks reducing speed over the existing alignment. This concept provides no benefits to Union Pacific or Metra operations. This concept provides both advantages and disadvantages to Canadian Pacific operations. Benefits result by the removal of the Union Pacific alignment crossing its yard, although this adversely affects west yard track leads and operations.

Concept W-2 offers an improvement over both the east concepts and Concept W-1. Concept W-2 requires significantly less new track construction, eliminates new or reconfigured interlocking(s), and minimizes impacts to Metra. This concept does provide an advantage to the Canadian Pacific operation in that it results in the removal of the Union Pacific embankment constraining its yard operations. With regard to Union Pacific operations, this concept is adverse when compared to the existing alignment. The degree of curvature and grades result in lower speeds. The alignment increases the length and cost of the grade separation crossing Metra tracks and the Canadian Pacific yard. This concept impacts Union Pacific operations.

Concept W-3 ranks favorably in terms of cost considerations. Both Canadian Pacific and Metra operations are not impacted. Removal and replacement of the Union Pacific bridge over the Canadian Pacific yard provides an opportunity for yard operational improvements, an economic benefit to the Canadian Pacific rail line. The alignment of this concept accommodates a minimum design speed of 40 mph for Union Pacific, which poses no adverse constraints on existing operations. This concept results in the least overall impacts and no adverse operational constraints on Union Pacific.

5.9 Public Transit

The Chicago Transit Authority and Metra provide public transit ground access at O'Hare International Airport. This section discusses the impact of the preferred OMP concept on these public transit services.

5.9.1 Chicago Transit Authority (CTA)

CTA's Long-Range Plan includes extension of the Blue Line Transit corridor west and north of O'Hare International Airport. The Department of Aviation and its consultants have met with the CTA to discuss these plans and to better understand what is required in terms of an on-Airport

alignment for the extension. It was concluded that an on-Airport underground extension in a due-westerly alignment from the existing station location will meet the needs of the CTA.

The ultimate path of the Blue Line Extension west of O'Hare is currently under study and has not been finalized. However, it is likely that the extension will take one of two routes in the immediate area of the Airport.

CTA Blue Line Extension Alternative 1 would exit the Airport property in the general area of the York Road and Thorndale Avenue intersection, and then continue on in a northwesterly direction along the Thorndale Avenue Corridor.

CTA Blue Line Extension Alternative 2 also would exit the Airport in the general area of the York Road and Thorndale Avenue intersection, then turn north and follow the York Road/Elmhurst Road corridor to the I-90 corridor where it would turn westerly and continue away from the Airport.

Both alternative alignments can be accommodated from the same on-Airport alignment. The on-Airport CTA alignment will be coordinated with the proposed alignment and potential extension (to Terminals 3 and 5 and the future WGP Terminals 4 and 6) of the secure APM system alignment to ensure that conflicts are resolved prior to design.

CTA has expressed an interest in possibly providing a station/stop in the area of the West Terminal, but has not determined a specific location. The CTA plans on studying these alternatives in more detail in the future.

5.9.2 Metra

Metra provides service to O'Hare International Airport at the Chicago O'Hare Transfer Station on the Antioch (North Central) Commuter Rail Line. Currently, Metra passengers are picked up by a bus and taken to the long-term parking lot (Lot E) ATS station for transport to the terminals. In addition, Metra also provides stations on other commuter rail lines in the vicinity of O'Hare, such as the Bensenville, Mannheim, and Franklin Park Stations on the Elgin (Milwaukee District) Line, some of which have connecting PACE bus service to the Airport.

In the future, the ATS system will be extended to Lot F in the Northeast Quadrant of the Airport, adjacent to the Metra's Antioch commuter line. At that time, bus service between Metra's O'Hare Transfer Station and the existing Lot E ATS station will no longer be required as passengers will be able to walk between the Metra station and the ATS station.

The OMP plan does not result in any changes to Metra service or facilities other than a new bridge over the existing Metra corridor on the south side of the Airport that is needed to facilitate the realignment of the Union Pacific rail line (see Section 5.8 for a detailed discussion of the Union Pacific rail alignment alternatives).

There are currently several regional planning efforts underway by surface transportation agencies in order to plan for future needs of the region in and around O'Hare. In the first quarter of 2003, Metra announced plans to expand commuter rail service to provide inter-suburban connections, as well as to expand service to and from O'Hare. These recently announced plans by Metra note that service improvements to O'Hare could utilize the existing connection described above. In addition, development of the new West Terminal Complex at O'Hare provides for additional service

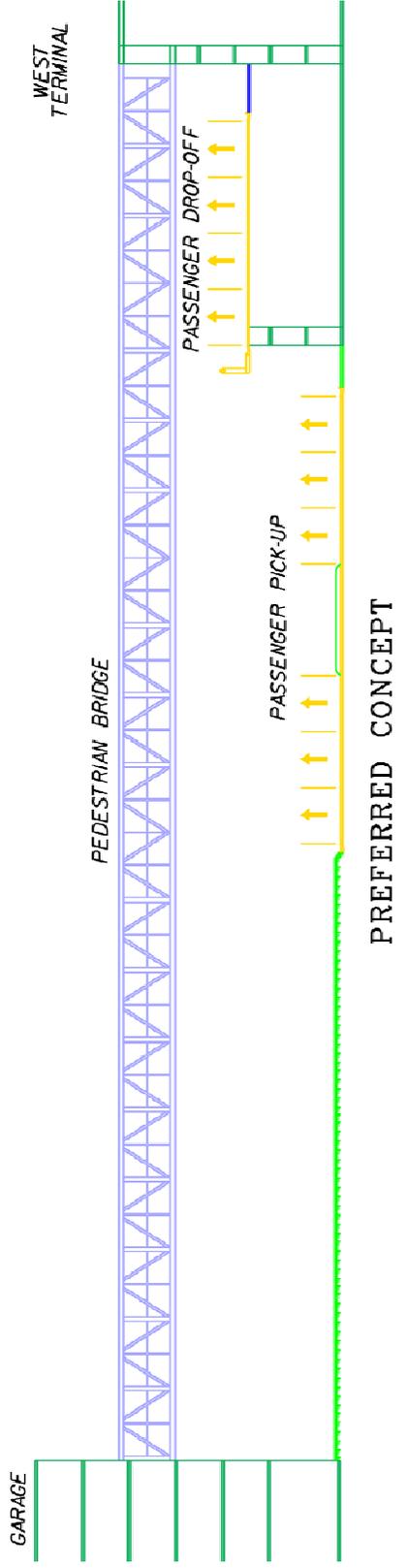
improvement opportunities. A Metra connection at the West Terminal Complex allows for increased connectivity flexibility for Metra, as well as provides for an opportunity to improve passenger convenience by developing a new terminal complex where commuter rail service is directly connected.

Since Metra planning for a connection to the West Terminal facility is in its formative stages, specific alignments, station locations, or interfaces with the terminal building or future Blue Line CTA extension/station have not been identified. In addition, neither agency has identified funding for these projects or developed timeframes for implementation.

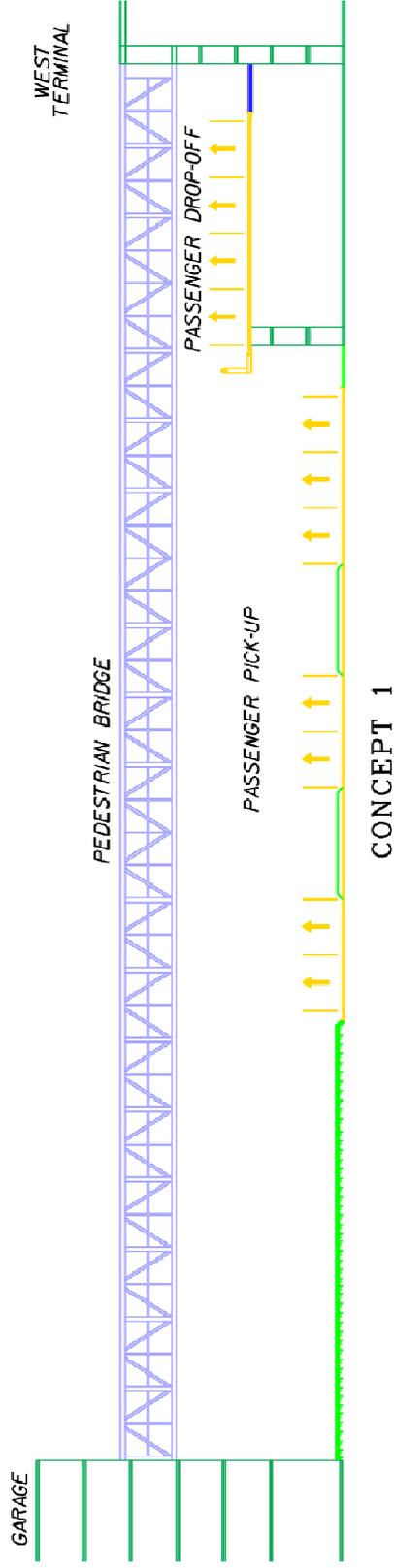
EXHIBITS

SECTION V

WEST TERMINAL CURB CONCEPT



PREFERRED CONCEPT



CONCEPT 1

Source: Kimley Horn and Associates, Inc.
Prepared by: Kimley Horn and Associates, Inc.

Exhibit V-1

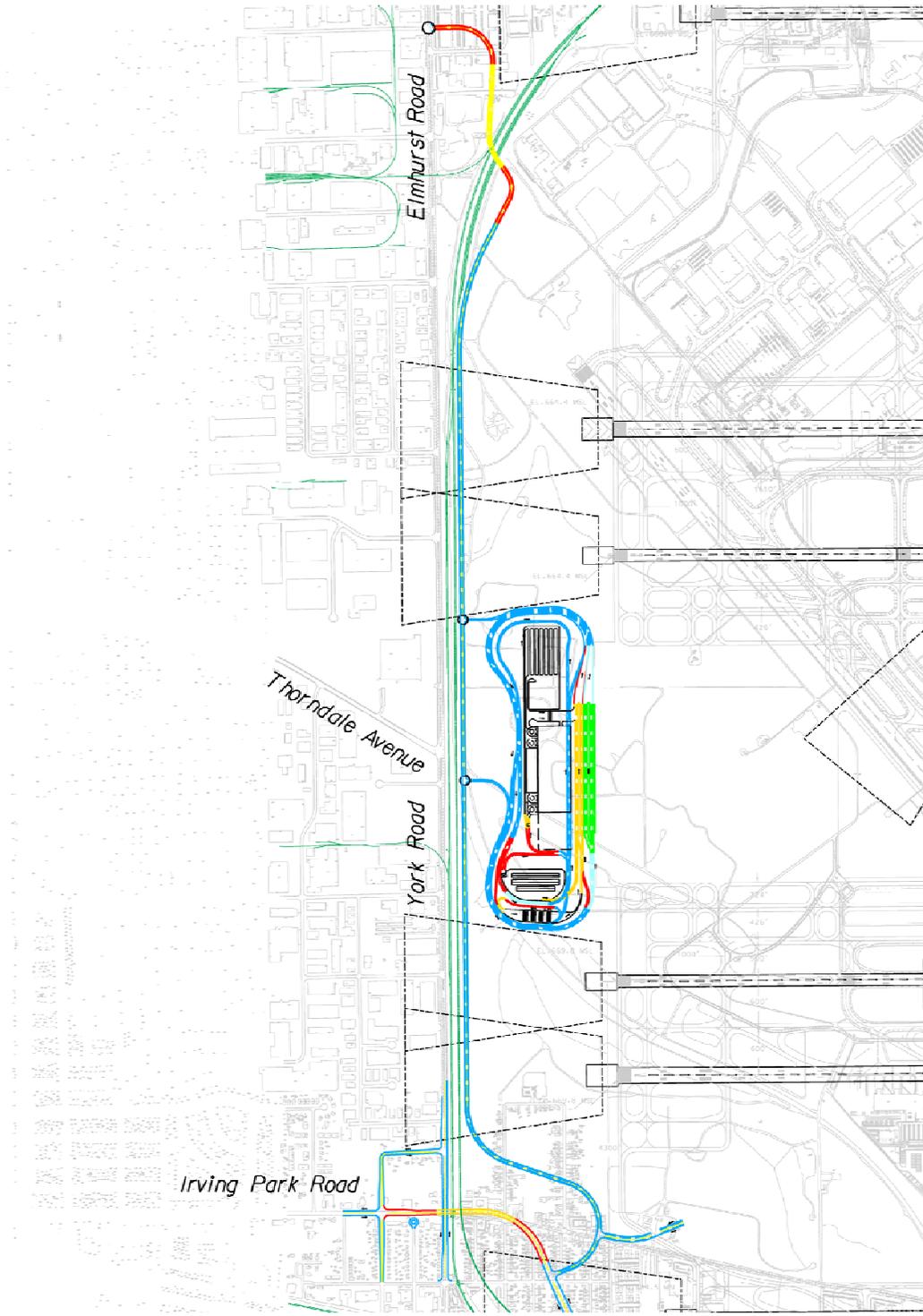


West Terminal Curb Concept Refinement

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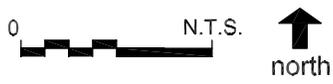
O'Hare Modernization Program
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Source: Kimley-Horn and Associates, Inc.
Prepared by: Kimley-Horn and Associates, Inc.

Exhibit V-3

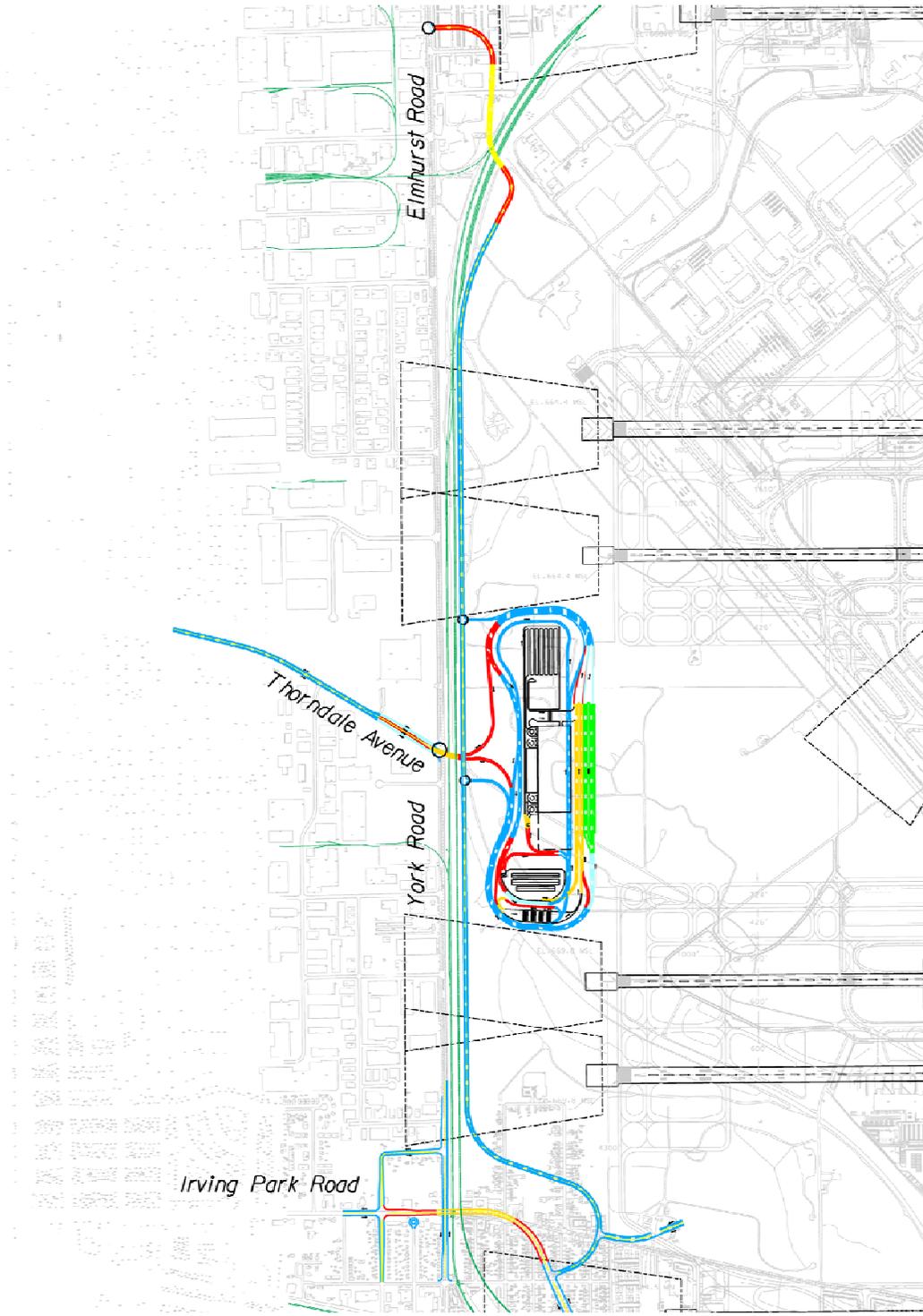


West Terminal Access Roadway Concept 2

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Source: Kimley-Horn and Associates, Inc.
Prepared by: Kimley-Horn and Associates, Inc.

Exhibit V-4

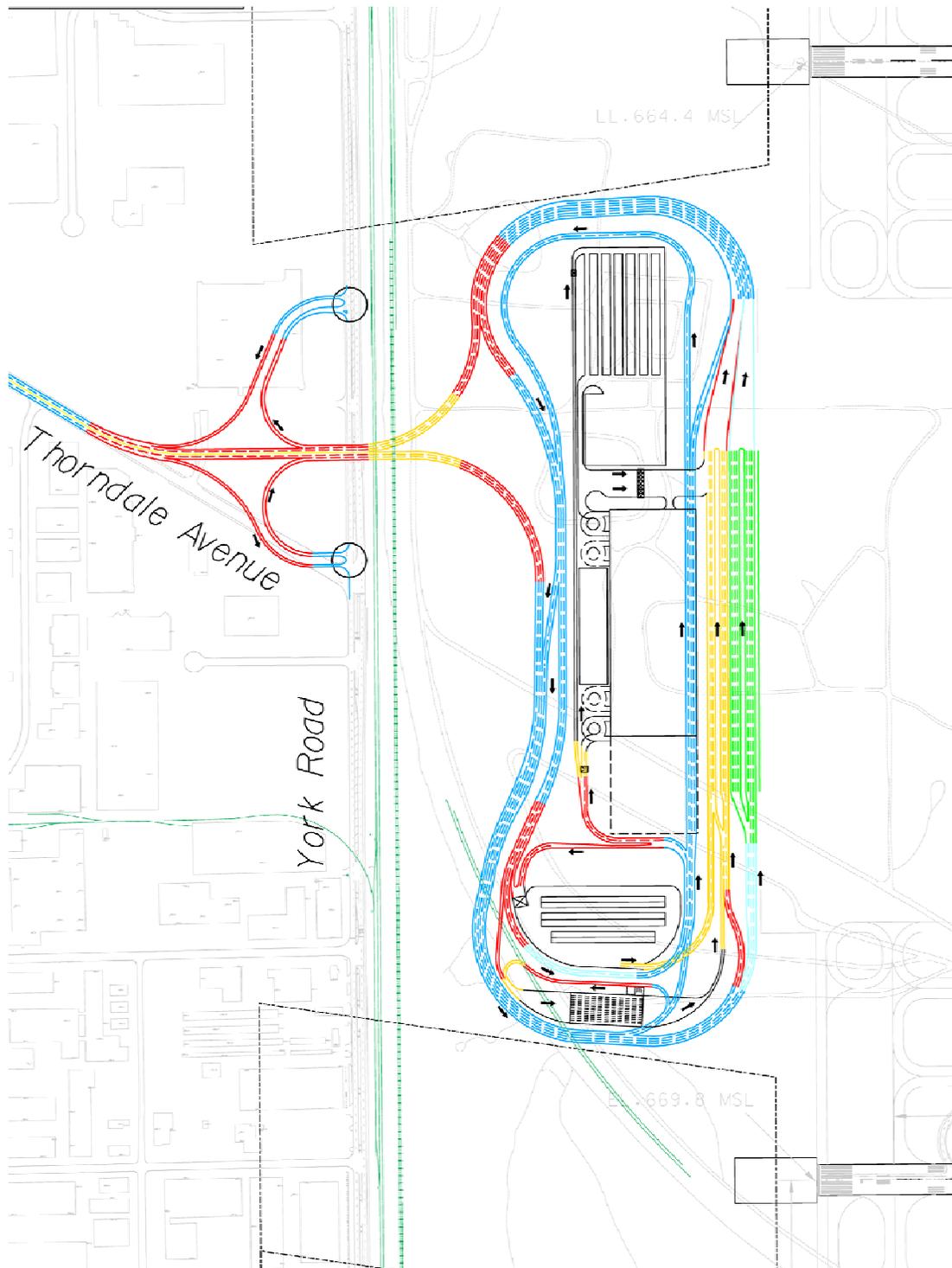


West Terminal Access Roadway Concept 3

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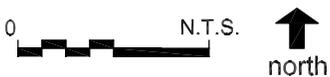
O'Hare Modernization Program
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Source: Kimley-Horn and Associates, Inc.
Prepared by: Kimley-Horn and Associates, Inc.

