

An aerial photograph of a highway interchange with two tunnels. The image is faded and serves as a background for the document. The highway has multiple lanes and a central median. The surrounding area is a mix of green trees and brownish-yellow ground.

Twin Tunnels Environmental Assessment Environmental Justice Technical Memorandum

April 9, 2012 (review draft)

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Acronyms and Abbreviations

AMI	Area Median Income
CDOT	Colorado Department of Transportation
CSS	Context Sensitive Solutions
DOT	Department of Transportation
EA	Environmental Assessment
EO	Executive Order
FHWA	Federal Highway Administration
PEIS	I-70 Mountain Corridor Programmatic Environmental Impact Statement
NEPA	National Environmental Policy Act
ROD	Record of Decision
SWEET	Stream and Wetland Ecological Enhancement Program
HUD	U.S. Department of Housing and Urban Development

Definitions

Census Block Group: The census block group is a cluster of census blocks within a census tract (or groups of blocks). Block groups generally contain between 600 and 3,000 people, with an optimum size of 1,500 people.

Census Block: The census block is the smallest geographic unit for which the U.S. Census Bureau tabulates 100 percent data. It is the smallest subdivision of a census tract. Census blocks are typically small and in urban areas often correspond to city blocks. In less populated areas census blocks may extend for miles and have irregular boundaries.

Minority: A minority is a person who is Black, Hispanic, Asian American, American Indian, or Alaska Native (FHWA Order 6640.23).

Minority Population: Minority population means any readily identifiable groups of minority persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed FHWA program, policy, or activity (FHWA Order 6640.23). In this study, minority populations are identified in census blocks where the proportion of minority persons exceeds the threshold defined by the area of comparison, meaning the minority population is at or above county levels (8 percent).

Low-Income: Low-income is defined using a combination of the U.S. Census average household size data and the income limits set annually by the U.S. Department of Housing and Urban Development (HUD) for identifying housing needs. This study uses income limits set at 30 percent of the Area Median Income (AMI) and adjusts them for household size within the study area (CDOT, 2005). Using this approach defines low-income as households earning less than \$20,000 per year.

Low-Income Population: Low-income population means any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed FHWA program, policy, or activity (FHWA Order 6640.23). In this study, low-income populations are identified in census blocks groups where the proportion of low-income households exceeds the threshold defined by the area of comparison, meaning the low-income population is at or above county levels (13 percent).

Adverse Effect: Adverse effect means the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to: bodily impairment, infirmity, illness or death; air, noise, and water pollution and soil contamination; destruction or disruption of man-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community's economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms, or nonprofit organizations; increased traffic congestion, isolation, exclusion or separation of minority or low-income individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of, benefits of FHWA programs, policies, or activities (FHWA Order 6640.23).

Disproportionately High and Adverse Effect on Minority and Low-Income Populations means an adverse effect that: (1) is predominately borne by a minority population and/or a low-income population; or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non minority population and/or non low- income population (FHWA Order 6640.23).

Purpose of the Memorandum

The Federal Highway Administration (FHWA), in cooperation with the Colorado Department of Transportation (CDOT), is preparing an Environmental Assessment (EA) for proposed changes to the eastbound lanes of I-70 and the eastbound bore of the Twin Tunnels between MP 241 and MP 244 in Clear Creek County, Colorado. The Twin Tunnels area is one of the most congested locations along the I-70 Mountain Corridor. Improvements are necessary to improve safety, operations, and travel time reliability in the eastbound direction of I-70 in the project area. Additionally, the improvements will be consistent with the I-70 Mountain Corridor Programmatic Environmental Impact Statement (PEIS) Record of Decision (ROD), I-70 Mountain Corridor Context Sensitive Solutions (CSS) process, and other commitments of the PEIS.

This technical memorandum discusses the regulatory setting, methodology and approach, describes the study area demographics and affected environment and the impacts of the Proposed Action on minority and low-income populations within the identified study area. The technical memorandum also documents mitigation measures, including applicable measures identified in the I-70 Mountain Corridor PEIS that would reduce any impacts during construction and operation. The I-70 PEIS identified comprehensive improvements for the corridor. The Proposed Action would immediately address safety, mobility, and operations in the eastbound direction at the Twin Tunnels, but would not address all of the needs in the Twin Tunnels area. The Proposed Action would not preclude other improvements needed and approved by the I-70 PEIS ROD.

Section 1. How Does the Analysis Relate to the Tier 1 PEIS?

The Tier 1 PEIS and associated *I-70 Mountain Corridor PEIS Environmental Justice Technical Report* (CDOT, March 2011) provide an overview of environmental justice issues from a Corridor perspective. The environmental justice analysis conducted for the Twin Tunnels EA is developed to evaluate the specific improvements identified between MP 241 and MP 244. It uses the most current data and guidance, including updated demographics from the 2010 U.S. Census.

Throughout the Tier 1 PEIS, the lead agencies coordinated with county and municipal staff and the Environmental Protection Agency to collect information and concerns regarding minority and low-income populations throughout the Corridor. These agencies expressed the following concerns that are considered in the environmental justice analysis for the Twin Tunnels EA:

- Displacement of low-income and minority residents
- Separation of neighborhoods
- Affordable housing
- Access to public transportation
- Commute times for corridor residents
- Adverse effects for residents living close to new transportation facilities and construction

The environmental justice analysis for the Twin Tunnels EA also incorporates applicable commitments identified in the Tier 1 PEIS. These include:

- Developing specific and more detailed mitigation strategies and measures for localized noise, air quality, or shading impacts, property acquisition, changes in access, or impacts to community cohesion;

- Adhering to any new laws and regulations;
- Coordinating with local governments, social services agencies, and the Colorado Minority Business Office; and
- Developing project specific best management practices.

The Tier 1 PEIS included a full public and agency information and involvement program. A specific public and agency involvement program has been developed to provide information, gather input, and address concerns regarding the specific improvements being evaluated in the Twin Tunnels EA. This program includes efforts to ensure full and fair participation by all potentially affected communities in the transportation decision making process.

Section 2. What Process Was Followed to Analyze Environmental Justice?

2.1 Methodology

CH2M HILL prepared the environmental justice analysis for CDOT in accordance with *FHWA Guidance on Environmental Justice and NEPA* (December 16, 2011), *CDOT's Title VI and Environmental Justice Guidelines for National Environmental Policy Act (NEPA) Projects, Rev. 3* (December 2004) and *CDOT's National Environmental Policy Act Manual* (CDOT, 2010) and evaluates:

- The distribution of minority and low-income populations within the study area
- The issues, impacts, and benefits associated with the Proposed Action
- Whether or not the Proposed Action would result in disproportionately high and adverse human health and environmental impacts
- Mitigation (if applicable)

Public involvement and the need for specialized outreach are considered throughout the analysis to ensure full and fair participation by all potentially affected communities in the transportation decision making process.

2.1.1 Identification of Minority and Low-Income Populations

Minority Populations

Minority populations are described by race and ethnicity using data from the 2010 U.S. Census at the census block level.¹ As defined in FHWA Order 6640.23 (described in **Section 3.4** below), a minority is a person who is Black, Hispanic, Asian American, American Indian, or Alaska Native. It is important to note that Hispanic or Latino heritage is accounted for as an ethnicity in census data and is not listed as a racial category. Respondents in the U.S. Census could select both ethnicity as well as a racial category (e.g. Hispanic/Latino Origin and White). To avoid double counting ethnicity and race, the minority population is derived by subtracting the portion of the population categorized as not Hispanic, white alone from the total population. This represents the minority population which is then divided by the total population to arrive at the percent minority. The analysis is

Minority populations are identified in census blocks where the proportion of minority persons exceeds the threshold defined by the area of comparison, meaning the minority population is at or above county levels (8 percent).

¹ The census block is the smallest geographic unit for which the U.S. Census Bureau tabulates 100 percent data. It is the smallest subdivision of a census tract. Census blocks are typically small and in urban areas often correspond to city blocks. In less populated areas census blocks may extend for miles and have irregular boundaries.

focused on census blocks where the proportion of minority persons is at or above county levels (i.e., greater than or equal to 8 percent in Clear Creek County). The analysis considers the impacts regardless of where they occur; projects can impact services that are important to minority and/or low-income populations even in areas that do not exceed the established threshold.

Low-Income Populations

CDOT's environmental justice guidelines recommend defining low-income using a combination of the U.S. Census average household size data and the income limits set annually by the U.S. Department of Housing and Urban Development (HUD) for identifying housing needs. The benefit of using the HUD income limits is that they differ by county and provide for a low-income threshold that is specific to a particular geographic area (unlike the census poverty thresholds, which are the same across all areas in the country regardless of different costs of living). Income limits are categorized as "extremely low" (30 percent of the Area Median Income [AMI]), "very low" (50 percent of the AMI), and "low" (80 percent of the AMI). The analysis uses income limits set at 30 percent of AMI and adjusts them for household size within the study area. The average household size in Clear Creek County is 2.14. To find the income limits for a household size of 2.14, the following calculation is performed:

1. Subtract the 2011 HUD Income Limits for a 2 person household (\$18,800) from the 2011 HUD Income Limits for a 3 person household (\$21,150).
\$21,150 - \$18,800 = \$2,350
2. Multiply the difference between the two values in step 1 by the amount the household size exceeds a whole number (0.14).
\$2,350 x 0.14 = \$329
3. Add the value calculated in step 2 to the 2011 HUD Income Limits for a 2 person household (\$18,800).
\$18,800 + \$329 = \$19,129

The adjusted income limits for Clear Creek County with a household size of 2.14 is \$19,129. Because income data is released from the U.S. Census in increments of \$5,000, the low-income threshold is **\$20,000** per year.

The proportion of low-income households within Clear Creek County (13 percent) provides the threshold against which households within the study area are compared. The census block group is the smallest geographical unit for which income data is reported by the U.S. Census Bureau². The analysis is focused on census block groups where the proportion of low-income households is at or above county levels (i.e., greater than or equal to 13 percent).

