Feasibility Study
Central Tri-State Tollway (I-294) at Irving Park Road (IL-19)

Contract R-18-4383MP
Final Report – March 2021
Volume I – Appendix A-H

Prepared for:

Illinois Tollway

Prepared by:

Christopher B. Burke Engineering
DAMA Consultants
Gasperec Elberts Consulting
M Squared Engineering
OSEH
Orion Engineers
Patrick Engineering
TranSmart

TABLE OF CONTENTS

EXECUTIVE SUMMARY i

TABLE OF CONTENTS viii

I. INTRODUCTION 1

II. EXISTING CONDITIONS 3

A. Adjacent Land Use 3

B. Environmental Setting 5

C. Stormwater Management Setting 9

D. Transportation Setting 9

III. LEVEL 1 ANALYSIS 12

IV. TRAFFIC PROJECTIONS 18

V. LEVEL 2 ANALYSIS 24

VI. CONCLUSIONS 34

VII. PROJECT COORDINATION 35

VIII. NEXT STEPS 35

APPENDICES

A. Interchange Concepts 1, 2, 3A, 3B, 4A, 4B, 4C, 4D/4G, 4E, 4F
B. Level 1 Analysis Traffic Exhibits
C. Level 2 Analysis Traffic Exhibits
D. Level 2 Synchro Analysis Comparison Tables
E. Irving Park Road at 25th Avenue Intersection Improvement Alternatives
F. Northbound Exit to Seymour – Ramp Profile Evaluation
G. Interchange Concept 4D/4G – 2019 Concept Construction Cost Estimate
H. Correspondence and Meeting Summaries

VOLUME II

Appendix I. Level 2 Synchro Analysis Results

EXECUTIVE SUMMARY

This Feasibility Study was initiated by the Illinois Tollway (Tollway) in November 2018 to evaluate opportunities for additional access to the Central Tri-State Tollway (CTS – I-294) to/from the south at Irving Park Road (IL 19), since the existing CTS at Irving Park Road interchange provides access to/from the north only. Although additional CTS access at this location has been contemplated in the past, removal of the O'Hare Oasis Pavilion as part of the CTS improvements prompted discussions between the Tollway and the Village of Schiller Park about additional CTS access for nearby industrial, commercial and residential areas, and opportunities for development and/or redevelopment within the O'Hare Oasis site and adjacent areas along the Mannheim Road corridor.

The Feasibility Study was completed through a basic four step process as described below.

Step 1	**SCOPING**: Scoping meetings were held with the Tollway and the Village Schiller Park to discuss an initial range of alternatives to consider and the required analysis.
Step 2	**LEVEL 1 ANALYSIS**: A preliminary analysis of study area travel patterns (origins and destinations) and traffic projections for the new entrance and exit ramps was prepared for the initial interchange concepts for coordination with key stakeholders. Based on the analysis results and stakeholder input, the objective was to evaluate the feasibility and/or acceptability of the initial interchange concepts to be carried forward for Level 2 Analysis.
Step 3	**TRAFFIC COUNTS AND PROJECTIONS**: Traffic counts were obtained at the main signalized intersections within the study area as shown in **Figure 1**, with traffic projections (daily traffic and peak hour) completed for 2020 No-Build conditions (with planned Tollway system improvements) and for each interchange concept advanced to the Level 2 Analysis.
Step 4	**LEVEL 2 ANALYSIS**. Based on the results of the Level 1 Analysis and stakeholder input received, the Level 2 Analysis included a more detailed analysis of traffic effects within the study area for each interchange concept carried forward, with the objective to identify the alternative(s) that best provides the desired CTS access improvements with the least adverse traffic effects.

The Level 1 Analysis, Traffic Projections, and Level 2 Analysis were prepared as independent Technical Memoranda during the course of the Feasibility Study for ongoing review and coordination purposes. These individual documents are summarized in this report, but they are also available in the project files as separately bound documents.

The Feasibility Study process was iterative with the objective to evaluate and compare interchange improvement concepts with respect to their ability to provide improved CTS access and the resulting effects on shifting travel demand and operations. Coordination occurred with key project stakeholders throughout the Feasibility Study process to seek input on the analysis results, which included the Tollway, the Village of Schiller Park, the Village of Franklin Park, and the Illinois Department of Transportation (IDOT) who has jurisdiction over multiple roadways in the study area. If a viable alternative(s) can be identified based on the completed analysis and coordination with the key stakeholders, further project development may proceed beyond the Feasibility Study.

