

implemented to highlight each community. In addition to defining specific applications and areas of enhancement, some highlights of the project objectives include:

- Aesthetics should be scalable and appropriate for the multiple users in these corridors.
- Aesthetics should highlight and support new functions and improved efficiency of the corridors.
- Aesthetics should highlight improved areas of accessibility.
- Sustainable best management practices should be considered in selecting aesthetic treatments.

Once the overall theme and objectives were defined, the CAAT began focusing on potential design elements that could be incorporated into the corridor. These included bridge enhancements, roadway enhancements (retaining walls, noise walls, and signage upgrades), and landscape enhancements (see Figure 2-18). The process culminated a general design theme and design considerations. Further discussions with the local advisory committee, sponsored by the Illinois Tollway, will occur during the final design stage with the objective of developing aesthetic design guidance.



2.4 Comparison of Project Alternatives and Alternates

The Tier Two Draft EIS concluded with three decisions to be finalized in this Tier Two Final EIS, which include:

- Identification of the Preferred Alternative – Build versus No-Build Alternative.
- Identification of the preferred interchange design alternate at Elmhurst Road and I-90.
- Identification of the preferred intersection design alternate at IL 72 and Elmhurst Road.

This Tier Two Final EIS identifies the preferred alternative and design alternates and presents a comparative analysis of the alternatives and alternates.

2.4.1 Build versus No-Build Alternative

Two project alternatives were carried forward in the Tier Two Draft EIS for detailed analysis. Comments on the Tier Two Draft EIS did not expand on the number of alternatives considered; however, comments did cause some of the design features of the Build Alternative to change. As mentioned earlier, these refinements include: an adjusted exit

ramp location along I-294, just north of North Avenue; a frontage road modification between IL 83 and York Road; refinements of the internal circulation road at the Hamilton Lakes' Development near the I-290 interchange; and refinements to the intersection design at IL 72 and Elmhurst Road.

The analysis of the No-Build and Build Alternatives showed that the project's purpose and need are best satisfied with the Build Alternative. For each of the four Purpose and Need statements, the Build Alternative satisfies the intent. The No-Build Alternative, on the other hand, does not satisfy any of the Purpose and Need objectives. The following discussion summarizes the findings and describes how the Build Alternative achieves improved regional and local travel, improved travel efficiency, improved connection to O'Hare Airport from the west, and improved intermodal connectivity. In each case, the Build Alternative has been developed with each of these purposes as a goal.

As determined in the overall analysis, the proposed Build Alternative also provides economic benefits compared to the No-Build Alternative. The economic benefits include: 2,000 to 3,000 construction jobs annually for the duration of construction period; over 4,700 acres of new development influenced by better access and transportation; over 40,000 permanent new jobs associated with the new development; over \$700 million in federal and state tax revenue from construction dollar spending; and about \$17 million annually in new property and business tax revenue directed to the local communities in the area.

In a comparison of improved travel efficiency, the Build Alternative would provide considerable travel benefits and enhance travel performance for the study area compared to the No-Build Alternative. As shown in Table 2-6, the proposed Build Alternative would produce the desired travel characteristics – more traffic on access-controlled facilities and less traffic on the secondary roads. The proposed improvements decrease travel (i.e., VMT) on primary and secondary roads by almost 18 percent and shift longer trips to access-controlled facilities – the right type of trip on the right type of facility. These traffic shifts reduce travel delays by 24 percent on the primary and secondary arterial roadway system, increasing the overall travel efficiency. Similar to secondary roads, collector roads would also experience a substantial reduction in vehicles hours of delay (-21.6 percent).

TABLE 2-6
Build Alternative Travel Performance Compared to No-Build Alternative

Roadway Type	Percent Change Vehicle Hours of Delay	Percent Change Vehicle Miles of Travel	Percent Change Congested Vehicle Miles of Travel
Access-controlled Highway	4.1%	29.5%	19.5%
Primary and Secondary Arterial	-24.1%	-17.9%	-16.0%
Collector	-21.6%	-0.9%	6.4%

The increase in VMT on the access-controlled facility and the relative change in congested VMT can be better explained using the data in Table 2-7. As shown in Table 2-7, when the percent of congested VMT is examined for each alternative, the Build Alternative clearly

