2.3 Description of the Alternatives

2.3.1 No-Build Alternative

The No-Build Alternative assumes improvements that are representative of current program funding levels, and as such, consist of transportation improvements that include roadway capacity improvements, intersection improvements, roadway safety improvements, and transit improvements. The No-Build Alternative, however, does not include the major transportation improvements considered in this study and is not consistent with the purpose and need for this project.

The development of the No-Build Alternative was fully coordinated with CMAP, the regional metropolitan planning organization, and other transportation providers. The transportation improvements in the No-Build Alternative include those projects within the project area that are identified and conformed in CMAP's *GO TO 2040 Comprehensive Regional Plan* (except the EO-WB project) (CMAP, 2010) and IDOT's *Fiscal Year 2012-2017 Statewide Transportation Improvement Program* (IDOT, 2011c). Through coordination with CMAP, it was agreed that improvements identified in the *GO TO 2040 Comprehensive Regional Plan* that are outside of the project area would be included in the development of the 2040 travel forecasts for the No-Build Alternative. The No-Build Alternative also recognizes the federally-approved OMP improvements, including the West Terminal complex, to be completed within the planning horizon.

Consistent with NEPA and FHWA guidance, an alternative-specific 2040 travel forecast was developed for the No-Build Alternative. An extensive analysis of the future population and employment was conducted as a key input to the No-Build travel forecast. This process included a detailed analysis that estimated future land use development and the associated population and employment for the No-Build Alternative. With the limited transportation improvements in the project area under the No-Build Alternative, the competitive position of the area is affected, and the corresponding 2040 employment and population estimates are 41,000 and 5,000 less than the Build Alternative, respectively.

The transportation improvements for the No-Build Alternative represent approximately 67 lane miles of additional capacity and eight miles of rehabilitation improvements to roadways, four intersection improvements, and five bus and rail transit improvements. Some of the key improvements include capacity improvements on I-90, Meacham Road, IL 53 (Rohlwing Road), and Mannheim Road; intersections improvements at York Road and Irving Park Road (IL 19), Wood Dale Road and Irving Park Road (IL 19); and transit improvements on the Union Pacific - Northwest (UP-NW) railroad (see Exhibit 2-8). The No-Build Alternative will be carried forward throughout the NEPA process to serve as the baseline for comparing the performance of the Build Alternative.

2.3.2 Build Alternative

The Build Alternative will be developed as a toll road that consists of 16 miles of new toll road, about nine miles of improvements to existing toll roads (i.e., I-294 and I-90) and freeway (i.e., I-290), and 16 miles of supporting arterial improvements (see Exhibit 2-9). Companion to the mainline improvements are four system interchanges, 16 local access interchanges, and intersection improvements on nearby arterials. Provisions for transit are

incorporated into the median for a portion of the project, and bicycle and pedestrian facilities have also been integrated. In addition to important traffic benefits like increased mobility and accessibility, the project would enhance the competitive position of an extensive commercial and industrial area. The project is fully consistent with the purpose and need and includes many mitigation measures that avoid and minimize impacts, replaces wetland loss, compensates floodplain loss, improves stormwater quality with best management practices, and other measures to protect the environment.

2.3.2.1 Fully Access-Controlled Highway

The project would be developed as a fully access-controlled highway that would be tolled. The purpose of controlling access on any roadway is to maintain or enhance safety and travel efficiency. The mainline improvements under the EO-WB project are planned as fully access-controlled, where access to the toll road corridor is provided solely through interchanges. Prevailing IDOT and Illinois Tollway access-control standards were applied along new toll road corridors, and current access limits were maintained along the existing Elgin O'Hare corridor. Stakeholder input was considered when making decisions to modify or close existing access, the objective being to provide reasonable access-control while minimizing impacts to existing land uses. Access-control plans will be further refined in advanced steps of intersection and interchange design studies. The fully access-controlled portion of the project has two main components, the east-west component known at the Elgin O'Hare corridor, and the north-south component known as the West Bypass corridor.

The Elgin O'Hare corridor is about 10 miles in length, extending from Gary Avenue on the west to the western edge of O'Hare Airport on the east. The West Bypass corridor would extend from I-90 near the Elmhurst Road interchange on the north to I-294 on the south, a distance of about 6.2 miles. Lane additions would be required on I-90, I-290, and I-294 extending from the system interchange for purpose of transitioning merging and diverging traffic. The Elgin O'Hare corridor would have three basic lanes in each direction with added auxiliary lanes, and the West Bypass corridor would have two basic lanes in each direction with added auxiliary lanes in high traffic areas.

A portion of the Elgin O'Hare corridor (the Elgin-O'Hare Expressway from Gary Avenue to I-290, about five miles) is an existing expressway consisting of two-lanes in each direction. Approximately 80 percent of the cost of the expressway was constructed with federal funding. The conversion of the freeway for use as a toll road and conveyance of property will be accomplished with the use of a Memorandum of Understanding (MOU) between FHWA, IDOT, and Illinois Tollway. The MOU will be executed after the ROD is signed.

There would be 73 new bridges required in numerous locations to accommodate stream crossings, railroad crossings, and crossing roadways. Also, depressed roadway sections are required at two locations including a location under the Bensenville Yard, and one location under the Canadian Pacific (CP)/Union Pacific (UP) railroad tracks along the western edge of O'Hare Airport. The West Bypass corridor crosses the west end of the Bensenville Yard and would be placed below grade to avoid airspace violations in connection with proposed Runway 10R-28L. The roadway would be depressed while the yard tracks would be bridged over the mainline. A detailed construction staging plan is being prepared in cooperation with the CP railroad that would provide uninterrupted railroad operations during

construction. The mainline crossing under the CP/UP railroad tracks is optional depending on the timing of the decommissioning of Runway 14R (see subsection 2.3.2.6).