Low-income populations are identified in census blocks groups where the proportion of low-income households exceeds the threshold defined by the area of comparison, meaning the low-income population is at or above county levels (13 percent).

Refinement and Mapping

Minority and low-income populations were mapped to provide an overview of where minority and low-income populations might be concentrated along the corridor (the census blocks and block groups that exceed the established thresholds). This data is then refined through contacts with Clear Creek County Department of Health and Human Services, review of the Colorado Minority Business Office database, and input received from the public as applicable.

² The census block group is a cluster of census blocks within a census tract (or groups of blocks). Block groups generally contain between 600 and 3,000 people, with an optimum size of 1,500 people.

2.1.2 Identification of Disproportionately High and Adverse Effects

Once minority and low-income populations have been identified, impacts from the Proposed Action are evaluated to determine whether there is a potential for disproportionately high and adverse effects to minority and/or low-income populations when compared to populations that are not minority and/or not low-income in the study area. According to FHWA Order 6640.23, a disproportionately high and adverse effect is defined as one that is:

1. Predominantly borne by a minority and/or low-income population, or
2. Suffered by the minority and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority/non-low-income population.

All environmental resources are reviewed to identify adverse effects to all populations, including minority and low-income populations. Off-setting benefits and proposed mitigations are also considered to determine whether adverse effects would still be adverse after these other elements are considered. Any remaining adverse effects to minority and low-income populations are then compared to the impacts on the overall population. If adverse unavoidable impacts are determined to be disproportionate, additional mitigation measures are reviewed for their potential to reduce impacts to minority and low-income populations.

2.1.3 Public Involvement

The objectives of the stakeholder involvement program included the continued active participation of stakeholders, fulfillment of the commitments of the PEIS, including following the I-70 Mountain Corridor CSS process, meeting applicable regulatory requirements, and providing timely and easy-to-understand information to the public to support informed decisions.

Low-income and minority residents near the project area received notifications of the public scoping meeting and will receive other project notifications through direct mailings to over 6,000 residents, businesses, and property owners surrounding the project area. These notifications include a contact number for information in Spanish. In addition to these general public outreach and involvement efforts, CDOT involved low-income and minority stakeholders through targeted outreach efforts that include advertising meetings in the Spanish-language newspaper *El Semanario* and the bilingual Spanish-English newspaper *La Voz*, and providing Spanish translation at meetings upon request.

The PEIS outreach efforts identified two low-income and minority communities in Idaho Springs within one mile of I-70: the Cottonwood Mobile Home Park and the Mountain Mobile Home Park. Both of these communities are considered low-income and have large concentrations of Spanish-speaking members. CDOT will distribute to these communities bilingual project fact sheets prior to the publication of the EA, and bilingual mailings notifying them of the availability of the EA for public review and the related public hearing.

2.2 Study Area

The study area for environmental justice was identified as a 0.5 mile radius around the project limits (MP 241 and MP 244). The study area was selected because most of the environmental effects resulting from the Proposed Action will occur in the areas less than 0.5 mile from the alignment, and it was assumed the greatest effects will occur adjacent to the I-70 mainline. CH2M HILL reviewed and mapped the distribution of minority and low-income populations residing within the study area based on data from the 2010 U.S. Census capturing the 2010 U.S. Census blocks, block groups, and census tracts that are entirely or partially within 0.5 miles of the project area.

2.3 Data Sources

The following data sources support the environmental justice analysis:

- U.S. Census Bureau, 2010 Summary File: Provides race and ethnicity data at the census block level for Clear Creek County.
- U.S. Census Bureau 2005-2009 American Community Survey: Provides household income data at the census block group level for Clear Creek County.
- U.S. Census Bureau 2006-2010 American Community Survey: Provides demographic information at the census tract level for Clear Creek County, census tract 147 and census tract 148.
- U.S. Department of Housing and Urban Development: Provides 2011 income limits for housing assistance programs.
- Colorado Office of Economic Development and International Trade, Minority Business Office: Online database identifies registered minority and women-owned businesses throughout Colorado. The database was accessed in January 2012 and identified three businesses in the 80452 zip code. All are located more than one mile from the study area.
- Clear Creek County Department of Health and Human Services: Coordination occurred via phone and email in March of 2011 to assist with the identification of any resources or issues relating to protected populations. The department's focus is primarily on vulnerable and at risk clients, such as low-income families, children in need of protection, the aged, and the disabled. Information provided by this agency is detailed in **Section 5.2**.

2.4 Regulations

This section identifies the relevant federal, state, regional, and local regulations, guidelines, and/or laws that apply to environmental justice.

2.4.1 Federal

- **Title VI of the Civil Rights Act of 1964, as amended:** Environmental Justice has its origins with Title VI of the Civil Rights Act of 1964, as amended, which states “No person in the US shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.” Title VI authorizes and requires federal agencies to issue rules, regulations, or orders to implement environmental justice in its programs and activities.
- **Executive Order 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations – February 11, 1994:** Executive Order (EO) 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations”, signed by the President on February 11, 1994, directs Federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of Federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law.
- **U.S. DOT Order 5610.2 Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations – February 2, 1997:** The U.S. Department of Transportation (DOT) Order 5610.2 “Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” generally describes the process that the Office of the Secretary and each Operating Administration will use to

incorporate environmental justice principles (as embodied in the EO 12898) into existing programs, policies, and activities. It also provides formal definitions for minority and low-income populations, adverse effects, and disproportionately high and adverse effects.

- **FHWA Order 6640.23 FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations - December 2, 1998:** FHWA Order 6640.23 “FWHA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations establishes policies and procedures for FHWA to use in complying with EO 12898. The order provides direction on how to determine whether federal actions would result in disproportionately high and adverse effects on minority and low-income populations.
- **FHWA Guidance on Environmental Justice and NEPA – December 16, 2011:** This guidance supplements FHWA Technical Advisory 6640.8A and advises FHWA and their consultants of the process for addressing Environmental Justice, including the documentation requirements for NEPA studies. In determining whether effects are disproportionately high and adverse, the guidance directs the analysis to evaluate only those adverse effects that remain after mitigation is considered.

2.4.2 State

- **CDOT’s Title VI and Environmental Justice Guidelines for National Environmental Policy Act (NEPA) Projects, Rev. 3 - December 2004:** CDOT’s guidelines for environmental justice were developed to assist CDOT and its consultants with incorporating Title VI and environmental justice mandates when undertaking NEPA documentation requirements. It establishes a detailed methodology for the identification of minority and low-income populations, the determination of effects to protected populations, mitigation strategies, and public involvement.

2.4.3 Local and Regional

No local and regional environmental justice regulations or guidelines were identified. The laws, regulations, and guidelines previously described form the basis of the environmental justice analysis.

It is important to note that environmental justice interacts with several other laws and regulations such as the Clean Air Act of 1990, Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, the Americans with Disabilities Act of 1990, as amended, and the Intermodal Surface Transportation Efficiency Act of 1991. These regulations identify specific requirements for the treatment of protected populations and the rules surrounding particular mitigation strategies (such as property acquisition). For additional information on environmental justice mandates and CDOT guidance, refer to CDOT’s *National Environmental Policy Act Manual* (CDOT, 2010), available on the Web at <http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.

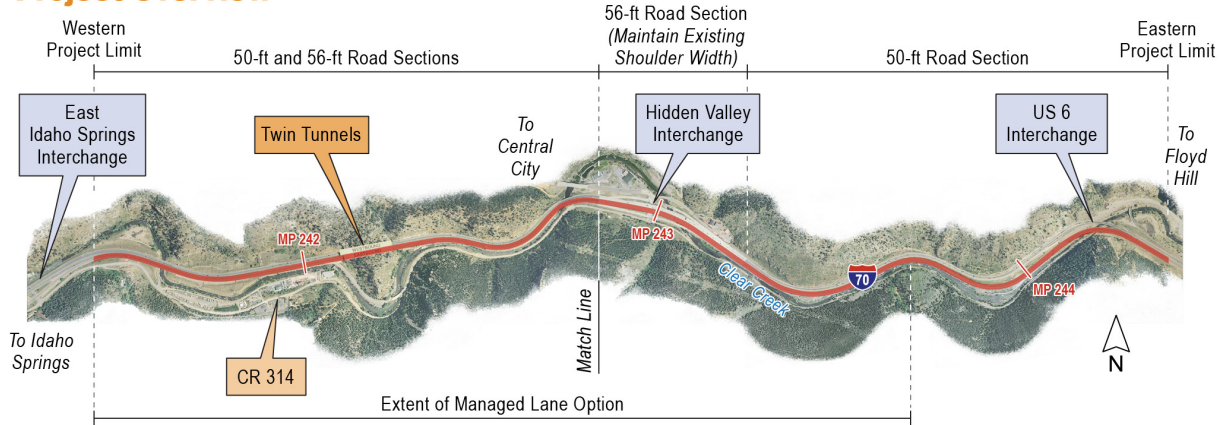
Section 3. Description of the Proposed Action

The Proposed Action would add a third eastbound travel lane and consistent 10-foot outside shoulder to the I-70 highway between the East Idaho Springs interchange and the base of Floyd Hill. The eastbound bore of the Twin Tunnels would be expanded to accommodate the wider roadway section, and the existing tunnel portal face would be removed and replaced. Additionally, the Proposed Action would straighten the curve west of the Hidden Valley interchange where the highest number and most serious crashes occur. This curve reconstruction also involves replacing a bridge on I-70 over Clear Creek.

