Socioeconomic Analysis
REDLANDS PASSENGER RAIL PROJECT
San Bernardino, San Bernardino County, California

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Prepared for:

San Bernardino Associated Governments
1170 W. 3rd Street, 2nd Floor
San Bernardino, CA 92410

Prepared by:

HDR Engineering, Inc.
8690 Balboa Avenue, Suite 200
San Diego, CA 92123

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1. Socioeconomic and Economic Impacts Analysis

1.1. Introduction

This socioeconomic and economic impacts analysis was prepared for the San Bernardino Associated Governments (SANBAG) and the Federal Transit Administration (FTA) to identify and evaluate the economic effects of the Redlands Passenger Rail Project (RPRP or Project). This section evaluates the effects of the Project on the socioeconomic characteristics of the region. After Section 1.2, Regulatory Environment, in the Affected Environment (Section 1.3) the existing socioeconomic trends in the Study Area are presented based on publicly available information regarding employment, income, population, and housing within the cities of Redlands, Loma Linda and San Bernardino and within the San Bernardino County and the larger southern California region. In Section 1.4, Environmental Consequences and Mitigation, the economic impacts of the Project in the Study Area are presented.

1.2. Regulatory Environment

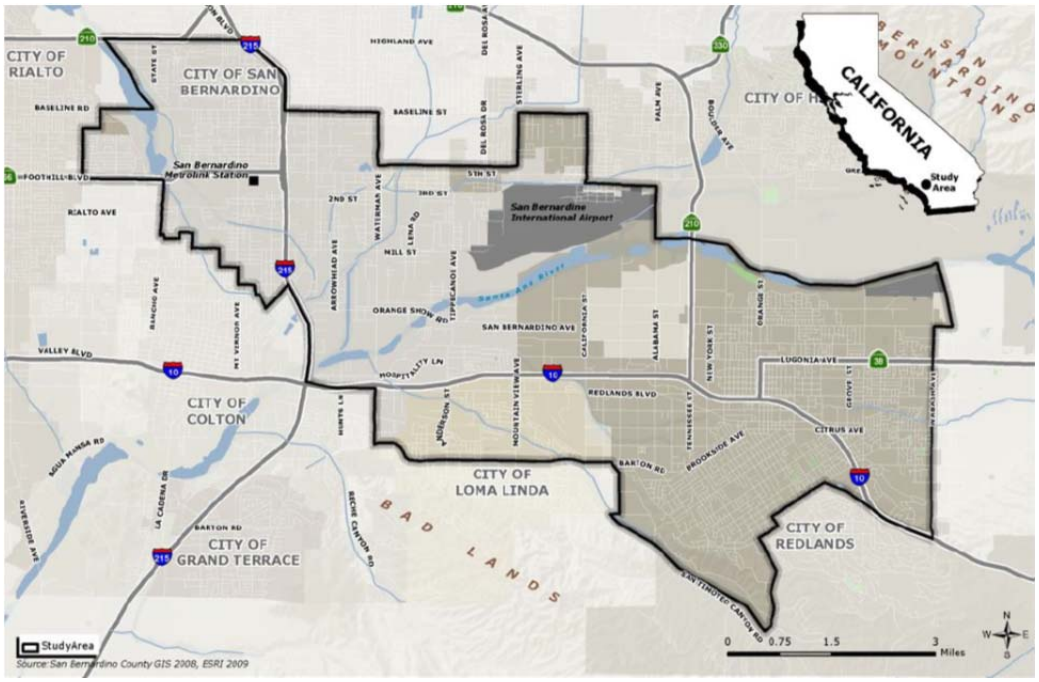
The National Environmental Policy Act (NEPA) requires that agencies examine the socioeconomic characteristics of a project's impact area to determine the likely effects on the area's population and economy of the project. According to the FTA, transit projects "may have economic impacts that should be included in environmental impact documents. In particular, projects may create direct and indirect taxation changes, cause substantial displacement of businesses and individuals, disrupt business activities, and influence regional construction costs. If a proposed project is small, contained on a single site, does not involve displacements, and is compatible with surrounding land uses, there will probably be few economic impacts and extensive analysis is not needed. If a project is costly, covers a wide area, and will cause extensive displacement of businesses and individuals, there is a greater chance that it will cause economic impacts. In such cases, a detailed economic impact analysis should be included in environmental documentation" (FTA 2012).

1.3. Affected Environment

This section describes the baseline socioeconomic conditions and the attributes of the human and built environment within the Project's Study Area (Figure 1) and the large southern California region. For the purposes of this Environmental Impact Statement/Environmental Impact Report (EIS/EIR), the San Bernardino region of the southern California Association of Governments (SCAG) region and the cities of San Bernardino, Loma Linda, and Redlands are used to consider as the Study Area. The larger southern California region considered is SCAG's planning region, which includes Imperial, Los Angeles, Orange, San Bernardino, Riverside, and Ventura counties.

The analysis of socioeconomics provided in this section relies partly on population and growth data obtained from SCAG. Additional data was gathered for the cities of San Bernardino, Loma Linda and Redlands from the U.S. Census Bureau and the California Employment Development Department (EDD).