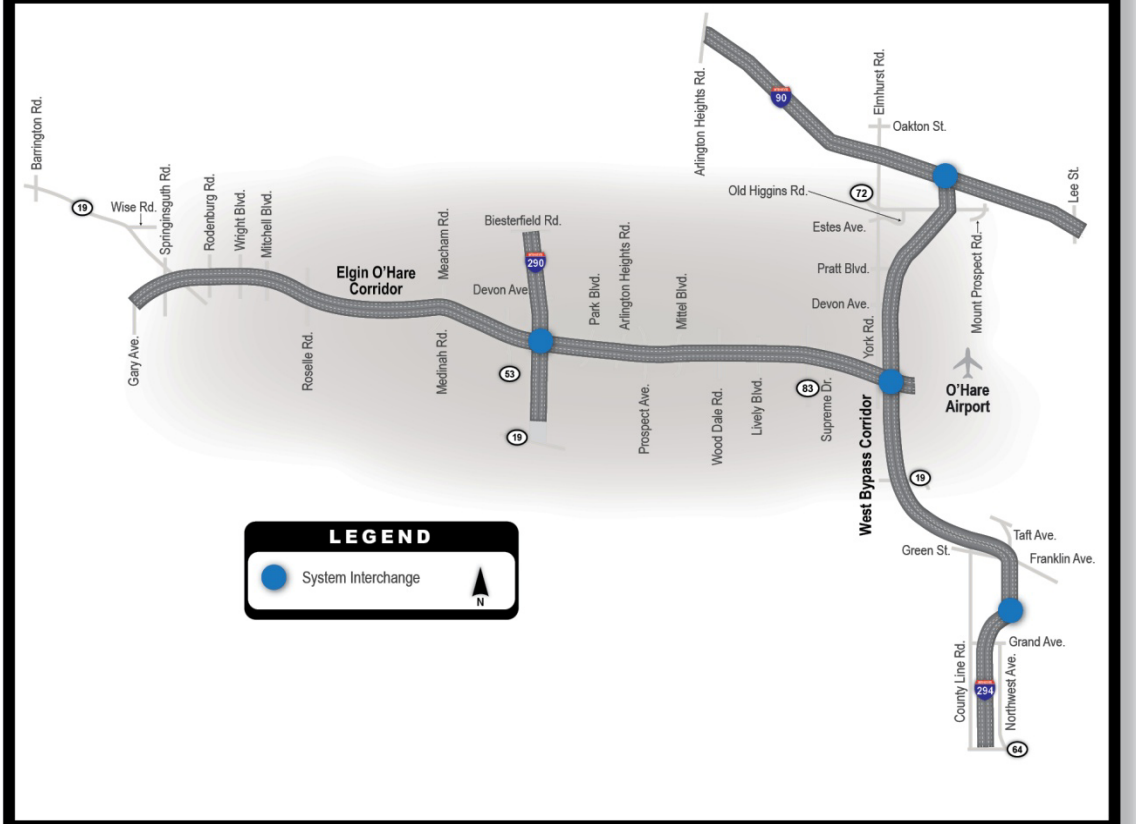
2.3.2.2 System Interchanges

System interchanges carry traffic between connecting high-speed roadways. These types of interchanges are characterized by higher speed ramps that allow efficient travel between access-controlled roadways.

In the project area, system interchanges would be required at the following four locations (see Figure 2-8):

- Elgin O'Hare corridor and I-290
- Elgin O'Hare and West Bypass corridors
- West Bypass corridor and I-90
- West Bypass corridor and I-294

FIGURE 2-8
SYSTEM INTERCHANGE LOCATIONS



The solutions at each location considered a range of alternates, and each were evaluated based on a number of factors including traffic operations, roadway geometry, environmental impacts, and cost. The evaluation of the interchange alternates led to the retention of one interchange type at each of the four locations (see Figures 2-9 to 2-12).

Elgin O'Hare Corridor and I-290

The Elgin O'Hare corridor and I-290 interchange complex would extend from Meacham Road on the west, through the I-290 interchange, to Prospect Avenue on the east. This is a complex interchange system, with both system and local connections provided. Numerous design alternates were developed and evaluated at this location based on the complex access requirements, changing roadway geometric conditions, and input from community interests. Initially, six design alternates were developed ranging from less complex to more complex (IDOT, 2010a) (see subsection 2.1.2). An important factor in their evaluation has been travel demand forecasts, and recently the 2040 travel forecasts were updated with a toll road condition. The consideration of tolling effectively lowers traffic on the proposed improvements; thus, each of the alternates was re-evaluated using these latest traffic data. The results showed that Alternates 1, 3, 4, 5, and 6 and their complex features were not necessary to satisfy the updated travel demand. This conclusion led to a re-evaluation of Alternate 2, which represented an efficient, cost-effective solution for the area. The re-evaluation spawned many new variants that ultimately lead to a single recommended interchange type at this location – Alternate 7.

As planned (Alternate 7), the interchange would provide for movements in all directions, with flyover ramps in two directions and loop ramps in two directions. Movements to and from the mainline system via local roads are described as follows:

- Direct movements from I-290 to IL 53 would not be provided, rather, the traffic would be required to use a Texas U-turn[2] at Meacham Road to return to IL 53 via a frontage road.
- Frontage roads would be provided on both sides of the mainline between Meacham Road and IL 53 to accommodate access to local development as well as local traffic movements in this area.
- Access to Park Boulevard, a current access point along existing Thorndale Avenue, is provided from the mainline system from the north, south, and west. Park Boulevard provides important access to the community of Itasca's residential and commercial areas. Access from the east would be provided at the Prospect Avenue interchange. Access from the Hamilton Lakes' Development to the mainline system would be provided in all directions from the Prospect Avenue interchange. Direct access from the development to the west and the south would also be provided from a slip ramp from Park Boulevard's circulation road.
- Access to and from the residential development in the southeast quadrant would be maintained. Direct access to the residential development from the I-290 interchange would be provided from the north, south, and west at Park Boulevard. Travel from the west would exit at Prospect Avenue. Access from the development to the mainline system would be provided to the south and west from Park Boulevard, to the west via a frontage road to the Prospect Avenue interchange, and to the north via an on-ramp at Arlington Heights Road.

[2] Texas U-turns are commonly used in conjunction with one-way frontage road pairs. At Meacham Road, the Texas U-turn would allow for return movements and avoid the need to travel through a signalized intersection.

Simulated traffic analyses have been conducted for Alternate 7, and an acceptable level of service is achieved with some added auxiliary lanes to manage weaving movements that extend from the interchange along I-290 to Biesterfield Road on the north and to the CP railroad on the south to Biesterfield Road, a combined distance of 2.1 miles.