Figure 1. Traffic Study Area

As further discussed in **Section III**, based on the Level 1 Analysis results and the stakeholder input received, many of the initial interchange concepts were dismissed from further consideration based on comparatively poor performance, impacts, and/or high cost, whereas the remaining concepts were advanced along with additional identified concepts for more detailed review as part of the Level 2 Analysis. The base interchange concepts considered in the Level 1 and Level 2 Analysis are shown in **Appendix A**. Additional variations of these base concepts (i.e.; Interchange Concepts 4H, 4I, and 5A-5E) were also analyzed as part of the Level 2 Analysis but were not graphically developed due to similarities with other concepts. The interchange concepts evaluated as part of the Level 2 Analysis are shown in **Table 1**.

Table 1. Interchange Concepts Analyzed in Detail

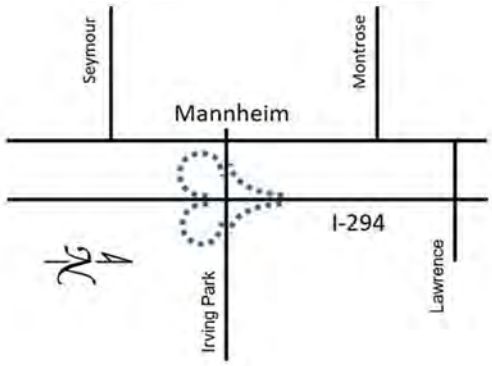
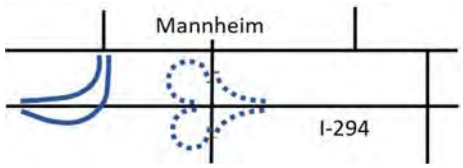
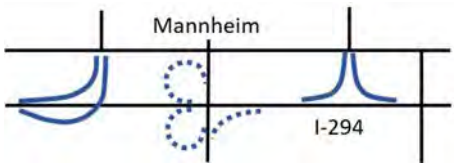
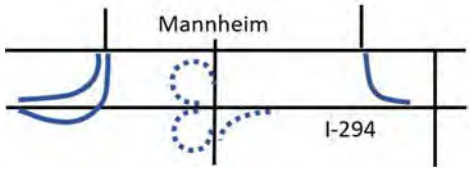
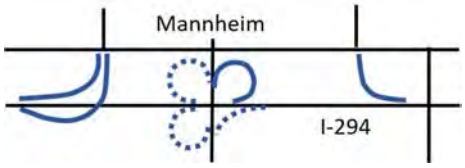
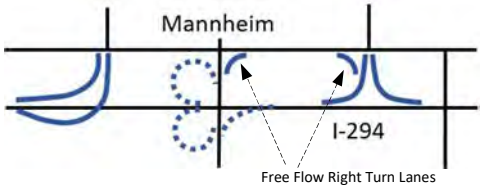
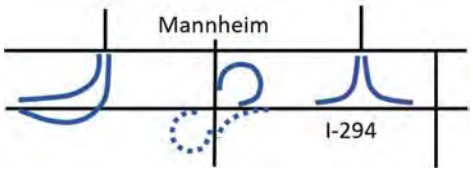
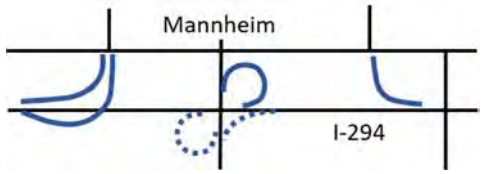
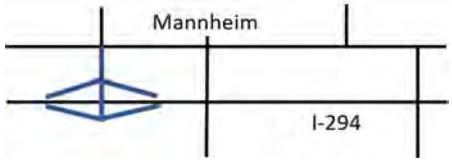
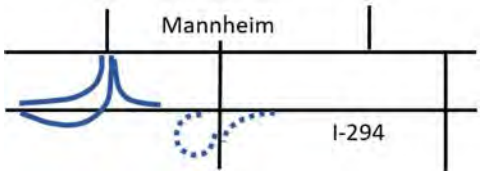
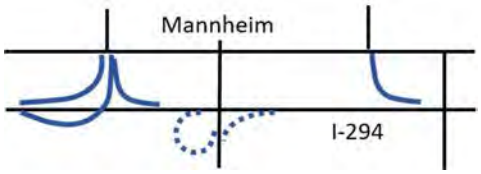
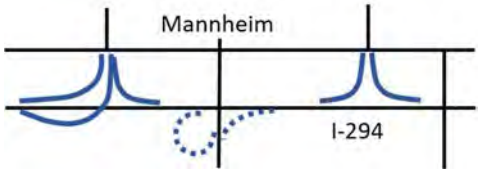
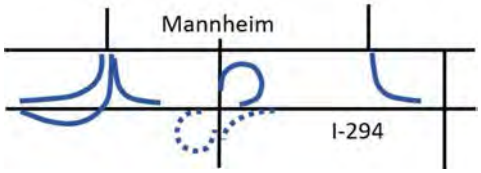
<table>
<tr><td colspan="2">Existing – Baseline Conditions
 
