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## 5.0 ECONOMIC IMPACT ANALYSIS

This section analyzes the effect of a fixed guideway system on the economic conditions of the Interstate 71 (I-71) Corridor. Section 5.1 describes the current economic conditions in the Cincinnati metropolitan area and the I-71 Corridor. Section 5.2 describes station area development and design considerations. Section 5.3 analyzes the regional economic effects of constructing a fixed guideway system and the potential for economic development within a ½-mile radius of the proposed stations. Section 5.4 summarizes the direct and indirect economic effects of each of the proposed alternatives. Section 5.5 describes potential measures to mitigate economic effects. Section 5.6 analyzes the environmental justice impacts related to the I-71 Corridor alternatives.

Much of the information regarding estimated employment and development mix was derived from the following reports: *Station Area Analysis for the I-71 Corridor LRT, Transit Oriented Development Opportunities*, Basile Baumann Prost & Associates, Inc., February 23, 2001; *I-71 Corridor Transportation Study – Purpose and Need Statement (First Draft)*, URS, June 25, 2001; and *Cincinnati I-71 Corridor Light Rail New Starts Submittal*, September 15, 2000.

### 5.1 ECONOMIC CONDITIONS

This section summarizes the economic character and development trends in the Greater Cincinnati metropolitan area and more specifically in the I-71 Corridor.

#### 5.1.1 EXISTING ECONOMIC ACTIVITIES AND DEVELOPMENT

##### 5.1.1.1 Regional

In the past 25 years, the metropolitan area of Cincinnati has experienced considerable growth and changes in employment, population, and development patterns. The employment pattern in the metropolitan area has shifted over the past few decades with a decline in manufacturing and rise in service sector employment, similar to the national trend. Manufacturing employment is expected to remain flat and even decline slightly over the next 50 years. Likewise, the largest employment gains over the next 50 years are expected in the service sector<sup>1</sup>.

Cincinnati enjoys a diverse economy and no one industry dominates the area. According to the Ohio Bureau of Employment Services (1999), the top four employment sectors in Greater Cincinnati include: Services (29.6 percent), Wholesale & Retail (25.3 percent), Manufacturing (16.4 percent), and Government (12.2 percent).

The I-71 Corridor encompasses portions of two states, two counties, and seventeen local jurisdictions. It is one of the most traveled corridors in the Cincinnati metropolitan area and serves nearly 25 percent of all vehicle trips within the Ohio-Kentucky-Indiana Regional Council of Governments (OKI) jurisdiction.<sup>2</sup> The I-71 Corridor, from Covington to Blue Ash, is highly-developed with a variety of land uses: offices and industry; major institutions including universities and medical centers; moderate to high density residential areas; cultural institutions; sports arenas; and parks. Thirty percent of the region's jobs are

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<sup>1</sup> *Greater Cincinnati's Target Industries*, Economics Research Group, Center for Economic Education, University of Cincinnati, September 17, 1996

<sup>2</sup> *I-71 Corridor Transportation Study – Purpose and Need Statement*, URS, June 25, 2001

located within the corridor. The 19-mile minimum operating segment (MOS) of the proposed I-71 Corridor Light Rail Transit (LRT) serves the region's three largest employment centers:

- *Downtown Cincinnati* – Cincinnati's central business district (CBD) is the largest traffic generator in the metropolitan area, as it is host to approximately 90,000 jobs and an increasingly popular residential market. Downtown is also the area's focus of culture, entertainment, and sports.
- *Uptown Cincinnati* – Is located a few miles north of the CBD. This area is the focus of higher education and medical services in the region. It is a densely developed area with over 50,000 employees. Its three anchor activity centers are the over 30,000-student University of Cincinnati campus, the multi-institution medical center campus, and the Cincinnati Zoo.
- *Blue Ash* – Is one of the region's largest suburban employment centers with a daytime employment population of over 50,000 (see Table 3.1.7). Blue Ash is currently in the midst of a development boom, and warehouse and light industrial facilities are being replaced by higher density office buildings.

### 5.1.1.2 Corridor

This section describes the general land use pattern around each proposed station site along the proposed I-71 Corridor LRT alignment, focusing on major economic generators and estimated redevelopment potential. The descriptions are arranged by planning segment, beginning at the southern end of the study area.

Figures 3.2-2a - 3.2-2u I-71 Corridor LRT Study Area Major Land Uses and Facilities, (see Chapter 3), depict the location of major economic generators near each proposed station site and are referenced in this chapter.

### Covington Segment

This segment includes three proposed station sites within close proximity to historic venues in the Mainstrasse district, the Cincinnati-Northern Kentucky International Airport and a redeveloping riverfront (See Figures 3.2-2a, 3.2-2b, and 3.2-2c). The Covington riverfront is transitioning from low-density commercial development to higher density residential, office and hospitality uses. Major development projects include:

- Northern Kentucky Convention Center
- RiverCenter – an office complex that features 850,000 square foot (sq.ft.) of class A office space and two hotels.
- Madison Place – a 15-story 291,000 sq.ft.office tower with four floors of upscale housing above.
- Covington Landing – a riverfront restaurant and entertainment center.

Estimated current (1995) employment within ½-mile of the three proposed station sites in this segment is 11,045<sup>3</sup>.

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<sup>3</sup> Source: Station Area Analysis for the I-71 Corridor LRT, Transit Oriented Development Opportunities, Basile Baumann Probst & Associates, Inc., February 23, 2001

*12<sup>th</sup> Street Station* – This proposed station site is located in an old industrial area adjacent to a fairly dense residential area. Industrial uses in the immediate vicinity consist of auto-oriented land uses, storage buildings, and warehouses.

12<sup>th</sup> Street is one of the few east-west arterials in Covington that provides planned direct access to I-71/I-75. The stretch of 12<sup>th</sup> Street between Madison Avenue and I-71/I-75 is to be widened. The commercial area near 12<sup>th</sup> Street and Madison Avenue consists of small, single-use establishments. There is also a number of vacant lots and parking lots in the area. The City of Covington is planning for a development mix around this proposed station that will be 50 percent residential and 50 percent commercial. This location offers potential for office development and commuter supportive retail.

*Pike Street Station* – This proposed station site is located between old warehouses and an older commercial district along Pike Street. Pike Street functions as a major gateway into Covington from I-71/I-75. The proposed station site is less than two blocks from the heart of the Madison Avenue commercial district and Covington City Hall. It is also within ½-mile of the center of the Mainstrasse Village at the intersection of Sixth Street and Main Street. Mainstrasse Village is a historic residential, shopping, and entertainment district. It is also the site of several major festivals that draw tens of thousands of visitors from throughout the region. The City of Covington is planning for a development mix around this proposed station that will be 40 percent residential and 60 percent commercial. The main development goals are to continue to recycle existing buildings and encourage infill development.

*Riverfront Station (Option A)* – The Covington riverfront area is targeted for major redevelopment, west to the City’s I-71/I-75 gateway. In recent years three new hotels have been built along the riverfront. The City is currently initiating the Riverfront West development project, which will consist of a mixed-use, higher-density development with high-rise office and residential buildings. The TANK Covington Transit Center is located less than ½-mile from the proposed station site. The City of Covington estimates that the development mix around this proposed station (same for Option B) will be 30 percent residential and 70 percent commercial. The area around this proposed aerial station site is currently dominated by large parking lots. The IRS regional office and processing center, a major employer, is located within a block of the proposed station site.

*Riverfront Station (Option B)* - This proposed at-grade station site is located about one block south of Option A and is similarly influenced by the ongoing riverfront redevelopment. The area around the proposed station site is dominated by auto-oriented uses, including fast food restaurants, gas stations, auto repair, liquor stores, and parking lots. This proposed station site is within ¼-mile of the heart of the Main Strasse Village.

## **Cincinnati Riverfront Segment**

The Cincinnati Riverfront segment runs parallel to the Ohio River and includes one proposed station, The Banks (see Figure 3.2-2d). The riverfront is currently undergoing major redevelopment following the complete reconstruction of Fort Washington Way, the segment of I-71 located between the CBD and the riverfront. Fort Washington Way, which re-opened in 2000, provides pedestrian connections between downtown and the riverfront. The Riverfront Transit Center, a SORTA bus facility intended to accommodate bus staging during special events at riverfront venues, is located below Second Street.

*The Banks* – The area around this proposed station site is currently experiencing significant redevelopment and new construction. The proposed station site is adjacent to “The Banks” – one of the largest riverfront redevelopment projects in the country and represents a major expansion of the Cincinnati CBD. It is intended to fully connect downtown with the Ohio River. Plans call for 900 to

1,300 residential units; 400,000 to 500,000 sq.ft. of retail and entertainment; 100,000 to 200,000 sq.ft. of offices; and a hotel with 200 to 400 rooms. One of the anchor attractions of The Banks is the National Underground Railroad Freedom Center, an \$85 million museum and research center commemorating the history and significance of the Underground Railroad.

The Banks development is located between two new stadiums. Paul Brown Stadium is a 65,000-seat football stadium and home of the Cincinnati Bengals. The Great American Ballpark is a 45,000-seat, baseball-only stadium and home of the Cincinnati Reds. Adjacent to the ballpark is the existing U.S. Bank Arena, a 16,000-seat indoor arena used for sports, show, and other events. A 36-acre riverfront park is also proposed in the area. The park will include a six-acre “great lawn” for festivals, a carousel, winter ice-skating and a marina.

### **Downtown Cincinnati Segment**

Downtown Cincinnati is a compact, pedestrian-oriented central business district that has successfully retained its role as the commercial, cultural, and symbolic heart of the metropolitan area. This segment includes two proposed stations, Government Square and Court Street (see Figure 3.2-2e and Figure 3.2-2f). Downtown Cincinnati has experienced a 12 percent growth in jobs in the past few years and currently provides 97,375<sup>4</sup> jobs within ½-mile of the four proposed stations in the downtown area (The Banks, Government Square, Court Street, Over-the-Rhine). Most of the job growth at this time has been accommodated through rehabilitation of Class B and C office buildings. Major office and employment generators in downtown Cincinnati include: Procter & Gamble, American Financial Corporation, Chiquita, Federated Department Stores, Western-Southern Life Insurance, the Kroger Company, and government offices and social services.

Downtown Cincinnati remains an important retail center, with two major department stores. Downtown Cincinnati continues to strengthen its position as the region’s cultural and entertainment hub with several major theaters and performing arts venues, museums, restaurants and nightclubs. Six major hotels are located downtown, most in proximity to the Cincinnati Convention Center. A major expansion of the Convention Center is planned by the end of the decade.

Downtown Cincinnati has also become an increasingly popular residential area. New housing is being provided through a mix of new construction and rehabilitation of older structures.

*Government Square* – This proposed station site is located in the midst of federal government offices with the U.S. Courthouse, the Federal Building, and the Federal Reserve Bank all located less than a block away. Procter & Gamble, one of the city’s major employers, and the city’s major cultural venues, including the Aronoff Center for the Arts, the Taft Theater, and the Contemporary Arts Center are located within ¼-mile of the proposed station site. The Cincinnati Convention Center is also located less than ½-mile from the proposed station site. The main feature of the proposed station site is SORTA’s main downtown bus facility and transfer location—the Government Square Transit Center. The transit center is currently being redesigned and will be completed in 2005. The design accommodates light rail.

The area around this station site is relatively built out, primarily with large government uses that are expected to remain in their current locations. With very little vacant or underutilized land or buildings in the immediate station area, new development and redevelopment opportunities will be limited.

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<sup>4</sup> Source: Station Area Analysis for the I-71 Corridor LRT, Transit Oriented Development Opportunities, Basile Baumann Probst & Associates, Inc., February 23, 2001

*Court Street* – This proposed station site is located next to Hamilton County government offices and services, including the Hamilton County Courthouse, the Hamilton County Justice Center, and the Cincinnati-Hamilton County Public Library. The surrounding area consists primarily of older, 3- and 4-story buildings with ground floor retail and housing and office space above.

### **Over-the-Rhine Segment**

This segment of the corridor is located at the northern edge of downtown (see Figure 3.2-2g). The area consists of a mix of office, commercial and residential uses within a fairly dense, pedestrian-scaled environment. Over-the-Rhine remains the city's most densely populated neighborhood. The area is characterized by its historic structures, some of which have been rehabilitated in recent years. Over-the-Rhine is located in Cincinnati's Empowerment Zone.

*Over-the-Rhine* – The area around the proposed station site consists of a mix of commercial, office and residential uses. On Main Street, many of the buildings have commercial space at the street level and housing and/or office space above. While there has been a substantial amount of building rehabilitation in the area, there are still many historic buildings that are either underutilized or vacant. Liberty Street, just to the north of the proposed station site is a busy east/west street.

In recent years, Main Street has been transformed into a restaurant and art gallery corridor. The Uptown Center for the Arts is located adjacent to the proposed station site. Another major attraction within ½-mile radius of the proposed station site is the planned Greater Cincinnati Arts and Education Center. This project will create an arts campus around Cincinnati's major performing arts facility, the historic 4,000-seat Music Hall. It will also include a relocated and expanded School for the Creative and Performing Arts.

### **Mount Auburn Tunnel Segment**

This is the only segment in the corridor where the alignment runs underground (see Figure 3.2-2h). The Mount Auburn neighborhood is one of the oldest residential areas in the region. Its landmark is the 3,000-employee Christ Hospital, a major regional medical facility that is currently undergoing a \$70 million expansion that will include a School of Nursing. One block from the hospital is the William Howard Taft Birthplace National Historic Site. Mount Auburn is located in Cincinnati's Empowerment Zone.

*Mount Auburn* – Access to this proposed station is located in a small park directly in front of Christ Hospital. The surrounding area is a fairly dense residential neighborhood with historic homes and apartments.