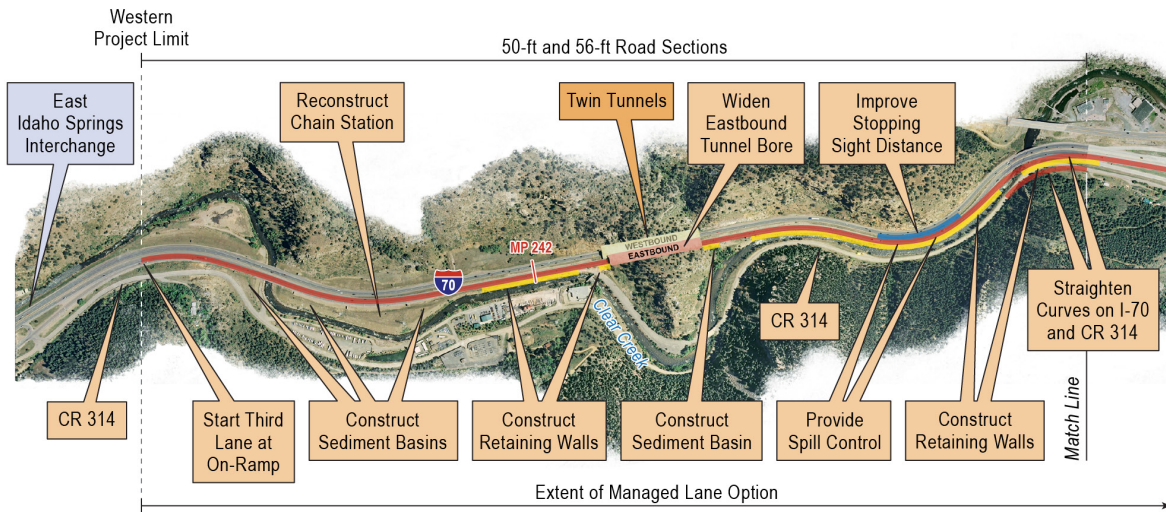
Other proposed improvements include reconstructing the chain station west of the Twin Tunnels, constructing and operating new sediment basins throughout the study area to treat stormwater runoff, installing wildlife fencing, and constructing retaining walls. **Figure 1** illustrates the project limits and the proposed changes.

FIGURE 1
Proposed Action

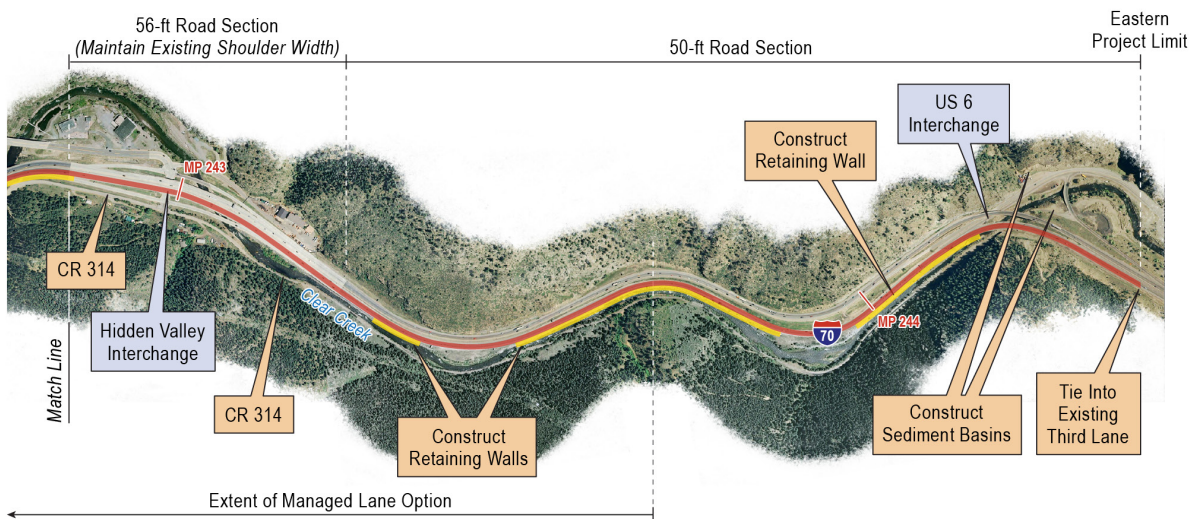
Project Overview



Proposed Action – West Section



Proposed Action – East Section



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CDOT is considering a range of widths between 4 and 10 feet for the inside shoulder between the west project limits and the Hidden Valley interchange. A 4-foot inside shoulder would be provided east of Hidden Valley. A range of tunnel widths, corresponding to the variations in the inside median, is being evaluated.

CDOT is also considering whether the additional capacity will operate exclusively as a general purpose lane or as a tolled lane during peak periods (also called a managed lane).

3.1 What happens if CDOT decides not to construct the Proposed Action?

The No Action Alternative is the condition where CDOT would not construct the Proposed Action. Only ongoing highway maintenance and improvements with committed funding sources would be implemented by the 2035 planning horizon. The No Action Alternative would not meet the project purpose and need. It is assessed in this technical memorandum as a baseline against which the Proposed Action is compared. Like the Proposed Action, the No Action Alternative is evaluated under 2035 traffic conditions.

The No Action Alternative would include the following activities:

- Frontage Road Phase 1
- Private bus service on I-70
- Intelligent Transportation Systems (ITS)/ Advanced Traffic Management Systems (ATMS) improvements such as signage and speed harmonization or pacing (that is, setting driver speeds at a lower limit during periods of congestion, through the use of electronic signage or pace cars, to reduce congestion and improve travel time reliability)
- Replacement of the structurally deficient westbound I-70 bridge at the bottom of Floyd Hill
- Regular roadway maintenance
- The addition of lighting at chain stations near Georgetown and Silver Plume

Section 4. Are there Minority or Low-Income Populations in the in the Study Area?

4.1 What are the current demographic conditions in the study area?

I-70 is the main travel corridor in the area, providing access to the Denver metropolitan area, located approximately 30 miles to the east, and to the ski resorts to the west. Clear Creek County contains many popular recreational destinations including skiing and snowmobiling in the winter and hiking and white water rafting in the summer. It also acts as an important intermediary to destinations farther west along the I-70 mountain corridor.

Because of Idaho Springs' proximity to the Denver metropolitan area, many residents of Idaho Springs and Clear Creek County commute to the Denver metropolitan area for employment. DOLA data indicates more county residents currently commute to jobs in the surrounding counties than work in Clear Creek County. This means that an important part of Clear Creek County's economic base, its residents' personal income, is derived from income and employment generated outside the County. These commuting patterns are expected to continue into 2035.

An overview of the demographic characteristics for Clear Creek County, Idaho Springs and the census tracts in which the study area is located (census tract 147 and census tract 148) are presented in **Table 1**.

Only a small portion of the western limit of the study area is located within census tract 148, which extends more than 3 miles west of the western project limits and primarily reflects population characteristics within Idaho Springs largely outside of the study area. With the exception of total population, ethnicity and racial variables, and household income statistics, the demographic characteristics presented in **Table 1** are only available from the 2010 U.S. Census at the census tract level or higher (County). Minority and low-income statistics and thresholds for the study area are evaluated at the census block and census block group level in accordance with *CDOT's Title VI and Environmental Justice Guidelines for NEPA projects – Rev. 3* and presented in **Section 4.1.1** and **Section 4.1.2**, respectively.

As shown in **Table 1**, Clear Creek County and census tract 147 are very similar in their demographic composition. The population in Clear Creek County and census tract 147 is predominantly white and English speaking, the majority of the population own at least one vehicle and drive alone to work, and approximately one percent of the population use public transportation to get to work. Although a larger percentage of the population within census tract 148 is Hispanic (12.4 percent as compared to 4.7 percent within Clear Creek County and 2.3 percent in census tract 147), nearly the entire population speaks English (99.6 percent). Unemployment in census tract 148 is 2.4 percent higher than in Clear Creek County and 3.4 percent higher than in census tract 147. A slightly higher percentage of people in census tract 148 carpool or use public transportation to get to work.

TABLE 1
Demographic Information for the General Population of Clear Creek County, Idaho Springs and Census Tracts 147 and 148

	Clear Creek County		Idaho Springs		Census Tract 147		Census Tract 148	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Population	9,088	----	6,569	----	4,909	----	1,732	----
Ethnicity and Race								
- White	8,371	92.1%	6,117	93.1%	4,639	94.5%	1,478	85.3%
- Black	50	0.5%	26	0.3%	20	0.4%	6	0.3%
- American Indian/ Alaska Native	56	0.6%	27	0.4%	23	0.5%	4	0.2%
- Asian	51	0.6%	42	0.6%	33	0.7%	9	0.5%
- Native Hawaiian and Other Pacific Islander	3	0.03%	2	0.03%	2	0.04%	0	0%
- Other	11	0.1%	5	0.1%	5	0.1%	0	0%
- Two or more races	117	1.3%	95	1.4%	75	1.5%	20	1.2%
- Hispanic	429	4.7%	255	3.9%	112	2.3%	215	12.4%
Median Age	46.6	----	47.2	----	47.3	----	46.5	----
Population 5 years and over with a Disability	1,363	15.8%	929	14.8%	605	13.0%	324	18.2%
Language Spoken at Home (for the population 5 years and over)								
- Speak English Only at Home	8,275	96.1%	6,077	96.9%	4,454	96.0%	1,623	99.6%

TABLE 1
Demographic Information for the General Population of Clear Creek County, Idaho Springs and
Census Tracts 147 and 148

	Clear Creek County		Idaho Springs		Census Tract 147		Census Tract 148	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
- Speak Spanish at Home	200	2.3%	92	1.5%	92	2.0%	0	0%
- Speak Spanish at Home and English less than "very well"	58	0.7%	46	0.7%	46	1.0%	0	0%
Means of Transportation to Work (for the working population 16 years and over)								
- No vehicle available	148	2.8%	148	3.9%	125	4.4%	23	2.3%
- Drove to work alone	3,897	74.7%	2,889	75.2%	2,191	76.7%	698	70.6%
- Carpooled to work	467	8.9%	244	6.3%	125	4.4%	119	12.0%
- Public Transportation to work	69	1.3%	61	1.6%	37	1.3%	24	2.4%
- Walked to work	223	4.3%	188	4.9%	68	2.4%	120	1.2%
- Other means of transportation to work	561	1.8%	462	12.0%	434	15.2%	28	2.8%
Unemployment Rate	----	7.0%	----	6.9%	----	6.0%	----	9.4%
Median Household Income	\$60,426	----	\$62,893	----	\$72,088	----	\$41,125	----

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

4.1.1 Minority Populations

The percent minority for Clear Creek County and the populated census blocks within the study area are presented in **Table 2** and shown by location in **Figure 2**. Of the 153 blocks within the study area 12 (8 percent) exceed the Clear Creek County threshold of 8 percent. Only two of these are immediately adjacent to the project limits (block 3203 and block 3135). The majority of blocks within the study area (129 or 84 percent) contain a population of zero, which is consistent with the limited land development and topography adjacent to the project limits. Since these blocks have no population, they are not included in **Table 2**. For the full analysis of all 153 blocks within the study area, refer to **Appendix A**.