</td></tr>
<tr><td>Concept 4C
 
</td><td>Concept 4D
 
</td></tr>
<tr><td>Concept 4E
 
</td><td>Concept 4F
 
</td></tr>
<tr><td>Concept 4G
 
</td><td>Concept 4H
 
</td></tr>
</table>

Table 1. Interchange Concepts Analyzed in Detail

Concept 4I 	Concept 5A 
Concept 5B 	Concept 5C 
Concept 5D 	Concept 5E 

The objective of the Level 2 analysis was to evaluate the effect of each interchange concept compared to existing conditions. The Level 2 analysis included AM and PM peak hour intersection capacity analysis using Synchro for the 12 signalized intersections within the study area shown in **Figure 1**.

Separate traffic projections were prepared each interchange concept evaluated in the Level 2 Analysis. In order to factor in the regional effects of other planned Tollway improvements, the traffic projections included the completion of the IL 390 Extension and I-490, including the planned access from I-490 to Irving Park Road near Taft Avenue. Based on the completed Level 2 analysis that is summarized in the tables in **Appendix D**, and the input received from key stakeholders, the conclusions reached include the following:

For all interchange concepts:

- There would be an overall reduction in travel demand along River Road based on rerouting of traffic from the Balmoral Avenue interchange to the new interchange at Mannheim/Seymour.
- With new CTS access to/from the south at Mannheim/Seymour, a notable reverse freight movement that currently occurs at the Balmoral interchange (i.e.; northbound CTS exit that reenters southbound CTS to exit at Irving Park Road) would be alleviated.
- The Irving Park Road at 25th Avenue intersection would remain at LOS D/E (am/pm) for all interchange concepts, however, the average delay and eastbound/westbound queuing will increase due to increased travel demand thru the intersection, such that intersection improvements would be warranted.

Interchange Concepts 4C, 4H, 4I, 5A, 5B, 5C, 5D, and 5E result in adverse traffic effects to the study area roadways with no practical improvement opportunities, and therefore were dismissed from further consideration. The location of where these adverse effects occur varies based on the interchange concept, but include:

- The westbound approach to the Mannheim/Irving intersection
- The westbound approach to the Mannheim/Lawrence intersection with westbound queues that extend to 25th Avenue
- Extensive queuing on the westbound approach at the Mannheim/Montrose intersection
- Poor intersection Level of Service and extensive queuing at the Mannheim/Seymour intersection.

Interchange Concepts 4D, 4E, 4F, and 4G are the best at providing new CTS access to/from the south with the least adverse effects to the study area roadway network, and with notable positive effects. These concepts would result in notable improvements to the westbound approach to the Mannheim Road/Irving Park Road intersection based on rerouting of traffic and elimination of the existing weave condition. These concepts would also improve operations along River Road at the intersections with Balmoral Avenue, Lawrence Avenue, and Irving Park Road.

However, Interchange Concept 4F would require right-of-way acquisition from the City of Chicago in the northeast corner of the Mannheim/Irving Park intersection and would create a shorter weave condition within the CTS southbound CD roadway. Additionally, Interchange Concepts 4E and 4F would not provide a southbound entrance at Montrose Avenue that is viewed as desirable based on the truck traffic from the adjacent industrial and commercial areas and based on providing relief to the Mannheim/Irving intersection and the Balmoral Avenue interchange. On this basis, Interchange Concepts 4D and 4G provide the best balance between providing the desired new CTS access to/from the south, with many operational benefits and minimal adverse operational effects within the study area roadway network. The only difference between Interchange Concepts 4D and 4G is whether or not free flow right turn lanes are provided for the westbound approach at Mannheim/Irving and the northbound approach at Mannheim/Montrose, so it is referred to as Interchange Concept 4D/4G.