Figure 1: Redlands Corridor Study Area



Source: SANBAG RPRP Final Report Prepared by HDR, Nov 2011

1.3.1. Population

Table 1 shows the population for each of the counties located within the SCAG region and the total for SCAG in 2011. As shown, in 2011, total population in the SCAG region was 18,257,907, with Los Angeles County accounting for the majority of the region's population. Orange County is the region's second most populous county, followed by Riverside, San Bernardino, Ventura, and Imperial counties.

As shown in Table 1, the population in the SCAG region increased by 1.7 million between 2000 and 2011, a growth of 11 percent. Growth in the other counties of the region, in descending order percentage change, are: Riverside County grew by 45 percent (695,406 persons), Imperial County grew by 25 percent (35,350 persons), San Bernardino County grew by 21 percent (357,068 persons), Ventura County grew by 11 percent (79,540 persons), Orange County grew by 7 percent (199,218 persons), and Los Angeles County grew by 4 percent (357,319 persons).

Table 1: Population Growth in SCAG Region between 2000 and 2011

County	2000 Population	2011 Population	2000-2011 Growth (Persons)	Percent Change (2000-2011)	Annual Growth Rate
Imperial	142,361	177,711	35,350	25%	2.26%
Los Angeles	9,519,338	9,894,657	375,319	4%	0.36%
Orange	2,846,289	3,045,507	199,218	7%	0.64%
Riverside	1,545,387	2,240,793	695,406	45%	4.09%
San Bernardino	1,709,434	2,066,502	357,068	21%	1.90%
Ventura	753,197	832,737	79,540	11%	0.96%
SCAG Region	16,516,006	18,257,907	1,741,901	11%	0.96%

Source: SCAG, 2012-2035 RTP/SCS, Growth Forecast Appendix, Table 10, Page 21, 2011.

As shown in Table 2, the cities within and surrounding the RPRP Study Area experienced varying rates of population growth between 2000 and 2010. The City of Loma Linda experienced the largest rate of growth, 24.5 percent (4,580 persons), followed by the City of San Bernardino grew by 13.2 percent (24,523 persons), and the City of Redlands grew by 8.1 percent (5,156 persons) (U.S. Census Bureau 2010).

Table 2: Population Growth in Cities Overlapping PRPR Study Area

City	2000 Census	2010 Census	2000-2010 Growth (Persons)	Percent Change (2000-2010)	Average Annual Rate of Change
City of San Bernardino	185,401	209,924	24,523	13.2%	1.3%
City of Loma Linda	18,681	23,261	4,580	24.5%	2.5%
City of Redlands	63,591	68,747	5,156	8.1%	0.8%

Source: U.S. Census Bureau 2000, 2010.

According to its 2012-2035 Regional Transportation Plan, SCAG projects the region's total population to increase by approximately 3.9 million persons by 2035 (**Error! Not a valid bookmark self-reference.**). The largest population increase is projected to occur in Los Angeles County (an increase in 1,455,743 persons), followed by Riverside County (an increase in 1,140,107 persons), and San Bernardino (an increase in 683,298 persons).

Table 3: 2012 RTP/SCS POPULATION GROWTH PROJECTIONS (2035)

County	2011 Existing Population (Persons)	2035 Plan Projected Population (Persons)	Increase (Persons)	Percent Change (2011-2035)
Imperial	177,711	288,200	110,489	62%
Los Angeles	9,894,657	11,350,400	1,455,743	15%
Orange	3,045,507	3,417,800	372,293	12%
Riverside	2,240,793	3,380,900	1,140,107	51%
San Bernardino	2,066,502	2,749,800	683,298	33%
Ventura	832,737	958,700	125,963	15%
SCAG Region	18,257,907	22,145,800	3,887,893	21%

Source: SCAG, 2011a.

Table 4 presents age distribution data for the San Bernardino County as well as for the cities of San Bernardino, Redlands and Loma Linda, and Table 5 presents educational attainment data for these same geographic areas. The median age of City of San Bernardino residents in 2010 was 28.5 years old and 36.2 years old for those of the City of Redlands. The City of Loma Linda had the highest proportion of its population of working age (between 18 and 64 years of age) among the communities under study. The City of San Bernardino had the highest proportion of its population as young children (9.3 percent under 5 years of age), and the cities of Loma Linda and Redlands had nearly identical proportions of residents over age 65.

Table 4: Age of Population (2010)

Area	Median Age (years)	Percent of Population (%)		
		Under 5 Years	Between 18 and 64 Years	65 Years or Older
San Bernardino County	31.7	7.8	61.9	8.9
City of San Bernardino	28.5	9.3	60.1	7.9
City of Loma Linda	33.2	6.6	65.2	13.9
City of Redlands	36.2	6.0	63.2	13.1

Source: U.S. Census Bureau 2010, DP-1

There is a notable difference in educational attainment between the City of San Bernardino and the cities of Loma Linda and Redlands, as the proportion of cities residents in the latter two cities with at least a Bachelor's is about three to four times higher than in the first. Specifically, while 42.4 percent of Loma Linda residents and 37.1 percent of Redlands residents have a college degree, 12.1 percent of residents in the City of San Bernardino do so.

Table 5: Education of Population (2006–2010)

Area	Percent of Adults 25 Years or Older (%)	
	High School Diploma	Bachelor's Degree or Higher
San Bernardino County	26.8	18.4
City of San Bernardino	27.2	12.1
City of Loma Linda	15.9	42.4
City of Redlands	18.8	37.1

Source: U.S. Census. 2006-2010 American Community Survey 5-Year Estimates
The numbers in this table are averages for the 5-year period from 2006 through 2010.