TABLE 2
Minority Populations

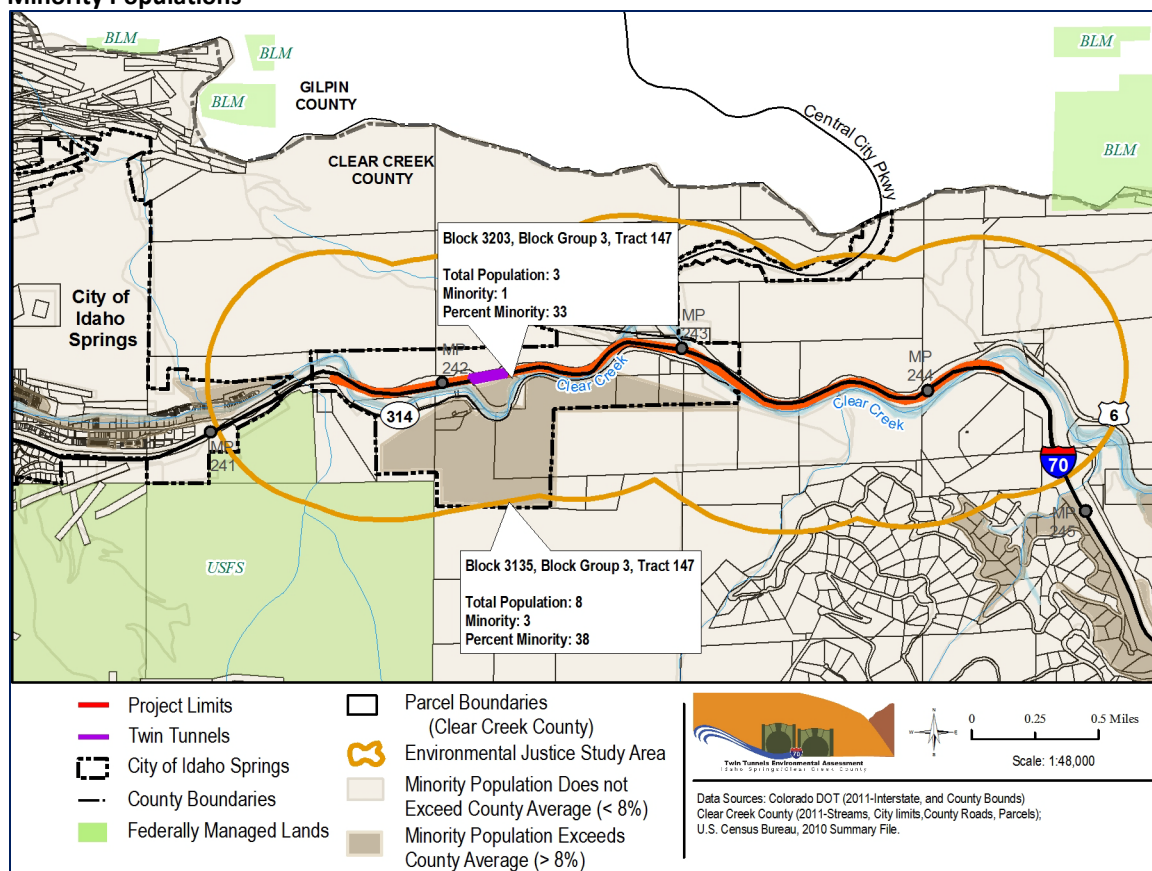
Geography	Total Population	Not Hispanic, White Alone	Minority	Percent Minority	Exceeds Threshold?
Clear Creek County	9,088	8,371	717	8%	NA
Block 3035, Block Group 3, Tract 147	35	32	3	9	Yes
Block 3096, Block Group 3, Tract 147	112	110	2	2	No
Block 3099, Block Group 3, Tract 147	21	19	2	10	Yes
Block 3100, Block Group 3, Tract 147	56	55	1	2	No
Block 3102, Block Group 3, Tract 147	3	3	0	0	No
Block 3108, Block Group 3, Tract 147	4	4	0	0	No

TABLE 2
Minority Populations

Geography	Total Population	Not Hispanic, White Alone	Minority	Percent Minority	Exceeds Threshold?
Block 3135, Block Group 3, Tract 147	8	5	3	38	Yes
Block 3138, Block Group 3, Tract 147	9	9	0	0	No
Block 3203, Block Group 3, Tract 147	3	2	1	33	Yes
Block 3265, Block Group 3, Tract 147	98	83	15	15	Yes
Block 1036, Block Group 1, Tract 148	2	2	0	0	No
Block 1061, Block Group 1, Tract 148	30	15	15	50	Yes
Block 1063, Block Group 1, Tract 148	25	25	0	0	No
Block 1064, Block Group 1, Tract 148	27	26	1	4	No
Block 1066, Block Group 1, Tract 148	10	8	2	20	Yes
Block 1067, Block Group 1, Tract 148	7	7	0	0	No
Block 1068, Block Group 1, Tract 148	28	21	7	25	Yes
Block 1069, Block Group 1, Tract 148	3	3	0	0	No
Block 1070, Block Group 1, Tract 148	106	98	8	8	No
Block 1071, Block Group 1, Tract 148	12	10	2	17	Yes
Block 1072, Block Group 1, Tract 148	19	16	3	16	Yes
Block 1073, Block Group 1, Tract 148	8	6	2	25	Yes
Block 1074, Block Group 1, Tract 148	3	2	1	33	Yes
Block 1151, Block Group 1, Tract 148	38	36	2	5	No

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

FIGURE 2
Minority Populations



4.1.2 Low-Income Populations

The majority of the study area is located within one large block group (Block Group 3, Tract 147) that extends more than 7 miles south of I-70. A small portion of the western limit of the study area is within a second block group (block group 1, tract 148), which extends more than 3 miles west of the western project limit and includes the city of Idaho Springs.

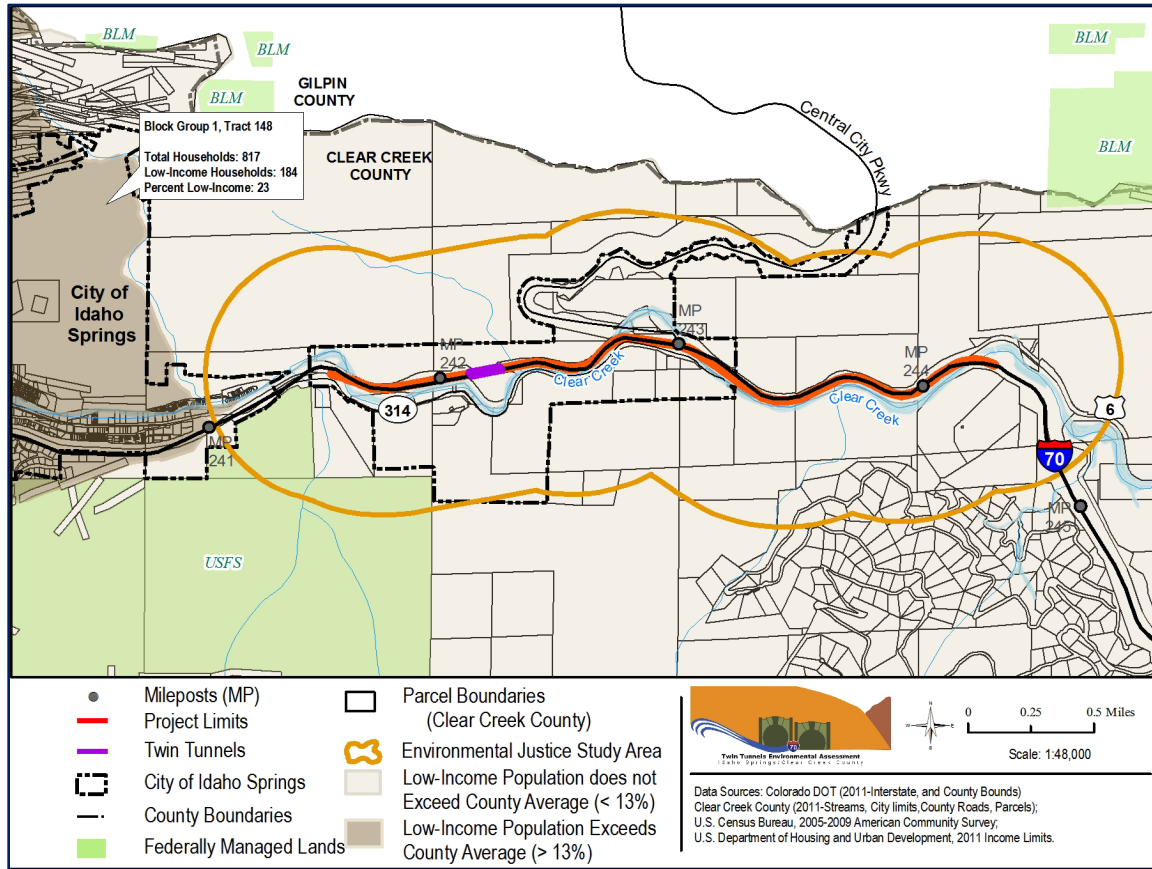
The percent of low-income households in Clear Creek County and the census blocks groups within the study area are presented in **Table 3** and shown by location in **Figure 3**. Of the two block groups within the study area, one (block group 1, tract 148) exceeds the 13 percent threshold and contains low-income populations. This block group is adjacent to the western end of the project and reflects statistics for Idaho Springs as no residences within this block group are located within the project limits.