For the Irving Park Road at 25th Avenue intersection, based on the analysis of various intersection improvement alternatives as described in Section V, the most practical improvement scenario includes adding northbound and southbound right turn lanes, which would improve the pm intersection LOS from E to D, with relatively minor impacts to adjacent properties. Interchange Concept 4D/4G and the recommended improvements to the Irving Park Road at 25th Avenue intersection are shown in **Figure 2** and **Figure 3** respectively.

Next Steps

Based on coordination with key project stakeholders, there is a general understanding that Concept 4D/4G has the best potential to improve overall accessibility in the study area, with other network benefits and minimal adverse impacts, and therefore forms the basis for a future Phase I Engineering Study. The Feasibility Study included a comparative analysis based on 2020 traffic with planned Tollway access and capacity improvements, whereas a future Phase I Engineering Study will need to consider 2050 traffic projections. On this basis, a future Phase I Engineering Study would also include an updated evaluation of alternatives, more detailed analysis across multiple disciplines including detailed geometric studies, drainage studies, environmental studies, and more broad-based public involvement.

Figure 2. Recommended Interchange Concept 4D/4G

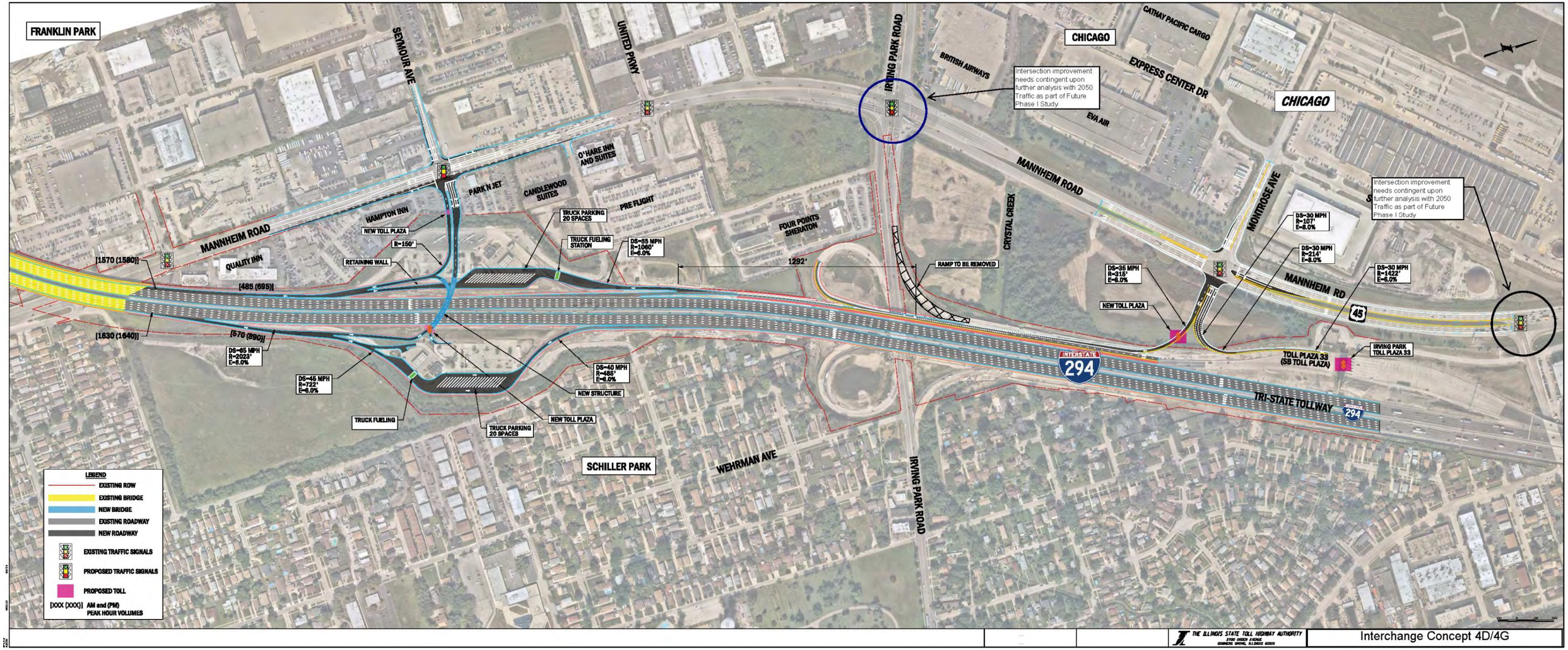


Figure 3. Recommended Irving Park Road at 25th Avenue Intersection Improvement