### **Uptown Segment**

This segment of the corridor is located in Uptown Cincinnati, which is the focus of higher education and medical services in the region (see Figure 3.2-2i through Figure 3.2-2k). It is a densely developed area with over 50,000 employees. Its three anchor activity centers are:

- University of Cincinnati - occupies a 137-acre campus with a student population of over 30,000, of which 90 percent are commuters.
- Medical Center Campus - this campus contains a variety of institutions including: University Medical Center; University of Cincinnati Colleges of Medicine, Nursing, Pharmacy and Allied Health Services; Children's Medical Center; Veterans Administration

(VA) Medical Center; Holmes Hospital; Shriner's Hospital Burn Institute; U.S. Environmental Protection Agency (EPA) Cincinnati regional center; and Kingsgate Hotel and Conference Center.

- Cincinnati Zoo and Botanical Gardens

*Uptown* – This proposed station site is located adjacent to the University of Cincinnati campus and is in close proximity to Shoemaker Center, a sports arena and special-events facility; Nippert Stadium; and Corbett Arts Center. These and other on-campus facilities draw hundreds of thousands of visitors to the area each year.

The proposed station site is within two blocks of the Corryville Business District on “Short Vine” Street, a university and neighborhood-oriented business district consisting of a mix of restaurants, bars, service, and retail establishments. The two blocks between Vine Street and Jefferson Street, where the proposed station site is located, are identified as a redevelopment area in the University of Cincinnati's Master Plan. The plan calls for a mixed-use development that will include underground parking and four to six stories of housing. University Plaza Shopping Center anchors the south end of Vine Street. Opportunities may exist to enhance or refocus this shopping center.

A second business district, Clifton Heights, borders the south side of campus and is within ½-mile of this proposed station site. This district also includes a mix of restaurants, bars, service and retail establishments, primarily oriented to the student population. It is also identified as a redevelopment area in the University's Master Plan. A \$150 million revitalization plan, focusing on higher density infill commercial development, has been sponsored by the Clifton Heights Community Redevelopment Corporation, a business and university organization. This plan calls for 125,000 to 140,000 sq.ft. of retail space, 150 to 200 housing units, student housing, and new parking areas.

*Zoo Station (Option A)* – This proposed station site is located adjacent to the main entrance to the Cincinnati Zoo. Much of the Medical Campus is within ½-mile radius of the proposed station site and the VA Medical Center is only about two blocks away. The Kingsgate Hotel and Conference Center and EPA offices are within ½-mile of this proposed station site. The remainder of the area near this proposed station site is predominantly residential.

*Medical Center Station (Option A)* – This proposed station site is located in the heart of the Medical Campus, directly in front of the Surgical Research Building and across the street from the Children's Medical Center. Recent or proposed new development in the area includes: The Ronald McDonald House, a family hotel; two multi-family developments; a 460,000 sq.ft. expansion of Children's Hospital; and a 112,000 sq.ft. research tower.

*Medical Center Station (Option B)* – This proposed station site is located at the south edge of the Medical Campus, off Martin Luther King, Jr. (MLK) Drive, directly in front of the University Medical Center. Major facilities within a ¼-mile of the proposed station site include: Vontz Center for Molecular Studies; Kingsgate Hotel and Conference Center; Shriner's Hospital – Burn Institute; and the Medical Arts Buildings. Much of the remainder of the Medical Campus is located within ½-mile of the proposed station site. In 2001, the hospitals operating in the Medical Campus together provided outpatient services to more than 800,000 patients.

The Uptown segment continues northeast from the Medical Campus along the Blue Ash line.

*Avondale Station (Option A)* - This proposed station site is located on a residential street at the east edge of the Medical Campus. About half of the Medical Campus is within ½-mile of the proposed station site. Temple Bible College is located across the street (Reading Road). The predominant surrounding land use is residential.

*Avondale Station (Option B)* – This proposed station site is located in the southeast corner of the Medical Campus adjacent to MLK Drive at its intersection with Reading Road. MLK is a major east-west thoroughfare. The proposed station site is currently used for parking. Potential redevelopment could occur next to the proposed station site.

## **Avondale to Norwood Segment**

This segment is centered along an existing railroad right-of-way, passing through residential, commercial, and industrial areas in Cincinnati (see Figure 3.2-2n).

*Xavier/Evanston* – This proposed station site is located near the east edge of Xavier University. The surrounding area consists of a mix of dense residential, commercial, and industrial land uses.

Xavier University has 3,250 full-time students and a total student population of 6,450<sup>5</sup>. Recent or pending University construction includes: Cintas Center, a 10,000-seat basketball arena and 30,000 sq.ft. conference center and a new dormitory adjacent to the proposed station site. The proposed station site is currently occupied by a large storage building, some or all of which would be removed for station construction. A four-story brick warehouse is located just to the north of the proposed station site. Surrounding land uses along Dana Avenue consist of smaller businesses.

Norwood Plaza, a strip shopping center is located within ½-mile of the proposed station site. Xavier University has indicated interest in the redevelopment of Norwood Plaza. Xavier is also working with Cincinnati and the Evanston neighborhood to support new retail development in the area. The Hamilton County Business Center incubator is located nearby.

*Norwood* – This proposed station site is located behind the Surrey Square shopping center. Construction of the proposed station would require removal of a small. This proposed station site is located across the street from Central Parke Shopping. It is within one block of several office buildings, banks, and fast food restaurants. The area south of the proposed station site consists of a dense, older residential neighborhood. Norwood City Hall is within ½-mile of the proposed station site. Employment within ½-mile of the proposed station sites in Norwood is estimated at 3,574<sup>6</sup>.

## **Norwood to Blue Ash Segment**

This is one of the longest segments in the corridor. It passes through a variety of residential, commercial, and recreational areas. Concentrations of commercial and industrial uses are located along Montgomery Road, Ridge Road, Plainfield Road, Blue Ash Road and Galbraith Road (see Figure 3.2-2o through Figure 3.2-2q).

*Ridge* – This proposed station site is located near the intersection of Ridge Avenue and Maple Leaf Avenue along the existing SORTA right-of-way. The area to the north, the Pleasant Ridge neighborhood

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<sup>5</sup> Ibid.

<sup>6</sup> Source: Station Area Analysis for the I-71 Corridor LRT, Transit Oriented Development Opportunities, Basile Baumann Probst & Associates, Inc., February 23, 2001

of the City of Cincinnati, is predominately residential. The proposed station site will include a park & ride lot on the site of an existing office structure.

The area south of the proposed station site features big-box commercial development, including various retail stores, fast food restaurants, auto-repair shops, and gas stations. Employment within ½ mile radius of this proposed station site is estimated at 2,260<sup>7</sup>.

*Silverton* – This proposed station site is located along Montgomery Road. A SORTA park & ride currently exists at this location. Commercial development along this segment of Montgomery Road varies from single-story multi-tenant office/commercial buildings to small clusters of traditional old buildings with commercial uses on the ground floor and apartments or office above. There is a gas station across the street from the proposed station site. Silverton Park, which includes the former Silverton train station, is located east of the proposed station site. The surrounding area consists of fairly dense residential development.

The commercial downtown of Silverton is centered around the intersection of Montgomery Road and Plainfield Road, about ¼-mile east of the proposed station site. Although existing commercial sites are small, there may be opportunities for redevelopment or infill on properties in the downtown or immediately adjacent to the proposed station site. Employment within ½-mile of this proposed station site is estimated at 912<sup>8</sup>.

*Galbraith Road* – This proposed station site is located at the intersection of Blue Ash Road and Galbraith Road at the northern edge of the City of Deer Park. The area around this intersection is characterized by older, underutilized commercial and industrial properties. There are several auto and truck repair shops, gas stations, and small manufacturing shops along Blue Ash Road and Galbraith Road. There are two electrical substations at this intersection. The surrounding area is primarily residential, consisting of a mix of older single and multi-family units.

## **Blue Ash Segment**

The City of Blue Ash is the metropolitan area's third largest employment concentration with approximately 50,000 jobs. It is in the midst of a development and redevelopment boom with high-density office developments replacing warehouses and light industrial facilities. The area is primarily suburban in character and contains numerous office complexes, subdivisions, and convenience retail. Some of the major employers in Blue Ash include Procter & Gamble, Johnson & Johnson Ethicon Endo Surgery, and the Raymond Walter College branch of the University of Cincinnati. (see Figure 3.2-2r through Figure 3.2-2u). With a substantial amount of developable land, Blue Ash will likely continue to grow as a major employment center in the region.

*Cooper* – This proposed station site is located less than two blocks from the center of downtown Blue Ash at the intersection of Cooper Road and Kenwood Road. The downtown area occupies several blocks and contains a mix of office, commercial, retail and service uses. The Crossings Shopping Center abuts the proposed station site to the east. While much of the downtown is fully developed, the City of Blue Ash has identified a redevelopment site near the intersection of Cooper Road and Kenwood Road. The City is also exploring increased densities in the downtown area as part of a current master planning process.

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<sup>7</sup> Source: Station Area Analysis for the I-71 Corridor LRT, Transit Oriented Development Opportunities, Basile Baumann Probst & Associates, Inc., February 23, 2001

<sup>8</sup> Ibid.

The City's Municipal and Safety Center and Recreation Center is located a little more than ½-mile from the proposed station site. There is an industrial/office park across Cooper Road from the Municipal Center. The area immediately west and north of the proposed station site is a residential neighborhood. Employment within ½-mile of this proposed station site is estimated at 2,639<sup>9</sup>.

*Pfeiffer* – This proposed station site is located at the intersection of Kenwood Road and Pfeiffer Road. The area around this proposed station site is transforming into a major Class A office node concentrated west of Kenwood Road. There are also two hotels (Embassy Suites and Courtyard Marriott) within ½-mile of the proposed station site.

It is anticipated that additional existing warehouse/manufacturing sites in the area will be redeveloped with more office uses, which could potentially provide for an additional 500,000 sq.ft. of office space in the area.

This proposed station site is within ½-mile of the Blue Ash Airport, which is slated for future reconfiguration. This would involve reallocation of airport acreage, subject to Federal Aviation Administration (FAA) approval. Airport plans indicate releasing up to 126 acres for non-airport development. Employment within ½-mile of this proposed station site is estimated at 3,705<sup>10</sup>.

*Reed Hartman* - This proposed station site is located at the intersection of Reed Hartman Highway and Osborne Boulevard (under construction). The proposed station site will be built on a site currently occupied by a large distribution center. The Terraces of Blue Ash, a 44-acre office/warehouse complex is currently under development on the south side of Osborne Boulevard, between Reed Hartman and Kenwood Road. Employment within ½-mile of both this proposed station site and the proposed Cornell Park site is estimated at 8,104<sup>11</sup>.

*Cornell Park* – This proposed station site is located behind several office and office/warehouse buildings in the Procter & Gamble Sharon Woods Technical Center. The proposed station site is located next to one of several Procter & Gamble office buildings in the area. Procter & Gamble is the largest employer in Blue Ash with a 2,700-employee base. There are several other office buildings and three hotels nearby.

It is anticipated that some of the existing warehouses in the area will be redeveloped, potentially providing for 250,000 to 750,000 sq.ft. of additional new office space.

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<sup>9</sup> Source: Station Area Analysis for the I-71 Corridor LRT, Transit Oriented Development Opportunities, Basile Baumann Probst & Associates, Inc., February 23, 2001

<sup>10</sup> Source: Station Area Analysis for the I-71 Corridor LRT, Transit Oriented Development Opportunities, Basile Baumann Probst & Associates, Inc., February 23, 2001

<sup>11</sup> Source: Station Area Analysis for the I-71 Corridor LRT, Transit Oriented Development Opportunities, Basile Baumann Probst & Associates, Inc., February 23, 2001

### 5.1.1.3 Empowerment Zone<sup>12</sup>

Approximately seven square miles in Cincinnati were designated as an Empowerment Zone by the U.S. Department of Housing and Urban Development. The zone includes a population of almost 50,000 and covers all or portions of nine existing neighborhoods: Avondale, Walnut Hills, Over-the-Rhine, Evanston, Mount Auburn, Corryville, Fairview-Clifton Heights, West End and Queensgate (see Figure 5.1-1).

The zone is an area that has experienced population loss, poverty, infant mortality and crime at a much higher rate than the Greater Cincinnati area as a whole. However, the zone also contains many assets and resources including pockets of new development and revitalization, unique historic structures, major institutions and an array of services. Many of the large institutions, including Children's Medical Center, Cincinnati Zoo, and University of Cincinnati, have recently completed or have plans for major construction activity in the zone. In addition, over \$81 million of investment has occurred or is planned by non-profit and private developers in Empowerment Zone neighborhoods, which includes a significant investment of city resources.

The proposed I-71 Corridor LRT alignment will run through the Empowerment Zone and is anticipated to help meet the commuting needs of people living in these neighborhoods. Proposed LRT stations are expected to create opportunities for economic development. Seven proposed LRT stations would serve the zone, including: Over-the-Rhine, Mount Auburn, University of Cincinnati, Zoo (Option A), Medical Center, Avondale, and Xavier/Evanston.

### 5.1.1.4 Enterprise Zone

In 1984 the Kentucky Enterprise Zone authority designated certain areas of Covington as an Enterprise Zone. The zone covers most of Covington from the Ohio River to south of I-275. The zone was created to provide tax incentives for a twenty-year period to encourage business formation and increase employment opportunities. Since 1984, more than 220 firms have become qualified to receive Covington Enterprise Zone benefits.

Available incentives include exemptions from sales tax on building materials, equipment and machinery, motor vehicle usage taxes, and abatement on net profit taxes and inventory taxes. The state also provides an income tax credit of up to \$1,500 per person for hiring from targeted work groups.

## 5.1.2 POPULATION AND EMPLOYMENT

This section illustrates the changes in population and employment for the OKI region and the I-71 Corridor. The I-71 Corridor is located in Kenton County, Kentucky and Hamilton County, Ohio.

### 5.1.2.1 Regional

Between 1980 and 2000, Kenton County, Kentucky, experienced a population increase of 10.5 percent. During the same time period, Hamilton County, Ohio, experienced a population decrease of 3.2 percent.