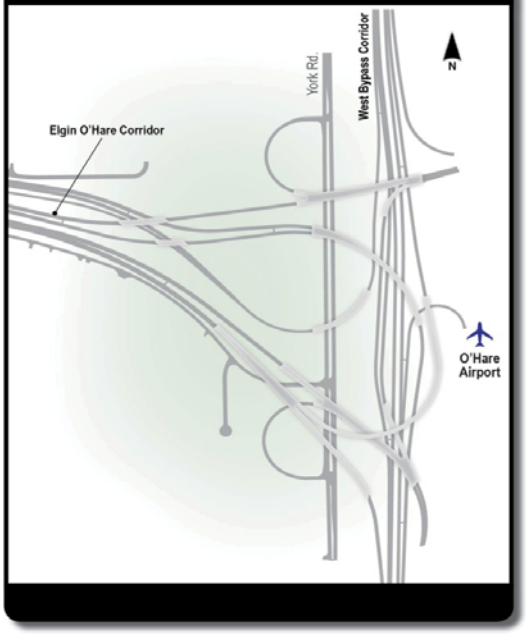
The development of Alternate 7 has been the product of many discussions and refinements. Alternate 7 would achieve a recommended solution that captures all the objectives of acceptable traffic operations; improve access to and through the area; produce cost savings with the use of a loop ramp rather than a flyover in one direction; and would be designed with the mainline to traverse under IL 53 rather than over.

FIGURE 2-9
ELGIN O'HARE CORRIDOR AND I-290

Elgin O'Hare and West Bypass Corridors

The Elgin O'Hare and West Bypass system interchange provided a unique design challenge due to the horizontal and vertical airspace constraints when building near O'Hare Airport. The selected interchange form would consist of a compact, three-level system interchange between the Elgin O'Hare and West Bypass corridors. The design features of the interchange were carefully selected to minimize encroachment on critical runway approach and departure areas and the planned footprint of the proposed West Terminal. The system interchange arrangement would emphasize the eastbound movement to the proposed West Terminal, with a single diverge point for the eastbound Elgin-O'Hare Expressway to West Bypass movements (northbound and southbound), approximately 2,000 feet west

FIGURE 2-10
ELGIN O'HARE AND WEST BYPASS CORRIDORS



of York Road. Refinements from earlier concepts have been introduced to reduce cost including the use of a flyover ramp instead of a tunnel for the north to west movement through the interchange. In addition, loop ramps on the west side of York Road would provide a direct connection between York Road and the proposed West Terminal area.

West Bypass Corridor and I-90

In the north, the system interchange between the West Bypass corridor and I-90 would be located just north of MWRDGC basins and directly east of the local access interchange improvement at I-90 and Elmhurst Road. The design layout would primarily occupy the space currently utilized for a toll road oasis. Four alternate concepts were evaluated at this location, three Y- type interchange forms and one Trumpet interchange form. Each of the alternates provides movement in three directions (east, west, and south). In the examination of the alternates, the 2040 travel forecasts allowed a more cost effective design while still maintaining accepted levels of service. The recommended alternate (Alternate 4) would achieve a cost-effective solution with the use of a loop ramp in one direction rather than a flyover ramp.

FIGURE 2-11
WEST BYPASS CORRIDOR AND I-90

A feature of the interchange design includes construction of a roadway embankment through a portion of the MWRDGC flood control reservoirs near Touhy Avenue. The MWRDGC has reviewed the concept and agrees with its implementation provided the functionality of the reservoir is maintained during and after construction. The Illinois Tollway and IDOT provided a construction phasing plan related to the impact on MWRDGC facilities demonstrating that the storage capacity of the facilities would be equal to or greater than the existing storage capacity during and after the construction period. A further benefit of the Trumpet design would be a reduction in impact to Majewski Athletic Complex on the north side of I-90. Lane additions are required along I-90 to the west and east in order to manage weaving movements to and from the interchange area. These improvements would extend to Arlington Heights Road on the west and to Lee Street on the east, a combined distance of 5.4 miles.

West Bypass Corridor and I-294

Both Y-type and Trumpet interchange forms were examined for this location. The Y-type interchange was preferred to the Trumpet interchange at this location because of less impact to surrounding development. In subsequent refinement of the Y-type interchange, retention of the ramps to and from the north were re-evaluated. The analysis showed that northbound movement to I-294 can be accomplished by other relatively convenient routes (i.e., north on proposed Taft Avenue to Irving Park Road [IL 19] and the Irving Park Road [IL 19]

interchange at I-294). Thus, the ramps to and from the north were removed from the design, leaving the interchange with ramps to and from the south only. This refinement would reduce industrial business displacements. The combination of weaving movements to and from the new system interchange on I-294, and improved access at North Avenue to and from I-294 requires added travel lanes along 2.2 miles of I-294.

FIGURE 2-12
WEST BYPASS CORRIDOR AND I-294

2.3.2.3 Local Access Interchanges

Local access interchanges would be provided at 16 locations including existing and new interchanges, and would provide connections to local roads from the mainline facility (see Figure 2-13). Each of the interchanges would be located at major arterials or would serve to maintain access to the major arterial corridors in the project area. The ADT on these crossing roads ranges from 14,000 to 60,000 vehicles. The location of the service interchanges would be compatible with the Illinois Tollway and IDOT policies and represents stakeholder input, where improved access to community centers, and commercial and industrial development were ranked as a priority.

FIGURE 2-13
LOCAL ACCESS INTERCHANGE LOCATIONS AND INTERSECTION IMPROVEMENTS

Similar to the system interchange analysis, many interchange types were evaluated at each location and were compared based on their impacts to the environment, effects on nearby development, operational efficiencies and safety, and cost. The service interchange locations and the interchange forms that have been retained for analysis are shown in Exhibits 2-4A to 2-4L.

When the Tier Two Draft EIS was issued in March 2012, a single interchange type had been recommended at 15 of the 16 locations. Since the Tier Two Draft EIS, a preferred interchange alternate has been identified at the last remaining location – the I-90 and Elmhurst Road interchange. The preferred alternate is the diverging diamond (Alternate 4) because of its enhanced operational characteristics, added flexibility in construction sequencing, and maintenance of traffic during construction (see Figure 2-14).

