Tri-State Corridor Travel Demand Assessment
1 OVERVIEW

Impetus for the Travel Demand Assessment came from the Illinois State Toll Highway Authority’s Corridor Planning Council (CPC) Meetings held throughout 2015 at which many expressions of concern regarding accessibility and mobility were shared. The top areas of concern to residents of the corridor were congestion, access, flooding/drainage and freight.

During the Tollway-organized CPC meetings, six guiding principles were identified, three of which are applicable to this study:

1. Develop and support an inspired vision that accounts for existing and future demand along the Central Tri-State and the Tollway system as a whole
2. Improve travel reliability, performance and access of the Central Tri-State corridor to support economic opportunity, increase mobility and plan for continued growth in the region
3. Support financially viable solutions, in coordination and collaboration with partners, that address the corridor needs of today and have the flexibility to address future regional needs.

2 PURPOSE AND NEED

The I-294 project is a once in a generation capital program. In order to meet the Tollway’s aggressive environmental and design schedule, DuPage and Cook Counties were compelled to quickly assess opportunities for access and corridor performance enhancements. With limited complete access at east-west, or directional access only, corridor travelers are presented with few access/egress options. So, in the 7 mile corridor between I-88 and I-55, for example, there is partial access to and from I-294 at IL 38, 22nd Street and full access at US34/Ogden. This places a great deal of strain upon both US34 and the relatively underdeveloped and discontinuous York Road and Wolf Road corridors. As a consequence, the Counties focused attention on options to mitigate congestion at US34/Ogden as well as adjacent north-south arterial corridors.

3 STUDY AREA

The study area includes seventeen communities in a 40-square mile area from IL38/Roosevelt on the north to I-55 on the south and from Cass/Midwest on the west to LaGrange Road on the east. The study area contains parts of both Cook and DuPage County and is served by the West Central Municipal Conference, DuPage Mayors and Managers Conference and the Greater Oak Brook Chamber as well. Seven miles of the Central Tri-State including two system interchanges and five service interchanges lie within the study area. Also covered were over 90 miles of arterial roadway of which 45-50% are state owned.
3 PUBLIC ENGAGEMENT & CONCEPT DEVELOPMENT

Public engagement took the form of one-on-one meetings between the counties/consultant staff and each municipality in round table settings between February and July of 2018. The municipalities were Hinsdale, Hillside, Westchester, Western Springs, Burr Ridge, Clarendon Hills, Elmhurst, LaGrange, Oak Brook, Willowbrook, Indian Head Park and Countryside. Meetings or conference calls were also held with the Illinois State Toll Highway Authority (June 18 and September 19, 2018), the Greater Oak Brook Chamber, the West Central Municipal Conference, UPS, and the Illinois Trucking Association.

The goal of the meetings was to seek input on improved mobility and accessibility in the Central Tri-State corridor with a focus on identifying concerns about local streets and traffic. A stated goal was to gauge interest in better or different access to I-294, including new or enhanced service interchanges.

Nine concepts were derived from meeting input. These concepts then received sketch level environmental and engineering screening and were organized into three scenarios to be tested with the I-294 travel model. The goal of the screening was to advance only viable ramp access locations to full investigation. All IDOT and local agency programmed highway improvements were included in the 2040 base and all 2040 scenarios to remain consistent with regional planning. “Core” concepts which are small geometric or access changes in the study area were included in all scenarios.

A final stakeholder meeting was held December 20, 2018 at which fact sheets on the three scenarios, a summary comparison matrix, and roadway jurisdiction information was presented.

4 TECHNICAL OVERVIEW

The custom I-294 travel model had a base year of 2015 and a future year of 2040. All scenarios were tested against the base 2040 scenario which contained the Tri-State capacity changes from Balmoral to 95th Street. The model captured toll by vehicle class, covered eight counties and used databases obtained from the Chicago Metropolitan Agency for Planning (CMAP) as a starting point. Observed traffic data from IDOT, ISTHA, and DuPage County were used as targets for base year traffic validation. Additionally, third party data was purchased to provide the means to verify, analyze and adjust the travel model input data and components. This private data contained information on personal travel, medium-duty and heavy-duty commercial vehicles from two data sources: location-based services (smart phone apps) and navigation-GPS data (electronic truck logs). The resulting model combined study area internal, external, and through trips. The model yielded a predictive future year travel demand model for 2040 for application. For the forecast year, review of consistency with regional travel model outputs, socioeconomic forecasts, and stated goals of future capacity/use by the agencies that operate the facilities were used. This approach provided both input to the forecasting process and references to confirm that resulting forecasts represented a reasonable future conditions scenario.