Exhibit V-5

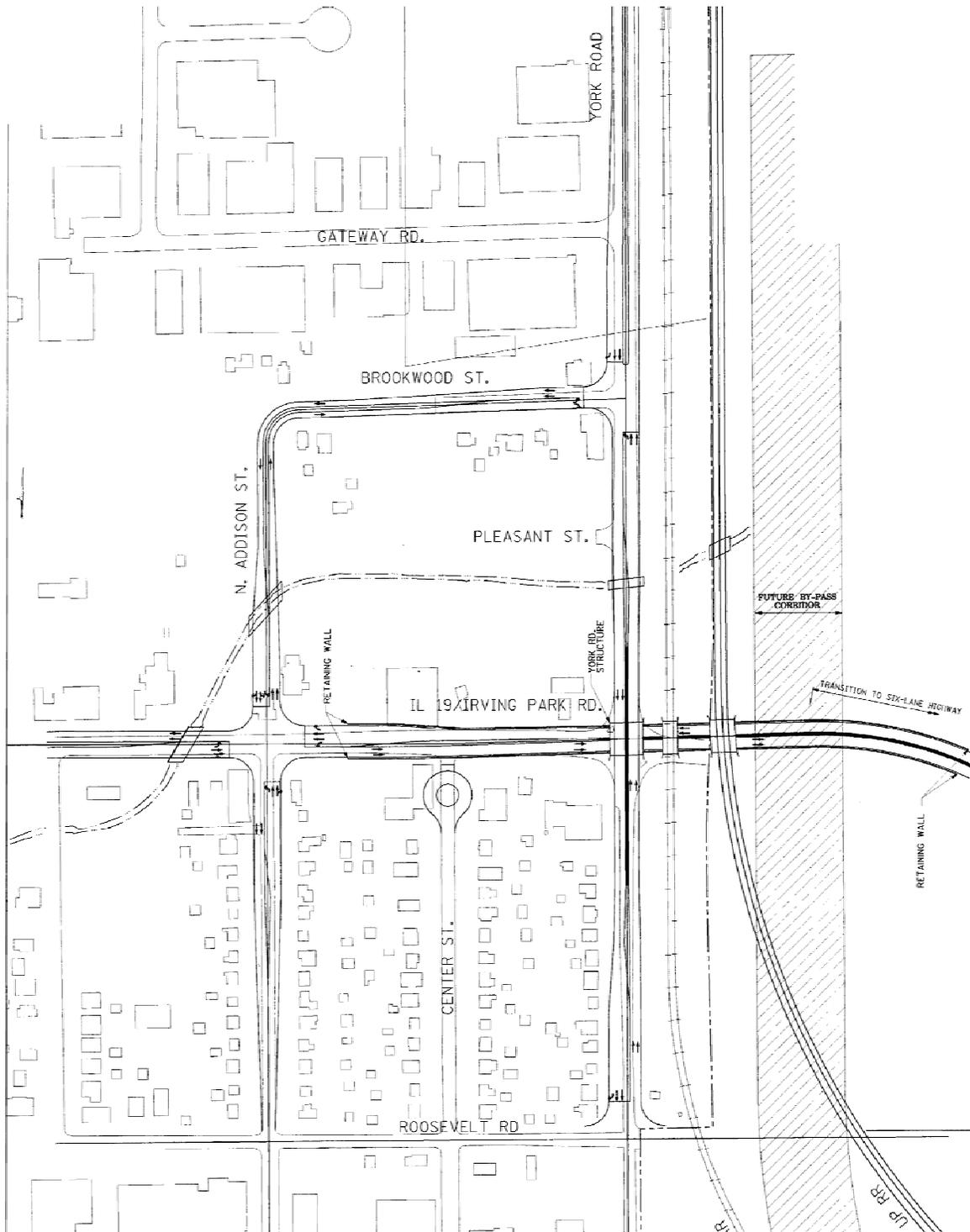


West Terminal Access Roadway Concept 4

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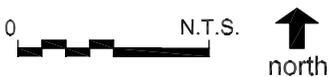
O'Hare Modernization Program
Concept Development/Refinement

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Source: URS Corporation
Prepared by: URS Corporation

Exhibit V-6

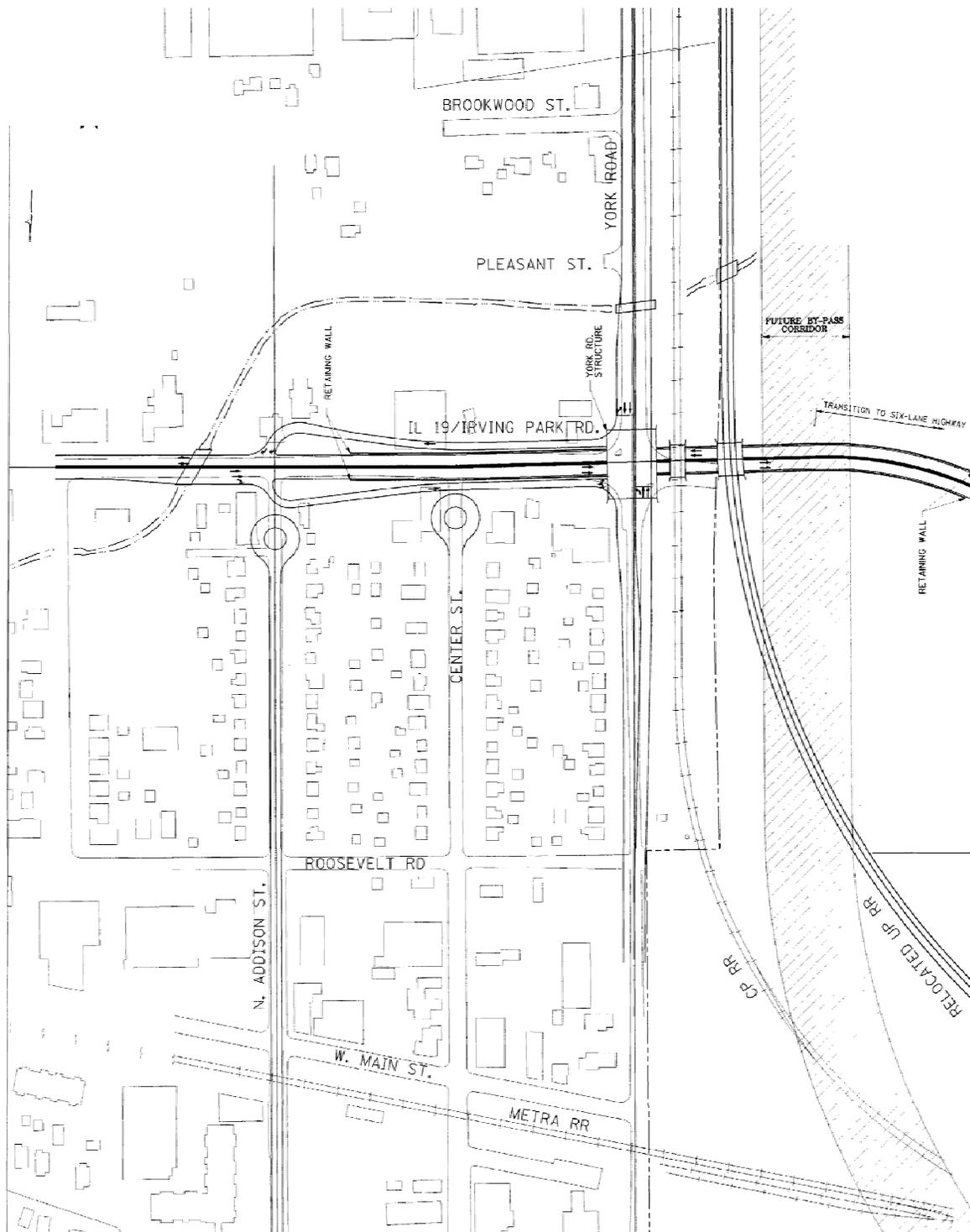


Irving Park Road Relocation Concept IP-1 - Preferred Concept

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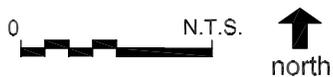
O'Hare Modernization Program
Concept Development/Refinement

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Source: URS Corporation
Prepared by: URS Corporation

Exhibit V-7

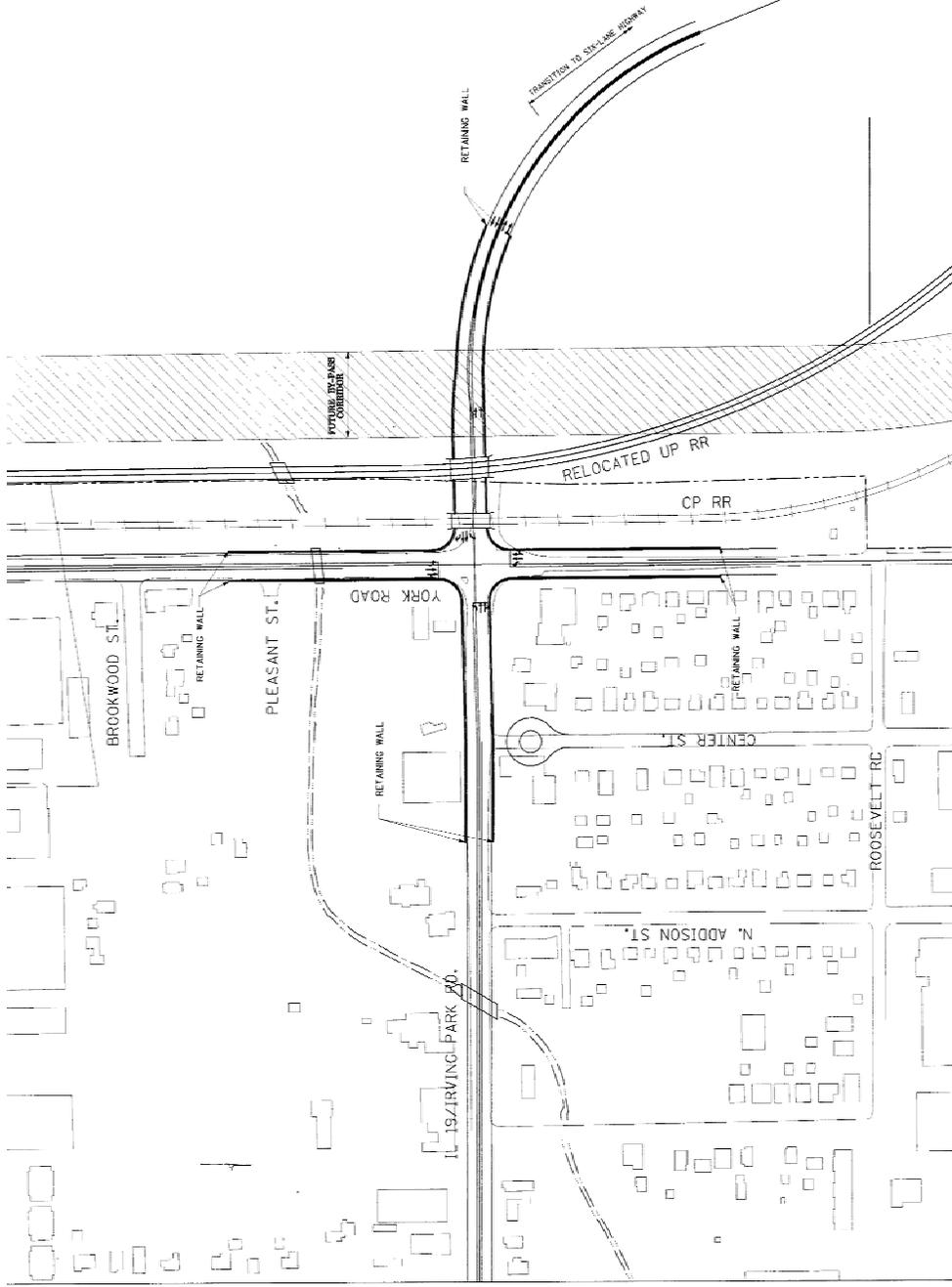


Irving Park Road Relocation Concept IP-2

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Source: URS Corporation
Prepared by: URS Corporation



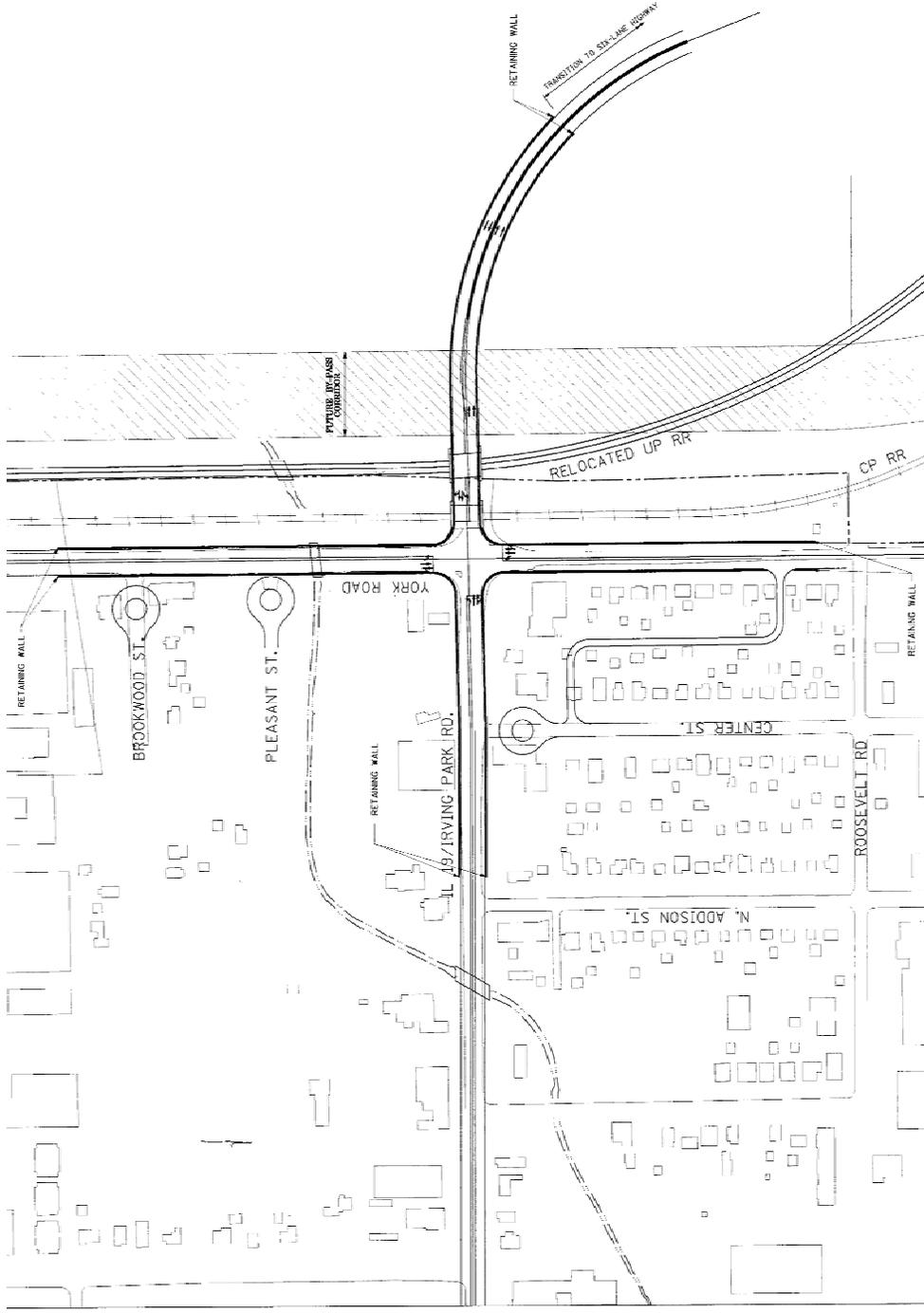
Exhibit V-8

Irving Park Road Relocation Concept IP-3

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O'Hare Modernization Program
Concept Development/Refinement

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Source: URS Corporation
Prepared by: URS Corporation



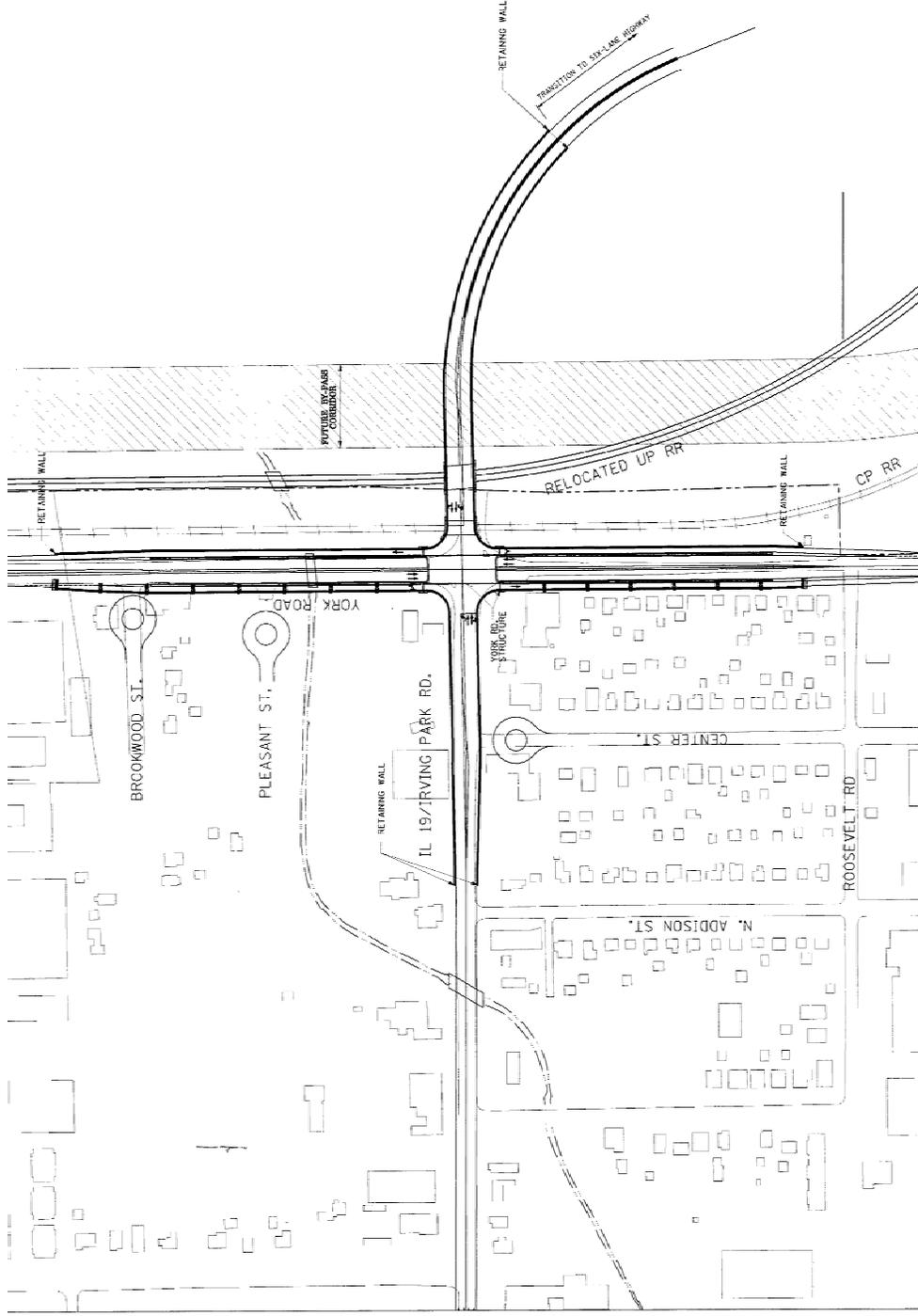
Exhibit V-9

Irving Park Road Relocation Concept IP-4

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O'Hare Modernization Program
Concept Development/Refinement

