

## **CHAPTER 9.0 - SECONDARY AND CUMULATIVE IMPACTS**

This chapter describes the potential secondary and cumulative impacts of the University Corridor project. The assessment was conducted in accordance with the Council on Environmental Quality (CEQ) and National Environmental Policy Act (NEPA).

The CEQ defines secondary or indirect impacts as those which are caused by the action and are later in time and farther removed in distance, but are still reasonably foreseeable. They may include growth induced effects and changes in the pattern of land use, population densities, or growth rates and related changes in air, water, or other natural resources and ecosystems. These effects may not necessarily be restricted to just the study area. In many cases, these indirect effects would occur outside of the project right-of-way. As to the cause and effect relationship between the project and the indirect effects, CEQ states that indirect effects may include induced changes to land use resulting in resource impacts [40 Code of Federal Regulations (CFR) 1508.8]. Other indirect effects include the potential alteration of or encroachment on the affected environment. Examples of this include fragmentation of a habitat and functional effects to water resources.

The CEQ regulations (40 CFR 1508.7) define cumulative impacts as the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.

Cumulative impacts include a project's direct and indirect impacts, as well as other actions not caused by the project, but when combined with the project, add to the overall impact, whether adverse or beneficial, on the environment. The objective of this analysis is to focus on key resource issues, potential impacts to these resources, and potential mitigation opportunities. A substantial cumulative impact on the environment means a substantial, or potentially substantial, adverse or beneficial change in any of the physical conditions within the area affected by the project that results from the compounded or incremental individual environmental impacts.

### **9.1 GENERAL METHODOLOGY**

This assessment of secondary and cumulative impacts has been conducted using guidance from the *Position Paper on Secondary and Cumulative Impact Assessment in the Highway Project Development Process* [Federal Highway Administration (FHWA), April 1992]. For secondary impacts, the assessment focuses on changes in both land use and the level of development that could occur as a result of the Build Alternative. The cumulative impacts assessment also identifies other development that is expected to occur regardless of whether the Build Alternative is constructed. Impacts to resources from the secondary impacts of the Build Alternative and other actions, including past, present, and future, have been identified and added to the direct impacts of the project to arrive at the total cumulative impact.

The National Cooperative Highway Research Program (NCHRP) Report 466, *Desk Reference for Estimating Indirect Effects of Proposed Transportation Projects* states that "development effects are most often found up to...one-half mile around a transit station."

The Build Alternative has the potential for producing secondary and cumulative effects. Secondary impacts would most likely occur in the areas around stations because of the improved access provided by the transit service and the increased pedestrian traffic in and around the station areas. Cumulative impacts could occur through the combination of the project's direct and secondary impacts, combined with other development in the corridor that is not directly dependent on the project.

## **9.2 RESOURCE IDENTIFICATION**

Because of the highly urbanized setting of the study area, no secondary and cumulative impacts to ecosystems are expected to occur as a result of the Build Alternatives. The few vacant or undeveloped lots that exist within the study area provide marginal wildlife habitat for common, threatened, or endangered species. No secondary and cumulative impacts on water resources, water quality, wetlands, vegetation, wildlife habitat, or endangered and threatened species are expected to occur under the Build Alternatives. Areas where redevelopment is occurring and would most likely occur are already developed or disturbed; therefore, no substantial changes in storm water runoff are expected that could degrade surface water or groundwater quality. Consequently, no bayous or rivers would be expected to incur secondary or cumulative impacts from the Build Alternatives.

The results of the regulated/hazardous material database search and field survey indicated 285 sites having the potential to be at risk for right-of-way acquisition and/or construction of the Build Alternative. Potential redevelopment near stations occurring as a secondary or cumulative impact of the Build Alternatives could result in encountering contaminated soils or groundwater during the construction of those prospective redevelopment projects. It would be the responsibility of the parties involved in those projects to address hazardous material impacts resulting directly from those actions or as otherwise prescribed by the applicable federal or state laws.