Three scenarios were tested. Scenario A (55th Street new partial interchange), Scenario B (31st Street full interchange), and Scenario C (Cermak Road modified to full interchange).
5 OUTCOMES
To compare outcomes among the three scenarios, the 2040 traffic changes on the Central Tri-State, the added ramps and the study area arterials were mapped. Road jurisdictions were identified and other considerations reviewed. Municipalities were presented with detailed evaluations of traffic impacts on tollway and on study area arterials. A summary matrix highlighting the effects of new access was produced for comparative purposes.

<table>
<thead>
<tr>
<th>2 Mile Statistics</th>
<th>55th Street at I-294</th>
<th>31st Street at I-294</th>
<th>22nd St./Cermak Rd. at I-294</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population</strong></td>
<td>38,073</td>
<td>21,111</td>
<td>24,918</td>
</tr>
<tr>
<td><strong>Employment</strong></td>
<td>23,169</td>
<td>45,490</td>
<td>50,545</td>
</tr>
<tr>
<td><strong>Businesses</strong></td>
<td>2,427</td>
<td>1,150</td>
<td>2,919</td>
</tr>
</tbody>
</table>

| Existing Condition | No Interchange | No Interchange | Partial Interchange To/From North |

| Configuration Tested | Partial Interchange - To/From North | Full Interchange | Full Interchange (Add To/From South) |

<table>
<thead>
<tr>
<th>Jurisdictions</th>
<th>Tollway</th>
<th>IDOT</th>
<th>Tollway</th>
<th>IDOT</th>
<th>Tollway</th>
<th>IDOT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IDOT, DuPage County</td>
<td>Tollway</td>
<td>IDOT</td>
<td>Tollway</td>
<td>IDOT</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Constraints</th>
<th>Right-of-Way</th>
<th>No signal hardware</th>
<th>Bridge width</th>
<th>Viaduct and Noise Walls all Quadsants</th>
<th>Bridge Width</th>
<th>Merge with I-88 to north</th>
<th>Toll Plaza - Mainline merge</th>
<th>I-88/I-294 Ramp merge</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Ramp Volumes</th>
<th>2040 Projected Ramp Volumes</th>
<th>2040 Projected Ramp Volumes</th>
<th>2040 Projected Ramp Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30000 - 35000 ADT</td>
<td>8000 - 85000 ADT</td>
<td>7900 - 85000 ADT</td>
</tr>
</tbody>
</table>

| Traffic Results | Wolf Rd. Traffic Decrease (-9%) | York Rd./Garfield Ave. Traffic Decrease (-10%) | US 34/Oplin Ave. Cook Co Traffic Decrease (-14%) | 47th Street Traffic Increase (+10%) | County Line Road Traffic Increase (+17%) | Wolf Rd. Traffic Decrease (-7%) | York Rd./Garfield Ave Traffic Decrease (-13%) | 22nd Street congestion relief west Oak Brook | Wolf Road Traffic Increase (+12%) | 31st Street Traffic Increase (+11%) |

6 SUPPORT
Presentations were made on four occasions to stakeholders in the study area. Comments and/or letters of support were solicited from the stakeholders. Through March, only three stakeholders had responded. Responses were supportive of 31st Street and 22nd Street/Cermak Road interchange options and were split regarding the 55th Street proposal.
**55th Street New Partial Interchange**

**ADJACENT COMMUNITIES**
- Hinsdale
- Western Springs
- Burr Ridge
- Cook County
- DuPage County

**AREA STATISTICS**
*Within a Two-mile Radius*

- Population: 38,073
- Employment: 23,369
- Number of Businesses: 2,327

**MAJOR FINDINGS**
- Most traffic changes are in southeast study area
- Ramps: 3,000 - 3,500 ADT in 2040
- 14% decrease in ramp traffic at Ogden
- Central Tri-State traffic increases 5% north of 55th Street
- Among arterials in the study area:
  - Relief on Il-83, York and Wolf Roads
  - Traffic on 47th Street increases 10% due to drivers avoiding 55th Street
  - Traffic on County Line Road increases 17% as drivers access the 55th Street ramps
  - Traffic on 55th Street increases 21% east of County Line Road
  - Wolf, Gilbert and LaGrange roads increase by 600-800 ADT south of 55th Street
- Attracted mid-length trips providing connection of origins and destinations generally within the study area