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Source: URS Corporation
Prepared by: URS Corporation



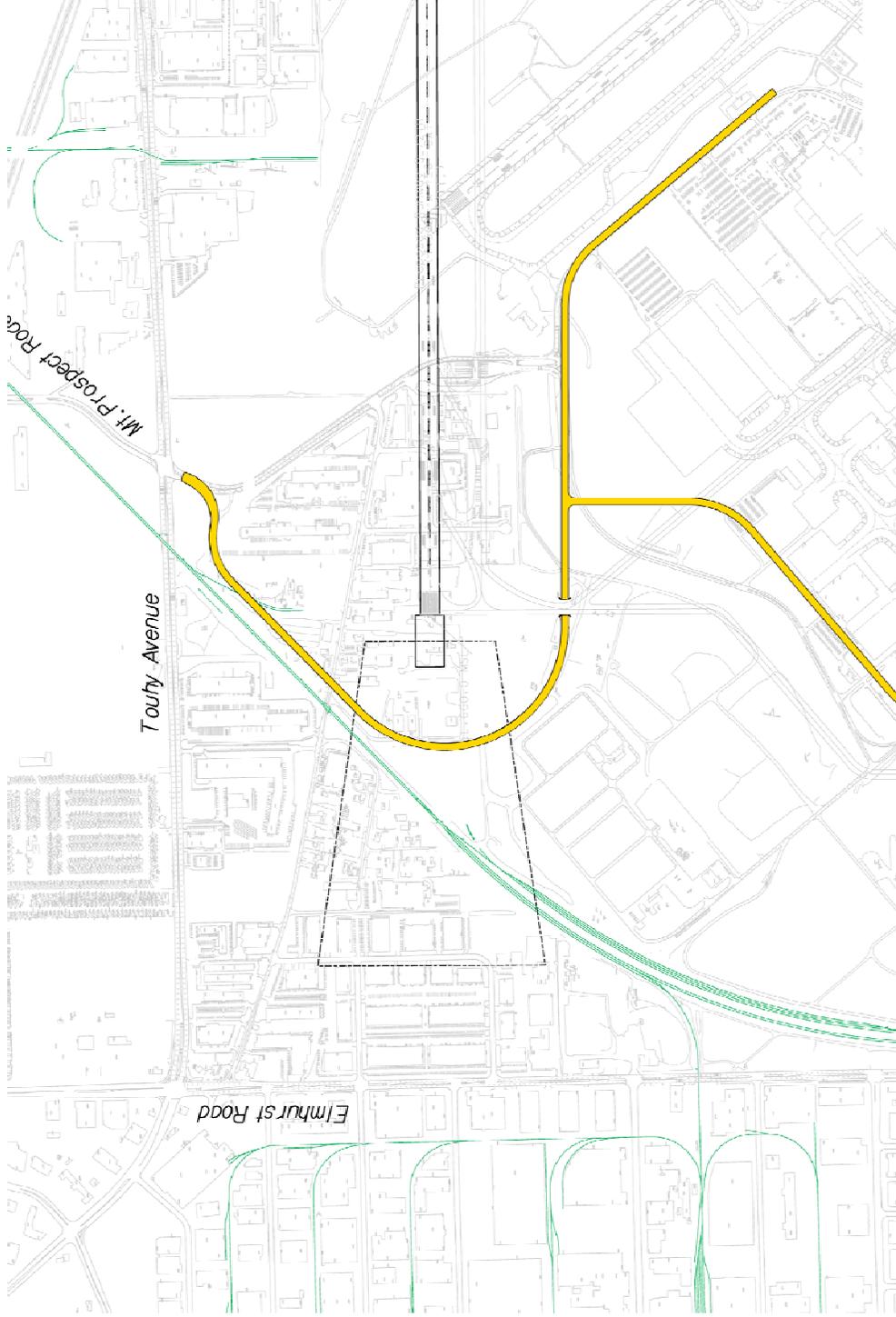
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O'Hare Modernization Program
Concept Development/Refinement

Exhibit V-10

Irving Park Road Relocation Concept IP-5

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Source: Kimley-Horn and Associates, Inc.
Prepared by: Kimley-Horn and Associates, Inc.



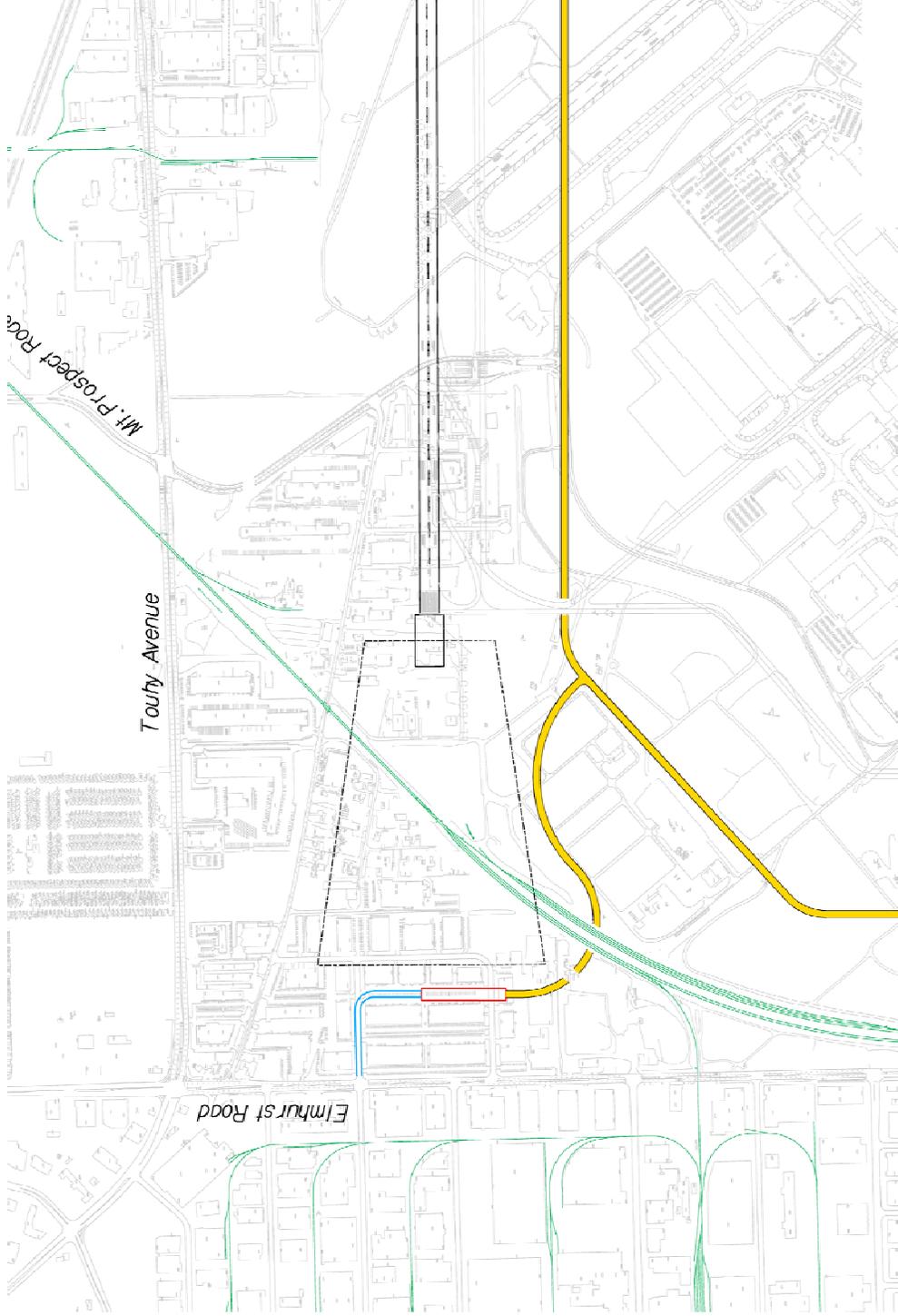
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O'Hare Modernization Program
Concept Development/Refinement

Exhibit V-11

Mt. Prospect Road Concepts Concept 1 - Preferred Concept

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Source: Kimley-Horn and Associates, Inc.
Prepared by: Kimley-Horn and Associates, Inc.



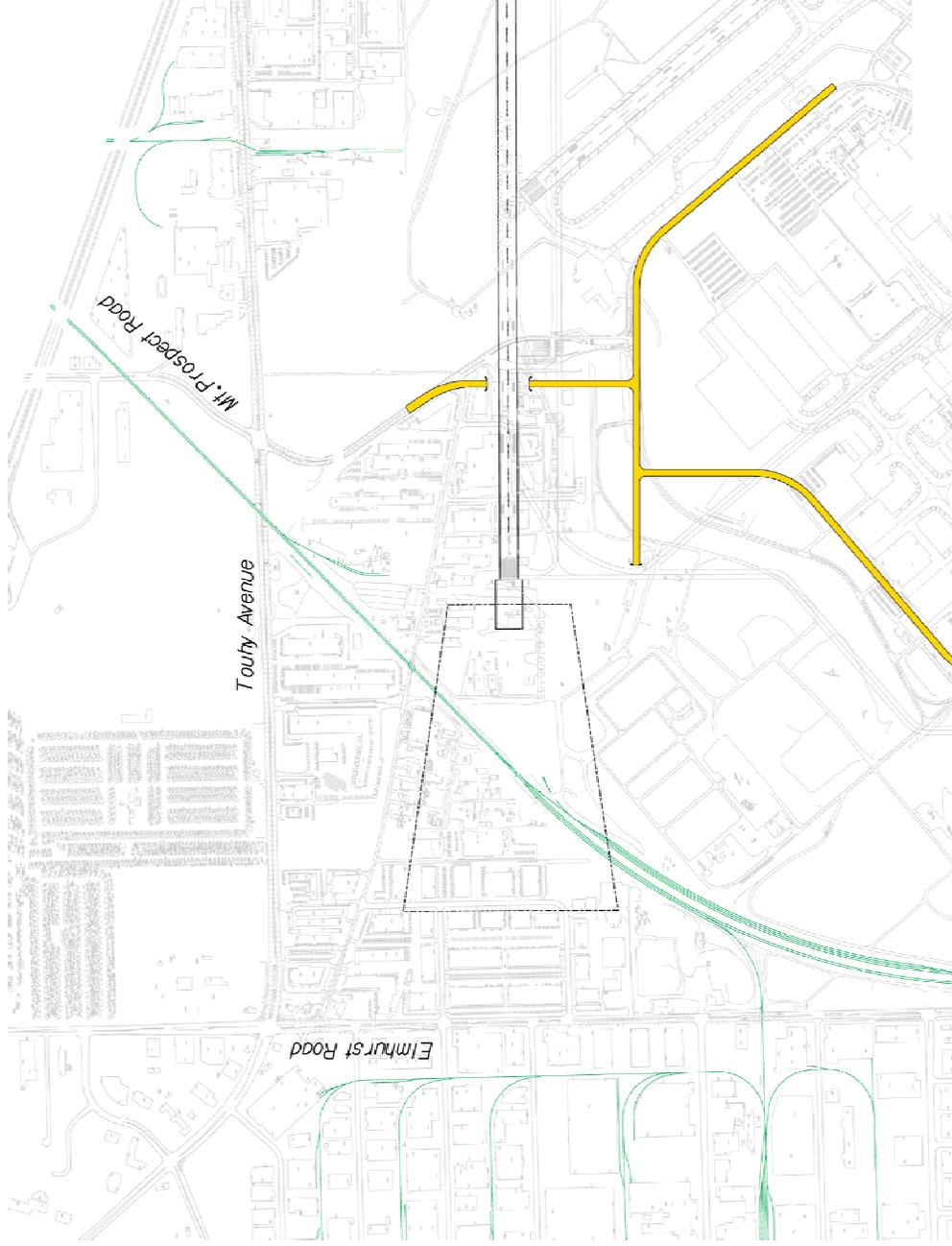
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O'Hare Modernization Program
Concept Development/Refinement

Exhibit V-12

Mt. Prospect Road Concepts Concept 2

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Source: Kimley-Horn and Associates, Inc.
Prepared by: Kimley-Horn and Associates, Inc.



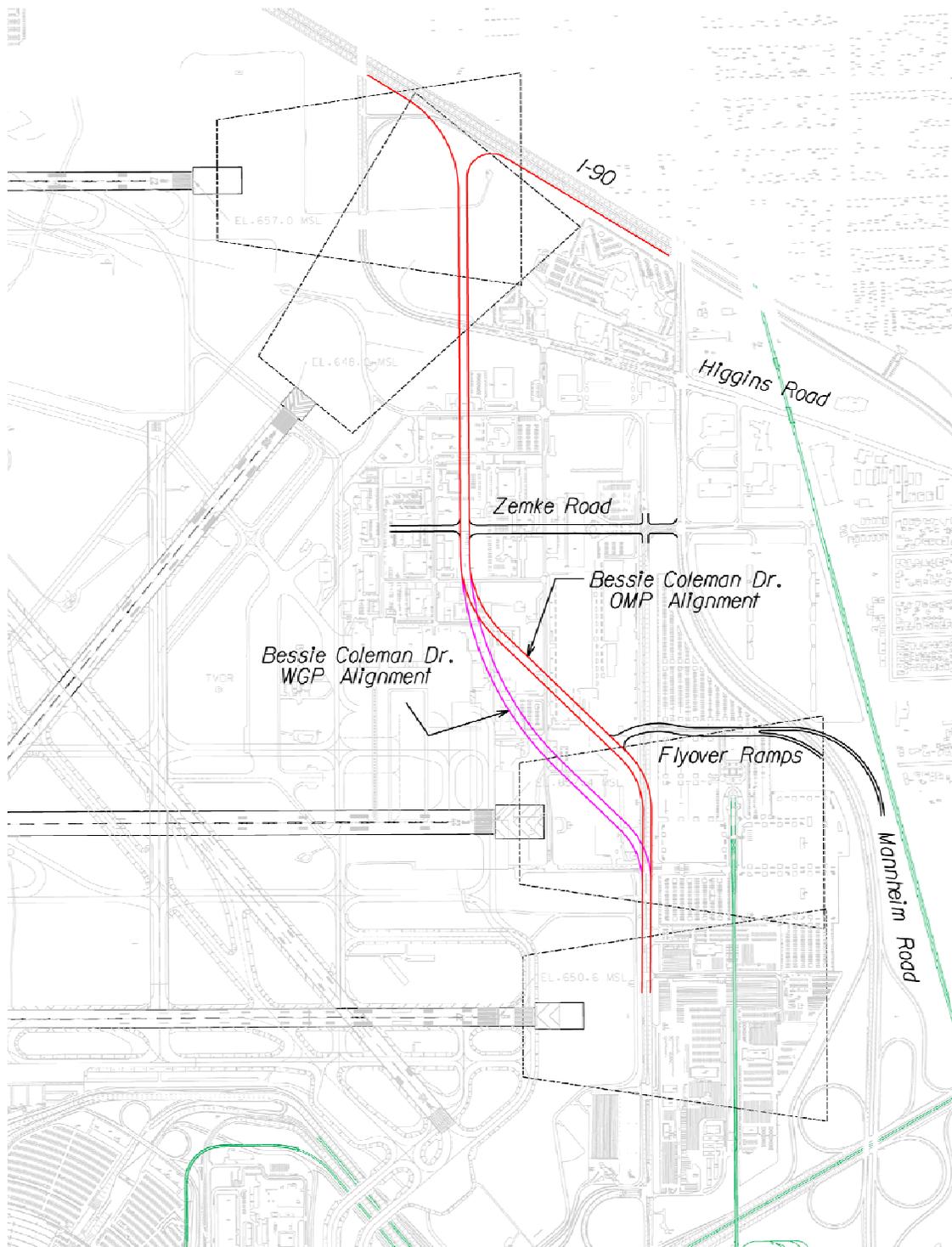
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O'Hare Modernization Program
Concept Development/Refinement

Exhibit V-13

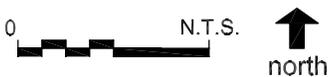
Mt. Prospect Road Concepts Concept 3

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Source: Kimley-Horn and Associates, Inc.
Prepared by: Kimley-Horn and Associates, Inc.

Exhibit V-14

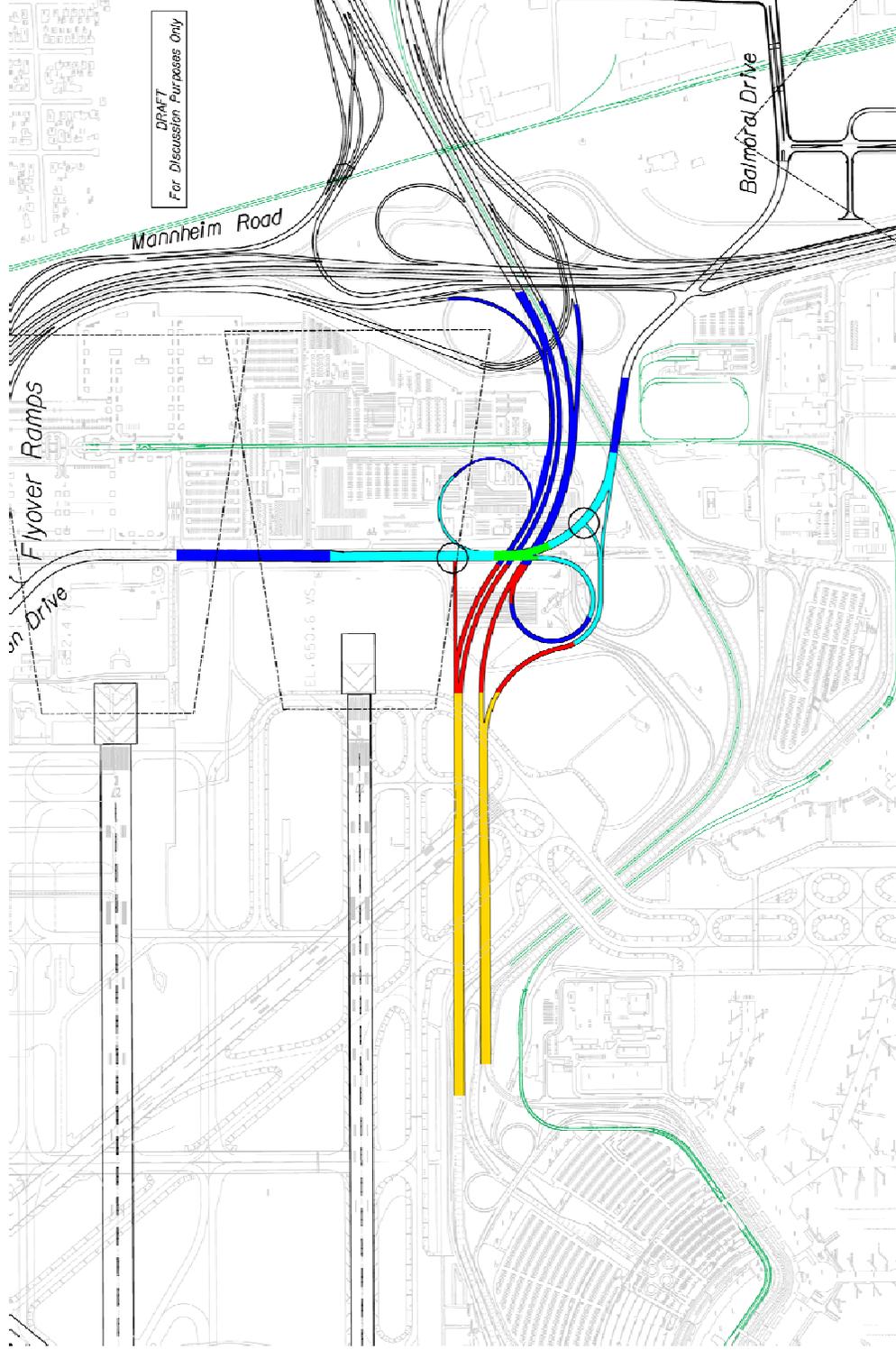


Northeast Quadrant Roadways Preferred Concept

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O'Hare Modernization Program
Concept Development/Refinement

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Source: Kimley-Horn and Associates, Inc.
Prepared by: Kimley-Horn and Associates, Inc.