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<sup>12</sup> Descriptive information obtained from *Partners Building Pathways to Prosperity: Leaving No One Behind*, City of Cincinnati (Federal Urban Empowerment Zone application, October 9, 1998).

The population of the eight-county region is expected to continue to increase between 1995 and 2020 by 17.0 percent. In addition to the population of the eight-county region, the number of people employed in the region is expected to increase by 19.2 percent in the same time period, as shown in Table 5.1-2.

**Table 5.1-1: OKI Region Historic Population Trends**

County	Population 1980	Population 1990	Population 2000	Percentage Change		
				1980-1990 (%)	1990-2000 (%)	1980-2000 (%)
Boone	45,842	57,589	85,991	25.6	49.3	87.6
Butler	258,787	291,479	332,807	12.6	14.2	28.6
Campbell	83,317	86,866	88,616	0.6	5.7	6.4
Clermont	128,483	150,187	177,977	16.9	18.5	38.5
Dearborn	34,291	38,835	46,109	13.3	18.7	34.5
Hamilton	873,224	866,228	845,303	-0.8	-2.4	-3.2
Kenton	137,058	142,031	151,464	3.6	6.6	10.5
Warren	99,276	113,909	158,383	14.7	39.0	59.5
<b>TOTAL</b>	<b>1,660,278</b>	<b>1,744,124</b>	<b>1,886,650</b>	<b>5.1</b>	<b>8.2</b>	<b>13.6</b>

Source: U.S. Census Bureau

**Table 5.1-2: Regional Forecast Population and Employment for Year 2020**

	Base Year 1995	Forecast Year 2020	Percent Change
<b>Metropolitan Area</b>			
Total Population	1,851,200	2,166,000	17.0
Total Employment	942,700	1,123,700	19.2

Source: New Starts Data

### 5.1.2.2 Corridor

OKI estimates that employment within the corridor, using a half-mile radius from the center of the corridor, was 263,300 in 1995. Employment within the proposed corridor is projected to be 282,200 in 2020. This is a 7.2 percent increase. Total employment within the central business district is projected to increase by 18.2 percent between 1995 and 2020.

OKI estimates that the population within the corridor using a half-mile radius from the center of the corridor was 213,000 in 1995. Population within the corridor will be 198,900 in 2020. This is a decrease in the population of 6.6 percent between 1995 and 2020.

**Table 5.1-3: I-71 Corridor Forecast Population and Employment for Year 2020**

	<b>Base Year 1995</b>	<b>Forecast Year 2020</b>	<b>Percent Change</b>
<b>Central Business District</b>			
Total Employment	80,300	94,900	18.2
<b>Corridor</b>			
Total Population	213,000	198,900	-6.6
Total Employment	263,300	282,200	7.2

Source: New Starts Data

## **5.2 STATION AREA DEVELOPMENT**

This section describes the planning and development considerations relative to the proposed I-71 Corridor LRT system. It describes the parameters used in the analysis of economic impacts at the proposed station areas described in Section 5.1.1.2. It also describes design guidelines and other mitigation measures to be considered relative to station area development.

### **5.2.1 STATION AREA ECONOMIC IMPACT ASSESSMENT ZONES**

Impact assessment in this document is evaluated at two scales. The more immediate scale is defined as the station area directly related to the function of the rail line. This is referred to as the *station site*. The second scale is the larger planning area within the area of influence of the station. This is referred to here as the *station planning area*. The impact assessment zone for both scales varies for each station, depending on the characteristics of the specific station location.

#### **5.2.1.1 Station Site Assessment Zones**

The station site assessment zones include land area required for the station platform and structure, pedestrian access ways, loading, and park & ride areas. Included are areas for landscape and retention requirements and any structures necessary for the operation of the rail system.

The purpose of assessment at this scale is to evaluate the direct impacts of the proposed facilities so they may be disclosed in this document. The evaluation is limited to the boundaries established by the site plan requirements at each station based on the preliminary engineering drawings dated July 9, 2001. Site preparation and station facilities illustrated on the respective station site plans determine the direct costs of the system in terms of land acquisition and infrastructure improvements.

The land required for each station site varies according to the type and location of each station. Stations consist of platforms, shelters, ticket vending machines, parking, passenger pick-up and drop-off areas, sidewalks, lighting, security and landscaping features. Stations may be elevated, sub-surface or at-grade. Stations with park & ride lots require the most land. There are seven stations proposed to include park & ride lots, including: 12<sup>th</sup> Street, Xavier, Ridge, Silverton, Galbraith, Pfeiffer, and Cornell Park. The proposed Covington Riverfront (Option A) station is elevated and the proposed Mount Auburn station is located below ground.

### **5.2.1.2 Station Planning Area Assessment Zones**

The station planning area assessment zones include the area of influence around each station within which community planning issues, development and redevelopment opportunities and economic impacts may be assessed. The area of influence has been defined as the reasonable walking distance from which the station may be serviced on foot, which, in this case is determined to be a 1/2-mile radius around each station. The shape of the impact zone would be determined by the specific conditions at each site. The extent of the assessment zone would be affected by such considerations as barriers created by major roadways, boundaries of historical or environmental areas, natural features and community edges, and existing developments.

## **5.2.2 ECONOMIC IMPACT FACTORS**

The assessment of economic impact for each station depends on two primary factors.

### **5.2.2.1 Existing Land Use**

First is the amount and character of existing land uses within the assessment zone that is reasonable to consider for new development or for redevelopment. This includes undeveloped land, vacant properties, deteriorated or obsolete properties, uses with marginal current application and properties currently available on the market, including both private and public land holdings.

### **5.2.2.2 Development Market**

The second factor affecting the economic impact of each station area is the market for development at each site. The marketplace demand for development varies dramatically depending on the character of the surrounding community. The dynamics of the marketplace and development projections on the regional and corridor scale are taken into consideration when estimating this market demand. The presence of a transit station may be considered an amenity that enhances the marketability of the site, but it should not be considered as a factor that changes the basic market demand at that site. If the market were good, transit would be a benefit. If there were a limited market or none, a transit station would not change the development potential without intervention. If the demand for new development or redevelopment does not occur as the result of the activity of the real estate development process, it may be stimulated by a program of public incentives.

### **5.2.2.3 Other Factors**

In addition to these two primary criteria, there are other factors affecting station area development. Among these are the requirements of local jurisdictional plans and land development regulations. Some new development or redevelopment at station areas may require modification to local plans or zoning regulations. These factors are described in greater detail under Section 3.2 Land Use.

## **5.2.3 STATION AREA PLANNING AND DESIGN GUIDELINES**

The ability of LRT to work successfully as an element of the transportation system will depend in part, on gradual adjustments to the pattern of land use, especially near the LRT stations. A report entitled *Guidelines for Station Neighborhood Development* was prepared in September 2000 to help local governments maximize land development opportunities around the proposed rail transit stations in the I-

71 Corridor. This manual is intended to guide local officials and land developers when making investment decisions near LRT stations. The guidelines may be used to formulate detailed Station Neighborhood plans, review land development or rezoning applications, and prepare zoning ordinance amendments.

The Guidelines are intended to:

- Broaden the region's understanding of the relationship between land use and rail transit.
- Help create compact, attractive and sustainable development in the corridor.
- Provide a practical set of tools that can be used to create walkable, compact mixed- and multi-use communities.
- Promote transit ridership by increasing the share of regional development attracted to the vicinity of the stations.

There are three central principles of Transit Station Neighborhood development. These principles are intended to help boost I-71 Corridor light rail transit ridership, leverage private investment and build a sense of community. All of them work to provide an alternative to auto-oriented, low-density single land use pattern to one that is more compact and more oriented to the transit user, pedestrian and bicyclist.

These principles include:

- **Mixed and Compact Land Use** – Locate within easy walking distance of the station a compact mixture of land uses that generates ridership, promotes pedestrian activity and reduces dependence on the automobile.

Transit-supportive design clusters mixed- and multiple-use development within an easy walk of the station to promote system ridership and create a community focal point. Ideally, the pattern of development should be “fine-grained”. That is, apartments, townhouses, offices, shops and other land uses should be built in small groupings, sometimes in the same buildings, sometimes edge-to-edge, as opposed to the large, separated clusters typical of auto-oriented development.

Station Neighborhoods with a sufficient amount of housing, employment and shops designed according to these principles will generate both trip origins and destinations throughout the day, will be economically sustainable, will provide a sense of personal security and will make efficient use of community resources.

- **Enhanced Station Neighborhood Environment** – Create a station environment that is attractive, safe and orderly and creates an identifiable civic space for public activities.

Buildings, street edges and public open spaces should be designed to create interest and visual order, orient transit riders and communicate the size and character of the Station Neighborhood. Each Station Neighborhood should express a visual theme that is reinforced through signs, plantings, lighting, public art, street furnishings, banners and similar improvements. People will be encouraged to walk greater distances if they are comfortable with their surroundings, which these guidelines are intended to help accomplish.

- **Supportive Access Pattern** – Provide multiple and direct street connections to the light rail transit station and its immediate vicinity for pedestrians, bicyclists, autos and feeder buses.

A successful transit Station Neighborhood generates competition among autos, buses, bicyclists and pedestrians for access. Resolving these demands in a way that promotes use of the system and supports nearby business or housing is a difficult and important design consideration.

## **5.3 ECONOMIC EFFECTS**

This section describes the various economic consequences that may result from implementation of the transportation alternatives. First are the measurable direct and indirect economic effects related to construction, maintenance and operation of each alternative. These also include costs associated with potential property acquisition and subsequent tax base impacts. These impacts are discussed in Section 5.3.1 Property Acquisition, Displacement and Tax Base Impacts and Section 5.3.2 Capital and Operating Costs.

A benefit-cost analysis was conducted on three hypothetical transportation options, which are similar, but not identical to the alternatives described elsewhere in this document. The findings are summarized in Section 5.3.3 Benefit-Cost Analysis.

There are also less tangible economic effects related to long-term growth in population and employment and new development and redevelopment that might be attributed to the improvements associated with each of the alternatives. This assessment is not the result of application of an economic modeling technique, but is dependent on the judgments of planning and economic professionals. This assessment is discussed in Section 5.3.4 Development Potential.

### **5.3.1 TAX BASE IMPACTS**

This section summarizes the potential tax base impacts resulting from removal of private (taxable) property from the tax rolls and corresponding residential and commercial property displacement associated with each alternative. Tax base impacts are described in terms of the assessed value of private (taxable) property removed from the tax rolls to accommodate construction of station areas and trackway for each alternative.

The analysis examines the amount, location, and type of property that could potentially be acquired to accommodate construction of the proposed alternatives. It was assumed that all construction would be accomplished within the boundaries of the acquired property and easements or existing public right-of-way. Right-of-way acquisitions for roadway improvements including in the No-Build alternative were identified as part of that project's final design. Additional property needed to implement the TSM alternative will predominantly be associated with proposed new transit centers. Properties needed to construct the LRT alternatives were identified based on preliminary engineering for the various system components. LRT station site plans and track right-of-way boundaries were assumed to comprise the potential acquisition area.

#### **5.3.1.1 No-Build Alternative**

This alternative utilizes the existing transportation system and includes improvements currently programmed in the regional Transportation Improvement Program (TIP) for fiscal years 1998 through 2001. Because these roadway improvement projects have been completed, their impacts are accounted for as part of the existing environment. Subsequently, this alternative will not require acquisition of any

additional private property to expand the public right-of-way and should therefore not significantly impact the existing tax base or result in residential or commercial business displacements.

Future freeway widening projects will have impacts that must be analyzed in conjunction with those specific project plans.

### **5.3.1.2 TSM Alternative**

This alternative utilizes a variety of relative low-capital-cost improvements to the existing transportation system designed to improve transportation conditions in the I-71 Corridor. It would include major expansion of the current bus system, transportation demand management (TDM) programs such as carpooling and telecommuting, Intelligent Transportation Systems (ITS) (e.g. ARTIMIS), and traffic engineering improvements.

Bus expansion for the TSM alternative would include improved local and express service and the addition of transit centers where several bus routes would converge to facilitate transfers. It is assumed that many of these improvements can be achieved without acquiring additional private property to expand the public right-of-way, except to accommodate the proposed transit centers. Therefore, resulting impacts to the existing tax base should be minimal. Likewise, residential and/or commercial displacement is not anticipated to be significant on a regional basis.

Specific sites for the proposed transit center improvements have not been identified at this time, making it impossible to accurately determine property acquisition requirements. It is anticipated that some of the proposed transit centers will be located at proposed LRT station sites.

### **5.3.1.3 Build (LRT) Alternatives**

Four alternative alignments, representing slight variations on the proposed LRT route between Covington and Blue Ash are being considered in this report. The alternatives and their specific variations include:

- **Alternative 1:** (Covington Riverfront – at grade station; no Zoo station; Medical Center B station, Avondale B station)
- **Alternative 2:** (Covington Riverfront – above grade station; no Zoo station; Medical Center B station, Avondale B station)
- **Alternative 3:** (Covington Riverfront – at grade station; Zoo station; Medical Center A station, Avondale A station)
- **Alternative 4:** (Covington Riverfront – above grade station; Zoo station; Medical Center A station, Avondale A station)

Alternatives 1 and 2 include 20 stations and alternatives 3 and 4 include 21 stations (see Section 2, Figures 2.1-1 and 2.1-2). All of the stations are within established or developing portions of the Cincinnati metropolitan area. As a result, in many locations, station area construction would require removing buildings and displacing businesses and residents. In some cases, particularly public and railroad properties, permanent easements may need to be obtained if the property cannot, or need not, be acquired outright. In addition, temporary easements may be needed to accommodate anticipated construction and associated staging activities. However, until the system design is further refined, traffic control and access requirements cannot be clearly defined and are included in this report only as rough estimates.