1.3.2. Employment

Employment trends in southern California have long followed a "boom and bust" cycle. Much of the 2000s saw a boom of housing development, particularly, in the Inland Empire, only to be followed by a bust starting in 2008. This cycle significantly impacted regional employment, particularly in the construction (housing) and service sectors. As shown in Table 6, only Imperial County showed a net gain in employment between 2000 and 2011. The remaining counties in the SCAG region all posted negative employment growth, as does the SCAG region as a whole. The counties with the largest employment loss (in decreasing order of percent of lost employment) are: Ventura County (20 percent), Riverside County (17 percent), San Bernardino County (16 percent), Los Angeles County (14 percent), and Orange County (5 percent). Overall, employment in the SCAG Region declined by approximately 995,300 jobs, or 13 percent, between 2000 and 2011 (SCAG 2011).

Table 6: Total Employment by County in the SCAG Region (2000-2011)

County	2000 (Jobs)	2011 (Jobs)	2000-2011 Growth (Jobs)	Percent Change (2000-2011)
Imperial	46,300	55,500	9,200	20%
Los Angeles	4,424,900	3,788,900	-636,000	-14%
Orange	1,429,100	1,361,900	-67,200	-5%
Riverside	644,200	535,500	-108,700	-17%
San Bernardino	704,000	588,100	-115,900	-16%
Ventura	374,900	298,200	-76,700	-20%
SCAG Region	7,623,400	6,628,100	-995,300	-13%

Source: SCAG 2011a, based on State of California, Economic Development Department, Labor Market Information Division, Industry Employment and Labor Force by Annual Average

Meanwhile, employment in the cities of San Bernardino, Loma Linda, and Redlands grew between 2000 and 2011, as shown in Table 7. The cities of San Bernardino and Redlands had a 6 percent increase in total employment between 2000 and 2011, while the total employment in Loma Linda increased by 7 percent (EDD, 2011).

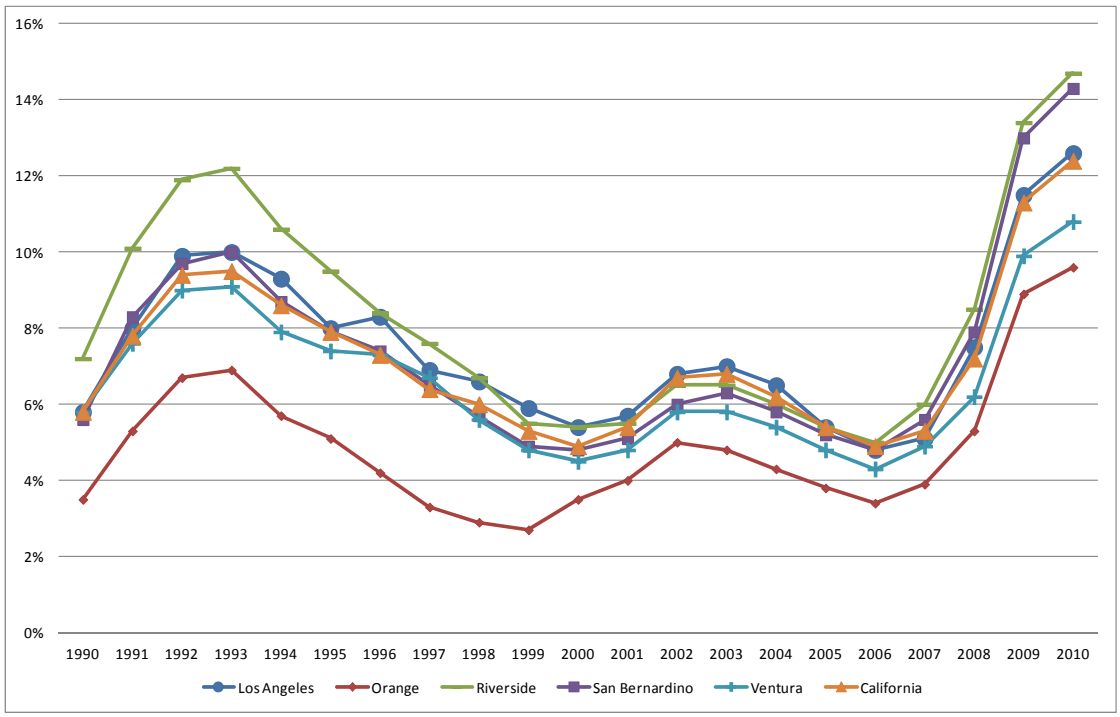
Table 7: Total Employment by City in RPRP Study Area (2000-2011)

City	2000 (Jobs)	2011 (Jobs)	2000-2011 Growth (Jobs)	Percent Change (2000-2011)
City of San Bernardino	66,100	70,100	4,000	6%
City of Loma Linda	8,700	9,300	600	7%
City of Redlands	31,200	33,100	1,900	6%

Source: California Employment Development Department, 2011.

Unemployment rates in southern California generally follow a pattern similar to those experienced throughout California. As shown in Figure 2, unemployment rose steeply in the early 1990s, with the reduction in military spending (especially in the aerospace industry) at the end of the Cold War. Unemployment rates peaked in 1993 and then fell gradually throughout the rest of the decade as the economy improved. The rate of unemployment in southern California rose and fell moderately for several years before the sharp increases that began in 2009 with the housing collapse. Between 1990 and 2010, the state unemployment rate had never reached double digits until the economic downturn that began in 2009.