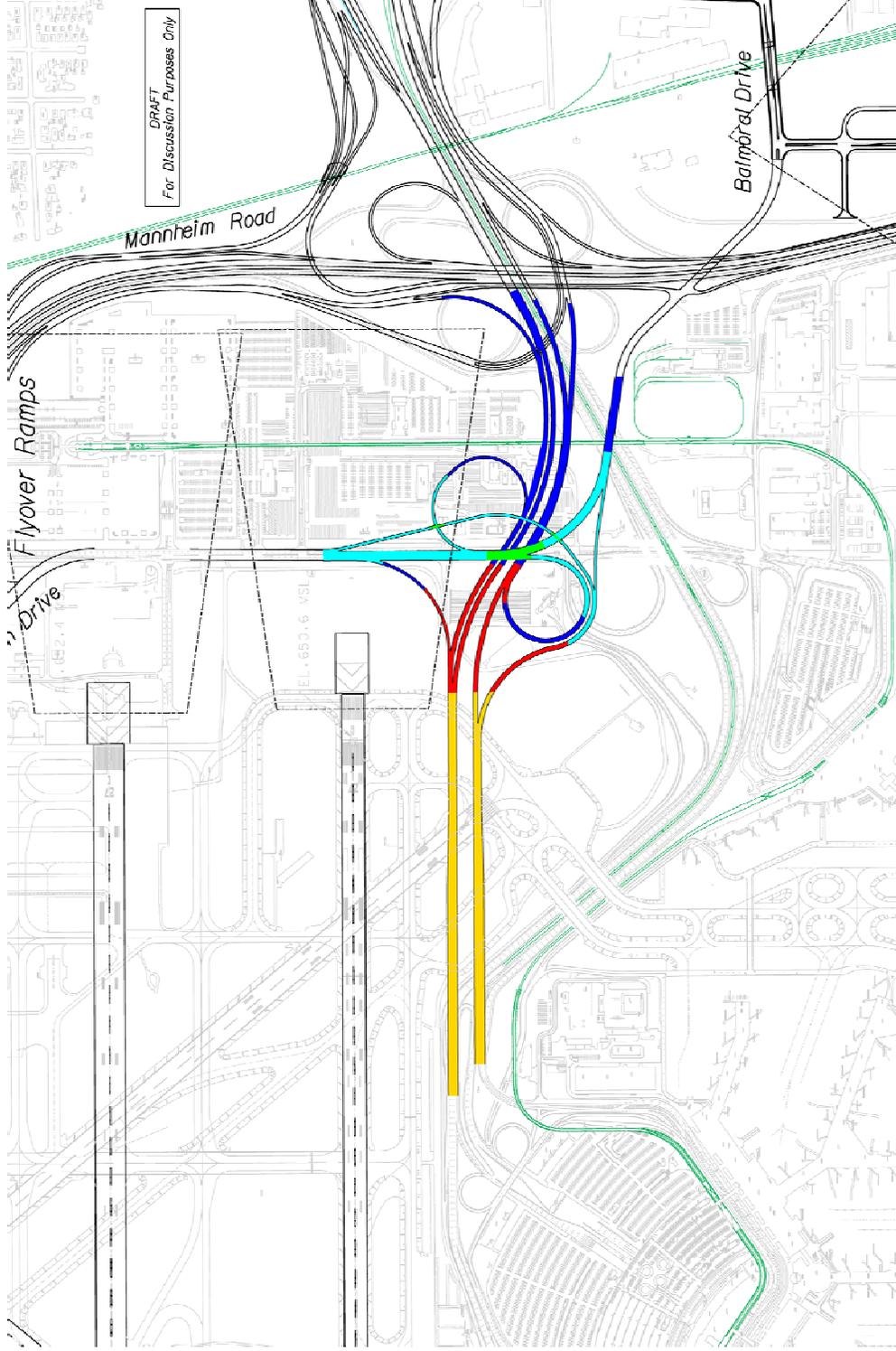
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O'Hare Modernization Program
Concept Development/Refinement

Exhibit V-15

I-190 Concepts Concept 1

February 2003
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Source: Kimley-Horn and Associates, Inc.
Prepared by: Kimley-Horn and Associates, Inc.



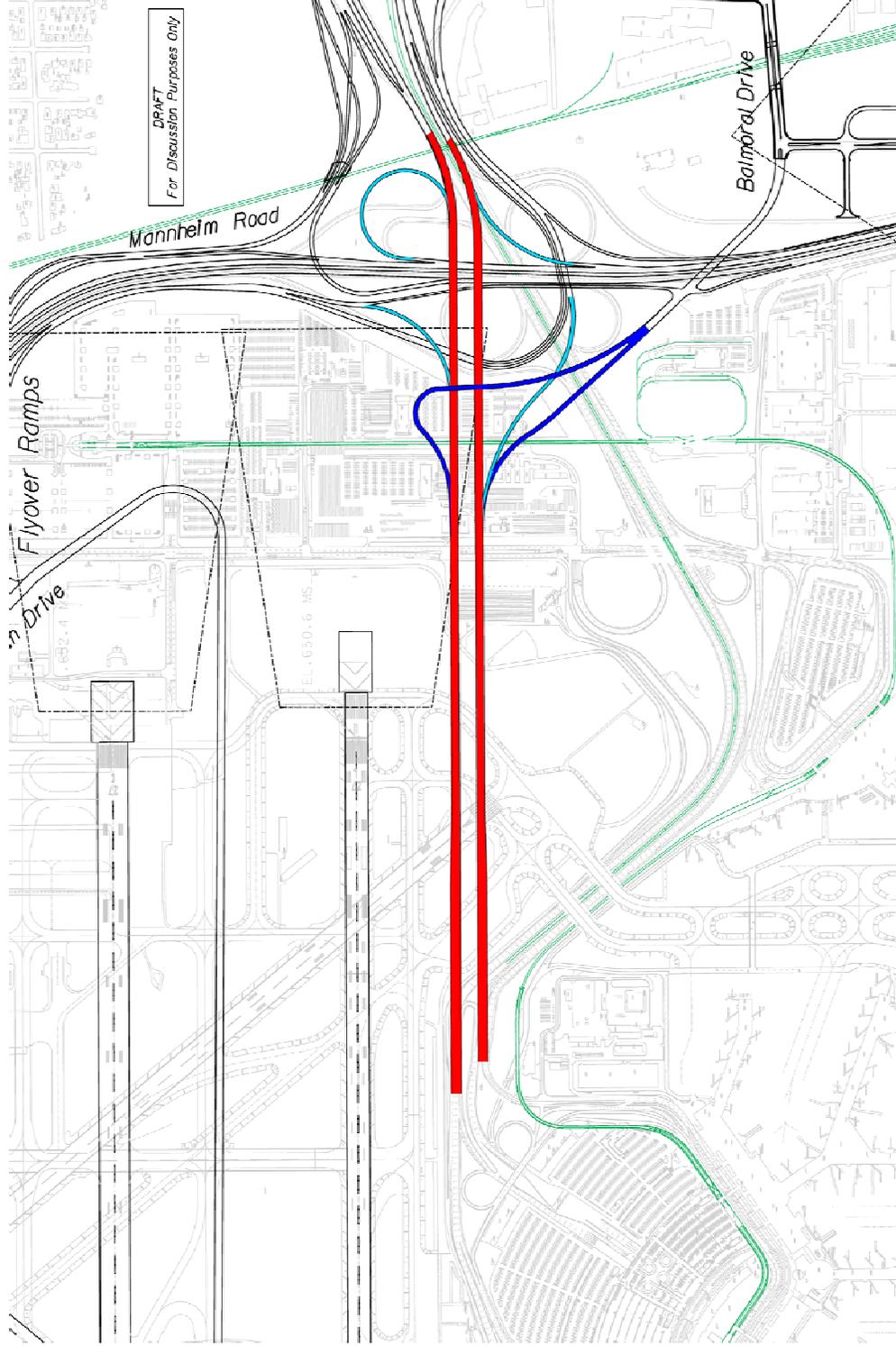
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O'Hare Modernization Program
Concept Development/Refinement

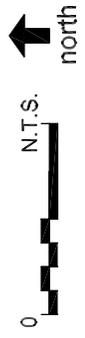
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I-190 Concepts Concept 2

February 2003
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Prepared by: Kimley-Horn and Associates, Inc.



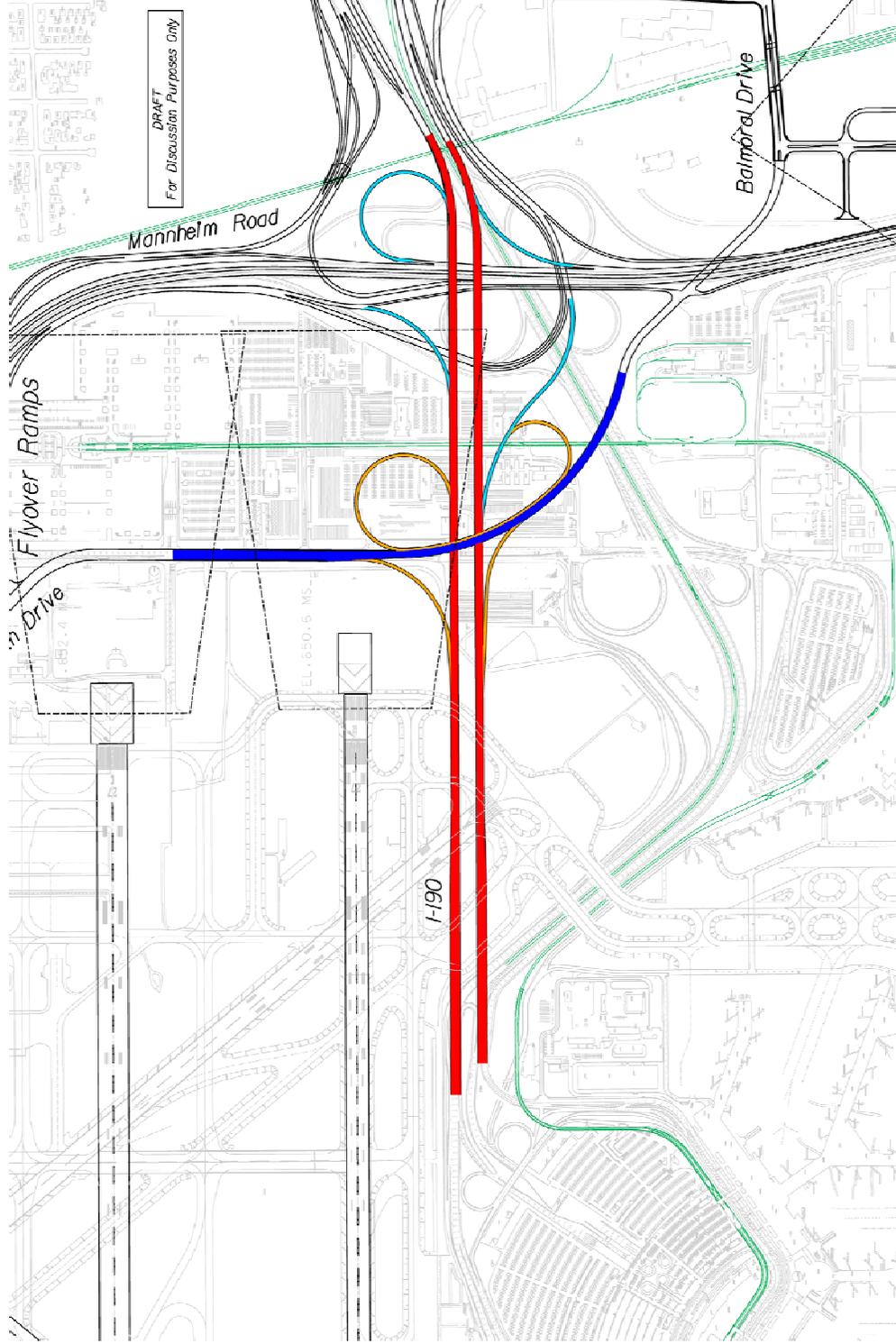
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O'Hare Modernization Program
Concept Development/Refinement

Exhibit V-17

I-190 Concepts Concept 3

February 2003
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Prepared by: Kimley-Horn and Associates, Inc.



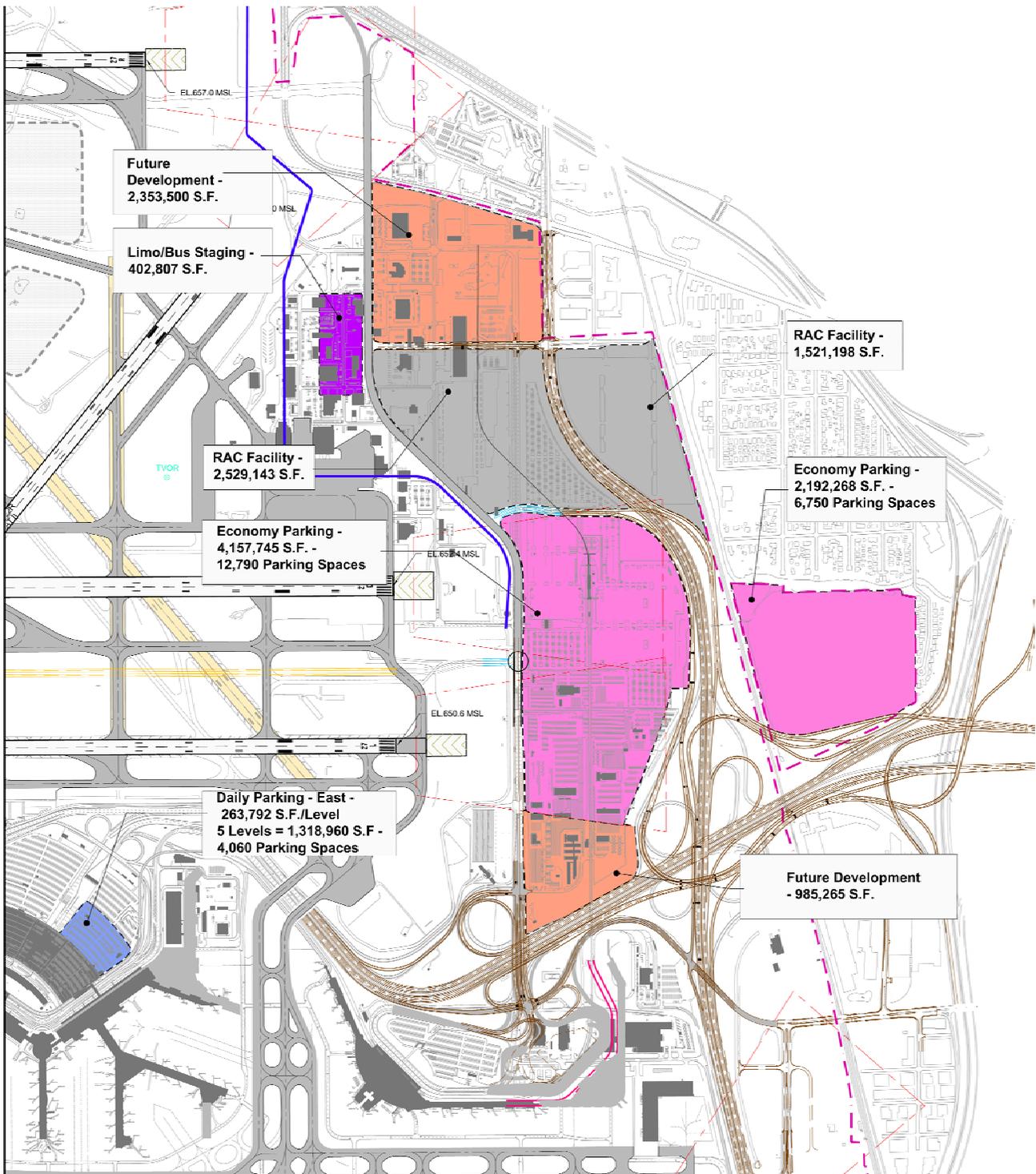
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O'Hare Modernization Program
Concept Development/Refinement

Exhibit V-18

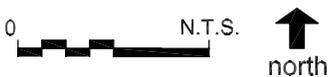
I-190 Concepts Concept 4

February 2003
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Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

Exhibit V-19

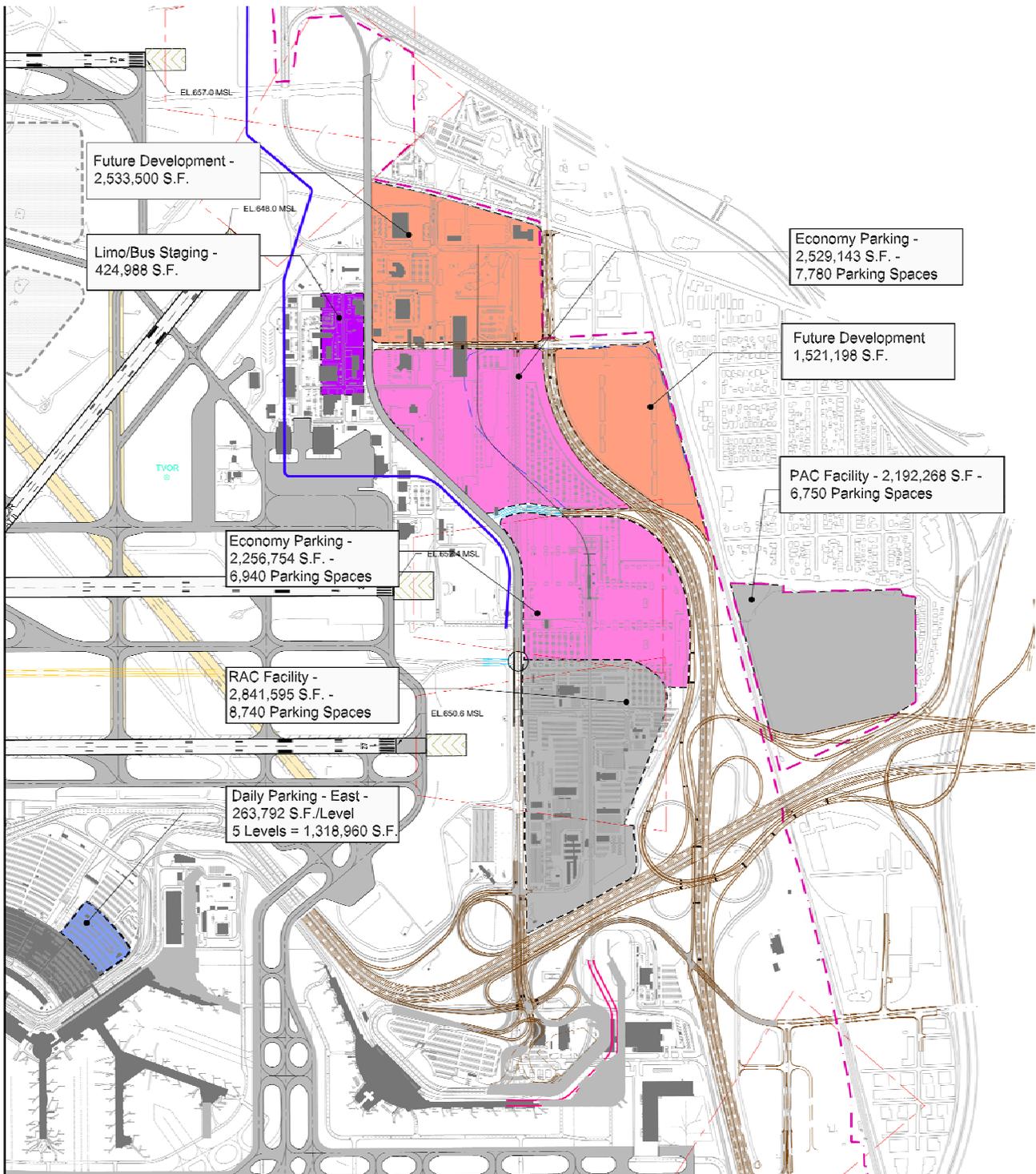


Northeast Quadrant Development Concept 1

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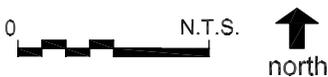
O'Hare Modernization Program
Concept Development/Refinement

February 2003
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Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