TABLE 3
Low-Income Populations in the Study Area

Geography	Total Households	Low-Income Households	Percent Low-Income	Exceeds Threshold?
Clear Creek County	4,208	524	13	NA
Block Group 3, Tract 147	1,186	23	2	No
Block Group 1, Tract 148	817	184	23	Yes

Source: U.S. Census Bureau, 2005-2009 American Community Survey; U.S. Department of Housing and Urban Development, Federal Year 2011 Income Limits.

**FIGURE 3
Low-Income Populations**



4.2 What agencies were involved in this analysis and what are their issues?

Throughout the Tier 1 PEIS, the lead agencies coordinated with county and municipal staff and the Environmental Protection Agency to collect information and concerns regarding minority and low-income populations throughout the Corridor. The concerns expressed by these agencies are listed in **Section 1**.

One of the environmental justice commitments identified in the Tier 1 PEIS was additional coordination with local governments, social services agencies, and the Colorado Minority Business Office. Consistent with this instruction, the project team coordinated with the Clear Creek County Department of Health and Human Services in March 2012 to assist with the identification of resources or issues relating to protected populations, including minority and low-income populations, the disabled, elderly, and children. The department indicated the following:

- The department primarily serves Caucasian, low-income residents. The majority of their clients live in the west end of the county and are either unemployed or commute to Denver for employment.
- No subsidized or low-income housing is present within the study area.
- Transportation is a key issue for low-income households; many do not own a vehicle and those that do are affected by congestion on I-70.

- The department is concerned about emergency services and the impact that congestion has on response times.
- Any reduction in congestion would benefit their clients; no concerns about disparity were identified for a managed lane option, as long as tolls are reasonable and transit is available.
- Project generated employment is desirable; this would benefit their clients as many are low-income because they are unemployed.

The project team also accessed the Colorado Office of Economic Development and International Trade, Minority Business Office database in January 2012 to identify any registered minority and women-owned businesses throughout the study area. The database identified three businesses in the 80452 zip code. All are located more than one mile from the study area, within Idaho Springs. No businesses in the study area are known to provide services that are of unique importance to minority or low-income populations and no community facilities (i.e., churches, food banks, etc...) are located within the study area.

Section 5. What Are the Environmental Consequences?

5.1 How does the No Action Alternative affect minority and low-income populations?

The existing configuration of I-70 through the project area cannot accommodate existing peak day (Sunday) traffic volumes without congestion. Currently unacceptable traffic operation will continue to deteriorate in the future under the No Action Alternative. Peak traffic demand in the project limits is forecast to increase 22 percent by 2035, which translates to more than a 70 percent increase in travel times. In 2035, it will take drivers nearly eight times longer to travel through the corridor compared to free flow conditions. Traffic congestion in the I-70 corridor would worsen over time, resulting in visual effects (from additional traffic on the highway), an increase in air emissions, rising noise levels, longer travel times, and lengthened emergency response times. Safety issues would persist.

Implementation of Frontage Road Phase I would result in some changes in visual quality due to the construction of retaining walls along CR 314, but would also improve recreational amenities within the study area (Scott Lancaster Memorial Trail and the unnamed boating access on the north side of CR 314 east of the Doghouse Rail Bridge). The impacts associated with the frontage road improvements are detailed in the *I-70 Frontage Road Improvements Categorical Exclusion* (CDOT, 2012). The project is expected to be completed in the fall of 2012. Additional bus service on I-70 could benefit all populations including low-income populations by providing additional transportation options.

The No Action Alternative would not cause disproportionately high and adverse effects on any minority or low-income populations.

The effects of the No Action Alternative would not be borne by any particular segment of the population and both minority and low-income and non-minority and non-low-income populations would be affected to the same extent. Therefore, the No Action Alternative would not cause disproportionately high and adverse effects on any minority or low-income populations.

5.2 How does the Proposed Action affect minority and low-income populations?

5.2.1 What are the direct effects of the Proposed Action with a managed lane?

All environmental resources were reviewed to identify whether impacts from the Proposed Action would result in any adverse effects to the general population, including minority and low-income populations. This analysis is presented in **Table 4**. Direct, indirect, and construction-related impacts, proposed mitigation, and any benefits associated with the Proposed Action are considered. Impacts to natural resources (i.e., terrestrial wildlife, aquatic resources, threatened and endangered species, vegetation, and wetlands and other waters of the U.S.) have been assumed not to have any direct impacts or indirect effects on human populations and are, therefore, not included in **Table 4**. The full impact analysis for each of these resources can be found in the *Twin Tunnels Environmental Assessment* and supporting Technical Memoranda.

TABLE 4

Adverse Effects Analysis

Topic	Adverse Effects Before Mitigation?	Adverse Effects After Mitigation?	Potential for Disproportionately High and Adverse Effects?
Transportation	No	No	No
<p><u>Summary of Effects:</u> The Proposed Action would improve traffic operations and safety conditions when compared to the No Action Alternative. Benefits would be distributed across all segments of the population.</p> <p><u>Summary of Mitigation Measures:</u> Mitigation includes continued coordination with local agencies and the public regarding the design of the project and construction activities.</p> <p>For more information refer to the <i>Twin Tunnels Technical Transportation Report</i>.</p>			
Air Quality	No	No	No
<p><u>Summary of Effects:</u> Reductions in traffic congestion would improve air quality in the area. Benefits would be distributed across all segments of the population. Increased traffic volumes moving through the area under both the No Action Alternative and the Proposed Action would result in substantial increases in re-entrained dust, which includes particulate matter less than ten microns in diameter (PM10). Increases would not exceed air quality standards and are therefore not considered adverse. Temporary construction related impacts include an increase in construction related emissions and fugitive dust. Air quality impacts would be distributed across all segments of the population.</p> <p><u>Summary of Mitigation Measures:</u> Mitigation will address temporary air quality impacts related to construction related emissions and fugitive dust.</p> <p>For more information refer to the <i>Twin Tunnels Air Quality Technical Memorandum</i>.</p>			
Floodplains	No	NA	No
<p><u>Summary of Effects:</u> The Proposed Action is not expected to encroach upon the 100-year floodplain for Clear Creek and includes measures to avoid impacts (e.g., placing retaining walls outside of the floodplain and spanning the floodplain where new bridge structures are constructed). During construction, excavation and grading activities would be required within portions of the floodplain to build retaining walls and bridges. However, these activities would not result in permanent changes to the stream channel or floodplain elevations. No impacts to any populations, including minority and low-income populations, are anticipated.</p> <p><u>Summary of Mitigation Measures:</u> No mitigation is required.</p> <p>For more information refer to Chapter 3 of the <i>Twin Tunnels Environmental Assessment</i>.</p>			
Water Resources and Water Quality	No	No	No

TABLE 4

Adverse Effects Analysis

Topic	Adverse Effects Before Mitigation?	Adverse Effects After Mitigation?	Potential for Disproportionately High and Adverse Effects?
<p><u>Summary of Effects:</u> The estimated changes in water quality are expected to be relatively small and are unlikely to create any exceedence of water quality standards. Permanent sediment control BMP structures planned as part of the Proposed Action are expected to remove significant amounts of sediment, metals, and phosphorous from highway runoff. Improvements in traffic safety as a result of the Proposed Action should reduce accidental spills of hazardous materials into Clear Creek. Improvements to water quality would be distributed across all segments of the population.</p> <p><u>Summary of Mitigation Measures:</u> Water quality impacts will be mitigated through the implementation of a storm water management plan, BMPs (both permanent and during construction), and post construction monitoring. An annual BMP maintenance program for operations will be developed, funded, and implemented by CDOT. The Stream and Wetland Ecological Enhancement Program (SWEEP) Memorandum of Understanding developed for the project will guide the SWEEP committee in identifying appropriate mitigation opportunities in the Corridor.</p> <p>For more information refer to the <i>Twin Tunnels Environmental Assessment Water Resources Technical Memorandum</i>.</p>			
Regulated Materials and Solid Waste	Potentially	No	No
<p><u>Summary of Effects:</u> The Proposed Action would require construction in areas where potential mine-related wastes may be located and on bridges where lead-based paint has been identified. The potential to encounter mine-related wastes is unlikely. Impacts to populations within the study area are unlikely, would not be adverse after mitigation (discussed below), and would be distributed across all segments of the population.</p> <p><u>Summary of Mitigation Measures:</u> Mitigation will address the handling and disposal of mine-related wastes in the event they are encountered as well as techniques to prevent exposure. Mitigation has also been developed to address lead-based paint located on bridge components.</p> <p>For more information refer to the <i>Twin Tunnels Environmental Assessment Regulated Materials and Solid Waste Technical Memorandum</i>.</p>			
Land Use	No	NA	No
<p><u>Summary of Effects:</u> The Proposed Action is not anticipated to result in adverse effects to land use. One vacant commercial property would be partially acquired and converted to transportation use. This property has not been identified as minority-owned and is currently undevelopable due to its location between I-70 and Clear Creek, which restricts access. The Proposed Action is not expected to induce growth or change existing land use patterns and is consistent with relevant land use plans, zoning, and planned growth in the study area. No impacts to any populations, including minority and low-income populations, are anticipated.</p> <p><u>Summary of Mitigation Measures:</u> No mitigation is required.</p> <p>For more information refer to the <i>Twin Tunnels Environmental Assessment Land Use Technical Memorandum</i>.</p>			
Right-of-Way	No	No	No
<p><u>Summary of Effects:</u> The Proposed Action would require the partial acquisition of one vacant commercial property. This property has not been identified as minority-owned and is currently undevelopable due to its location between I-70 and Clear Creek, which restricts access. No impacts to any populations, including minority and low-income populations, are anticipated.</p> <p><u>Summary of Mitigation Measures:</u> Property acquisition will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.</p> <p>For more information refer to Chapter 3 of the <i>Twin Tunnels Environmental Assessment</i>.</p>			
Socio-Economic	No	No	No
<p><u>Summary of Effects:</u> Because the Proposed Action would be constructed in an area with few residences, little development, and no community facilities, it would not bisect any neighborhoods, result in any social isolation or separation of residents from community or public facilities, or decrease any neighborhood size. The Proposed Action would improve commutes for all populations including minority and low-income populations who travel east to the</p>			