Impacts in this section are evaluated for each *station site plan assessment zone* as defined in Section 5.2.1.A. Impacts are also evaluated for parcels that may be acquired for the proposed trackway and railyard areas. The assessed market value of the land and improvements on parcels to be acquired for each station site and track segment was compiled to identify potential impacts to the tax base. While assessed market values were compiled for affected public properties, tax-exempt properties were subtracted to determine the total value of taxable property impacted by this alternative. It should be noted that in keeping with local tax assessment policies, the total taxable value in Kenton County is based on 100 percent of the property market value whereas in Hamilton County is based on 35 percent of the market value. Market value information was derived from the most current information available (June 2001) through the Hamilton County Auditor's Office and Kenton County Property Valuation Administrator.

Tables 5.3.1 through 5.3.8 summarize the total taxable value of land that may need to be acquired for station sites, trackway and rail yards for the four alternatives. It was assumed that parcels impacted by the proposed LRT improvements would be acquired in whole, even if only a portion might be needed. The tables also summarize the number of dwelling units and non-residential buildings that could be displaced. Because information on specific business displacements is not readily available, the tally of non-residential buildings to be removed serves as proxy for business displacement impacts.

A comparison of tax base impacts of the four alternatives is shown below in Table 5.3.9. In summary, Alternative 1 would have the greatest impact on the tax base. It would result in the most land acquisition (5,664,000 sq.ft.), the highest amount of taxable property removed from the tax base (\$27.1 million), displacement of 205 residential dwelling units (same as Alternative 2), and removal of 86 non-residential buildings. On the other hand, Alternative 4 would have the least impact on the tax base. While potential land acquisition (5,633,100 sq.ft.) is higher than Alternatives 2 and 3, it would result in the least amount of taxable property removed from the tax base (\$21.2 million), displacement of 152 residential dwelling units (same as Alternative 3), and removal of 80 non-residential buildings.

The difference between the alternatives is relatively small. Overall, given the relatively small amount of property impacted by the proposed LRT improvements, the total impact on the tax base of the Cincinnati metropolitan area will be minor.

**Table 5.3.1: Station Area Property - Assessed Market And Taxable Value (Alternative 1)**

Station	Acquired Parcels (sq.ft.)	Market Value Land	# Bldgs (non-res)	# Bldgs (res)	Dwelling Units	Market Value Improvements	Total Assessed Market Value*	Total Tax Exempt	Total Taxable Value**	Land Use Types
12th Street	139,200	\$247,400	11	7	11	\$ 670,500	\$963,795	\$17,000	\$946,800	Commercial, warehouse, residential
Pike Street	50,690	\$58,000	5	0	0	\$318,000	\$394,800	\$15,500	\$379,300	Commercial, warehouse, residential
Riverfront (B)	107,390	\$995,000	4	0	0	\$908,000	\$1,998,150		\$1,998,200	Commercial
The Banks	0	-	0	0	0	0	\$0		-	Public ROW
Govt Square	0	-	0	0	0	-	\$0		-	Public ROW
Court Street	5000	\$354,350	0	0	0	-	\$389,785		\$136,430	Public ROW
Over-the-Rhine	81,425	\$181,100	5	1	12	\$462,280	\$707,718	\$211,180	\$173,810	Commercial/office, residential
Mt. Auburn	64,360	\$229,000	1	1	7	\$195,700	\$467,170		\$163,520	Residential, office
Uptown	31,985	\$672,400	0	0	0	-	\$739,640	\$672,400	\$23,555	Public ROW, institutional (open space)
Medical Ctr (B)	73,730	\$240,300	0	0	0	\$45,000	\$313,830	\$313,830	-	Parking lot
Avondale (B)	97,800	\$225,100	0	0	0	\$ 46,000	\$298,210	\$298,210	-	Parking lot
Xavier	15,070	\$85,000	1	-	0	\$452,700	\$591,470		\$207,025	Warehouse
Norwood	151,350	\$200,000	1	-	0	\$481,500	\$749,650		\$262,395	Commercial, retail
Ridge	394,130	\$643,300	3	-	0	\$2,812,700	\$3,801,600	\$3,162,400	\$223,720	Commercial, office
Silverton	166,880	\$320,100	2	5	34	\$1,071,600	\$1,530,870		\$535,815	Commercial, residential
Galbraith	207,780	\$621,000	15	1	1	\$1,210,700	\$2,014,870		\$705,215	Commercial, warehouse, residential,
Cooper	62,330	\$11,500	0	0	0	-	\$12,650		\$4,445	Public ROW
Pfeiffer	665,335	\$2,063,100	2	0	0	\$6,016,900	\$8,888,000		\$3,110,800	Industrial warehouse, commercial/retail
Reed-Hartman	88,335	\$214,250	1 (partial)	0	0	\$509,510	\$1,085,640		\$379,995	Industrial
Cornell Park	482,340	\$1,119,425	5	0	0	\$2,808,050	\$4,320,223		\$4,320,300	Office, industrial
<b>Total</b>	<b>2,885,200</b>	<b>\$ 8,480,400</b>	<b>56</b>	<b>15</b>	<b>65</b>	<b>\$18,009,140</b>	<b>\$29,268,071</b>	<b>\$4,690,520</b>	<b>\$13,571,325</b>	

Sources: Hamilton County Auditor's Office and Kenton County Property Valuation Administrator (data provided June 2001)

\*Notes: 1) Total Assessed Values in Kentucky include an increase of 5% in appraised market value. Total Assessed Values in Ohio include an increase of 10% in appraised market value, except Reed-Hartman, which was increased by 50%. These adjustments are an attempt to incorporate inflation from the 1999 and 2000 dates for the last general assessments done by Hamilton and Kenton County, respectively.

2) All parcels and buildings directly impacted by the proposed LRT improvements are considered full takes, except Reed-Hartman

\*\* Total Taxable Value in Kenton County reflects 100% of total market value and in Hamilton County it reflects 35% of total market value.

**Table 5.3.2: Station Area Property - Assessed Market And Taxable Value (Alternative 2)**

Station	Acquired Parcels (sq.ft.)	Market Value Land	# Bldgs (non-res)	# Bldgs (res)	Dwelling Units	Market Value Improvements	Total Assessed Market Value*	Total Tax Exempt	Total Taxable Value**	Land Use Types
12th Street	139,200	\$247,401	11	7	11	\$670,500	\$963,796	\$17,000	\$946,800	Commercial, warehouse, residential
Pike Street	50,690	\$58,000	5	0	0	\$318,000	\$394,800	\$15,500	\$379,300	Commercial, warehouse, residential
Riverfront (A)	42,500	\$384,000	1	0	0	\$337,000	\$757,050		\$757,100	Commercial/retail
The Banks	0	-	0	0	0	0	-	-	-	Public ROW
Govt Square	0	-	0	0	0	-	-	-	-	Public ROW
Court Street	5000	\$354,354	0	0	0	-	\$389,789		\$136,430	Public ROW
Over-the- Rhine	81,425	\$181,100	5	1	12	\$462,280	\$707,718	\$211,180	\$173,810	Commercial/office, residential
Mt. Auburn	64,360	\$229,000	1	1	7	\$195,700	\$467,170		\$163,520	Residential, office
Uptown	31,985	\$672,400	0	0	0	-	\$739,640	\$672,400	\$23,555	Public ROW, institutional (open space)
Medical Ctr (B)	73,730	\$240,300	0	0	0	\$45,000	\$313,830	\$313,830	-	Parking lot
Avondale (B)	97,805	\$225,100	0	0	0	\$46,000	\$298,210	\$298,210	-	Parking lot
Xavier	15,070	\$85,000	1	-	0	\$452,700	\$591,470		\$207,025	Warehouse
Norwood	151,350	\$200,000	1	-	0	\$481,500	\$817,800		\$286,230	Commercial retail
Ridge	394,130	\$643,300	3	-	0	\$2,812,700	\$3,801,600	\$3,162,400	\$223,720	Commercial, office
Silverton	166,880	\$320,100	2	5	34	\$1,071,600	\$1,530,870		\$535,815	Commercial, residential
Galbraith	207,780	\$621,000	15	1	1	\$1,210,700	\$2,198,040		\$769,335	Commercial, warehouse, residential
Cooper	62,330	\$11,500	0	0	0	-	\$12,650		\$4,445	Public ROW
Pfeiffer	665,335	\$2,063,100	2	0	0	\$6,016,900	\$8,888,000		\$3,110,800	Industrial warehouse, commercial/retail
Reed- Hartman	88,335	\$214,250	1 (partial)	0	0	\$509,515	\$1,085,648		\$379,995	Industrial
Cornell Park	482,340	\$1,119,425	5	0	0	\$2,808,050	\$4,320,223		\$1,512,105	Office, industrial
<b>Total</b>	<b>2,820,300</b>	<b>\$7,869,400</b>	<b>53</b>	<b>15</b>	<b>65</b>	<b>\$17,438,145</b>	<b>\$28,278,303</b>	<b>\$4,690,520</b>	<b>\$9,609,985</b>	

Sources: Hamilton County Auditor's Office and Kenton County Property Valuation Administrator (data provided June 2001)

\*Notes: 1) Total Assessed Values in Kentucky include an increase of 5% in appraised market value. Total Assessed Values in Ohio include an increase of 10% in appraised market value, except Reed-Hartman, which was increased by 50%. These adjustments are an attempt to incorporate inflation from the 1999 and 2000 dates for the last general assessments done by Hamilton and Kenton County, respectively.

2) All parcels and buildings directly impacted by the proposed LRT improvements are considered full takes, except Reed-Hartman.

\*\* Total Taxable Value in Kenton County reflects 100% of total market value and in Hamilton County it reflects 35% of total market value.

**Table 5.3.3: Station Area Property - Assessed Market And Taxable Value (Alternative 3)**

Station	Acquired Parcels (sq.ft.)	Market Value Land	# Bldgs (non-res)	# Bldgs (res)	Dwelling Units	Market Value Improvements	Total Assessed Market Value*	Total Tax Exempt	Total Taxable Value**	Land Use Types
12th Street	139,208	\$247,401	11	7	11	\$670,500	\$963,796	\$17,000	\$946,800	Commercial, warehouse, residential
Pike Street	50,690	\$58,000	5	0	0	\$318,000	\$394,800	\$15,500	\$379,300	Commercial, warehouse, residential
Riverfront (B)	107,394	\$995,000	4	0	0	\$908,000	\$1,998,150		\$1,998,200	Commercial
The Banks	0	-	0	0	0	0	-		-	Public ROW
Govt Square	0	-	0	0	0	-	-		-	Public ROW
Court Street	5000	\$354,354	0	0	0	-	\$389,789		\$136,430	Public ROW
Over-the-Rhine	81,425	\$181,100	5	1	12	\$462,280	\$707,718	\$211,180	\$173,810	Commercial/office, residential
Mt. Auburn	64,364	\$229,000	1	1	7	\$195,700	\$467,170		\$163,520	Residential, office
Uptown	31,985	\$672,400	0	0	0	-	\$739,640	\$672,400	\$23,555	Public ROW, institutional (open space)
Zoo	66,659	\$250,800	0	5	9	\$387,700	\$702,350		\$245,840	Residential
Medical Ctr (A)	68,029	\$884,750	0	0	0	-	\$973,225	\$973,225	-	Medical open space
Avondale (A)	50,617	\$64,100	0	6	5	\$373,700	\$481,580		\$168,560	Residential
Xavier	15,072	\$85,000	1	-	0	\$452,700	\$591,470		\$207,025	Warehouse
Norwood	151,350	\$200,000	1	-	0	\$481,500	\$749,650		\$262,395	Commercial, retail
Ridge	394,131	\$643,300	3	-	0	\$2,812,700	\$3,801,600	\$3,162,400	\$223,720	Commercial, office
Silverton	166,878	\$320,100	2	5	34	\$1,071,600	\$1,530,870		\$585,815	Commercial, residential
Galbraith	207,781	\$621,000	15	1	1	\$1,210,700	\$2,014,870		\$705,215	Commercial, warehouse, residential
Cooper	62,330	\$11,500	0	0	0	-	\$12,650		\$4,445	Public ROW
Pfeiffer	665,335	\$2,063,100	2	0	0	\$6,016,900	\$8,888,000		\$3,110,800	Industrial warehouse, commercial/retail
Reed-Hartman	88,335	\$214,250	1 (partial)	0	0	\$509,515	\$1,085,648		\$379,995	Industrial
Cornell Park	482,340	\$1,119,425	5	0	0	\$2,808,050	\$4,320,223		\$1,512,105	Office, industrial
<b>Total</b>	<b>2,899,000</b>	<b>\$9,214,600</b>	<b>56</b>	<b>26</b>	<b>79</b>	<b>\$18,679,545</b>	<b>\$30,813,198</b>	<b>\$5,051,705</b>	<b>\$11,177,530</b>	

Sources: Hamilton County Auditor's Office and Kenton County Property Valuation Administrator (data provided June 2001)

\*Notes: 1) Total Assessed Values in Kentucky include an increase of 5% in appraised market value. Total Assessed Values in Ohio include an increase of 10% in appraised market value, except Reed-Hartman, which was increased by 50%. These adjustments are an attempt to incorporate inflation from the 1999 and 2000 dates for the last general assessments done by Hamilton and Kenton County, respectively.

2) All parcels and buildings directly impacted by the proposed LRT improvements are considered full takes, except Reed-Hartman

\*\* Total Taxable Value in Kenton County reflects 100% of total market value and in Hamilton County it reflects 35% of total market value.