Exhibit V-20

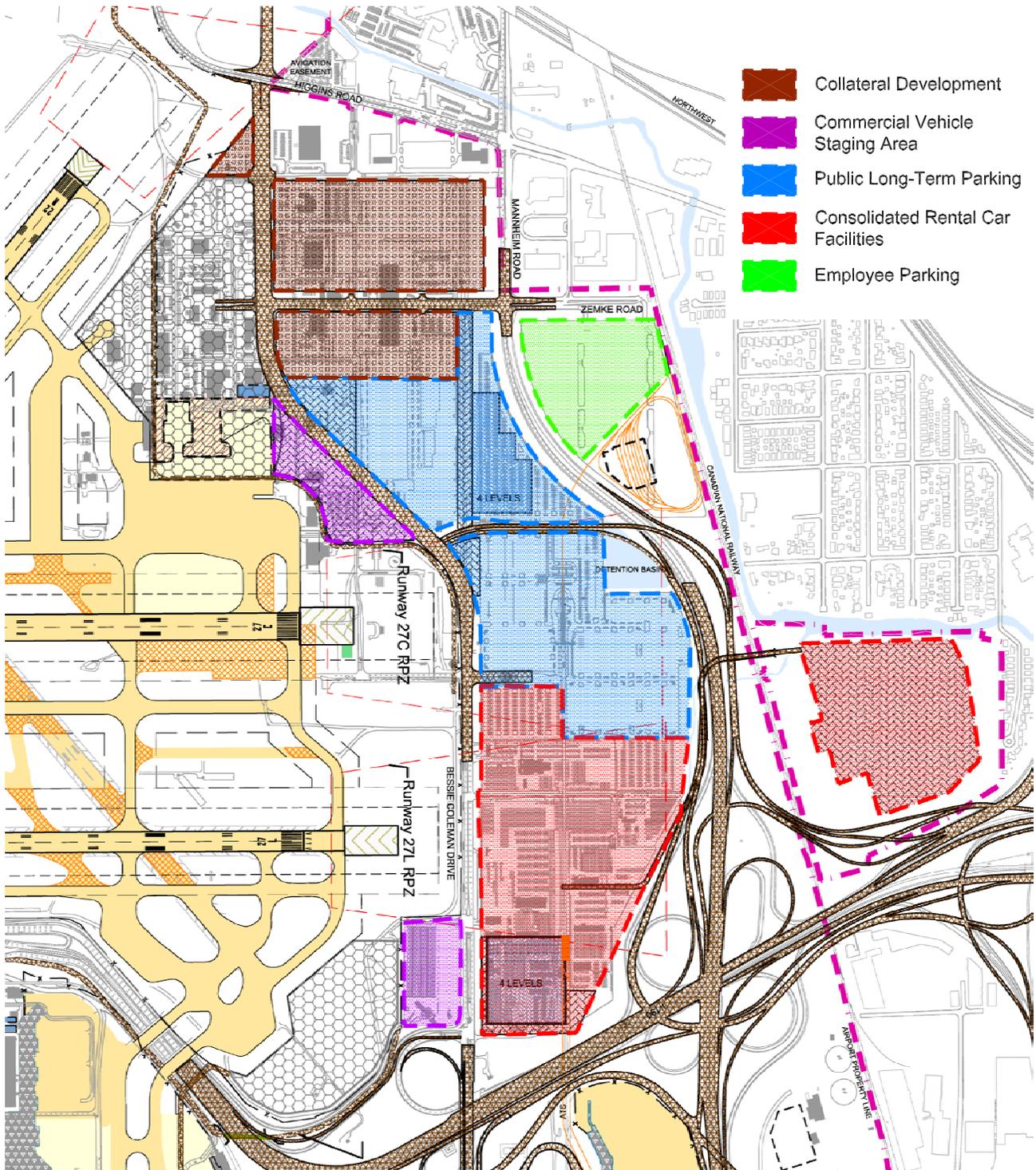


Northeast Quadrant Development Concept 2

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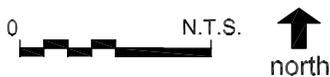
O'Hare Modernization Program
Concept Development/Refinement

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Source: Ricondo & Associates, Inc.
 Prepared by: Ricondo & Associates, Inc.

Exhibit V-21

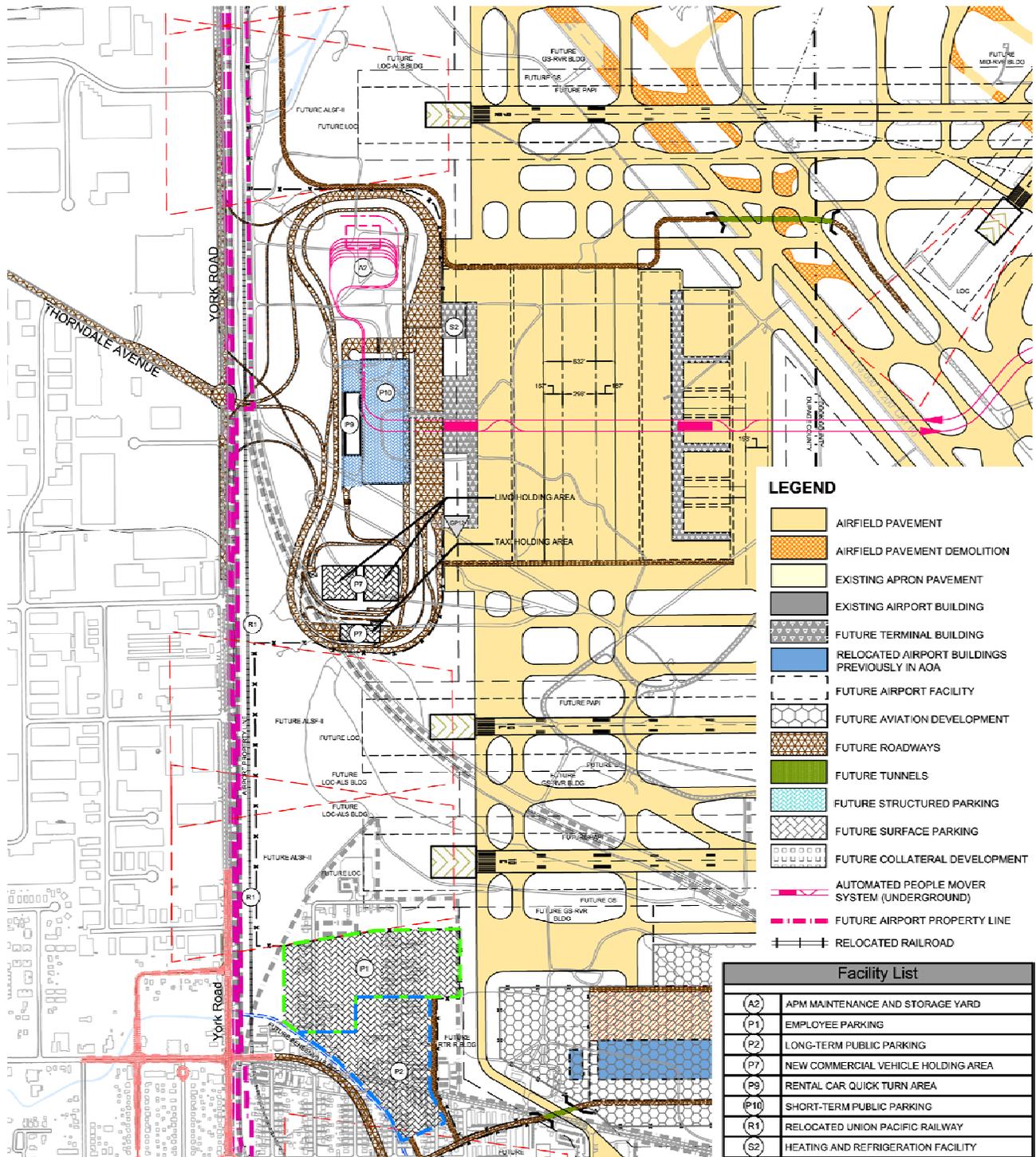


Northeast Quadrant Development Concept 2 Refinement, Preferred Concept

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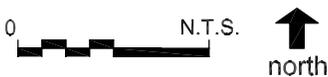
O'Hare Modernization Program
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February 2003
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Source: Ricondo & Associates, Inc.
 Prepared by: Ricondo & Associates, Inc.

Exhibit V-22

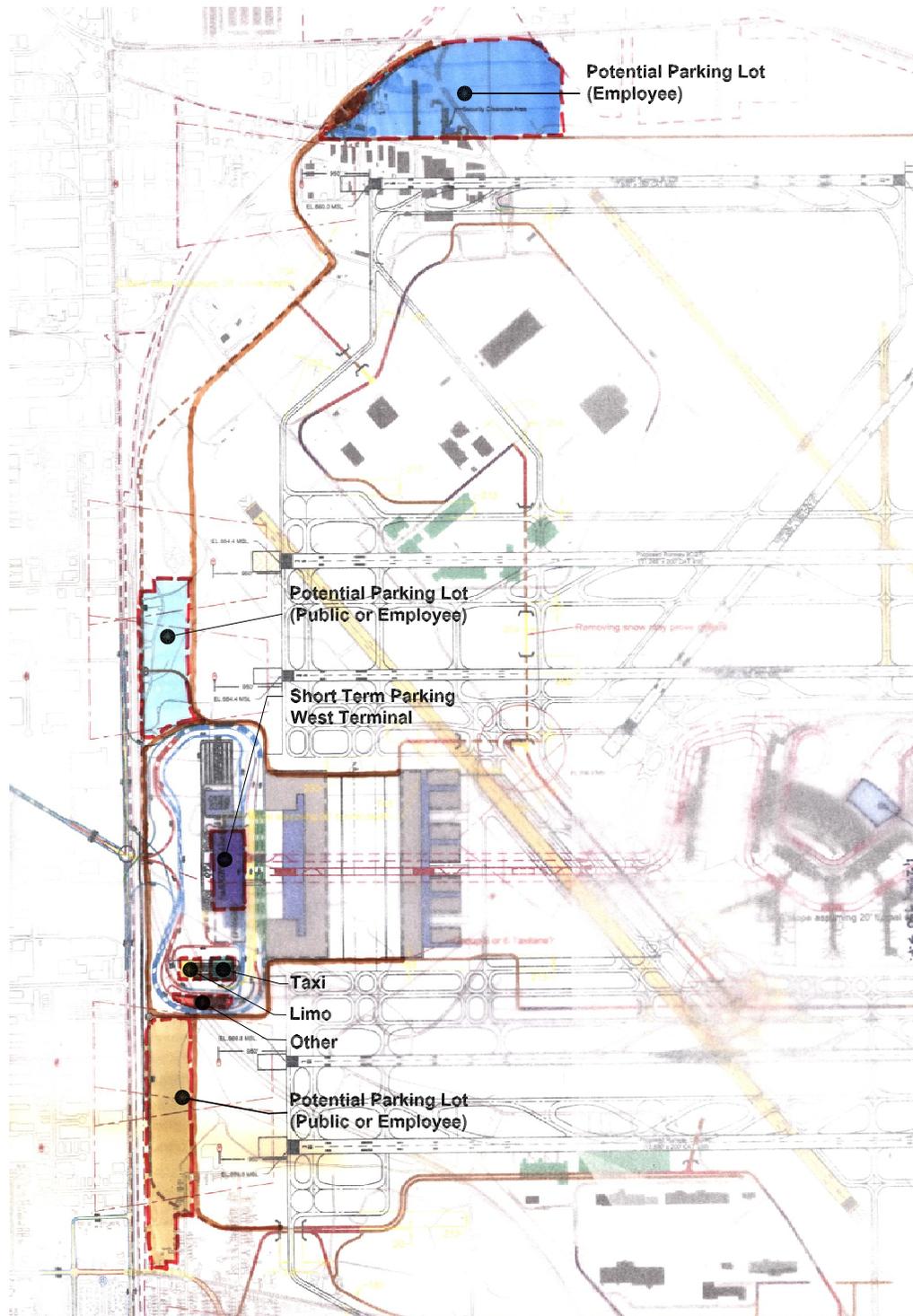


West Terminal Landside Preferred Concept

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O'Hare Modernization Program
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Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

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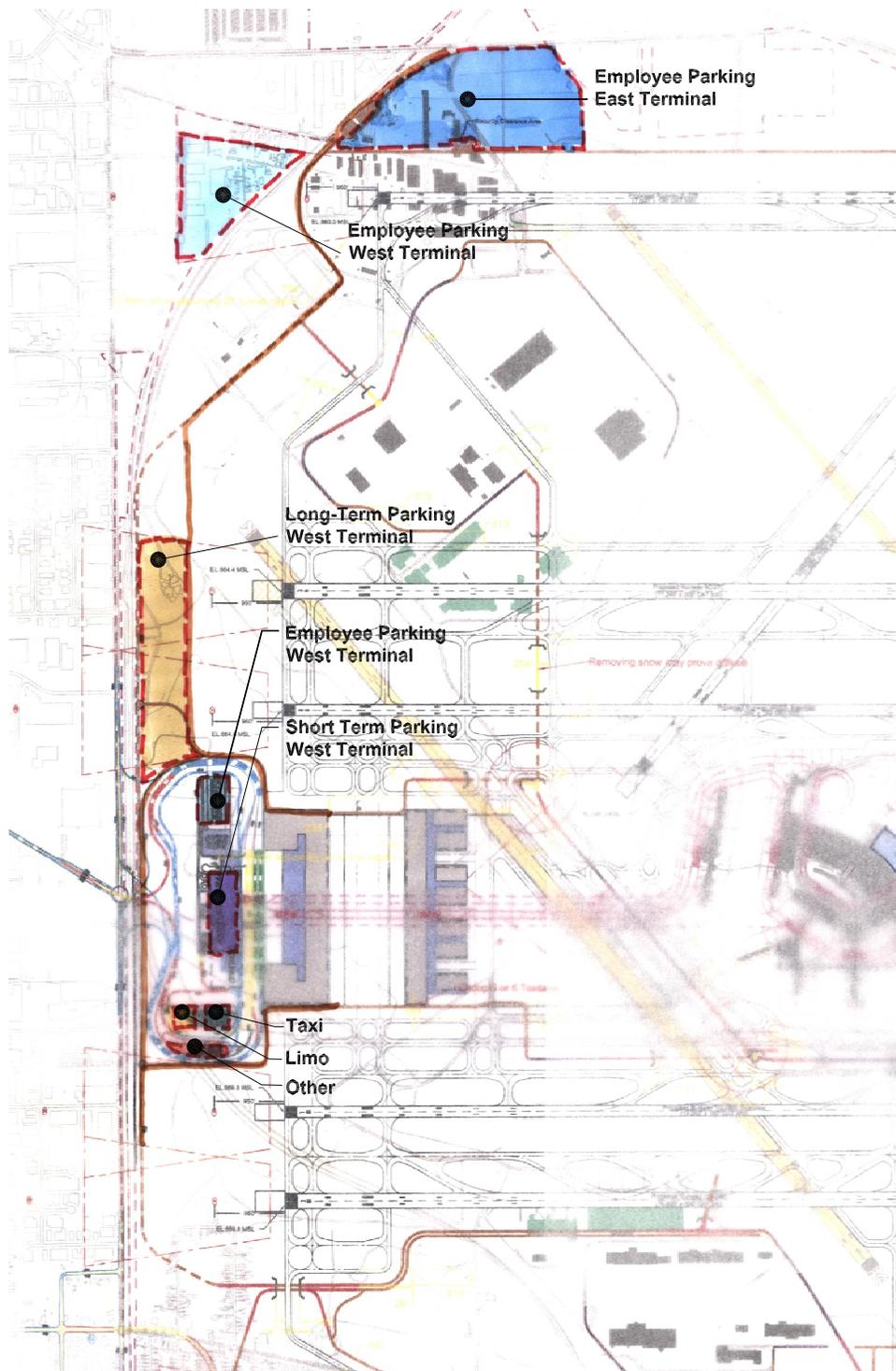


Alternative Parking Lot Locations

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O'Hare Modernization Program
Concept Development/Refinement

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Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

Exhibit V-24

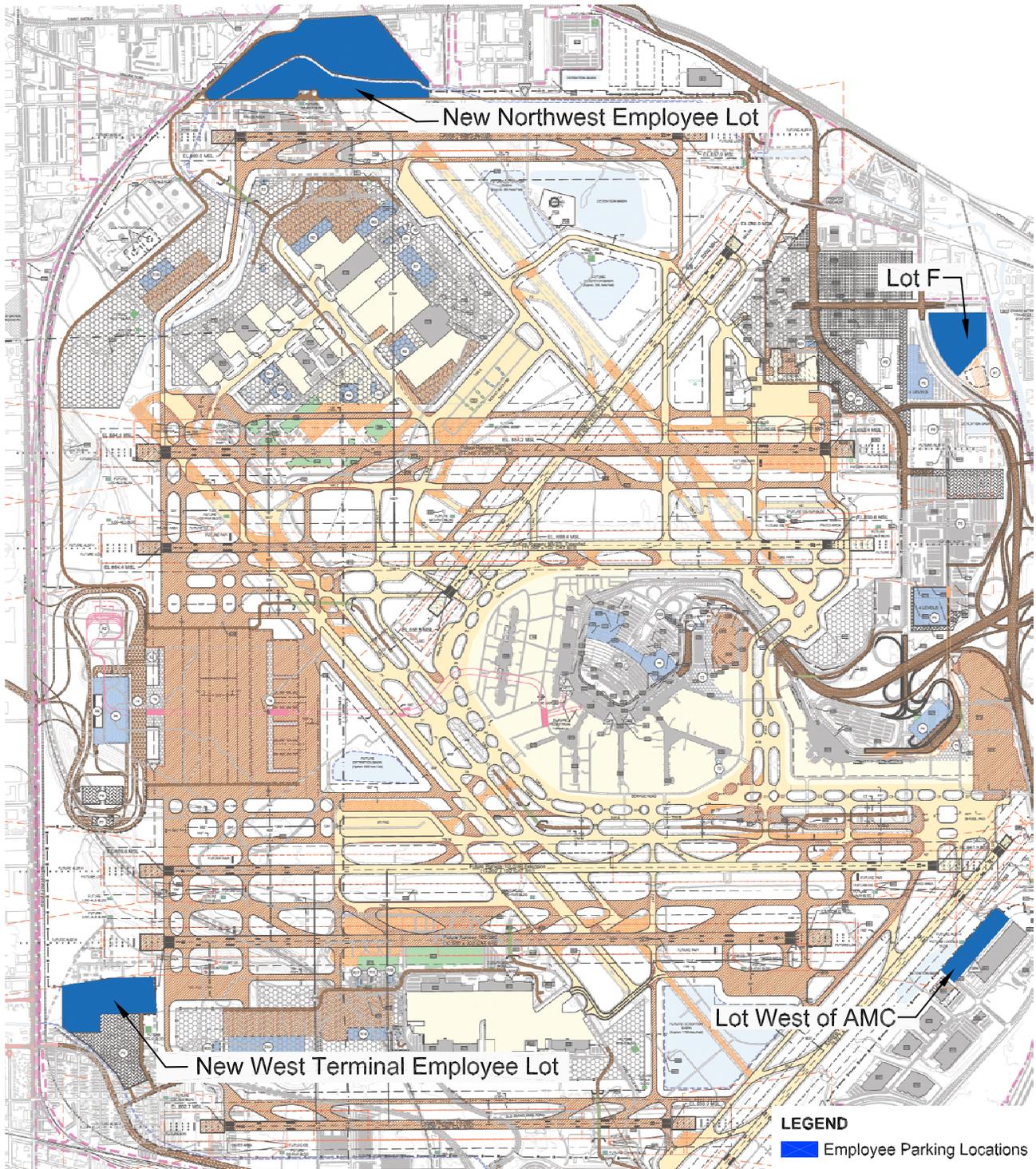


Employee Parking Refinement Alternatives

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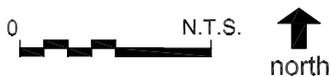
O'Hare Modernization Program
Concept Development/Refinement

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Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

Exhibit V-25

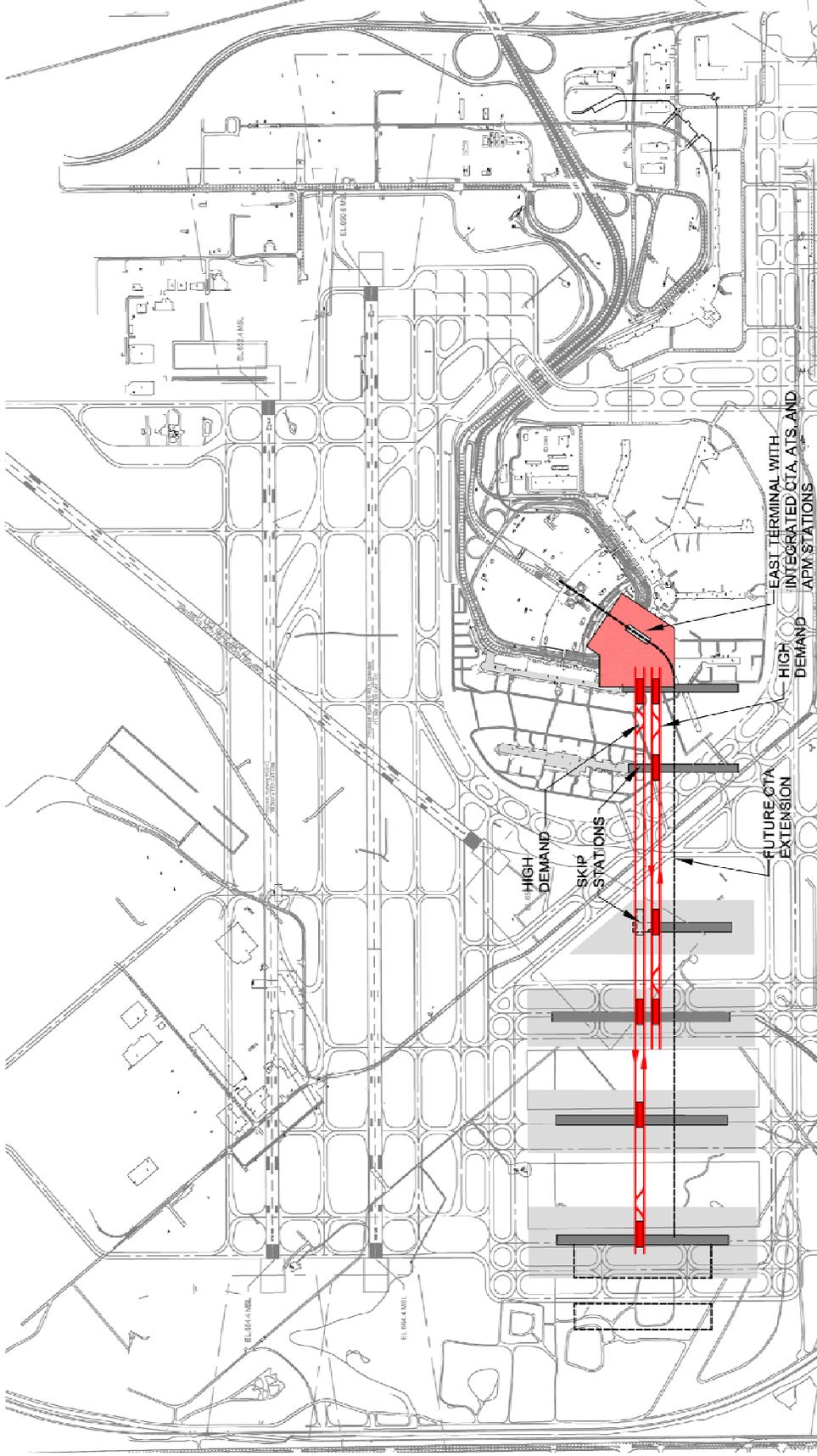


Employee Parking Preferred Concept

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O'Hare Modernization Program
Concept Development/Refinement

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Source: Lea + Elliott, Inc.
Prepared by: Lea + Elliott, Inc.