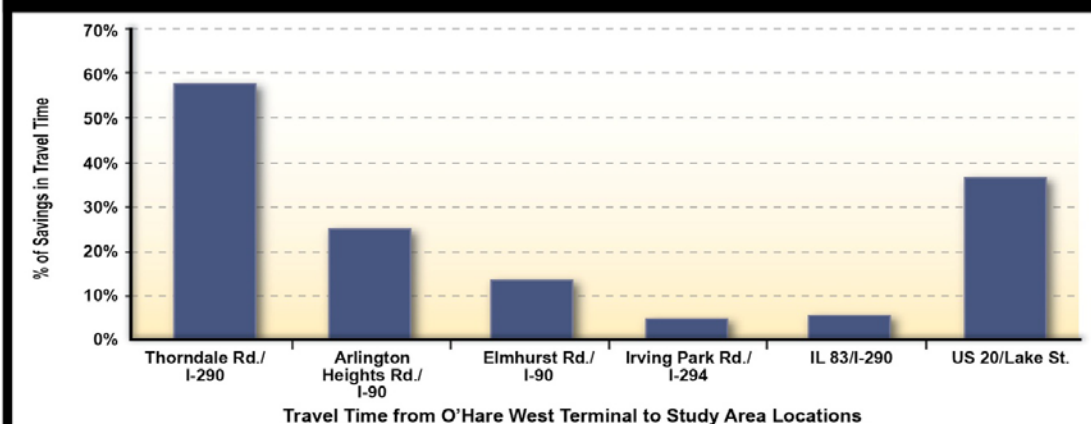
shows that even with substantially more travel on access-controlled facilities, congested VMT is almost five percent less than the No-Build Alternative. Additionally, when the percent of congested VMT is compared to the Build and No-Build Alternatives across all the roadway types (i.e., access-controlled highway, primary, secondary, etc.), the results are similar showing the Build Alternative to be about three percent less. Overall, this demonstrates that for the Build Alternative, VMT can increase on access-controlled facilities, and still show a relative reduction in the percent of congested VMT when compared to the No-Build Alternative.

TABLE 2-7
Comparison of Percent of Daily Congested Vehicle Miles of Travel for No-Build and Build Alternatives

Roadway Type	2040 No-Build Alternative			2040 Build Alternative		
	Total VMT	Congested VMT	% Congested VMT	Total VMT	Congested VMT	% Congested VMT
Access-controlled Highway	10,929,925	6,848,343	62.7%	14,152,761	8,186,322	57.8%
Primary and Secondary Arterial	5,898,311	3,900,928	66.1%	4,844,766	3,278,133	67.7%
Collector	1,187,405	677,490	57.1%	1,176,151	721,141	61.3%
Total	18,015,641	11,426,761	63.4%	20,173,679	12,185,596	60.4%

With the reduction in travel delay, travel times to various destinations would improve markedly with the Build Alternative. In the examination of six trip pairs in the project area, the cumulative travel time savings totaled to about 28 percent (see Figure 2-19). A detailed analysis of the travel times shows that the largest time savings are trips from the west and northwest, which support improved access to O'Hare Airport from the west.

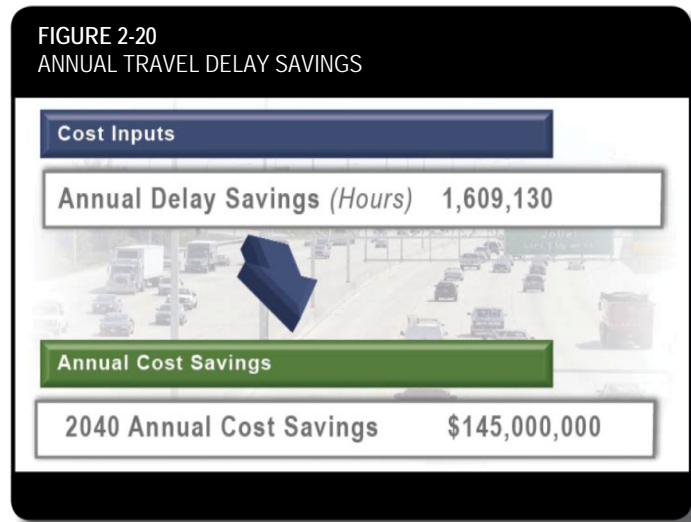
FIGURE 2-19
TRAVEL TIME SAVINGS



Transit is an important component of the Build Alternative. The reservation of space for transit is provided in the median of the Elgin O'Hare corridor and on the east side of the north leg of the West Bypass. The transit plan in the Elgin O'Hare corridor would include five stations with connectivity to north-south transit service. Additionally, express bus service would extend to Hanover Park, Rosemont, and Woodfield Mall. Connectivity to other transit would be provided via a transit center on the west side of O'Hare Airport connecting to a number of proposed transit options. Comparatively, the No-Build Alternative would have few alternative transportation options for people traveling within, into, or out of the project area.

The reduction in delay and travel time has an associated economic benefit that can be measured in dollars saved. It has been estimated that the construction of the EO-WB project would result in annual delay savings of over \$145 million by the year 2040 (see Figure 2-20).

As shown in the analysis described above, the No-Build Alternative does not provide the benefits that stakeholders carefully defined at the beginning of this process. As such, the No-Build Alternative is not consistent with the project's purpose and need.



2.4.2 Comparison of Design Alternates

The Build Alternative is defined as a set of design elements consisting of mainline pavement, frontage road, interchange, arterial, drainage, structural (bridges/ retaining walls), transit, and bicycle and pedestrian improvements. An extensive process was applied to determine the design elements throughout the project corridor. In two locations, the final determination of the elements was not determined in the Tier Two Draft EIS. These include the interchange type at the Elmhurst Road and I-90 interchange and the intersection type at the IL 72 and Elmhurst Road intersection. In determining the preferred alternates at each location, impacts to environmental and socioeconomic resources are being considered along with travel performance, ability to implement mitigation measures (e.g., water quality best management practices), and stakeholder input. A comparison of these factors is provided in the following subsections.