As discussed in Section 4.6, planned transportation improvements in the study area are intended to cumulatively reduce congestion on a regional scale, with a resultant decrease in air pollution. Private developments in the study area are generally non-industrial facilities, which would not produce large amounts of air emissions. Thus, the proposed actions may have a cumulatively beneficial impact on air quality. Impacts to air quality would be avoided and minimized by adherence to Environmental Protection Agency (EPA) and Texas Commission on Environmental Quality (TCEQ) regulations regarding air quality. For example, the CAAA requires each state to submit a State Implementation Plan (SIP) to the EPA to define strategies for transportation and industry and measures to reduce emissions to attain the National Ambient Air Quality Standard (NAAQS) for pollutant emissions.

## **9.3 SECONDARY EFFECTS**

Land use and potential secondary development at the station level has been analyzed for each station and is discussed in more detail in Section 5.2. The analysis distinguishes between development which would occur in the station areas because of proximity to downtown or major educational institutions and development, which can be attributed to the construction of the Build Alternative and the individual stations. In general, a transit station located nearby could result in the redevelopment of underutilized parcels and the utilization of undeveloped parcels in Segment I (Hillcroft Transit Center to Wesleyan). In Segment II, portions of the vacant properties near proposed station locations are currently being developed. With the addition of a transit station it is likely this trend would continue. Some existing properties are being redeveloped and a transit station could promote further

redevelopment and greater density mixed use. In Segment III (Main Street to Eastwood Transit Center), the Build Alternatives would likely result in increased densification around stations, due to the combination of access and the availability of undeveloped and underutilized parcels. Stations could also have positive impacts on current efforts to revitalize the Alameda corridor. Additionally, due to the availability of undeveloped land and a critical mass of tax delinquent properties, the stations could encourage and accelerate development of new housing along with small scale commercial/retail development.

A potential exists for the Build Alternative to cause secondary adverse impacts to historic properties and potential historic districts. This could occur through redevelopment at or near station areas that are adjacent to historic properties/districts. Such development could introduce new buildings of a scale and appearance that is out of character with the historic properties or could result in the demolition of historic-age buildings to accommodate the new development.

## **9.4 CUMULATIVE EFFECTS**

There are a number of actions that have been (or are likely to be) undertaken by Federal or non-Federal agencies and persons that, when combined with any of the proposed Build Alternatives, would have cumulative impacts on the environment. Table 1-2 lists the proposed transportation projects within the University Corridor study area and Sections 3.1.1.1 and 3.1.2.12 discusses projects and new development in the study area.

Under the No Build Alternative, minimal improvements in transportation choice, quality of life, and mobility would occur. In addition, the same overall regional market conditions and public policies would be expected under the No Build and Build Alternatives. The No Build Alternative would not directly change the existing character of neighborhoods and communities in the project area. As the neighborhoods of the University Corridor continue to experience increased development and redevelopment pressures, the No Build Alternative would not help to attract or guide development within the corridor. The social cohesion of the community could be disrupted if new development occurs in a patchwork fashion in the neighborhoods. The No Build Alternative would not help with mobility issues or decrease traffic congestion around such activity centers as the Uptown/Galleria, Greenway Plaza, Downtown, UH, TSU, or traffic congestion generated by new, denser development occurring in the corridor.

The Build Alternative, when considered as part of METRO's expanding fixed guideway system, would play an important role in expanding regional transportation choices and in improving regional quality of life, image, and overall mobility. The extent to which the Build Alternative attracts new growth or results in a redistribution of projected regional growth would depend on favorable market conditions and supportive public policies.

The project would also provide connections with other components of the existing and planned transit systems. This would cumulatively benefit transit users by increasing accessibility and also through possibly increasing the desirability of the project area for redevelopment. Accessibility is an important consideration in development decisions for various types of land use, including residential, office/retail, health and community services, and recreation facilities. Improved accessibility means that the University Corridor would become more attractive to business and residential investment, and the corridor would experience enhanced connectivity along the METRORail Red Line to Downtown, Texas

Medical Center, Reliant Park Complex, and future connections to other activity centers such as Northline Mall.