TABLE 4

Adverse Effects Analysis

Topic	Adverse Effects Before Mitigation?	Adverse Effects After Mitigation?	Potential for Disproportionately High and Adverse Effects?
<p>Denver metropolitan area for employment, especially during the peak travel period. Construction activities would temporarily increase noise and dust levels, have negative visual quality effects, and result in changes to access. During peak travel periods (currently Sundays) travel times would be expected to increase, lengthening emergency response times. Impacts would not be adverse and would be distributed across all segments of the population.</p> <p><u>Summary of Mitigation Measures:</u> A number of mitigation measures are proposed to address impacts during construction.</p> <p>For more information refer to Chapter 3 of the <i>Twin Tunnels Environmental Assessment</i>.</p>			

Noise

No

No

No

<p><u>Summary of Effects:</u> Existing noise levels exceed 66 dB(A) at seven of the eight residential receptor within the project area. Of these, three are located within census blocks where minority populations have been identified and four are not. Noise levels are anticipated to increase in the future whether or not the Proposed Action is constructed; noise levels would not increase more than 2 dB(A) at any of the residential receptors, a change which would not be perceptible to the human ear (an increase of at least 3 dB(A) is needed to be perceptible to the human ear) and no substantial increase in noise levels (≥ 10 dB(A)) or noise levels exceeding 75 dB(A) are anticipated. Noise levels at receptors along the detour route are anticipated to be lower than existing levels due to the slower speed limit of the detour and reduced speeds on eastbound I-70 immediately prior to the detour. Impacts would not be adverse and would be fairly distributed across all segments of the population.</p> <p><u>Summary of Mitigation Measures:</u> Noise barriers were considered for the residential receptors within the project area but are not feasible or considered reasonable and are not recommended. Mitigation is proposed to address temporary noise impacts related to blasting inside the tunnel and standard construction generated noise.</p> <p>For more information refer to the <i>Twin Tunnels Environmental Assessment Noise Technical Memorandum</i>.</p>

Visual

Potentially

No

No

<p><u>Summary of Effects:</u> The Proposed Action is not expected to result in any high and adverse visual effects after the incorporation of mitigation. Direct visual effects after mitigation would range from minor to moderate. Minor effects include additional signage, new guardrails, retaining walls that are 5 feet or less in height, and bridge widening. Moderate effects include retaining walls from 5 feet to 20 feet in height. Construction related effects include increased visibility of construction equipment and workers, material stockpiles, dust and debris, signs, high-visibility fencing, and staging areas. Impacts would not be adverse after mitigation (discussed below) and would be distributed across all segments of the population.</p> <p><u>Summary of Mitigation Measures:</u> CDOT will avoid and minimize negative effects on visual quality by incorporating the <i>I-70 Mountain Corridor Context Sensitive Solutions Aesthetic Design Guidelines</i> into the project design. Mitigation is also proposed to reduce visual effects related to construction activities.</p> <p>For more information refer to the <i>Twin Tunnels Environmental Assessment Visual Resources Technical Memorandum</i>.</p>

Recreation Resources

Potentially

No

No

<p><u>Summary of Effects:</u> The Proposed Action would realign the Scott Lancaster Memorial Trail (on CR 314), remove of one (of eight) boating access points, and potentially reduce parking availability at Kermitts Trailhead and Kermitts Boating Access. Construction activities would result in temporary trail and river closures, construction-related delays and inconveniences, and reduced parking capacity (as a result of construction staging). The Scott Lancaster Memorial Trail and game check area would be resurfaced and temporarily closed for use as a detour route for interstate traffic during construction. Impacts would not be adverse after mitigation (discussed below) and would be distributed across all segments of the population.</p> <p><u>Summary of Mitigation Measures:</u> A temporary trail detour would be provided to maintain access to the Scott Lancaster Memorial Trail and game check area for pedestrians and bicyclists during construction. After construction the game</p>
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TABLE 4

Adverse Effects Analysis

Topic	Adverse Effects Before Mitigation?	Adverse Effects After Mitigation?	Potential for Disproportionately High and Adverse Effects?
<p>check area will be restored. Additional mitigation measures will minimize impacts to recreation resources (e.g., coordination with rafting companies, restricting river closures to off-peak days, and maintaining pedestrian, bicycle, and boating access).</p> <p>For more information refer to the <i>Twin Tunnels Environmental Assessment Recreational and Section 6(f) Resources Technical Memorandum</i>.</p>			
Historic Properties	Yes	Yes	No
<p><u>Summary of Effects</u>: The Proposed Action would have an adverse effect on the Twin Tunnels. The tunnels are a transportation feature and impacts would be distributed across all segments of the population.</p> <p><u>Summary of Mitigation Measures</u>: Mitigation is proposed for impacts to the Twin Tunnels and will be detailed in a Programmatic Agreement between FHWA, CDOT, and the State Historic Preservation Officer (SHPO).</p> <p>For more information refer to Section 3.6 Historic Properties and Native American Consultation.</p>			
Geology	Potentially	No	No
<p><u>Summary of Effects</u>: The Proposed Action would widen the tunnel portals increasing the potential for public exposure to rockfall hazards. Excavating for the portals, constructing new slopes and retaining walls, and widening the roadway template could increase the amount of erosion during construction. Impacts would not be adverse after mitigation (discussed below) and would be distributed across all segments of the population.</p> <p><u>Summary of Mitigation Measures</u>: The Proposed Action includes rockfall mitigation to reduce the risk of geologic hazards and will implement best management practices during construction to address the potential for an increase in erosion.</p> <p>For more information refer to Chapter 3 of the <i>Twin Tunnels Environmental Assessment</i>.</p>			

Sources: CH2M HILL, 2012. *Twin Tunnels Environmental Assessment*, *Twin Tunnels Environmental Assessment Air Quality Technical Memorandum*, *Twin Tunnels Environmental Assessment Water Resources Technical Memorandum*, *Twin Tunnels Environmental Assessment Regulated Materials and Solid Waste Technical Memorandum*, *Twin Tunnels Environmental Assessment Land Use Technical Memorandum*, *Twin Tunnels Environmental Assessment Noise Technical Memorandum*, *Twin Tunnels Environmental Assessment Visual Resources Technical Memorandum*, *Twin Tunnels Environmental Assessment Recreational and Section 6(f) Resources Technical Memorandum*, *Twin Tunnels Environmental Assessment Historic Properties Survey Report*; Felsburg Holt & Ullevig, 2012. *Twin Tunnels Environmental Assessment Technical Transportation Report*.

As described in **Section 4.1.1**, minority populations have been identified in two census blocks that are immediately adjacent to the project limits (block 3203 and block 3135). Approximately 8 residences are located within the immediate project area. Of these, three are located in census block 3203 and the remaining 5 are located in census blocks that do not contain higher than average concentrations of minorities. Low-income populations have been identified in one census block group in the study area (block group 1, tract 148). No residences within this block group are located within the project limits.

As shown in **Table 4**, the Proposed Action, with proposed mitigation, would not result in any adverse effects to the general population, including minority and low-income populations. In general project related benefits and impacts would be fairly distributed and would not be predominantly borne by minority and/or low-income populations.

The Proposed Action, with mitigation, would not result in any adverse effect to the general population, including minority and low-income populations.

Although the Proposed Action with mitigation is not anticipated to result in adverse effects to the general population, including minority and low-income populations, tolling and congestion pricing programs are often perceived as inequitable to lower-income populations. Toll roads may be more of a financial burden for lower-income commuters than for higher-income commuters. Whether a toll road would result in a disproportionate impact on lower-income commuters depends on whether alternative modes of transportation are available, whether the use of alternative modes would increase the amount of time spent in travel, and whether the toll would cause lower-income commuters to shift to more congested roads (or lanes) to avoid the toll.

If the managed lane option is selected as part of the Proposed Action, CDOT would price the lane only during peak periods of congestion, which typically occur on Sundays during the summer and winter seasons. The lane would operate as a general purpose (i.e. “free”) lane at all other times. The toll price would change by time of day, going up as congestion increases, to maintain reliable travel time for vehicles in the managed lane. Initial modeling suggests that the toll would vary from \$0.50 to \$3.00 in the first year of use. Heavy vehicles would pay an additional surcharge of \$18 in addition to the posted toll price. The existing general purpose lanes would continue to be available to all drivers at all times and would provide some travel time savings over the No Action Alternative because drivers using the managed lane would no longer drive in the general purpose lanes. Bus service on I-70 included in the No Action Alternative would provide additional transportation options, especially for those households that do not own a vehicle.

The technology used to operate toll roads is also considered in the analysis. For example, the purchase of transponders and the requirement of advance payment from bank and credit card accounts can be problematic for those populations may not have credit cards. If the managed lane option is selected for the Proposed Action, CDOT will accommodate alternative payment options (cash).