FIGURE 2-14
ALTERNATE 4 – ELMHURST ROAD AND I-90

2.3.2.4 Arterial Improvements

A detailed traffic analysis using 2040 forecasts showed that arterials in the immediate vicinity of the project would require some capacity improvements to accommodate increased travel in close proximity to the interchanges and along some sections of arterials. There are 31 arterial improvements associated with the project (see Table 2-1 and Exhibit 2-5 referenced in subsection 2.1.2.4). The extent of the improvements typically requires added travel lanes, turning lanes, and updated traffic signals. Added travel lanes commonly extend from either side of the interchange areas for varying distances, which allows the high traffic volumes at the interchange areas to efficiently transition to the existing lane configuration (see Table 2-1).

Traffic analysis (using 2040 forecasts) of the arterial system beyond the immediate vicinity of the project showed that proposed project would not create capacity improvements for most of the adjacent arterial system (see Appendix D). In several cases, arterials are impacted and capacity improvements have been planned as part of the overall project improvements. Among these capacity improvements include Taft Avenue, Touhy Avenue, Elmhurst Road, York Road, Franklin Avenue/Green Street, Irving Park Road (IL 19), and several others (see Table 2-1). Other arterial improvements include intersection upgrades at IL 19 and Barrington Road in Hanover Park, IL 19 and Wise Road in Hanover Park, and IL 72 and Elmhurst Road in Elk Grove Village.

The intersection at IL 19 and Barrington Road would be upgraded with capacity improvements that would benefit movements in all directions. These capacity improvements would be achieved without any displacements of businesses or parking. At IL 19 and Wise Road, a dual left-turn would be provided for eastbound IL 19 traffic to Wise Road. Other improvements include right-turn lanes. The combination of these two

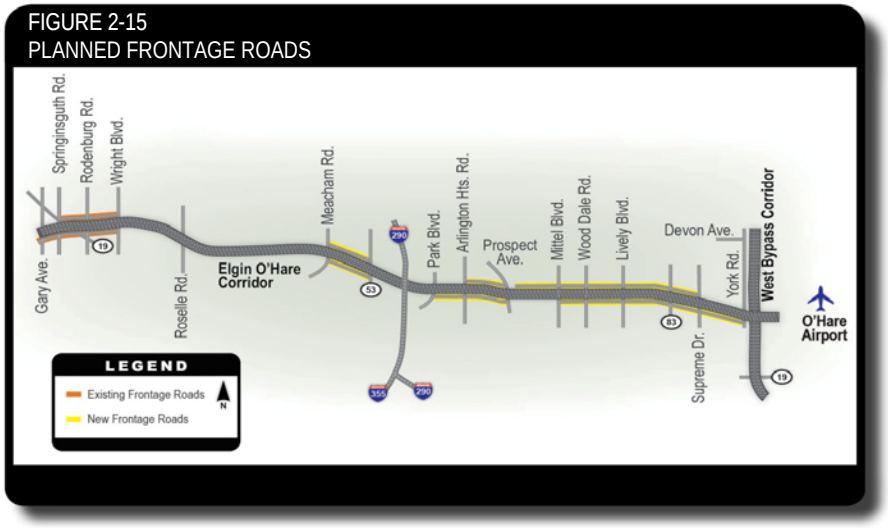
intersection improvements would assist with through traffic movement and would result in a substantial reduction in the P.M. traffic from Wise Road to Barrington Road on IL 19 (a reduction from 4,800 feet to less than 1,000 feet). Exhibit 2-10 shows the improvements at each location.

The Tier Two Draft EIS included consideration of four intersection alternates at IL 72 and Elmhurst Road (see Exhibit 2-11). Since the issuance of the Tier Two Draft EIS in March 2012, the intersection types at this location have been re-examined with further technical analysis and coordination with affected stakeholders. The preferred alternate is the Quadrant Bypass (Old Higgins Road) Alternate. This alternate provides acceptable traffic operations for future traffic conditions, and minimizes business impacts in the vicinity (see subsection 2.2.4).

2.3.2.5 Frontage Roads

Frontage roads are planned along the Elgin O'Hare corridor. The planned improvements include continued use of existing frontage roads along the west end of the Elgin O'Hare corridor and new frontage roads along the mainline section from Meacham Road to York Road for areas of high access demand (see Figure 2-15). The frontage roads would not be continuous, but are provided in locations to maintain access to developed and developable lands along the mainline. On the west end of the Elgin O'Hare corridor, the existing frontage roads between Gary Avenue and Wright Boulevard would be retained. New frontage roads would be provided in areas where access is required between Meacham Road and York Road.

FIGURE 2-15
PLANNED FRONTAGE ROADS



In total, there would be seven miles of new frontage roads configured mostly as two-lane one-way roads (see Table 2-3). The potential environmental consequences and any corresponding mitigation measures associated with these facilities are described in Section 3. Examples of these proposed facilities include new sections of frontage roads on each side of the mainline between Meacham Road and IL 53. In this location, the frontage roads would be one-way two-lane facilities providing access to adjacent development and facilitating local traffic movement. Frontage roads would also be provided on each side of the mainline between Park Boulevard and Prospect Avenue, providing access to extensive commercial development on the north side of the mainline and residential development on the south. Another example includes the frontage roads between Wood Dale Avenue and IL 83. These frontage roads provide convenient access for industrial and commercial development to and from the toll road. The Tier Two Draft EIS includes a frontage road

system east of IL 83 that extends along the north side of the mainline to Supreme Drive as a three-lane roadway with two-lanes westbound and one-lane eastbound. At Supreme Drive, the frontage road would be routed under the mainline to the south side and would extend to York Road as a two-lane two-way road. The two-way configuration would be necessary to avoid impaired access to businesses in this locale. Stemming from community comments, the frontage road system in this locale was further modified after the publication of the Tier Two Draft EIS and the Public Hearing to extend the frontage road system on the south side of the mainline from Supreme Drive to IL 83. This arrangement would improve continuity and access to properties along that section of roadway. As planned, that section of frontage road would be one-way in the eastbound direction.

The frontage road system along the Elgin O'Hare corridor provides access to all crossing streets with one exception: a cul-de-sac at the south leg of AEC Drive. Several road closures[3] would be required along the Elgin O'Hare and West Bypass corridors. Among these include a cul-de-sac at AEC Drive. Access to AEC Drive would be provided from Mittel Drive[4] and Wood Dale Road. Along the West Bypass corridor, Acorn Lane will be closed at Franklin Avenue. The road's proximity to the interchange ramps would interfere with operations at the intersection; therefore, a road closure is recommended. Alternative access would be provided from Runge Street and Addison Avenue. Lastly, the configuration of the system interchange connecting the Elgin O'Hare and West Bypass corridors requires closure of Sivert Court. Continued access to an industrial property affected by the closure would be provided by relocating Sivert Court to a connection with the frontage road on the south side of the mainline.