**What was Tested:** 55th Street New Partial Interchange with Northbound On-Ramp and Southbound Off-Ramp.

**Assumptions Made:** The assumptions on the ramps are consistent with the regional standards: one lane and 30 mph posted speed. No changes were made to the capacity of 55th Street. Network includes all active and programmed projects in and adjacent to the study area. This concept also anticipates the York Road to SB I-294 ramp will be completed.

**Why It Was Tested:** The 55th Street scenario was established to provide Tri-State access to households and employees in the south sections of the study area, generally the areas south of 55th Street and north of I-55: Western Springs, Burr Ridge, Willowbrook, Hinsdale, Indian Head Park and Countryside. The 55th partial interchange serves trips oriented to and from the north direction and is the only potential access point between Ogden Avenue and I-55. The 55th partial reduces out of direction and travel on under-capacity local road system.

**Tested Alternative**

**Disclaimer:** All alternatives shown are simplified graphical depiction of tested scenario. All alternatives have undergone preliminary screening but would require further engineering before approval.
Performance Statistics

Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) in the study area

- Within the study area both VMT and VHT increase (less than 1%) on an average day in 2040 under Scenario A.
- Traffic operating in congested conditions in the study area also increases slightly.
- Some benefits of the added access to the Tri-State are used by travelers who live outside of the study area.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>VMT</th>
<th>VHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>5,108,495</td>
<td>157,460</td>
</tr>
<tr>
<td>ALT A</td>
<td>5,129,188</td>
<td>157,862</td>
</tr>
<tr>
<td>Difference</td>
<td>20,693</td>
<td>402</td>
</tr>
<tr>
<td>% Difference</td>
<td>.041%</td>
<td>.261%</td>
</tr>
</tbody>
</table>

Other Considerations

- Added 55th Street access provides new paths for travelers who want to use I-294.
- Some people who used to drive 55th Street to cross the study area now encounter congestion and are displaced.
- Displaced travelers shift to 47th Street, where there is somewhat less congestion in the peak periods.
- Mixed benefit on US 34/Ogden and at 55th Street interchange.
- Attracts longer trips to I-294.
**What was Tested:** 31st Street New Full Access

**Assumptions Made:** Assumptions on the ramps are consistent with CMAP network coding: one-lane and 30 mph posted speed. No changes were made to capacity of the facility that feeds the access points – in this case 31st Street.

**Why It Was Tested:** The 31st Street scenario was established to provide I-294 access to households and employees in the north study area, generally between IL-38 and Ogden Avenue. 31st Street access is expected to serve trips oriented in all directions and to provide relief to the congested Cermak Road and US34/Ogden Avenue corridor.

**Area Statistics**

**Within a Two-mile Radius**

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>21,111</td>
</tr>
<tr>
<td>Employment</td>
<td>45,490</td>
</tr>
<tr>
<td>Number of Businesses</td>
<td>3,156</td>
</tr>
</tbody>
</table>

**Major Findings**

- Localized positive impacts
- Ramps: 8,000 - 8,500 ADT in 2040
- Central Tri-State traffic increases 3%
- Statistically significant relief to Ogden and Cermak corridor congestion at existing interchanges.
- Arterial traffic effects:
  - Decreases: York -21% (I-88 to Ogden), Ogden -6%, Cermak -4%
  - Increases: 31st Street by 11%; Wolf by 12%
- County highway/key intersection effects:
  - 31st at IL 83
  - 31st at York
  - 31st at Wolf Road
- Attracted mid-length trips providing connection of origins and destinations generally within the study area

**Discretion:** All alternatives shown are simplified graphical depiction of tested scenario. All alternatives have undergone preliminary screening but would require further engineering before approval.
**Performance Statistics**
Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) in the study area

- Within the study area, both VMT and VHT increase (less than 1%) on an average day in 2040 under Scenario B.
- Traffic operating in congested conditions in the study area also increases slightly.
- Some benefits of the added access to the Tri-State are used by travelers who live outside of the study area.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>VMT</th>
<th>VHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>5,108,495</td>
<td>157,460</td>
</tr>
<tr>
<td>ALT B</td>
<td>5,111,834</td>
<td>157,387</td>
</tr>
<tr>
<td>Difference</td>
<td>3,339</td>
<td>(73)</td>
</tr>
<tr>
<td>% Difference</td>
<td>0.07%</td>
<td>-0.05%</td>
</tr>
</tbody>
</table>

**Other Considerations**
- Mixed benefit on US 34/Ogden and at 55th Street interchange.
- Attracts longer trips to I-294.