**Table 5.3.4: Station Area Property - Assessed Market And Taxable Value (Alternative 4)**

Station	Acquired Parcels (sq.ft.)	Market Value Land	# Bldgs (non-res)	# Bldgs (res)	Dwelling Units	Market Value Improvements	Total Assessed Market Value*	Total Tax Exempt	Total Taxable Value**	Land Use Types
12th Street	139,200	\$247,401	11	7	11	\$670,500	\$963,796	\$17,000	\$946,800	Commercial, warehouse, residential
Pike Street	50,690	\$58,000	5	0	0	\$452,400	\$535,920	\$15,500	\$520,500	Commercial, warehouse, residential
Riverfront (A)	42,500	\$384,000	1	0	0	\$337,000	\$757,050		\$757,100	Commercial
The Banks	0	-	0	0	0	0	-		-	Public ROW
Govt Square	0	-	0	0	0	-	-		-	Public ROW
Court Street	5000	\$354,354	0	0	0	-	\$389,789		\$136,430	Public ROW
Over-the-Rhine	81,425	\$181,100	5	1	12	\$462,280	\$707,718	\$211,180	\$173,810	Commercial/office, residential
Mt. Auburn	64,360	\$229,000	1	1	7	\$195,700	\$467,170		\$163,520	Residential, office
Uptown	31,985	\$672,400	0	0	0	-	\$739,640	\$672,400	\$23,555	Public ROW, institutional (open space)
Zoo	66,660	\$250,800	0	5	9	\$387,700	\$702,350		\$245,840	Residential
Medical Ctr (A)	68,030	\$884,750	0	0	0	-	\$973,225	\$973,225	-	Medical open space
Avondale (A)	50,620	\$64,100	0	6	5	\$373,700	\$481,580		\$168,560	Residential
Xavier	15,070	\$85,000	1	-	0	\$452,700	\$591,470		\$207,025	Warehouse
Norwood	151,350	\$200,000	1	-	0	\$481,500	\$749,650		\$262,395	Commercial, retail
Ridge	394,130	\$643,300	3	-	0	\$2,812,700	\$3,801,600	\$3,162,400	\$223,720	Commercial, office
Silverton	166,880	\$320,100	2	5	34	\$1,071,600	\$1,530,870		\$535,815	Commercial, residential
Galbraith	207,780	\$621,000	15	1	1	\$1,210,700	\$2,014,870		\$705,215	Commercial warehouse, residential
Cooper	62,330	\$11,500	0	0	0	-	\$12,650		\$4,445	Public ROW
Pfeifer	665,335	\$2,063,100	2	0	0	\$6,016,900	\$8,888,000		\$3,110,800	Industrial warehouse, commercial/retail
Reed-Hartman	88,335	\$214,250	1 (partial)	0	0	\$509,515	\$1,085,648		\$379,995	Industrial
Cornell Park	482,340	\$1,119,425	5	0	0	\$2,808,050	\$4,320,223		\$1,512,105	Office, industrial
<b>Total</b>	<b>2,834,100</b>	<b>\$8,603,600</b>	<b>53</b>	<b>26</b>	<b>79</b>	<b>\$18,242,945</b>	<b>\$29,713,218</b>	<b>\$5,051,705</b>	<b>\$10,077,630</b>	

Sources: Hamilton County Auditor's Office and Kenton County Property Valuation Administrator (data provided June 2001)

\*Notes: 1) Total Assessed Values in Kentucky include an increase of 5% in appraised market value. Total Assessed Values in Ohio include an increase of 10% in appraised market value, except Reed-Hartman, which was increased by 50%. These adjustments are an attempt to incorporate inflation from the 1999 and 2000 dates for the last general assessments done by Hamilton and Kenton County, respectively.

2) All parcels and buildings directly impacted by the proposed LRT improvements are considered full takes, except Reed-Hartman.

\*\* Total Taxable Value in Kenton County reflects 100% of total market value and in Hamilton County it reflects 35% of total market value.

**Table 5.3.5: Trackway Property - Assessed Market And Taxable Value (Alternative 1)**

Segments	Acquired Parcels (sq.ft.)	# Bldgs (non-res)	# Bldgs (res)	Dwelling Units	Total Assessed Market Value*	Total Tax Exempt	Total Taxable Value***	Land Use Types
Covington	186,000	3	5	5	\$3,530,000	\$75,000	\$3,455,000	Residential, commercial
Ohio River Crossing	92,000	1	0	0	\$360,000	-	\$360,000	Industrial
Cincinnati Riverfront**	0	0	0	0	\$2,000,000	\$2,000,000	-	Public ROW, industrial
Downtown Cincinnati	5,000	0	0	0	\$395,000		\$138,250	Public ROW
Over-the Rhine	57,000	5	9	15	\$640,000		\$224,000	Residential, commercial
Mount Auburn Tunnel	80,000	0	0	0	\$495,000		\$173,250	Commercial, residential
Uptown	214,000	5	18	97	\$3,820,000	\$74,000	\$1,311,100	Commercial, office, residential
Avondale to Norwood	1,108,000	1	7	7	\$9,800,000		\$3,430,000	Residential, commercial
Norwood to Blue Ash	35,000	0	0	0	\$1,600,000	-	\$560,000	Public ROW, residential, commercial, industry
Blue Ash	507,000	4	0	0	\$8,050,000	-	\$2,817,500	Commercial, office
Yard & Shop	495,000	11	3	16	\$3,000,000	-	\$1,050,000	Industrial, residential, warehouse
<b>Total</b>	<b>2,779,000</b>	<b>30</b>	<b>42</b>	<b>140</b>	<b>\$33,690,000</b>	<b>\$2,149,000</b>	<b>\$13,519,100</b>	

Sources: Hamilton County Auditors Office and Kenton County Property Valuation Administrator, (data provided June 2001)

\*Note: Total Assessed Values in Kentucky include an increase of 5% in appraised market value. Total Assessed Values in Ohio include an increase of 10% in appraised market value. These adjustments are an attempt to incorporate inflation from the 1999 and 2000 dates for the last general assessments done by Hamilton and Kenton County respectively

\*\* Cincinnati Riverfront includes allowance of \$2,000,000 for relocation or modification of Bengal's Practice fields.

\*\*\* Total Taxable Value in Kenton County reflects 100% of total market value and in Hamilton County it reflects 35% of total market value.

**Table 5.3.6: Trackway Property - Assessed Market And Taxable Value (Alternative 2)**

Segments	Acquired Parcels (sq.ft.)	# Bldgs (non-res)	# Bldgs (res)	Dwelling Units	Total Assessed Market Value*	Total Tax Exempt	Total Taxable Value***	Land Use Types
Covington	118,000	2	5	5	\$2,120,000	\$75,000	\$2,045,000	Residential, commercial
Ohio River Crossing	92,000	1	0	0	\$360,000	-	\$360,000	Industrial
Cincinnati Riverfront**	0	0	0	0	\$2,000,000	\$2,000,000	-	Public ROW, industrial
Downtown Cincinnati	5,000	0	0	0	\$395,000		\$138,250	Public ROW
Over-the Rhine	57,000	5	9	15	\$640,000		\$224,000	Residential, commercial
Mount Auburn Tunnel	80,000	0	0	0	\$495,000		\$173,250	Commercial, residential
Uptown	214,000	5	18	97	\$3,820,000	\$74,000	\$1,311,100	Commercial, office, residential
Avondale to Norwood	1,108,000	1	7	7	\$9,800,000		\$3,430,000	Residential, commercial
Norwood to Blue Ash	35,000	0	0	0	\$1,600,000	-	\$560,000	Public ROW, residential, commercial, industrial
Blue Ash	507,000	4	0	0	\$8,050,000	-	\$2,817,500	Commercial, office
Yard & Shop	495,000	11	3	16	\$3,000,000	-	\$1,050,000	Industrial, residential, warehouse
<b>Total</b>	<b>2,711,000</b>	<b>29</b>	<b>42</b>	<b>140</b>	<b>\$34,085,000</b>	<b>\$2,149,000</b>	<b>\$12,109,100</b>	

Sources: Hamilton County Auditors Office and Kenton County Property Valuation Administrator, (data provided June 2001)

\*Note: Total Assessed Values in Kentucky include an increase of 5% in appraised market value. Total Assessed Values in Ohio include an increase of 10% in appraised market value. These adjustments are an attempt to incorporate inflation from the 1999 and 2000 dates for the last general assessments done by Hamilton and Kenton County respectively

\*\* Cincinnati Riverfront includes allowance of \$2,000,000 for relocation or modification of Bengal's Practice fields.

\*\*\* Total Taxable Value in Kenton County reflects 100% of total market value and in Hamilton County it reflects 35% of total market value.

**Table 5.3.7: Trackway Property - Assessed Market And Taxable Value (Alternative 3)**

Segments	Acquired Parcels (sq.ft.)	# Bldgs (non-res)	# Bldgs (res)	Dwelling Units	Total Assessed Market Value*	Total Tax Exempt	Total Taxable Value***	Land Use Types
Covington	118,000	3	5	5	\$3,530,000	\$75,000	\$3,455,000	Residential, commercial
Ohio River Crossing	92,000	1	0	0	\$360,000	-	\$360,000	Industrial
Cincinnati Riverfront**	0	0	0	0	\$2,000,000	\$2,000,000	-	Public ROW, industrial
Downtown Cincinnati	5,000	0	0	0	\$395,000		\$138,250	Public ROW
Over-the Rhine	57,000	5	9	15	\$640,000		\$224,000	Residential, commercial
Mount Auburn Tunnel	80,000	0	2	7	\$495,000		\$173,250	Commercial, residential
Uptown	234,000	3	3	23	\$4,000,000	\$3,115,000	\$309,750	Commercial, office, residential
Avondale to Norwood	1,108,000	1	7	7	\$9,800,000		\$3,430,000	Residential, commercial
Norwood to Blue Ash	35,000	0	0	0	\$1,600,000	-	\$560,000	Public ROW, residential, commercial, industrial
Blue Ash	507,000	4	0	0	\$8,050,000	-	\$2,817,500	Commercial, office
Yard & Shop	495,000	11	3	16	\$3,000,000	-	\$1,050,000	Industrial, residential, warehouse
<b>Total</b>	<b>2,731,000</b>	<b>28</b>	<b>29</b>	<b>73</b>	<b>\$34,085,000</b>	<b>\$5,190,000</b>	<b>\$12,517,750</b>	

Sources: Hamilton County Auditors Office and Kenton County Property Valuation Administrator, (data provided June 2001)

\*Note: Total Assessed Values in Kentucky include an increase of 5% in appraised market value. Total Assessed Values in Ohio include an increase of 10% in appraised market value, These adjustments are an attempt to incorporate inflation from the 1999 and 2000 dates for the last general assessments done by Hamilton and Kenton County respectively

\*\* Cincinnati Riverfront includes allowance of \$2,000,000 for relocation or modification of Bengal's Practice fields.

\*\*\* Total Taxable Value in Kenton County reflects 100% of total market value and in Hamilton County it reflects 35% of total market value.

**Table 5.3.8: Trackway Property - Assessed Market And Taxable Value (Alternative 4)**

Segments	Acquired Parcels (sq.ft.)	# Bldgs (non-res)	# Bldgs (res)	Dwelling Units	Total Assessed Market Value*	Total Tax Exempt	Total Taxable Value***	Land Use Types
Covington	186,000	2	5	5	\$2,120,000	\$75,000	\$2,045,000	Residential, commercial
Ohio River Crossing	92,000	1	0	0	\$360,000	-	\$360,000	Industrial
Cincinnati Riverfront**	0	0	0	0	\$2,000,000	\$2,000,000	-	Public ROW, industrial
Downtown Cincinnati	5,000	0	0	0	\$ 395,000	-	\$138,250	Public ROW
Over-the Rhine	57,000	5	9	15	\$640,000	-	\$224,000	Residential, cCommercial
Mount Auburn Tunnel	80,000	0	2	7	\$495,000	-	\$173,250	Commercial, residential
Uptown	234,000	3	3	23	\$4,000,000	\$3,115,000	\$309,750	Commercial, office, residential
Avondale to Norwood	1,108,000	1	7	7	\$9,800,000	-	\$3,430,000	Residential, commercial
Norwood to Blue Ash	35,000	0	0	0	\$1,600,000	-	\$560,000	Public ROW, residential, commercial, industrial
Blue Ash	507,000	4	0	0	\$8,050,000	-	\$2,817,500	Commercial, office
Yard & Shop	495,000	11	3	16	\$3,000,000	-	\$1,050,000	Industrial, residential, w arehouse
<b>Total</b>	<b>2,799,000</b>	<b>27</b>	<b>29</b>	<b>73</b>	<b>\$34,085,000</b>	<b>\$5,190,000</b>	<b>\$11,107,750</b>	

Sources: Hamilton County Auditors Office and Kenton County Property Valuation Administrator, (data provided June 2001)

\*Note: Total Assessed Values in Kentucky include an increase of 5% in appraised market value. Total Assessed Values in Ohio include an increase of 10% in appraised market value,

These adjustments are an attempt to incorporate inflation from the 1999 and 2000 dates for the last general assessments done by Hamilton and Kenton County respectively

\*\* Cincinnati Riverfront includes allowance of \$2,000,000 for relocation or modification of Bengal's Practice fields.

\*\*\* Total Taxable Value in Kenton County reflects 100% of total market value and in Hamilton County it reflects 35% of total market value.

**Table 5.3.9: Summary of Tax Base Impacts of only LRT Alternatives**

Alternative	Assessed Value Lost* (million \$)	Land to be Acquired (sq.ft.)	Building Removal		
			Non-Residential	Residential	Dwelling Units
LRT – 1	27.1	5,664,200	86	57	205
LRT – 2	21.7	5,531,300	82	57	205
LRT – 3	23.7	5,630,000	84	55	152
LRT – 4	21.2	5,633,100	80	55	152

Sources: Hamilton County Auditor's Office, Kenton County Property Valuation Administrator (data provided June 2001), URS Corporation preliminary engineering drawings (dated 7/9/01).

\*Assessed value lost includes taxable value of property that will potentially be acquired for station area, trackway and yard/shop improvements and thereby removed from tax rolls.