Prevailing access control standards for the frontage roads would affect access to some properties near interchange ramp terminals merging with the frontage road system. In these cases, alternative access would be provided.

TABLE 2-3
New Frontage Roads

Location	Length of Improvements (feet)	Number of Lanes
Westbound Elgin O'Hare Corridor		
Supreme Drive to IL 83 (Busse Road)	1,800 feet [a]	Two-way: 2 lanes westbound, 1 lane eastbound
IL 83 (Busse Road) to Lively Boulevard	3,000 feet	2 lanes [a]
Lively Boulevard to Wood Dale Road	2,600 feet	2 lanes [a]
Wood Dale Road to Mittel Boulevard	1,800 feet	1 lane [a]
Mittel Boulevard to Salt Creek Golf Course	1,800 feet	Two-way: 1 lane westbound, 1 lane eastbound
Prospect Avenue to Arlington Heights Road	1,400 feet	2 lanes [a]
IL 53 (Rohlwing Road) to Meacham Road	4,300 feet	2 lanes [a]

[3] A Road Closure Hearing was conducted together with the Tier Two Draft EIS Public Hearing on April 18, 2012.

[4] Mittel Boulevard is known as Mittel Drive, south of Thorndale Avenue.

TABLE 2-3
New Frontage Roads

Location	Length of Improvements (feet)	Number of Lanes
Eastbound Elgin O'Hare Corridor		
Meacham Road to IL 53 (Rohlwing Road)	4,400 feet	2 lanes [a]
Park Boulevard to Arlington Heights Road	2,200 feet	1 lane [a]
Arlington Heights Road to Prospect Avenue	1,700 feet	1 lane [a]
Mittel Boulevard to Wood Dale Road	1,800 feet	1 lane [a]
Wood Dale Road to Lively Boulevard	2,600 feet	2 lanes [a]
Lively Boulevard to IL 83 (Busse Road)	3,000 feet	2 lanes [a]
IL 83 (Busse Road) to Supreme Drive	1,600 feet	1 lane [b]
Supreme Drive to York Road	4,200 feet [a]	Two-way: 1 lane westbound; 1 lane eastbound

[a] One-way traffic pattern.
[b] Crosses under the Elgin-O'Hare Expressway and intersects West Bypass corridor frontage road.

2.3.2.6 Grade Separation

Roadway grade separations are another consideration in the development of road design. Design decisions pertaining to grade separation were made for the mainline being over or under crossing roads, as well as interchange ramps being over or under crossing roads. There are several key factors that influence the over-crossing road versus under-crossing road decision including:

- Drainage – Good drainage is an objective of every road design. The design of the road's vertical profile needs to consider the potential consequences to existing drainage patterns and avoid disruption to natural drainage flow when possible.
- Access Control – Without careful consideration of profile changes, access to adjacent properties can be obstructed by raising or lowering the roadway.
- Cost – In a cost constrained environment, the ability to construct a project that provides comparable service at lower cost is a benefit. The comparative costs of the over-crossing roads versus under-crossing roads decisions are important.
- Maintenance of Traffic (MOT) – Since the EO-WB project will be constructed under traffic, another key consideration will be the ability to build the improvements and maintain existing traffic flow. Often times, changes in profiles complicate MOT; thus, managing the profile changes, in the interest of achieving a workable MOT plan that reduces community impacts, has been an objective with each of these decisions.
- Community impacts – Consideration of profiles that avoid visual impairment and reduce noise impacts.

Figure 2-16 shows the results of the "over" crossing roads versus "under" crossing roads decisions. In more than 80 percent of the cases, the mainline or ramps would be over the crossing roads.

FIGURE 2-16
GRADE SEPARATION

The decision to go over or under the CP/UP railroad near the intersection of Devon Avenue and Elmhurst Road is dependent on the operational status of Runway 14R. Based on cost considerations, the preference would be to go over the railroad with a bridge. The OMP shows that Runway 14R will be decommissioned as the program advances; however, the runway is currently active and will remain so for an indefinite period. Airspace analyses shows that the roadway alignment is located in the RPZ for Runway 14R and a tunnel would be required under the railroad to avoid airspace violations if the road construction were in advance of the decommissioning of the runway. If the runway was decommissioned prior to road construction, then a bridge over the railroad would be acceptable.

At the west end of the Bensenville Yard, the mainline would cross in a depressed roadway section with railroad tracks bridged over. Coordination with the CP railroad has spanned over several years as it relates to the involvement of the Bensenville Yard. A MOU is being developed that carefully outlines every coordination point related to the yard. Among the many coordination points will be the sequencing of bridge construction and temporary track location during the roadway construction. For this work and other involvements of railroad property, the Illinois Tollway will carefully plan each element of work to avoid any impact on the yard operations (see subsection 3.4.2).

2.3.2.7 Drainage

Stormwater detention facilities, compensatory floodplain storage, and other best management practices will be constructed to compensate for the increased impervious surface, loss of floodplain, and enhance the water quality of roadway runoff.

The project corridor is located in a well-developed urban area and includes several creek crossings, regulatory floodplains, and a small number of reported flood prone areas in adjacent communities. The creeks that pass through the project corridor are degraded as a result of prior disturbance and urban runoff. As such, the conveyance, storage, and treatment of stormwater runoff associated with the proposed improvements are an interest to the resource agencies and various stakeholders.

Drainage facilities have been provided in terms of extent, type, and size to satisfy the requirements of the planned roadway facilities. The proposed stormwater conveyance system would maintain existing drainage patterns, where practicable, and would consist of storm sewers and vegetated ditches. In line detention will be provided at up to 60 locations. Losses in floodplain will be replaced with compensatory storage facilities at 12 locations throughout the project corridor to meet roadway needs and to minimize flooding (see Exhibit 2-12). The stormwater management facilities will follow the Illinois Tollway and IDOT drainage requirements for highway systems (IDOT, 2004; ISTHA, 2008). The FAA wildlife hazard safety requirements that constrain open water and vegetative types within five miles of O'Hare Airport and 10,000 feet from the Schaumburg Airport will be followed by both IDOT and the Illinois Tollway. Right-of-way requirements to accommodate these drainage facilities have been accounted for in the development of the footprint for the Build Alternative.