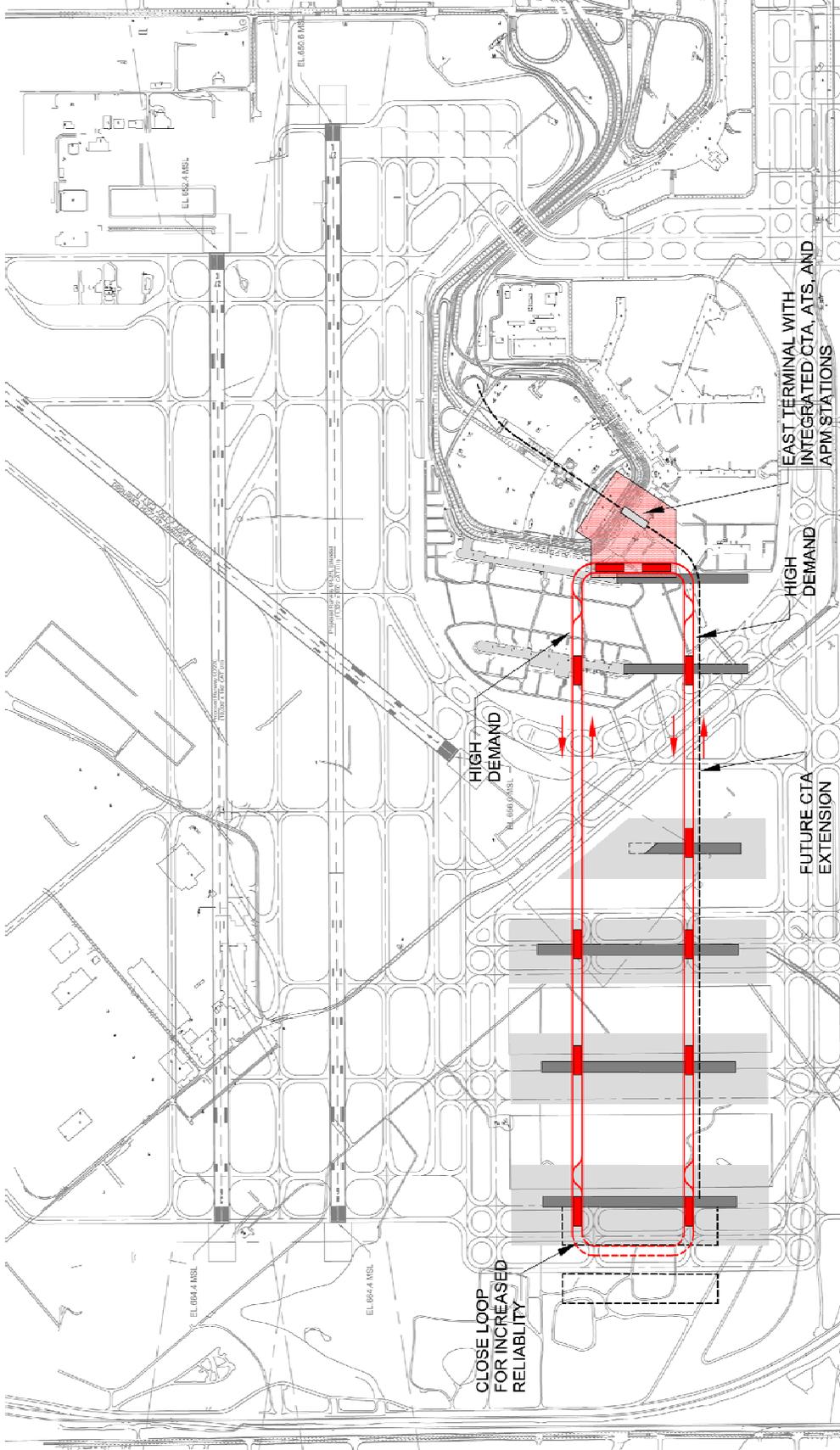


Exhibit V-26

Secure APM System Concepts Alternative 1-A

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Source: Lea + Elliott, Inc.
Prepared by: Lea + Elliott, Inc.

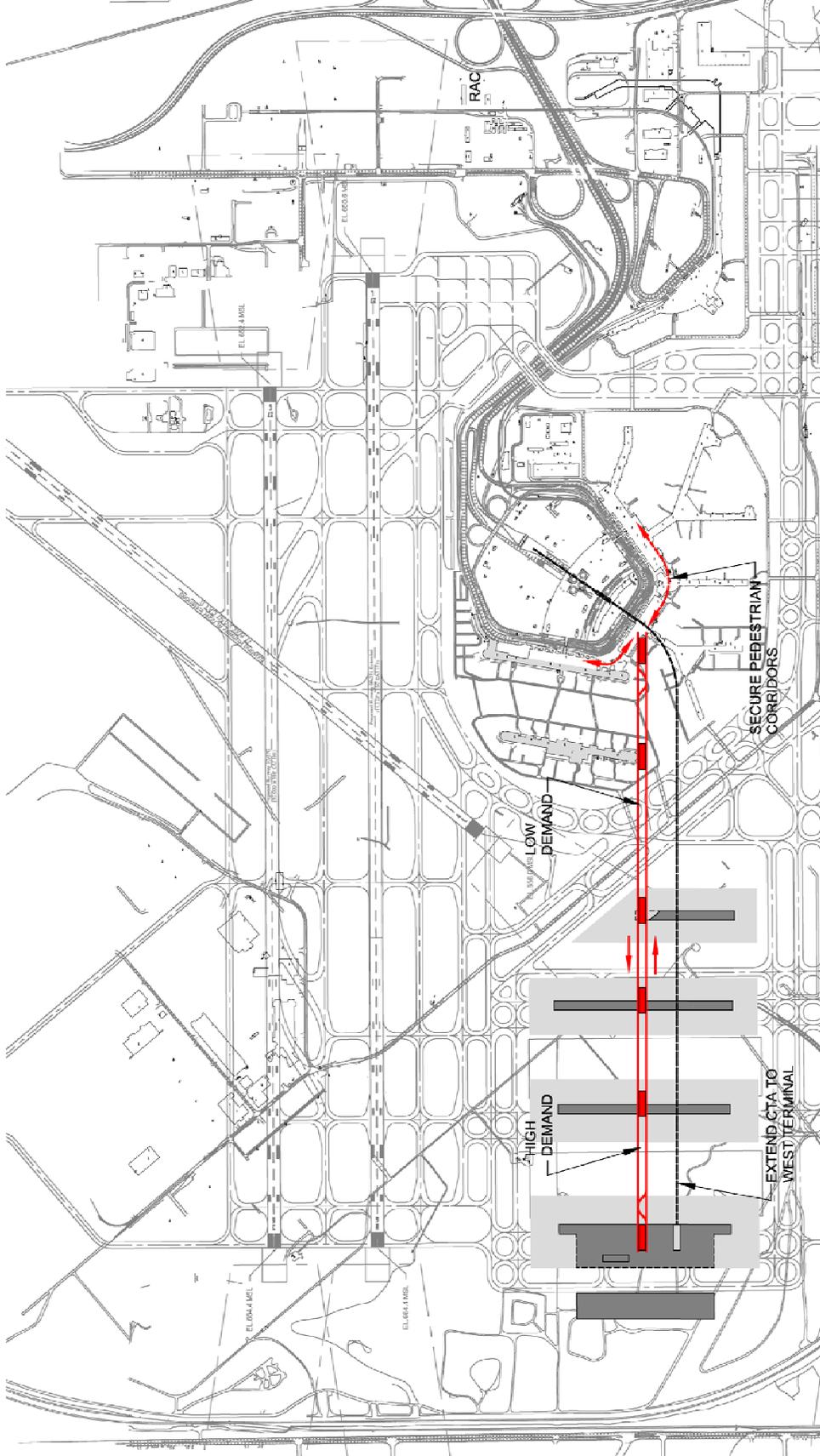


Exhibit V-27

Secure APM System Concepts Alternative 1-B

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Source: Lea + Elliott, Inc.
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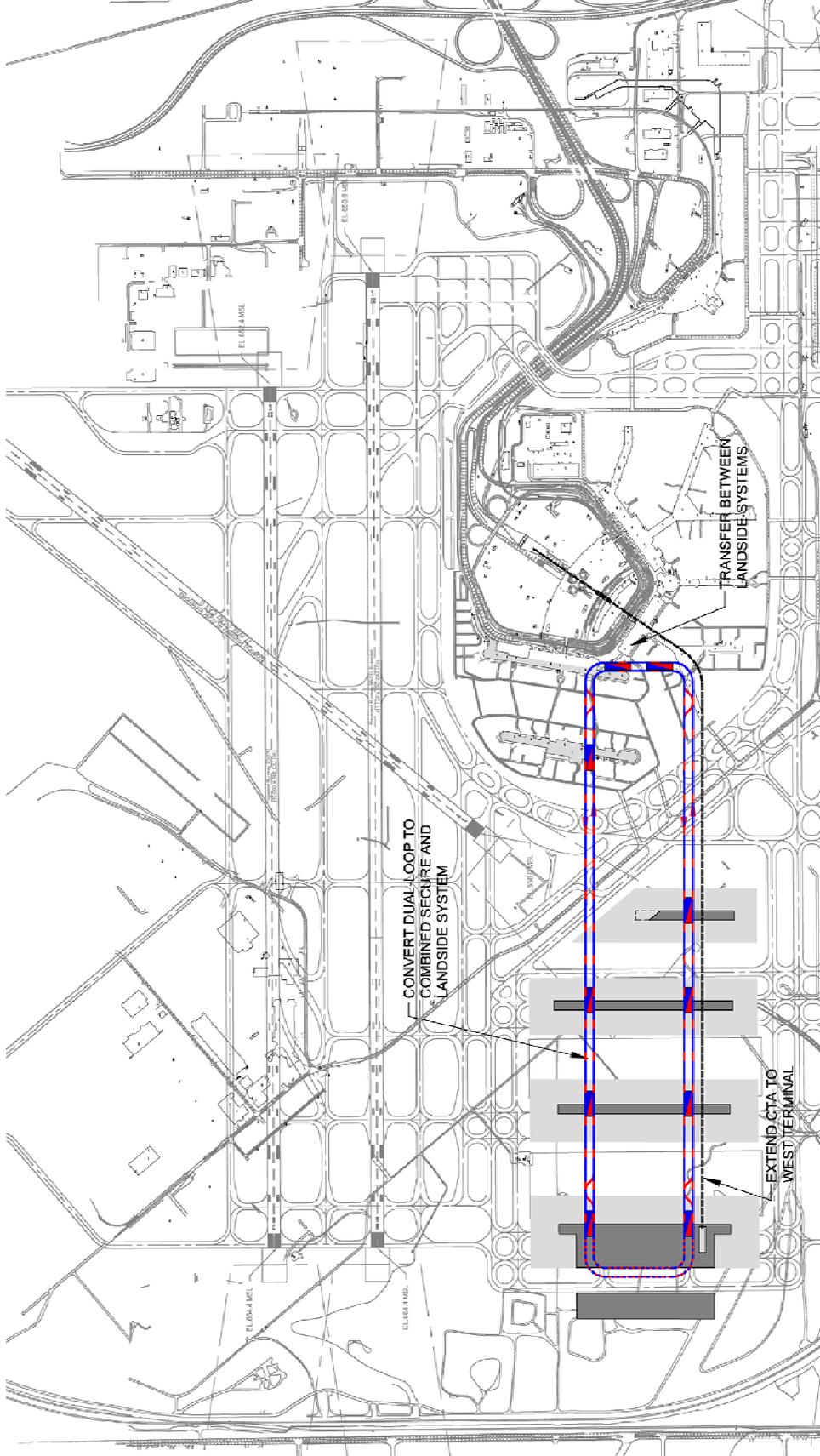


Exhibit V-28

Secure APM System Concepts Alternative 2-A

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Source: Lea + Elliott, Inc.
Prepared by: Lea + Elliott, Inc.

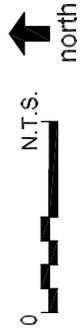


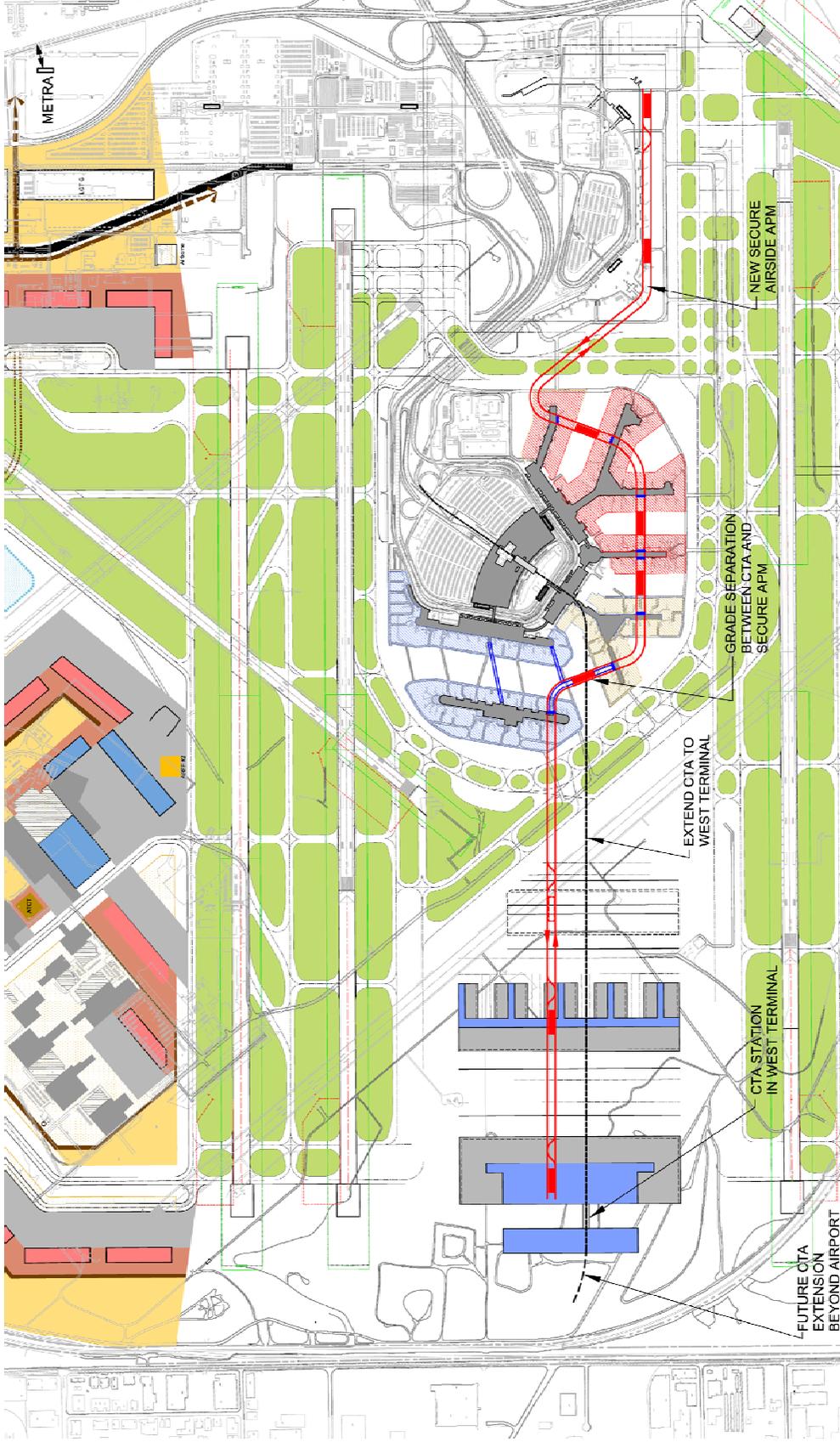
Exhibit V-29

Secure APM System Concepts Alternative 2-B

Drawing: Z:\Chicago\CRD\O'MP\Ground Transportation\Concept Dev\Ref Doc\Current\Exhibit V-29.dwg, Layout: 8.5x11, Feb 26, 2003, 11:52am

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Source: Lea + Elliott, Inc.
Prepared by: Lea + Elliott, Inc.