Figure 2: Unemployment Rate (%) by County (1990-2010)



Source: California Employment Development Department, 2011.

As shown in Table 8, similar to southern California, the unemployment rates in the cities of San Bernardino, Loma Linda, and Redlands rose and fell and then increased drastically during the economic downturn that began in 2009. According to the EDD, unemployment rates for the cities of San Bernardino, Loma Linda, and Redlands in 2011 were 17.6 percent, 8.0 percent, and 9.7 percent, respectively. Throughout 2000 to 2011, the unemployment rate in the City of San Bernardino has been a little more than twice that in Loma Linda and almost twice as high as in Redlands.

Table 8: Unemployment Rate (%) in RPRP Study Area by City (2000–2011) [1]

Year	San Bernardino	Loma Linda	Redlands
2000	6.6	2.9	3.4
2001	7.0	3.0	3.6
2002	8.3	3.6	4.3
2003	8.6	3.8	4.5
2004	7.9	3.5	4.2
2005	7.2	3.1	3.8
2006	6.6	2.8	3.4
2011	17.6	8.0	9.7

[1] Unemployment rates for the years 2007-2010 were not available on the California EDD website for the cities of San Bernardino, Loma Linda, and Redlands.

Source: California Employment Development Department, 2011.

According to the California Employment Development Department, the total number of jobs in San Bernardino County increased between 1990 and 2010. As shown in Table 9, industries that contributed to the overall employment growth in the County were trade, transportation and utilities, professional and business services, educational and health services, and local government. Between 1990 and 2010, job losses occurred in the farming, construction, and information technology and natural resources and mining sectors. Although a significant number of well-paying jobs were added to the regional economy over the same time period, the majority of new jobs were lower paying jobs in the service sector or in the educational sectors of local government (EDD, 2010).

Table 9: Total Employment for San Bernardino County (1990–2010)

Industry Group	1990	1995	2000	2005	2010	Change (1990–2010)		
						Number	Percent	Average Annual Percent
Total, All Industries	**413,400**	**446,400**	**543,600**	**647,100**	**602,000**	**188,600**	**45.6**	**2.3**
Total Farm	5,000	4,500	4,200	3,300	2,600	-2,400	-48.0	-2.4
Total Nonfarm	408,500	441,900	539,400	643,800	599,400	190,900	46.7	2.3
Natural Resources and Mining	700	900	700	800	600	-100	-14.3	-0.7
Construction	28,100	20,500	31,500	44,900	24,300	-3,800	-13.5	-0.7
Manufacturing	45,100	52,100	67,900	67,700	47,300	2,200	4.9	0.2
Trade, Transportation, and Utilities	90,400	106,700	127,800	159,700	153,800	63,400	70.1	3.5
Information	7,200	6,800	8,500	7,100	5,600	-1,600	-22.2	-1.1
Financial Activities	18,400	17,700	19,600	26,700	21,700	3,300	17.9	0.9
Professional and Business Services	34,500	39,300	54,600	76,100	72,900	38,400	111.3	5.6
Educational and Health Services	43,300	51,400	57,800	66,600	75,800	32,500	75.1	3.7
Leisure and Hospitality	36,500	37,100	45,100	54,700	55,100	18,600	50.1	2.5
Other Services	13,400	14,700	17,900	21,900	19,900	6,500	48.5	2.4
Government	91,000	94,800	108,100	117,700	122,500	31,500	34.6	1.7
Federal Government	15,100	12,400	11,400	12,100	15,100	0	0	0.0
State Government	9,700	10,300	11,800	12,800	13,400	3,700	38.1	1.9
Local Government	66,300	72,100	84,800	92,700	94,000	27,700	41.8	2.1

Source: California Employment Development Department, 2012.

1.3.3. Income

Based on the U.S. Census 2006-2010 American Community Survey (Table 10), the median household income in San Bernardino County in 2010 was $55,845. Riverside and Los Angeles Counties had very similar median household incomes of $57,768 and $55,476, respectively. In contrast, median household income in Orange and Ventura Counties were more than a third higher, $74,344 and $75,348, respectively.

The City of Redlands had the highest median household income out of the cities in the RPRP study area, at a level two thirds higher than that in the City of San Bernardino. Specifically, the median household income in the city of Redlands, Loma Linda, and San Bernardino were $67,651, $56,112 and $39,895, respectively.

Table 10: Household and Per Capita Income (2010)

	Median Household Income ($) in 2010	Per Capita Income ($) in 2010
County		
Los Angeles	$55,476	$27,344
Orange	$74,344	$34,017
Riverside	$57,768	$24,431
San Bernardino	$55,845	$21,867
Ventura	$75,348	$32,348
City		
San Bernardino	$39,895	$15,616
Loma Linda	$56,112	$29,991
Redlands	$67,651	$31,488

Notes:

1. Median Household Income – Household income is the sum of money income received in the calendar year by all household members 15 years old and over, including household members not related to the householder, people living alone, and other nonfamily household members.
2. Per Capita Income - Per capita income is the mean income computed for every man, woman, and child in a geographic area. It is derived by dividing the total income of all people 15 years old and over in a geographic area by the total population in that area

Source: U.S. Census Bureau, 2006-2010 American Community Survey.