In addition to stormwater detention facilities, other best management practices would be used along the corridor to improve the quality of waters discharging to receiving waters or nearby wetlands. Since the Tier Two Draft EIS, a concept plan for best management practices has been prepared and is included as part of this document (see Appendix E). The concept plan defines the location of best management practices, describes the type of facility proposed, and assesses the overall effectiveness by watershed. This plan has been reviewed in coordination with the USACE, USFWS, USEPA, FAA, and IEPA. The agencies concurred with the concept plan in July 2012.

2.3.2.8 Other Transportation Components of the Build Alternative

Transit Facilities

The inclusion of transit opportunities as part of the Build Alternative was a priority for stakeholders. The Tier Two process focused on transit facilities that would be co-located in the roadway improvement corridors or logical extension from the corridors. The main transit feature is the preservation of space in the median of the east-west corridor (Elgin O'Hare corridor) from the western edge of O'Hare Airport to Schaumburg. The transit dedicated service in the median has considered and will accommodate either BRT or rail options. Both would have a dedicated right-of-way for their sole use, with the frequency of service appropriate to a dedicated BRT or rail transit operation. Five stations are planned in the median along the route including the proposed West Terminal at O'Hare Airport, near Wood Dale Road, Hamilton Lakes' Development, Roselle Road, and near the Schaumburg Metra station (see Exhibit 2-7). At each of the transit stations, accommodations for parking

and bicycle and pedestrian access would be provided (see Table 2-4). The parking requirements at the proposed West Terminal would be developed when more advanced site development information is known. A sixth station is possible at IL 53. The median width at IL 53 gives the option for future transit providers to locate either a station or dedicate bus ramps at IL 53, but not both. The ramps would provide bus connectivity to and from the planned route, north to Woodfield Mall. Alternatively, a station at IL 53 would require buses to leave the median in the vicinity of Park Boulevard (to the east) and maneuver via travel lanes to the mainline exit at IL 53. A similar maneuver would be required from the on-ramp at IL 53 to return to the median. The median preserves the option of either a station or the ramps at IL 53; however, the preferred option will be deferred to a future transit provider.

Transit considerations have also included the eventuality of a transit service in the I-90 corridor, and extending from the I-90 corridor along the north leg of the West Bypass corridor to the proposed West Terminal. The north leg of the bypass, in this case, has been located to provide sufficient space for a transit facility to be placed along the east side of the roadway. Transit along I-90, in the long-term, is planned to be commuter rail service as envisioned by the I-90 Transit Task Force and Corridor Planning Group. Other aspects of the plan include a bus express service connecting the proposed West Terminal with the Rosemont CTA Blue Line station. This service would be routed around the southern edge of the airfield along Irving Park Road (IL 19) to Rosemont's CTA Blue Line station. The proposed operation would be initiated as an interim service, connecting the west and east airfield until such time that the transit facilities would be extended across the airfield (i.e., extension of the CTA Blue Line from the main terminal core and extension of the People Mover).

Another bus express service would be extended from the median in the Elgin O'Hare corridor at IL 53 to the Woodfield Mall on the north. As described in subsection 2.1.2.4, the connectivity to IL 53 from the median would be provided by either dedicated bus ramps from the median to IL 53, or by a maneuver from the median at Park Boulevard to the mainline off-ramp at IL 53. Potential parking facilities would be available in the southeast quadrant of IL 53 and the Elgin O'Hare corridor, and would provide over 300 potential parking spaces.

A bus shuttle service would be provided from the Schaumburg Metra station to Hanover Park Metra station. This service would be aligned to the arrival and departure times of the BRT/rail transit at Schaumburg. The shuttle service would travel in mixed traffic along the Elgin-O'Hare Expressway to Lake Street and to the Hanover Park Metra station via Lake Street or Lake Street to Ontarioville Road.

TABLE 2-4
Transit Parking and Access

Location	Description	Parking Capacity	Pedestrian Access	Kiss & Ride Facility	Intersecting Service Stops
Schaumburg Metra	Re-build part of existing lot with two-level deck structure	630	Yes	Yes	Yes

TABLE 2-4
Transit Parking and Access

Location	Description	Parking Capacity	Pedestrian Access	Kiss & Ride Facility	Intersecting Service Stops
Roselle Road	New surface lots as part of new retail development	222	Yes	Yes	Yes
IL 53 (Rohlwing Road)	New surface lot	337	Yes	Yes	Yes [a]
Hamilton Lakes' Development/Park Boulevard	Partial use of new multi-level parking structure built as part of adjacent commercial development	532	Yes	Yes	Yes
Wood Dale Road	Partial use of new multi-level parking structure built as part of adjacent commercial development	293	Yes	Yes	Yes
West Terminal	Parking requirements will be determined as proposed West Terminal complex develops further	NA [b]	Yes	Yes	Yes

Note: Initial build parking capacity assumed to be 70 percent of complete Build Alternative parking capacity.

[a] No intersecting services operate at Meacham Road and the Elgin-O'Hare Expressway. Local circular services are proposed. When stop is re-located to Rohlwing Road with the complete Build Alternative, intersecting services would have stops at this location.

[b] Parking will be developed when more advanced site development information is known.

Bicycle and Pedestrian Facilities

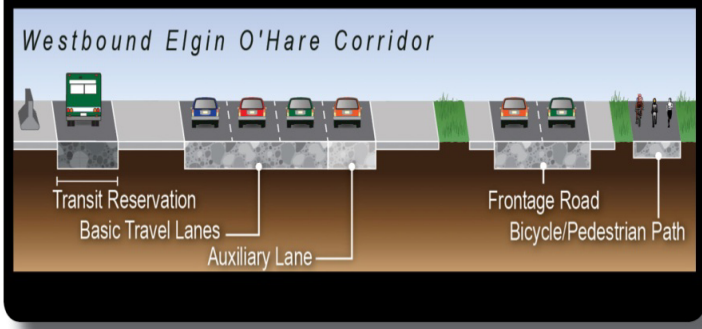
The planned bicycle and pedestrian facilities are shown in Exhibit 2-13. The elements of the plan are principally co-located in the project corridor; however, a few elements extend beyond the project limits to show system connectivity with other regional and local facilities. Bicycle and pedestrian facilities are planned within, adjacent, or crossing the planned roadway improvements (shown in pink in Exhibit 2-13). Other improvements (shown in purple in Exhibit 2-13) are the responsibility of others, and represent logical extensions of the project-related bicycle and pedestrian facilities that provide continuity in route or connection with other regional and local trails. The layout of these facilities has been fully coordinated with the Illinois Tollway, IDOT, community interests, and bicycle organizations (i.e., Active Transportation Alliance).