### 5.3.2 BENEFIT-COST ANALYSIS

This section summarizes the findings of a benefit-cost analysis of the I-71 Corridor transportation alternatives. It was developed by the Metropolitan Mobility Alliance, a committee of OKI, in 2001. LRT and TSM were compared with a hypothetical highway widening (capacity) option.

The study considered five principal categories of benefit, including:

1. Congestion management (including delay, vehicle operating costs, safety and environmental factors);
2. Affordable mobility;
3. Community development benefits;
4. Infrastructure cost savings (including avoidance in downstream infrastructure expenditures); and
5. Macro-economic effects, such as the creation of new employment and associated personal and business income.

The analysis only includes “new” benefits and costs that are distinct from “transferred” benefits and costs. New development that is expected to occur as a result of existing plans, policies and economic conditions, is not described as a direct benefit. The analysis also identified the TSM Alternative as a “base case” from which costs and benefits of the other alternatives were measured against. As such, the analysis does not specify any “new” benefits or costs for the TSM Alternative.

In addition, a risk analysis was conducted to assess the range of uncertainty of the outcomes. For each benefit factor, a mean benefit value was determined and values representing a 90 percent probability of exceeding, and a 10 percent probability of exceeding, the benefit value were also identified.

### **5.3.2.1 Highway Capacity Option**

#### **Benefits**

Direct benefits associated with the highway capacity option are exclusively in the form of congestion management. Benefits would result from reduced delays and vehicle operating costs, less environmental pollution and reduced accidents.

Benefits derived from the construction of additional lane capacity would be greatest immediately after construction is completed and new lanes are opened for travel. Travel times return to pre-widening levels by the end of seven years and would match the level inherent in the current trend by the end of 12 years. The benefits of adding lanes on I-71 are \$1,365.2 million in present-day value (2001 dollars) over the 30-year life of the project (2008-2037). Present-day values were calculated based on a four percent discount rate.

#### **Costs**

The estimated the cost of widening I-71 is \$70 million per mile based on data. Using a four percent discount rate, the present-day (2001) value of total costs is \$1,209.1 million.

#### **Benefit-Cost Analysis**

The benefits of adding lanes on I-71 should exceed costs by \$156 million in present-day (2001) value, over the 30-year life of the project (2008-2037).

### **5.3.2.2 TSM Alternative**

#### **Benefits**

The report assumed that the improvements described in the TSM alternative would occur regardless of decisions about the other alternatives. This alternative is, therefore, referred to as the “base case”. The base case represents the benchmark that the benefits and costs of the other alternatives are measured against. While there may be benefits associated with this alternative, they were not considered “new” and therefore, were not analyzed.

#### **Costs**

Costs associated with the TSM alternative primarily consist of new buses and transit center facility improvements. Other costs include the potential displacement of homes and businesses, primarily to accommodate proposed transit center facilities. Many of these improvements can be achieved without acquiring additional private property to expand the public right-of-way, except to accommodate the proposed transit centers. However, specific sites for these centers have not been identified yet, making it difficult to determine private property impacts.

#### **Benefit-Cost Analysis**

Because the study defined this alternative as the “base case”, a benefit-cost analysis of the TSM alternative was not conducted.

### 5.3.2.3 LRT Alternative

Benefits and costs of this alternative are described in terms of the time frame 2008-2037, representing the first 30-years of operation.

#### Benefits

Benefits derived from the LRT alternative are described in terms of congestion management, affordable mobility and community development benefits. Benefits may also be realized through infrastructure cost savings.

##### Congestion Management

The benefits of congestion management are generally measured in terms of travel time and travel cost savings. Improvements in travel time are compared between highway and rail users to arrive at an average commute time. Travel cost savings are measured in terms of savings in vehicle operating costs (fuel, maintenance, insurance, etc.), safety savings gained through reduced accidents, and environmental cost savings due to decreased vehicle emissions.

In the absence of LRT, commuter door-to-door travel time by car in the I-71 Corridor will increase by 20 minutes in the next 19 years. This represents a 50 percent increase over current commuter travel times. With light rail in operation, initially, average door-to-door travel time by car would be faster than by rail because some people will switch from driving to using rail, thereby reducing congestion on the highway. However, the average door-to-door travel time for both rail and highway equals out by the end of six years as commuters shift between driving and using rail to find the quickest and least expensive travel mode.

By 2020 the commute from Blue Ash to downtown Cincinnati will average 59 minutes in the absence of LRT. If LRT is provided, the average commute time would be 50 minutes. This would add up to about one full week of time for the average I-71 commuter over the course of a year. That would translate into a savings of about \$360 per year in auto operating expenses (in constant 2001 dollars) and \$1,127 a year in the economic value of delay savings.

Environmental cost savings, based on a reduction in vehicle miles traveled and speed improvements throughout the highway network, are expected to reach \$72 million by 2037. In addition, reduced accidents would save the region over \$100 million in outlays on emergency services, healthcare expenditures and compensation.

Adding all the projected cost savings from the factors described above, the present value of congestion management savings over 30 years (2008-37) could amount to \$1,153 million in 2001 dollars.

##### Affordable Mobility

Mobility-related benefits of transit are measured in terms of the availability of a more affordable transportation mode and the resource savings as a result of people being able to travel to centralized points of service delivery rather than receive home-based care, which tends to be more expensive.

More than half of the projected 34,000 daily LRT passengers (average expected ridership over the first 30 years) earn less than \$20,000 annually and do not have regular use of a car. Low-income households without cars rely heavily on buses and expensive taxis for transportation. Low-income households with

cars may spend a disproportionate amount of their income on vehicle operating expenses. In the first year of operation (2008), LRT in the I-71 Corridor is expected to result in savings of \$990 per household. Such savings could rise to \$1,127 per household (in constant 2000 dollars) in 2020 with total mobility benefits valued at \$323 million (in present-day value, 2001 dollars) over the first 30 years of LRT operation.

### Community Development Benefits

Community development benefits are primarily associated with the value people place on living in more walkable and less automobile-dependent communities. The 21 LRT stations in the I-71 corridor would generate \$354 million in community development benefits over 30 years (in present-day value). This represents an average gain of \$1,092 per household and \$22,409 per commercial property within a half-mile of an LRT station over the 30-year life of the LRT project.

The potential for LRT induced development around each proposed LRT station location is described under Section 5.3.4.

### Infrastructure Cost Savings

Building LRT could result in a reduction of vehicle miles traveled in the region. This might result in infrastructure cost savings by reducing the need to construct additional parking facilities and other automobile-oriented municipal public works such as road construction and repair. The infrastructure savings over 30 years might reach \$109 million (present-value over 30 years, in constant 2001 dollars).

## **Costs**

Costs associated with the LRT option include capital expenses for the acquisition of right-of-way, construction, purchase of vehicles and equipment, and annual expenses for operation and maintenance of the system. Total capital costs are comprised of eight components:

- guideway
- stations
- systems
- special conditions
- right-of-way
- yards and shops
- vehicles
- add-on costs

To account for estimating uncertainty a probability distribution was determined for each component. The distribution parameters included a median estimate, the ten percent upper limit and the ten percent lower limit. The present-day value (2001 dollars) of total capital costs would reach \$779 million (mean), with a ten percent probability of exceeding \$879 million and a ten percent probability that total costs would fall below \$690 million.

Annual operating and maintenance costs were estimated to be \$18 million (mean, in 1999 dollars), with a 10 percent upper limit value of \$20.5 million and a ten percent lower limit of \$16.6 million. Over the estimated 30-year life of the project, total operating and maintenance costs are expected to reach a mean value of \$264.7 million in present-day value (2001 dollars). There is a ten percent probability that total

operating and maintenance costs will exceed \$301.6 million and a 90 percent probability that costs will exceed \$237.3 million.

The total cost (mean) of the LRT Option to be \$1,043.7 million (present-day value, 2001 dollars), with a 90 percent probability of exceeding \$950.9 million and a ten percent probability of exceeding \$1,162.5 million.

### **Benefit-Cost Analysis**

A benefit-cost analysis of the LRT option relative to the TSM (“base case”) option was conducted. The present-day value of benefits of the LRT option are expected to exceed the present-day value of its costs by \$786.6 million over the 30-year life span of the project (2008-2037). This represents an average annual rate of return on the investment of 8.1 percent. This is more than double the four percent rate required to consider the project economically worthwhile for the Cincinnati region.

### **5.3.3 DEVELOPMENT POTENTIAL**

This section describes the potential for new development and redevelopment that may be attributed to the transportation alternatives. Development decisions are affected by the availability of land, the nature of the development market in specific locations and the availability of infrastructure needed to support new development. Other factors include the historic pattern of growth and development in the community, the acceptability of specific development proposals, and the policies and regulations contained in local comprehensive plans and ordinances.

#### **5.3.3.1 No-Build Alternative**

Land development and redevelopment will likely occur along with changes in population and employment consistent with previous forecasts from regional, county, and local units of government. Because this alternative will not create concentrations of users (e.g. commuters) in specific locations, such as occurs around transit centers or stations, it is assumed that existing development patterns and local market trends will not be greatly influenced by this alternative. However, to the extent that this alternative reduces work-trip travel times, some additional growth may occur in suburban and rural locations. It should also be noted that current plans are underway for development projects that will benefit from the improvements planned as part of this alternative

#### **5.3.3.2 TSM Alternative**

Local bus service on city streets generally has minimal effect on land use, development, or property values because ridership is not concentrated at stations, and because the lack of a fixed guideway and stations fosters a perception among property developers and investors that bus service could change at any time. Development of transit centers could, however, result in a concentration of riders much like occurs around LRT stations. As noted above, some of the proposed transit centers may be located in conjunction with proposed LRT stations, however, specific locations have not been identified. As a result of concentrated ridership, some new development may occur in the immediate vicinity of a transit center.

Outside of proposed transit centers, land development and redevelopment will likely occur along with changes in population and employment consistent with previous forecasts and plans from regional, county, and local units of government. No significant redevelopment or new development is anticipated to occur as a direct result of implementation of this alternative, although some additional growth may occur in locations served by improved bus transit, particularly around proposed transit centers. Similarly,

to the extent that this alternative reduces work-trip travel times, some additional growth may occur in suburban and rural locations.

### 5.3.3.3 Build (LRT) Alternatives

The introduction of rail can provide a boost to land development opportunities near stations if there is a strong investment climate and if public plans, regulations and policies are in place. Transit station area development can increase system ridership, help create interesting, sustainable neighborhoods or districts, help guide regional growth and broaden the range of choices in travel, housing, and shopping. In regions of the country that have favorable market conditions, high levels of transit ridership, and supportive public policies, considerable development has occurred near transit stations. In other locations, the lack of those elements has hindered such development.

The benefit-cost analysis included an assessment of the potential for transit-oriented development (TOD) surrounding each proposed transit station along the I-71 LRT corridor.<sup>13</sup> The TOD review is based on review of available community plans, zoning, field observations and real estate market conditions. Information was gathered through a series of interviews with key leaders and local development representatives as well as field surveys of proposed station areas. The evaluation of the potential for TOD is limited to the *station planning area assessment zone*, as described in Section 5.2.1.B, which includes the area within a one-half mile radius of each proposed LRT station.

The evaluation was conducted on two levels. First, the 21 stations were ranked according to their development potential based on eleven critical success factors. Second, forecasts were made of the amount of new office and multi-family development that would occur with or without the proposed LRT. The results of this evaluation are described below.

### Development Potential Ranking

There are eleven key factors that influence the degree of concentrated development occurring at transit stations. The factors are based on attributes of progressive TOD programs throughout the U.S. Each of the transit areas was qualitatively evaluated and ranked against these critical success factors for TOD opportunities. The factors include:

1. **Strong market.** Properties in the transit station area are selling well and have high absorption rates and healthy lease rates.
2. **System plans.** The transit station will be either an elevated platform, an at-grade station and/or a park & ride lot.
3. **Type of development.** The investment program in the transit station area is characterized as either greenfield (undeveloped land), downtown (urban area, more transit oriented), suburban (non-urban area, less transit oriented), big box retail (concentration of large retail stores with large parking lots), campus (cluster of commercial buildings), redevelopment (reinvestment of existing structures) or medical center (cluster of medical buildings) reflecting existing available development assets and potential investment restrictions.
4. **Accessibility** (pedestrian, auto, transit). The transit station is convenient and easy to travel to for a variety of modes, including pedestrians, bicycles, automobiles and other transit.

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<sup>13</sup> Their assessment is described in the report: *Station Area Analysis for the I-71 Corridor LRT: Transit Oriented Development Opportunities*, February 23, 2001, Basile Baumann Prost & Associates, Inc.

5. **Probability of residential development.** The transit station area has the capacity to attract residential development.
6. **Probability of commercial development.** The transit station area has the capacity to attract commercial development.
7. **TOD supportive zoning.** The transit station area has transit-oriented zoning, which encourages increased development densities, endorses mixed-use development reduces parking requirements and is pedestrian friendly.
8. **Available land for TOD.** The transit station area has property available for development or redevelopment.
9. **Major attractions.** The transit station area is proximate to major attractors that create a destination for riders.
10. **Public sector investment/support.** The transit station area has public sector support and ongoing or proposed public sector investment in place to support operations (such as infrastructure).
11. **Private sector investment support.** The transit station area has private sector support and ongoing or proposed private development projects in place, which will support TOD.

The results of this preliminary assessment and ranking of the development potential at each of the proposed stations are shown on Table 5.3.10. In comparing the four alignments, there are only slight differences in ranking, which reflects the relative similarity of the alternatives. As shown in Table 5.3.11, Alternatives 1 and 2 include more stations with higher rankings than Alternatives 3 and 4. This appears to be primarily due to the difference in ranking between Medical Center (Option A) and Medical Center (Option B) station sites. Option A is ranked medium (M) and Option B is ranked medium-high (M-H) overall. This difference accounts for the very limited area for new development around Option A, which is located in the center of a highly developed medical complex. Option B, on the other hand, is located closer to the edge of the medical complex in a location with surface parking lots and an adjacent residential area proposed for redevelopment.