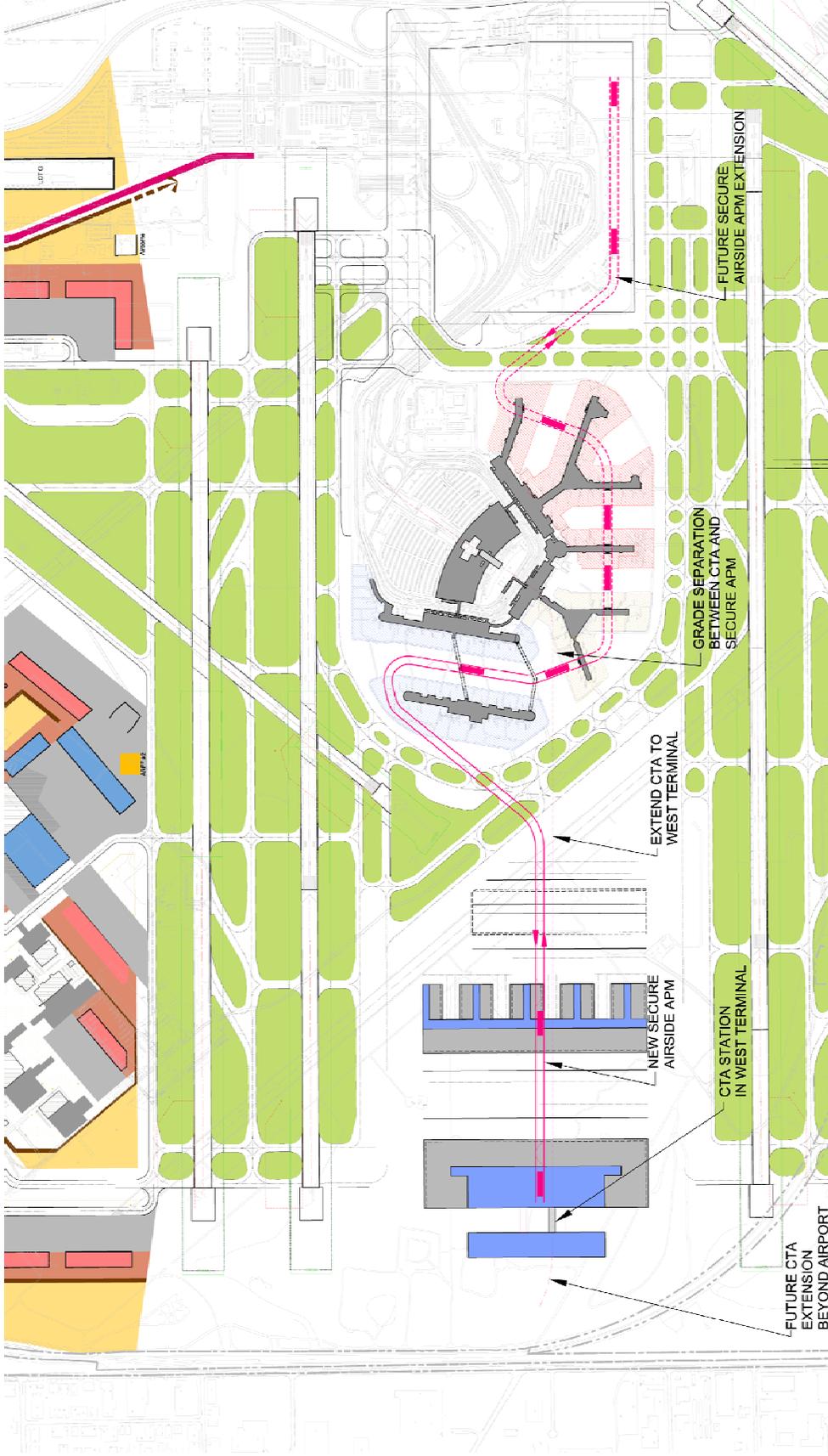
Exhibit V-30

Secure APM System Concepts Alternative 3-A

Drawing: Z:\Chicago\CRD\O\MP\Ground Transportation\Concept Dev\Ref Doc\Current\Exhibit V-30.dwg, Layout: 8.5x11, Feb 26, 2003, 11:28am

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Source: Lea + Elliott, Inc.
Prepared by: Lea + Elliott, Inc.

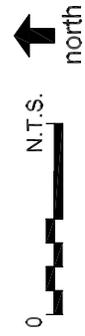
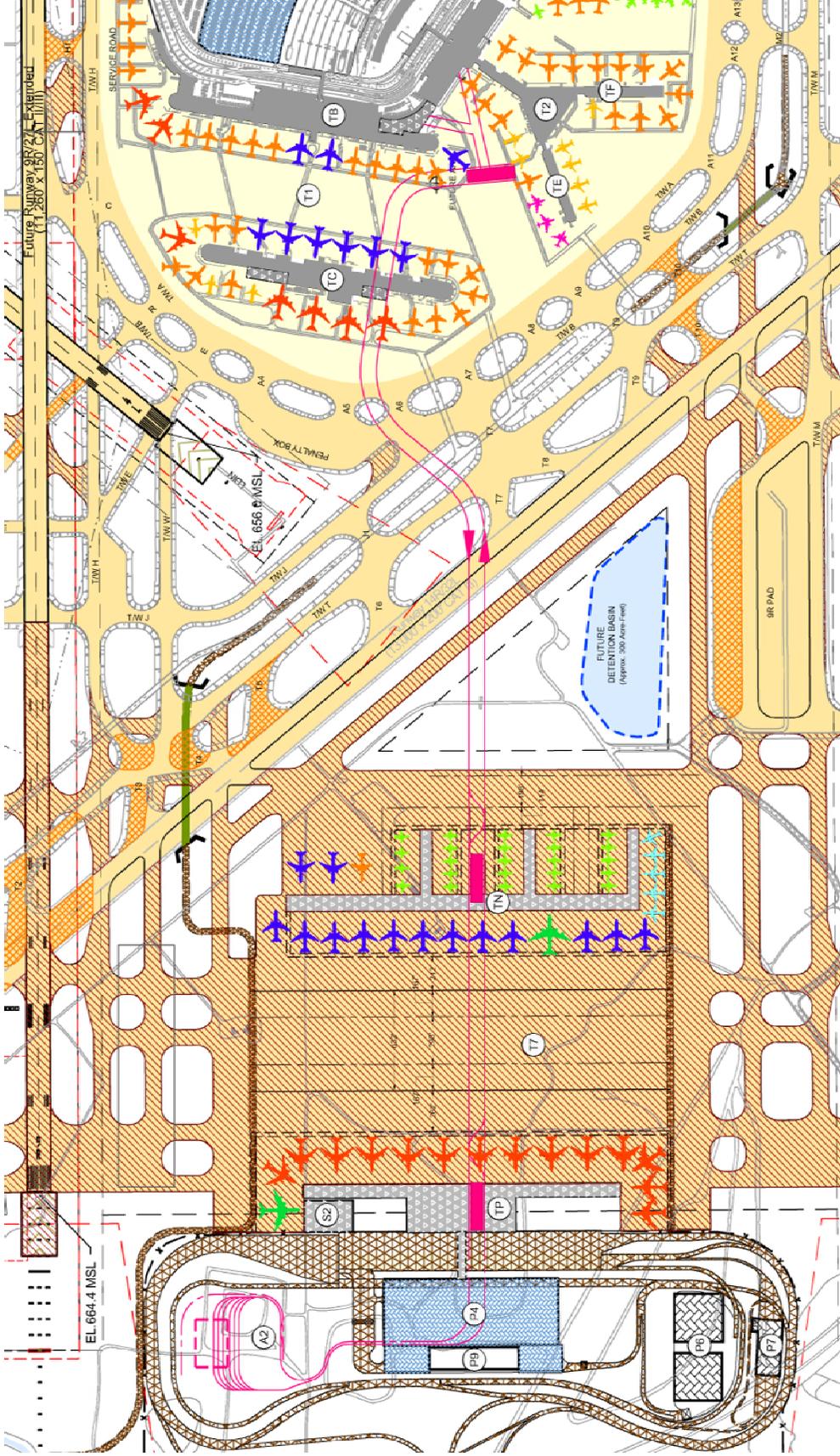


Exhibit V-31

Secure APM System Concepts Alternative 3-B

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Drawing: Z:\Chicago\ORD\O\MP\Ground Transportation\Concept Dev\Ref Doc\Current\Exhibit V-31.dwg, Layout: 8.5x11, Feb 26, 2003, 11:45am



Source: Lea + Elliott, Inc., Ricondo & Associates, Inc.
 Prepared by: Ricondo & Associates, Inc.



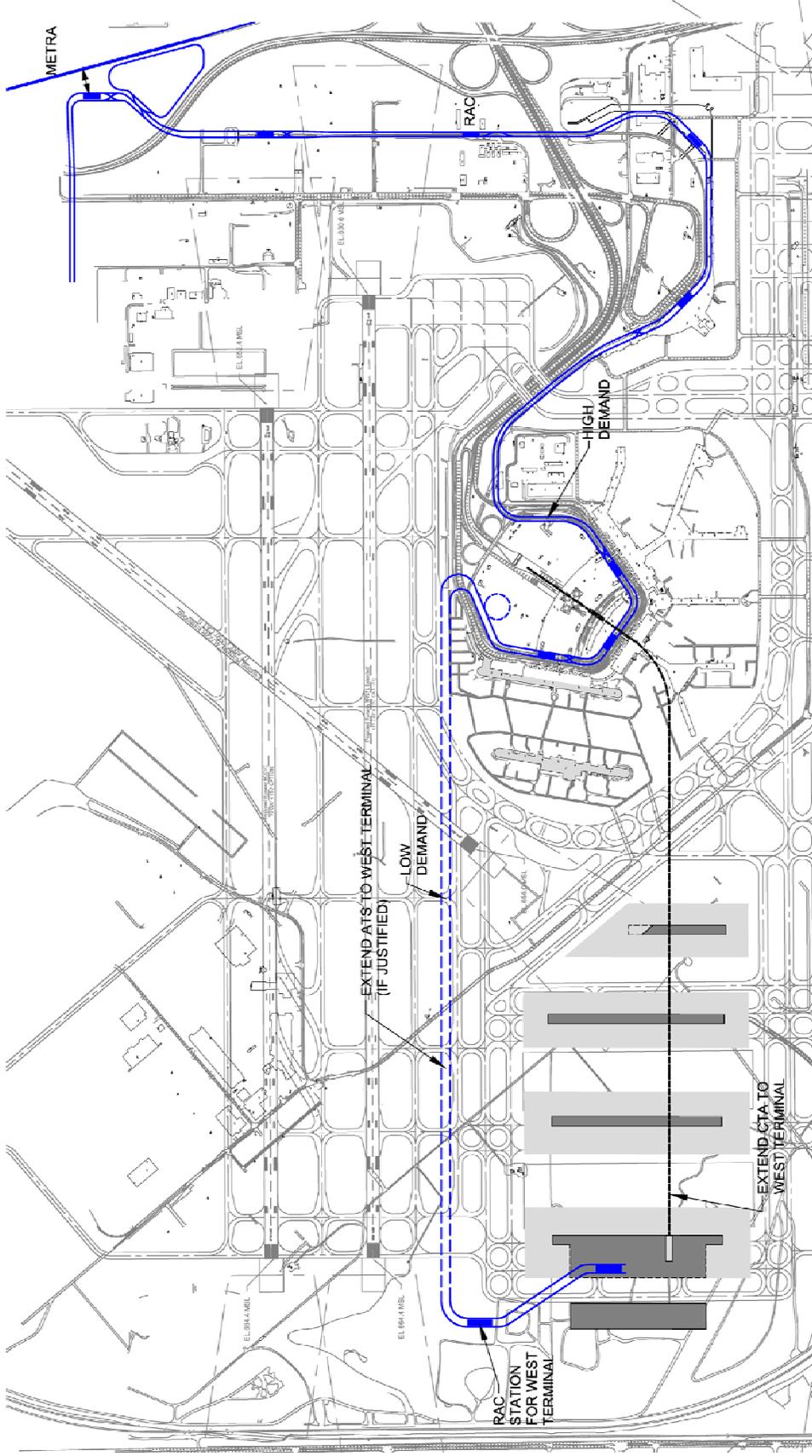
Exhibit V-32

Secure APM System Concepts Preferred Alternative

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Drawing: Z:\Chicago\CRD\O'MP\Ground Transportation\Concept Dev\Ref Doc\Current\Exhibit V-32.dwg, Layout: 8.5x11, Feb 26, 2003, 11:18am



Source: Lea + Elliott, Inc.
Prepared by: Lea + Elliott, Inc.

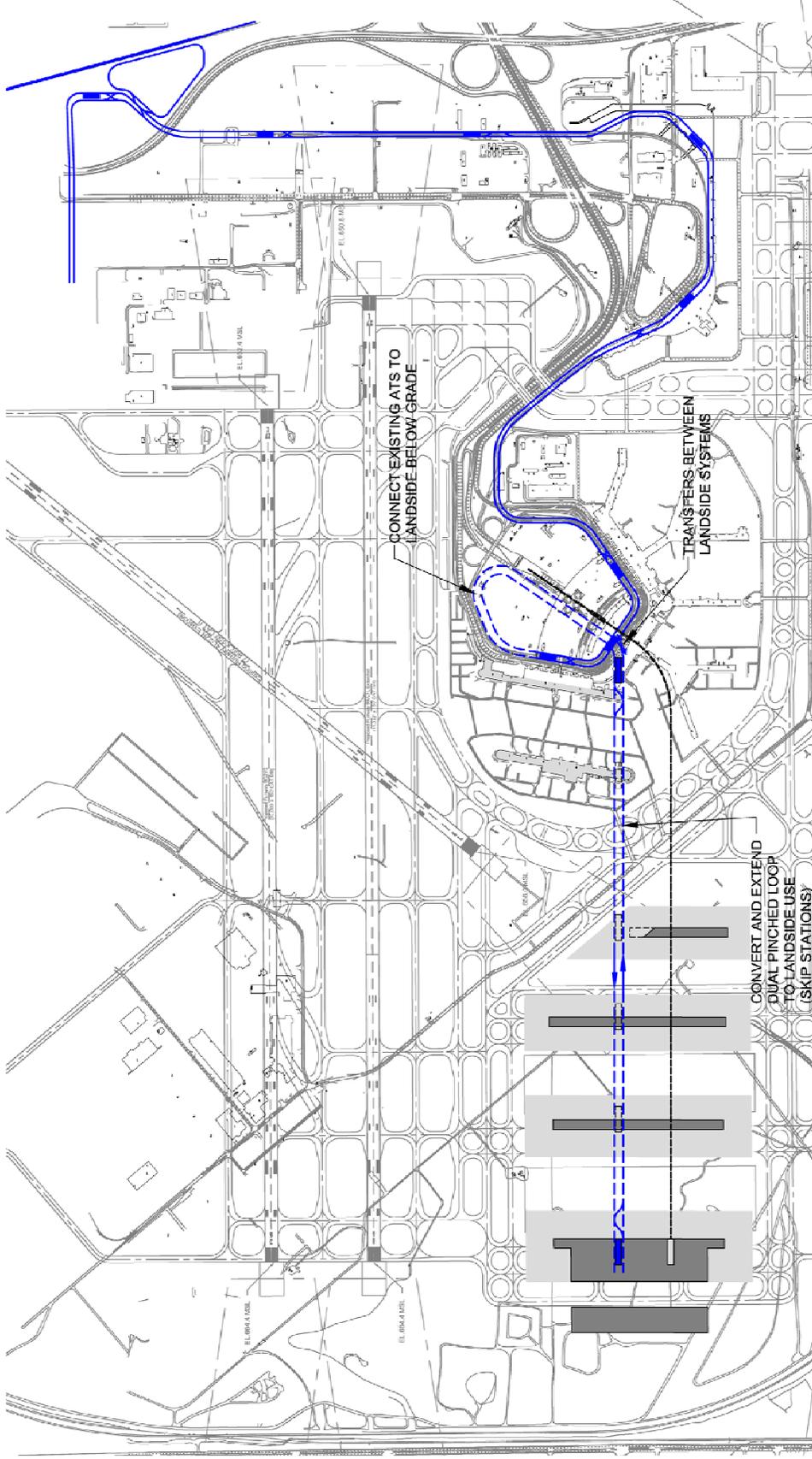


Exhibit V-33

Non-Secure ATS Concepts Alternative 1

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Drawing: Z:\Chicago\ORD\O\MP\Ground Transportation\Concept Dev\Ref Doc\Current\Exhibit V-33.dwg, Layout: 8.5x11, Feb 26, 2003, 11:04am



Source: Lea + Elliott, Inc.
Prepared by: Lea + Elliott, Inc.

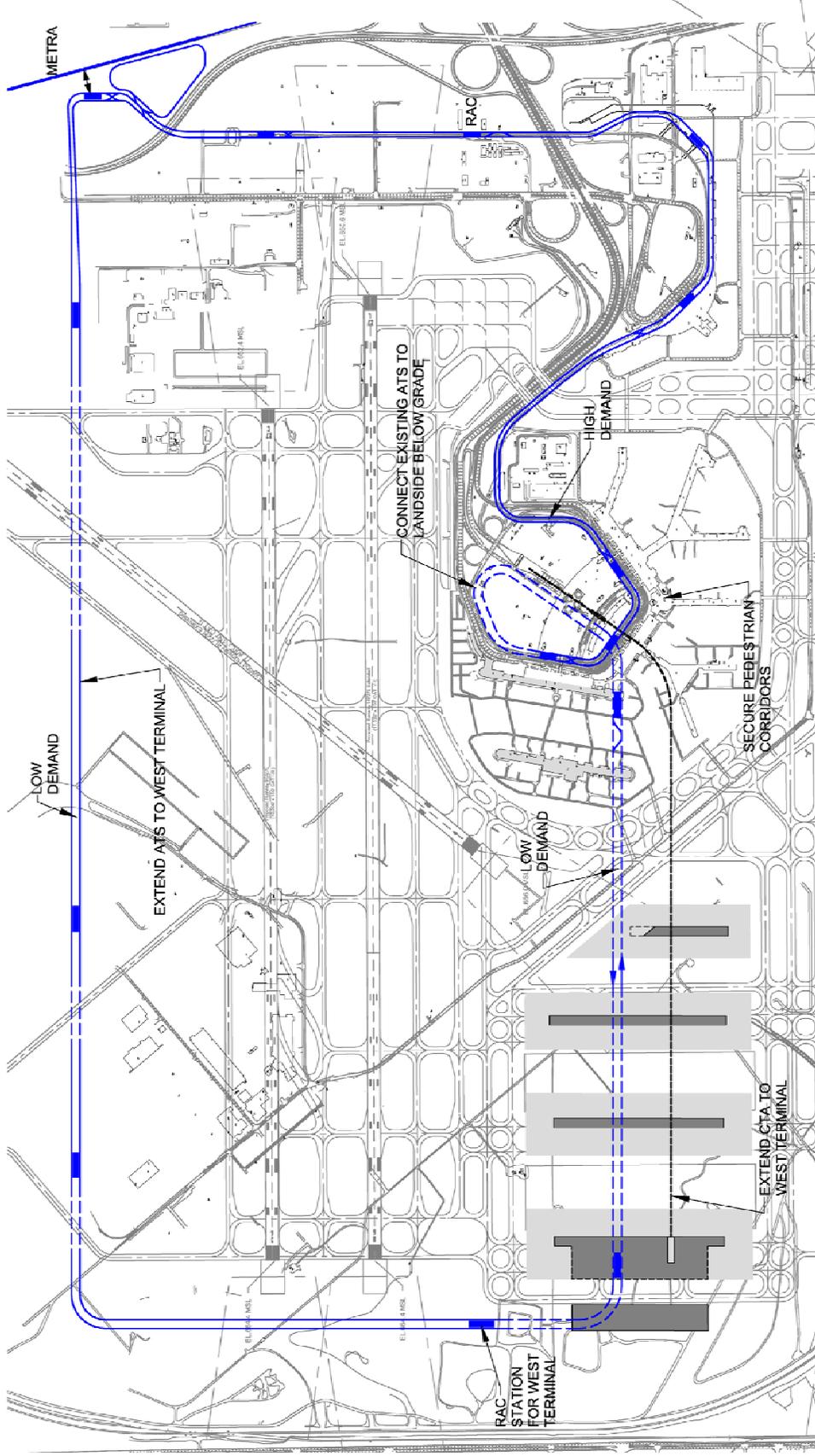


Exhibit V-34

Non-Secure ATS Concepts Alternative 2

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Drawing: Z:\Chicago\CRD\OHP\Ground Transportation\Concept Dev\Ref Doc\Current\Exhibit V-34.dwg, Layout: 8.5x11, Feb 26, 2003, 11:15am



Source: Lea + Elliott, Inc.
Prepared by: Lea + Elliott, Inc.