The provision of a managed lane during peak periods of congestion has some advantages over a general purpose lane, such as more reliable travel times and improved emergency response times (emergency vehicles will be allowed to use the lanes without paying a toll as long as they have been dispatched to run with lights and sirens for emergency purposes). At first these benefits would only be achieved on Sundays, but would extend to weekday periods as congestion grows over time. For the Twin Tunnels project, CDOT has committed to allowing public or privately operated buses to use the managed lanes for free. A managed lane added to the existing general purpose lanes provides additional transportation options for all commuters, regardless of incomes, as drivers can choose to use pay the toll, when a faster, more reliable trip is necessary.

A managed lane concept is not anticipated to result in a meaningful financial burden for lower-income commuters.

Alternatives to the managed lane will continue to be available to commuters, including the existing general purpose lanes and transit services included in the No Action Alternative. The use of these alternatives would likely increase travel times over the managed lane, but would still provide substantial congestion relief over the No Action Alternative. In addition, the managed lane would be available as a general purpose lane for the majority of the week, which would benefit all commuters that live west of the study area and commute to Denver for work during the week. For these reasons, a managed lane concept is not anticipated to result in a meaningful financial burden for lower-income commuters.

Key agencies expressed several concerns about the potential for impacts throughout the Tier 1 PEIS. The impacts of the Proposed Action in relation to their concerns are addressed below:

- **Displacement of low-income and minority residents:** No low-income or minority residents will be displaced by the Proposed Action.

- **Separation of neighborhoods:** Eight residences are adjacent to the project limits. The Proposed Action would not bisect any neighborhoods, result in any social isolation or separation of residents from community or public facilities, decrease the size of any neighborhood, or impact community cohesion.
- **Affordable housing:** The Proposed Action would not impact any existing affordable housing units or increase or decrease access to affordable housing.
- **Access to public transportation:** The Proposed Action with a managed lane could encourage the use of public transportation during peak periods. For the Twin Tunnels project, CDOT has committed to allowing public or privately operated buses to use the managed lanes for free.
- **Commute times for corridor residents:** The Proposed Action would improve average travel times experienced by eastbound motorists in 2035 compared to the No Action Alternative.
- **Adverse effects for residents living close to new transportation facilities and construction:** Construction-related impacts (addressed in **Section 5.4**) would be fairly distributed and would not be predominantly borne by identified minority or low-income populations.

Based on the above discussion and analysis and the information on adverse effects in **Table 4**, the Proposed Action with a managed lane will not result in disproportionately high and adverse effects on minority and/or low-income populations in accordance with the provisions of EO 12898 and FHWA Order 6640.23. No further environmental justice analysis is required.

The Proposed Action with a managed lane will not cause disproportionately high and adverse effects on any minority or low-income populations.

5.2.2 How does the Proposed Action change without tolling?

In general the direct effects to minority and low-income populations as a result of the Proposed Action with or without tolling would be the same as those experienced by the general population as described in **Table 4**. However, all segments of the population would use general purpose lanes and no additional cost would be incurred by commuters.

Based on the above discussion and analysis and the information on adverse effects in **Table 4**, the Proposed Action without tolling will not result in disproportionately high and adverse effects on minority and/or low-income populations in accordance with the provisions of EO 12898 and FHWA Order 6640.23. No further environmental justice analysis is required.

The Proposed Action without tolling will not cause disproportionately high and adverse effects on any minority or low-income populations.

5.3 What indirect effects are anticipated?

No indirect effects to minority or low-income populations within the study area are anticipated.

5.4 What effects occur during construction?

Construction effects would include detours, a temporary increase in roadway congestion in and around the area, the presence of large equipment, noise from blasting and construction equipment, dust from excavation and earthmoving activities, occasional closures of Clear Creek and access for recreational activities such as rafting and fishing, and general disruption to the surrounding area. Construction congestion is not expected to affect commuters on weekdays because weekday traffic volumes are currently low. Construction-related impacts would not be high and adverse after mitigation and would be distributed across all segments of the population.

Construction-related impacts would not be high and adverse after mitigation and would be distributed across all segments of the population.

Section 6. What Mitigation Is Needed?

6.1 Tier 1 Mitigation Strategies

The environmental justice analysis for the Twin Tunnels EA has addressed the applicable commitments identified in the Tier 1 PEIS as follows:

- Develop specific and more detailed mitigation strategies and measures for localized noise, air quality, or shading impacts, property acquisition, changes in access, or impacts to community cohesion:** As noted in Section 5.2.1, resource specific mitigation measures have been developed to address impacts from the Proposed Action. These measures are detailed in the supporting documentation and resource specific technical memoranda prepared for the Twin Tunnels EA. In many cases localized impacts are not anticipated and mitigation is not necessary (e.g. community cohesion). Since the Proposed Action would not cause disproportionately high and adverse effects on any minority or low-income populations additional mitigation measures are not needed.
- Adhering to any new laws and regulations:** FHWA's *Guidance on Environmental Justice and NEPA*, released in December of 2011, has been reviewed and relevant portions have been incorporated into the analysis. The analysis also includes updated racial, ethnicity, and income statistics from the 2010 Census.
- Coordinating with local governments, social services agencies, and the Colorado Minority Business Office:** As noted in Section 5.2.1, the project team coordinated with the Clear Creek County Department of Health and Human Services in March 2012 to assist with the identification of resources or issues relating to protected populations, including minority and low-income populations, the disabled, elderly, and children. The project team also accessed the Colorado Office of Economic Development and International Trade, Minority Business Office database in January 2012 to identify any registered minority and women-owned businesses throughout the study area.
- Developing project specific best management practices:** Best management practices will be implemented to manage risks to the natural and human environment (e.g. water quality, exposure to hazardous materials, etc...). These practices are described in the supporting documentation and resource specific technical memoranda prepared for the Twin Tunnels EA.

Since the Proposed Action would not cause disproportionately high and adverse effects on any minority or low-income populations, no mitigation measures specific to environmental justice are needed.

6.2 Twin Tunnels Mitigation

6.2.1 Operations Mitigation

As noted in **Sections 5.2.1 and 5.2.2**, the Proposed Action with or without tolling will not cause disproportionately high and adverse effects on any minority or low-income populations in accordance with the provisions of EO 12898 and FHWA Order 6640.23. Resource specific mitigation has already been factored into the analysis for environmental justice. Since the Proposed Action would not cause disproportionately high and adverse effects on any minority or low-income populations, no mitigation measures specific to environmental justice are needed.

6.2.2 Construction Mitigation

As noted in **Section 5.2.1 and 5.2.2**, the Proposed Action with or without tolling will not cause disproportionately high and adverse effects on any minority or low-income populations in accordance with the provisions of EO 12898 and FHWA Order 6640.23. Mitigation for construction-related impacts

has already been factored into the analysis for environmental justice. Since the Proposed Action would not cause disproportionately high and adverse effects on any minority or low-income populations, no mitigation measures specific to environmental justice are needed.

Section 7. References

- Center for Transportation Research, 2006. Guidebook for Identifying, Measuring and Mitigating Environmental Justice Impacts of Toll Roads. September 2006.
- CH2M HILL, 2012. Twin Tunnels Environmental Assessment Air Quality Technical Memorandum. March 2012.
- CH2M HILL, 2012. Twin Tunnels Environmental Assessment Regulated Materials and Solid Waste Technical Memorandum. March 2012.
- CH2M HILL, 2012. Twin Tunnels Environmental Assessment Water Resources Technical Memorandum. March 2012.
- CH2M HILL, 2012. Twin Tunnels Environmental Assessment Land Use Technical Memorandum. March 2012.
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Appendix A
MINORITY POPULATION ANALYSIS

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MINORITY POPULATION ANALYSIS

Geography	Total Population	Not Hispanic, White Alone	Minority	Percent Minority	Exceeds Thres hold?
Clear Creek County	9,088	8,371	717	8%	NA
Block 3000, Block Group 3, Tract 147	0	0	0	NA	No
Block 3003, Block Group 3, Tract 147	0	0	0	NA	No
Block 3005, Block Group 3, Tract 147	0	0	0	NA	No
Block 3006, Block Group 3, Tract 147	0	0	0	NA	No
Block 3007, Block Group 3, Tract 147	0	0	0	NA	No
Block 3008, Block Group 3, Tract 147	0	0	0	NA	No
Block 3009, Block Group 3, Tract 147	0	0	0	NA	No
Block 3010, Block Group 3, Tract 147	0	0	0	NA	No
Block 3011, Block Group 3, Tract 147	0	0	0	NA	No
Block 3012, Block Group 3, Tract 147	0	0	0	NA	No
Block 3013, Block Group 3, Tract 147	0	0	0	NA	No
Block 3014, Block Group 3, Tract 147	0	0	0	NA	No
Block 3015, Block Group 3, Tract 147	0	0	0	NA	No
Block 3016, Block Group 3, Tract 147	0	0	0	NA	No
Block 3018, Block Group 3, Tract 147	0	0	0	NA	No
Block 3020, Block Group 3, Tract 147	0	0	0	NA	No
Block 3023, Block Group 3, Tract 147	0	0	0	NA	No
Block 3026, Block Group 3, Tract 147	0	0	0	NA	No
Block 3027, Block Group 3, Tract 147	0	0	0	NA	No
Block 3028, Block Group 3, Tract 147	0	0	0	NA	No
Block 3029, Block Group 3, Tract 147	0	0	0	NA	No
Block 3030, Block Group 3, Tract 147	0	0	0	NA	No
Block 3031, Block Group 3, Tract 147	0	0	0	NA	No
Block 3032, Block Group 3, Tract 147	0	0	0	NA	No
Block 3033, Block Group 3, Tract 147	0	0	0	NA	No
Block 3034, Block Group 3, Tract 147	0	0	0	NA	No
Block 3035, Block Group 3, Tract 147	35	32	3	9	Yes
Block 3036, Block Group 3, Tract 147	0	0	0	NA	No
Block 3037, Block Group 3, Tract 147	0	0	0	NA	No
Block 3038, Block Group 3, Tract 147	0	0	0	NA	No
Block 3039, Block Group 3, Tract 147	0	0	0	NA	No
Block 3040, Block Group 3, Tract 147	0	0	0	NA	No
Block 3041, Block Group 3, Tract 147	0	0	0	NA	No
Block 3042, Block Group 3, Tract 147	0	0	0	NA	No
Block 3043, Block Group 3, Tract 147	0	0	0	NA	No
Block 3044, Block Group 3, Tract 147	0	0	0	NA	No
Block 3045, Block Group 3, Tract 147	0	0	0	NA	No
Block 3046, Block Group 3, Tract 147	0	0	0	NA	No
Block 3047, Block Group 3, Tract 147	0	0	0	NA	No
Block 3048	0	0	0	NA	No
Block 3049, Block Group 3, Tract 147	0	0	0	NA	No
Block 3050, Block Group 3, Tract 147	0	0	0	NA	No
Block 3051, Block Group 3, Tract 147	0	0	0	NA	No