1.3.4. Housing

Housing construction typically exhibits a cyclical pattern in reflecting local, regional, and national economic conditions. Between 2000 and 2010, the housing market experienced new construction at all-time highs and lows. During this time period, permits were issued for 623,091 new residential units in southern California, with the majority of these units constructed in Riverside County (33 percent of the regional total), followed by Los Angeles County (32 percent of the regional total) and San Bernardino (17 percent of the regional total) (SCAG 2011b-f).

Based on the 2010 Census, San Bernardino County had a total of 699,637 total housing units (Table 11). The proportion of occupied housing units in the County was 87.4 percent (12.6 percent was vacant). The proportion of occupied housing units in the Cities of San Bernardino and Loma Linda were slightly higher

at almost 91 percent. The percentage of occupied housing units in the City of Redlands was 93.0 percent (7.0 percent vacant).

Table 11: Housing Units by County and Cities (2010)

	Total Housing Units	Occupied Housing Units	Percent Occupied Housing Units (%)	Vacant Housing Units	Percent Vacant Housing Units (%)
County					
Los Angeles	3,445,076	3,241,204	94.1%	203,872	5.9%
Orange	1,048,907	992,781	94.6%	56,126	5.4%
Riverside	800,707	686,260	85.7%	114,447	14.3%
San Bernardino	699,637	611,618	87.4%	88,019	12.6%
Ventura	281,695	266,920	94.8%	14,775	5.2%
Cities					
San Bernardino	65,401	59,283	90.6%	6,118	9.4%
Loma Linda	9,649	8,764	90.8%	885	9.2%
Redlands	26,634	24,764	93.0%	1,870	7.0%

Source: U.S. Census Bureau, 2010 Census.

Table 12 shows the trends for median home prices in Los Angeles, Orange, Riverside, San Bernardino and Ventura Counties. Overall, median home prices in these counties rose steadily from 2000 to 2007, and then declined precipitously for the next two to three years. The slump in home prices is reflective of the housing market crash experienced throughout the country. Housing prices in the region generally rose in 2010. Through this time period, average home prices in the five counties were lowest in San Bernardino, followed closely by prices in Riverside.

Table 12: Overall Home Price by County (2000-2010) in Thousands

Year	County				
	Los Angeles	Orange	Riverside	San Bernardino	Ventura
2000	228	289	163	128	262
2001	247	322	186	145	286
2002	292	376	212	165	333
2003	347	442	252	202	394
2004	430	563	330	256	502
2005	511	645	406	336	592
2006	558	689	438	374	613
2007	602	681	413	365	583
2008	459	506	271	240	425
2009	320	415	189	149	356
2010	333	433	200	155	370

Source: SCAG 2011b-f.

1.4. Environmental Consequences and Mitigation

The Project would create a number of short-term and long-term economic impacts in rail and non-rail sectors of the regional economy. In addition to added-value and tax impacts, the capital expenditures related to engineering and construction would generate short-term jobs during the development phase of the Project (2012–2018). Upon completion, the project would continue to contribute to job creation in the transit services sector.

1.4.1. No Build Alternative

Under the No Build Alternative, SANBAG would not implement the Project and passenger rail service would not be extended from San Bernardino east to the University of Redlands. Existing conditions within the rail corridor would remain unchanged. Under this Alternative, SANBAG will still be required to perform regularly scheduled maintenance of the existing track and corresponding improvements at grade crossings and bridges to facilitate continued freight service per SANBAG's obligations with BNSF. As a result, the No Build Alternatives assumes that some renovation and rehabilitation projects would be required within the next 10 years to facilitate continued freight operations. Under this alternative passenger rail services would not be provided from Redlands to Downtown San Bernardino, which would result in forgone income for the regional economy that is expected with implementation of the Project as well as forgone new potential jobs to operate and maintain the commuter rail, once it is constructed.

1.4.2. Build Alternatives

The Project would involve the implementation of rail improvements along the Redlands Corridor to facilitate passenger rail service between E Street in the City of San Bernardino and the University of Redlands in the City of Redlands. Major components described as part of the Project include: track improvements, improvements to existing structural crossings and bridges, roadway grade crossings, platform improvements, a train layover facility, property acquisitions and relocations, utility replacement and relocation, and drainage improvements.

Five station stops are proposed for the RPRP (located at E Street and Tippecanoe Avenue within the City of San Bernardino and at New York Street, Orange Street, and University Street within the City of Redlands). Service would be provided by up to two trainsets composed of up to two cars and one locomotive shuttling between downtown San Bernardino and the University of Redlands on 30 minute headways during the peak morning and evening periods, and on one hour headways during off peak hours and weekends. Up to two Metrolink express trains would also run westbound in the AM peak period and eastbound in the PM peak period, originating/terminating at the Downtown Redlands Rail Platform and would be composed of a typical Metrolink trainset. With the exception of the express trains, daily operations would not interline with Metrolink's Los Angeles Union Station line (Metrolink San Bernardino line) or Inland Empire to Orange County line (Metrolink IEOC line).

Project implementation would generate several economic effects both during construction and later during operation. Initially, the Project would create a temporary increase in employment and subsequent housing demand in the San Bernardino County from construction jobs. Over the longer term, the Project is expected to support rail transit use by providing new transit options between the cities of San Bernardino and Redlands. These are discussed in more detail below.