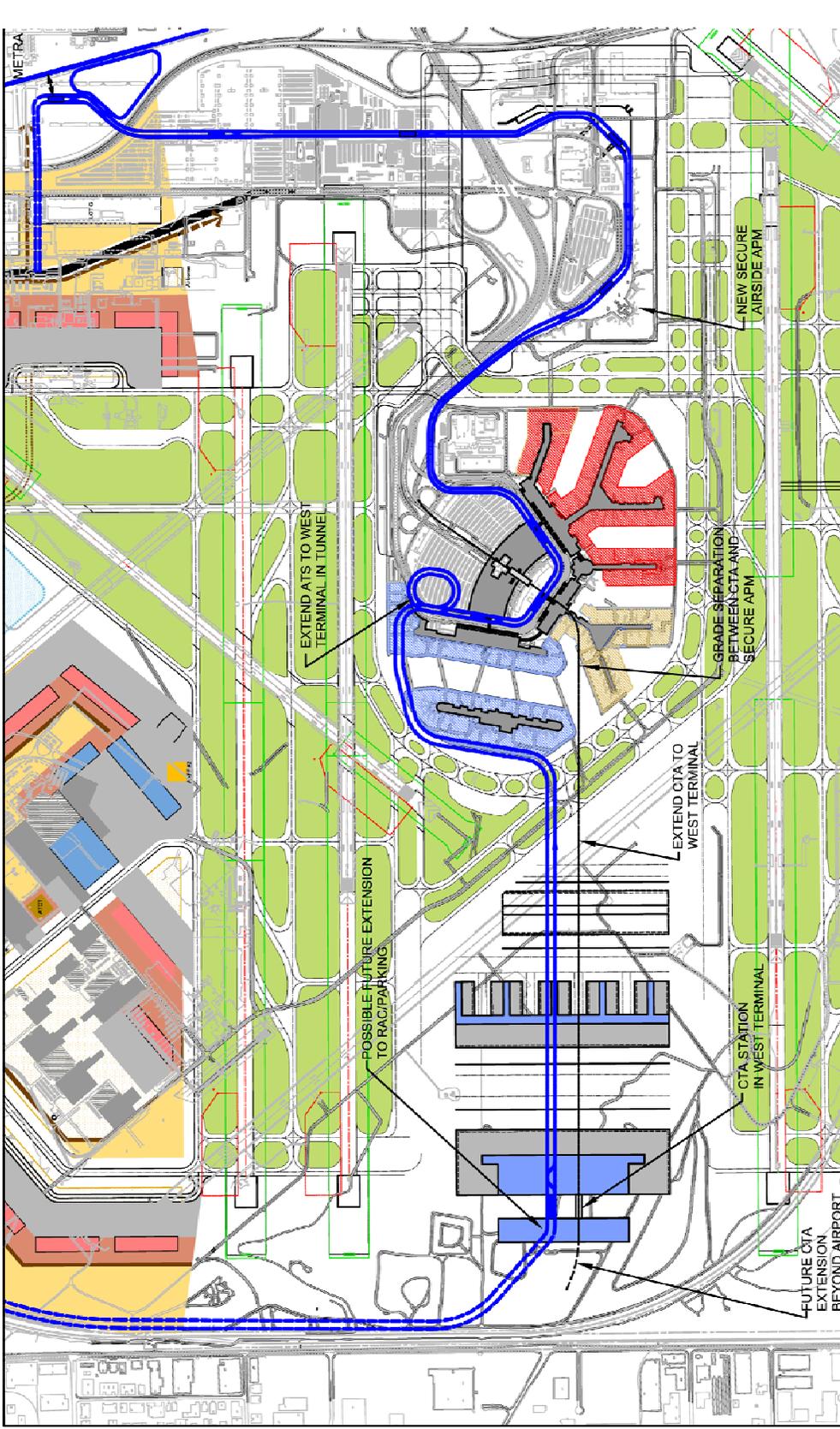
Exhibit V-35

Non-Secure ATS Concepts Alternative 3

Drawing: Z:\Chicago\ORD\O\MP\Ground Transportation\Concept Dev\Ref Doc\Current\Exhibit V-35.dwg, Layout: 8.5x11, Feb 26, 2003, 11:02am

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Source: Lea + Elliott, Inc.
Prepared by: Lea + Elliott, Inc.



Exhibit V-36

Non-Secure ATS Concepts Alternative 4, Preferred Concept

Drawing: Z:\Chicago\CRD\O\MP\Ground Transportation\Concept Dev\Ref Doc\Current\Exhibit V-36.dwg, Layout: 5.5x11, Feb 26, 2003, 11:14am

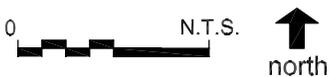
O'Hare Modernization Program
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Source: URS Corporation
Prepared by: URS Corporation

Exhibit V-38

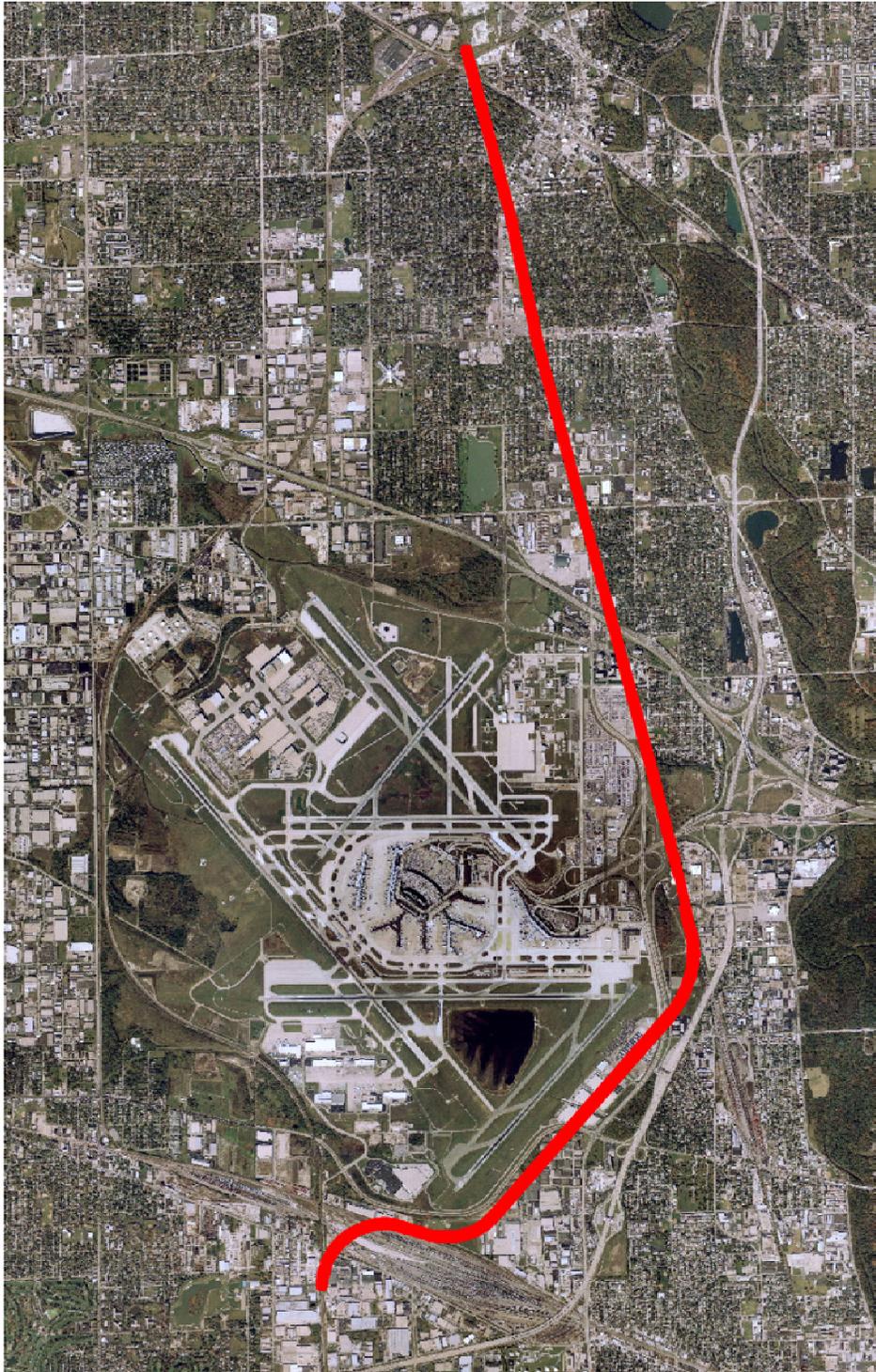


Union Pacific Railway Relocation Railroads Bordering O'Hare

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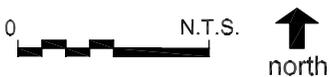
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Source: URS Corporation
Prepared by: URS Corporation

Exhibit V-39



Union Pacific Railway Relocation Concept E-1

Drawing: Z:\Chicago\ORD\IOMPI\Ground Transportation\Concept Dev-Ref Doc\Current\Exhibit V-39.dwg_Layout: 8.5x11_Feb 26, 2003, 10:54am

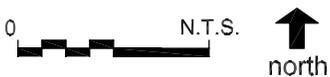
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Source: URS Corporation
Prepared by: URS Corporation

Exhibit V-40

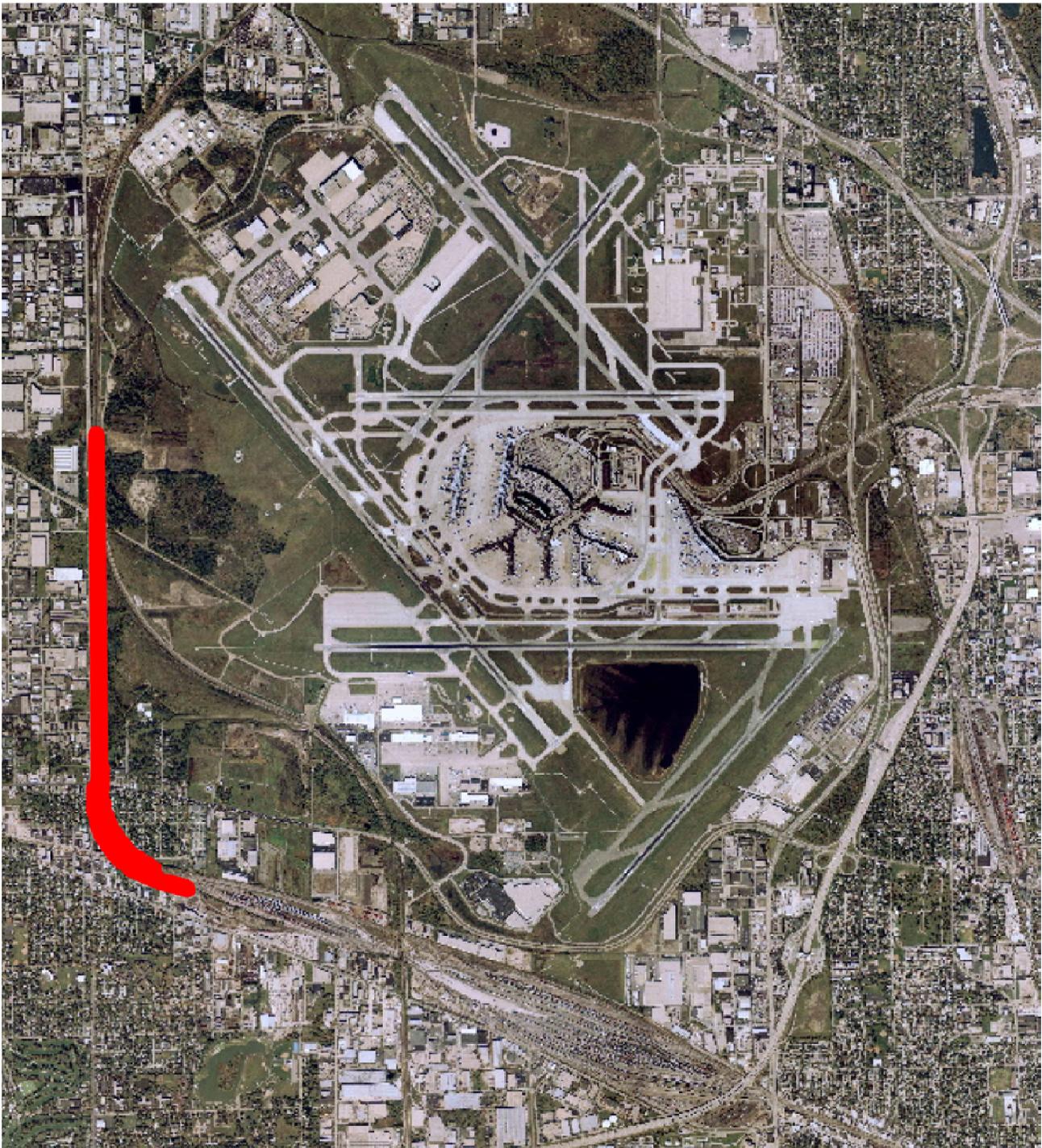


Union Pacific Railway Relocation Concept E-2

Drawing: Z:\Chicago\ORD\OMPI\Ground Transportation\Concept Dev-Ref Doc\Current\Exhibit V-40.dwg_Layout: 8.5x11_Feb 26, 2003, 11:10am

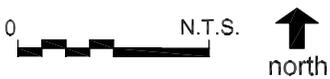
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Source: URS Corporation
Prepared by: URS Corporation

Exhibit V-41

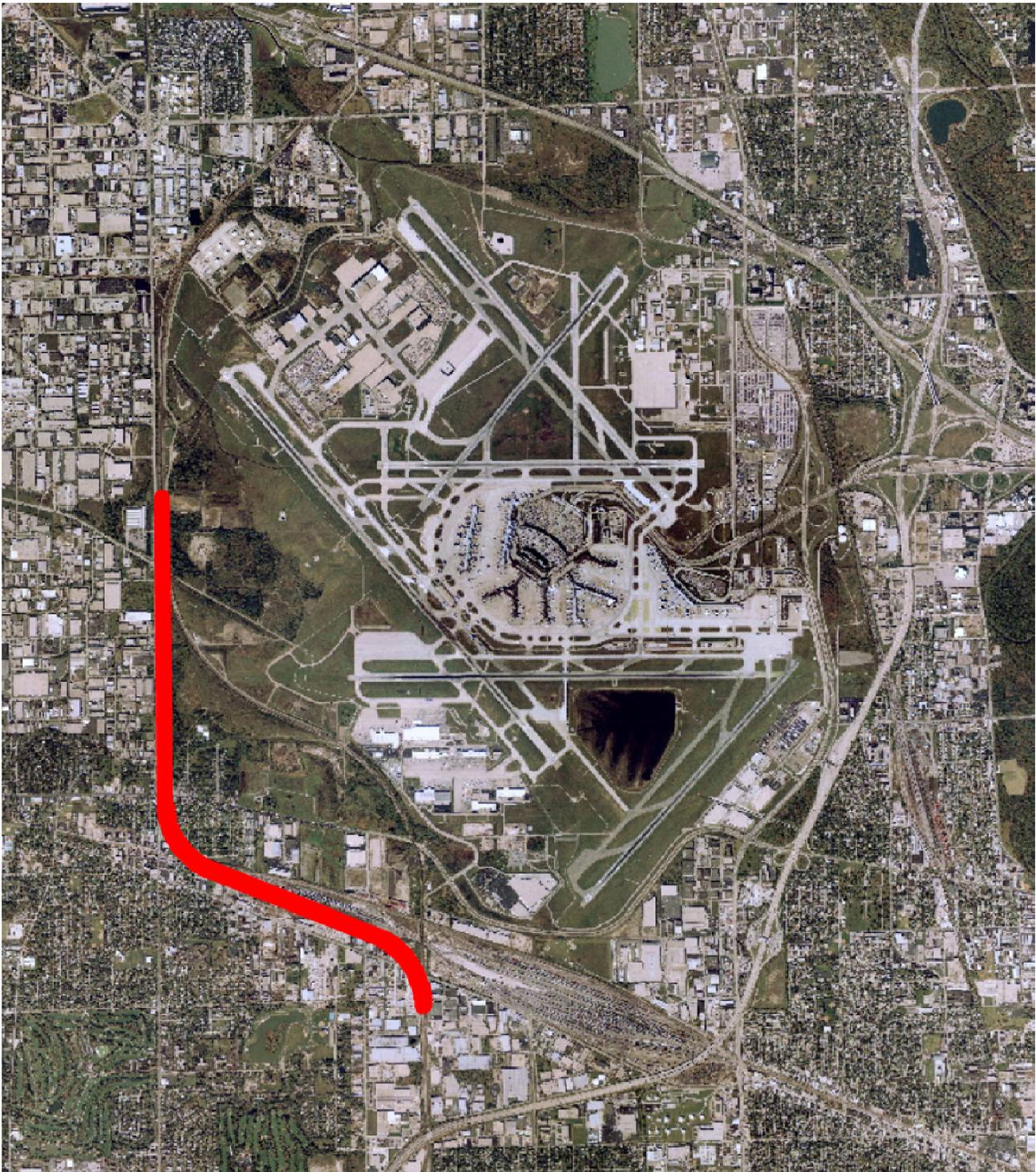


Union Pacific Railway Relocation Concept W-1

Drawing: Z:\Chicago\ORD\OMPI\Ground Transportation\Concept Dev-Ref Doc\Current\Exhibit V-41.dwg_Layout: 8.5x11_Feb 26, 2003, 10:50am

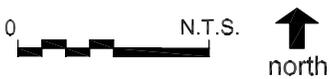
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Source: URS Corporation
Prepared by: URS Corporation

Exhibit V-42

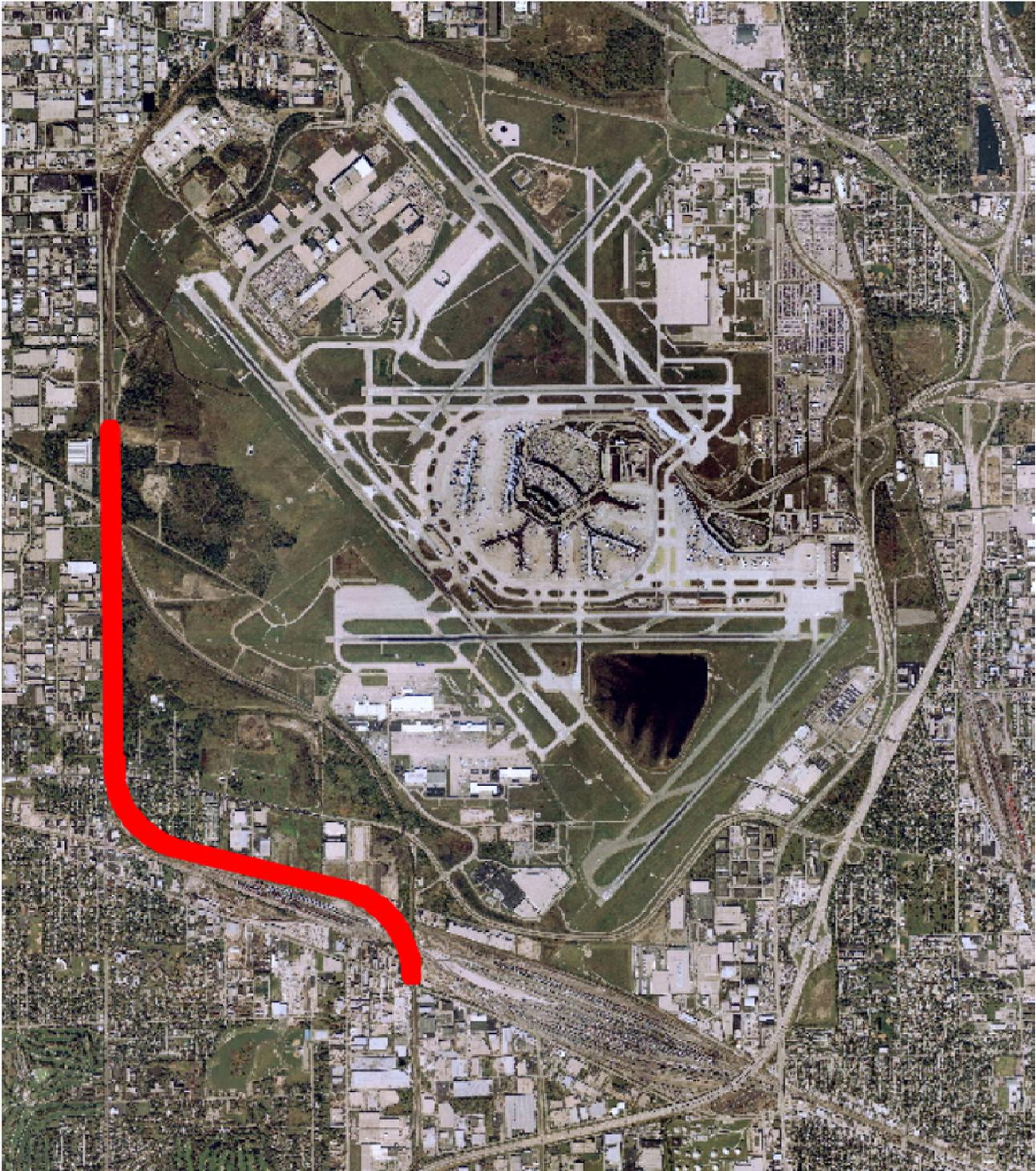


Union Pacific Railway Relocation Concept W-2

Drawing: Z:\Chicago\ORD\OMPI\Ground Transportation\Concept Dev-Ref Doc\Current\Exhibit V-42.dwg_Layout: 8.5x11_Feb 26, 2003, 11:07am

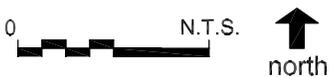
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Source: URS Corporation
Prepared by: URS Corporation

Exhibit V-43



Union Pacific Railway Relocation Concept W-3, Preferred Concept

Drawing: Z:\Chicago\ORD\OMPI\Ground Transportation\Concept Dev-Ref Doc\Current\Exhibit V-43.dwg_Layout: 8.5x11_Feb 26, 2003, 10:05am

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