There is no difference in ranking between Alternatives 1 and 2 or between Alternatives 3 and 4. This suggests that whether the proposed Covington Riverfront station is elevated (Option A) or at grade (Option B) will not significantly affect development potential in the station area.

**Table 5.3.10: Critical Success Factor Ranking for I-71 LRT Corridor Station Areas**

Station	System Plans	Type of Area	Access	Strong Market	Residential Development	Commercial Development	TOD Supportive Zoning	Available Land for TOD Development	Major Attractions	Public Sector Investment Support	Private Sector Investment Support	Grade	Score
12 <sup>th</sup> St.	PNR	Redevelopment	P, A	M	M	M	M	M	M	M	M	M	1.150
Pike St.		Urban	P, T, A	M	M	M	H	M	M	M	M	M	1.150
Covington Riverfront (A)	Elevated	Redevelopment	P, T, A	H	H	H	M	H	H	H	H	H	1.300
Covington Riverfront (B)	@ Grade	Redevelopment	P, T, A	H	H	H	H	H	H	H	H	H	1.300
The Banks		Redevelopment	P, T, A	H	H	H	H	H	H	H	H	H	1.300
Govt. Square		CBD	P, T	M	L	M	M	L	H	M	M	M-L	1.075
Court Street		CBD	P, T	M	H	M	M	M	H	M	L	M	1.150
Over-the-Rhine		Redevelopment	P, T	H	H	H	H	M	H	H	M	M-H	1.225
Mt. Auburn		Campus/ Medical Center	P, T	M	M	M	M	L	M	H	H	M	1.150
University of Cinti.		Campus	P, T	H	H	H	H	M	H	H	H	H	1.300
Zoo		Attractor	P, T	M	L	L	M	L	H	M	M	M-L	1.075
Medical Center (A)		Medical Center	P, A	M	L	L	M	L	H	H	H	M	1.150
Medical Center (B)		Medical Center	P, A	H	M	L	M	M	H	H	H	M-H	1.225
Avondale (A)		Redevelopment	P, A	L	M	M	M	L	M	M	M	M-L	1.075
Avondale (B)		Medical Center	P, T, A	L	M	M	M	M	M	M	M	M-L	1.075
Xavier	PNR	Campus	P, A	M	H	M	M	M	H	M	M	M	1.150
Norwood		Redevelopment	P, A	M	M	H	M	H	M	M	L	M	1.150
Ridge	PNR	Big Box	A	L	M	M	L	M	M	M	M	M-L	1.075
Silverton	PNR	Older Suburb/ Downtown	P, T, A	M	M	M	H	M	L	M	M	M	1.150
Galbraith	PNR	Older Suburb	P, A	L	L	L	M	M	L	M	L	L	1.000
Cooper		Older Suburb/ Downtown	P, A	H	M	M	H	M	M	H	H	M-H	1.225
Pfeiffer	PNR	Redevelopment	A	H	L	H	M	H	H	H	H	M-H	1.225
Reed Hartman		Greenfield	A	H	L	H	M	H	H	H	H	M-H	1.225
Cornell Park	PNR	Corporate Campus	A	H	L	H	M	M	H	H	H	M-H	1.225

Source: Ranking based on Basile Baumann Prost & Associates, Inc. Station Area Analysis for the I-71 Corridor LRT Transit Oriented Development Opportunities, February 23, 2001, with selective modifications by URS, Corporation based on information obtained from affected municipalities.

**Table 5.3.11: Summary of Station Area Development Potential Rank, by LRT Alternative**

Alternative	Rank of Development Potential (# stations)				
	High	High/Med.	Medium	Med./Low	Low
<b>LRT – 1</b>	3	6	7	3	1
<b>LRT – 2</b>	3	6	7	3	1
<b>LRT – 3</b>	3	5	8	4	1
<b>LRT – 4</b>	3	5	8	4	1

*Source: Basile Baumann Prost & Associates, Inc. report Station Area Analysis for the I-71 Corridor LRT Transit Oriented Development Opportunities, February 23, 2001.*

**Potential Induced Development**

Descriptions of potential office and multi-family growth for each of the four alternatives and are displayed in Tables 5.3.12 through 5.3.15.

In comparing the four alternatives, projected trend line and LRT induced development are identical for Alternatives 1 and 2 and for Alternatives 3 and 4 since the only difference between these pairs is whether the proposed Covington Riverfront station is elevated (Option A) or at-grade (Option B). With regarding to projected office development, trend line growth is expected to result in about 33,000 sq.ft. more office development for Alternatives 3 and 4. However, the amount of office development attributed to the presence of LRT is expected to be the same for all alternatives. The difference in trend line office growth may be the result of an additional station (Zoo Station) included in Alternatives 3 and 4.

With regard to multi-family development, trend line growth is projected to be 1,050 units higher for Alternatives 1 and 2. This is largely because of the anticipated higher potential for residential development around the proposed Medical Center (Option B) station. Similarly, the induced growth in multi-family development is projected to be 189 units higher for Alternatives 1 and 2.

**Table 5.3.12: Potential LRT Station Area Induced Development Over 20 Years (Alternative 1)**

Station	Type of Area	Trend Line Office Growth (sq.ft.)	LRT Induced* Office (sq.ft.)	Trend Line Residential Growth Units	LRT Induced* Residential Units	Key Development Components
<b>12<sup>th</sup> St.</b>	Redevelopment	162,800	12,208	720	54	12 <sup>th</sup> St. Reconstruction and general redevelopment.
<b>Pike St.</b>	Urban	81,400	6,100	360	27	General redevelopment.
<b>Covington Riverfront (B)</b>	Redevelopment	1,383,783	415,135	6,120	1,836	Riverfront West development.
<b>The Banks</b>	Redevelopment	2,711,408	813,422	8,820	2,646	The “Banks” mixed use development – open space, arenas, office, housing.
<b>Government Square</b>	CBD	193,672	14,525	630	47	General redevelopment.
<b>Court Street</b>	CBD	387,344	29,051	1,260	95	General redevelopment.
<b>Over-the-Rhine</b>	Redevelopment	581,016	130,729	1,890	425	General redevelopment.
<b>Mt. Auburn</b>	Campus/ Medical Center	99,122	14,868	630	95	General redevelopment.
<b>Uptown</b>	Campus	264,324	79,297	1,680	504	Clifton Heights/Calhoun St.; Corryville infill and redevelopment.
<b>Medical Center (B)</b>	Medical Center	198,243	29,736	1,260	189	General redevelopment.
<b>Avondale (B)</b>	Medical Center	66,081	4,956	420	32	General redevelopment.
<b>Xavier</b>	Campus	338,190	50,728	2,940	441	Xavier University – redevelopment of Norwood Shopping Center
<b>Norwood</b>	Redevelopment	72,469	5,435	630	47	General redevelopment – office/retail.
<b>Ridge</b>	Big Box	24,156	1,812	210	16	General redevelopment.
<b>Silverton</b>	Older Suburb/ Downtown	24,156	1,812	210	16	General redevelopment and infill.
<b>Galbraith</b>	Older Suburb	24,156	1,812	210	16	General redevelopment and infill.
<b>Cooper</b>	Older Suburb/ Downtown	319,266	71,835	2,700	608	Mixed use redevelopment – 8 acre site.
<b>Pfeiffer</b>	Redevelopment	478,899	143,670	-	-	New office, office/warehouse development.
<b>Reed Hartman</b>	Greenfield	399,083	114,724	-	-	New office development.
<b>Cornell Park</b>	Corporate Campus	399,083	114,724	-	-	Procter & Gamble – new office and residential development.
<b>Total</b>		8,208,651	2,056,579	30,690	7,094	

Source: Basile Baumann Prost & Associates, Inc. Station Area Analysis for the I-71 Corridor LRT Transit Oriented Development Opportunities, February 23, 2001, with selective modifications by URS, Inc. based on information obtained from affected municipalities.

\*Induced growth denotes development potential beyond trend line growth.

**Table 5.3.13: Potential LRT Station Area Induced Development Over 20 Years (Alternative 2)**

Station	Type of Area	Trend Line Office Growth (sq.ft.)	LRT Induced* Office (sq.ft.)	Trend Line Residential Units	LRT Induced* Residential Units	Key Development Components
12 <sup>th</sup> St.	Redevelopment	162,800	12,208	720	54	12 <sup>th</sup> St. Reconstruction and general redevelopment.
Pike St.	Urban	81,400	6,100	360	27	General redevelopment.
Covington Riverfront (A)	Redevelopment	1,383,783	415,135	6,120	1,836	Riverfront West development.
The Banks	Redevelopment	2,711,408	813,422	8,820	2,646	The "Banks" mixed use development – open space, arenas, office, housing.
Government Square	CBD	193,672	14,525	630	47	General redevelopment.
Court Street	CBD	387,344	29,051	1,260	95	General redevelopment.
Over-the-Rhine	Redevelopment	581,016	130,729	1,890	425	General redevelopment.
Mt. Auburn	Campus/ Medical Center	99,122	14,868	630	95	General redevelopment.
Uptown	Campus	264,324	79,297	1,680	504	Clifton Heights/Calhoun St.; Corryville infill and redevelopment.
Medical Center (B)	Medical Center	198,243	29,736	1,260	189	General redevelopment.
Avondale (B)	Medical Center	66,081	4,956	420	32	General redevelopment.
Xavier	Campus	338,190	50,728	2,940	441	Xavier University – redevelopment of Norwood Shopping Center
Norwood	Redevelopment	72,469	5,435	630	47	General redevelopment – office/retail.
Ridge	Big Box	24,156	1,812	210	16	General redevelopment.
Silverton	Older Suburb/ Downtown	24,156	1,812	210	16	General redevelopment and infill.
Galbraith	Older Suburb	24,156	1,812	210	16	General redevelopment and infill.
Cooper	Older Suburb/ Downtown	319,266	71,835	2,700	608	Mixed use redevelopment – 8 acre site.
Pfeiffer	Redevelopment	478,899	143,670	-	-	New office, office/warehouse development.
Reed Hartman	Greenfield	399,083	114,724	-	-	New office development.
Cornell Park	Corporate Campus	399,083	114,724	-	-	Procter & Gamble – new office and residential development.
<b>Total</b>		8,208,651	2,056,579	30,690	7,094	

Source: Basile Baumann Prost & Associates, Inc. Station Area Analysis for the I-71 Corridor LRT Transit Oriented Development Opportunities, February 23, 2001, with selective modifications by URS Corporation based on information obtained from affected municipalities.

\*Induced growth denotes development potential beyond trend line growth.

**Table 5.3.14: Potential LRT Station Area Induced Development Over 20 Years (Alternative 3)**

Station	Type of Area	Trend Line Office Growth (sq.ft.)	LRT Induced* Office (sq.ft.)	Trend Line Residential Units	LRT Induced* Residential Units	Key Development Components
12 <sup>th</sup> St.	Redevelopment	162,800	12,208	720	54	12 <sup>th</sup> St. Reconstruction and general redevelopment.
Pike St.	Urban	81,400	6,100	360	27	General redevelopment.
Covington Riverfront (B)	Redevelopment	1,383,783	415,135	6,120	1,836	Riverfront West development.
The Banks	Redevelopment	2,711,408	813,422	8,820	2,646	The "Banks" mixed use development – open space, arenas, office, housing.
Government Square	CBD	193,672	14,525	630	47	General redevelopment.
Court Street	CBD	387,344	29,051	1,260	95	General redevelopment.
Over-the-Rhine	Redevelopment	581,016	130,729	1,890	425	General redevelopment.
Mt. Auburn	Campus/ Medical Center	99,122	14,868	630	95	General redevelopment.
Uptown	Campus	264,324	79,297	1,680	504	Clifton Heights/Calhoun St.; Corryville infill and redevelopment.
Zoo	Attractor	33,041	0	210	0	Limited
Medical Center (A)	Medical Center	198,243	29,736	0	0	Planned hospital expansions.
Avondale (A)	Medical Center	66,081	4,956	420	32	Infill and general redevelopment.
Xavier	Campus	338,190	50,728	2,940	441	Xavier University – redevelopment of Norwood Shopping Center
Norwood	Redevelopment	72,469	5,435	630	47	General redevelopment – office/retail.
Ridge	Big Box	24,156	1,812	210	16	General redevelopment.
Silverton	Older Suburb/ Downtown	24,156	1,812	210	16	General redevelopment and infill.
Galbraith	Older Suburb	24,156	1,812	210	16	General redevelopment and infill.
Cooper	Older Suburb/ Downtown	319,266	71,835	2,700	608	Mixed use redevelopment – 8 acre site.
Pfeiffer	Redevelopment	478,899	143,670	-	-	New office, office/warehouse development.
Reed Hartman	Greenfield	399,083	114,724	-	-	New office development
Cornell Park	Corporate Campus	399,083	114,724	-	-	Procter & Gamble – new office and residential development.
<b>Total</b>		8,241,692	2,056,579	29,640	6,905	

Source: Basile Baumann Prost & Associates, Inc. Station Area Analysis for the I-71 Corridor LRT Transit Oriented Development Opportunities, February 23, 2001, with selective modifications by URS Corporation based on information obtained from affected municipalities.

\*Induced growth denotes development potential beyond trend line growth.