Features of the system concept plan include:

- 17.74 miles of side path within the Tier Two Build Alternative footprint.
- 3.61 miles of sidewalk within the Tier Two Build Alternative footprint.

The main feature of the planned bicycle and pedestrian facilities is a bidirectional side path (with a 10-foot cross-section set back at least five feet from the edge of the roadway) along the east-west corridor of the project extending from the west side of O'Hare Airport to Hanover Park (see Figure 2-17). The route is adjacent to the paralleling frontage road system, where provided.

FIGURE 2-17
BICYCLE AND PEDESTRIAN CROSS-SECTION



For the areas where a frontage road would not be provided (Wright Boulevard to Meacham Road/Medinah Road), alternate routes currently exist that connect to the planned east-west pedestrian and bicycle facilities to provide a continuous east-west route along the Elgin O'Hare corridor. The east-west bicycle and pedestrian path would provide connections to north-south regional and community trails in the area including the North DuPage Regional Trail, the Salt Creek Greenway Trail, and the Schaumburg community trail. This connectivity links places of interest such as the Ned Brown Forest Preserve, Metra stations, planned transit stations in the Elgin O'Hare corridor, employment centers, and community centers and facilities. Other aspects of the bicycle and pedestrian facilities include north-south connectivity that would be developed along York Road from Green Street to Touhy Avenue, and routed east to Mount Prospect Road connecting to a proposed regional trail at that point. Another leg of the north-south bicycle and pedestrian facilities will continue along Elmhurst Road from Touhy Avenue through the I-90 interchange to connect with Majewski Athletic Complex.

The other notable bicycle and pedestrian improvements include routes along Franklin Avenue/Green Street in Bensenville and Franklin Park, and the planned Taft Avenue improvement spanning the Bensenville Yard and connecting the south airfield of O'Hare Airport. These routes provide improved east-west access, improved access to the south side of the airport, and a new route crossing I-90.

There are 10 locations where the project corridor crosses major bicycle routes or state routes. In compliance with IDOT's "Complete Street's Policy" and to maintain existing regional paths, the planned roadway facilities would provide for bicycle/pedestrian improvements at the locations illustrated in Exhibit 2-13.

The EO-WB project has preserved the space for planned bicycle and pedestrian facilities. Details regarding cost and maintenance for proposed pedestrian and bicycle facilities within the Tier Two Build Alternative would be determined during future final design and in coordination with local jurisdictions.

Congestion Management Process Strategies

Congestion management process strategies have been applied to the EO-WB project, compliant with areas that are located in a Transportation Management Area (TMA). Within the TMA certification process, air quality management is a consideration. The combination of the project's improvements and strategies are compliant with the regional air quality conformity analysis, whereby it has been included and conformed to CMAP's *GO TO 2040 Comprehensive Regional Plan*. Further, a detailed air quality analysis contained in this document for the Build Alternative shows no violations for either carbon monoxide (CO) or particulate matter ($PM_{2.5}$) (where 2.5 indicates the micrometer size of the particulate) (see Section 3).

The EO-WB project has addressed congestion management through a cooperatively developed process that incorporates the use of TSM and TDM strategies to improve mobility and reduce congestion. One of the four principal purposes and needs of the project has been to reduce congestion in an area that currently exhibits congestion of 85 percent or greater during peak hour periods. The EO-WB project would measurably accommodate more traffic on mainline facilities, reduce the hours of delay on the mainline system, and would considerably reduce congestion on arterials and secondary roads that result in an overall reduction of congestion in the project area. The project has evolved as a multimodal solution, which incorporates transit and bicycle/pedestrian facilities. Transit either as a BRT or rail transit would effectively attract 30,000 riders per day. Bicycle and pedestrian facilities would improve connectivity to transit stations, employment centers, and activity centers in the project area.

In considering congestion management strategies, the EO-WB project has focused on opportunities for the implementation of TSM and TDM. TSM strategies focus on techniques designed to make transportation systems function more effectively, work more reliably, and operate more safely. The TSM strategies that can be implemented along the EO-WB project roadways include Intelligent Transportation System (ITS) and Active Traffic Management Systems (ATMS) applications such as variable message signage, closed-circuit TV cameras, electronic payment and pricing systems, ramp metering, and signal priority and signal preemption technologies.

On the other hand, TDM strategies are more broadly defined and focus on altering demand through changes to the characteristics that influence traffic patterns and travel decisions (e.g., travel mode, route, locations, and time of travel). The TDM strategies attempt to change travel behaviors by decreasing demand or distributing demand more evenly across all transportation facilities by raising awareness about travel options and encourage flexibility in travel decisions. The TDM strategies that can be implemented within the EO-WB project area include rideshare, carpool/vanpool, car sharing, bicycle travel services, and managed lanes. Within the managed lanes category, demand can be actively managed in response to changing conditions by varying pricing, vehicle eligibility, and access control. Employer-based strategies are another way to manage demand. Strategies such as variable work schedules, telecommuting, and employer shuttle services are currently deployed by many employers within the region, but these strategies can be expanded to other employment sites within the EO-WB project area.

The timeframe for implementing TSM and TDM would vary, some strategies may be more appropriate in the short-term because they are proven, whereas others may be deferred to the future given that they are still developing as established practices. The various strategies that are available are identified in Table 2-5. The Illinois Tollway and IDOT currently use many of the TSM technologies including variable message signs, automated license plate recognition, photo enforcement, ramp metering, signal preemption, etc. The techniques for TDM are less widespread by IDOT and the Illinois Tollway, but discussions have commenced on several practices including congestion pricing and managed lanes. These strategies support and foster motorized and non-motorized system of improvements. Separately and together, each TSM and TDM strategy would contribute to the effective management of the transportation system with increases in roadway efficiency and decreases in congestion and collisions. At this time, the approach to implementing TDM and

TSM practices is conceptual, and as the design details advance for transit, managed lanes, etc., the best mix of congestion management strategies will be better defined. In addition, the Illinois Tollway's new standard roadway cross-section provides flexibility for added capacity during peak hours without changes to the physical pavement width. Thus, the roadway cross-section avoids the premature pre-emption of future congestion management strategies and maintains the flexibility to accommodate most all congestion management strategies.