1.4.2.1. Analysis Methodology

This section presents the methodology used to quantify the economic impact and the essential concepts and terminology related to the economic impact analysis.

This economic impact analysis involves the estimation of three types of effects, commonly referred to as direct, indirect and induced effect:

- Direct effect: Refers to the economic activity occurring as a result of direct spending by businesses or agencies located in the Study Area (e.g., expenses related to construction of the rail tracks);
- Indirect effect: Refers to the economic activity resulting from purchases by local firms who are the suppliers to the directly affected businesses or agencies (e.g., spending by suppliers of the contractor responsible for components of the Project); and
- Induced effect: Represents the increase in economic activity, over and above the direct and indirect effects, associated with increased labor income that accrue to workers (of the contractor and all suppliers, in our example) and is spent on household goods and services purchased from businesses within the Study Area.

The total economic impact is the sum of the direct, indirect and induced effects for the project being evaluated. The indirect and induced effects are sometimes referred to as multiplier effects since they can make the total economic impact substantially larger than the direct effect alone.

Economic impacts are measured in terms of industry output, value added, employment, and tax revenue (at the federal and state/local levels). While output refers to the total volume of sales, value added refers to the value a company adds to a product or service. It is measured as the difference between the amount a company spends to acquire it and its value at the time it is sold to other users. Thus, value added can be thought of as a measure of the contribution to the gross domestic product (GDP) made by an establishment or an industry. The total value added within a state is equivalent to the gross state product and includes employee compensation, proprietary income, other property type income (e.g., rents) and indirect business taxes (e.g., excise taxes).

With respect to employment, two impact metrics are calculated: labor income and jobs. Labor income includes employee compensation and proprietary income. Employee compensation consists of wage and salary payments as well as benefits (health, retirement, etc.) and employer paid payroll taxes (employer side of social security, unemployment taxes, etc.). Proprietary income consists of payments received by self-employed individuals (such as doctors and lawyers) and unincorporated business owners. The job impact measures the number of jobs created for a full year. These impacts should not be interpreted as full-time equivalent (FTE) as they reflect the mix of full- and part-time jobs that is typical for each sector. And, strictly speaking, they should not be interpreted as permanent jobs either, but rather as job-years. A job-year can be defined as one person employed for one year.

To estimate the economic impacts of the Project, the IMPLAN® System of input-output modeling was used. IMPLAN® System, supported by the Minnesota IMPLAN Group, consists of a software package and data files that are updated regularly. The IMPLAN data files include transaction information on 440 distinct industrial sectors and data on 21 economic variables, including employment, output and value added. For this study, the IMPLAN® system is populated with 2010 data that is the most recent data available. The economic impacts are estimated for the San Bernardino County as a whole.

1.4.2.2. Expenditure Schedules

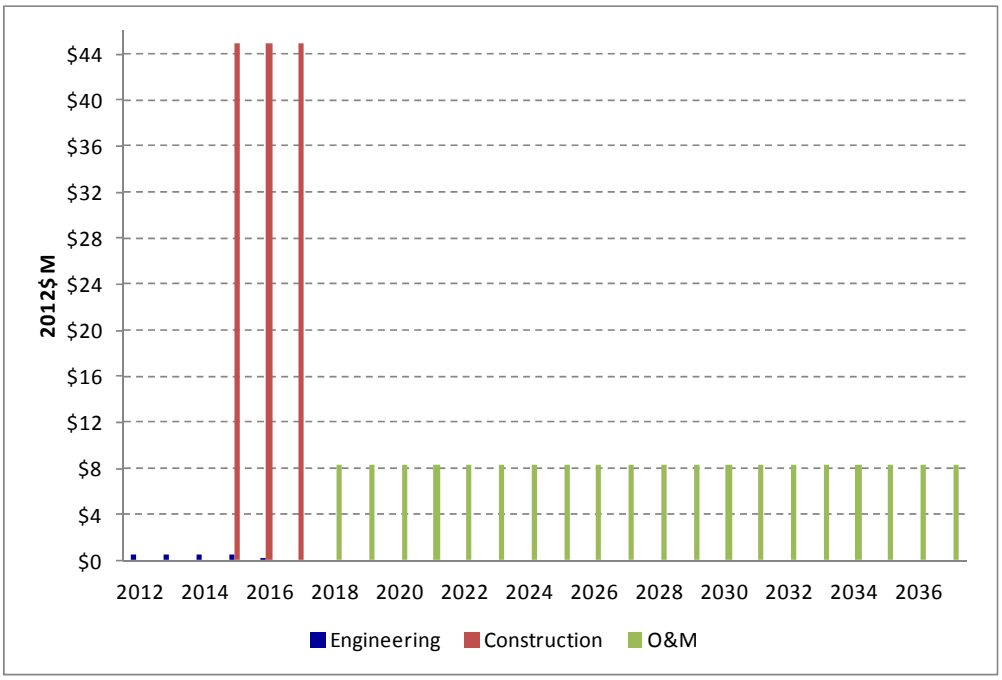
Currently the Project is in the preliminary engineering phase. Construction is expected to begin in 2015 and be completed by 2018. The commuter rail is expected to be operational in 2018. The Project is estimated to cost $202.1 million (in 2012 dollars). As shown in Table 13, key components of the capital cost include sitework, guideway and track elements and systems. Also, the annual operations and maintenance costs are estimated at $8.4 million (in 2012 dollars).