**Table 5.3.15: Potential LRT Station Area Induced Development Over 20 Years (Alternative 4)**

Station	Type of Area	Trend Line Office Growth (sq.ft.)	LRT Induced* Office (sq.ft.)	Trend Line Residential Units	LRT Induced* Residential Units	Key Development Components
12 <sup>th</sup> St.	Redevelopment	162,800	12,208	720	54	12 <sup>th</sup> St. Reconstruction and general redevelopment.
Pike St.	Urban	81,400	6,100	360	27	General redevelopment.
Covington Riverfront (A)	Redevelopment	1,383,783	415,135	6,120	1,836	Riverfront West development.
The Banks	Redevelopment	2,711,408	813,422	8,820	2,646	The "Banks" mixed use development – open space, arenas, office, housing.
Government Square	CBD	193,672	14,525	630	47	General redevelopment.
Court Street	CBD	387,344	29,051	1,260	95	General redevelopment.
Over-the-Rhine	Redevelopment	581,016	130,729	1,890	425	General redevelopment.
Mt. Auburn	Campus/ Medical Center	99,122	14,868	630	95	General redevelopment.
Uptown	Campus	264,324	79,297	1,680	504	Clifton Heights/Calhoun St.; Corryville infill and redevelopment.
Zoo	Attractor	33,041	0	210	0	Limited.
Medical Center (A)	Medical Center	198,243	29,736	0	0	Planned medical campus expansions.
Avondale (A)	Medical Center	66,081	4,956	420	32	Infill and general redevelopment.
Xavier	Campus	338,190	50,728	2,940	441	Xavier University – redevelopment of Norwood Shopping Center
Norwood	Redevelopment	72,469	5,435	630	47	General redevelopment – office/retail.
Ridge	Big Box	24,156	1,812	210	16	General redevelopment.
Silverton	Older Suburb/ Downtown	24,156	1,812	210	16	General redevelopment and infill.
Galbraith	Older Suburb	24,156	1,812	210	16	General redevelopment and infill.
Cooper	Older Suburb/ Downtown	319,266	71,835	2,700	608	Mixed use redevelopment – 8 acre site.
Pfeiffer	Redevelopment	478,899	143,670	-	-	New office, office/warehouse development.
Reed Hartman	Greenfield	399,083	114,724	-	-	New office development.
Cornell Park	Corporate Campus	399,083	114,724	-	-	Procter & Gamble – new office and residential development.
<b>Total</b>		8,241,692	2,056,579	29,640	6,905	

Source: Basile Baumann Prost & Associates, Inc. Station Area Analysis for the I-71 Corridor LRT Transit Oriented Development Opportunities, February 23, 2001, with selective modifications by URS Corporation based on information obtained from affected municipalities.

\*Induced growth denotes development potential beyond trend line growth.

## 5.4 CONCLUSIONS RELATED TO ECONOMIC EFFECTS

This section summarizes the direct and indirect economic impacts generated in the Cincinnati metropolitan area for each of the. Table 5.4.1 summarizes cost impacts relative to removal of private property from the tax base, capital cost of construction, and annual operating and maintenance costs over the 30-year life of the project. It also summarizes the number of buildings and residential dwelling units that may need to be removed to accommodate construction of each of the alternatives.

**Table 5.4.1: Summary of Costs (in millions) and Building Removal, by Alternative**

Alternative	Assessed Value Lost*	Capital Costs	O/M Costs	Building Removal		
				Non-Residential	Residential	Dwelling Units
No Build	TBD	TBD	TBD	TBD	TBD	TBD
TSM	TBD	TBD	TBD	TBD	TBD	TBD
LRT – 1	27.1	TBD	TBD	86	57	205
LRT – 2	21.7	TBD	TBD	82	57	205
LRT – 3	23.7	TBD	TBD	84	55	152
LRT – 4	21.2	TBD	TBD	80	55	152

Sources: Hamilton County Auditor's Office, Kenton County Property Valuation Administrator (data provided June 2001), URS Corporation preliminary engineering drawings (dated 7/9/01).

\* Assessed value lost includes taxable value of property that will potentially be acquired for station area, trackway and yard/shop improvements.

Note: See Tables 5.3.1-5.3.8 for more detailed information and clarification of assumptions.

Table 5.4.2 summarizes the results of a benefit-cost analysis on three hypothetical transportation improvement options (described in Section 5.3.3). While the LRT option is similar to the I-71 Corridor LRT alternative 1, the other options are not identical to the No-Build or TSM alternatives presented in this document. Consequently, the costs shown below cannot be directly compared to the costs shown above on Table 5.4.1.

**Table 5.4.2: Summary of Estimated Regional Economic Benefits Over 30 Years, by Alternative (present-day value, 2001 dollars)**

Option	Benefits (million \$)				Costs (million \$)	
	Congestion Management	Affordable Mobility	Community Development	Jobs	Capital Costs (mean)	O/M Costs
Highway I-71 Widening	1,365.2	-	-	-	1,208.1	TBD
TSM ("base case")	-	-	-	-	TBD	TBD
LRT	1,153	323.5	354	3,070	779.0	264.7

Source: HLB Decision Economics, Inc. report *Moving Forward: The Economic and Community Benefits of Transportation Options for Greater Cincinnati*, April 2, 2001.

Tables 5.4.3 and 5.4.4 summarize the results of relative potential for TOD within ½ mile of each of the proposed transit stations on the I-71 LRT Corridor.

**Table 5.4.3: Summary of LRT Station Area Development Potential Rank**

Alternative	Rank of Development Potential (# stations)				
	High	High/Med.	Medium	Med./Low	Low
LRT – 1	3	6	7	3	1
LRT – 2	3	6	7	3	1
LRT – 3	3	5	8	4	1
LRT – 4	3	5	8	4	1

Source: Basile Baumann Prost & Associates, Inc. report Station Area Analysis for the I-71 Corridor LRT Transit Oriented Development Opportunities, February 23, 2001.

**Table 5.4.4: Summary of Projected Development Around Potential LRT Station Areas Over 20 Years, by Alternative**

Alternative	Office (sq.ft.)		Multi-family Residential (dwelling units)	
	Trend Line	Induced	Trend Line	Induced
LRT – 1	8,208,650	2,056,580	30,690	7,094
LRT – 2	8,208,650	2,056,580	30,690	7,094
LRT – 3	8,241,690	2,056,580	29,640	6,905
LRT – 4	8,241,690	2,056,580	29,640	6,905

Source: Basile Baumann Prost & Associates, Inc. report Station Area Analysis for the I-71 Corridor LRT Transit Oriented Development Opportunities, February 23, 2001.

### 5.4.1 NO-BUILD ALTERNATIVE

The benefits associated with widening I-71 will result solely from congestion management. Over 30 years, congestion management benefits could reach \$1,365.2 million (2001 dollars). The cost to construct a new traffic lane in each direction for the 19-mile length of the project area is estimated to be \$1,208.1 million. Over 30 years, that would result in benefits exceeding costs by \$156 million. However, the value of these benefits are not as high as the benefits estimated for the build (LRT) alternative. In addition, this alternative could have a lower rate of return and higher risk of poor economic performance than the build (LRT) alternative.

### 5.4.2 BUILD (LRT) ALTERNATIVES

The build (LRT) alternative 1 results in the most property value removed from the tax base and the most buildings lost. However, the difference between the four build alternatives is relatively minor. Relative to the Greater Cincinnati metropolitan area, the amount of property potentially removed from the tax base and the number of buildings removed should not have a significant negative impact on the overall tax base of the metropolitan area.

The benefits of building the LRT will exceed the costs by \$786.6 million over thirty years (2008-2037). This represents a higher amount of overall benefit than the Highway Widening Option, which would result in benefits of \$156 million higher than costs over 30 years.

According to the BBPA analysis of LRT station area development potential, Alternatives 1 and 2 present slightly greater potential for inducing new development than Alternatives 3 and 4. As with tax base impacts, because the alternatives are so similar, it is difficult to determine any significant difference in development potential between the alternatives. All of the build (LRT) alternatives are proposed to result in approximately 2 million square feet of office development and about 7,000 multi-family residential units over and above growth that is anticipated to occur without LRT.

## 5.5 MITIGATION MEASURES

The section summarizes mitigation measures that might be used to address potential negative economic impacts resulting from the transportation alternatives. Potential economic impacts associated with any of the alternatives relate to property acquisition and subsequent displacement of private residents and businesses. Property acquisition could also remove private property from the tax rolls, thereby reducing the tax base.

Generally, mitigating these impacts would involve similar approaches for any of the alternatives. Mitigation measures may include, but are not limited to the following:

- **Fair compensation for property acquisition or displacement.** Fair and reasonable relocation payments and assistance to or for families, individuals, partnerships, corporations or associations displaced by the build alternative will comply with the requirements of the Uniform Relocation Act, 42 U.S.C. 4601 et seq., and the USDOT regulations, “Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs” 49 CFR Part 24 (the “Uniform Act”). Payments for moving and related expenses to displaced parties will be in accordance with the provisions of 42 U.S.C. 4622.
- **Fostering new development.** To help replace tax base lost because of the removal of private property from the tax rolls, new development should be promoted, particularly in the communities experiencing tax base reductions.
- **Promote attractive design.** New development that enhances the surrounding community can attract businesses and residents, stimulate investment, and help stabilize or increase property values. Design guidelines, like those described in Section 5.2.2, are one tool to foster attractive and compatible development.

## 5.6 ENVIRONMENTAL JUSTICE

This section explains how Environmental Justice concerns have been addressed in the evaluation of alternatives for the I-71 Corridor LRT facility. This section also identifies how areas protected under the Environmental Justice Executive Order 12898 were defined and the extent to which areas of low-income, minority, and transit dependent populations would be affected by the alternatives under evaluation. The issues discussed in this section pertain to the economic factors analyzed in Chapter 5, including development effects. Additional analysis regarding social, environmental, and transportation issues can be found in Chapters 3, 4, and 6.

The legal and regulatory requirements of Environmental Justice and the definitions of minority and low-income populations, summarized below, were provided in Section 3.9.

### **5.6.1 LEGAL AND REGULATORY REQUIREMENTS**

Presidential Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, (February 11, 1994) requires that federal agencies consider and address disproportionate adverse environmental effects of proposed federal projects on minority and low-income communities.

The intent of the Department of Transportation Final Order on Environmental Justice [DOT Order 5610.2, *Environmental Justice*, (April 15, 1997)] is to integrate the goals of Executive Order 12898 into DOT operations.

In February 2000, the Ohio Environmental Justice Task Force was formed to address Environmental Justice issues in transportation projects throughout Ohio. The Task Force produced *Guidance and Best Practice for Incorporating Environmental Justice into Ohio Transportation Planning and Environmental Processes*, draft version, dated May 30, 2000, with addenda added September 2000.

In addition to the federal actions to address Environmental Justice in minority populations and low-income populations, the May 30, 2000, draft guidance states that it may be prudent to include handicapped, elderly, and households without vehicles to the same level of analysis as low income and minority populations. Therefore, to satisfy the draft guidance, this section will also address the potential effects on populations with mobility limitations, elderly populations, and concentrations of households without vehicles, and potential mitigation measures. To meet both the requirements of National Environmental Policy Act (NEPA) and Executive Order 12898, this section addresses the characteristics of the affected communities, potential effects on minority and low-income populations, and potential mitigation measures.

### **5.6.2 COMMUNITY CHARACTERISTICS**

Ethnic composition and income characteristics within the impact assessment area have been identified in accordance with definitions established by U.S. Department of Transportation (USDOT) and the U.S. Environmental Protection Agency (EPA) guidance on Environmental Justice. Populations with mobility limitations, elderly populations, and concentrations of households without vehicles within the impact assessment area have also been identified in accordance with the *Guidance and Best Practice for Incorporating Environmental Justice into Ohio Transportation Planning and Environmental Processes*, draft version, dated May 30, 2000. These community characteristics were described previously in Chapter 3, Section 3.9.2

### **5.6.3 ENVIRONMENTAL JUSTICE ANALYSIS FOR ECONOMIC FACTORS**

#### **Methodology**

Stations identified in Section 5.3 as having a high or moderate development potential would be more likely to have a greater influence on the development of a station area than those stations with a low rating. Stations in minority, low income, elderly, mobility limitation and no vehicle population areas with high or moderate development potential would be considered to have a direct positive effect on the existing minority, low income, elderly, mobility limitation and no vehicle population areas.

## **No-Build Alternative**

The No-Build Alternative would not provide opportunities for development or increased jobs. The negative impacts of the No-Build Alternative would be the benefits forgone.

## **TSM Alternative**

The TSM Alternative would not provide opportunities for development or increased jobs. The negative impacts of the TSM Alternative would be the benefits forgone.

## **Build (LRT) Alternatives**

### Alternative 1

For Alternative 1, 20 potential station locations are proposed. Of the stations that were ranked moderate or high for development potential, 15 stations are in minority population areas; 14 stations are in low income population areas; 16 stations are in elderly population areas; 14 stations are in mobility limitation population areas; and 12 stations are in no vehicle population areas. The majority of these stations in protected population areas ranked high or moderate in both residential and commercial development.

### Alternative 2

Alternative 2 would have the same economic impacts as Alternative 1. The difference between Alternative 1 and Alternative 2 is the at grade versus the elevated station in Covington. Both of these station options received a “high” grade for development potential, therefore, these alternatives are ranked the same.

### Alternative 3

For Alternative 3, 21 potential station locations are proposed. Of the stations that were ranked moderate or high for development potential, 14 stations are in minority population areas; 15 stations are in low income population areas; 16 stations are in elderly population areas; 14 stations are in mobility limitation population areas; and 12 stations are in no vehicle population areas. The majority of these stations in protected population areas ranked high or moderate in both residential and commercial development.

### Alternative 4

Alternative 4 would have the same economic impacts as Alternative 3. The difference between Alternative 3 and Alternative 4 is the at grade station versus the elevated station in Covington. Both of these station options received a “high” grade for development potential, therefore, these alternatives are ranked the same.

## **5.6.4 SUMMARY AND POTENTIAL MITIGATION**

Benefits of development opportunities would more likely be attracted to stations with high or moderate development potential. Stations in minority, low-income, elderly, mobility limitation and no vehicle population areas would have a greater direct effect on those communities. The benefits and adverse impacts for the minority, low-income and transit dependent areas would be representative of the communities within and adjacent to the project corridor.

The active involvement of all neighborhoods in the corridor will continue to be a goal through design and implementation. Public engagement for all communities in the corridor will be continued through the length of the project and is explained in detail in Chapter 8.