MINORITY POPULATION ANALYSIS

Geography	Total Population	Not Hispanic, White Alone	Minority	Percent Minority	Exceeds Thres hold?
Block 3052, Block Group 3, Tract 147	0	0	0	NA	No
Block 3053, Block Group 3, Tract 147	0	0	0	NA	No
Block 3054, Block Group 3, Tract 147	0	0	0	NA	No
Block 3055, Block Group 3, Tract 147	0	0	0	NA	No
Block 3056, Block Group 3, Tract 147	0	0	0	NA	No
Block 3057, Block Group 3, Tract 147	0	0	0	NA	No
Block 3058, Block Group 3, Tract 147	0	0	0	NA	No
Block 3059, Block Group 3, Tract 147	0	0	0	NA	No
Block 3060, Block Group 3, Tract 147	0	0	0	NA	No
Block 3061, Block Group 3, Tract 147	0	0	0	NA	No
Block 3062, Block Group 3, Tract 147	0	0	0	NA	No
Block 3063, Block Group 3, Tract 147	0	0	0	NA	No
Block 3064, Block Group 3, Tract 147	0	0	0	NA	No
Block 3065, Block Group 3, Tract 147	0	0	0	NA	No
Block 3066, Block Group 3, Tract 147	0	0	0	NA	No
Block 3067, Block Group 3, Tract 147	0	0	0	NA	No
Block 3068, Block Group 3, Tract 147	0	0	0	NA	No
Block 3069, Block Group 3, Tract 147	0	0	0	NA	No
Block 3070, Block Group 3, Tract 147	0	0	0	NA	No
Block 3071, Block Group 3, Tract 147	0	0	0	NA	No
Block 3072, Block Group 3, Tract 147	0	0	0	NA	No
Block 3073, Block Group 3, Tract 147	0	0	0	NA	No
Block 3074, Block Group 3, Tract 147	0	0	0	NA	No
Block 3075, Block Group 3, Tract 147	0	0	0	NA	No
Block 3076, Block Group 3, Tract 147	0	0	0	NA	No
Block 3077, Block Group 3, Tract 147	0	0	0	NA	No
Block 3080, Block Group 3, Tract 147	0	0	0	NA	No
Block 3081, Block Group 3, Tract 147	0	0	0	NA	No
Block 3082, Block Group 3, Tract 147	0	0	0	NA	No
Block 3084, Block Group 3, Tract 147	0	0	0	NA	No
Block 3096, Block Group 3, Tract 147	112	110	2	2	No
Block 3097, Block Group 3, Tract 147	0	0	0	NA	No
Block 3098, Block Group 3, Tract 147	0	0	0	NA	No
Block 3099, Block Group 3, Tract 147	21	19	2	10	Yes
Block 3100, Block Group 3, Tract 147	56	55	1	2	No
Block 3101, Block Group 3, Tract 147	0	0	0	NA	No
Block 3102, Block Group 3, Tract 147	3	3	0	0	No
Block 3103, Block Group 3, Tract 147	0	0	0	NA	No
Block 3108, Block Group 3, Tract 147	4	4	0	0	No
Block 3109, Block Group 3, Tract 147	0	0	0	NA	No
Block 3110, Block Group 3, Tract 147	0	0	0	NA	No
Block 3112, Block Group 3, Tract 147	0	0	0	NA	No
Block 3113, Block Group 3, Tract 147	0	0	0	NA	No
Block 3114, Block Group 3, Tract 147	0	0	0	NA	No
Block 3115, Block Group 3, Tract 147	0	0	0	NA	No

MINORITY POPULATION ANALYSIS

Geography	Total Population	Not Hispanic, White Alone	Minority	Percent Minority	Exceeds Thres hold?
Block 3116, Block Group 3, Tract 147	0	0	0	NA	No
Block 3117, Block Group 3, Tract 147	0	0	0	NA	No
Block 3118, Block Group 3, Tract 147	0	0	0	NA	No
Block 3134, Block Group 3, Tract 147	0	0	0	NA	No
Block 3135, Block Group 3, Tract 147	8	5	3	38	Yes
Block 3136, Block Group 3, Tract 147	0	0	0	NA	No
Block 3137, Block Group 3, Tract 147	0	0	0	NA	No
Block 3138, Block Group 3, Tract 147	9	9	0	0	No
Block 3139, Block Group 3, Tract 147	0	0	0	NA	No
Block 3190, Block Group 3, Tract 147	0	0	0	NA	No
Block 3191, Block Group 3, Tract 147	0	0	0	NA	No
Block 3192, Block Group 3, Tract 147	0	0	0	NA	No
Block 3193, Block Group 3, Tract 147	0	0	0	NA	No
Block 3194, Block Group 3, Tract 147	0	0	0	NA	No
Block 3195, Block Group 3, Tract 147	0	0	0	NA	No
Block 3196, Block Group 3, Tract 147	0	0	0	NA	No
Block 3197, Block Group 3, Tract 147	0	0	0	NA	No
Block 3198, Block Group 3, Tract 147	0	0	0	NA	No
Block 3199, Block Group 3, Tract 147	0	0	0	NA	No
Block 3200, Block Group 3, Tract 147	0	0	0	NA	No
Block 3201, Block Group 3, Tract 147	0	0	0	NA	No
Block 3202, Block Group 3, Tract 147	0	0	0	NA	No
Block 3203, Block Group 3, Tract 147	3	2	1	33	Yes
Block 3204, Block Group 3, Tract 147	0	0	0	NA	No
Block 3205, Block Group 3, Tract 147	0	0	0	NA	No
Block 3244, Block Group 3, Tract 147	0	0	0	NA	No
Block 3245, Block Group 3, Tract 147	0	0	0	NA	No
Block 3249, Block Group 3, Tract 147	0	0	0	NA	No
Block 3250, Block Group 3, Tract 147	0	0	0	NA	No
Block 3251, Block Group 3, Tract 147	0	0	0	NA	No
Block 3255, Block Group 3, Tract 147	0	0	0	NA	No
Block 3256, Block Group 3, Tract 147	0	0	0	NA	No
Block 3257, Block Group 3, Tract 147	0	0	0	NA	No
Block 3258, Block Group 3, Tract 147	0	0	0	NA	No
Block 3259, Block Group 3, Tract 147	0	0	0	NA	No
Block 3264, Block Group 3, Tract 147	0	0	0	NA	No
Block 3265, Block Group 3, Tract 147	98	83	15	15	Yes
Block 3266, Block Group 3, Tract 147	0	0	0	NA	No
Block 3267, Block Group 3, Tract 147	0	0	0	NA	No
Block 3268, Block Group 3, Tract 147	0	0	0	NA	No
Block 3269, Block Group 3, Tract 147	0	0	0	NA	No
Block 3270, Block Group 3, Tract 147	0	0	0	NA	No
Block 3272, Block Group 3, Tract 147	0	0	0	NA	No
Block 3273, Block Group 3, Tract 147	0	0	0	NA	No
Block 1036, Block Group 1, Tract 148	2	2	0	0	No

MINORITY POPULATION ANALYSIS

Geography	Total Population	Not Hispanic, White Alone	Minority	Percent Minority	Exceeds Thres hold?
Block 1042, Block Group 1, Tract 148	0	0	0	NA	No
Block 1043, Block Group 1, Tract 148	0	0	0	NA	No
Block 1061, Block Group 1, Tract 148	30	15	15	50	Yes
Block 1062, Block Group 1, Tract 148	0	0	0	NA	No
Block 1063, Block Group 1, Tract 148	25	25	0	0	No
Block 1064, Block Group 1, Tract 148	27	26	1	4	No
Block 1065, Block Group 1, Tract 148	0	0	0	NA	No
Block 1066, Block Group 1, Tract 148	10	8	2	20	Yes
Block 1067, Block Group 1, Tract 148	7	7	0	0	No
Block 1068, Block Group 1, Tract 148	28	21	7	25	Yes
Block 1069, Block Group 1, Tract 148	3	3	0	0	No
Block 1070, Block Group 1, Tract 148	106	98	8	8	No
Block 1071, Block Group 1, Tract 148	12	10	2	17	Yes
Block 1072, Block Group 1, Tract 148	19	16	3	16	Yes
Block 1073, Block Group 1, Tract 148	8	6	2	25	Yes
Block 1074, Block Group 1, Tract 148	3	2	1	33	Yes
Block 1151, Block Group 1, Tract 148	38	36	2	5	No
Block 1152, Block Group 1, Tract 148	0	0	0	NA	No
Block 1154, Block Group 1, Tract 148	0	0	0	NA	No
Block 1157, Block Group 1, Tract 148	0	0	0	NA	No

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