Table 13: Capital Cost by Category

Cost Category	2012 Base Year Cost, Undiscounted ($million)
Guideway and Track Elements	$42.4
Stations	$1.3
Support Facilities	$5.2
Sitework	$59.5
Systems	$29.8
Right of Way	$8.0
Vehicles	$7.8
Professional Services	$23.9
Unallocated contingency	$26.3
Total	**$202.1**

It is estimated that out of the total project cost of $202.1 million, $136.8 million would be expended within the San Bernardino County on project engineering and construction during 2012 and 2018. Figure 3 shows the expected expenditure schedule during the project development and operational phases (20 years) within the County. The expenditure schedule for the project development phase (between 2012 and 2018) is used to estimate short-term economic impacts and the expenditure schedule for the operational phase (after 2018) is used to estimate long-term economic impacts.

Figure 3: Annual Expenditures in San Bernardino County (in million $2012)



1.4.2.3. Short-term Economic Impacts during Project Development Phase

During the Project development phase, the Project is expected to generate 1,390 job-years. It is also expected to create $103.9 million in value added, including $71.3 million in labor income. In addition, the Project is expected to generate $14.4 million in federal taxes and $7.6 million in state and local taxes. A breakdown of short-term impacts by type of effect (direct, indirect and induced) is provided in Table 14.

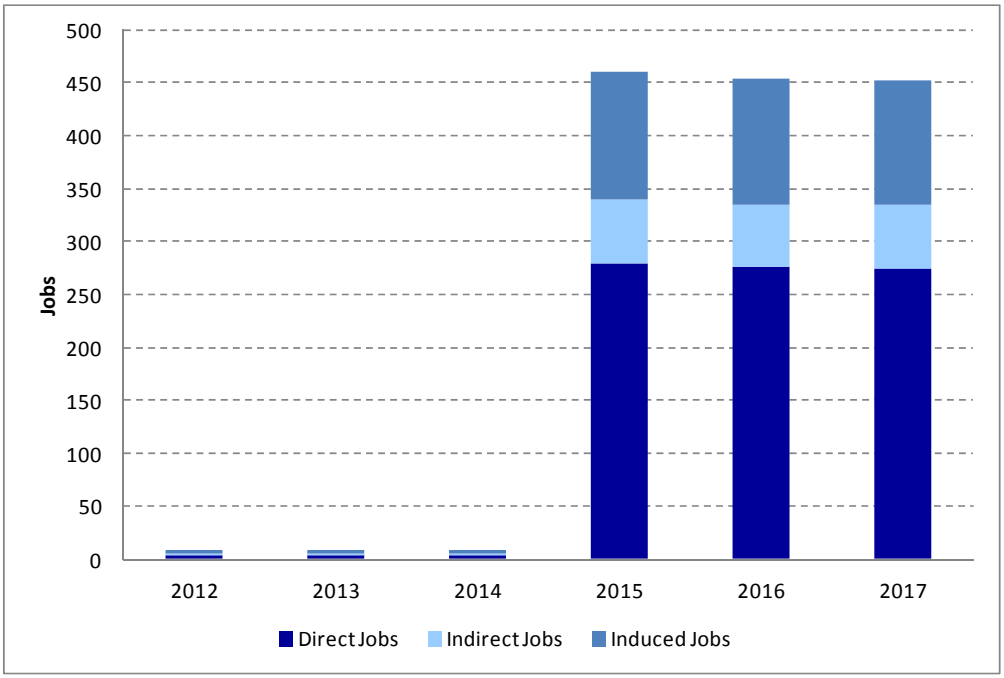
Table 14: Direct, Indirect and Induced Impacts during Project Development Phase

Impact Type	Spending in San Bernardino County (Millions of 2012 $)	Direct	Indirect	Induced	Total
Employment**	$136.8*	844	185	361	1,390
Labor Income		49.7	8.0	13.6	$71.3
Value Added		64.0	13.6	26.3	$103.9
Output		136.8	22.8	41.9	$201.5
Federal Taxes					$14.4
State and Local Taxes					$7.6

Notes: * includes engineering ($2.2 million) and construction ($134.6 million); This figure does not include project costs associated with right-of-way, insurance, permit and review fees, as these are considered transfers and do not contribute to the incremental impacts of the Project. For the purposes of the economic impact analysis, unallocated contingency within the cost estimate is allocated to construction cost. ** Employment impacts from IMPLAN should not be interpreted as full-time equivalent (FTE) as they reflect the mix of full and part time jobs that is typical for each sector.

Figure 4 presents the annual job impacts that result from engineering and construction expenditures in San Bernardino County by type of effect.

Figure 4: Annual Job Impacts Resulting from Engineering and Construction Expenditures in San Bernardino County by Type of Effect



A breakdown of short-term economic impacts in terms of employment (job-hours), labor income and value added is provided by year in the Table 15.

Table 15: Short-Term Economic Impacts Resulting from Project Development

Period	Spending in San Bernardino County (Millions of 2012 $)*	Total Job-Hours**	Direct Job-Hours**	Total Labor Income (Millions of 2012$)	Total Value Added (Millions of 2012$)
2012	0.5	14,714	8,179	0.4	0.5
2013	0.5	14,714	8,179	0.4	0.5
2014	0.5	14,714	8,179	0.4	0.5
2015	45.4	825,063	501,079	23.6	34.4
2016	45.0	814,027	494,945	23.3	34.0
2017	44.9	810,349	492,900	23.2	33.9
Total	136.8	2,493,581	1,513,462	71.3	103.9

Notes: * includes engineering ($2.2 million) and construction ($134.6 million); ** assuming average weekly hours of 34.3 (Bureau of Labor Statistics estimate). Job-hours per job-year = (weeks in a year) x (average hours worked in a week) = 52 x 34.3 = 1,783.6.