Within the corridor, the availability of vacant land, together with the planned development/redevelopment of portions of the study area (such as the Southwest Houston TIRZ), the increasing emphasis on higher density residential development in areas in and around downtown Houston, the possible expansions of TSU and UH, and the proximity of the METRORail Red Line on Main Street, all have the potential to effect generally positive change in this area. Overall, the greater access and mobility provided by the proposed University GRT are anticipated to support the existing land use and business activity within the existing community. The Build Alternative provides substantial investment in the community and could encourage new, positive social and economic opportunities for neighborhoods.

Gentrification is a process by which low-income and working class neighborhoods in the inner city are refurbished by an influx of private capital and middle-class homebuyers and renters. It is not a direct effect, but is instead a potential cumulative effect that results from a combination of past, present, and future actions of developers, individuals, and sometimes, governmental agencies. Gentrification can change the social make up of the community, its property values, and could also result in the loss of housing stock and commercial properties in the four National Register historic Properties-eligible historic districts within the study area. On the other hand, it could increase the value of properties. Gentrification is often perceived by long-time area residents as a negative impact to their sense of community, while others may view the property improvements, densification, and increases in the tax base as positive.

On the Main Street segment of the METRORail Red Line, gentrification has occurred in some neighborhoods. However, this trend was already in place prior to the initiation of planning for the METRORail Red line. The possibility exists that gentrification could also occur along the proposed University Corridor Build Alternative, specifically in the western and eastern ends of the project. When the proposed fixed guideway is combined with the existing and future real estate market and the existence of four institutions of higher learning, this could result in gentrification of the corridor neighborhoods, including the Third Ward neighborhood. Even without the GRT, the corridor is experiencing some present-day gentrification primarily related to the area's proximity to downtown and trend of people moving back into the city to reduce travel times and/or eliminate the need for a car. Developers have already expressed an interest in assembling property for multi-unit housing in the Third Ward area. This housing could accommodate students at UH and TSU, but also could be attractive to people who would like to live closer to downtown and/or feel that the adjacent transit line is an attractive amenity.

## **9.5 MITIGATION**

As discussed in Section 5.2.1, the City of Houston Planning Commission has established the Urban Corridor Committee to work on the development and adoption of an Urban Corridor Planning Initiative. The purpose is to develop ordinances to address urban development issues in a coordinated fashion reflecting the needs and desires of each respective urban location and enabling transit-oriented developments (TOD). The ordinances are intended to apply to specific high capacity transit corridors that would be constructed and implemented by Metropolitan Transit Authority of Harris County, Texas

(METRO). It is anticipated the approval and implementation of the TOD guidelines will coincide with the implementation of the planned METRO Solutions Corridors.

As part of the development of the METRO Solutions Plan, a Station Area Work Program has been developed to enhance future station area planning and transit-oriented development. The objective is to develop a set of tools for the use of the METRO Board of Directors in the enforcement of transit supportive land uses around METRO stations. The following are the steps for implementing a ten-step work program for the station-area planning effort:

- Document existing land uses around stations and determine what tools are available to encourage transit supportive land uses around stations.
- Determine the deficiencies that need to be addressed (development of TOD guidelines).
- Identify market conditions that would affect development of lands to be served by stations.
- Identify vacant and underutilized parcels that provide opportunities for transit-oriented uses.
- Identify station-specific market conditions and develop prototypes for each station.
- Conduct station visioning with developers and local communities consistent with market conditions.
- Conduct cost pro forma for prototypical visions and determine potential incentives.
- Prepare marketing materials for each station.
- Develop Board policy for the development of each station location.
- Adopt and enforce Board policy.

Implementation of these measures would help reduce potential adverse secondary and cumulative impacts.