**Changes in Truck Traffic**
I-294: truck traffic increases 2-3% on average on the Central Tri-State with the 31st Street ramp addition.
Arterials also show truck traffic changes:

<table>
<thead>
<tr>
<th>Road</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>York Rd</td>
<td>-20%</td>
</tr>
<tr>
<td>Wolf Rd</td>
<td>+4%</td>
</tr>
<tr>
<td>Cermak Rd</td>
<td>-4%</td>
</tr>
<tr>
<td>31st St.</td>
<td>+9%</td>
</tr>
<tr>
<td>Ogden Ave.</td>
<td>-4%</td>
</tr>
</tbody>
</table>

**2040 Average Daily Traffic (ADT) Change**

- Illinois-83: +1,200 (+3%) north of 31st St, -800 (-2%) south of 31st St
- Cermak Rd.: -1,700 (-5%)
- 31st St.: +2,200 (+11%)
- Ogden Ave.: -2,400 (-6%)
- Wolf Rd.: +1,200 (+12%) from Cermak to Ogden

**ADT Change from the Base:**
- ADT Decrease of 5% or more
- Minimal Change
- ADT Increase of 5% or more
Cermak Road Modified Full Interchange

**ADJACENT COMMUNITIES**
- Oak Brook
- Hillside
- Westchester
- Elmhurst
- Cook County
- DuPage County

**AREA STATISTICS**
*Within a Two-mile Radius*
- Population: 24,918
- Employment: 50,545
- Number of Businesses: 2,928

**MAJOR FINDINGS**
- Has most local roadway benefits:
  - Relief on IL-83 (-2%), York Road (-13%), Wolf Road (-7%)
- Ramps: 7,900 – 8,500 ADT in 2040
  - Central Tri-State traffic increases 3%
- Cermak Road grows 5% as traffic uses two new ramps
- Attracted longer trips providing strong connection of origins and destinations in the north and south study area (including south of I-55)

**What was Tested:** Cermak Road Modified Full Interchange

**Assumptions Made:** Assumptions on the ramps are consistent with the CMAP network coding: one-lane and 30 mph posted speed. No changes were made to capacity of the facility that feeds the access points – in this case Cermak Road.

**Why It Was Tested:** Additional ramps at Cermak were tested to assess impact full access interchange on traffic conditions in Oak Brook and Westchester.

**Tested Alternative**

Disclaimer: All alternatives shown are simplified graphical depiction of tested scenario. All alternatives have undergone preliminary screening but would require further engineering before approval.
**Performance Statistics**

Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) in the study area

- Within the study area, both VMT and VHT increase (less than 1%) on an average day in 2040 under Scenario C.
- Traffic operating in congested conditions in the study area also increases slightly.
- Some benefits of the added access to the Tri-State are used by travelers who live outside of the study area.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>VMT</th>
<th>VHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>5,108,495</td>
<td>157,460</td>
</tr>
<tr>
<td>ALT C</td>
<td>5,108,065</td>
<td>157,385</td>
</tr>
<tr>
<td>Difference</td>
<td>(430)</td>
<td>(75)</td>
</tr>
<tr>
<td>% Difference</td>
<td>-0.01%</td>
<td>-0.05%</td>
</tr>
</tbody>
</table>

**Changes in Truck Traffic**

I-294: truck traffic increases 2-3% on average on the Central Tri-State with the Cermak ramp addition.

Arterials also show truck traffic changes:

- York Road: -14%
- Wolf Road: -4%
- Cermak Road: +4%

**Other Considerations**

- Benefits Oak Brook and Westchester north-south arterials.
- Slight traffic benefit to IL 38/ Roosevelt Road.
- Attracts limited traffic to I-294.

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![Map of 2040 Average Daily Traffic (ADT) Change](image-url)