Table 16 presents the short-term increase in employment and labor income resulting from capital expenditures in key industries. As shown, a significant portion of the jobs that are created are in industries that employ low income people, such as construction, transportation, retail trade and food services.

Table 16: Short-Term Impacts in Key Industries

Sector	Employment (Job-Years)	Total Labor Income (Millions of 2012$)	Total Value Added (Millions of 2012$)
Construction	829	48.8	63.2
Manufacturing	4	0.2	0.3
Wholesale Trade	1	0.0	0.1
Retail trade	97	3.3	4.8
Transportation & Warehousing	27	1.6	2.0
Information	8	0.5	1.8
Finance & insurance	43	1.5	3.2
Real estate & rental	34	1.0	10.6
Professional- scientific & tech services	31	1.5	2.6
Administrative & waste services	56	1.7	2.0
Educational services	11	0.5	0.4
Health & social services	82	4.5	4.9
Arts- entertainment & recreation	11	0.2	0.3
Accommodation & food services	50	0.9	1.6
Government & non NAICs	8	0.6	0.5

1.4.2.4. Long-Term Economic Impacts from New Operations

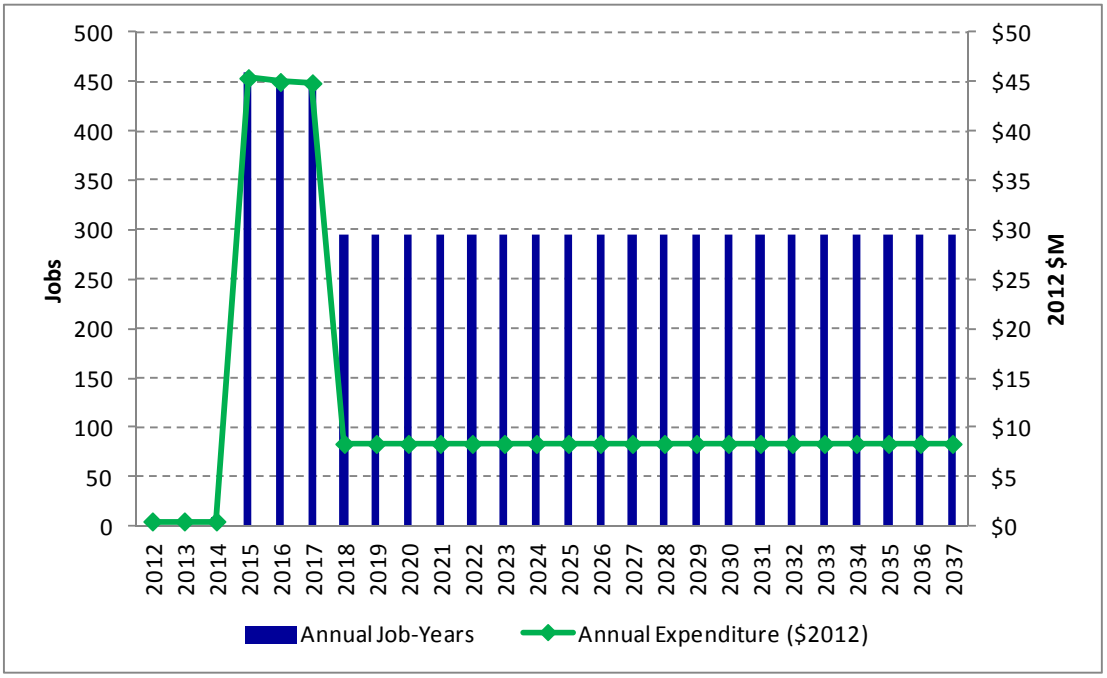
In addition to short-term job creation, the Project is expected to generate long-term employment opportunities. Unlike those resulting from capital expenditures, these jobs are expected to exist through the life of the Project (for 20 years). Table 17 presents estimates of the annual long-term employment impacts resulting from the operation and maintenance of the Project.

Table 17: Long-Term Economic Impacts (Annually)

	Annually
Net O&M Spending (Millions of 2012 $)	8.4
Employment (Direct + Indirect + Induced) (in Job-Years)	295
Labor Income (Millions of 2012 $)	$15.6

Figure 5 present the expected short-term and long-term job impacts of the Project and the corresponding expenditure from 2012 to 2037.

Figure 5: Short-Term and Long-Term Annual Job Impacts



1.4.3. Proposed Minimization or Mitigation

There would be no substantial adverse effects under the proposed Project or the design options. No mitigation measures are required.

1.4.4. Conclusion

Over the period of 2012 to 2018, the Project is expected to generate 1,390 job-years during the Project development phase and to create $103.9 million in value added, including $71.3 million in labor income. Once the Project is operational, it is expected to create 295 job-years and generate $15.6 million in labor income annually. Given the positive employment and income impacts for the regional economy that results from the construction expenditures and ongoing operation and maintenance of the commuter rail, no mitigation is proposed for the Project.

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