2.4.2.1 Elmhurst Road and I-90 Interchange

Two interchange types remain under consideration at the Elmhurst Road and I-90 interchange location. Alternate 3 is a traditional diamond configuration (see Figure 2-9 in the Tier Two Draft EIS), and Alternate 4 is a diverging diamond configuration (see Figure 2-14). In comparing the two alternates, as shown in Table 2-8, Alternate 4 is preferred. Whereas, Alternate 3 is slightly less costly and has slightly fewer environmental resource

impacts, Alternate 4 provides enhanced operational characteristics and easier construction sequencing, which would benefit maintenance of traffic during construction. In addition, both alternates provide opportunities for implementing best management practices.

	Alternate 3 (Traditional Diamond)	Alternate 4 (Diverging Diamond)
Driver Expectation	Good	Moderate
Traffic and Operations Evaluation Rating	Moderate	Good
Construction Sequencing and Maintenance of Traffic	Moderate	Good
Cost	Lower	Low
Wetland Impacts (acre)	0.0	0.01
Impact to Higgins Creek (acre)	0.03	0.11
Impact to Higgins Creek Tributary A (acre)	0.07	0.07
100-year Floodplain Impacts (acre-feet)	13.5	14.2
Regulatory Floodway Impacts (acre-feet)	6.1	7.0
Tree Impacts (number)	124	124
Opportunity for Implementing best management practices	Good	Good

Note: Green shading represents good performance or least impact, yellow shading represents moderate performance or average impact, and red shading represents poor performance or most impact.

During the evaluation of interchange types at the I-90 and Elmhurst Road interchange, numerous meetings have been held with Des Plaines, Elk Grove Village, and Mount Prospect. The non-traditional aspects of Alternative 4 (diverging diamond) were initially a concern to the surrounding communities. As more information was shared about this interchange type and its advantages, community leaders became more accepting of the concept. Specific input suggested that the design of an interchange and its bridges over I-90 preserve flexibility for future interchange modifications.

2.4.2.2 IL 72 and Elmhurst Road Intersection

The Tier Two Draft EIS considered four intersection types at the IL 72 and Elmhurst Road intersection. Since the close of the public comment period on May 14, 2012, the intersection type at this location has been the subject of further analysis and stakeholder input. In the re-evaluation process, two alternates were dismissed, while additional attention was given to the Quadrant Bypass (Old Higgins Road) and the Quadrant Bypass (Greenleaf Avenue) alternates. Each of the alternates was refined to include design measures to improve overall traffic performance and adjustments were made to reduce environmental issues identified during earlier studies.

The evaluation of the two remaining intersection alternates concluded that the Quadrant Bypass (Old Higgins Road) Alternate is the preferred alternate (see subsection 2.2.4 and Figure 2-6). This alternate provides an acceptable level of traffic performance for all critical

movements, and comparatively exhibits fewer impacts including less right-of-way requirements, fewer displaced business parking spaces, less disruption to business property ingress and egress, and fewer natural resource impacts (see Table 2-9). Additionally, this alternate, unlike the Quadrant Bypass (Greenleaf Avenue) Alternate, would not involve O'Hare Airport's Runway 9L-27R RPZ. The Quadrant Bypass (Greenleaf Avenue) Alternate would require properties in the RPZ for replacement of business parking, which would require FAA approval for the release of the property for non-aviation uses. For the reasons stated above, the Quadrant Bypass (Old Higgins Road) Alternate is the best overall alternate.

TABLE 2-9
Comparison of Intersection Alternates at IL 72 and Elmhurst Road

	Quadrant Bypass (Old Higgins Road) Alternate	Quadrant Bypass (Greenleaf Avenue) Alternate
Business Displacements (number)	1 ^a	0
Residential Displacements (number)	0	0
Business Parking Displacements (number)	9	93
Driveway Closures/Restrictions	6	8
Wetland Impacts (acres)	0.26	0.26
Tree Impacts (number)	112	120

^a Building is vacant.

2.5 Identification of Preferred Alternative and Alternates

The Build Alternative compared to the No-Build Alternative satisfies the project's purpose and need. The Build Alternative provides the needed efficiencies and improved operational characteristics that would maintain and enhance transportation in an area known as a regional transportation hub and its role as an economic center in the region. While enhancing mobility in the project area, the Build Alternative has been developed to be sensitive and compatible with the local community values and land use patterns of the surrounding communities. The final set of design features that comprise the Build Alternative was determined through a deliberate process of evaluating many design alternates against evaluation criteria that included environmental considerations, travel and operational performance, constructability, and cost considerations. Through this process, the Build Alternative achieves improved travel, while minimizing and avoiding impacts to the important natural resources in the area. It has also been determined that the investment in the Build Alternative would provide extraordinary benefit to the local economy, both during the period of construction and in the long-term, with redevelopment opportunities that would be attracted to the area. The combined attributes of the Build Alternative make it the Preferred Alternative supported by the lead agencies. This alternative received concurrence by the NEPA/404 Merger Group on September 6, 2012.