TABLE 2-5
TSM and TDM Strategies

Strategy	Description
TSM Strategy	
Variable Message Signage	An ITS application used to alert travelers of route conditions, alternate routes, construction activities, anticipated travel times and other information that will assist motorists in making travel decisions. Strategies can include real-time messaging, lane control signage, and variable speed displays.
Closed-Circuit TV Cameras/Detection Systems	An application used to detect and monitor traffic through cameras placed in key locations including automated license plate recognition technology.
Traffic Incident Management System	An ITS application that is a systematic, planned, and coordinated effort to detect, respond to, remove traffic incidents, and restore traffic capacity as safely and quickly as possible.
Photo Enforcement Cameras (Toll Violators)	An ITS application that uses photo images of vehicles moving through signalized intersections to capture and enforce traffic laws and reduce traffic incidents as a method of traffic management.
Ramp Metering	An ITS application that is the process of facilitating traffic flow by controlling the rate at which vehicles enter an access-controlled facility. Strategies include special-use ramp designations and metering at ramp junctions.
Interconnect Traffic Signals	An operational ITS technology that enables traffic signals to communicate with each other resulting in improved travel efficiency with minimum delay. Strategies include adaptive traffic signal control.
Signal Pre-Emption	An ITS technology that provides a travel time incentive through priority service opportunities within the coordinated operation of traffic signals.
Advanced Traveler Information Systems	An ITS application that communicates trip-related information and disseminates it to travelers, smart vehicles, various transportation operations including electronic payment and pricing systems for roadway use.

TABLE 2-5
TSM and TDM Strategies

Strategy	Description
TDM Strategy	
Managed Lanes	A technology, policy, and information-driven concept that offers operational flexibility through travel time incentive for a set of lanes that are proactively managed in response to changing conditions. Managed lanes are categorized into three main areas: pricing strategies, vehicle eligibility, and access management.

2.3.2.9 Sustainable Design

In the last decade, efforts have been made to embrace the practice of sustainable design solutions. The Brundtland Commission of the United Nations (1987) defines sustainability as "meeting the needs of the present generation without compromising the ability of future generations to meet their own needs."

The application of sustainable practices to our built environment has three intended purposes:

1. To reduce environmental impact,
2. to create social benefits for current and future generations, and
3. to realize short-term and long-term financial and operational benefits to the project.

In the Tier Two process, the application of sustainable practices started with the IDOT sustainable design manual, *I-LAST Illinois - Livable and Sustainable Transportation Rating System and Guide V 1.01* (IDOT, 2010b). Later in the process, the Governor's Advisory Council for the project developed another set of sustainable goals and recommendations that have been adopted. The Advisory Council's Sustainability Working Group strived to affect the incorporation of innovative ideas that went beyond traditional highway engineering and environmental considerations. Nine categories of sustainable practices were identified including: planning, design, environment, energy, water, materials and resources, construction, operations and maintenance, and users. For each category, broad and overarching goals were developed followed by recommendations that directed how those goals could be achieved. These recommendations, as well as the IDOT sustainable design manual, *I-LAST Illinois - Livable and Sustainable Transportation Rating System and Guide V 1.01*, are being used to advance the design of the proposed project. Examples of the recommendations include:

- Develop a philosophy of integrating sustainable practices throughout the process.
- Create a wetland mitigation plan that exceeds regulatory requirements.
- Incorporate at least two alternative energy strategies that exceed current practices.
- Obtain Leadership in Energy and Environmental Design (LEED) certification for any buildings that are constructed for the project.

- Use of bioswale/infiltration beds for improved water quality.
- Develop a pre, during, and post construction water quality monitoring program.
- Recycle reusable materials (i.e., asphalt, concrete, steel, etc.).
- Develop an incentive program for contractors to embrace sustainable measures.
- Develop new strategies for de-icing.
- Use of low sulfur fuels in construction equipment.
- Retain excess soils onsite to avoid the energy cost of hauling offsite.
- Use of drought tolerant plants for landscaping.
- Use of energy saving roadway lighting.

The implementation of sustainable design measures have been adopted into the culture of the Illinois Tollway and its business practices. These practices will be monitored by the Illinois Tollway and their "Corridor Manager" as the project advances through final design and construction, with the expectation that these practices are rigorously applied. Their incorporation will commence with final design for project elements. The design contractor will be required to identify potential sustainable opportunities, and as the design progresses (60 percent, 90 percent, and a 100 percent complete) reviews will be conducted to determine their success incorporating sustainable practices. As the project advances to construction, the same process will be applied to further the use of sustainable practices in the field. Research will be conducted on a regular basis to update the library of practices available to the Illinois Tollway.

2.3.2.10 Project Aesthetics

Aesthetic design provides a sense of place, arrival, and image for a transportation corridor. The EO-WB project has been named a "Corridor of the Future," by Governor Quinn's Advisory Council and part of that future is serving as a gateway to the area and communities that it serves. Thus, a component of the Tier Two process has been the consideration of aesthetic design features for the EO-WB project. To address these requirements, the project created a CAAT made up of representatives of each of the communities immediately adjacent to the planned improvements, as well as groups and agencies with an interest in the overall aesthetics of the corridor.

A series of workshops were held with the CAAT. The first workshop focused on corridor character. The CAAT members identified several key words to describe the current conditions or future vision for each section of the corridor. Some words, like "gateway" and "multimodal" were common to all sections. However, for the most part, the descriptors in the west and central sections were more rustic, including "quaint" and "prairie," while the north-south sections were more urban/industrial in nature such as "efficient," "aviation," and "economic engine." During the second CAAT meeting, the group selected an overall theme for the project. The group preferred a signature gateway theme, "Gateways to the Future," and featured a simple continuous palette of landscape and hardscape throughout the corridor. There were customized elements such as landscape and signage that could be

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.

FIGURE 2-18
CORRIDOR AESTHETICS ADVISORY TEAM ENHANCEMENT OPTIONS

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